

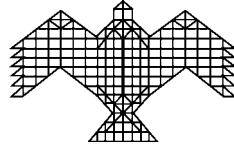


NATIONAL INSTITUTE OF ADVANCED STUDIES

Bangalore, India

**ANNUAL REPORT  
2016 – 2017**

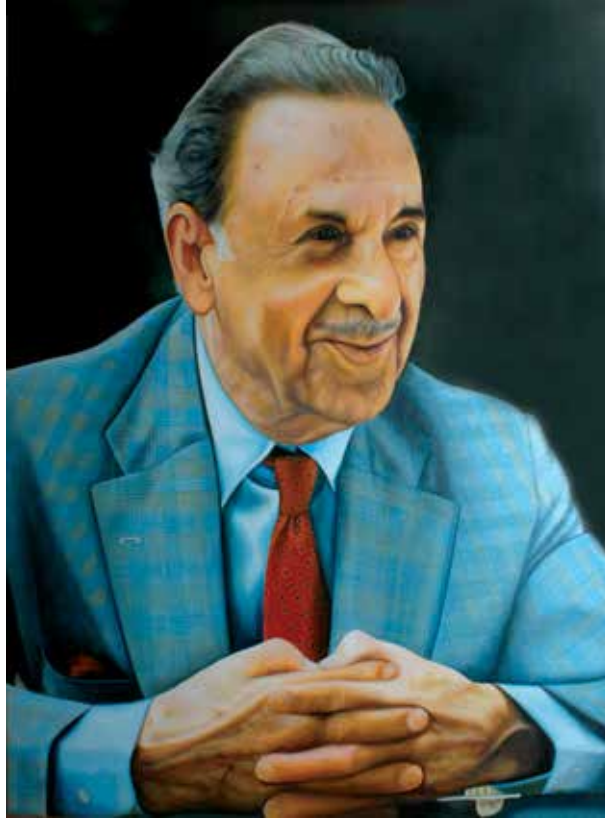




**NATIONAL INSTITUTE OF ADVANCED STUDIES**  
*Bengaluru, India*

**ANNUAL REPORT**  
**2016 - 2017**





**JRD Tata**  
Founding Chairman

### **The Vision and Mission of NIAS**

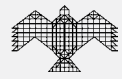
To integrate the findings of scholarship in the natural and social sciences with technology and the arts through multi-disciplinary research on the complex issues that face Indian and global society.

To assist in the creation of new leadership with broad horizons in all sectors of society by disseminating the conclusions of such research through appropriate publications and courses as well as dialogues with leaders and the public.

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## FROM THE DIRECTOR



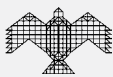
It is with delight that I write some of the thoughts for the annual report of National Institute of Advanced Studies (NIAS), 2016-2017. The distinctive nature of NIAS has only become more pronounced in the years that pass by with new challenges, new solutions and new outlooks. Along with the needs of the nation and mandate of NIAS, we strive to contribute and participate in the building of both academic responses as well as to the processes of forming policies and platforms. We have increasingly been successful to realize policies in strategies, technologies, education, energy, etc. I would like to invite you to visit [www.nias.res.in](http://www.nias.res.in) to get glimpses of our endeavours and successes.

For the institute, the research activities during the last academic year were spread across programmatic research accomplishments, academic courses, leadership level training courses, public lectures and outreach events. All Programmes have endeavoured to focus on interdisciplinary issues with an effort to have impact on socio-cultural, scientific and philosophical foundations. Our PhD Programme is one of the best expressions for this academic year as well with a few bright students graduating out with the submission of multidisciplinary and interdisciplinary theses, and new bright students joining the programme with original and relevant ideas to work on.

During the last academic year, we had a formal peer review for the Programmes. While we received commendable views and appreciation from the reviewers, the Programmes also were given some suggestions for the road map ahead. I wish to share with you some of the highlights of achievements of the faculty members, and the NIAS Programmes housed within the Schools, during the last academic year.

For the Conflict Resolution Programme, an edited volume by Narendar Pani and Anshuman Behera on "Reasoning Indian Politics: Philosopher Politicians to Politicians Seeking Philosophy", has been accepted by Routledge for publication. The book essentially addresses the transition in Indian politics from a situation dominated by philosopher politicians, such as Gandhi, Ambedkar and Lohia, to one dominated by political practice with limited importance to philosophy. The Defence Research and Development Organisation (DRDO) sponsored research work on China Space Capabilities was completed by the International Strategic and Security Studies Programme (ISSSP) with a three volume report. The study provides a comprehensive treatise on the Chinese Space Programme, starting from its origins and evolution graduating to an examination of the trends and future directions and concluding with assessments of the Programme and its implications for other countries especially, India.

The Short Term Research Fellowships and its awardees made a major impetus to the initiatives of the Consciousness Studies Programme in terms of both research and mentorship for young students. The fellowships made possible for young students to identify relatively difficult but original interdisciplinary research areas to pursue connected to cognition and consciousness. Their research problems extended from intelligent agent in spatial awareness in the context of Artificial Intelligence to the cognitive basis of communication in wild lion tailed macaques. On behalf of the



Heritage Science and Society Programme the multi-institutional initiative of the India Digital Heritage project of DST entered its final year with work underway on the Knowledge Bank to demonstrate the application of digital technologies in the cultural domain. An Archaeoastronomy Initiative was flagged off on May 12, 2017, led by Srikumar Menon with Sharada Srinivasan, and for acoustic studies on Hampi musical pillars with the Indian Institute of Technology Madras, Indira Gandhi Centre for Atomic Research (IGCAR) and Archaeological Survey of India (ASI) in July 2016.

The work carried out by Animal Behaviour and Cognition Programme is synergistic and transdisciplinary involving collaborators from other disciplines both within the institute and outside, and employing methodologies and theoretical frameworks from various fields of research. An important highlight for the Complex Systems programme was the publication of the group's paper in Nature Scientific Reports proposing a mathematical model for pest outbreak cycles. This study has incorporated climate parameters for the first time, explaining the observed periodicities in certain pest outbreak cycles at high elevations, cessation of expected cycles after 1981, absence of these cycles at certain other high altitude locations and variations from these periodicities elsewhere.

Based on the premise that India will need multiple protocols for identifying the gifted children, the Education Programme team is conducting research followed by pedagogic and mentoring mechanisms. The protocol argues for the judicious mix of quantitative and qualitative techniques that reflect the cultural realities of the Indian sub-continent. Steering the National Programme, the first version of the protocol of identification of the gifted children in the age group of 3 to 15 in urban mainstream schools is ready for large scale testing and up scaling. The NIAS-UNDP Policy Research Initiative on Inequality and Human Development successfully carried out a set of large national surveys covering two important aspects of the Indian social reality, one on the transition from an agrarian economy to a non-agrarian one, and the other on circular migration.

The RBI Programme on Inter-Disciplinary Approaches to Economic Issues has embarked on large-scale quantitative and qualitative surveys of rural Karnataka. Previous studies have shown that Karnataka can be divided into five regions viz. North-Eastern Karnataka, North-Western Karnataka, Coastal Karnataka, Malnad, and Southern Karnataka that are economically and socially distinct. The Water Programme is committed to facilitating access to water as a basic human right and ensuring availability of safe, adequate and equitable water for all. The programme engages in designing and implementing exclusive methodologies for evolving sustainable solutions in the water sector.

An important activity of the Institute is the offering of the multidisciplinary week-long and fortnight long courses for scientists, science administrators, leaders and executives from public and private sector enterprises and corporate establishments. This academic year too saw successful conduct of the training programmes with participants attending from various establishments and across the country. Another important international initiative was the BRICS Young Scientist Forum: Bangalore Conclave 2016 meeting that was held at NIAS during September 25, 2016 – October 1, 2016 with participants from the BRICS countries. The discussions at this meeting focused on computational intelligence, affordable healthcare and energy solutions, and reflected the continuing interests of the Institute. The initiatives have led to India establishing leadership role for Young Scientist Forum and Science Technology Innovation led Entrepreneurship (STEP) in BRICS (Brazil, Russia, India, China and South Africa) countries.

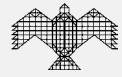
As we move towards the next academic year, NIAS focuses on those of the programmes which are central to not only institutional but also national growth and aspirations. I look forward to another academic year filled with academic and impact achievements that will create definite positive change to national and institutional transformations.

Our pride and challenge at NIAS, is to stay relevant with excellence to the Nation. We need your advice and support to realize vision, mission, mandate and aspirations of connecting to well being of India.

Look forward to your wishes, suggestions and thoughts, on the achievements of this year and for the coming year too.

**Baldev Raj**  
Director, NIAS





## SCHOOLS

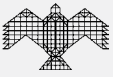
Each faculty member belongs to one of the four Schools, School of Conflict and Security Studies, School of Humanities, School of Natural Sciences and Engineering and School of Social Sciences, by virtue of his or her academic background.

The School of Conflict and Security Studies was created in May 2016 to bring together the Programmes in a domain and build further synergy within and across disciplines. The Conflict Resolution Programme and the International Strategic and Security Studies Programme form part of this School. The focus areas of the School include a) conflicts influencing certain outcomes in/for the country, examining empirical evidence leading to conflicts and recommendations towards their resolution and b) security and strategy concerns relevant to the country including technological, doctrinal and structural issues.

The School of Humanities is engaged in research in the broad areas of philosophy, psychology, literature, fine arts, and culture. Various programmes of the School currently focuses on philosophical foundations of sciences; cognitive sciences; scientific and philosophical studies of consciousness; Indian psychology and philosophy; history and philosophy of biology; archaeometallurgy and analysis of ancient metals; and translations of literary classics in Kannada into English.

The School of Natural Sciences and Engineering covers research in the field of engineering and mathematics, bio-security, ecology, energy, environment and conservation biology. Current research interest of the faculty members include various aspects of signal and image processing; cryptography; number theory; mathematical modelling of complex chaotic systems; studies on agro-ecology and plant and animal bio-security; conservation of wildlife; primate behaviour; energy and environment policy.

The School of Social Sciences consolidates its efforts to research problems facing India's economy, polity and society, and to disseminate the results to the bureaucracy, industry and civil society. In keeping with the overall thrust of the institute towards programmes, the School played a leading role in five programmes: education; water; urban and mobility studies; interdisciplinary approaches to economic issues; policy research initiative on inequality and human development.



## **SCHOOL OF CONFLICT AND SECURITY STUDIES**

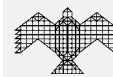
### **Members**

D Suba Chandran, *Professor*  
S Chandrashekar, *JRD Tata Chair Visiting Professor*  
V Bhujanga Rao, *ISRO Chair Professor*  
Rajaram Nagappa, *Visiting Professor and Dean*  
N Ramani, *Visiting Professor*  
Lalitha Sundaresan, *Visiting Professor*  
M Mayilvaganan, *Associate Professor*  
Anshuman Behera, *Assistant Professor*  
Chidambaran G Iyer, *Assistant Professor (till August 19, 2016)*  
Arun Vishwanathan, *Assistant Professor (till December 16, 2016)*  
Prakash Panneerselvam, *Post-doctoral Associate*

## **SCHOOL OF HUMANITIES**

### **Members**

Sangeetha Menon, *Professor*  
Sundar Sarukkai, *Professor*  
Sharada Srinivasan, *Professor and Dean*  
Sisir Roy, *TV Raman Pai Chair Visiting Professor*  
S Ranganathan, *Honorary Visiting Professor*  
S Settar, *Honorary Visiting Professor*  
BV Sreekantan, *Honorary Visiting Professor*  
Smriti Haricharan, *Assistant Professor*  
Nithin Nagaraj, *Assistant Professor*  
MB Rajani, *Assistant Professor*  
Srikumar M Menon, *Research Officer*  
Gagan Deep Kaur, *Post-doctoral Associate (till February 23, 2017)*



## **SCHOOL OF NATURAL SCIENCES AND ENGINEERING**

### **Members**

Dilip R Ahuja (*till September 14, 2016*)  
Janaki Balakrishnan, *Professor*  
Sindhu Radhakrishna, *Professor and Dean*  
Anindya Sinha, *Professor*  
R Srikanth, *Professor*  
PS Goel, *Raja Ramanna Chair Visiting Professor*  
DP Sen Gupta, *Visiting Professor (till January 31, 2017)*  
TS Gopi Rethinaraj, *Associate Professor*  
VV Binoy, *Assistant Professor*  
Shoibal Chakravarty, *Assistant Professor*  
Hippu Salk Kristle Nathan, *Assistant Professor*  
Samira Agnihotri, *Post-doctoral Associate*  
Sravanthi Choragudi, *Post-doctoral Associate*  
Sudharsana V Iyengar, *Post-doctoral Associate*

## **SCHOOL OF SOCIAL SCIENCES**

### **Members**

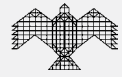
Anitha Kurup, *Professor and Dean*  
Narendar Pani, *Professor*  
Carol Upadhya, *Professor*  
Bishnu N Mohapatra, *Sir Ashutosh Mukherjee Chair Visiting Professor (June 1, 2016 to December 31, 2016)*  
Malavika Kapur, *Visiting Professor*  
SS Meenakshisundaram, *Visiting Professor*  
N Shantha Mohan, *Visiting Professor*  
Shivali Tukdeo, *Associate Professor*  
Shalini Dixit, *Assistant Professor*  
Abha S Rao, *Assistant Professor*  
Jeebanlata Salam, *Assistant Professor*  
Debosree Banerjee, *Post-doctoral Associate (till December 31, 2016)*  
Kshitija A Joshi, *Post-doctoral Associate*  
Leya Mathew, *Post-doctoral Associate*  
Musarrat Parween, *Post-doctoral Associate*  
Subir Rana, *Post-doctoral Associate (till September 28, 2016)*  
Bharat Chandra Rout, *Post-doctoral Associate (till September 30, 2016)*

# SCHOOL OF CONFLICT AND SECURITY STUDIES

## Programmes

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- Conflict Resolution
- International Strategic and Security Studies



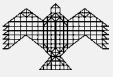
# HIGHLIGHTS

## **Conflict Resolution Programme**

During the year the programme has made significant strides in research and publication. An edited volume by Narendar Pani and Anshuman Behera on Reasoning Indian Politics: Philosopher Politicians to Politicians Seeking Philosophy, has been accepted by Routledge for publication. The book essentially addresses the transition in Indian politics from a situation dominated by philosopher politicians, such as Gandhi, Ambedkar and Lohia, to one dominated by political practice with limited importance to philosophy.

## **International Strategic and Security Studies Programme**

The activities of the Programme were reviewed by a Committee of experts in August 2016. Activities of the Programme under the headings of Nuclear, Missiles, Space and Geopolitics were presented. The review experts commented favourably on the content and quality of the Programme output and made a few suggestions/recommendations. One fall out of the review was opportunity for marketing the Quo Vadis missile trajectory software. Programme for generating database of South/Southeast Asian countries is being pursued.



# CONFLICT RESOLUTION PROGRAMME

## Introduction

The Conflict Resolution Programme was set up in 2009 with the aim of developing an inclusive knowledge base that would help effectively address major conflicts that affect India or have the potential to do so. The programme tries to achieve its objectives by being sensitive to the interface between the understanding of individual conflicts and the larger conceptualization of conflict. It studies individual conflicts in depth with the twin purpose of identifying elements that can be used to resolve them, as well as to further develop the overall understanding of conflicts and their resolution. The programme also disseminates knowledge about conflicts in a way that influences both popular perceptions and policies aimed at conflict resolution. The breadth of the knowledge base is built through developing backgrounders on individual conflicts. The depth is provided by research both into individual conflicts and the conceptualization of social conflict and its resolution. The programme thus seeks to intervene in the knowledge about conflict in three major ways: research, teaching, and interventions in popular discourse.

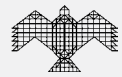
## Research Activities

An important study that the programme is carrying out is to explore an aspect of conflict that has not been adequately understood in the Indian context: Volunteerism. Volunteers can work both to reduce the pains of conflict as well as to enhance conflict. It is thus necessary to understand what prompts individuals to volunteer. It is proposed to first study this phenomenon in the case of volunteerism aimed at reducing the pains of natural disasters in Uttarakhand. This study is a part of a larger Indo-German effort financed by the Department of Science and Technology of the Government of India. As a part of this project includes training personnel of the relevant government departments its impact on the effectiveness of government policies can be very substantial. Its academic impact is also potentially very significant as this is an area that has not received much attention in India.

The important area of study is to understand the interaction between development and conflict in the Maoist affected areas in India. In this regard Anshuman Behera's research article titled *Development as a Source of Conflict: The Sahukars, Displaced Persons and the Maoists in Koraput* has been accepted for publication in the *Common Wealth Journal of Foreign Affairs*. Behera also read a paper titled "Sustaining through Development: The Maoist Conflict and Development Measures in India" at an international conference on *Development in Question*, in Cornell University.

Regional identities have periodically asserted themselves in Indian politics, both before and after Independence. The intensity of this regionalism has, however, tended to vary quite substantially from state to state and over time, ranging from a somewhat benign influence on state politics to demands for secession. These differences are typically explained in terms of specific local political conditions. While the local is undoubtedly important, Narendar Pani argued in a paper that a larger theoretical explanation is also possible: Once we recognise that regionalism operates in multiple spaces, it becomes evident that the way these spaces are experienced has its influence on the practice of local politics. The paper went on to match its theoretical expectations with the politics of regionalism in the neighbouring south Indian states of Karnataka and Tamil Nadu.

Among the less debated, though significant, questions that influence the development of economic policy in as regionally diverse a country as India is how important are the geographical features of each region in determining the trajectory of a regional economy. In a milieu where a great deal of emphasis, in policy documents at least, is placed on the development of appropriate institutions we do not find similar sensitivity to regional variations. This dominance of institutions over geographical considerations in economic policy has typically led to the state believing it has the ability to completely overcome the constraints posed by nature. In a paper Narendar Pani explored the interaction between state and nature with the help of the experience of the region of southern Karnataka or, more precisely, the district of Mandya which was once a part of the erstwhile princely Mysore. It did so by first very briefly revisiting Cronon's distinction between first and second nature to generate a sharper focus on the interaction between first nature and the state. It then outlined specific interactions of the state in old Mysore with first nature, going back to the second half of the eighteenth century. Based on that experience it identified the specific limits posed by first nature on the effectiveness of even a proactive state.



## Outreach Activities

A major study that the Conflict Resolution Programme is conducting is on Administrative and Political Aspects of Civil Society: Vulnerabilities and Volunteerism. This study is part of a larger Indo-German collaboration project on understanding various aspects of vulnerability and volunteerism in India and Germany. As a part of this project the programme was involved with a day long discussion on the issues of vulnerability and volunteerism with Karnataka State Fire and Emergency Services (KSFES), delegations from Disaster Research Unit (DRU) and University of FINKA (both from Germany).

The programme organised an in-house discussion on the Cauvery Conflict. The discussion, Fire over water: The issues in Cauvery Conflict, engaged Narendar Pani, S Setter and Sundar Sarukkai to discuss over various issues relating the river Cauvery ranging from history, culture, economics, politics and philosophy.

Narendar Pani's outreach activities include his column 'Cityzen' in the business newspaper, Business Line. Among these contributions were 'What the Garment Workers are Saying', Business Line, May 24, 2016, and 'Fear and Identity Politics in Urban Spaces', Business Line, September 22, 2016.



## Academic Courses

Anshuman Behera has offered a course on Philosophical Foundations of Understanding Conflict for the new batch of PhD students. The course includes major theoretical and philosophical positions, and debates on understanding conflict. The first portion of the course brings together theoretical positions, both Western and Indian, to better conceptualize conflict. The second part of the course analyses conflicts in India as case studies. Approaches to Understanding Conflict Resolution is another course the programme offered. Major approaches leading to resolving conflicts are taught in this course. Case studies involving the best practices of conflict resolution across the countries are an important component of this course.

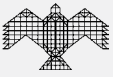


Apart from these courses Narendar Pani and Anshuman Behera also teach for the Foundation and Research Methodology course in NIAS.

## Doctoral Programme

The programme has three doctoral students. Anamika Ajay has completed her field survey. At present she is writing her chapters for the PhD dissertation. Shyam Hari has successfully presented his research proposal in NIAS. He is conducting a pilot survey for his research in Kerala. Surya Sankar Sen has joined the programme during the last year. Presently, he is doing his course work at NIAS.





## Members of the Conflict Resolution Programme

Narendar Pani, *Head*

Anshuman Behera

Doctoral Students: Anamika Ajay, Shyam Hari, Surya Sankar Sen



### **Anshuman Behera**

Assistant Professor  
School of Conflict and  
Security Studies

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Tel: 080-2218 5051  
Fax: 080-2218 5028  
Email:  
beheraisanshuman@  
gmail.com

**Joined NIAS on:** January 31, 2014

### **Major Research Contribution for the Academic Year**

An edited volume along with Narendar Pani on Reasoning Indian Politics: Philosopher Politicians to Politicians Seeking Philosophy, has been accepted by Routledge for publication. The book essentially addresses the transition in Indian politics from a situation dominated by philosopher politicians, such as Gandhi, Ambedkar and Lohia, to one dominated by political practice with limited importance to philosophy. This transition has its implications for the nature of Indian politics as well as the role of conflict and violence in it. The book has brought together some of the major Indian political theorists, including Lord Bhikhu Parekh writing on the poverty of Indian political theory and Prof Yogendra Yadav exploring Lohia's political philosophy.

### **Lectures and Paper Presentations**

Locating Social Sciences in Indian Universities: Challenges and Way-Out, Department of Political Science, Christ University, Bengaluru, March 11, 2017.

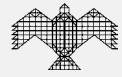
Presented a paper on Political Inequality and Political Violence: The Maoists and the Indian State, at an international conference on Comparative Perspectives on Growing Socio-Economic Inequalities in Europe and India, jointly organised by ICSSR-NOW on February 8 and 9, 2017.

Participated in a symposium on Power Structures, Conflict Resolution and Social Justice organised by EU-India Social Science and Humanities Platform, Gurgaon, October 13 and 14, 2016.

Presented a paper on Sustaining through Development: The Maoist Conflict and Development Measures in India at an international conference on Development in Question, organised by Department of Development Sociology, Cornell University, October 6 to 8, 2016.

Presented a paper on Development Challenges to the Maoist Conflict in India in a conference on Conflict and Economic Development, organised by Jindal University, September 26 and 27, 2016.



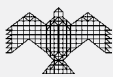


Presented a paper titled Democracy, Dialogue and Conflict: The Maoist Conflict and Indian State, in an international conference on Democracy and Governance in India and Thailand, organised by Indian Council for Social Science Research and National Research Council of Thailand, at New Delhi, September 5 and 6, 2016.

Presented a paper on Emerging Trends in Terrorism in a conference on Emerging Trends in Non-Traditional Security: Threats and Responses organised by Department of International Studies, Christ University, September 2 and 3, 2016.

Presented a paper on Looking at their Homes from Distance: The Displaced persons of kandhamal riot and their interactions with the Swamis, the Fathers and the Maoists in an international conference on To Take Place: Culture, Religion and Home-Making in and Beyond South Asia, organised by Elon University and Madras University at Madras University, Chennai, July 27 and 28, 2016.

Presented a paper on Naxal Conflict: A Critique of State's Response in an international conference on Armed Conflict, Peace Audit and Early Warning organised by International Strategic and Security Study Programme, NIAS, July 9 to 11, 2016.



# INTERNATIONAL STRATEGIC AND SECURITY STUDIES PROGRAMME

## Introduction

The primary objectives of International Strategic and Security Studies Programme (ISSSP) are to study the political, military, technological, economic and security developments in India's neighbourhood and the world in general; prospects and the policy challenges of promoting and ensuring India's national security; study the impact of technology on security; and implement projects, organise conferences on pragmatic themes, as well as provide policy inputs on these issues. The Programme embarked on research studies that examined the contemporary challenges, which have bearing on India's national interest and security from a strategic, political, economic and policy outlook, combined with science and technology perspective. Studies relating to Space, War, and Security, Understanding recent changes in Myanmar from India's strategic interest perspective, Identification of Uranium Mining and Milling using Commercial Observation Satellites, Assessing the capabilities of North Korean Satellite Launch, are some of the major studies and focus areas of the Programme during the given period.

## Research Activities

The DRDO sponsored research work on China Space Capabilities was completed and three volume report was submitted. The study provides a comprehensive study of the Chinese space programme, starting from its origins and evolution graduating to an examination of the trends and future directions and concluding with assessments of the Programme and its implications for other actors. The other DRDO sponsored study relates Revisiting Aeronautical Research in India – here also the literature survey, interviews and related fieldwork has been completed and the final report is under preparation. The research examines the aeronautical research in some leading countries, the Indian research approach and concludes that lack of indigenous aircraft development capability has hampered the research initiatives.

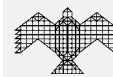
In addition, the Programme completed a special study for the Security Agencies and took up additional tasks.

A research outcome of special significance was the marketing opportunity for the in house developed missile trajectory analysis software Quo Vadis. The provision of the user manual, missile database and training of personnel from the user agency has been completed. An additional requirement for incorporating space domain awareness is being attended to.

A study entitled Borderland and National Challenges: Towards Better Understanding of the Social Behaviour and Socio-Cultural, Religious and Economic Profile of Border People in Tawang Tract has just been initiated for DRDO and preliminary work towards the same was carried out during the reporting period.

The outline of Programme's major studies and future plans were presented and discussed with select members of Institute of Defence Studies and Analysis, Centre for Air Power Studies, MEA and NSCS. An important outcome of this and subsequent follow up action was the setting up of committee to examine the space and external policy interplay.

Like in past years, the Programme's work and the dissemination of the findings have resulted in recognition – both nationally and internationally. S Chandrashekar and Lalitha Sundaresan were co-opted as members of a NITI Ayog constituted Expert Committee (Chair: Baldev Raj) and provided inputs and suggestions. In this connection, Lalitha Sundaresan was invited to deliver a talk at the Indo-French Workshop on Challenges in the Processing and Recycling of Rare-earth (CIPRE), organised at Pune from July 19 to 21, 2016, under the aegis of Indo French Centre for the Promotion of Advanced Research. M Mayilvaganan was a member of the ICWA delegation to the India-Russia Meeting of the Heads of Think Tanks at Moscow in September 2016 and presented a paper on India and the Future of Arctic. Mayilvaganan was invited for the KAS-Chatham House International Workshop on Resources, Sovereignty and Geopolitics held in May 2016 in Hong Kong to chair a session and be discussant on two conference topics. Mayilvaganan was an invited speaker for seven events in India. Rajaram Nagappa and D Suba Chandran were invited to participate in the Annual Strategic Studies Summit at Ankara from March 31, 2016 to April 3, 2017. The theme of the Summit was Near East South Asia (NESA) in 2020.



Rajaram Nagappa was invited by the French Foundation for Strategic Research to present a paper in the Regional Seminar titled The State of Ballistic Proliferation in Asia – Relevance and Challenges of the Hague Code of Conduct (HCoC). The seminar was held in Almaty, Kazakhstan in March 2017.

## Outreach

The events organised by the members of the Programme:

Meeting with a Senior Iranian Delegation, March 24, 2017.

Brainstorming Event on Recent Happenings in Our Neighbourhood, February 6, 2017.

Challenges to International Convention of Space object Registration, talk by Bhupendra Jasani, King's College, London, November 25, 2016.

Talk on Space Assets and Threats Posed to Them by Bhupendra Jasani, King's College, London, November 24, 2016.

NIAS–CISAC Dialogue on the topic of Strategic Security Threats of the 21<sup>st</sup> Century, October 5 to 7, 2016.

Book Discussion Event, Not War Not Peace, Coauthor of the book Toby Dalton was present, September 28, 2016.

Discussion meeting with Klaus and Klara Lange, Institute for Transformational Studies, Berlin, August 4, 2016.

India and the Nuclear Suppliers Group, Invited talk by Dr N Ramamoorthy, Adjunct Professor, NIAS, July 5, 2016.

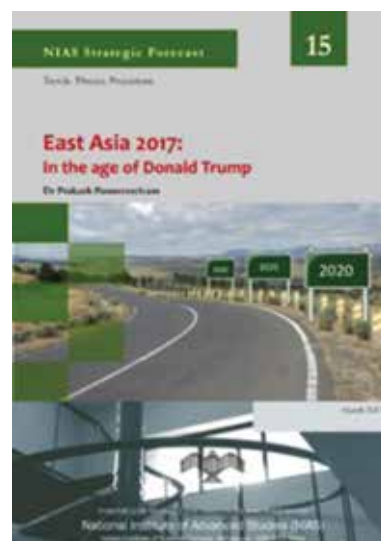
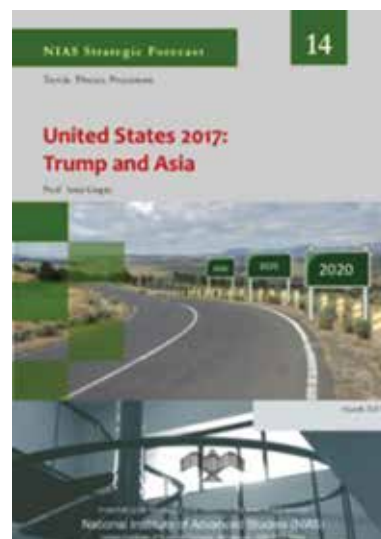
Talk on China-Pakistan Economic Corridor: Implications for India by Dr Christian Wagner, Senior Fellow, Asia Division, German Institute for International and Security Affairs, June 13, 2016.

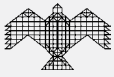
Decennial Review – Armed Conflicts, Peace Audit and Early Warning, June 9 and 10, 2016.

Discussion meeting with Dr N Ramamoorthy, ex BARC/IAEA on the topic of Experiences at IAEA, June 6, 2016.

Talk on Astropolitics and Security by Eligar Sadeh, Professor and Educator, Editor Astropolitics, May 9, 2016.

Discussion Meeting with Ambassador Shyam Saran on the topic of Science Diplomacy, April 7, 2016.





## Members of the International Strategic and Security Studies Programme



Rajaram Nagappa, *Head*  
D Suba Chandran  
S Chandrashekar  
N Ramani  
Lalitha Sundaresan  
M Mayilvaganan  
Arun Vishwanathan (*till December 16, 2016*)  
Baldev Raj  
Post-doctoral Associate: Prakash Panneerselvam  
Senior Research Fellow: Kaveri Ashok  
Junior Research Fellows: Mrunalini Deshpande, Riffath Khaji, A Manideep  
Doctoral Students: Murali Murthi, BR Guruprasad, Sanket S Kulkarni, Sherin Ajin

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**Joined NIAS on:** February 1, 2007

### Major Research Contribution for the Academic Year

India has a long association with aeronautics and aviation with the first flight taking place in Allahabad as early as December 1910. Hindustan Aeronautics Ltd (HAL) was established in 1940. In the initial years HAL licence produced aircraft, but soon became active with its own designs. However, in the 1970s the focus shifted to licenced production and till today India is heavily dependent upon foreign suppliers to meet its fleet requirements. The development of the LCA Tejas was a departure, but in spite of a pioneering technological breakthrough has not made the required mark. The state of Indian aeronautical industry and the state of research feeding into such a requirement was interrogated during the reporting period. The research findings reiterate the lack of an indigenous aircraft development programme as the basic cause for the disjoint between research output and its lack of application. The organisation of the aeronautics sector does not promote cross discipline engagement.

### Lectures

Science and Technology and Security, NIAS-DST Programme on Science, Technology and Innovation, March 23, 2017.

Invited Speaker at the HCoC meeting on Ballistic Missile Proliferation in Asia, Almaty, March 2, 2017.

Impact of New Technologies on India's Strategic Defense Thought – Panelist, Rand-IDS Conference, Bengaluru, February 21, 2017.

Plenary Talk titled S&T Innovation of China: Impact for Global Peace and Conflict, C3S/NMF/Madras U, Chennai, November 18, 2016.

Panelist in the Round Table on Malicious Threats to Natural Resources and Environment and Technologies to deal with them, TERI, Delhi, July 22, 2016.

### Awards, Memberships

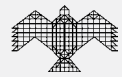
Chairman, Research Council, Advanced Systems Lab, DRDO, Hyderabad.  
Member, Research Council, Aeronautical Development Establishment, DRDO, Bengaluru.

Member, Cluster Advisory Council, Aeronautics Cluster.

Chairman, Design Review Committee, ASL, Hyderabad.

Chaired a special meeting on Roadmap for Hypersonic Technology, DRDL, Hyderabad, June 10, 2016.

Member, Review Committee on Vehicle for Defence Applications.



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**Joined NIAS on:** November 18, 2015

### **Major Research Contribution for the Academic Year**

Commissioned and coordinated a series of reports forecasting strategic developments relating to US, China, East Asia, Pakistan, Nepal, Bangladesh, Myanmar and Sri Lanka. The reports have been already published and can be accessed at: <http://issp.in/category/strategic-forecast/>. Implications on Water Security, Food Security and Internal Migration – Ongoing project in collaboration with the BIPSS, Dhaka with an objective to map water security, food security and migration relating to climate changes. The project is a pilot one.

### **Lectures**

Pakistan 2017: Provinces, Politics, NSAs and Decision Making, Central University of Jammu, February 20, 2017.

International Politics: Five Decades, NIAS-DST Training Programme on Science Policy and General Management, February 13, 2017.

Governance in South Asia: Quo Vadis?, international workshop on Governance in South Asia: Issues and Concerns, organised by Centre for South Asian Studies & UMISARC, Pondicherry University, Pondicherry, February 7 and 8, 2017.

Role of Kabul's Immediate and Extended Neighbourhood: Is Afghanistan Really the "Heart of Asia" For All?, in ICWA international conference on Heart of Asia Process, New Delhi, November 10, 2016.

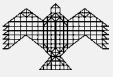
Understanding Pakistan's Decision Making, Naval War Colleges, Goa, October 10, 2016.

BRICS Young Scientists Conclave, in BRICS Senior Official Meeting, organised by the Department of Science and Technology, Jaipur, October 7, 2016.

Dealing with the Refugees and IDPs in South Asia: Exploring a Regional Approach, COSATT-RCSS International Conference, August 25, 2016.

Early Warning and Early Action: Kashmir Needs Healing Touch 2.0, St Joseph's College, Bengaluru, August 5, 2016.

Armed Conflict in Pakistan – Last Ten Years: From Ethnic to Sectarian?, NIAS-KAS Regional Conference on Armed Conflicts and Peace Processes in South Asia: Decennial Review, June 9 and 10, 2016.



India's Coal Conundrum, (with TS Gopi Rethinaraj), on Global Energy Security and Climate Challenge Challenges: The Future of Coal and Chances for Clean Coal, International Conference organised by the KAS, Seoul, May 5 and 6, 2016.

Present and (with no) Future: The Refugees in South Asia, Regional Conference organised by KAS-COSATT, Kathmandu, May 2, 2016.

### **Training Courses**

Co-coordinator for the 31<sup>st</sup> NIAS Annual Programme for Senior Executives on Be a Transformational Leader, January 16 to 21, 2017.

Coordinator for the NIAS-DST Course: Science, Technology and Society: Multi Disciplinary Perspectives, December 5 to 16, 2016.

### **Academic Courses**

Effective Research Writing 2016: The course aimed to provide basic skills in effective writing – covering different types of publications – short commentaries, journal essays, chapters in books, books etc. The course tried to help the scholars in how to reference, what and how much.

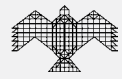
The Course also aimed to help the scholars with preparing research proposals for funding support, along with how to prepare a good budget. The Course also assisted the scholars in preparing power point presentation.

Summer Course: Conflict, Peace and Regional Security in South Asia 2017: The course provides an introduction to bilateral and internal conflicts in South Asia for those students who would like to pursue a summer course or internship during their post-graduate studies. The primary objective of the course is to enhance the understanding of bilateral and domestic conflicts from a regional perspective in South Asia.

The course also aims to create a pool of scholars, thereby build capacity that would help the region in understanding issues of peace, conflict and regional security in South Asia.

### **Award**

Awarded Distinguished Fellow by the Institute of National Security Studies, Ministry of Defence, Sri Lanka.



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**Joined NIAS on:** July 2, 2004

### **Major Research Contribution for the Academic Year**

The work on Uranium has been incorporated into the routine tasks by appropriate agencies operating within the government. The work on Space security is being reviewed by a national group for the formulation of a suitable strategy for the country. The work on the Yaogan series of satellites will be integrated into a larger study on China's Anti-Access Area Denial Strategy.

### **Memberships**

Member of the Board of Trustees of the RBANMS Charities that runs a number of educational institutions catering to the needs of the poorer and disadvantaged sections of society in Bengaluru.

Member of the Governing Council of the MVJ College of Engineering, Bengaluru.



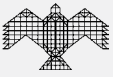
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**Joined NIAS on:** November 1, 2007

### **Major Research Contribution for the Academic Year**

Quo Vadis delivery and training to our first client is completed. Two specific enhancements requested for by them have been addressed. One has been incorporated. For the other, an explanation provided as to how to get at it using the present version itself. We have started our work on Space Situational Awareness. Specifically, we are interested in assessing the capability of space assets to track and identify ground/sea targets, Surveillance and Reconnaissance.



Space based observations are made by a set of satellites, ELINT and Imaging. Orbital (Positional) information is obtained from NORAD, TLEs at a certain Epochs. Positional information about all these space assets in time, using the platform orientation and sensor capabilities, their coverage pattern on earth is computed. Observability based on Sun position and Target position are computed.

In one of our earlier studies on ASBM, certain space assets were identified as needed for Surveillance and Reconnaissance. To compute the orbital track of these platforms, the needed orbital information was taken from NORAD. This was done manually and the process was very tedious and hence limitations. Presently, we obtain the information as it exists in the NORAD Database as and when required and thus the most relevant information is used.

The tool development for identifying, locating and tracking targets using a constellation of different kinds of ISR Satellites is in progress. Presently, one Satellite can be tracked using the up-to-date orbital elements. To provide extended target identification, coverage and accuracy, a hierarchical, multi-platform (with vastly differing characteristics) capability is being added.



**Lalitha Sundaresan**  
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### **Major Research Contribution for the Academic Year**

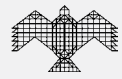
The study on identifying a uranium mill and discriminating it from a copper tailings mill using Google Earth imagery continued during the year. This culminated in a research publication in an international journal.

### **Lectures**

Remote Sensing Applications in Strategic Studies – An Example, for the RAND-IDSIA Conference, Bengaluru, February 21, 2017.

Creating a Rare Earth Industry in India, at the Conference on *Challenges in the Processing and Recycling of Rare-Earth (CIPRE)*, Pune, organised jointly by Tata Consultancy Services (TCS) and Institut de ChimieSéparative de Marcoule (ICSM), July 19, 2016.





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**Joined NIAS on:** November 2, 2010

### **Major Research Contribution for the Academic Year**

The research study titled *Building Bridges: Assessing Opportunities, Challenges, and the Role of India in Myanmar*, sponsored by the DRDO was concluded and the project report with policy options and recommendations were submitted to the sponsoring agency. Published analysis on Chinese Maritime Silk Route, Myanmar and India's Neighbourhood as articles/commentaries and invited to deliver prestige's IIWC Sri Pendulkar Memorial Endowment Lecture.

### **Lectures**

Myanmar 2017: One Step Forward, Two Steps Backward, NIAS ISSSP Strategic Forecast Discussion Meeting, organized by ISSSP, March 31, 2017.

Sri Pendulkar Endowment Memorial Lecture on India-Sri Lanka Relations: Divergences and Convergence, Indian Institute of World Culture (IIWC), Bengaluru, March 11, 2017.

Maritime Infrastructure Development and Land-Sea Connectivity: Imperatives for Hinterland Connectivity and India's Act East Policy, at the National Seminar on India's Maritime Infrastructure: Challenges and Prospects, UGC Centre for Maritime Studies, Pondicherry University, Puducherry, February 24, 2017.

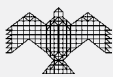
South China Sea Dispute – Response of ASEAN, at the international conference titled *Changing Security Dynamic in the Indo-Pacific* at Hyderabad, organized by the Indian Council for Research on International Economic Relations (ICRIER), February 15, 2017.

India and the Future of Arctic, at the Meetings of Heads of Think Tanks of India and Russia at MGIMO, Moscow, September 23, 2016.

Illegal Migration as a Security Threat: Emerging Trends and Responses at the Conference on Emerging Trends in Non-Traditional Security: Threats and Responses, organised by Department of International Studies and History, Christ University, Bengaluru, September 2, 2016.

India's Relations with its Near-Abroad, at the Asia Centre Seminar, Bengaluru, August 20, 2016.

Threat of Radicalism in the Maldives, at the conference *Armed Conflicts, Peace Audit and Early Warning 2016, A Decennial Review*, organised by NIAS in collaboration with Konrad Adenauer Stiftung, June 10, 2016.



Participated in KAS-Chatham House International Workshop on Resources, Sovereignty and Geopolitics, Hong Kong, May 26 and 27, 2016. Chaired a session on Natural Resources – Regional Integration and Geopolitical Shifts, as well as a discussant for another two panels.

### **Academic Courses**

Offered three credit school level course titled Security, Conflict and Strategy: Concepts and Issues, August–December 2016 to the first year PhD students of School of Conflict and Security.

Offered a two credit course titled Emerging Threats and New Security Challenges in Asia for the students of School of Conflict and Security, January–May 2017.

### **Memberships**

Member of Australia-India Interdisciplinary Research Network (AIIRN).

Member of Board of External Examiners at the Department of International Studies, Christ University, Bengaluru.

Member of Board of External Examiner, Department of Political Science Post Graduate Research Center, St Joseph's College, Bengaluru.



**Baldev Raj**  
Director, NIAS

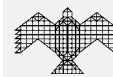
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**Joined NIAS on:** September 1, 2014

### **Major Research Contribution for the Academic Year**

Contributed to important topics of self cleaning solar PV cells, infrared imaging for low cost affordable medical diagnostics and biodegradable materials for orthopedic implant. His active and creative engagement in science policy, science diplomacy, strategic materials policy, etc. has realized significant tangible results. He chaired committee on Steel Research and Technology Mission of India which figures prominently in National Policy of Steel 2017. He has played a lead role in S&T collaborations among BRICS countries to have high impact. He has contributed to create Forum for Young Scientists, Engineers and Entrepreneurs whose products are Science, Technology and innovation led.

Amidst his numerous publications during the period, a special mention needs to be mentioned about three volumes encyclopedic unique work on Nanotechnology for Energy Sustainability edited by Baldev Raj, Van der Marcel, Yashwanth Mahajan published by John Wiley & Sons, Inc., covering complete spectrum of energy resources and full life management cycle which is of significant value to India and the world.



## Lectures

Presentation to H.E. Sir Dominic Asquith KCMG, British High Commissioner about NIAS Accomplishments, February 15, 2017.

Global Energy Transition, Discussion Meeting on Energy Transitions: The Global Challenges and Opportunities, organised by TERI and INAE at Jacaranda Hall, India Habitat Centre, New Delhi, February 13, 2017.

Energy Foresights, Security and Sustainability, NIAS-DST Training Programme on Science Policy and General Management (Core Theme: Energy Security and Sustainable Development), NIAS, February 6, 2017.

Advanced Techniques for Characterisation of Ancient Metallic Objects, Workshop on Indian Heritage Metallurgy – Recent Developments and Future Directions, SASTRA University, Tanjore (organised by Study Group on Engineering Heritage – Metallurgy, INAE, New Delhi, January 27, 2017.

Inaugural Address at the One Day Workshop on Rooftop Solar under MNRE Project “Facilitating Target of 100 GW Solar by 2022” , NIAS, January 11, 2017.

Education, Science, Innovation and Technology: Policies for Wellbeing of India, Keynote Address at Inaugural Session in the International Congress on Education and Public Welfare (ICEPW-2017), Sathyabama University, Chennai, January 9, 2017.

Talk at the Inaugural Session of the first ITEC Capacity Building Programme Course on Science Diplomacy at G. Parthasarathi Conference Hall, Research and Information System for Developing Countries (RIS), New Delhi, January 9, 2017.

Talk at the Inaugural Function of the NIAS-Maiya Prodigy Fellowship Programme in collaboration with Iyengar Foundation and National College, Bengaluru held at NIAS, January 6, 2017.

Learning, Policies and Innovations in Industry-Research Academia Synergy to Generate Wealth and Equity in Indian Context; Plenary Session on Industry Academia Interaction, 104<sup>th</sup> Indian Science Congress, S.V. University, Tirupati, January 4, 2017.

Energy Foresights, Security and Sustainability, Pensioners Day Celebration, Atomic Energy Retirees Welfare Association (AERWA), Mumbai, December 17, 2016.

Energy Foresights, Security and Sustainability, the fourteenth Annual NIAS DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society, December 7, 2016.

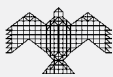
Corrosion Science, Technology and Management: Experiences and Challenges, Professor R Balasubramaniam Memorial Lecture, Defence Metallurgical Research Laboratory (DMRL), Hyderabad, December 6, 2016.

Energy Foresights, Security and Sustainability, Diamond Jubilee Lecture, BNS College Narayanguda, Hyderabad, December 6, 2016.

Indian Nuclear Science and Technology: Achievements and Aspirations, Asia Centre Annual Lecture-2016 at Shantala Hall, Hotel Ashraya International, Bengaluru, November 26, 2016.

Address at the one day Consultation Future of the River Basin: Looking beyond Cauvery, NIAS, November 17, 2016.

Energy Foresights, Security and Sustainability, Inaugural Address at the NIAS-DST Training Programme on Policy for Science and Science for Policies, November 7, 2016.



Talk at Workshop on Unmanned Aerial Systems for Governance, Karnataka Jnana Aayoga (Karnataka Knowledge Commission), Bengaluru, October 27, 2016.

Proposed Network for Future of Manufacturing, Roundtable Meeting on the Future of Manufacturing, NIAS, October 22, 2016.

National Strategies to Ensure that Standards Build Trust, Presidential address at the Bureau of Indian Standards, Southern Regional Office, Chennai, October 16, 2016.

Talk at Empereal-KDDS Renewable Energy PVT Ltd, Coimbatore, October 13, 2016.

Changing Paradigms in Security: Defining Collaborations, Keynote Address at the Workshop on India-US Cooperation on Global Security: Dialogue on Strategic Security Threats of the 21<sup>st</sup> Century, NIAS-CISAC Meeting, October 5, 2016.

Energy Foresights, Security and Sustainability, BRICS Young Scientist Forum: Bangalore Conclave-2016, Organisers: NIAS & DST, September 27, 2016.

4<sup>th</sup> Industrial Revolution: Indian-Russian Collaborations, Russian-Indian Think-Tank Forum, Moscow State Institute of International Relations (MGIMO), Moscow, organised by Indian Council of World Affairs, New Delhi, September 22 and 23, 2016.

Transitioning to Lower Carbon Economy: Technology and Engineering Considerations in Building and Transportation Sectors, CATES Council and Energy Committee Meeting, Royal Academy of Engineering, London, UK, September 15, 2016.

India, Ambitions Depends on Competent and Ethical Young Minds, Silver Oaks International School, Bengaluru, September 10, 2016.

Talk at the Inaugural Session of EEETech 2016 – Technical Conference and Exposition on Energy Efficiency, Environment and Technology, India Habitat Centre, New Delhi, Organised by Confederation of Indian Industry, Chandigarh, September 1, 2016.

Energy Foresight, Security and Sustainability in the Context of India, Indian School of Mines, Dhanbad, August 18, 2016.

Materials for Strategic Sectors: A Perspective, Indian School of Mines, Dhanbad, August 17, 2016.

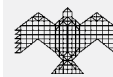
Materials for Strategic Sectors: A Perspective, Workshop on Strategies for Strategic Materials, MECON Limited, Ranchi, August 12, 2016.

Chief Guest and delivered Inaugural Address at the First year Under Graduate Programs at Reva University, Bengaluru, August 10, 2016.

Realizing Design Success in Challenging Technologies, Workshop on CII-IISc Designing New Products through Research Innovation (DCODE), Centre for Product Design and Manufacturing (CPDM), Indian Institute of Science, Bengaluru, July 27, 2016.

Science based Technology in Context of Aspiring India, talk at Graduation Function, Raja Ramanna Centre for Advanced Technology, Indore, July 23, 2016.

Challenges and Opportunities in the Processing and Recycling of Rare-Earths in India, Inaugural Address at the Indo-French Workshop on Challenges in the Processing and Recycling of Rare Earths (CIPRE), TRDDC, Hadapsar, Pune, July 19, 2016.



Frontiers of Research: Imaging in Non Destructive Evaluation, Inaugural Keynote Address: A Week Summer School on NDTE-Perspectives on Imaging, M.S. Ramaiah Institute of Technology, Bengaluru, July 11, 2016.

Non Destructive Evaluation for Understanding Defects, Microstructures and Stresses for Asset Management, Keynote Address at the First Structural Integrity Conference and Exhibition (SICE-2016) organised by Indian Structural Integrity Society (InSIS) along with Indian Institute of Science, Bengaluru and Indian Institute of Technology Madras, Chennai, July 5, 2016.

Visible and Sublime Outcomes, Transforming Bangalore, Workshop on Bangalore's Great Transformation: Land, Ecologies, Economies, Communities, NIAS, June 24, 2016.

Interdisciplinary Measurements in a Spectrum of Applications Related to Frontier Technologies; Plenary lecture on International Conference on Metals and Materials Research (ICMR 2016), organised by Indian Institute of Metals, Bengaluru Chapter and supported by Materials Engineering, Metal Sciences Division, IISc and Electron Microscope Society of India at Indian Institute of Science, Bengaluru, June 21, 2016.

Advanced Materials Research in Manufacturing, Workshop on Advanced Manufacturing Technologies in Defence Sector, NIAS, June 18, 2016.

Interlinked Ecosystems of Innovations, Vocation, Education, Innovations and Pursuit of Profession, Welcome Address at the Two day National Consultative Meet on Vocational (Skill), Technical and Higher Education, NIAS, June 13, 2016.

Conflicts Resolution: A Multidiscipline Dialogue with Armed Visible Sublime Outcomes, A Discussion Meeting on Armed Conflict, Peace Audit and Early Warning – Decennial Review 2016, NIAS, June 9, 2016.

Energy, Ethics and Equity, Nightingales Elders Enrichment Centre, Malleswaram, Bengaluru, May 20, 2016.

Current Status and Future Directions of Welding Science and Technology: Indian Context, Keynote Address at the Symposium on "Welding for Nation Building" of the Golden Jubilee Celebrations of The Indian Institute of Welding (IIW-India), Kolkata, April 26, 2016.

Fun of Doing Science: Make Earth a Better Planet, Woodstock School, Mussoorie, April 18, 2016.

### **Awards, Memberships**

Degree of Doctor of Science (Honoris Causa) in recognition of the outstanding contribution in the field of Science and Technology, Indian Institute of Engineering Science and Technology (IIST); An Institute created by Act of Parliament, Shibpur, March 4, 2017.

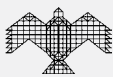
SASTRA-CNR Rao Award for Excellence in Chemistry and Materials Sciences, SASTRA University, Thanjavur, February 28, 2017.

20<sup>th</sup> SIES Sri Chandrasekarendra Saraswati National Eminence Award 2017 in the domain of S&T for serving the society for more than four decades, The South Indian Educational Society (SIES), Mumbai, December 16, 2016.

Chancellor and Chairperson of the Board of Governors of the Academy of Scientific and Innovative Research (ACSIR), CSIR, New Delhi, 2017 (appointed by Hon'ble Prime Minister of India and President, CSIR).

Member, Over Arching Committee for the R&D project on the development of the Advanced Ultra Supercritical technology (AUSC) for thermal power plant, Ministry of Heavy Industries and Public Enterprises, Department of Heavy Industry, Government of India, 2017.

Chairman, BRICS – Science and Technology Enterprise Partnership (BRICS-STEP) Working Group, Department of Science and Technology (DST) for four years from 2017 onwards.



Chairman of the Eminent Apex Committee of Council of Scientific and Industrial Research (CSIR) to recommend transformations and improvements for meeting and enhancing the objectives of CSIR, 2017.

Chairman, Committee Task Group on R&D Road Map and Mechanisms with Indian Steel Production Increasing to 300 MT, Ministry of Steel, Government of India, 2017.

Member, Committee, NITI Aayog for Framing S&T Vision for India, 2017.

Alternate Chairman, Constitution of a Committee to review the compensation package of Chairman, Recruitment and Assessment Board (RAB), Council of Scientific and Industrial Research (CSIR), New Delhi, 2017.

Chairman, Apex Committee for Review of CSIR, an Autonomous Body of DSIR, Government of India, Ministry of S&T, Department of Scientific and Industrial Research, December 2016.

Honorary Scientific Consultant, Advanced Materials and Sensors, Office of the Principal Scientific Advisor, Government of India, Delhi, 2016.

Member, Academic Council, University of Hyderabad, 2016.

Member, Committee of Outcome Review of Plan Schemes namely New Millennium Indian Technology Leadership Initiative (NMITLI), Intellectual Property and Technology Management (IPTM) and R&D Management Support, Ministry of Finance (Department of Expenditure)-CSIR, New Delhi, 2016.

Chairman, Sectoral Monitoring Committee on Advanced Materials, CSIR, New Delhi, 2016.

Chairman, Provisional Expert Committee for Materials, Photonics and Astronomy and Astrophysics, Indian Scientists/Institutes are partnering with BRICS Scientists/Institutions, Government of India, (November 2016 – to date).

Member, Governing Council, Centre For Materials For Electronics Technology (C-MET), Ministry of Electronics and Information Technology (MeitY), Government of India (October 2016 – to date).

Honorary Professor, JNCASR, Bengaluru, October 2016 – to date).

Council Member (Natural & physical Sciences), ISI, Kolkata (2016-2018).

Member, Modernisation Plan of Heavy Engineering Corporation Limited (HEC), Ministry of Heavy Industries and Public Enterprises, Department of Heavy Industry, Government of India, New Delhi, 2016.

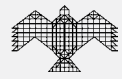
Distinguished Professor, VIT University, Vellore, Chennai, 2016.

Honorary Distinguished Professor and Member, International Advisory Board, Sichuan University, Chengdu, China.

Member, Board of Studies in Metallurgical Engineering, Jain University, Bengaluru, 2016.

Member, National Metallurgists Day Award Committee, Ministry of Steel, Government of India, 2016 (The Indian Institute of Metal, Kolkata).

Member, Research Advisory Council, National Thermal Power Corporation of India Limited (NTPC), 2016.



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**Joined NIAS on:** December 1, 2015

### **Major Research Contribution for the Academic Year**

His research is focused on geopolitical dimension of maritime security. In the post-Cold War, global maritime order has undergone a profound transformation. The shift is from the traditional naval-centric sea-control, sea-denial and high-intensity competition, to low intensity conflicts, which are predominately asymmetric in nature. In this paradigm, no navy has all the resources to combat security threats in the maritime commons. Therefore, the need for cooperation in maritime domain is vital for maritime nations to maintain safe and secure passage in Asia-pacific region. His research focuses on the opportunity and challenges for India in building maritime security partnership with regional and extra-regional powers. Some of his research findings are published in the form of research articles, lectures, presentation, Policy Brief and commentaries to emphasis the role of India in Asia-pacific region.

### **Lectures**

East Asia 2017: In the Age of Donald Trump, NIAS Strategic Forecasts, March 31, 2017.

Indo-Japan Maritime Security in a Changing Environment, The Japan Foundation and ICRIER, Indian Habitat Centre, New Delhi, August 19, 2016.

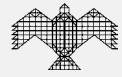
# SCHOOL OF HUMANITIES

## Programmes

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- Consciousness Studies
- Heritage, Science and Society





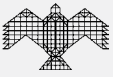
# HIGHLIGHTS

## **Consciousness Studies Programme**

The NIAS Mani Bhaumik Short Term Research fellowships and its awardees marked a major boost for the initiatives of the Consciousness Studies Programme in terms of both research and mentorship for young students. The fellowships made possible for young students to identify relatively difficult but original interdisciplinary research areas to pursue a question connected to cognition and consciousness. Their research problems extended from intelligent agent in spatial awareness in the context of AI to the cognitive basis of communication in wild lion tailed macaques. The two outreach channels of the CSP dialogues are the "Evening Philosophy Chat" and the "Public lectures" in the evenings. These forum continued to be the meeting point for scholars, students, and the public to share and debate on ideas.

## **Heritage, Science and Society Programme**

Sharada Srinivasan's co-authored book for National Museum, New Delhi on Indian bronzes was released there by Secretary, Culture in November 2017. MB Rajani was invited to speak on the geospatial extent of Nalanda, recently declared a World Heritage Site, at a UCLA workshop on 'Indian roots of global Buddhism' (April 2017). Srikumar Menon was invited to the Consultation Meeting for setting up of The Muziris Institute, Calicut, at Middle East College, Muscat (Feb. 18-19, 2017). Sharada Srinivasan was invited by the School of Oriental and African Studies, London to their Centenary Conference on 'History and Heritage of South Asia' to speak on heritage of crafts in India and Mauritius (September 5 and 6, 2016). Sharada Srinivasan, Anindya Sinha and Smriti Haricharan received a delegation from Exeter University with Pro-Vice-Chancellor, Prof Andrew Thorpe to NIAS in January 2017.



# CONSCIOUSNESS STUDIES PROGRAMME

## Introduction

The NIAS Consciousness Studies Programme is an interdisciplinary programme of the National Institute of Advanced Studies. The Programme brings in philosophy, cognitive sciences, animal studies, psychology,

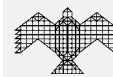
mathematics, physics and the neurosciences in its research mandate. The Programme's mandate is to understand the fundamental nature and working of mind, consciousness, self and cognition from a broad multidisciplinary and interdisciplinary spectrum. The canvas for our study includes cognitive abilities, self-identity, mental health and wellbeing, autobiographical memory, decision-making and cultural variations, quantum nature and neuronal models of consciousness, animal consciousness and cognition. The Programme is founded on both interdisciplinary and transdisciplinary frameworks engaging with philosophy, psychology, mathematics, life and physical sciences. We believe that there is a need to look at human experiences and consciousness as a whole, and in the interdisciplinary context of the humanities, biological, cognitive and the physical sciences. Some of our recent collaborative works with NIMHANS and Ramaiah Institute for Neurosciences have brought in the importance of the role and place of self and personal identity in neurological studies. Our works also contribute to an emerging field called "Medical Humanities".



## Research Activities

This academic year too we offered the NIAS Mani Bhaumik fellowships for bright students to work on unique and original problems in the broad area of consciousness studies. The proposals submitted by Ishaan Vasishta, Ashni Dhawale, Anindya Chaudhuri and Aahan Singh were shortlisted and selected for short term fellowships.





Two collaborative projects were initiated with support from Science and Technology of Yoga and Meditation (SATYAM), Department of Science and Technology, Government of India. The project on "Meditation, sleep organization and well-being from an Indian perspective: evaluation of micro sleep architecture dynamics, sleep consciousness and psychological well-being in practitioners of vipassana meditation" has a PI from NIMHANS and Co-PI from NIAS Consciousness Studies Programme. The Project on "Examination of therapeutic efficacy and potential mechanisms of yoga treatment in schizophrenia" also has a PI from NIMHANS and Co-PI from NIAS Consciousness Studies Programme. Through this project, a PhD Scholar is being co-guided on the topic related to Yoga and Self-reflection.

The Programme initiated a Consortium for collaborative activities with Indira Gandhi National Centre for the Arts-SRC on the broad area of Culture, Consciousness and Cognition. It is being planned to host an internship programme for short term fellowships as part of this consortium in the current academic year.

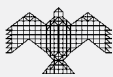
Our doctoral students are at various stages of preparation for the thesis writing. They are: Shankar Rajaraman (5<sup>th</sup> year), Siddharth Raghavan (2<sup>nd</sup> year), and Aditi Khatpalia (1<sup>st</sup> year). Two research interns also worked with the Programme this academic year: Anusha Rao from University of Hyderabad to do a summer internship on Satire on Religion in Sanskrit Literature, and Lakshmi Pillai from Cognitive Science Centre at IIT Gandhinagar on Nature of Experience and Literary Narratives.

Gagan Deep Kaur completed her two year post-doctoral research and submitted a report of her work on situated and distributed cognitive processes in Kashmiri carpet-weaving practice, based on her field work in Srinagar.

### Outreach

World Philosophy Day was organised on November 17, 2017, with support from Indian Council of Philosophical Research. A seminar on Feeling, Knowing and Being: Interdisciplinary Perspectives was held in this context.





## Members of the Consciousness Studies Programme



Sangeetha Menon, *Head*

BV Sreekantan

Sisir Roy

Anindya Sinha

VV Binoy

Nithin Nagaraj

Post-doctoral Associate: Gagan Deep Kaur (*till February 23, 2017*)

Doctoral Students: Shankar Rajaraman, S Siddharth, Aditi Kathpalia

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**Joined NIAS on:** January 8, 1996

### **Major Research Contribution for the Academic Year**

The invite to give the 2017 Annual Science-Theosophy Honour Lecture at the International Convention at the Theosophical Society, Adyar, and speak to over 800 people, helped bring in outreach for the interdisciplinary and deeply experiential and unitary nature of consciousness. The paper published in "International Review of Psychiatry" on Yoga and Self-Reflection along with the collaborator from NIMHANS has brought in international attention to the work of Consciousness Studies Programme on Self-Related psychological processes.

### **Lectures**

Mental Health and Managing Life Stress, Chief Guest's Lecture on the occasion of International Women's day function, Naval Physical and Oceanographic Laboratory (NPOL), DRDO, Cochin, March 8, 2017.

Self, Purpose in Life, and Consciousness: Interdisciplinary Thinking and Research, Invited Lecture for Psychology students, Mount Carmel College, Bengaluru, March 1, 2017.

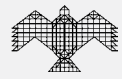
Binaries and the Unitary Consciousness: How Far the Puzzles Have Been Solved? Invited Lecture for the International Conference "The Problem of Consciousness and the Brain/Brahman Dichotomy", organised by Department of Philosophy, Shri Mata Vaishno Devi University, Katra, J&K, February 27 and 28, 2017 (in absentia).

Altruism, Self-Transcendence and Gandhian Approach to Peace, Invited Lecture for the National Conference on "Peace and Harmony: India and Canada", organised by UGC Area Study Centre for Canadian Studies, Institute of English, University of Kerala, Trivandrum, February 18, 2017.

The Science and Signs of Consciousness: The Western Mind and the Eastern Self, Invited Lecture for the Seminar on "Science and Technology in the Indic Tradition: Critical Perspectives and Current Relevance", Indian Institute of Science, Bengaluru, February 5, 2017.

Brain, Emotion and the Artist's Self, Invited Lecture for the International Conference on Creativity and Cognition in Art and Design, organised by National Institute of Design and National Institute of Mental Health and Neurosciences, NIMHANS Convention Centre, Bengaluru, January 20, 2017.

Self-Reflection and Self-Management, Lecture Module for the Participants of the 31<sup>st</sup> NIAS Annual Programme for Senior Executives, January 16, 2017.



Beyond the Brain: The Unifying Force of Consciousness, Theosophy - Science Annual Public Lecture at the 141<sup>st</sup> International Convention, International Quarters of Theosophical Society, Adyar, Chennai, January 3, 2017.  
Lecture Video at <https://www.youtube.com/watch?v=o1JTwQMvQY4>

Beyond the Binary: Wholeness (Purnata) and Consciousness in the Upanishads, Invited Lecture at the International Conference on Quantum, Reality and Shunya, organised by Indian Council of Philosophical Research and Indian Council of Cultural Relations, ICCR, New Delhi, December 10, 2016.

Feeling, Knowing and Being: Philosophical Foundations of Interdisciplinary Thinking Opening Introduction, World Philosophy Day sponsored by ICPR, NIAS, November 17, 2016.

Managing the Self: Desire, Conflict and Purpose in the Bhagavad Gita, Keynote Lecture at the International Conference, Nehru School of Management, Nila Gardens, Tiruvilvamala, Trissur, Kerala, November 4, 2016.

Uncertainty: How Do I know?, Lecture at the Evening Philosophy Chat, NIAS Consciousness Studies Programme, NIAS, October 20, 2016.

Read Paper - <https://aboutconsciousness.wordpress.com/2016/10/18/are-you-certain-about-uncertainty/>

Yoga, Mind and Self-Reflection, Lecture at the Evening Philosophy Chat, NIAS Consciousness Studies Programme, NIAS, September 22, 2016.

The Arts, the Artist and Consciousness, Inaugural lecture of 'Culture and Cognition' lecture series organised by Indira Gandhi National Centre for the Arts, Southern Regional Centre, in collaboration with Bangalore International Center, TERI Auditorium, BIC, Bengaluru, July 29, 2016.

Peace and its Philosophical Foundations, Multidisciplinary Debate on Poli-So-Phical Approach to Peace, Conflict and Post-Conflict Societies in South Asia, NIAS, June 23, 2016.

Beyond Disciplinary Limits: The Case of Consciousness Studies and Interdisciplinary Debates, Plenary Speaker at the annual Plenary Session on Social Sciences, Humanities and Languages at the Annual Research Retreat, Jain University, Bengaluru, May 22, 2016.

Transhumanism, Consciousness and Technology, Invited Lecture at the Two-Day Symposium on the Interdisciplinary Implications of Norbert Wiener's Work, exploring various applications for the human use of theories of automation (event presented in association with NIAS, NASSCOM, and the IEEE India Council), organised in connection with the International Conference - "Thinking Machines in the Physical World", IEEE 2016 Conference on Norbert Wiener in the 21<sup>st</sup> Century, NIAS, April 23, 2016 (lecture read in absentia).

### **Academic Courses**

Philosophy of Imagination, Foundation Course Lecture, NIAS, October 5, 2016.

Philosophy of Mind, Foundation Course Lecture, October 4, 2016.

Two guided writing courses:

Self-Conscious Emotions in Sanskrit Poetics: Focusing Cultural Psychology with emphasis on Indian Psychological Approaches.

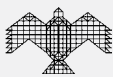
Abhinavagupta's Concept of bhAva and vimarSa.

### **Training Course**

Coordinators for the NIAS-DST Training Programme on Policy for Science and Science for Policies, November 7 to 11, 2016.

### **Awards, Memberships**

Member, Institutional Human Ethics Committee of Indian Institute of Science, Bengaluru.



Member, Institutional Stem Cell Research Committee of Indian Institute of Science, Bengaluru.

Member, Institutional Stem Cell Research Committee, JNCASR, Bengaluru.

Senior Expert in the Doctoral Committee of "Institute of Behavioral Science", nominated by Director General of Gujarat Forensic Sciences University, Gandhinagar, Gujarat.

Taskforce Member, Cognitive Science Initiative of Dept of Science and Technology, Government of India

Member, Scientific Advisory Committee, Institute for Communicative and Cognitive Neurosciences (ICCONS), Palakkad.

Nominated Member, International Association for Science and Religion, Cambridge.

Board Member, International Association for Transpersonal Psychology, USA.

Coordinator from NIAS, along with Binoy VV, for CS-DC UNESCO UniTwin international collaborative venture.

Honorary Research Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 2015 onwards.



**BV Sreekantan**  
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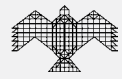
**Joined NIAS on:** August 6, 1992

### **Major Research Contribution for the Academic Year**

Essentially engaged in consolidating and systematizing the variety of information. Collected over the past two decades on the scientific and philosophical aspects of Consciousness Studies. Towards this end, during the year, he has revised and upgraded his book on Philosophy of Science, which has been published. In collaboration with Sisir Roy, the manuscript of another book with the title Empiricism and Introspection: Reality Quest in Physics and in Ancient Traditions, is in its final stages and will be sent to the publishers.

### **Lecture**

Science and Reality, Valedictory Addresses at the A Dialog Across Tradition: Modern Science and Ancient Insights on Reality, organised by Poornaprajna Institute of Scientific Research, Bengaluru, October 27, 2016.



**Nithin Nagaraj**  
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**Joined IAS on:** October 15, 2015

### **Major Research Contribution for the Academic Year**

Proposed a novel Compression-Complexity measure and approach to model consciousness and causality. Demonstrated the superiority of compression-complexity over conventional information theoretic metrics such as Shannon Entropy for characterizing dynamical complexity of short and noisy time series that arise in deterministic systems (chaotic) and stochastic systems (Markov processes), for analyzing cardiovascular dynamics (RR tachograms of real subjects), in neuroscience applications (spike trains) as well as for developing a measure of consciousness and causality testing. Guided first PhD Student (Karthi Balasubramanian) who graduated from Amrita University (June 2016).

### **Lectures**

The Limits of Knowing in Science and Mathematics (And the Role of Spirituality), Science and Spirituality Club, ISKCon, Bengaluru, March 26, 2017.

Research Methods in Consciousness Studies, lecture as a part of Research Methodology course, IAS, February 21, 2017.

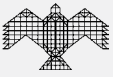
Information, Evening Philosophy Chat, organized by IAS Consciousness Studies Programme and Indian Council of Philosophical Research (ICPR), on the occasion of World Philosophy Day, IAS, November 17, 2016.

Uncertainty, Evening Philosophy Chat, IAS Consciousness Studies Programme, IAS, October 20, 2016.

The Limits of Computing, Thinking and Knowing, Refresher Course in Computer Science for College/University teachers, UGC-Human Resource Development Centre (HRDC), University of Calicut, August 27, 2016.

The Art and Science of Cryptography, Refresher Course in Computer Science for College/University teachers, UGC-Human Resource Development Centre (HRDC), University of Calicut, August 26, 2016.

Introduction to Communications, Information and Coding Theory, Refresher Course in Computer Science for College/University teachers, UGC-Human Resource Development Centre (HRDC), University of Calicut, August 26, 2016.



Foundational Ideas of Mathematics-I and II, a set of two lectures as a part of NIAS Foundation Course, August 23, 2016.

The Life and Work of Claude E Shannon: Celebrating 100 years of Shannon, a day-long workshop conducted at IEEE Symposium on Education, Technology and Entrepreneurship (ISEE 2016), IEEE Student Branch, Amrita Vishwa Vidyapeetham, Amritapuri Campus, Kollam, August 7, 2016.

What is Mathematics?, Second Summer Workshop under NIAS Gifted Education Programme, May 12, 2016.

### **Academic Courses**

Scientific Theories of Consciousness – I: Mathematical Methods at NIAS (August to December 2016).

Scientific Theories of Consciousness – II: Measuring Consciousness at NIAS (January to May 2017).

### **Training Courses**

Fifth NIAS-DST Course on Policy for Science and Science for Policies, November 7 to 11, 2016 (Co-coordinator).

31<sup>st</sup> NIAS Annual Programme for Senior Executives on Be a Transformational Leader, January 16 to 21, 2017 (Co-coordinator).

NIAS-DST Training Programme on Science, Technology and Innovation Policy, March 13 to 24, 2017 (Co-coordinator).

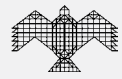
### **Other Contributions**

Reviewed papers for the following international journals: Springer Plus, International Journal of Biomedical and Clinical Engineering (IJBCE), Intl. Journal of Bifurcation and Chaos (IJBC), European Physics Journal – Special Topics.

Invited to chair a session at IEEE SPCOM 2016 international conference (June 2016).

Invited to chair a session at CNSD 2016 international conference (December 2016).

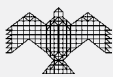




**Gagan Deep Kaur**  
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***Joined NIAS on:*** February 24, 2015

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# HERITAGE, SCIENCE AND SOCIETY PROGRAMME

## Introduction

The Heritage, Science and Society Programme explores innovative approaches in the documentation and preservation of cultural heritage, weaving inter-disciplinary scientific approaches to throw new light on problems in art history, history and archaeology, including archaeometric study and scientific characterisation, geospatial and digital studies, and the promotion of crafts heritage and sustainability. The core members include Sharada Srinivasan, head, who works on material culture, technical art history, archaeomaterials and crafts heritage, MB Rajani, who works on geospatial techniques in the documentation of heritage sites, Smriti Haricharan, who works in field and theoretical archaeology with experience in archaeological excavation, and Srikumar Menon, with research interests in architectural history, landscape archaeology and archaeoastronomy. Visiting Professors include S Settar, historian, epigraphist working in Kannada literature and art history, S Ranganathan, materials scientist with interests in materials heritage. PhD students include Sumitra Sundar, working on artists collectives (and was Curator of the Students Biennale at the Kochi Muziris Biennale 2016-2017), Krupa Rajangam on socio-culture issues of Hampi as world heritage site, K Venkatesh on evolution of Mysore paintings, Hema Thakur submitting on early historic Buddhist heritage of Karnataka and Vijayashree K, working on ritual aspects of coastal Karnataka.

## Research Activities

Ten volumes by S Settar on epigraphy in Karnataka went to press. The multi-institutional initiative of the India Digital Heritage project of DST which has had Settar, Sharada Srinivasan and S Ranganathan (as PIs and Coordinators) entered its final year with work underway on the Knowledge Bank project and with a Springer book (with Sharada Srinivasan as a co-editor) to demonstrate the application of digital technologies in the cultural domain. As part of the project "Advancing Landscape Archaeology Using High-resolution Digital Elevation Models" funded by SERB, DST under the Young Scientist Scheme, Rajani and Sonia Das visited Nalanda for field work in December 2016. Field work was also conducted by them for a project funded by Prof Fredrick Asher and Prof Catherine Asher from University of Minnesota on Buddhist sites. Under the TCS Metal Crafts Heritage project led by Sharada Srinivasan, fieldwork was undertaken by her, Smriti Haricharan and Research Associates in Thanjavur, Nacharkoil and Swamimalai in Thanjavur district, Madurai and in Tiruvannamalai region to identify bronze workers and blacksmiths and explore heritage perceptions. Two documentaries commissioned by IGNCA were made by Sharada Srinivasan on marginalised Vishwakarma metal craft communities (on wootz steel traditions and high-tin bronze working). An Archaeoastronomy Initiative was flagged off on May 12, 2017, led by Srikumar Menon with Sharada Srinivasan, and for acoustic studies on Hampi musical pillars with IIT-Madras, IGCAR and ASI in July 2016. Sharada Srinivasan was part of a key national ASI consultative group on 'Illicit Trafficking of Antiquities' since June 2016. Smriti Haricharan set up collaborations with Shiv Nadar University, Department of Economics to look at circulation of heritage crafts. GIS Studies by Rajani's group on Tipu's Lalbagh Palace drew Karnataka CM's intervention to inspect the site.

## Outreach

NIAS as a partner with IGNCA, New Delhi in the major international conference of ICOM-Metals 2016, in Delhi, September 26 to 30, 2016 on Metals Conservation, co-hosted a major public exhibition on metal crafts, co-organised by Sharada Srinivasan with live demonstrations of metal working by ten crafts groups including Swamimalai icon makers and Aranmula mirror makers, and with a Special Session on the Delhi Iron Pillar. NIAS conducted a workshop with students on 'Application of Remote Sensing and GIS to Archaeological Investigations' on May 24, 2016 at Dayanand Sagar College of Engineering, Bengaluru co-organised by MB Rajani and Krupa Rajangam. The Materials Heritage Exhibition was held at IISc Open Day, on March 4, 2017 co-curated by Ranganathan and Sharada Srinivasan with IISc Materials Engineering Department. NIAS TCS Metal Craft Initiative partnered in the Intangible Heritage Festival at Amravati (November 15 to 17, 2016) with field visits to crafts communities. Sharada Srinivasan was invited to give the Second Chookolingo Memorial Lecture in February 2017 at Benaras Hindu University Department of Art History on 'Archaeotechnological Insights on Chola and Vijayanagara Bronzes' and the Mashelkar Lecture at CSIR-Pune in October 2017 on Spectrochemical studies on Chola bronzes. The Metallurgical and Materials research ICMR 2016 conference



at IISc felicitated S Ranganathan's contributions (June 20 to 22, 2016) with sessions on materials heritage. Sharada Srinivasan's talk on percussive rocks on Sangankallu and Hirebenkal was hosted by TEDx. Smriti Haricharan headed a three month collaborative workshop with INTACH Bangalore on 'Learning archaeology or learning from archaeology?' from March 2017. Sharada Srinivasan was Session Chair and speaker on metal crafts at a conference on Material Culture in Pre-colonial and early Colonial India at JNIAS, JNU, New Delhi (November 3, 2017). Srikumar Menon was resource person and session chair for ICOA-9 (9<sup>th</sup> International Conference on Oriental Astronomy) held at Pune during November 15 to 18, 2016. A workshop on GIS for archaeology at Kerala Council for Historical Research, Pattanam (March 23 and 24, 2016) was conducted by Sonia Das and Ekta Gupta. Sharada Srinivasan was co-organiser of the workshop at NIAS (November 24 and 25, 2016) on 'Conservation with reference to the ancient Jaina site of Artipura', with Archaeological Survey of India-Bangalore Circle.



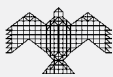
### Others

Well attended public lectures were held under the aegis of the Heritage, Science and Society Programme by Prof Vilupanur Ravi, USA (June 23, 2016) on 'The Plank Canoe of the Chumash Culture: A Historical and Materials Science-based Perspective', Dr Andrew M Bauer, Stanford University (August 5, 2016) on 'The Maski Archaeological Research Project: Land Use, Settlement, and Social Differences in Neolithic through Medieval South India', Tathagata Neogi (August 8, 2016), on 'Technology, People and Landscape: Pre-Industrial Iron-Smelting in northern Telangana from an Ethnoarchaeological Perspective' and Prof K Krishnan (August 24, 2016) on 'Characterization of Archaeological Ceramics'.



Numerous press articles appeared involving members of the programme, while Srikumar Menon wrote several articles in Deccan Herald Spectrum.





## Members of the Heritage Science and Society Programme



Sharada Srinivasan, *Head*

S Ranganathan

S Settar

Smriti Haricharan

MB Rajani

Research Officer: Srikumar M Menon

Doctoral Students: Hema Thakur, Sumitra Sundar, Krupa Rajangam, K Venkatesh, Vijayashree K

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**Joined NIAS on:** June 10, 2001

### **Major Research Contribution for the Academic Year**

Sharada Srinivasan had a record number of eight articles in the past year in high impact international and national scientific journals on archaeometallurgy, crafts ethnoarchaeology and archaeotechnology such as in *Journal of Metals*, *Indian Journal of History of Science, Materials and Manufacturing Processes*. These covered topics such as high-tin bronzes and wootz steel, metal sources of Chola bronzes, while two chapters on traditional South Indian bronze icon casting processes in the National Museum bronze catalogue and the international volume on *Traditional South Asian Arts* edited by Dr Crispin Branfoot, SOAS, were well reviewed. She was interviewed for *Crucible*, the Spring Newsletter of the Historical Metallurgy Society London. Her studies in JOM covered in *Bangalore Mirror* (September 20, 2016) and *Research Matters*, while the *Hindu*, (August 3, 2016) interviewed her concerning the need for finger-printing bronzes in a report on the ASI seminar on illicit trafficking of antiquities. Under the NIAS-TCS Metals Craft Initiative she also organised important events such as the Metal Crafts Exhibition at ICOM-Metals 2016 at IGNC, New Delhi.

### **Lectures**

The 10<sup>th</sup> Edition of the Nirantara Narmada Festival, in The Shivarathreeswara (JSS) Centre, Bengaluru, March 11, 2017.

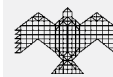
Mapping Shifting Iconographies: Archaeotechnological Insights on Chola and Vijayanagara Bronzes, Annual Second Frank Chookolingo Memorial Lecture 2017, Department of History of Art, Banaras Hindu University, Varanasi, March 1, 2017.

Jain Bronzes from Karnataka – Some Historical and Technical Aspects, Workshop on Conservation of Excavated Remains with special Reference to Ancient Jaina Site Artipura, NIAS and Archaeological Survey of India, Bangalore Circle, November 24, 2016.

Metal Craft Traditions and Intangible Heritage: Some Case Studies from Southern India and Andhra, Intangible Heritage Festival, Amravathi, partnered by NIAS, November 16, 2016.

Iconic Traditions, Enigmatic Alloys: Ethnometallurgy of Swamimalai 'Panchaloha' Icons and Aranmula 'Kannadi' Mirrors, Material Culture in Pre-Colonial and Early Colonial India, JNIAS, New Delhi, November 3, 2016.

A Report on NIAS IDH-KB, IDH Review Meeting, DST, New Delhi, November 2, 2016.



Spectroscopic Studies in the Geological Provenancing and Stylistic Finger-printing of Chola Bronzes. Mashelkar Lecture, CSIR-National Chemical Laboratory, Pune, October 26, 2016.

Special Session on Delhi Iron Pillar. Metal 2016 Conference, New Delhi, September 28, 2016.

Cultural Festival in Commemoration of Dr Abdul Kalam to Mark the Anniversary, Bharatiya Vidya Bhavan, Bengaluru, July 28, 2016.

Illicit Trafficking of Indian Cultural Wealth, Archaeological Survey of India, Bengaluru, June 20, 2016.

Art of Making Kerala Mirror, History of Science Project Investigators Meet. Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi, April 12, 2016.

### **Academic Courses**

Sharada Srinivasan coordinated a three Core Course for the Heritage Programme in Cultural Heritage Studies along with MB Rajani and Srikumar Menon covering archaeology, history, material culture, archaeomaterials and crafts history and landscape archaeology. Sharada Srinivasan, Smriti Haricharan, Anindya Sinha and Carol Upadhyya deliberated with an Exeter University delegation on ways ahead for inter-disciplinary PhD programme collaborations between NIAS and Exeter University in January 2017.

### **Awards, Memberships**

Advisory Board Member, South Asia Centre, University of Exeter.

Board Member, Journal of Ethnoarchaeology, USA.

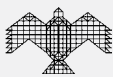
Board Member, Institute of Archaeometallurgical Studies, London.

Member, Consultative Group on 'Illicit Trafficking of Antiquities' for ASI.

Member, DPR Committee, Department of Science and Technology, for Digital Heritage.

Standing Committee, Beginning of the Use of Metals and Alloys, BUMA.

Honorary Research Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 2015 onwards.



**S Ranganathan**  
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**Joined NIAS on:** July 2, 2004

### **Major Research Contribution for the Academic Year**

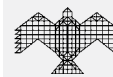
A major new initiative is on creating a compelling narrative on the History of India in 100 objects. This is conceptualised by S Ranganathan and further elaborated by Baldev Raj. It is inspired by the book on the History of the World in 100 objects by Neil MacGregor of the British Museum. It gives the narratives from an Indian perspective as opposed to an Eurocentric one.

Another point of departure is that it is not confined to objects found in museums but also includes sites such as our national emblem at Sarnath. Also India is interpreted in a broad sense to include objects from Central Asia, China, Korea, Japan and South East Asia. A leitmotif is the interplay between Art and Technology to emphasise the pioneering work of Cyril Stanley Smith who demonstrated that Aesthetics has been the driver for technological innovations. A major subject has been a comparative study of materials heritage of India, Japan and China. The theme of the Steel, the Sword and the Soul of Japan presented in March 2016 at the Spring Meeting of Iron and Steel Institute of Japan covered 1 Gold from Sado island and Koban coins, 2 Iwami Silver mines World heritage site, 3 Copper from Naganobori mines, 4 Shakudo alloys, 5 Daibitsu the great Buddha at Nara, 6 Bronze mirrors, 7 Tataru furnace, 8 Samurai Swords, 9 Tsuba sword guards, 10 Mokume Gane won praise and is being prepared for a book with Japanese coauthors.

The Discovery of Materials has been a recurring theme. The discovery of ancient metals ten thousand years ago to current day discoveries such as quasicrystals, bulk metallic glasses, nanostructured materials. Carbon in its diverse forms as diamond, graphite, fullerene, nanotubes and graphene has been researched under Material Dreams.

In the light of the need to improve museum culture in India and documentation of tangible and intangible histories and heritage, Cultural and academic co-operation at an international level has been fostered with Japan with Manako Tanaka (Tokyo University of the Arts) which has considerable expertise in museology.

A noteworthy contribution is to materials education. As a member of the Advisory Committee for the Asian Symposium on Materials Education organised by Prof MF Ashby Ranganathan's lectures added a new dimension of time has been well appreciated. An extraordinary opportunity to broaden the horizons of materials education has opened up in recent years. Besides the conventional classification into metallics, ceramics, polymeric and composites we can add now ancient material objects. This addition, in the immortal words of Steve Jobs, allows us to marry liberal arts and technology and makes our heart sing. This is not just an indulgence any more but a necessity as all



technical education communities realize that mere training in technology makes the graduates monochromatic and does not prepare them to be citizens for tomorrow's society. In the context of the present Symposium we are able to use illustrative examples from the past civilizations of India, China, Korea and Japan. These did not exist in isolation but were strongly linked by trade across the Silk Road and as recent work has shown linked with the Hellenic civilization. The advent of digital technology has given a new dimension. It is possible to create virtual reality vision of heritage sites under threat. Materials and civilization are synonymous in a more profound way than understood till now.

### **Lectures**

Looking at the Future of Materials: Quasicrystals, Metallic Glasses, Nanomaterials, Aerospace Materials, GIAN Course on Process Metallurgy 2016 and Beyond, Indian Institute of Science, Bengaluru, July 8, 2016.

Iron and Steel Heritage of India: Historical Perspectives, GIAN Course on Process Metallurgy 2016 and Beyond, Indian Institute of Science, Bengaluru, June 27, 2016.

Predicting the Stability of an HEA: First Principles Study, ICMR 2016. June 18 to 20, 2016 (along with Meha Bhogra, Umesh Waghmare).

Novel Atomic Configurations in Metallics: A Passionate Pursuit, Sixth TR Anantharaman Memorial Lecture, BHUIIT, Varanasi, April 4, 2016.

### **Awards, Memberships**

Member, Advisory Committee for the Second Asian Symposium on Materials Education, National University of Singapore, December 8 and 9, 2016.

Invited to be a member of the International advisory committee, present an invited keynote lecture and participate in the opening ceremony of the First International Conference on High Entropy Alloys, Hsinchu, Taiwan, November 6 to 9, 2016.

A major event titled International Conference on Metallurgical and Materials Research ICMT 2016 was organised from June 20 to 22, 2016. More than a dozen institutions including NIAS entered into a material alliance in commemorating this event, as a festschrift to celebrate the milestone 75<sup>th</sup> birth anniversary of Ranganathan.

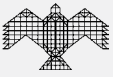
Member, Board of Studies, Jain University for Metallurgical Engineering with emphasis on traditional metallurgy, Bengaluru.

Member, Editorial Board, Discovery of Materials, Elsevier Press.

Member, International Advisory Committee, Electron Microscope Society of India

Member, Editorial Board, Journal of Iron and Steel Institute of Japan.

Member, Editorial Board, Materials Transactions, Japan.



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**Smriti Haricharan**  
Assistant Professor  
School of Humanities

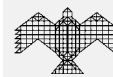
**Joined NIAS on:** January 2, 2017

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### **Major Research Contribution for the Academic Year**

Working on the TCS project titled *Metal Craft Heritage in the Cauvery Region*, headed by Sharada Srinivasan. As part of this program Smriti Haricharan has been on two field trips, one to Delhi and the other to Thanjavur, Kumbakonam, Swami Malai, Darasuram, Madurai and Tiruchirappalli. Besides this she is in the process of setting up two different grants for research on firstly Iron Age-Early Historic (megalithic) burials in Tamilnadu for which Smriti Haricharan has submitting a grant proposal, titled Digital Archive of Early Historic Burials, Tamilnadu to DST ICPS. This is a collaborative project between NIAS, Madras University and ISSER Tirupati. Secondly she is looking at heritage perceptions in Tamilnadu, for which she has been carrying out archival





work and has submitted one paper to an international journal and is in the process of writing another one. She also plans to continue applying for grants to carry out the research and publication of the research work already conducted.

### Lectures

Big Stones and Small Pebbles: Which Matters More?, Centre for Ecological Science, Indian Institute of Science, Bengaluru, February 15, 2017.

How Do We Dig Up the Past, Nightingale Recreational Centre for the Elderly, Bengaluru, February 10, 2017.



**MB Rajani**  
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**Joined NIAS on:** January 1, 2015

### Major Research Contribution for the Academic Year

One year project funded by Karnataka Knowledge Commission – where Srirangapatna, Avati, Sirival, Halebidu and Aihole were analysed for geo-spatial documentation of existing monuments, identify potential location for exploration and providing inputs for site management – was successfully completed in July 2016. Findings include 16 new features; a review was conducted at the end to assess NIAS's research activities in this field. Project has yielded Gupta et. al. 2017 (and a few more are in pipeline). The sites in Sarnath and Mehrauli were analysed for book project funded by Prof Fredrick Asher of University of Minnesota. Publication in Archives of Asian Art 2016 led to invitation to present in the workshop 'Indian Roots of Global Buddhism' UCLA, April 2017; deliver a talk at Bihar Heritage Development Society, Patna, December 2016; contribute to ISEAS volume due in 2017. The paper 'On the Symmetry of the Central Dome of the Taj Mahal' (2016) was selected for a documentary in the series 'Unearthed' in Discovery Science Channel, scheduled to be screened in July 2017. An ongoing project funded by SERB DST is studying Buddhist sites in Bihar and UP.

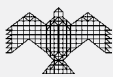
### Lectures

Remote Sensing Applications for Archaeological Research, MVJ College of Engineering, Bengaluru, December 20, 2016.

Archaeological Landscape of Nalanda and Environs: Perspectives from Remote Sensing and GIS, Bihar Heritage Development Society, Patna, December 15, 2016.

Science, Technology and Heritage, NIAS-DST Programme on Multidisciplinary Perspectives on Science, Technology and Society, December 14, 2016.

Use of Geo Spatial Technology in Heritage Conservation, two day workshop organised by ASI, Bengaluru, as part of World Heritage Week, November 24, 2016.



Landscape Archeology: Revealing Our Past Using Satellite Images, International Centre for Theoretical Studies, Bengaluru, September 19, 2016.

Revealing the Past Using Satellites: Buddhist Structures at Nalanda, ChoeKhor Sum Ling Centre, Bengaluru, August 21, 2016.

### **Academic Courses**

Archaeological Exploration: Methods and Practices for NIAS PhD Students, January–May 2017.

Cartography for Heritage Study: GIS and Its Antecedents for NIAS PhD Students, August–December 2016.



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**Joined NIAS on:** March 1, 2016

### **Major Research Contribution for the Academic Year**

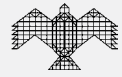
Co-ordinating an inter-institutional study of the musical pillars of the Vitthala Temple at Hampi, involving four other institutions other than NIAS. This ambitious project brings together specialists from the domains of art history, architecture, and engineering from NIAS, KCST, IGCAR and IIT Madras to study the phenomenon of carving composite columns which emit notes of certain frequencies when struck. The study aims to document the pillars using laser scanning as well as conventional methods, followed by replication of two of the pillars. This will be followed by FEM analysis as well as experimentation on the replicas. After perfecting the experimental techniques, the actual pillars at Hampi will be subjected to a round of experimentation to understand the principles behind the design of the pillars. This project proposal has been sent to Department of Science and Technology for funding.

### **Lectures**

From Megaliths to Temples: Astronomy in the Lithic Record in India, at ICOA-9, Pune, November 16, 2016.

Simulation Techniques for Archaeoastronomy – A Lecture cum Demonstration, at Pre-Conference Workshop, ICOA-9, Pune, November 13, 2016.

Indian Temples: An Introduction, at Pre-Conference Workshop, ICOA-9, Pune, November 13, 2016.



Climatology for students of architecture at KS School of Architecture, Bengaluru, November 4, 2016.

Early Temple Architecture – the case from the Malaprabha Valley, at Hands-on Heritage Workshop on Architectural Conservation by Mason's Ink Architecture, Bengaluru, July 11, 2016.

### **Academic Courses**

Offered a course on "Monument-building Traditions in Ancient South India" for NIAS PhD Students (August–November 2016).

Offering a course with MB Rajani and Prof Ravi Korisettar on Archaeological Exploration: Methods and Practices for NIAS PhD Students.

### **Teaching/Guiding Assignments**

Guided Summer Interns – Kadambari Komandur, student of architecture at RVCE on project titled Documentation of Open Mantapas at North Fort, Badami, and Adrija Choudhary, student of History at Shiv Nadar University on project titled Minor Excavations of the Early Chalukyas at Badami and Aihole.

Reviewer for the design projects of architecture students at KS School of Architecture, Bengaluru, May 9, 2016.

### **Other Contributions**

Was resource person for ICOA-9 (9<sup>th</sup> International Conference on Oriental Astronomy) held at Pune during November 15 to 18, 2016, as well as the Pre-Conference Workshop. Delivered a presentation and chaired a session in the conference and gave four lectures in the pre-conference workshop.



## Other Faculty Members of School of Humanities



**Sundar Sarukkai**  
Professor  
School of Humanities

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**Joined NIAS on:** August 29, 2016

### Lectures

Prof Satchidanand Memorial Lecture, University of Guntur, January 28, 2017.

Death and the Problem of the Body, Keynote Address at the IJME Sixth National Bioethics Conference, Pune, January 14, 2017.

Thinking about Aesthetics, School of Arts and Aesthetics, JNU, September 16, 2016.

### Courses and Workshops

National Workshop on Philosophy and Agency, Ninasam, March 24 to 26, 2017.

Ten hour course on two of my books, IIT Gandhinagar, March 11 and 12, 2017.

Co-organizer, International Symposium on Poetics of Technology, Attakkalari Centre for Movement Arts, Bengaluru, February 11, 2017.

Academic Writing Workshop, PhD Students at the Department of Sociology, University of Hyderabad, January 23 to 27, 2017.

International Workshop on *Thinking Art*, Kochi Biennale, December 5 to 10, 2016.

Workshop on Philosophy, Vedica Program for Leadership in Women, September 13 to 16, 2016.

Thinking and Writing, PhD students, NIAS, September 2016 to March 2017.

### Editorial Responsibilities

Series Editor, *Science and Technology Studies*, Routledge.

Editorial Board Member, *Leonardo Book Series*, MIT Press.

Chief Editor, *Handbook of Logical Thought in India*, Springer.

Editorial Board Member, *Paragrana: The International Review of Historical Anthropology*, AkademieVerlag, Berlin.

Editorial Board Member, *Indian Journal of Medical Ethics*.

Consulting Editor, *Journal of Public Affairs and Change*.

Reviewed book proposals for MIT Press, Oxford University Press and Routledge.

Reviewed papers for EPW, IJME, *Development and Change*, JICPR, *Leonardo*.

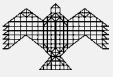
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# SCHOOL OF NATURAL SCIENCES AND ENGINEERING

## Programmes

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- Animal Behaviour and Cognition
- Complex Systems
- Energy and Environment Research



## HIGHLIGHTS

### **Animal Behaviour and Cognition Programme**

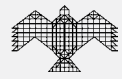
Work carried out in the Programme is highly synergistic and transdisciplinary involving collaborators from other disciplines both within the institute and outside, and employing methodologies and theoretical frameworks from various fields of research. Some of the highlights of the year's activities include (i) the ethnoprimate work of Asmita Sengupta and Sindhu Radhakrishna, wherein they showed how ecology can be used as a tool to help understand the consequences of human-primate interactions, (ii) VV Binoy and his collaborators' creation of DisApp to model building and community engagement for epidemic prevention, and (iii) Anindya Sinha and colleagues' report of an entirely novel, multimodal, interspecies communication system evolved by wild, juvenile bonnet macaques to request food from humans.

### **Complex Systems Programme**

An important highlight for the programme was the publication of the group's paper in *Nature Scientific Reports* proposing a mathematical model for pest outbreak cycles. This incorporated climate parameters for the first time, explaining the observed periodicities in certain pest outbreak cycles at high elevations, cessation of expected cycles after 1981, absence of these cycles at certain other high altitude locations and variations from these periodicities elsewhere. The cessation of cycles was attributed to climate change. It was also shown in a different paper published in *CHAOS* that cessation of outbreak cycles and changed (longer) periodicities could occur as a result of presence of more than one parasitoid species in the system. All our results have experimental support and have been recently validated independently by other authors.

### **Energy and Environment Research Programme**

Hippu Salk Kristle Nathan has been awarded the prestigious Subir Chowdhury Post-Doctoral Fellowship on Quality and Economics at the London School of Economics for the academic year 2016-17. He has also won the 2016 International Fellowship of the Urban Studies Foundation to be availed at the McGill University, Montreal. R Srikanth was appointed by NITI Aayog, Government of India to be an Expert Member of a Committee to assess the draft Vision Document of Ministry of Mines. NITI Aayog has formally endorsed Srikanth's key suggestions and advised Ministry of Mines to suitably incorporate them in the final Vision document. He was also appointed by the Ministry of Coal, Government of India to a Task Force to develop an Integrated Approach to Mining and Environment for Opencast Coal Mines, the need for which has also been formally recognised by PMO.



# ANIMAL BEHAVIOUR AND COGNITION PROGRAMME

## Introduction

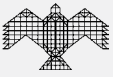
The Animal Behaviour and Cognition Programme is interested in the ecology, behaviour, cognition, genetics and conservation status of several wildlife species across the country, chiefly primates, elephants and fishes. Apart from the core three faculty members, the Programme currently comprises a post-doctoral associate, four research scholars, several short-term research associates and a number of collaborators from the Schools of Social Sciences and of Humanities in IAS and from more than fifteen institutions across India, Japan, UK, USA and Australia. It is the only research group in the country working in the area of social cognition, communication and culture in any animal species, the only group that has been monitoring a primate population and tracking the life-history strategies of more than 1,500 individually identified animals continuously over fifteen years, one of the few groups in the world working on the behavioral ecology of nocturnal primates in the wild, and the only group in India that has been credited with the discovery of a new primate species.



## Research Activities

In the past year, Programme members received several accolades for their work. VV Binoy and Pallava Bagla's edited volume *Bridging Communication Gap in Science and Technology* was published by Springer Singapore. As part of the ongoing research for The Connected Learning Initiative project, VV Binoy and his team developed a module on ecology that is integrated with the tools of information communication technology (ICT) for the biology section of 9th standard state curriculum textbooks. Binoy and his collaborators also created an app called DisApp, that is a novel approach to model building and community engagement for epidemic prevention. Sindhu Radhakrishna and Asmita Sengupta completed their project on seed dispersal by rhesus macaques that was supported by DST-SERB. Sindhu, in collaboration with VV Binoy and Anindya Sinha also received a grant from SERB-DST to investigate the drivers of human-primate conflict. Sindhu also collaborated with various associates to publish three journal papers, and four book chapters. Anindya Sinha received four sets of research grants to investigate lion-tailed macaque ecology in an anthropogenic landscape on the Valparai plateau (with Ashni Kumar Dhawale), elephant ranging patterns and human-elephant conflict in southern Karnataka (with Nishant Srinivasaiah), urban street dog ecology and human-dog interactions in Chennai (with Krithika Srinivasan, Edinburgh University, UK) and the behavioural ecology and individuality of wild octopuses





in the Andaman Islands (with Aditi Pophale and Avik Arnab Banerjee). In association with various colleagues and collaborators, Anindya Sinha also published two research papers, two book chapters, three conference abstracts and two popular articles. Shaurabh Anand received an equipment grant from Idea Wild, a conservation organisation and Sreedhar Vijaykrishnan was nominated to become a member of the Elephant Conservation Group, a consortium of elephant biologists working in different parts of South Asia.

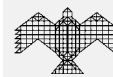


## Outreach

VV Binoy co-organised a three-day national workshop on 'Science Films' and three science communication workshops titled Communicating Science Out of the Lab, Student Networks and 'Science Communication for School and College Students'. His team and he also conducted a public awareness programme on Conservation of the Subterranean Fishes, and three workshops (one at Bengaluru, two at Aizawl, Mizoram) as part of 'Student-Scientist Interactions'. Sindhu Radhakrishna collaborated with Erin Riley from San Diego University, California, to organise a symposium on ethnoprimateology at the Joint Meeting of the International Primatological Society and the American Society of Primatologists in Chicago in August 2016. VV Binoy and Sindhu Radhakrishna also conducted a workshop on Animal Personality Studies at the Students Conference for Conservation Science, held in IISc, Bengaluru, September 2016, while Anindya Sinha (in collaboration with others) conducted a workshop on the Ethics of Conservation at the same conference. All three faculty members delivered lectures on a variety of topics such as animal behavior and conservation, wildlife management and governance, primate ecology, fish personality and cognition at a variety of forums across the country. Shaurabh Anand presented a paper on wildlife conflict management techniques at the University of Delhi, while Shaurabh Anand, Nishant Srinivasaiah and Sreedhar Vijaykrishnan jointly presented a paper on wildlife governance at Pondicherry University. Nishant delivered 6 talks on elephant behavior and conservation at various forums across the country, while Samira Agnihotri delivered two talks on her work to rural youth from Chamarajanagara district.







# Members of the Animal Behaviour and Cognition Programme



Sindhu Radhakrishna, *Head*

Anindya Sinha

VV Binoy

Post-doctoral Associate: Samira Agnihotri

Research Associates: Anindya Chaudhuri, TR Kumaraswamy

Doctoral Students: Nishant M Srinivasaiah, Shaurabh Anand, Uddalak Bindhani and Debanjan Mitra (NIAS-Exeter University Collaborative Programme)

## **Sindhu Radhakrishna**

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**Joined NIAS on:** September 1, 2001

### **Major Research Contribution for the Academic Year**

Sindhu Radhakrishna continued her long-standing work on the behaviour of the slender loris, and published new information about the distribution and conservation status of the slender loris in India, thus increasing the global database of ecological information about this endangered primate. Her research draws attention to the importance of small forest patches in south central Tamil Nadu that act as crucial habitat zones for the slender loris, and recommends rigorous protection for these forests. Through her research in the field of human-animal studies, Sindhu also highlighted the changing relations between humans and monkeys over time and showed how this cultural change may explain why conflicts between human and wildlife have been increasing in recent decades.

### **Lectures**

Primates, People and Provisioning, Centre for Learning, Magadi, Bengaluru, November 2016.

Primates, Personality and Conservation, SCCS, Indian Institute of Science, Bengaluru. September 2016.

Primate Tales: Using Literature to Understand Changes in Human-Primate Relations. Paper presented at the Joint meeting of IPS-ASP, Chicago, August 24, 2016.

Ecology Shapes Our Ends? Natural Food Availability as a Determinant of Primate Commensalism. Paper presented at the Joint Meeting of IPS-ASP, August 24, 2016, Chicago (along with Asmita Sengupta).

### **Academic Courses**

Human-Animal Studies Course, NIAS Doctoral Programme, February to May 2017.

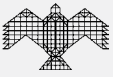
Basic Primatology Course, NIAS Doctoral Programme, September to December 2016.

Modules on Life Sciences, Foundation Course, NIAS Doctoral Programme, October 2016.

### **Awards, Memberships**

DST-SERB Interdisciplinary Research Grant, 2017.

Executive Committee Member, Governing Board, Yakshi (2016 – to date).



Editorial Board Member, *Animal Cells and Systems* (2015 – to date).

Commission Member, IUCN SSC Primate Specialist Group – S. Asia (2013 – to date).

Member, Research Advisory Board, Nature Conservation Foundation, Mysore (2013 – to date).

Member, Ethics Committee, Nature Conservation Foundation, Mysore (2013 – to date).



**Anindya Sinha**  
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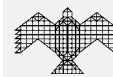
### **Major Research Contribution for the Academic Year**

In collaboration with Adwait Deshpande and Shreejata Gupta, Anindya Sinha has recently reported, using natural observations and field experiments, an entirely novel, multimodal, interspecies communication system evolved by wild, juvenile bonnet macaques to request food from humans. Nishant Srinivasaiah and Anindya Sinha, in their studies on the socioecology of Asian elephants have led them to establish, for the first time in any elephant species, a unique, stable social association of male Asian elephants alone in the Cauvery basin of southern Karnataka and western Tamil Nadu. Over the last year, Anindya Sinha has also initiated investigations on lion-tailed macaque ecology in an anthropogenic landscape on the Valparai plateau (with Ashni Kumar Dhawale), urban street dog ecology and human-dog interactions in Chennai (with Krithika Srinivasan, Edinburgh University, UK) and the behavioural ecology and individuality of wild octopuses in the Andaman Islands (with Aditi Pophale and Avik Arnab Banerjee). The essentially transdisciplinary nature of the research conducted by Anindya Sinha encompasses his work in cognitive ethology and semiotics to document the multimodal communication system between bonnet macaques and humans and that in behavioural ecology, urban geography and sociology to explore the political ecology of human-rhesus macaque interactions in urban India, in collaboration with Maan Barua of Oxford University, UK.

### **Lectures**

The Ecology, Behaviour and Conservation Programme / Animal Behaviour and Cognition Programme, 1996–2016, Walk with a Scholar Programme, Kerala State Government, NIAS, March 10, 2017.

A Rolling Stone Does Gather Some Moss: Reflections on a Primate Life, Young Investigators' Meet 2017, Goa, March 8, 2017.



Women in Indian Science, Panel Discussion, Young Investigators' Meet 2017, Goa, March 7, 2017.

What Do Wild Bonnet Macaques Know about One Another?, Guest Lecture, Tangled Bank 2: Seminars on Ecology, Behaviour and Evolution, National Centre for Biological Sciences, Bengaluru, February 18, 2017.

Social Cognition in Bonnet Macaques, Illuminati Lecture, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, February 10, 2017.

The Mind of the Macaque, Keynote Lecture, WIPRO Earthian Awards 2016, Wipro, Bengaluru, February 4, 2017.

Reaching Out: Multimodal Communication between Wild Bonnet Macaques and Humans, TEDx Jadavpur University, Jadavpur University, Kolkata, January 27, 2017.

Eat or Perish! Fallback Plant Foods and Primates, International Conference on the Green Planet – Past, Present and Future, Department of Botany, Calcutta University, Kolkata, December 23, 2016.

Animating the Urban: Interdisciplinary Provocations on Urbanisation, Knowledges, Space, Indian Institute of Technology, Guwahati, December 7, 2016.

A Beautiful Mind! Social Cognition in Bonnet Macaques, Indian Institute of Technology, Guwahati, December 6, 2016.

A Search for a New Philosophy of Biology, Cotton College State University, Guwahati, December 5, 2016.

Biology: A New Philosophy, Panel Discussion, Feeling, Knowing, Being: Philosophical Foundations of Interdisciplinary Thinking, A Seminar on World Philosophy Day, IAS, November 17, 2016.

Sustainable? Human-Macaque Conflict and Threats to Primate Populations in India, IAS-DST Training Programme on Science and Policy, November 10, 2016.

Some Thoughts on Free Will, Panel Discussion on Free Will, A Dialogue across Traditions: Modern Science and Ancient Insights on Reality, Poorna Prajna Institute of Scientific Research, Bengaluru, October 27, 2016.

Thoughts on Uncertainty, Evening Philosophy Chat, IAS, October 20, 2016.

True Lies! Intentionality and Tactical Deception in Wild Bonnet Macaques, Plenary Lecture Third Annual Meeting, Association for Cognitive Science (ACCS 2016), Indian Institute of Technology, Gandhinagar, October 4, 2016.

The Weed Macaques: Uniquely Adaptable, but Ultimately Threatened?, Plenary Lecture Student Conference on Conservation Science, Indian Institute of Science, Bengaluru, September 21–24, 2016.

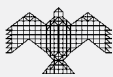
The Bonnet Macaque: Uniquely Adaptable, but Ultimately Threatened?, Nature inFocus, Bengaluru, July 9, 2016.

True Lies! Intentionality and Tactical Deception in a Nonhuman Primate, Centre for Human Genetics, Bengaluru, April 1, 2016.

### **Academic Courses**

A lecture for a two-lecture module on Research Methods in the Life Sciences as part of a three-credit course on Research Methodology for doctoral degree students, IAS, April 2016.

An audited course on Philosophy of Science, Ecology and Conservation Biology, consisting of lectures, paper presentations and discussion sessions for Master's degree students of the Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bengaluru, August–September 2016.



A two-lecture module on Foundations of Biological Sciences as part of the three-credit Foundations Course for doctoral degree students, NIAS, November 2016.

A three-credit course on Animal Behavioural Ecology, consisting of lectures, field methods, paper presentations and discussion sessions for Master's degree students of the Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bengaluru, March–May 2017.

### **Awards. Memberships**

International Advisor, Twenty-Seventh International Biology Olympiad, Hanoi, Vietnam; July 9–23, 2016.

Visiting Professor, Indian Institute of Technology, Guwahati, December 2016.

Resource Person, Indian National Biology Olympiad, 2015-2016 and 2016-2017.

Scientist, Nature Conservation Foundation, Mysore, March 2002 onwards.

Adjunct Teaching Faculty, National Centre for Biological Sciences, Bengaluru, August 2010 onwards.

Adjunct Faculty, Centre for Neuroscience, Indian Institute of Science, Bengaluru, June 2011. onwards

Scientific Advisor and Research Coordinator, Dhole's Den Research Foundation, Bandipur National Park, October 2012 onwards.

Honorary Research Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 2015 onwards.

Associate Editor, International Journal of Mind, Brain and Cognition, June 2014 onwards.

Member, Academic and Research Committee, Institute of Trans-Disciplinary Health Sciences and Technology / TransDisciplinary University, Bengaluru, August 2016 onwards.

Member, Partnership Committee, Institute of Trans-Disciplinary Health Sciences and Technology / TransDisciplinary University, Bengaluru, August 2016 onwards.

Member, Graduate Research Committee, Institute of Trans-Disciplinary Health Sciences and Technology / TransDisciplinary University, Bengaluru, October 2016 onwards.

Member, Research Advisory Board, Centre for Wildlife Studies, Bengaluru, August 2004 onwards.

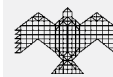
Member, IUCN/SSC Primate Specialist Group – South Asia Section, Species Survival Commission of the International Union for the Conservation of Nature, Gland, Switzerland; March 2013 onwards, till March 2020.

Member, Steering Committee, Postgraduate Program in Wildlife Biology and Conservation, National Centre for Biological Sciences, Bengaluru, renewed from August 2014 onwards.

Member, Academic and Student Affairs Committee, Nature Conservation Foundation, Mysuru, January 2015 onwards.

Member, Research Ethics Committee, Nature Conservation Foundation, Mysuru, January 2015 onwards.

Vice President, Indian Association for Teachers in the Biological Sciences, Mumbai, May 2015 onwards.

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**Joined NIAS on:** September 2, 2010

**Major Research Contribution for the Academic Year**

Research focused on the social decision-making and personality traits in animals (fishes and amphibians) and cultural variation in cognition and environmental decision making in humans. He leads the biology education team of the Connected Learning Initiative (CLIX), a joint venture of the Massachusetts Institute of Technology, USA and Tata Institute of Social Science, Mumbai. He co-edited the book titled *Bridging the Communication Gap in Science and Technology: Lessons from India* and coordinates the activities of *Student Scientist* an initiative for enhancing the student-scientist interaction. He is a research affiliate at the Krasnow Institute for Advanced Study and the Centre for the Study of Neuroeconomics, George Mason University, USA.

**Lectures**

Why Should We Protect the Subterranean Fishes. Public Awareness Programme on Conservation of the Subterranean Fishes. CEC Payyaparamba, Mattanur, Kannur District Kerala, March 19, 2017.

Converting Classroom into a Biology Laboratory. Government Model School, Aizawl, Mizoram, January 25, 2017.

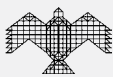
Why Learning Biology is Difficult. Bethlehem High School Aizawl, Mizoram, January 24, 2017.

Science Communication: Bridging the Gap between Science and Society. NIAS-DST Training Programme on Policy for Science and Science for Policies, NIAS, November 9, 2016.

Student Scientists. One day workshop on Communicating Science Out of the Lab. EURAXESS Links, India Tata Institute of Fundamental Research (TIFR) and NIAS, Bengaluru, October 22, 2016.

Utilisation of the behavioural flexibility and behavioural consistency in the conservation of the animal species in the wild. Workshop on Understanding Personality Traits in Animal Species and its Applications in Wildlife Conservation, Student Conference on Conservation Science-2016, Indian Institute of Science, Bengaluru, September 22, 2016.

Behaviour and cognition as windows to conservation. Workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies. Student Conference on Conservation Sciences – 2016, Indian Institute of Science, Bengaluru, September 23, 2016.



Introduction to the Tools and Techniques to Study Water Quality and Water Utilization Pattern. St Jude's School, Vellarikundu, Kasargode, Kerala, August 30, 2016.

### **Awards, Memberships**

Research Affiliate, Centre for the Study of Neuro-Economics, George Mason University, USA.

External Affiliate, Kranow Institute of Advanced Study, George Mason University, USA.

Lead, Biology Education Team, *Connected Learning Initiative (CLIX)* A joint venture of Massachusetts Institute of Technology, USA and Tata Institute of Social Science (TISS), Mumbai.

Representative, UNESCO UniTwin Complex Systems Digital Campus (CS-DC).

Member, IUCN Freshwater Specialist Group – South Asia.

Member, Freshwater Fish Conservation Network – South Asia.

Member, Ethological Society of India.

Member, Limnological Association of Kerala.

Member, Centre for Fundamental Studies, Thrissur, Kerala.

### **Outreach**

Organised National Workshop on Science Films at NIAS from March 28 to 30, 2017.

Organised Public Awareness Programme on Conservation of the Subterranean Fishes at Mattanur, Kannur Kerala, March 19, 2017.

Organised Student Scientist Interaction on Interdisciplinary Research at NIAS, March 10, 2017.

Organised one day workshop on Communicating Science Out of the Lab. NIAS, October 22, 2016.

Organised workshop on Understanding Personality Traits in Animal Species and Its Applications in Wildlife Conservation (with Sindhu Radhakrishna), Student Conference on Conservation Science-2016, Indian Institute of Science, Bengaluru, September 21 to 24, 2016.

Organised workshop on Freshwater Fish Conservation: Concepts, Techniques and Strategies (With N Dhanukar, IISER, Pune; R Raghavan, KUFOS, Kochi; U Katwate, BNHS, Mumbai; S Philip, Nirmalagiri College, Kannur) Student Conference on Conservation Sciences - 2016, Indian Institute of Science, Bengaluru, September 21 to 24, 2016.

### **Student Training Programmes**

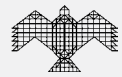
Government Model School, Aizawl, Mizoram, January 25, 2017.

Bethlehem High School Aizawl, Mizoram, January 24, 2017.

Government High School, Marasuru, Karnataka, September 25, 2016.

St Mira's Inclusive Convent, Sujjilur, Mandya, Karnataka, September 19, 2016.

St Judes School, Vellarikundu, Kasargode, Kerala, August 30, 2016.



# COMPLEX SYSTEMS PROGRAMME

## Introduction

The Complex Systems Programme seeks to understand through suitable mathematical models, the dynamics and behaviour of systems of various kinds, all inherently nonlinear – different nonlinearities give rise to different kinds of behaviour. In such systems, diverse individual elements give rise through differing mutual interactions and couplings to macroscopic collective behaviour exhibited by the whole system.

Appropriate physical concepts and mathematical techniques are used to make useful predictions in diverse systems and to determine how one could achieve some control over their behaviour.

Complex system studies are truly multi and trans-disciplinary and cover a broad spectrum of subjects. Examples range from geodynamics, ecological systems, social systems, econodynamics, study of structural stability of buildings, to other areas such as fluid dynamics, neuroscience, sensory systems, cellular processes, morphogenesis, electronic systems, climate dynamics, etc.

Since its inception in July, 2012, the Programme has made leading and pioneering contributions to subjects as varied as climate impact on ecological systems and prediction of insect pest outbreak cycles, dynamics and acoustic cavitation of charged microbubbles, novel nonlinear oscillations in coupled Josephson junction models, coupled neuron dynamics, novel bursting mechanisms in neurons, secure encryption and transmission of messages using q-deformations, aspects of hearing research, studies on the role of fluctuations in ecological dynamics, etc.

## Research Activities

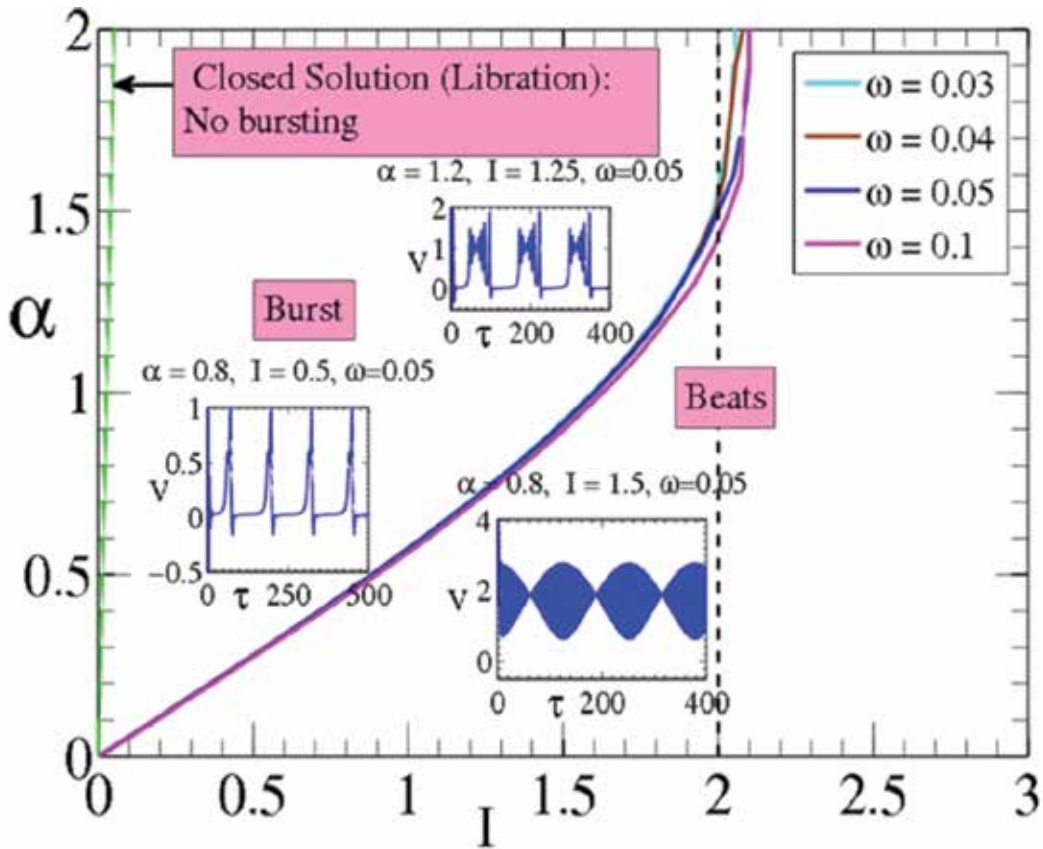
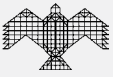
Regular cyclic outbreaks of the budmoth insect pest infestations have caused widespread defoliation of vast areas of larch forests at high altitudes. This has worried environmentalists and ecologists and has also been a cause of concern for the logging and tourism industries. The regular 8-9 year pest outbreak cycles in the Swiss Alps suddenly collapsed after 1981 and the expected cycles have not recurred yet. A significant achievement of the Programme during the past year was the resolution of this puzzle of the occurrence, absence and collapse of pest outbreak cycles by construction of a mathematical model which incorporated climate parameters for the first time. The results of this model were shown to match observational and dendrochronological data recorded over 1200 years. It accounts for collapse of the cycles after 1981 (due to a climatic tipping point reached in the 1980s), explains absence of cycles in certain places (like the Slovakian Tatra mountains in the Carpathians nearby) and accounts for variations in the 8-9 year periodicity observed elsewhere. This work authored by Sudharsana V Iyengar, Janaki Balakrishnan and Juergen Kurths, published in Nature Scientific Reports, has been very successful as it has been validated experimentally (the dependence of larch budmoth outbreaks on precipitation, temperature, and on the abundance of the host trees) by other authors.



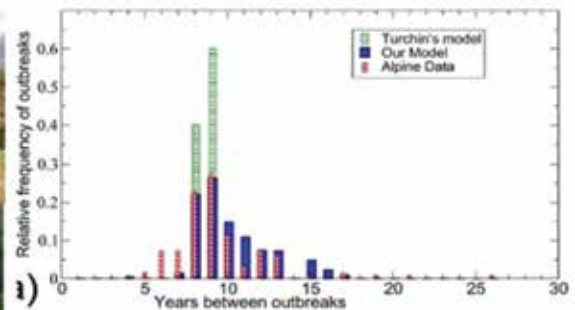
OPEN Impact of climate change on larch  
budmoth cyclic outbreaks

**Sudharsana V. Iyengar<sup>1</sup>, Janaki Balakrishnan<sup>2</sup> & Jürgen Kurths<sup>3</sup>**

<sup>1</sup>School of Physics, University of Hyderabad, Central Univ. PO, Gachhi Bowli, Hyderabad 500 046, India. <sup>2</sup>School of Natural Sciences & Engineering, National Institute of Advanced Studies (N.I.A.S.), Indian Institute of Science Campus, Bangalore - 560012, India. <sup>3</sup>Potsdam Institute for Climate Impact Research, PO Box 601203, Potsdam 14412, Germany. Correspondence and requests for materials should be addressed to J.B. (email: janaki05@gmail.com)



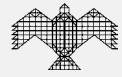
Boundaries of different solution regimes in the  $I$ - $\alpha$  parameter space for different values of  $\omega$



Periodic pest outbreak puzzle resolved  
 Next outbreak predicted – for 2021  
 Effect of Climatic Tipping Point (1980s)

## Complex Systems & Climate Change



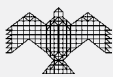


In another work published by SV Iyengar, J Balakrishnan and Juergen Kurths in the journal *CHAOS*, a mathematical model was constructed to study the effect of the presence of more than one species of mutually non-interacting parasitoids in a tritrophic ecological system. Observations record the presence of up to 5.4 parasitoid species (on average) a year living off a single budmoth larva. This is the first mathematical model in the literature which studies the effects of multiple species of parasitoids hosted by a single budmoth pest. The model's prediction of longer periodicities of infestation outbreaks due to the presence of additional parasitoid species is in agreement with observations and it also provides an alternative explanation for the observed cessation of cyclic budmoth outbreaks.

Other work currently ongoing includes understanding different activity patterns including bursting behaviour observed in neurons using models of coupled neurons of different types, different aspects of sound detection by the ear, fluid dynamics, etc.

In a paper published in *CHAOS*, Thotreithem Hongray and Janaki Balakrishnan reported discovery of the mechanism governing intriguing bow-tie shaped bursting oscillations observed in a simple mechanical pendulum with damping and an external driving fed through a dynamical feedback mechanism. Bursting oscillations such as these are observed in the hippocampal region of the brain. It is therefore hoped that our work will help in understanding the mechanism of similar oscillations seen in the brain also.

The Programme is funded by SERB, DST, Government of India via two projects: Rs.21,41,800/- for our three year research project (2015-2018): "Nonlinear oscillatory phenomena in sensory systems" and another three year project which is one of the three components of a three year (2017-2020) interdisciplinary NIAS-DST project (Rs.2,23,94,000/-) on human-environment interactions. The Complex Systems Programme is concerned with studying and modelling climate change and environmental effects on living systems.



## Members of the Complex Systems Programme



Janaki Balakrishnan, *Head*  
Post-doctoral Associate: Sudharsana V Iyengar

**Janaki Balakrishnan**  
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**Joined IAS on:** July 10, 2012

### Major Research Contribution for the Academic Year

Major research contributions during the past year were different mathematical models that were constructed for certain pest outbreak cycles occurring at high altitudes which explained all the observed features – sudden cessation of regularly occurring cycles after several centuries (we attributed this to global warming), absence of cycles in other similar locations nearby, variations from expected periodicities of the cycles elsewhere, etc. These were published in *Nature Scientific Reports* and in *CHAOS*. It was shown that climate change and environmental factors as well as the presence of an additional non-interacting species in the ecological system can account for the observations. Some theoretical predictions made in our *Nature Scientific Reports* paper have been validated experimentally (on the dependence of pest outbreaks on precipitation and temperature, as well as on the abundance of the host trees) in Fan and Braeuning, *Ecol.Indicators*, 74,160 (2017) and Hartl-Meier et al, *Agr.Forest Entomol*, 19 online: 31 JAN 2017, DOI:10.1111/afe.12216.

### Outreach

The engagement of Janaki Balakrishnan in teaching a three credit course which she conceived and designed "Introduction to Dynamical Systems Theory" (MA278) at the Indian Institute of Science (IISc), in her capacity as a Guest Faculty there constituted the main outreach activity of the Programme. This course was also open to IAS students to attend, if they were interested.

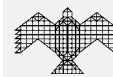
During the August-December, 2016 semester, 47 students from various Departments of IISc (Mechanical, Chemical, Civil and Aerospace Engineering, Physics, Mathematics, Nanoscience, Neuroscience, Atmospheric Sciences, Computer Science, and Ecology departments, and the Undergraduate Programme) attended the course, of whom 26 credited it. This included a German Exchange Programme student from Technical University, Munich. Janaki Balakrishnan has also been mentoring many students of IISc for their term projects, and some others who are working with her informally.

Other outreach activities include some continuing research collaborations outside IAS (at IIIT-B, IISc, and with Prof Juergen Kurths, Potsdam, Germany).

Sudharsana V Iyengar working under the supervision of Janaki Balakrishnan successfully completed her final PhD thesis defence at the School of Physics, University of Hyderabad, in November, 2016 where she was registered for her PhD. Her thesis was entitled "q-deformations and its applications in nonlinear maps".

### Academic Courses

Janaki Balakrishnan taught a three credit (one-semester) course "Introduction to Dynamical Systems Theory" (MA-278) in the Indian Institute of Science which was also open to interested IAS students to attend if interested. She also taught "Research Methods in Physical Sciences" in the Research Methodology Course (Course 201) in IAS in April 2016 and March 2017.



# ENERGY AND ENVIRONMENT RESEARCH PROGRAMME

## Introduction

India's Power Sector is undergoing a multi-faceted transition in terms of more stringent environmental standards while faced with a growing demand due to the aspirations of Indians for a better standard of living, and accelerating industrial growth in the country. India's current position is unique in this respect since the power sector must meet all these challenges while lowering the tariffs to enhance affordability without unduly increasing the subsidy burden of the Utilities. Therefore, in accordance with JRD Tata's Vision for NIAS to carry out in-depth, policy-relevant research from a multi-disciplinary perspective, the Energy and Environment Research Programme (EERP) at NIAS seeks to bring in the much-needed integration to Energy, Environment, Natural Resources, and Climate Change Studies at a time when India's Power Sector is undergoing a multi-faceted transition.

EERP consists of four full-time faculty (R Srikanth, TS Gopi Rethinaraj, Hippu Salk Kristle Nathan and Shoibal Chakravarty) supported by Research Associates and PhD Students. R Srikanth is working on Energy and Natural Resource Policies, Gopi Rethinaraj is working in the field of Nuclear Energy, HSK Nathan and Shoibal Chakravarty are working on Energy/Development Studies and Renewable Energy.

## Research Activities

Facilitating the Target of 100 GW Solar by 2022 – An Inclusive Analysis: On September 26, 2016, Ministry of New and Renewable Energy (MNRE) had sanctioned Rs.19.52 lakhs for a research project on Facilitating the Target of 100 GW Solar by 2022. The PI of this project is Shoibal Chakravarty and Co-PI is Hippu Salk Kristle Nathan. On January 11, 2017, Nathan conducted a Workshop on Rooftop Solar.

Global Technology Watch Group (GTWG) – Renewable Energy Technologies: The interim report on this project submitted by Dilip R Ahuja to the Department of Science Technology (DST) was accepted by DST before releasing the second tranche of funding to NIAS (Rs.25.46 lakhs) and other partner institutions. On January 23, 2017, Dr Akhilesh Gupta of DST reviewed the progress and appreciated the progress made and road map developed.

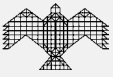
Interdisciplinary Forays into Human-Environment Interactions: On March 1, 2017, Science and Engineering Research Board (SERB) of DST sanctioned EERP's research project proposal on Sustainable Pathways to Energy Utilization, as one of the three studies in this Project being implemented by all three Programmes in the School of Natural Sciences and Engineering. EERP's share in this project is valued at Rs.86 lakhs, approximately. HSK Nathan and R Srikanth are the PI and Co-PI on the EERP segment of the Project, respectively.

Summer School on Grassroots Innovations: On behalf of NIAS, Nathan had submitted a multi-institution project proposal, Summer School on Grassroots Innovations, for which a total grant of Rs.19.47 lakhs was sanctioned by DST on March 2, 2017.

Integrated Approach to Energy and Environment in the Coal Sector: Since the 5-year grant-in-aid from Ministry of Earth Sciences (MOES) to NIAS (for research in areas connected with Energy, Environment, and Climate Change) expired in September 2016, EERP submitted a fresh proposal to MOES entitled, Integrated Approach to Energy and Environment. While the final proposal has been submitted on January 30, 2017, the formal grant is expected in June 2017 with R Srikanth as the PI and HSK Nathan as the Co-PI.

## Outreach Activities

TS Gopi Rethinaraj spent a month and half as a Visiting Scholar at the University of Illinois at Urbana-Champaign to initiate a major research project (with Prof Clifford Singer) on historical energy statistics. He was a Visiting Professor at the Graduate School of Public Policy, Nazarbayev University in Kazakhstan to teach public policy, and to mentor a small group of young Kazakh faculty members in curriculum development, for three months.

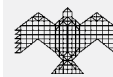


With a view to build awareness of various issues in the Banking and Energy sectors of India, R Srikanth has delivered several talks at various Training Courses/Workshops/Discussion Fora within and outside NIAS on Energy and Environment, India's Electricity Policy, and Risk Assessment and its Management.

Srikanth was responsible for recasting the 31<sup>st</sup> NIAS Annual Programme for Senior Executives, which is the flagship Training Course of NIAS. As a result, the Senior Executives Programme could attract the largest number of participants in the last five years.

Gopi Rethinaraj was the coordinator of the DST Training Programme held in February 2017.

Shoibal Chakravarty is setting up an informal network of researchers in the energy, ecology, environment and climate change field in institutions in Bengaluru with the intention of developing the group into a platform for research collaborations, public outreach, etc.



# Members of the Energy and Environment Research Programme



R Srikanth, *Head*  
Dilip R Ahuja (*till September 14, 2016*)  
TS Gopi Rethinaraj  
Shoibal Chakravarty  
Hippu Salk Kristle Nathan  
Research Associate: Anasuya Gangopadhyay (*till November 30, 2016*)  
Post-doctoral Associate: Sravanthi Choragudi  
Doctoral Students: Sashi Kiran C, Vijay CS

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**Joined NIAS on:** August 22, 2016

## Major Research Contribution for the Academic Year

On January 12 2017, NITI Aayog formally endorsed suggestions regarding certain critical issues to be considered in the Vision Document of the Ministry of Mines ("MOM") and has advised MOM to suitably incorporate them in the final Vision document. On February 3, 2017, PMO formally advised Ministry of Coal to formulate a Policy for Remediation of Abandoned and Closed Mines.

## Lectures

National Electricity Plan – Some Perspectives, NIAS-DST Training Programme, March 13, 2017.

Towards an Integrated Approach to Energy and Environment Policy, DST-INAE Clean Coal Workshop, New Delhi, October 26, 2016.

An Integrated Approach to Energy and Environment Policy, Indian Institute of Science, Bengaluru, September 23, 2016.

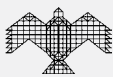
Technological Interventions and Best Practices to Operate Mines to Global Standards, IIT Kharagpur, September 2, 2016.

Strategic Sourcing – A Case Study, IIM Bangalore, August 25, 2016.

## Memberships

Appointed by NITI Aayog, Government of India to be an "Expert Member" of a Committee to assess the draft Vision Document of Ministry of Mines; Invited to present NIAS's views on the aforesaid draft Vision Document during a meeting held by Member, NITI Aayog and Secretary (Ministry of Mines) on December 29, 2016.

On November 17, 2016, appointed by the Ministry of Coal, Government of India to a Task Force to develop a "Regulatory Framework for Closure of Abandoned Surface (Opencast) Coal Mines".



### **Training Course**

Was responsible for recasting the 31<sup>st</sup> NIAS Annual Programme for Senior Executives, which is the flagship Training Course of NIAS. In addition to attracting one of the highest participation rates in recent years, for the first time, the Programme had to return nominations for want of space. The one-week Programme included a record number of external speakers including, dignitaries like, Prof K Kasturirangan, Mr B Muthuraman, Mr Anil Swarup, Mr K Venkataramanan, Vice Admiral RN Ganesh, Prof Vijayalakshmi Ravindranath, Mr Krishna Byre Gowda, Ambassador Nalin Surie, Dr Ajit V Sapre, Ms Revathy Ashok, Justice RV Raveendran, Prof Manas K Mandal, and Dr Soumya Swaminathan, all of whom brought in their valuable experience and learnings to inspire the participants. The evening public lectures by leading lights such as Mr Suresh Prabhu, Dr Arun Shourie and Mr Chandra Bhushan were well received by the participants as well as by the members of the citizenry of Bengaluru.



#### **TS Gopi Rethinaraj**

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**Joined NIAS on:** June 2, 2014

### **Major Research Contribution for the Academic Year**

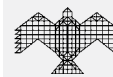
Appointed as Visiting Professor in Fall 2016 to teach and mentor at the new Graduate School of Public Policy, Nazarbayev University, Astana, Kazakhstan. Initiated and completed a long time-series data set on 10 different commercially traded energy sources for about 215 countries/regions in the world since early industrialization. This is a unique data set that will be made publicly available following the publication of "Historical Energy Statistics" (with Clifford Singer) by World Scientific Publishing Company (WSPC) in December 2018.

### **Honours and Visiting Appointments**

May–June 2016: Visiting Scholar to initiate a research project on Historical Energy Statistics at the University of Illinois at Urbana-Champaign.

August–December 2016: Visiting Professor Graduate School of Public Policy, Nazarbayev University, Astana, in Kazakhstan. Spent a full semester in residence in Astana teaching two graduate courses in public policy "Energy Systems and Climate Policy" and "Statistical Techniques for Public Policy" besides mentoring junior Kazakh faculty members in energy policy research and public outreach.

Appointed in March 2017 as member of the National Steering Committee for the Renewable Sector under the project "Technology Need Assessment" (TNA) sponsored by the Ministry of Environment, Forests, and Climate Change (MoEF&CC) toward the Third National Communication to UNFCCC.



### Lectures

Global Developments in Nuclear Energy, NIAS-DST Training Programme on Science Policy and General Management, February 13, 2017.

Nuclear Energy and Societal Response, NIAS-DST Programme on Multidisciplinary Perspectives in Science, Technology and Society, December 6, 2016.

Global Uranium Supply and Nuclear Power Future: Implications for Kazakhstan. Public Lecture at Nazarbayev University, Astana, Kazakhstan, September 23, 2016.

### Academic Course

Coordinator for the PhD Foundations Course and Research Methods Course offered for the 2016-17 incoming batch of NIAS PhD Students.

### Training Course

Coordinator for the two week NIAS-DST Programme on Science Policy and General Management from February 6 to 17, 2017 for senior scientists, technologists and administrators from various S&T organisations within the country. The main theme of the programme was Energy Security and Sustainable Development. 28 participants drawn from various institutions, laboratories and government departments in the country attended the programme.



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**Joined NIAS on:** July 1, 2014

### Major Research Contribution for the Academic Year

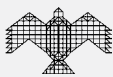
A study on the estimation of the distribution of Human Development Index (HDI) and its connection to energy use and emissions in India and the world. This has led to the working paper Surprises up the Energy Ladder.

### Lectures

SWITCH Documentary and Discussion, NIAS-DST Training Programme on Science Policy and General Management, February 7, 2017.

Renewables in the Indian Electricity Sector, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, July 13, 2016.

Renewables in the Indian Electricity Sector: How Fast and How Much? 5<sup>th</sup> Global Conference of the Initiative on Climate Adaptation Research and Understanding through the Social Sciences (ICARUS), Indian School of Business, Hyderabad, July 1, 2016.



**Hippy Salk Kristle  
Nathan**

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**Joined NIAS on:** February 24, 2012

**Major Research Contribution for the Academic Year**

The major research contribution has in this year is to draft the NIAS experience of the rooftop 100 kW system as a special publication. This publication has got the media coverage in The Hindu.

**Lectures**

Powerful Application of Simple Mathematics in Development Research: How I Stumbled Upon It to the Faculty and Students, *Department of Mathematics*, Christ University, Bengaluru, February 15, 2017.

NIAS Rooftop PV: Sharing of Experience and Visit to NIAS Facility at the NIAS-DST Training Programme on Science Policy and General Management, February 8, 2017.

Sustainability of Urban Transportation Systems, at the Faculty Development Programme (Recent Advancements in Transportation Engineering), Department of Civil Engineering, Ramaiah Institute of Technology, Bengaluru, January 20, 2017.

Innovations in the Energy Environment Policy Programme at NIAS, at the Faculty Development Programme (Energy conservation and Management), College of Engineering and Technology, Bhubaneswar, September 22, 2016.

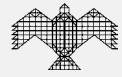
Energy Access and Energy Poverty: Concepts and Insights on Measurements, to the first year MBA students, Acharya Bangalore Business School, Bengaluru, September 16, 2016.

ADB seminar talk on Energy Access and Energy Poverty: Concepts and Insights on Measurements, Asia Development Bank Institute, Tokyo, August 31, 2016.

HDCA (Human Development and Capability Association) 2016 Annual Conference on Capability and Diversity in a Global Society – paper presentation on Dying in Silence: A Study on Mortality-Morbidity Gap in India, Hitotsubashi University, Tokyo, September 1 to 3, 2016.

GIDR discussion series talk on Energy Access and Energy Poverty: Some Concepts and Insights on Measurements, Gujarat Institute of Development Research, Ahmedabad, July 22, 2016.





### **Academic Courses**

Four lectures on the sub-topics 'Frameworks for measuring sustainability' and 'Indicators of sustainability' under the course – *Managing Technology for Sustainability* at Department of Management Studies, Indian Institute of Science, Bengaluru in January–February, 2017. The course is being floated by Dr P Balachandra.

Lecture on the sub-topic Sustainable Development under the Foundation Course at IAS, November 10, 2016.

### **Awards, Memberships**

International Fellowship Award from Urban Studies Foundation: Awarded a six-month fellowship (2016-2017) for the proposal "Urban Sustainability frameworks: Case of Mumbai Transportation battleground" at the McGill University, Montreal.

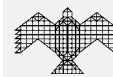
Subir Chowdhury Fellowship on Quality and Economics 2016, London School of Economics and Political Science. The study proposal accepted for this fellowship is entitled as "Energy Poverty and Quality of Life in India: A household-level analysis".

# SCHOOL OF SOCIAL SCIENCES

## Programmes

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- Education
- NIAS-UNDP Policy Research Initiative on Inequality and Human Development
- RBI Programme on Inter-Disciplinary Approaches to Economic Issues
- Urban and Mobility Studies
- Water



## HIGHLIGHTS

### **Education Programme**

The Education Programme has made significant contributions in Gifted Education. Based on the premise that India will need multiple protocols for identifying the gifted children, the team is forging ahead conducting research followed by standardisation process. The protocol argues for the judicious mix of quantitative and qualitative techniques that reflect the cultural realities of the Indian sub-continent. Steering the National Programme, the first version of the protocol of identification of the gifted children in the age group of 3 to 15 in urban mainstream schools is ready for large scale testing and up scaling. In an attempt to develop an identification protocol for gifted children in rural and tribal areas using grounded theory approach, the team has piloted the project in four taluks – two each from Mysore and Chamarajanagar districts of Karnataka. Over 918 teachers through 18 workshops were conducted in collaboration with the Government of Karnataka.

The team working on social exclusion and education is now part of the invited core group working towards revising Ashram school *sanhita* (code book). Towards this, we participated in two meetings organised by the Government of Maharashtra (March 24 and 25 and May 20, 2017).

### **NIAS-UNDP Policy Research Initiative on Inequality and Human Development**

The programme successfully carried out a set of large national surveys covering two important aspects of the Indian social reality, one on the transition from an agrarian economy to a non-agrarian one, and the other on circular migration.

The working paper on Inequality and Farmers' Suicides by Debosree Bajar was very well received in both academia and the wider intellectual community. The working paper by Sumedha Bajar on Locational Mismatch between the Demand for Jobs and the Demand for Skills in India, was also seen as making an important contribution to the larger debate on skill development.

### **RBI Programme on Inter-Disciplinary Approaches to Economic Issues**

As a part of the project, we have embarked on large-scale quantitative and qualitative surveys of rural Karnataka. Previous studies have shown that Karnataka can be divided into five regions viz. North-Eastern Karnataka, North-Western Karnataka, Coastal Karnataka, Malnad, and Southern Karnataka that are economically and socially distinct. Naturally, each of these regions is likely to have different informal financial systems requiring different interventions.

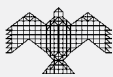
The sample selected for the surveys thus aims at providing an appropriate representation to each of these by selecting two districts per region. The quantitative surveys, wherein the main purpose has been to ascertain the distinct instruments and the relative magnitudes of formal and informal finance, have obtained data from across 4000 rural households across 10 districts. The qualitative surveys that are focused on understanding the underlying processes of informal finance and its interactions with its formal counterparts have been executed in another 10 districts.

### **Urban and Mobility Studies Programme**

Sanam Roohi, doctoral student in the Provincial Globalisation Programme, successfully defended her dissertation at the University of Amsterdam December 2016. Her thesis is entitled Giving Back: Diaspora Philanthropy and the Transnationalisation of Caste in Guntur (India). Sanam was the second ProGlo student to complete her degree.

### **Water Programme**

The Water Programme is committed to facilitating access to water as a basic human right and ensuring availability of safe, adequate and equitable water for all. The programme engages in designing and implementing exclusive methodologies for evolving sustainable solutions in the water sector. The thrust area include addressing problems concerning drinking water, sanitation, water sharing and disputes all across the country and providing alternatives and sustainable solutions using integrated water resource management with the harmonization of science, technology, social sciences and stakeholders. The research based findings are disseminated among the stakeholders in order to facilitate informed debate for policy.



# EDUCATION PROGRAMME

## Introduction

Over the last decade and more, the programme has been active in the areas of education research, teaching, advocacy and outreach. A number of faculty members had been working on issues of education since 1998, but the programme was formalised in NIAS in 2004. Over the years our work has found audience in diverse forums including academic journals, national and international conferences, teach-ins, government committee experts, governing boards of educational institutions among others. In addition to the scholars from around the world, we have collaborated with students, teachers, administrators, government officials and civil society organisations. Our work is carried out through three nodal initiatives: 1) Platform for Education Policy 2) Curriculum Exchange Network 3) Research in Critical Areas of Education. Working on all levels of education and interacting with different stakeholders, we have been able to identify trends, review schemes, draft reports, and contribute to policies at state and national levels, collaborating around issues involving meaningful, viable visions of education. Our team has made significant contributions at all levels of schooling.

The last year, in particular, has seen the programme get stronger in its faculty strength and more resolute towards tackling some of the complex questions that are part of our education system. The programme now has four full time faculty members, one post-doctoral associate, four doctoral students, several visiting and adjunct faculty members and several research collaborators.

The programme focuses on the following four thrust areas that have also been part of our research and action commitment for the next three years:

- Education of the Gifted and Talented
- Social Exclusion and Education
- Women in STEM Disciplines
- Vocational and Higher Education

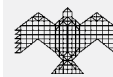
Each of these four components has been our priority though our faculty members also pursue research that goes beyond these domains. These components include diverse and in-depth plans involving several stages of research and action.

In terms of overall details, the team working on education of the gifted and talented completed 11 teacher training workshops and is in receipt of a total of 537 nominations from teachers. Our second project, social exclusion and education, completed field surveys in 4 districts, covering more than 5000 students and 400 teachers. The team working on Women in STEM successfully completed a national level consultative meeting inviting diverse stakeholders. The project on vocational education has focused on data collection and interviews with individuals involved in industrial employment generation work. A total of 60 employees in BHEL and 100 employees in BHEL have been interviewed.

The team working on education of the gifted and talented organised a set of following activities:

Completion of Teacher Training Workshops in the Rural and Tribal Areas: We completed teachers training workshops for government school teachers in Mysore and Chamarajanagar districts. Through these teacher training workshops, we have been able to do a total of 18 workshops and train 913 teachers.

Training the Field Investigators: Field investigators have been hired and trained for profiling the gifted children along with the NIAS research team.



Under the project, social exclusion and education, the following activities were organised:

Two consultative meetings co-organised with the RTE forum Maharashtra on the conditions of Ashram schools in the state.

Participation in the core group working on revising the code of conduct of Ashram schools.

We are also involved in revisiting the code of conduct for Ashram schools and working on new ways of understanding the needs of disadvantaged communities.

The women in the STEM project organised a National Consultation Meeting on January 27 and 28, 2017. The meeting was inaugurated by Prof Ramsamy Iyengar, President, Indian Academy of Sciences, Bengaluru. The consultation drew women scientists from across premier institutions, universities, research laboratories including ISRO and DRDO. The objectives of the project and the research design was finalised in this consultation meeting through dialogue and discussions. The Meeting report was published in Current Science in May 2017.

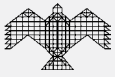
The project working on vocational education has been engaged in field work with a diverse range of institutions and agencies. The team working on Women in Science, Technology, Engineering and Mathematics (STEM) project conducted a consultation meeting on January 27 and 28, 2017.



### Outreach

One Day Workshop with Children on NIAS Pool: NIAS conducted a one day workshop in collaboration with IDEA Lab, Bengaluru, for the children, during the month February, 2017.

NIAS-Maiya Prodigy Programme: The NIAS-Maiya Prodigy Fellowship Programme, a collaboration with Iyengar Foundation and National College, Basavanagudi was launched on January 6, 2017 at NIAS. This initiative aims to identify talent at grades X and XII and embark on an active mentoring initiative to

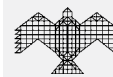


accelerate youth achievement in promoting the development of India's Gifted Young. The programme offered fellowships (Rs.50, 000/-) to the identified individual and links them to an active mentoring programme.

**Contesting Exclusions in Higher Education: Pedagogies, Practices and Policies:** Two day workshop organised by the Education Programme at NIAS on January 24 and 25, 2017. In recent years, higher educational institutions have become sites of contestation over questions of access, pedagogy, campus cultures and political activism to name a few. In fact, the recent student mobilisations on many campuses have turned our attention to some of the basic questions: what purpose do institutions of higher education serve? To what extent is classroom learning embedded in social learning? How do legacies of domination (caste/gender/class and other) play out in institutional spaces? In what ways do the claims over education occur and how are they negotiated, resisted? In order to deliberate on these questions, we organised a two-day workshop in which scholars from various institutions across the country participated and presented their work as well as participated in the discussions.

**Writings and Thoughts of Ambedkar:** On April 11, 2017, the Education Programme organised "Discussion on the Writings and Thought of Dr BR Ambedkar" in NIAS. The discussion, held in collaboration with the Department of Social Welfare, Government of Karnataka, was part of a larger endeavor to familiarize young people with the writings of Ambedkar. Prof VS Sridhar, a retired Professor of English from Vijaya College, Bengaluru, and a human rights activist was the main speaker on the occasion.





## Members of the Education Programme



Anitha Kurup, *Head*

Shivali Tukdeo

Shalini Dixit

Jeebanlata Salam

Malavika Kapur

Post-doctoral Associate: Leya Mathew, Bharat Chandra Rout (*till September 30, 2016*)

Research Associates: Ajay Chandra, Ashwini K, Manjula A, Tanya Singh, Shivangi Singh, Mrinmayee Mandal, Surbhi Arora, Samhita K

Doctoral Students: Chetan B Singai, Anupama Mahajan, Savitha Suresh Babu, Subroto Dey

### **Anitha Kurup**

Professor and Dean  
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**Joined NIAS on:** January 2, 1995

### **Major Research Contribution for the Academic Year**

The Gifted Education Programme team that Anitha Kurup lead developed an Indian based protocol to identify gifted children in the age group of 3 to 15 years, for urban mainstream schools in India.

### **Lectures**

Key Questions in Women in STEM in India, National Consultation of Women in STEM – India, NIAS, January 27, 2017.

Policy Initiatives of Women in the STEM Programme in the National Consultation of Women in STEM – India, NIAS, January 27, 2017.

Proposal of the National Gifted Education Programme to Mr Anil Swarup, Secretary, Department of School Education and Literacy, Government of India, at NIAS, January 17, 2017.

Emerging Challenges of School Leadership, Aditya Birla Annual Conference of Principals, Gyanodaya, Mumbai, November 28, 2016, as part of OUP Outreach.

Keynote speaker in five workshops organised in Bengaluru, Mangalore, Hyderabad, Vellore, Mumbai during the months of September 2016 and January 2017 on Enabling Learner-Centric Education: Blended Learning Approach, as part of the OUP Outreach Programme in India.

### **Awards, Memberships**

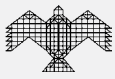
Member, Academic Council, Christ University, Bengaluru (2014 – till date)

Member, Academic Council, Bhagat Phool Singh Mahila Vishwavidyalaya, Sonapat, Haryana (2014 – till date)

Was invited as an expert, to write a chapter on Higher Education for the Karnataka State Human Development Report by the Department of Planning, Government of Karnataka and UNDP.

Member, Ethics Committee, Centre for Brain Research, Indian Institute of Science, Bengaluru.

Honorary Research Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 2015 onwards.



**Shivali Tukdeo**  
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**Joined NIAS on:** March 10, 2010

### **Major Research Contribution for the Academic Year**

Our work on learning experiences in Ashram schools has led to several workshops and meetings in the state of Maharashtra. We have also been part of the core committee that is working on revisiting the code book for Ashram schools in the state.

### **Lectures**

Revisiting Ashram School Sanhita, RTE Forum, Aurangabad, March 25, 2017.

Caste and Education in India, National Law School of India University, Bengaluru, January 10, 2017.

Educational Research at the Crossroads?, invited panel at the Comparative Educational Society India, Sri Venkateshwara University, Tirupati, November 19, 2016.

Fifty Years of Kothari Commission, Indian Institute of Science, Bengaluru, August 1, 2016.

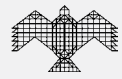
### **Academic Courses**

Perspectives in Education Research: The course is mandatory to all incoming doctoral students in education. Designed to cover two semesters, the course introduces students to some of the essential writings in history, philosophy, sociology and policy of education. The other component of the course is to help students develop their doctoral thesis proposal.

### **Training Course**

Science for India's Progress: A Focus on Sustainability, February 27 to March 3, 2017 (with Shalini Dixit)





**Shalini Dixit**  
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**Joined NIAS on:** December 21, 2015

### **Major Research Contribution for the Academic Year**

We have finalised the NIAS model for identification of gifted children in mainstream urban settings, and is ready for up-scaling. Besides, owing to our own reflections and NIAS's commitment towards the underprivileged, we initiated work of identifying gifted and talented children in rural and tribal areas of Karnataka. In an effort to address the diversity of India we have worked out identification and mentoring model for rural and tribal areas. Using this model we have generated interesting set of data and analyzing it.

### **Lecture**

Narrative Analysis, Quality Improvement Programme, Department of Languages, Christ University, Bengaluru, April 28, 2016.

### **Academic Course**

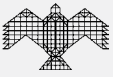
Psychology of Learning and Personality (August to November 2017): This course introduced some principles of psychology to explain our day-to-day engagements through the Learning and Psychology theories. Considering the general interest of students at NIAS this course was designed as an introduction to the basic psychological principles involved in learning and personality. The focus remained at developing and applying critical understanding of psychological theories to find solutions towards day-to-day situations and educational reform. The course was taken by students from NIAS and IISc.

### **Training Course**

NIAS-DST Training Programme on Science for India's Progress: A Focus on Sustainability, February 27 to March 3, 2017 (with Shivali Tukdeo)

### **Membership**

Member, National Academy of Psychology



**Jeebanlata Salam**  
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**Joined NIAS on:** February 22, 2106

### **Major Research Contribution for the Academic Year**

Engaging in vocational skill policy studies from field perspectives.

### **Lectures**

Presented paper entitled Everyday Violence, Schooling and Mediating Institutions at national seminar on Education and Public Sphere: Exploring the Structures of Mediation in Post Colonial India, Jawaharlal Nehru University, New Delhi, March 18, 2017.

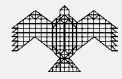
Social Cultural Landscape of Manipur, Nightingales Elders Enrichment Centre (NEEC), Bengaluru, January 20, 2017.

Presented paper entitled Social Exclusion and Special Educational Interventions among Muslims of Bihar at national conference on Nation, Community, and Citizenship in Contemporary India at NIAS, January 10, 2017.

### **Outreach**

One day state level workshop on State Skills Policy, Karnataka at Hotel Capital, Bengaluru on January 27, 2017.

Organised a public lecture on Vocational Education: Exploring New Pathways for Craftsmanship in Different Continents at NIAS on December 2, 2016.



**Malavika Kapur**  
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**Joined NIAS on:** May 1, 2003

### **Major Research Contribution for the Academic Year**

Use of child centred play intervention and outcome evaluation of the programmes in government primary schools and tribal schools. Qualitative research into childcare in the indigenous child care systems.

### **Lectures**

Visual Media/Technology and Children, Prasanna Counselling Centre, Bengaluru, February 11, 2017.

Enrichment Programme in Guidance and Counselling, Department of Educational Psychology and Foundation of Education, NCERT, New Delhi, June 1, 2016.

Management of Psychological Disorders in School Setting, Department of Educational Psychology and Foundation of Education, NCERT, New Delhi, May 31, 2016.

Valedictory Address on Innovative Methods to Facilitate Learning in Children, Samvidh, Bengaluru, April 24, 2016.

SynTalk (Radio talk), Free Wheeling Interdisciplinary Talk, Mumbai, April 24, 2016.

### **Meetings**

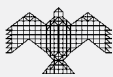
Workshop for the Staff of AMMT on Assessment and Remedial for Field Staff in New Delhi, March 23 and 24, 2017.

Invited by the Bangalore Literature Festival to have the book discussion by the author Little Red Couch, December 18, 2016.

Chaired a session on the theme of Inclusion and Development in a Seminar on Emerging Trends in Inclusion and Rehabilitation of people with Intellectual and Developmental Disabilities (IDD) organised by the Department of Psychiatric Social Work, NIMHANS, Bengaluru, December 12, 2016.

Attended Departmental Advisory Board Meeting as the Expert in the Department of Educational Psychology and Foundation of Education, NCERT, New Delhi, December 12, 2016.

Attended as the expert committee member Departmental Advisory Board Meeting in the Department of Educational Psychology and Foundation of Education, NCERT, New Delhi, November 27, 2016.



Fourth meeting of the Psychology Syllabus Committee of the University Grants Commission, September 11, 2016.

Plenary session on the topic Psychological Perspective Childcare in the Indian Indigenous Health Systems during the International Conference on Contemporary Trends in Psychology, Department of Clinical Psychology, NIMHANS, Bengaluru, September 9, 2016.

Third meeting of the Psychology Syllabus Committee of the University Grants Commission, June 6, 2016.

Second meeting of the Psychology Syllabus Committee of the University Grants Commission, May 31, 2016.

AMMT Workshop on Learning Difficulties for Municipal Corporation Children, New Delhi May 3, 2016.

### **Other Contributions**

The Child Guidance Centre on Bull Temple Road in Bengaluru. It is a Free Child Guidance Centre, run on Saturday afternoons with the help of 11 volunteers. The activities consisted of psychological assessment and psychological counselling.

Psychology East and West, Foundation Course lectures for PhD Scholars at NIAS on September 15 and 20, 2016.

Member, NIAS Research Ethics Committee 2016-2018. Attended meetings and cleared the proposals of three PhD Scholars.

Member of Students Advisory Committee for two PhD Scholars.

Member of the Panel Discussion on MN Srinivas as a Public Intellectual, as part of National Level Seminar on Nation, Community, and Citizenship in Contemporary India, January 9, 2017.

Exeter Team Visit Meeting, January 11, 2017.

### **Outreach**

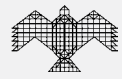
Resource person and co-organiser for a workshop on Curriculum Development for Remedial Schools organised by the AMMT Trust, India International Centre, New Delhi, March 21, 2017.

A Slide Show on Wildlife Conservation by an eminent forest ranger, for 300 students and teachers of Morarji Desai and Ekalavya Schools in H.D. Kote on December 17, 2016.

A Workshop for Teachers of a Ashram School on Child Development and Mental Health at Basavanagiri Ashram School, Bengaluru on December 17, 2016.

A series of six Workshops on Child Development and Child Mental Health for 60 school teachers at the Child Guidance Centre, Bull Temple Road, Bengaluru once a week between November 5 and December 10, 2016.

Organised a Science Workshop and provided science kits to 49 tenth grade students of Ekalavya School at H.D. Kote on September 28 and 29, 2016.



**Leya Mathew**  
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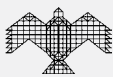
**Joined NIAS on:** August 8, 2016

### **Major Research Contribution for the Academic Year**

While the unprecedented expansion of non-elite educational aspirations has received some scholarly attention in recent years, it has typically been examined under the rubric of "school choice". Departing from conceptual terrains that were developed to explain educational systems in the US and UK, my research traced the aspirational mobilities of non-elites in contemporary India, positing that the restructuring of gendered physical and social spaces during the post-market-reform period had precipitated temporal migrations. A second strand examined the disciplinary assumptions and socio-political events situating English Language Teaching reforms in contemporary India to detail the complex inter-play between two parallel socio-linguistic hierarchies 1) the older literacy-literary divide and 2) an emergent orality-literary divide. She is presently developing a conceptual framework to analyze the co-production of science and gender in the Indian context.

### **Award**

US National Academy of Education/Spencer Foundation Dissertation Fellow 2015.



# NIAS-UNDP POLICY RESEARCH INITIATIVE ON INEQUALITY AND HUMAN DEVELOPMENT

## Introduction

The NIAS-UNDP Policy Research Initiative on Inequality and Human Development aims to develop policy options based on multidisciplinary and empirically consistent conceptualization of inequality and to contribute towards public discourse to enable more informed policy choices. This policy research initiative will expand our ability to understand the dynamic effects that inequality has on other processes in society such as on growth, individual aspirations, and rise of regional identities. The immediate task the initiative has set for itself is to address the inequalities that arise from the process of transformation of the Indian economy from an agrarian one to a non-agrarian one. As a step towards such an understanding, two specific projects have been launched with the financial support of TCS, one to understand the effects on inequality of the transformation from a predominantly rural economy to a mainly urban one; and another to understand one of the most discussed possible consequences of this process: farmers' suicides. These projects are based on an original conceptualization of inequality.

## Research Activities

The transition from an agrarian economy to a non-agrarian one has taken different routes and with differing momentum across the varied regions of the country. These differences are reflected in the nature and extent of the labour being released from agriculture, the type of jobs that are emerging to absorb them, and the location of these jobs. A comprehensive statistical package based on secondary data at the district level has been generated using Census Data at district level over the period 2001 and 2011 that looks at this process in India. This transition process across all districts in India has been mapped and the differences between the locational dimension of emerging demand for jobs and skills highlighted in a working paper titled *Locational Mismatch between the Demand for Jobs and the Demand for Skills in India* by Sumedha Bajar. As part of this project, to study the inequalities generated from the process of transition, quantitative survey has been undertaken in 8 states (in 8 districts and 26 villages) across 3200 households.

After identifying patterns of transition, it was found that those moving out of main agriculture do not leave agriculture completely, but continue working as marginal workers. This process is being studied both in terms of the workers who come to the city looking for work and what happens to the village economy when majority of workers are marginal in that village. To study the inequality generating processes for these workers in the districts where they come from, quantitative survey is underway in two states – Jharkhand and Karnataka – in 5 districts and 6 villages across 1200 households. For the second part of this research, qualitative fieldwork is in progress in a village with almost 100 per cent marginal workers in Uttar Pradesh to understand the dynamics involved in a village which has such high intensity of marginal workers.

The process of transforming an agrarian society to a non-agrarian one, without a safety net, also has non-economic consequences. The most widely recognised examples of this pressure are in the many cases of farmers' suicides. Following the results published in NIAS Working Paper titled *Inequality and Farmers' Suicides in India* by Debosree Banerjee, the overall data for the states for twenty years has been used to extend Emile Durkheim's theory of suicides to explain the macroeconomic causes of farmers' suicides in India. An econometric model to understand what the macro picture tells us about the causes of farmers' suicides forms the basis of second working paper being completed by Debosree Banerjee and Viswesh Rammohan. Based on the results of the working papers the project has initiated quantitative and qualitative analysis of farmers' suicides in specific villages in Kerala.

## Outreach

NIAS-UNDP Policy Research Initiative on Inequality and Human Development Review Workshops at NIAS on February 7 and 8, 2017. The workshops were designed to review the work done so far and the proposed future directions for the Policy Research Initiative. Senior academics across multiple disciplines were invited for reviewing the programme over the two-day period. The external academics who attended the workshops were Prof CT Kurien, Former Chairman of Madras Institute of Development Studies, Chennai; Prof Ramila Bisht, Centre for Community Health, Jawaharlal Nehru University, Delhi; Prof Suraj Jacob, Azim Premji University,

Bengaluru; Prof Anand Kumar, Indian Institute of Advanced Studies, Shimla; and Prof Srijit Mishra, Director, Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar.

In order to make the best use of the intellectual capital available at the workshop the presentations were designed to generate a discussion not just on the specific projects but also on the conceptual approach to inequality that has been adopted by the NIAS-UNDP Policy Research Initiative on Inequality and Human Development. The two workshops received a positive feedback on the content, goals and methodology used in the Initiative, even as the experts provided a range of constructive suggestions on the way forward.

Sumedha Bajar was invited to participate in a workshop organised by the Department of Skill Development, Entrepreneurship and Livelihood, Government of Karnataka on January 27, 2017. The aim of the workshop was to elicit the suggestions of experts and practitioners in the field to help fine tune the draft policy on skills for the state of Karnataka.

As part of NIAS-UNDP Policy Research Initiative on Inequality and Human Development, public lecture by Dr Sudhakar Varanasi was organised on August 9, 2016. The lecture was titled Working with Head and Heart Aligned: The Story of the Emergency Services Project 108 in India and talked about Emergency Response Services which were started in 2005 in Andhra Pradesh with modern systems and technology to reach even the remotest villages. This free service has scaled up remarkably and is now available in more than 20 states and reaches about 800 million people in India and has saved more than a million lives in the past one decade.

The programme has also been active in communicating its ideas about inequality and human development to public discourse through the medium of newspaper articles. Some of these contributions were:

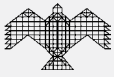
- Drowned in Lakeside Controversies by Narendar Pani, Business Line, March 22, 2017.
- When Institutions are Put on the Mat by Narendar Pani, Business Line, January 22, 2017.
- It's Governance without Compassion by Narendar Pani, Business Line, December 22, 2016.
- Boys Get to be Born in Better Hospitals by Narendar Pani, Business Line, August 26, 2016.
- The Permanence of Temporary Workers by Narendar Pani, Business Line, June 22, 2016.

### Academic Courses

Statistics for Social Sciences by Narendar Pani, Kshitija A Joshi and Sumedha Bajar. The course aimed to provide students with a conceptual understanding of the domain of statistics and the role it plays in the process of social science research. Along with an explanation of statistical methods, the course provided hands-on experience in handling datasets and statistical software.

The Agrarian to Non-Agrarian Transition in India by Narendar Pani. The course traced the theoretical and empirical dimensions of India's transition from an agrarian to a non-agrarian economy.





## Members of the NIAS-UNDP Policy Research Initiative on Inequality and Human Development

Narendar Pani, *Head*

Abha Rao

Post-Doctoral Associates: Debosree Banerjee (*till December 31, 2016*), Sumedha Bajar

Research Associates: Viswesh Rammohan, Monika Yadav, Priya MN, Shihabudin

Doctoral Students: Ankita Rathi, Meera Sudhakar



### **Abha S Rao**

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**Joined NIAS on:** October 17, 2016

### **Major Research Contribution for the Academic Year**

Contributed to the NIAS-UNDP Policy Research Initiative on Inequality and Human Development research group in terms of questionnaire and survey design, organizing the training programme and expert review workshop, writing quarterly reports for TCS, and providing some research guidance on data analysis to research associates. Also contributed to the work done on the RBI Programme on Interdisciplinary Approaches to Economic Issues.

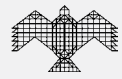


### **Debosree Banerjee**

Post-doctoral  
Associate  
School of Social  
Sciences

**Joined NIAS on:** December 14, 2015





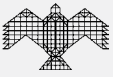
**Sumedha Bajar**  
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**Joined NIAS on:** January 1, 2016

### **Major Research Contribution for the Academic Year**

In order to understand the nature of agrarian transition in India and its influence on demand for jobs, Sumedha Bajar mapped the proportion of cultivators to agricultural labour as an indicator of the agrarian structure, rural to urban migration patterns and proportion of main and marginal workers in various states. This work has been published as NIAS Working Paper (WP6-2017). The paper develops district level estimates of nature of the demand for skills in the rural economy over the period 2001 to 2011 using Census Data. It goes on to estimate the extent and location of the demand for skills within agriculture, the extent and location of the demand for non-farm skills in the rural economy, and the extent and location of the demand for skills from those moving out of the rural economy. It finally argues that an effective skill development programme must be more sensitive to the challenges that are emerging in rural India.



# RBI PROGRAMME ON INTER-DISCIPLINARY APPROACHES TO ECONOMIC ISSUES

## Introduction

The aim of the RBI Programme is to tap multiple disciplines to enrich our understanding of what are normally seen as economic concerns. While much of interdisciplinary economics, as a field, concentrates on using economic concepts to understand other social science disciplines, the focus of this programme has been on using concepts from other social sciences to provide a more inclusive view of economic issues. It was with this perspective that the RBI Programme covered issues ranging from the impact of globalisation, the working of official rural and urban interventions, the conceptualisation of urbanisation, the effects of cash transfers, and strategies for manufacturing.

## Research Activities

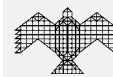
During the year an important arena of focus for the RBI Programme has been the issue of 'inclusion'. Inclusion as such, is a multi-faceted construct and may be viewed to comprise various dimensions viz. economic, social, political and cultural. However, irrespective of the specifics, its prime objective is to improve processes that enhance the ability, opportunity, and dignity of people who have been disadvantaged on the basis of their identity, to take part in society. The need for inclusion has been increasingly recognised in recent years, especially in the aftermath of the global financial and economic crisis which brought forth the vulnerability of the marginalised sections and revealed how the same could translate to the aggravation of social tensions in many societies.

A relevant issue in this context pertains to enhancement in the levels of financial inclusion. It has been increasingly recognised that access to and use of formal financial services not only has a positive impact at the client and household levels but, if done sustainably and at scale, can have a broader positive impact on national economic development by helping to lower transaction costs, managing risks, enhancing consumption smoothing and mitigating economic inequalities. The challenge of financial inclusion in India has been understood since

long and several attempts been made to bring the hitherto 'unbanked' or excluded sections under the purview of the formal financial sector. However, these supply-side measures have not been by themselves successful in guaranteeing substantial increases in the levels of inclusion. Quite notably, the informal financial sector has remained resilient such that even with the provision of formal sector alternatives, there is a strong preference for the informal sector among the rural and the urban poor. Thus, it becomes important to understand the causes of this duality and the persistence of informal finance in particular.

It is with the aim of exploring these issues that we have embarked on two projects that attempts to explore the demand side of financial inclusion in rural Karnataka. These projects have been fully supported by Vijaya Bank with a corpus of Rs.62.09 lakhs over the period of one year. The first project is titled 'Nature of Financial Instruments in Rural Karnataka' aims at ascertaining the relative composition and magnitude of formal and informal finance. The second project titled 'Boundaries of Formal and Informal Finance in Rural Karnataka' looks at the underlying processes that drive the interactions between the formal and the informal financial systems. In both these projects *finance* has been defined in the broad sense to include all the relevant aspects viz. savings and investment, credit, insurance and funds transfer.





## Outreach

The RBI programme organised a half-day workshop on September 7, 2016 to address the relevant issues pertaining to financial inclusion. The background of the honourable speakers for this workshop covered the entire spectrum ranging from academia, banking sector and industry.

The specific speakers were Prof Charan Singh (RBI Chair Professor at IIM Bangalore), Mr Anal Jain (Member of the Board, Grameen Koota and a well-experienced professional belonging to the Micro-Finance domain), Mr Govind Dongre (General Manager, Vijaya Bank), Mr Y Nageswara Rao (Executive Director, Vijaya Bank), Mr VVR Sastry (Non-Official Director, Vijaya Bank) and Prof Narendar Pani. The workshop covered specific issues related to the supply and demand sides of financial inclusion.

The programme also organised a public lecture by Prof Amit Bhaduri (Emeritus Professor, Jawaharlal Nehru University, New Delhi) on July 4, 2016, that was titled Truths and Untruths about the Indian Economy in the Global Financial Setting. In his lecture, Prof Bhaduri reviewed the challenge of jobless growth in India and how it has resulted in the creating of "Two Indias within the same country".

The programme has actively communicated its agenda through the medium of diverse newspaper articles. A selected few among these have been given below:

Monumental Efforts to Erase History, Business Line, March 22, 2017.

Why the People Don't Choose to Go Cashless, Business Line, December 3, 2016.

Shrinking Cultural Space in Urban India, Business Line, October 24, 2016.

Fear and Identity Politics in Indian Spaces, Business Line, September 26, 2016.

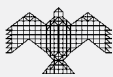
In India, Sport is Divorced from Play, Business Line, July 22, 2016.

What the Garment Workers are Saying, Business Line, May 26, 2016.

## Academic Courses

Narendar Pani and Kshitija Joshi jointly offered the course titled Dimensions of Inclusion. This course aimed to provide students with an understanding of inclusion at methodological, conceptual and empirical levels. At the methodological level, the course explored the problem of abstraction leading to the exclusion of key factors, and made a case for an inclusive method. At the conceptual level, it developed inclusive concepts of social and economic development. The course also examined the empirical evidence on inclusiveness in India.





## Members of the RBI Programme on Inter-Disciplinary Approaches to Economic Issues



Narendar Pani, *Head*  
Kshitija A Joshi  
Research Associates: BL Varalakshmi, Jiaul Haque  
Consultant: CR Ranjini  
Doctoral Students: Soundarya Iyer, Shatarupa Bhattacharya, NS Nalini

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**Joined NIAS on:** April 9, 2007

### **Major Research Contribution for the Academic Year**

The year saw the publication of two papers that contributed to issues of governance. The first paper traced the historical origins of a conflict between a modern legal system and existing social norms to suggest reasons for present day corruption. The second analysed the effects of science and technology policies in India pointing to an interaction between science and society that was not entirely anticipated by policy makers. In addition during the year Narendar Pani also initiated work on dimensions of regionalism. In one initiative he looked at how regionalism was experienced to point to the role of different spaces – from absolute space to organic space – in the consolidation of regionalism. In the other he looked at the continuing effects of first nature on the state led development strategy of southern Karnataka.

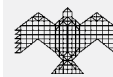
### **Lectures**

Morality of Science, NIAS–DST Training Programme Science for Progress in India: Focus on Sustainability for Women Scientists, March 2, 2017.

Socioeconomics of Sustainable Development, NIAS-DST Training Programme on Science Policy and General Management, February 9, 2017.

Panelist in a discussion on The Theatre of Demonetization, Bangalore Literary Festival, December 17, 2016.

Slapping a Giant: The Demonetization Gamble at Institute for Social and Economic Change, Bengaluru, November 29, 2016.



**Kshitija A Joshi**  
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**Joined NIAS on:** January 1, 2016

### **Major Research Contribution for the Academic Year**

Worked on three research proposals (with Narendar Pani) viz. Socio-economic Dynamics of Science and Technology in India, Nature of Financial Instruments in Rural Karnataka, and Boundaries of Formal and Informal Finance, two of which received a successful funding of Rs.62.09 lakhs from Vijaya Bank. She has played a vital role in designing and implementing the large-scale surveys for the projects pertaining to Financial Inclusion.



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**Joined NIAS on:** December 10, 2004

### **Lectures**

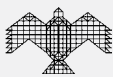
Can Decentralization Lead to Social Inclusion: The Indian Experience, South Asia Workshop at Tata Institute of Social Sciences, Mumbai, March 22, 2017.

Civil Society and Governance for Public Welfare, Sathyabhama University, Chennai, February 10, 2017.

Ethics and Governance in Higher Education, UGC-HRD Programme at Bangalore University, February 6, 2017.

Progress and Prospects of MGNREGA: Validation and Policy, IRMA, Anand along with Gandhigram Rural University at Chennai, January 28, 2017.

Setting the Context for Gender and Governance, UNICEF, Hyderabad at NIRD and PR, January 25, 2017.



Evolution of PMO as an Institution of Governance, Tata Institute of Social Sciences, Mumbai, November 22, 2016.

Marginalisation, Poverty and Decentralization, Kerala Institute of Local Administration, Thrissur, November 21, 2016.

Participatory Local Budgeting and Decentralization, BRICS Conference at Kochi, November 3, 2016.

Strengthening Ethics and Moral Values in Governance, IIPA, Karnataka with Bharatiya Vidya Bhavan, September 24, 2016.

Transforming India – Role of the National Institute for Rural Development (NIRD), IRD and PR, Hyderabad, May 14, 2016.

### **Awards, Memberships**

Continues to be on the Board of Management of the following institutions:

Centre for Sustainable Development, Bengaluru.

India Wash Forum, New Delhi.

Institute of Social Sciences, New Delhi.

IIPA, Karnataka Regional Branch, Bengaluru.

Institute for Societal Advancement, Thiruvananthapuram.

National Design and Research Forum, Bengaluru.

MYRADA and the Institutions promoted by MYRADA.

Adjunct Faculty, Gandhigram Rural University, Dindigul, Tamil Nadu.

Member, Academic Council, IGNOU, New Delhi.

Member, Technical Advisory group for the SDC funded research project on Ethnic Power Relations and Conflict in Fragile States at TISS, Mumbai.

Member, Advisory group for the ICSSR funded research project on Empowerment through MGNREGS undertaken by the Institute of Rural Management at Anand (IRMA) and Gandhigram Rural University.

Member, Executive Committee for RGPSA, Ministry of Panchayatiraj, Government of India.

Member, Advisory Group for Prime Minister's Rural Development Fellows Programme, Ministry of Rural Development, Government of India.

Member, Social Audit Monitoring Committee of the Government of Chhattisgarh, Raipur.

Member, Guidance Committee to the School Local Governance at NIRD and PR, Hyderabad.

Member, Expert Panel of NITI Aayog to examine the schemes of the Ministry of Panchayatiraj (MoPR) and the proposal on Rashtriya Gram Swaraj Abhiyan.

Member, Committee to prepare Rural Area Development Plan Formulation and Implementation Guidelines constituted by MoPR.

Member, Technical Advisory Committee for the Research Study on Service Delivery, Assessment of Human Resource and Workload and costing of Services in Gram Panchayats at NIRD and PR, Hyderabad.

Chairperson, Programme Coordinating Mechanism of the Global Sanitation Fund for India, New Delhi.

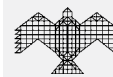
Chairperson, Search Committee to select the Ramakrishna Hegde Chair Professor on Decentralisation and Governance at Institute for Social and Economic Change, Bengaluru.

Chairperson, Search Committee to select a Director for the Kerala Institute for Local Administration, constituted by Government of Kerala.

Chairperson, Committee constituted by the Government of India to develop a roadmap for Panchayati Raj Institutions in Union Territories.

### **Other Contribution**

The paper on Vision, Strategy and Action Plan for Panchayats has been approved by NITI Aayog for inclusion in the Chapter on Rural Economy in the Vision Document to be published by them.



# URBAN AND MOBILITY STUDIES PROGRAMME

## Introduction

The new Urban and Mobility Studies Programme has evolved out of the earlier Provincial Globalisation (ProGlo) and Urban Research and Policy (URPP) programmes. Consolidating our knowledge and research experience in the domains of urbanisation, migration and social change, the revamped programme got off on a firm footing during this year with the approval or inception of two new funded projects.

The Urban and Mobility Studies Programme explores the diverse social transformations that have been set in motion in contemporary India by rapid economic growth, growing urbanisation, globalisation, and changing patterns of work, livelihoods and migration. The programme's research agenda explores the inter-connections between urban development, occupational change, skilling, and social and spatial mobilities. Component projects will examine the linkages between labour migration, skill acquisition, and changing modes of employment and livelihoods; the urbanisation of rural landscapes and globalisation of provincial towns; and the forging of new pathways of mobility and the formation of transnational, trans-regional, and trans-local social and economic networks. The programme will thus bring together different areas of research and policy debate that are usually pursued in isolation, pursued through various disciplinary perspectives including sociology and social anthropology, history, geography, urban studies, and migration and transnational studies.

## Research Activities

A new research project entitled *Speculative Urbanism: Land, Livelihoods, and Finance Capital* was initiated in January 2017. The three-year project, a collaboration between the Programme Head and colleagues at the University of Minnesota and UCLA (USA), is a comparative study of Bengaluru and Jakarta with a focus on changes in land use, property relations, livelihoods and urban ecologies in the context of rapid urbanisation. It is funded by the National Science Foundation (NSF), USA.

A second project, *India's Changing Cityscapes: Work, Migration and Livelihoods*, has been sanctioned by ICSSR and will begin in June 2017. This is a two-year collaboration with Institute for Social and Economic Change (ISEC), Bengaluru, that will study the linkages between migration, skilling, livelihoods and social mobility among construction and low-end service sector workers in two cities of Karnataka.

The third current project of the programme, ongoing since July 2016, is entitled 'World-City' Planning in Andhra Pradesh: A New Model for Urbanisation? This three-year research project, supported by the Azim Premji Foundation, is tracking the socio-economic transformations in the new capital region of Andhra Pradesh.

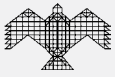
## Outreach

A workshop on Bangalore's 'Great Transformation' was organised on June 24 and 25, 2016. This was the final event of the 'Great Transformation' research project that was conducted at NIAS between 2014 and 2016 by Prof Carol Upadhyia in collaboration with Professors Michael Goldman and Vinay Gidwani of the University of Minnesota. The workshop resulted in a forthcoming issue of the magazine *Seminar*, to be published in June 2017.

Carol Upadhyia presented a paper on *Speculative Planning and Spectacular Urbanism in Andhra's New Capital Region* at the School of Policy and Governance, Azim Premji University, Bengaluru, April 4, 2016.

Carol Upadhyia made a Seminar Presentation at the Department of Geography, National University of Singapore, June 14, 2016, entitled *Capital Dreaming: Speculative Planning and Spectacular Urbanism in Amaravati*.





Carol Upadhyia presented a lecture on Capital Dreaming: Speculative Capitalism and Spectacular Urbanism in Amaravati (India) at the Department of Sociology and Social Anthropology, Central European University, Budapest, November 28, 2016.

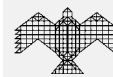
Keya Bardalai, doctoral student, presented a paper titled Embedding the Self in the Field: Impressions from Fieldwork at Retail Stores in Delhi, at the Young Researchers' Workshop organised by Indian Sociological Society, Tezpur University, December 26, 2016.

### Other Important Information

To mark the birth centenary of Prof MN Srinivas ('MNS'), one of the key founders of Indian sociology, the School of Social Sciences organised a two-day National Seminar on Nation, Community, and Citizenship in Contemporary India, on January 9 and 10, 2017. MNS spent his final years at IAS where he founded the Sociology and Social Anthropology Unit (now absorbed into the School of Social Sciences). The seminar, spearheaded by Carol Upadhyia, brought together mainly young scholars from across the country to present their original research on recent developments in India's social and political landscape. The participants also revisited the sociology of MN Srinivas and debated its contributions to our understanding of the nation at the present juncture. The Keynote Address was delivered by Prof Sujata Patel (University of Hyderabad), President of the Indian Sociological Society). On the evening of the first day, a public event was arranged in which a panel of eminent sociologists and IAS faculty discussed MN Srinivas' contribution as a public intellectual. The proceedings concluded on January 10 with a Round Table on the Future of Indian Sociology. The Seminar was supported by the Indian Council for Social Science Research (ICSSR) and the Pratiksha Trust.







# Members of the Urban and Mobility Studies Programme



Carol Upadhyia, *Head*  
Senior Research Fellow: Kaveri Medappa  
Research Associate: S Udaybhanu  
Doctoral Students: Sanam Roohi, Rashmi M, Keya Bardalai

**Carol Upadhyia**  
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**Joined NIAS on:** September 1, 2003

## **Major Research Contribution for the Academic Year**

Carol Upadhyia's recent and ongoing research focuses on social transformations linked to urbanisation, migration, transnational circulations and regional restructuring. Her earlier work on the sociology of Bangalore's software industry and Indian IT professionals appeared this year as a monograph, *Reengineering India: Work, Capital, and Class in an Offshore Economy* (Oxford University Press, New Delhi, 2016).

## **Lectures**

Speaker on Keynote Panel, International Conference on Development in Question: Challenges for the 21<sup>st</sup> Century, Cornell University, Ithaca NY (USA), October 6 to 8, 2016.

Panelist on Roundtable Discussion on South Asia and the World, School of Public Policy and the South Asia Research Group, Central European University, Budapest, December 2, 2016.

Panel discussant at the Conference on Engineers and Society in India, from c.1850 to Present Times, EHESS, Paris, March 27 and 28, 2017.

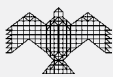
## **Awards and Memberships**

Awarded CEU/HESP Research Excellence Fellow, Central European University (CEU), Budapest, supported by the Open Society Foundations; in residence at Department of Sociology and Anthropology, CEU, during the fall term of 2016-17.

Member of the International Steering Committee for the Conference on Development in Question: Challenges for the 21<sup>st</sup> Century, Cornell University, Ithaca NY, October 6 to 8, 2016.

Member, Editorial Board, Contributions to Indian Sociology.

Honorary Research Fellow, School of Humanities, University of Exeter, Exeter, United Kingdom, August 2015 onwards.



# WATER PROGRAMME

The Water Programme is unique in designing and implementation of exclusive methodologies in the water sector. The thrust area of the programme lies in addressing problems concerning drinking water, sanitation, water sharing and disputes, alternatives and sustainable solutions to water related issues. The programme engages in specifically prioritized issues all across the country with the aim of providing sustainable solutions or alternatives using an integrated water resource management to minimize disputes with the harmonization of science, technology, social sciences and stakeholders.

## Research Activities

The Water Programme is engaged in a Department of Science and Technology funded pan- India project adopting multi/inter-disciplinary, multi-stakeholder and holistic approaches to address issues in the water sector, with a focus on evolving social and technical solutions to major drinking water challenges in the country. Intervention are adopted or developed on the basis of their practicability, cost effectiveness, sustainability and up-scalability which include replicability and/or adaptability of the technology at various other locations facing similar issues.

The research issues to be taken up in different parts of the country are identified and executed with the help of the Zonal Water Partnerships (ZWP) establishment by the NIAS water programme in different zones of the country: the North, South, East, West, Jammu and Kashmir and the Northeast ZWP. These partnerships have a membership comprising of persons/institutions with diverse expertise in the water sector from various institutions/organisations.

An ongoing project titled Socio-Technical Solutions to Major Drinking Water Challenges Facing India, has six sub-projects hosted by the ZWPs in the respective zones and one by NIAS.

North: Drinking water security in arid and semi-arid areas of Rajasthan.

South: Disappearing water bodies of Hyderabad City: social and technological options for drinking water supply (Andhra Pradesh).

East: Community based technological solutions for providing safe drinking water to arsenic exposed population of Ganga-Meghna-Brahmaputra plains of (Bihar).

West: Quenching the thirst of tribal communities in the Central Indian Forest Heartlands (Maharashtra, Madhya Pradesh and Andhra Pradesh).

Northeast: Socio-technological study on safe drinking water in hill and valley areas of Manipur and Assam.

Jammu and Kashmir: Drinking water supply in sub-zero temperature.

NIAS: Social technological solutions to address the impact of industrialization and the changing status of water resources on the lives of people in Karnataka

## Outreach

Workshop for the members of the gram panchayats in Doddaballapur taluk, Karnataka on Water Resources and Management, at NIAS on March 24, 2017.

National Consultation on Future of the river basin: looking beyond Cauvery at NIAS on November 17, 2016 (Published as NIAS Report).

Training module developed by N Shantha Mohan on Vulnerability and Impacts of Droughts, for an Online Course titled Drought Risk Reduction in Integrated Water Resources Management, sponsored by Cap-Net and the UNDP as part of a six member international team representing Cap-Net, UNDP, GWP, UNEP, DHI, and ITC. The course was designed for international water professionals, held at Riode Janaero, Brazil on June 1 to August 5, 2016.



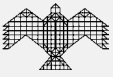
Map showing NIAS-DST pan India project spread over 6 zones (10 states).



Participants of the National Consultation on Future of the River Basin: Looking Beyond Cauvery, November 17, 2016.



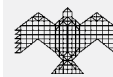
Workshop for the members of the gram panchayats in Doddaballapur taluk, Karnataka on Water Resources and Management, at NIAS on March 24, 2017.



Pictures from the field: Interaction and discussion with the stakeholders (ongoing project).



Traditional surface and groundwater drinking water management systems in Rajasthan  
Pictures from the field: Traditional surface and groundwater drinking water management systems in Rajasthan (ongoing project).



## Members of the Water Programme



N Shantha Mohan, *Head*  
PI of ECOWASH Project: V Jayasree  
Post-doctoral Associate: Musarrat Parween

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**Joined NIAS on:** April 1, 2016

### **Major Research Contribution for the Academic Year**

As a Principal investigator of the DST funded pan-India project titled Social Technological Solutions for Major Water Challenges Facing India, her research multi/inter-disciplinary, multi-stakeholder and holistic approaches to address prioritised issues in the water sector, with a focus on evolving social and technical solutions to major drinking water challenges in the country. She has been coordinating and assisting consultations, workshops and trainings aimed at providing solutions concerning water with the help of integrated water resource management and with the harmonization of science, technology, social sciences and stakeholders. The results of our research and consultations are being disseminated through publications as research articles, books, handouts and conference proceedings.

### **Training Courses**

Workshop for the members of the gram panchayats in Doddaballapur taluk, Karnataka on Water Resources and Management, conducted on March 24, 2017 at NIAS.

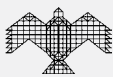
### **Consultations**

Future of the river basin: looking beyond Cauvery on November 17, 2016 at NIAS, Bangalore (Published as NIAS Report)

National consultation on “Social technological solutions for major water challenges facing India” supported by the DST in April 2016 at NIAS (Report submitted to the DST)

### **Other Contributions**

Training module developed on Vulnerability and Impacts of Droughts, for an Online Course titled Drought Risk Reduction in Integrated Water Resources Management, sponsored by Cap-Net and the UNDP as part of a six member international team representing Cap-Net, UNDP, GWP, UNEP, DHI, and ITC. The course was designed for international water professionals, held at Rio de Janeiro, Brazil on June 1 to August 5, 2016.



**Musarrat Parween**  
Post-doctoral  
Associate  
School of Social  
Sciences

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Email:  
musarratparween@  
gmail.com

**Joined NIAS on:** November 4, 2016

### **Major Research Contribution for the Academic Year**

Working in a DST funded pan-India project titled Social Technological Solutions for Major Water Challenges Facing India. The research adopts multi/inter-disciplinary, multi-stakeholder and holistic approaches to address prioritized issues in the water sector, with a focus on evolving social and technical solutions to major drinking water challenges in the country. She has been coordinating and assisting consultations, workshops and trainings aimed at providing solutions concerning water with the help of integrated water resource management and with the harmonization of science, technology, social sciences and stakeholders. The results of our research and consultations are being disseminated through publications as research articles, books, handouts and conference proceedings.

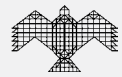
### **Training Course**

Workshop for the members of the gram panchayats in Doddaballapur taluk, Karnataka on Water Resources and Management, at NIAS, March 24, 2017.

### **Consultations**

Future of the River Basin: Looking Beyond Cauvery on November 17, 2016 at NIAS (Published as NIAS Report).

National Consultation on Social Technological Solutions for Major Water Challenges Facing India, supported by the DST in April 2016 at NIAS (Report submitted to the DST).



# INVITED VISITING CHAIR PROFESSORS

SCHOOL OF CONFLICT AND SECURITY STUDIES



**V Bhujanga Rao**  
ISRO Chair Professor

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**Joined NIAS on:** April 20, 2016

## **Major Research Contribution for the Academic Year**

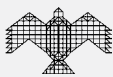
Computational Fluid Dynamics (CFD) based studies were carried out to analyse some important design considerations associated with gas turbine uptakes of both Western and Russian origin propulsions systems and paper titled "Self-Reliance in Design of Gas Turbine Exhaust System" has been published in MILIT Journal, Volume 5, Issue I, Dec 2016. Epiretinal Prosthesis (EPS) is a biomedical implant technology currently being developed around the world in hopes of restoring useful vision for patients suffering from retinal degenerative diseases such as Age-related Macular Degeneration (AMD) and Retinitis Pigmentosa (RP). As part of this study, design of flexible high resolution 1024 - electrode embedded computer based EPS using embedded computer based efficient control algorithms for better visual prediction has been carried out. The work was published as coauthor in 3rd International Conference on Signal Processing and Integrated Networks (SPIN) (2016) in paper titled "A Prototype 1024 Electrode Embedded Computer based Epiretinal Prosthesis System". Cochlear Implant (CI) system is an auditory prosthesis that provides the perception of hearing sensation to the sensorineural deafened people by surgically implanting and electrically stimulating the auditory nerve. Audiologists activate the implant and systematically stimulate the auditory nerve through a dedicated software usually called 'Clinical Programming Software (CPS)', installed on PC/Laptop to achieve the best possible speech perception abilities for the patient. This paper presents, as an alternative, a smart phone based CPS app developed to address the requirement of audiologists and reported to ACM SIGSOFT Software Engineering Notes Online publication.

## **Lectures**

Invited talk on Maritime Security Policy during DST-NIAS Programme on Science, Technology and Innovation Policy, March, 2017.

Invited talk on Noise Pollution and Control in MSR Engineering College (INAE Outreach Programme), Bengaluru, February 25, 2017.

Invited talk on Maritime Infrastructure and Asset Management at Marine Department, Pondicherry University, February 23, 2017.



Invited talk on Condition Monitoring at IGCAR, Kalpakkam, February 20, 2017.

Invited lecture on Defence Technologies during the NIAS-DST Programme on Policy for Science and Science for Policies, November 8, 2016.

Manufacturing and Innovation (jointly with Dy UK HC, Bengaluru), November 11, 2016.

Future of Manufacturing, NIAS, October 21 and 22, 2016.

Advanced Manufacturing Technology in Defence Sector, NIAS, June 18, 2016.

Talk on Stealth, Security and Society, NIAS, April 15, 2016.

### **Other Contribution**

Organised a Workshop on Advanced Manufacturing Technologies in Defence Sector at NIAS on June 18, 2016.

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## SCHOOL OF HUMANITIES

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**Sisir Roy**  
TV Raman Pai Chair  
Visiting Professor

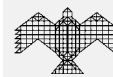
Room No. S 06  
Tel: 080-2218 5143  
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**Joined NIAS on:** November 5, 2014

### **Major Research Contribution for the Academic Year**

New experiment has been performed in Bengaluru to test the necessity of quantum probability to understand human cognition and decision making. This clearly demonstrates the gender bias as well as the cultural effect in making decision making. A book has been published: *Decision Making and Modeling in Cognitive Science* (Springer). The recent findings of electrical signalling in bacterial communication raise lot of interest in the domain of consciousness research. We have developed a mathematical framework to explain the two step communications of the bacteria. Moreover, the pattern formation in Biofilm has been studied within this framework based on viscosity. Several papers have been submitted for publication in peer reviewed international journals. One book on *Empiricism and Introspection: Quest for Reality in Modern Physics and Ancient Indian Wisdom* has been finished jointly with BV Sreekantan.





## Lectures

Keynote address on Space-Time Ontology and Buddhist Philosophy, at Nalanda University in Buddhism in the 21<sup>st</sup> Century: Perspectives and Responses to Global Challenges and Crises, arranged by Ministry of Culture, Government of India during March 17 and 19, 2017.

1<sup>st</sup> lecture of Cognitive Neuroscience Forum of India (Bengaluru Chapter), on Neuronal Noise, Decision Making and Human Cognition at NIMHANS, Bengaluru, January 18, 2017.

Invited lecture on Quantum Ontology Intrinsic Property and Shunyata, at the international conference on Quantum Reality and Theory of Shunya, Indian Council of Cultural Relation, New Delhi, December 9 to 10, 2016.

Invited lectures (Two lectures) in Tibet House, New Delhi, in National Symposium on Quantum Physics and Arya Nagarjuna's Philosophy of Emptiness, November 5 and 6, 2016.

Invited lecture in National Symposium on Modern Science and Ancient Insights on Reality, Poorna Prajna Institute, Bengaluru, October 26 and 27, 2016.

Invited lecture on Coherence in Ion Channel, at Department of Neuroscience, University of Marseilles, France, October 11, 2016.

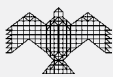
Invited lecture on Quorum Sensing and Bacterial Conversation, at Department of Physics, University of Salerno, Italy, October 3, 2016.

Invited lecture on Quantum Thermodynamics and Coherence in Ion Channel, at 1<sup>st</sup> international conference on Applied Physics, System Science and Computers, Dubrovnik, Croatia September 27 to 29, 2016.

Invited lecture on Noise in Ion Channel, at the Institute of Physiology, University of Marburg, Germany, September 19, 2016.

Invited lecture on Information Theory and Living Organism at 4<sup>th</sup> International Conference Frontier's in Life Sciences, Bangalore University, August 26 and 27, 2016.

Public lecture on Quantum Mechanics and Buddhist Philosophy, Indian Institute of World Culture, Wadia Hall, Bengaluru, April 23, 2016.



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## SCHOOL OF NATURAL SCIENCES AND ENGINEERING

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**PS Goel**  
Raja Ramanna Chair  
Visiting Professor

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**Joined NIAS on:** May 2, 2016

### **Major Research Contribution for the Academic Year**

Drafted policy paper on 'India Science and Technology Vision' for NITI Aayog, drafted policy paper on India Science and Technology Enterprise Partnership for National Institute of Science Technology and Development Studies(NISTADS/CSIR) and addressed issues related to power grid modelling. Mentored and guided development of Microwave Plasma thrusters for satellites, Satellite design for constellation for internet and Moon Rover design for start ups. Guided development of Dialysis Machine in an academic institution. Addressed policy issues related to Space and Security through NIAS organised workshops. Wrote concept note for workshops/seminars by INAE for 70-100 seater civil transport aircraft development and production in India, Frugal Innovation, Big Data Analytics and Digital Economy. Pursued Solar Assisted Low Temperature Thermal Desalination development at IIT M and Ka band cloud physics radar development at SAMEER for MoES. Edited a book "Science and Geo Politics of White World-Arctic-Antarctic-Himalayas, along with Dr Rasik Ravindra and Ms Sulana Chattopadhyay, being published by Springer.

### **Lectures**

India's Space Policy, Keeping with Advances in S&T and Society, Short term course on Science, Technology and Innovation Policy, NIAS, March 24, 2017.

Keynote Address, National Conference on Advances on Nano Electronics and Communication Technologies, SKIT, Jaipur, February 10, 2017.

Science and Society, The Indian Perspective, NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society Core Theme: Technology and Society, December 12, 2016.

In Search of Answers, Life Time Achievement Award Lecture, INAE, Ahmedabad, November 9, 2016.

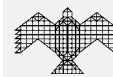
India's Space Programme is Different, NIAS-DST Programme on Policy for Science and Science for Policy, NIAS, November 8, 2016.

Manufacturing in India, Opportunities and Challenges, NIAS and Institute of Manufacturing, Cambridge Workshop, NIAS, October 21, 2016.

Ministry of Earth Science: A Journey in Perspective, Foundation Day Lecture, MoES, Delhi, July 27, 2016.

### **Award**

Life Time Achievement Award of INAE.



# NIAS AND INTRA-INSTITUTIONAL NATIONAL AND INTERNATIONAL COLLABORATIONS

## **NIAS International Collaborations**

### **University of Exeter, Exeter, UK**

Collaborative research in the area of Archaeology and Drama and Exchange of Staff and Students for research and study and split-site PhD supervision.

### **The University of Tennessee, USA**

Multi-disciplinary research and keeping in mind topics of interest and concern to the USA and India.

### **UT-Battelle, LLC, USA**

Cooperation in the area of Nuclear Energy and Nuclear Material Security.

### **George Mason University, USA**

To support educational activities and projects between NIAS and Mason's Krasnow Institute for Advanced Study through collaborative academic research projects and mutual visits of faculty and students for shared learning.

### **Center for Comparative Philosophy, Duke University**

To support educational activities and projects between NIAS and CCP through collaborative academic research projects and mutual visits of faculty and students for shared learning.

### **Kyoto University, Japan**

Collaboration in the areas of primatology, wildlife biology and conservation.

### **Cranfield University, UK**

Collaboration in the areas of Inclusive Manufacturing.

## **NIAS National Collaborations**

### **Indian Institute of Science, Bangalore**

NIAS and IISc would consider jointly fostering and developing ideas leading to research, teaching, training or outreach programmes that fall within the common interests of both institutions. Particular emphasis has been laid on joint-interest research programmes in terms of development of ideas and projects – particularly those with a significant component of policy-oriented research.

### **National Innovation Foundation (NIF), Ahmedabad**

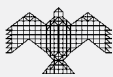
To collaborate and further efforts in the areas of intersection of STI (Science, Technology and Innovation), public policy and, creative communities and individuals in the following ways.

### **UNDP, India**

Collaboration on Policy Research Initiative on Inequality and Human Development.

### **The Indian Council of Agricultural Research, New Delhi**

For cooperation in Agricultural Research and Education.

**Tata Institute of Social Sciences, Mumbai**

The initiative seeks to build a model at a scale that establishes the local ecosystem connecting youth and teachers with local communities, education institutions, domain experts and creating an environment that supports active learning and seamless technological use in the schools and the teaching-learning process.

**Trans-Disciplinary University**

TDU and NIAS would mutually decide on areas of collaborative, interdisciplinary research – both fundamental and applied – and make all efforts to enhance the effectiveness of such research to address national challenges and priorities in areas including, but not limited to, energy, healthcare, ecology, conservation of natural resources and education.

**Indira Gandhi National Centre for the Arts – SRC**

To establish a framework that will guide NIAS and IGNCASRC in creating a cooperative working relationship for generating a body of scholarship at the intersection of culture, cognition and consciousness studies pertaining to Indian arts and knowledge systems.

**Sahapedia, New Delhi**

Collaboration through various programmes in arts and humanities disciplines.

**Swami Vivekananda Yoga Anusandhana Samsthana (S-Vyasa)**

Cooperation in the field of Research and Education.

**Defence Research and Development Organisation**

To support and strengthen collaboration and cooperation in identified topics pertaining to national security.

**Centre for Advancement of Global Health (CAGH), Kerala**

The purpose of this MoU is to establish a framework that will guide NIAS and the CAGH in establishing a cooperative working relationship for planning and accomplishing mutually beneficial research project and activities. Such cooperation is intended to particularly benefit the advancement of studies in biology, health science, ecology and education, and capacity building.

**Indian Heritage Cities Network (IHCN)**

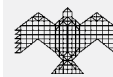
To establish a framework of co-operation to share knowledge and expertise towards strengthening the resource and projects taken up on mutual benefit.

**Christ University**

For facilitating collaborative research, joint research, special studies, post graduate and doctoral studies training and extension activities related to social science and allied studies.

**Acharya Institute of Management and Sciences**

To promote collaborative research.



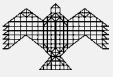
# BRICS CONCLAVE

## The First Meeting of the BRICS Young Scientist Forum at NIAS

The National Institute of Advanced Studies, in collaboration with the Department of Science and Technology, Ministry of Science and Technology, Government of India hosted the first meeting of the BRICS Young Scientist Forum in Bengaluru during September 25, 2016 to October 1, 2016. The Conclave aimed at engaging, connecting and networking bright and talented young scientists in the age group of 22-35 years of age. More than 45 young scientists from the five BRICS countries took part in the Conclave to discuss the three issues: Computational Intelligence, Energy Solutions and Affordable Healthcare. Two reports were released during the Conclave. The first report titled “BRICS Science and Technology Enterprise Partnership” is prepared by a group of eminent scholars. The second report titled “Hampi: Splendours of a World Heritage Site” projects the historical significance of a heritage site to the Conclave participants.

The meeting was coordinated by Prof D Suba Chandran.





## TRAINING PROGRAMME



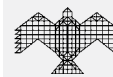
### **Senior Executives Programme**

The 31<sup>st</sup> NIAS Annual Programme for Senior Executives was held from January 16 to 21, 2017. The theme of the programme was Be a Transformational Leader. The thirty participants included senior executives from various government organisations as well as from private industries. The programme included lectures and discussions on a gamut of subjects.

Dr K Kasturirangan, Former Chairman, ISRO and MP (Rajya Sabha); Chairman, Karnataka Jnana Aayoga set the tone of the programme with his inspiring inaugural address. The intense sessions were addressed by well-known personalities including Mr B Muthuraman, Mr Anil Swarup, Mr K Venkataramanan, Vice Admiral RN Ganesh, Prof Vijayalakshmi Ravindranath, Mr Krishna Byre Gowda, Ambassador Nalin Surie, Dr Ajit V Sapre, Ms Revathy Ashok, Justice RV Raveendran and Prof Manas K Mandal all of whom brought in their valuable experience and learnings into the discussions. The evening public lectures by leading lights such as Mr Suresh Prabhu, Dr Arun Shourie and Mr Chandra Bhushan were extremely well received by the participants as well as by the members of the citizenry of Bengaluru. A highlight of the programme this year was the Dance Recital by the Nrityagram Ensemble. Mr Ricky Kej, an internationally renowned Indian Music Composer, Producer and Conservationist, weaved the magic of music into his public lecture. The valedictory address was given by Dr Soumya Swaminathan, Secretary, Department of Health Research and Director General, Indian Council of Medical Research.

The programme was coordinated by Prof R Srikanth, Dr Nithin Nagaraj and Prof D Suba Chandran.

Ms V Girija assisted in the coordination of the Programme.

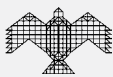


### **NIAS-DST Training Programme on Science, Technology and Innovation Policy**

The NIAS-DST Training Programme on Science, Technology and Innovation Policy was organised during March 13 and 24, 2017. The inaugural address was delivered by Dr AS Kiran Kumar, Chairman, ISRO and Secretary, DOS and the valedictory address was given by Dr T Ramasami, former Secretary, DST. Public lectures by Dr AS Pillai and Mr Balan Nambiar were arranged. Other eminent speakers included Dr KB Akhilesh, Dr G Jagadeesh, Ambassador TP Sreenivasan, Dr Dietmar Moeller, Dr Dominic McAllister, Dr HP Khincha, Mr Pallav Bagla, Dr Rudra Pratap, Mr VVR Sastry, Dr S Ayyappan, Dr S Dasappa, Dr N Ramamoorthy, Dr AK Chakraborti, Dr M Annadurai, Dr Amitav Mallik, Dr PP Majumdar, Dr Kumar Sivarajan, Dr Subbaiah Arunachalam and Dr Rasik Ravindra. As part of the programme, an industrial visit to Master Control Facility (ISRO), Hassan and a Hindustani Classical Vocal Concert by Pandit Parameshwar Hegde and his team was also organised.

The programme was coordinated by Prof V Bhujanga Rao and Dr Nithin Nagaraj.

Mr KS Rama Krishna assisted in the coordination of the Programme.



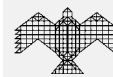
### **NIAS-DST Training Programme on Science for Progress in India: Focus on Sustainability**

The week-long training programme on Science for Progress in India: Focus on Sustainability was held from February 27 to March 3, 2017. As part of the initiative 'DISHA Programme for Women in Science' by the Department of Science and Technology, NIAS organised the training programme for mid-career women scientists and technologists from various institutions. Being central to the enterprise of research, policy and advocacy, the theme of sustainability provided an excellent entry into the week-long discussions. The programme brought together scientists, social scientists, philosophers, artists and innovators to share their work with the participants. In line with the NIAS ethos of multidisciplinary engagement and focus on questions of contemporary relevance, the talks exhibited diverse voices and expertise. Prof Ashok Mishra, former Director of Indian Institute of Technology Mumbai delivered the inaugural address. Prof Kartik Shanker, Director, Ashoka Trust for Research in Environment and Ecology (ATREE) delivered the valedictory address. Two sessions were devoted to professional development and opportunities for career growth in institutional contexts. Additionally, the programme featured a theatre workshop conducted by Ms Radha Ramaswamy and a musical performance by Ms Shabnam Virmani.

The programme was coordinated by Dr Shivali Tukdeo and Dr Shalini Dixit.

Ms S Lalitha assisted in the coordination of the Programme.



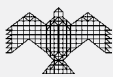


### **NIAS-DST Training Programme on Science Policy and General Management**

The two-week NIAS-DST Training Programme on Science Policy and General Management was held from February 6 to 17, 2017 and emphasised the development of leadership qualities through the integration of multidisciplinary knowledge that brings together understanding from natural sciences, engineering, social sciences and the humanities to solve problems concerning economic development and national security. This year's core theme was Energy Security and Sustainable Development and focused on integrating analytical skills with out-of-the-box thinking to understand and find solutions for challenging technical and managerial problems within organizational context. The programme was inaugurated by Prof SP Sukhatme and concluded with a valedictory address by Prof Roddam Narasimha. Two public lectures by Ambassador PS Raghavan and Prof PS Goel were conducted. Other lectures were delivered by eminent scientists, technologists, academic scholars, and professionals from the public and private sectors. This course is part of enhancing institutional capacity building and conducted with the NIAS tradition of excellence with relevance. Participants also benefited from networking opportunities with experts from other fields and government organisations and distinguished speakers during the training programme. In addition to the lectures, participants had a cultural outing during the weekend to Shravana Belagola, Belur, and Halibedu and were treated to a musical concert by Vidwan Shri D Balakrishna.

The programme was coordinated by Dr TS Gopi Rethinaraj and Dr VV Binoy.

Ms JN Sandhya assisted in the coordination of the Programme.



### **NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society**

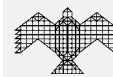
The Fourteenth Annual NIAS-DST Training Programme on Multidisciplinary Perspectives on Science, Technology and Society with the Core Theme Technology and Society was conducted from December 5 to 16, 2016.

Society in the recent years has been playing an important role in S&T. There has been extra demand on the S&T to understand and address the social demands. This linkage and interaction between Society and S&T has to be multi-disciplinary as it involves a vast area and issues—from nuclear to energy to health. And the societal perspectives cannot be focused only on human beings along. Wild life, environment, heritage and ecology also have to be taken into account.

The programme looked into the above. It covered perspectives from S&T, Government, State, Society, Gender, Philosophy etc, as could be seen from the course structure.

The programme was coordinated by Prof D Suba Chandran.

Mr KS Rama Krishna assisted in the coordination of the Programme.



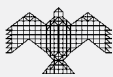
### **NIAS-DST Training Programme on Policy for Science and Science for Policies**

The NIAS-DST Training Programme on Policy for Science and Science for Policies was organised from November 7 to 11, 2016.

The main objective of this programme, which is now fifth in the series for scientists-administrators and technologists at the Director/Divisional Head position from various scientific organisations in the country, focused on the theme Policy for Science and Science for Policies. The programme offered an excellent opportunity for multidisciplinary engagements given its connection to Science and Technology Management, Science Policy in India, Technology Policy Priorities for India, Science Policy and Security, and Science Policy, Education and Culture. It started with a talk on Energy Foresights, Security and Sustainability. In addition, topics covering Environmental/Energy Perspectives, Risk Perception, Communication, Harnessing Political Leadership, Wish List for a World Class University, Ocean and Maritime Resources, India and International Politics, Environment and Wildlife Conflicts, Mental Health and Neuroscience of Yoga, Socio-Economic Dynamics, Art of Science and Alternatives were made part of the programme. It also provided a session on Science, Technology and Innovation as an evening lecture and a cultural performance on Pachavadyam Recital.

The programme was coordinated by Prof Sangeetha Menon and Dr Nithin Nagaraj.

Ms S Lalitha assisted in the coordination of the Programme.



## DOCTORAL PROGRAMME

The Doctoral Programme at NIAS draws on and is shaped by the various research themes that have been part of the institute in recent years. The overall orientation of the PhD programme is interdisciplinary research, which is carried out within the broad framework of four schools: Conflict and Security Studies, Humanities, Social Sciences, and Natural Sciences and Engineering. The broad-based structure of the programme is in tune with the very focus with which the institute was formed. As spelled out in the mission statement of NIAS, the confluence of different schools of inquiry needs to be explored in the spirit of understanding the complex nature of contemporary problems. In particular, the institute is committed to public education, collective knowledge creation, civic engagements and mentoring junior scholars.

The Doctoral Programme was initiated at the Institute in 1999 with the signing of a Memorandum of Understanding with the Manipal Academy of Higher Education (MAHE), instituting a NIAS-MAHE Doctoral Programme. It was agreed at that time that students guided by NIAS faculty (who were recognised as guides by MAHE) would be allowed to register with MAHE and would follow its rules for the doctoral programme. NIAS had no financial responsibility for students given that most students were supported by faculty research grants. Under this arrangement, five students registered with MAHE between 1999 and 2004. The doctoral programme entered a second phase in the year 2004-2005 when it was expanded and regularised on the basis of financial support received from the Indian Space Research Organisation and the Department of Science and Technology. The programme is also supported by the Ministry of Earth Sciences since 2011-2012.

### Doctoral Committee

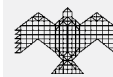
TS Gopi Rethinaraj, *Chairperson and Academic Head*  
Sangeetha Menon, *Member*  
Shivali Tukdeo, *Member*  
M Mayilvaganan, *Member*  
Anshuman Behera, *Member*

NIAS does not directly grant degrees but has received recognition as a research centre from Manipal University and the University of Mysore. Students register with either of these two universities and carry out their research at NIAS. Students go through a year of mandatory course work, followed by supervised guidance for four years. Information on the rules, course requirements and regulations governing the doctoral programme is available in the Student Handbook, which is revised and updated annually.

As usual, the advertisement for the NIAS PhD Programme for August 2017 intake was placed and received a record number of applications (more than 300 applications) for about 10 seats. Unencumbered by the constraints of traditional disciplinary PhD programmes, NIAS PhD students have a unique opportunity to broaden their intellectual horizons beyond their narrow training during their thesis research in one of the listed areas. NIAS not only values such cross-pollination of ideas but encourages and provides the necessary support to its students to develop interdisciplinary orientation to problem-solving. This interdisciplinary ethos is also reflected in the work of its faculty and research scholars.

A total of seventy five students have been part of NIAS doctoral programme since its inception and thirty-two students have successfully completed their PhD as of March 2017. Thirty three have registered their PhD, and ten students are carrying out pre-registration process. As of March 2017, a total of forty three students are enrolled in the programme—six in the School of Conflict and Security Studies, thirteen in the School of Humanities, ten in the School of Natural Sciences and Engineering and fourteen in the School of Social Sciences.

A list of the students who have registered with a university and their dissertation topics is given below:



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## SCHOOL OF CONFLICT AND SECURITY STUDIES

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**Sanket Kulkarni**, International Studies  
*India's Energy Security Concerns and Policy Formulation: A Case Study of Cross-Border Natural Gas Pipelines*

**Murali Murti**, International Studies  
*Knowledge Process and Their Role in Innovation – A Comparison of Selected Chinese and Indian Practices*

**BR Guruprasad**, International Studies  
*Attainment of India's Sustained Space Capabilities through Technology Acquisition and Indigenous Technology Development Policies: A Critical Evaluation*

**Shyam Hari P, Sherin Jose and Surya Sankar Sen**  
*Yet to register*

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## SCHOOL OF HUMANITIES

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**Hema Thakur**, Ancient History and Archeology  
*Material Culture and Social Formations in Northeast Karnataka (c.300BCE-c.300 CE)*

**Naresh Keerthi**, Cognitive Science  
*Cognitive Tropes – Beyond the Cognitive Metaphor*

**Samiksha Bajpai**, Linguistics  
*A Cognitive Analysis of the Compound Verb in Hindi*

**HR Meera**, Cognitive Science and Sanskrit  
*Language Game and the Role of Suggestion (Vyarigya) Therein*

**Sumitra S**, Archaeology  
*Creative Collectives: A Case Study of Collaborative Practices in Karnataka*

**Shankar R**, Psychology  
*A Qualitative Approach to the Psychology of Three Self-conscious Emotions from Sanskrit Poetics*

**KN Venkatesh**, Archaeology  
*Evaluation of Mysore Painting: Exploring the Role of Royal Patrons in the Emergence of Styles in the 18<sup>th</sup> and 19<sup>th</sup> Centuries*

**Krupa Rajangam**, Archaeology  
*Study on Resident communities and Conservation Practice: Case of Hampi World Heritage Site*

**Varun S Bhatta**, Philosophy  
*Philosophical Analysis of Matter in Contemporary Physics*

**S Siddharth**, Philosophy  
*The Metaphysics of Conscious Experience*

**Aditi Kathpalia, Ekta Gupta and Kuili Suganya**  
*Yet to register*

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## SCHOOL OF NATURAL SCIENCES AND ENGINEERING

---

**Neesha Dutt**, Energy and Environment  
*Urban Greens: Ecological Impacts and Socio-economic Drivers of Turfgrass Ecosystems*

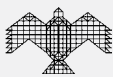
**Priya Gupta**, Environmental Science  
*Interface of exclusionary conservation policies and rights of Communities: Case study of a Protected Area*

**Priyam Laxmi Borgohain**, Energy and Environment  
*Downstream Environmental and Socio-Economic Impacts of Hydropower Projects in Northeast India – Case studies of Ranganadi and Lower Subansiri Hydroelectric Projects*

**Nimisha Agarwal**, Environmental Science  
*Assessment of Farmers' Perception of Climate Change and Local Adaptation Strategies in Uttar Pradesh.*

**Nishant Srinivasaiah**, Behavioral Ecology  
*Grabbing the Bull by the Tusks: Behavioural Ecology of the Male Asian Elephant in a Human-Dominated Landscape*

**Shaurabh Anand**, Behavioral Ecology  
*Patterns and Determinants of Human-rhesus Macaque Conflict*



**Sashi Kiran C**, Energy  
*Understanding and Modeling Residential Electricity Demand in India*

**Vijay CS**, Energy  
*Electricity System Modeling for Large Scale Renewable Integration in India*

**Sreedhar Vijaykrishnan**, Behavioral Ecology  
*Seeing the Elephant: Socioecology and Physiology of the Female Asian Elephant *Elephas maximus* in an Anthropogenic Landscape in Southern India*

**Uddalak T Bindhani**  
*Yet to register*

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## SCHOOL OF SOCIAL SCIENCES

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**Sulagna Mustafi**, Anthropology  
*Transnationalism and Muslim Identity in Dakshina Kannada, India*

**Soundarya Iyer**, Economics (Thesis submitted)  
*Dynamics of Rural Transformation in Karnataka: A View from Three Villages*

**NS Nalini**, Economics  
*First Nature and Urbanisation Terrain and Urban Development of Bangalore, 1971-2011*

**Shatarupa Bhattacharyya**, Economics  
*Interaction between Development and Festival: Durga, Kali and Bonbibi-Dakhinray in the Sundarbans*

**Chetan B Singai**, Education  
*Higher Education and University Governance in India: A Case Study of Two Universities in Karnataka*

**Rashmi M**, Media  
*Mobile Phones and Changing Media Consumption Practices in Bangalore*

**Anamika Ajay**, Economics  
*The Impact of Development on Social Conflicts: Case studies of Intra-Family and Inter-Group Strife in Two Villages in Kerala*

**Ankita Rathi**, Economics  
*Transition from Village to Town: A Study of Two Settlements in Punjab*

**Savitha Suresh Babu**, Education  
*Welfare Hostels in Higher Education: Understanding the Experiences of Dalit and Adivasi Women Students*

**Keya Bardalai**, Sociology  
*Northeast Women Migrants in Delhi: Aesthetic Labour in the New Consumer Economy*

**Anupama Mahajan**, Gifted Children  
*Contours of Lived Experiences of Children Identified as Gifted in India*

**Meera Sudhakar, Subroto Dey and Vijaashree CS**  
*In the process of registration*

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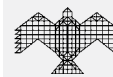
## GRADUATED STUDENTS - 2016-2017

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### SCHOOL OF SOCIAL SCIENCES

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**Sanam Roohi**  
*Giving Back: Diaspora Philanthropy and the Transnationalisation of Caste in Guntur (India)*



# ANNUAL MEMORIAL LECTURES

Three annual memorial lectures were organised – Dr Raja Ramanna Memorial Lecture, Prof MN Srinivas Memorial Lecture and Prof RL Kapur Oration.

Dr MB Rajani is the Coordinator of Annual Memorial Lectures.

## TWELFTH RAJA RAMANNA MEMORIAL LECTURE



**Prof G Padmanaban**

Former Director, IISc and NASI Platinum Jubilee  
Senior Scientist, Department of Biochemistry, IISc,  
Bengaluru  
*Science, Technology and Health*  
December 14, 2016

## FOURTH RL KAPUR ORATION



**Prof Manoj Das**

Distinguished Writer, Sri Aurobindo Ashram,  
Pondicherry  
*The Riddle of Sphinx - The Issue of Love and  
Death in the Mystic Lore of India*  
June 21, 2016

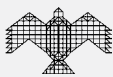
## SIXTEENTH MN SRINIVAS MEMORIAL LECTURE



[Birth Centenary Year of  
Prof MN Srinivas – 1916-2016]

**Prof Sukhadeo Thorat**

Chairman, ICSSR, New Delhi  
*Why Discrimination Persists Despite Law?  
Insights from Theories*  
September 20, 2016



## PUBLIC PROGRAMMES



*Pandit Parameshwar Hegde and Team*

### **Dr Ceon Ramon**

Departments of Electrical Engineering and Neurology, University of Washington, Seattle, USA

*Sixth FIRST Lecture on Neuroscience of Mind–Brain Interactions*

March 31, 2017

### **Pandit Parameshwar Hegde and Team**

Bengaluru

*Hindustani Classical Vocal*

March 23, 2017



*Mr Balan Nambiar*

### **Mr Balan Nambiar**

Painter, Sculptor and Photographer, Bengaluru

*Golden Ratio, Fibonacci Sequences and Fractals in Mathematics, Nature and the Art*

March 22, 2017

### **Dr A Sivathanu Pillai**

Honorary Distinguished Professor, ISRO, Bengaluru

*Science, Technology and Innovation Policy*

March 14, 2017



*Dr A Sivathanu Pillai*

### **Ms Shabnam Virmani**

Filmmaker, Singer and Artist, Srishti, Bengaluru

*Sajni, Heli, Piya - Songs and Conversations on Gender in Mystic Poetry*

March 1, 2017



*Ms Shabnam Virmani*

### **Prof PS Goel**

Dr Raja Ramanna Chair Professor, IAS

*Science and Geopolitics of Antarctica*

February 21, 2017

### **Vidwan D Balakrishna**

Bangalore

*Carnatic Classical Veena*

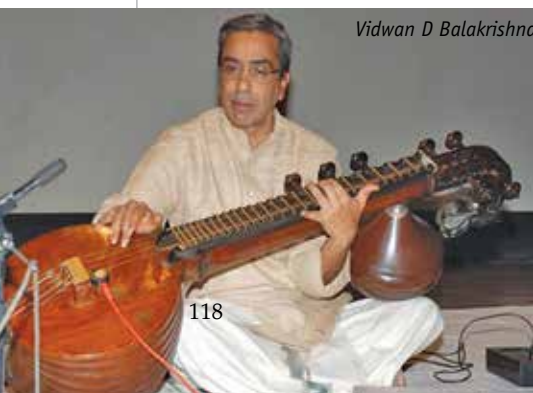
February 15, 2017

### **Prof PS Goel**

Dr Raja Ramanna Chair Professor, IAS

*Science, Technology & Space (Applications and Challenges)*

February 14, 2017



*Vidwan D Balakrishna*

### **Ambassador PS Raghavan**

Convener, National Security Advisory Board, New Delhi

*Science and Diplomacy*

February 6, 2017



**Prof Mark Peterson**

Mount Holyoke College, USA  
*Galileo's Sources in the Arts*  
January 27, 2017

**Dr Bindu M Kutty**

Department of Neurophysiology, NIMHANS, Bengaluru  
*Fifth FIRST Lecture on Animal Models of Cognitive Deficits: Implications for Plasticity and Functional Recovery*  
January 27, 2017

**Mr Ricky Kej**

Proprietor, Music Producer, Music Director, Raveolution Studios, Bengaluru  
*Language of Music and Arts for Change*  
January 19, 2017

**Mr Chandra Bhushan**

Dy Director General, Centre for Science and Environment, New Delhi  
*Climate Change and Energy Transformation: The Road Ahead for India*  
January 18, 2017

**Dr Jon Wilson**

Department of History, King's College, London  
*The Chaos of Empire and the Spaces for Indian Science and Technology*  
January 17, 2017

**Dr Arun Shourie**

Former Minister for Communication and Information Technology  
*Politics of Development*  
January 17, 2017

**Mr Suresh Prabhu**

Hon'ble Union Minister of Railways  
*Paradigm Shift in Governance-Impact on Business and Society*  
January 16, 2017

**Prof Chris Greig**

University of Queensland  
*Achieving Deep Decarbonisation of the Power Sector – Special Challenges for India and China*  
January 13, 2017

**Prof Andrew Thorpe**

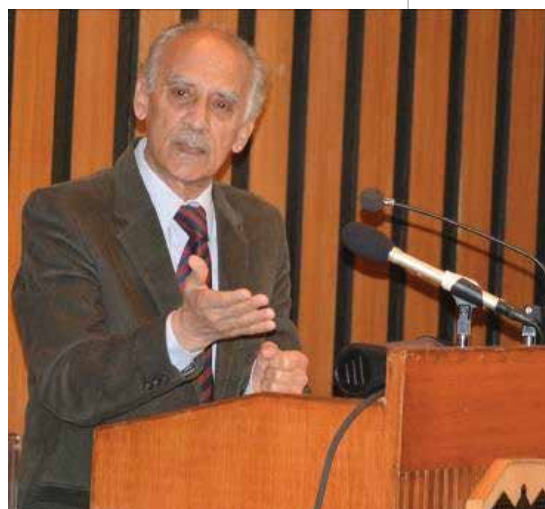
Pro-Vice-Chancellor for Humanities and  
Professor of Modern History, University of Exeter, UK  
*Post-Brexit British Politics in Historical Perspective'*  
January 13, 2017



Mr Ricky Kej



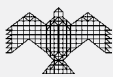
Mr Chandra Bhushan



Dr Arun Shourie



Mr Suresh Prabhu



Dr Tilak Agerwala and Prof Sangeetha Menon

**Dr Tilak Agerwala**

IBM Research Emeritus and IBM Research Vice President (Retd)  
TJ Watson Research Center, Greater New York City Area, IBM, USA  
*The Impact of Big Data Computing and Augmented Intelligence*  
January 12, 2017

**Prof Malavika Kapur**

NIAS

**Prof Surinder S Jodhka**

Jawaharlal Nehru University

**Prof MN Panini**

Mysuru; Retired Professor, Jawaharlal Nehru University

**Prof N Jayaram**

Bengaluru; Retired Professor, Tata Institute of Social Sciences

*Panel Discussion on MN Srinivas as a Public Intellectual*

January 9, 2017



Prof Malavika Kapur

**Dr VK Aatre**

Formerly Scientific Advisor to Raksha Mantri, Government of India

*Science, Technology and the Future*

December 15, 2016

**Dr Jayadevi Jangamashetti**

Dharwad, Karnataka

*Hindustani Vocal Concert*

December 13, 2016



Dr VK Aatre

**Prof Narendar Pani**

Professor, NIAS

*Slapping a Giant: The Demonetization Gamble*

December 9, 2016

**Prof Jacques Zeelen**

Faculty of Arts, University of Groningen, Nederland

*Vocational Education: Exploring New Pathways for Craftsmanship in Different Continents*

December 2, 2016

**Dr Wayne Deans**

Institute for Land, Water and Society, Charles Sturt University, Australia

*The Principles of Redundancy*

November 28, 2016

**Dr Mukund Thattai**

National Centre for Biological Sciences, Bengaluru

*Turbocharged Evolution in a Bacterial Arms Race*

Fourth FIRST (Forum for Interdisciplinary Research and Studies) Lecture

November 25, 2016



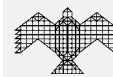
Dr Jayadevi Jangamashetti

**Prof Fazal Rizvi**

Melbourne Graduate School of Education, University of Melbourne, Australia

*Elite Schools in India and the Formation of Global Imaginaries*

November 14, 2016



**Kalamandalam Manoj and Team**

Kerala  
*Panchavadyam*  
November 10, 2016

**Dr A Sivathanu Pillai**

Honorary Distinguished Professor, ISRO  
*Science, Technology and Innovation*  
November 9, 2016

**Mr Joseph TK**

Sharp Software Development India Private Limited, Bengaluru  
*TRIZ: A Methodology of Innovating Systematically for Scientists*  
November 8, 2016

**Dr TR Gopalakrishnan Nair**

Rector, Rajarajeswary Group of Educational Institutions and Adjunct Professor, NIAS  
*Silicon Brain: Horizons for Humanity*  
Third FIRST (Forum for Interdisciplinary Research and Studies) Lecture  
October 28, 2016

**Prof S Settar and Prof Sundar Sarukkai**

NIAS  
*Discussion on Fire over Water- Issues in the Cauvery Conflict*  
October 24, 2016

**NIAS-CSP Evening Philosophy Chat Series**

**Prof Anindya Sinha, Prof D Suba Chandran, Dr Nithin Nagaraj and Prof Sangeetha Menon, NIAS**

*Uncertainty: Are You Certain?*  
October 20, 2016

**Ms Catherine Eagleton**

British Library  
*British Library's Digitization and Digital Projects*  
October 13, 2016

**Ambassador PS Raghavan**

Former Indian Ambassador to Russia  
Book Release *Not War, Not Peace? Motivating Pakistan to Prevent Cross-Border Terrorism*  
Co-authored by George Perkovich and Toby Dalton  
September 28, 2016  
(In collaboration with The Takshashila Institution, Bengaluru)

**NIAS CSP Evening Philosophy Chat Series**

**Dr Deepti Navaratna, IGNC-A-SRC, Bengaluru, Dr Naren Rao, NIMHANS, Bengaluru and Prof Sangeetha Menon, NIAS, Bengaluru**  
*Yoga, Music and Mind: Understanding Health and Cognition*  
September 22, 2016

**Prof Mark Lindley**

Washington DC  
*Exergy Costs of Mineral Commodities*  
August 31, 2016



Prof Narendar Pani



Kalamandalam Manoj and Team



Ambassador PS Raghavan



Prof TN Shorey

**Dr Soumyendu Raha**

Department of Computational and Data Sciences, Indian Institute of Science, Bengaluru  
*Constrained Dynamics and Its Application to Stick-Slip Problems*

Second FIRST (Forum for Interdisciplinary Research and Studies) Lecture  
August 26, 2016

**Prof TN Shorey**

Adjunct Professor, NIAS  
*Fibonacci Sequence and Its Extensions*  
August 25, 2016

**Prof K Krishnan**

Head, Department of Archaeology and Ancient History  
Faculty of Arts, The Maharaja Sayajirao University of Baroda  
*Characterization of Archaeological Ceramics*  
August 24, 2016

**Dr B Ravi**

Adjunct Professor, NIAS and Institute Chair Professor of Mechanical Engineering, IIT Bombay  
*The Golden Spiral: Connecting Education, Innovation and Translation*  
August 19, 2016



Mr Mohit Virmani

**Mr Mohit Virmani**

Research Fellow, NIAS  
*Let Us Measure Consciousness!*  
August 11, 2016

**Prof Srinivasa Rao**

Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University, New Delhi  
*Right to Educate or Not to Educate? Implications of Public School Closures and Mergers in Post RTE Era*  
August 10, 2016

**Dr Sudhakar Varanasi**

Chief Mentor, IISE/Emergent Institute, Bengaluru

*Working with Head and Heart Aligned: The Story of the Emergency Services Project 108 in India*  
August 9, 2016



Mr Tathagata Neogi

**Mr Tathagata Neogi**

PhD Scholar, NIAS-Exeter  
*Technology, People and Landscape: Pre-Industrial Iron-Smelting in northern Telangana from an Ethnoarchaeological Perspective*  
August 8, 2016

Dr Andrew M Bauer

**Dr Andrew M Bauer**

Assistant Professor, Department of Anthropology, Stanford University  
*The Maski Archaeological Research Project: Land Use, Settlement, and Social Differences in Neolithic through Medieval South India*  
August 5, 2016



**Dr R Srikanth**

Bengaluru

*Towards an Integrated Mining and Environmental Policy for the Indian Coal Sector*

July 29, 2016

**Prof KL Sebastian**

Department of Inorganic and Physical Chemistry

Indian Institute of Science, Bengaluru

First FIRST (Forum for Interdisciplinary Research and Studies) Lecture

July 28, 2016

**Dr Balaji Srinivasan**

Associate Professor, IIT, Delhi

*Flow Computations and Their Relation with Complex Systems and Cognition*

July 8, 2016

**Dr Marieke van Vugt**

Assistant Professor, Cognitive Modelling Group, University of Groningen

*Comparing Different Kinds of Mind-Wandering Using Computational Modeling*

July 7, 2016

**Dr N Ramamoorthy**

Former Director, Division of Physical and Chemical Sciences, IAEA, Vienna, Austria

India and the Nuclear Suppliers Group (NSG)

July 5, 2016

**Prof Amit Bhaduri**

Emeritus Professor, Jawaharlal Nehru University, New Delhi

*Truths and Untruths about the Indian Economy in the Global Financial Setting*

July 4, 2016

**Dr Thomas D Albright**

Professor and Conrad T Prebys Chair, Salk Institute for Biological Studies

Director of the Salk Institute Center for the Neurobiology of Vision

University of California, San Diego

*Reforming Forensic Science: Some Insights from Research on Vision and Memory*

July 1, 2016

**Mr Gautam Sonti and Ms Usha Rao**

Bengaluru

*Whose City? Public Space, Protest, Art*

June 24, 2016

**Prof Vilupanur Ravi**

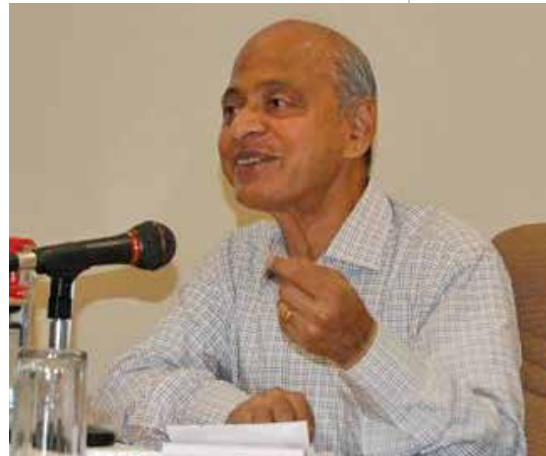
Professor and Chair, College of Engineering, CA

*The Plank Canoe of the Chumash Culture: A Historical and Materials Science-based Perspective*

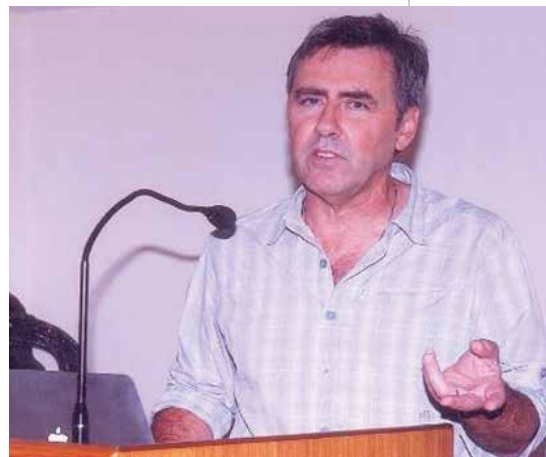
June 23, 2016



Dr Marieke van Vugt



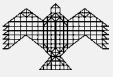
Dr N Ramamoorthy



Dr Thomas D Albright

Prof Vilupanur Ravi





*Prof D Suba Chandran, Prof Sangeetha Menon, Prof Narendar Pani and Prof SS Meenakshisundaram*

**Prof SS Meenakshisundaram, Prof Narendar Pani and Prof Sangeetha Menon**

NIAS

*Conflict and Post Conflict Societies in South Asia – Defining "Peace": A Poli-so-phical Approach – NIAS Multi-Disciplinary Debate through an Interaction*

June 23, 2016

**Prof PC Agrawal**

University of Mumbai–Department of Atomic Energy Center of Excellence for Basic Sciences, Kalina, Mumbai

*View of the X-ray Sky through ASTROSAT's Eyes*

June 17, 2016

**Dr Purnendu Ghosh**

Executive Director, Birla Institute of Scientific Research, Jaipur

*Engineering of Need and Want*

June 3, 2016

**Mr Surendra Kumar Sagar**

Technical Director (Structural Design and Engineering)

Total Environment Group of Companies, Bengaluru

*Cosmic Travelling Mind*

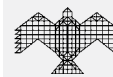
May 31, 2016

*Prof PC Agrawal*



*Dr Purnendu Ghosh*





## WEDNESDAY DISCUSSION MEETINGS

NIAS Wednesday Discussion Meetings is one of the outreach events that have continued since the inception of the Institute. The faculty of the Institute meets every Wednesday morning for semi-formal academic discussions after a lecture delivered by a member of the faculty. These Wednesday meetings also serve as a forum for invited guest speakers to deliver lectures on subjects of their choice.

Prof Sangeetha Menon and Prof D Suba Chandran are the Coordinators of Wednesday Discussion Meetings.

**Dr Jeebanlata Salam**  
Assistant Professor, NIAS

**Prof D Suba Chandran**  
Professor, NIAS  
*Mobile Literacy Institutions in Conflict Zones of India's Periphery: A Case of Manipur and J&K*  
March 8, 2017



**Prof Sundar Sarukkai**  
Professor, NIAS  
*Women Cannot Do Science*  
March 1, 2017

**Dr Hippu Salk Kristle Nathan**  
Assistant Professor, NIAS  
*Dying in Silence: A Study on Mortality-Morbidity Gap in India*  
February 1, 2017

**Dr Shailaja D Sharma**  
Adjunct Faculty, NIAS  
*Number Representation: Utility, Aesthetics and Innovation*  
February 22, 2017



**Mr Nitin Pai**  
Director, Takshashila Institutions, Bengaluru  
*Geo-Economics of India's Energy Security*  
February 15, 2017

**Mr Srikumar M Menon**  
Research Officer, NIAS  
*Badami: An Ode to Sandstone*  
January 25, 2017

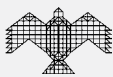


**Dr GN Dayananda**  
Centre for Societal Missions and Special Technologies, CSMST, Bengaluru  
*Wind Energy Prospects and Challenges in India*  
February 8, 2017



**Vice Admiral RN Ganesh**  
Adjunct Professor, NIAS & Director Asia Centre, Bengaluru  
*India's Maritime Strategy*  
January 18, 2017

**Prof Sisir Roy**  
TV Raman Pai Chair Visiting Professor, NIAS  
*Quantum Ontology and Ultimate Reality*  
January 11, 2017



**Dr Abha S Rao**  
Assistant Professor, NIAS  
*Health Inequities in the Indian Context*  
January 4, 2017



**Prof D Suba Chandran**  
Professor, NIAS  
*India, Pakistan and Kashmir: Where Do We Go From Here?*  
November 23, 2016



**Dr TS Gopi Rethinaraj**  
Associate Professor, NIAS  
*Exposure to Ionizing Radiation at Low Doses: Risk Assessment and Public Health Regulation under Scientific Uncertainty*  
December 21, 2016



**Dr Leya Mathew**  
Post-Doctoral Associate, NIAS  
*Re-Forming Thinking Skills as Communication Skills: College-Prep Secondary Schooling and English in Globalizing India*  
November 16, 2016

**Prof Sindhu Radhakrishna**  
Professor and Dean, School of Natural Sciences and Engineering, NIAS  
*Science and Society: Boon or Bane for Wildlife Conservation*  
December 14, 2016



**Prof R Srikanth**  
Professor and Head, Energy and Environment Research Programme, NIAS  
*An Integrated Approach to Energy and Environment Policy for India*  
December 7, 2016

**Dr Prakash Panneerselvam**  
Post-Doctoral Associate, NIAS  
*Japanese Realpolitik: Nuclear Politics in South Asia*  
November 9, 2016

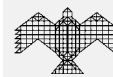


**Ms Pallavi Thakur**  
Research Assistant, NIAS  
*Conjectural Digital Visualization of Vijayanagara era Bazaar Street*  
November 30, 2016



**Dr Jeebanlata Salam**  
Assistant Professor, NIAS  
*Sociology of Right to Education: A Dynamic View through Northeast India*  
November 2, 2016





**Dr Sumedha Bajar**  
Post Doctoral Fellow, NIAS  
*The 'where' of Skill Development*  
October 26, 2016



**Prof PS Goel**  
Raja Ramanna Chair Visiting Professor, NIAS  
*Mysteries of Ocean; Spaceman's Perspective*  
September 7, 2016



**Prof R Srikanth**  
Head, Energy and Environment Research Programme,  
NIAS  
*Risk Assessment and Management – An Approach*  
October 19, 2016



**Dr Shivali Tukdeo**  
Assistant Professor, NIAS  
*Theorising Policy Mobility: Inter-Governmental  
Organisations (IGOs) and new Policy Regimes in  
Education*  
August 31, 2016



**Dr Shoibal Chakravarty**  
Assistant Professor, NIAS  
*Integration of Renewables in the Indian Grid*  
October 5, 2016



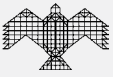
**Dr Kshitija A Joshi**  
Post-Doctoral Associate, NIAS  
*Financial Inclusion in India: An Exploration of Supply  
and Demand Side Issues*  
August 24, 2016



**Prof S Ranganathan**  
Honorary Visiting Professor, NIAS  
*The Steel, the Sword and the Soul: A Materials Guide to  
the Cultural Heritage of Japan*  
September 21, 2016



**Prof Bishnu N Mohapatra**  
Sir Ashutosh Mukherjee Visiting Professor, NIAS  
*Poet's World and Poet's Knowledge*  
August 17, 2016



**Mr Posina Venkata Rayudu**  
Research Fellow, NIAS  
*Truth through Nonviolence*  
August 10, 2016



**Dr Shalini Dixit**  
Assistant Professor, NIAS  
*Socio-Cultural Influences on Development of Historical Understanding*  
July 13, 2016



**Dr N Chandrasekaran**  
Adjunct Faculty, NIAS  
*Spatial Distribution of Big Data and Some Applications*  
August 3, 2016



**Dr M Mayilvaganan**  
Assistant Professor, NIAS  
*Fishing Conflicts in the Palk Bay: Are the Indian Fishermen 'Carefully Careless?'*  
June 29, 2016



**Dr Shailaja D Sharma**  
Adjunct Faculty, NIAS  
*Pre-University Math – Back to the Future?*  
July 27, 2016



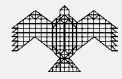
**Prof DP Sen Gupta**  
Visiting Professor, NIAS  
*Sister Nivedita: She gave her all to India*  
June 22, 2016



**Dr MB Rajani**  
Assistant Professor, NIAS  
*The Search for Odantapuri: Evidence from Landscape Archaeology*  
July 20, 2016



**Mr Adarsh Vijay**  
Intern, International Strategic and Security Studies Programme, NIAS  
*India and Blue Economy: A Maritime Strategy for Growth*  
June 15, 2016



**Ms Sourina Bej and Ms Albertina Nithya B**  
Interns, International Strategic and Security Studies  
Programme, NIAS  
*Bangladesh and Myanmar: Rise of Radicalism*  
June 8, 2016

**Prof D Suba Chandran**  
Professor, NIAS  
*Post Conflict Societies in South Asia: How Peaceful is  
Our Peace?*  
June 1, 2016

**Dr Anshuman Behera**  
Assistant Professor, NIAS  
*From Mao to Maoism: The Indian Path*  
May 25, 2016

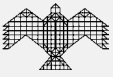
**Prof Malavika Kapur**  
Visiting Professor, NIAS  
*Laments of a Child Psychologist*  
May 18, 2016

**Dr Srikumar M Menon**  
Research Officer, NIAS  
*The Uttarakhand Disaster of June 2013: A Survivor's  
Account*  
May 4, 2016

**Dr Deepa Srikantiah**  
Fulbright-Nehru US Scholar, IIMB  
*Beyond Counting: Strong Foundational Skills in Early  
Mathematics Leads to Number Sense, Critical Thinking,  
and Achievement in STEM*  
April 27, 2016

**Dr Nithin Nagaraj**  
Assistant Professor, NIAS  
*Uncertainty, Undecidability, Unpredictability*  
April 20, 2016

**Dr Samira Agnihotri**  
DST-SERB National Post-Doctoral Scholar, NIAS  
*Vocal Mimicry in Birds: Sincere Flattery or Devious  
Deception?*  
April 6, 2016



## ASSOCIATES' PROGRAMME

NIAS shares its experiences, both intellectual and cultural, with a select group of distinguished persons. As Associates, they enjoy certain privileges, including access to the NIAS library, invitations to all major events and opportunities to dine with the NIAS faculty and distinguished visitors. As of now we have 135 distinguished personalities as our associates. NIAS organises regular associates meetings, which include lectures, plays, and performing arts events.

Currently, Prof S Setter is the Chairman for the Associates' Programme.



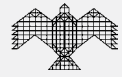
### **Nrityagram Ensemble**

Bengaluru  
*Odissi Dance Performance*  
January 20, 2017

### **Prof Matthew Bunn**

Harvard University  
*Evolving Opportunities for Cooperation in Nuclear Security*  
October 6, 2016

*Nrityagram Ensemble*



## LITERARY, ARTS AND HERITAGE FORUM

The Literary, Arts and Heritage Forum aims to be an innovative platform for occasional lectures on diverse topics of cultural interest and of interest to science and culture, science and society, including literature, the arts and aspects of heritage. Major events and public lectures were held over the past year.

Prof Sharada Srinivasan and Prof Sangeetha Menon are the Coordinators of the NIAS Literary, Arts and Heritage Forum.

**Dr James Black**

Founder and Publisher, Archetype Publications, London  
*A journey through Publishing and Short Courses in Art Conservation...*  
February 17, 2017

**Dr Prashant Keshavmurthy**

Associate Professor, Persian-Iranian Studies in the  
Institute of Islamic Studies, McGill University, Montreal  
*A Hindu Allegory of the Islamic Philosopher-King: The  
Tale of Madan and Kāmdi in Bedil's Irfān*  
February 8, 2017

**Prof Mark Peterson**

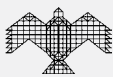
Mount Holyoke College, USA  
*Galileo's Sources in the Arts*  
January 27, 2017

**Dr Vijay Seshadri**

Pulitzer Prize Winner, Professor, Sarah Lawrence  
College, NY and Poet-in Residence, NIAS  
*Our Time of Transitions*  
November 30, 2016

**Mr Ganesh Shivaswamy**

Trustee, Raja Ravi Varma Heritage Foundation,  
Bengaluru  
*The Role of Lithographs in Popular Culture and Legacy  
of Raja Ravi Varma*  
July 29, 2016



# LIBRARY

The Library is committed to empowering the institute to achieve its objectives of multidisciplinary research, teaching as well as leadership training programmes. Patron driven acquisition activity has helped in collection building of relevant resources and over the years, NIAS library has emerged as a major information resource centre in multidisciplinary research areas. 485 books were acquired during the year taking the total print collection to 16460 books. The bibliographic details of the collection are accessible within the campus and from elsewhere via online public access catalogue.

The Library subscribes to electronic journal packages of Oxford University Press, Cambridge University Press and Taylor and Francis Publishers in addition to other journals of relevance from various academic publishers. Subscription to archival resources includes JSTOR and EPW archives. Data resources subscription includes Indiatat.com, a portal for India's socio-economic data and EPWRF IndiaTime Series data with 16 modules. These electronic resources can be accessed within campus as well as remotely via Athens. Based on usage and recommendation, subscription to two journals was discontinued and five new journals are included under current subscriptions during 2016 - 2017. Current subscriptions include 52 print journals and 1614 online journals. The Library also acquired 68 datasets from the National Sample Survey Organisation.

NIAS Library has an archival collection of over 4000 photographs covering all major activities and events since inception of the Institute. These photo archives were converted into digital format during the year.

The support service for plagiarism detection in student proposals and theses is being provided by the Library.

The physical infrastructure within the Library was improved with suitable modifications to enhance storage of books and reading materials.

The Library website provides comprehensive and seamless access to licensed content and Library catalogue. Users are also provided with facilities for scanning, printing and photocopying. The total number of photocopies made and articles printed by Library users is 38945 pages. The number of visitors to NIAS Library during the year is 1483.

The Library facilitates activities related to the website and research media services. The institutional repository of NIAS with 1265 records continues to be populated with research output and institutional content in different formats.

The Library has arrangements for interlibrary loan and document delivery services with other Libraries in Bengaluru and elsewhere.

## Library Resources

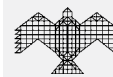
Sl No.	Library Resources	Numbers
1	Books	16460
2	Kannada Books	452
3	Donations	1000
4	Theses	31
5	E-Journals Subscriptions	1614
6	Print Journals	52
7	Bound Volumes	2450
8	Data CDs	333
9	CDs	355
10	Lectures on DVDs	618
11	Magazines	6
12	Newspapers	10



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# PUBLICATIONS

## BOOKS

Bagla Pallava and V V Binoy eds. (2017). *Bridging The Communication Gap In Science And Technology: Lessons From India*. Singapore: Springer.

Guru Gopal and Sundar Sarukkai (2017). *The Cracked Mirror: An Indian Debate on Experience and Theory*, rev. ed. New Delhi: OUP.

Haricharan Smriti (2016). *Siruthavoor: An Iron Age-Early Historical Burial Site, Tamil Nadu, South India*. Archaeopress.

Karthik V, K V Kasivishwanathan and Baldev Raj (2017). *Miniaturized Testing of Engineering Materials*. Advanced Materials Science and Technology / Baldev Raj Ser. Ed. New York: CRC-Press, Taylor and Francis Group.

Raj Baldev and U Kamachi Mudali eds. (2017). *Sensor Science and Technology*. New Delhi: Narosa Publishers Ltd.

Raj Baldev, M Van de Voorde and Y Mahajan eds. (2017). *Nanotechnology for Energy Sustainability*, 3 Volume Set. John Wiley and Sons.

Rajaram, Shankar (2016). *Citranaishadham: The Picturesque Tale of King Nala*. Mumbai: Niraamaya Publishing.

Ramanna Raj and L V Krishnan (2017). *Elements of Nuclear Power*, rev ed. Bengaluru: Centre for Science and Human Values, Bharatiya Vidya Bhawan.

Rao DS Achuta (2017). *Administrative and Social History of Mysore under Wodeyars 1600-1800 CE*. Manipal: Manipal University Press.

Roy, Sisir (2016). *Decision Making and Modelling in Cognitive Science*. New Delhi: Springer (India) Pvt. Ltd.

Settar S and Gururaja Karajagi eds. (2016). *Shikshana Shilpa: Shikshanavannu Kuritha Lekhana Samputa*. Mysore: Parama Pujya Jagadguru Sri Shivarathri Rajena Mahaswamiji.

Settar S ed. (2017). *Halagannada Bhashe, Bhasha, Vikas, Bhashabandhavya (Ancient Kannada Language, its Evolution, its Relations with other Languages)*. Bengaluru: Abhinava Publications.

Singh Tejpal, Sandip Singh and Sharada Srinivasan (2016). *Ecstasy of Classical Art: Indian Bronze, National Museum Collection*. New Delhi: National Museum.

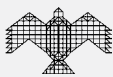
Upadhyaya Carol (2016). *Reengineering India: Work, Capital, and Class in an Offshore Economy*. New Delhi: OUP.

## RESEARCH PAPERS

Agarwal Pawan Kumar, Baldev Raj, Sindhu Radhakrishna, Abraham Verghese, Kesavan Subaharan and Ankita Gupta (2016). *Human-wildlife Conflict (Meeting Report)*. *Current Science* 111(10): 1581-1582.

Anand Geetha and Sangeetha Menon (2017). *Body, Self and Consciousness according to Tirumūlar's Tirumandiram: A Comparative Study with Kashmir Śaivism*. *International Journal of Dharma Studies* 5(3). DOI:10.1186/s40613-016-0045-5.

Bajar Sumedha and Meenakshi Rajeev (2016). *The Impact of Infrastructure Provisioning on Inequality in India: Does the Level of Development Matter?*. *Journal of Comparative Asian Development* 15(1): 122-155.



Bajar Sumedha and Meenakshi Rajeev (2016). Contribution of Infrastructure to Output Growth in India. *Emerging Economy Studies* 2(2): 240-252.

Balasubramanian Karthi and Nithin Nagaraj (2016). Aging and Cardiovascular Complexity: Effect of the Length of RR Tachograms. *PeerJ* 4:e275.

Behera Anshuman (2017). Insurgency, Drugs and Small Arms in Myanmar. *Strategic Analysis* 41(1): 34-48.

Bhattacharya Samyadeb and Sisir Roy (2016). Quantum Path Predictability for an Electronic March-Zehnder Interferometer in presence of Environment induced Decoherence and Quantum Erasing Process. *Journal of Modern Physics* 7: 892-898.

Chandrashekar S (2016). Space, War and Deterrence: A Strategy for India. *Astropolitics* 14(2-3): 135-157.

Dixit Shalini and Bharat Chandra Rout (2017). Writing History: Truth and Ideology. *The New Leam* 3(22-23): 5-7.

Dixit Shalini (2016). Understanding of History among Tribal and Non-Tribal Children and Adults. *International Education and Research Journal* 2(10): 30-33.

Gangopadhyay Anasuya, A Sampath, B Velury, D P Sen Gupta and Dilip R Ahuja (2016). Wind and Solar Energy for Reducing Electricity Deficits in Karnataka. *Current Science* 111(5): 796-807.

George R P, U Kamachi Mudali and Baldev Raj (2016). Characterizing Biofilms for Biofouling and Microbial Corrosion Control in Cooling Water Systems. *Journal of Anti-Corrosion Methods and Materials* 63(6): 477-489.

Gupta Ekta, Sonia Das and M B Rajani (2017). Archaeological Exploration in Srirangapatna and its Environ through Remote Sensing Analysis. *Journal of the Indian Society of Remote Sensing*. DOI: 10.1007/s12524-017-0659-9.

Gupta Shreejata and Anindya Sinha (2016) Not here, there! Possible Referential Gesturing during Allogrooming by Wild Bonnet Macaques, *Macaca radiata*. *Animal Cognition* 19: 1243-1248.

Haricharan Smriti, Nagabhushana, Sharada Srinivasan, M B Rajani, and S Ranganathan (2016). Locating Iron Production Sites in Telangana, India using Satellite Imagery. *Current Science* 111(9): 1536-1543.

Hongray Thotreithem and Janaki Balakrishnan (2016). Dynamics of Bow-Tie Shaped Bursting: Forced Pendulum with Dynamic Feedback. *Chaos* 26: 123107.

Iyer Soundarya (2017). Circular Migration and Localized Urbanization in Rural India. *Environment and Urbanisation ASIA* 8(1): 105-119.

Iyengar Sudharshana V, Janaki Balakrishnan and Jurgen Kurths (2016). Co-Existence of Periodic Bursts and Death of Cycles in a Population Dynamics System. *Chaos* 26: 093111.

Iyengar Sudharshana V, Janaki Balakrishnan and Jürgen Kurths(2016). Impact of Climate Change on Larch Budmoth Cyclic Outbreaks. *Scientific Reports* (Nature Publishing Group) 6: 27845.

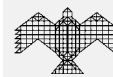
Joshi Kshitija A (2016). Venture Capital Industry in India – Determinants of Successful exits from Funded Companies. *Consulting Ahead: The Journal of the Consultancy Development Centre* 10(2): 61-73.

Kapur Malavika (2017). Being a Human Mental Health Professional. *Journal of Indian Academy of Applied Psychology* 43(1): 123-127.

Kapur Malavika (2017). Quality Primary Education. *Mentor LXL Ideas* 10(9): 14-17.

Kaur Gagan Deep (2016). Cognitive Dimensions of Talim: Evaluating Weaving Notation through Cognitive Dimensions (CDs) Framework. *Cognitive Processing* 18(2): 145-157.





Kaur Gagan Deep (2016). Cognitive Bearing of Techno-Advances in Kashmiri Carpet Designing. *AI and Society*: 1-16. DOI:10.1007/s00146-017-0691-x.

Keerthi Naresh (2016). The Polysemy of the Prabandha-Reading a Premodern Musical Genre. *Indian Journal of History of Science* 51(1): 143-155.

Kulkarni Sanket Sudhir (2016). India's Decision Making on Cross-Border Natural Gas Pipelines (1989-2012). *Strategic Analysis* 40(5): 405-424.

Kulkarni Sanket Sudhir (2016) Myanmar Undergoing an Exciting Phase: An Indian Traveller's Impression. *Insight Southeast Asia* 5(1): 9-13.

Kumar Meera and Sangeetha Menon (2016). Desire and Self-Representation: A Philosophical Reading of the Malayalam Novelette "Agnisakshi". *Journal of Indian Council of Philosophical Research* 33(2): 303-314.

Kumara H N, R Sasi, S Chandran and Sindhu Radhakrishna (2016). Distribution of the Grey Slender Loris (*Loris lydekkerianus* Cabrera, 1908) in Tamil Nadu, Southern India. *Folia Primatologica* 87(5): 291-302.

Kurup Anitha (2016). Impact of Science and Technology on Women. *Yojana* 60: 68-71.

Kuzhiparambil Asha (2016). A Secondary Informal Circuit of Globalisation of Production: Home-based Cashew Workers in Kerala, India. *Global Labour Journal* 7(3): 279-296.

Laska Junaid M, Baldev Raj and John Philip (2016). Path Length Tunable Light-Matter interaction in Magnetic Nanofluid based Field-induced Photonic Crystal-Glass Structure. *New Journal of Physics* 18: 103037.

Manojkumar P A, V A Chiravath, A K Balamurugan, Nand Gopala Krishna, S Ilango, M Kamruddin, G Amarendra, A K Tyagi and Baldev Raj (2016). Shallow Nitrogen Ion Implantation: Evolution of Chemical State and Defect Structure in Titanium. *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* 383: 6-13.

Mayilvaganan M (2016). Understanding Vulnerability of Maldives and Bangladesh to Climate Change. *Indian Ocean Digest* 36-37(1-2): 1-13.

Menon Sangeetha (2016). Self and Emotions in Bhakti. *Journal of Indian Psychology* 30(1-2): 32-39.

Menon Sangeetha (2017). Beyond the Brain: The Unifying Force of Self and Consciousness of Self and Consciousness. *The Theosophist* 138(6): 12-16.

Menon Srikumar M (2016). The "Round Mound" and its Structural Requirements: A Possible Scenario for the Evolution of the Form of the Stupa. *Heritage: Journal of Multidisciplinary Studies in Archaeology* 4: 26-46.

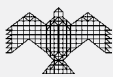
Murty A V S N, V Bhujanga Rao and K Venkata Subbaiah (2016). Self-Reliance in Design of Gas Turbine Exhaust System. *The MILIT Journal* 5.

Nagappa Rajaram (2016). Development of Space Launch Vehicles in India. *Astropolitics* 14(2-3): 158-176

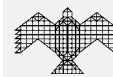
Nagaraj Nithin and Karthi Balasubramanian (2017). Dynamical Complexity of Short and Noisy Time Series: Compression-Complexity vs. Shannon Entropy. *The European Physical Journal Special Topics*. doi:10.1140/epjst/e2016-60397-x.

Nalini NS (2017). The Great Divide: Exploring the Divergence between Urban Metabolism in Theory and Practice in Water Supply System in Bengaluru. *International Journal of Urban Sustainable Development* 9(1): 1-20.

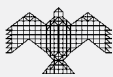
Nampoothiri J, R S Harini S K Nayak, Baldev Raj and K R Ravi (2016). Post In-Situ Reaction Ultrasonic Treatment for Generation of Al-4.4 Cu/TiB<sub>2</sub> Nanocomposite: A Route to Enhance the Strength of Metal Matrix Nanocomposites. *Journal of Alloys and Compounds* 683: 370-378.



- Pani Narendar (2016). Historical Insights into Modern Corruption: Descriptive Moralities and Cooperative Corruption in an Indian City. *Griffith Law Review* 25(2): 245-261.
- Pani Narendar (2016). Towards A Socially Consistent Science and Technology Policy. *Current Science* 110(9): 1624-1629.
- Panneerselvam Prakash (2016). Restructuring Indian Defence Industry. *Defence and Security Alert* 7(6): July.
- Panneerselvam Prakash (2016). Advancing India's Relationship with Japan and South Korea: Quest for Middle-Power Cooperation. *IPCS Issue Brief* 262: 1-15.
- Parween M, A Ramanathan and N J Raju (2017). Waste Water Management and Water Quality of River Yamuna in the Megacity of Delhi. *International Journal of Environmental Science and Technology*. DOI:10.1007/s13762-017-1280-8.
- Ponnuvelu Dinesh Veeran, P Biji, Arun K Prasad, Sandip Dhara, Kamruddin Mohamed, Ashok K Tyagi and Baldev Raj (2017). Highly Sensitive, Atmospheric Pressure Operatable Sensors Based on Au Nanoclusters Decorated TiO<sub>2</sub> Heterojunction Nanorods for Trace Level NO<sub>2</sub> Gas Detection, *Journal of Materials Science: Materials in Electronics*. DOI:10.1007/s10854-017-6725-9.
- Raj Baldev and Mohan Kumar Tiwari (2017). Innovative and Digital Manufacturing. *RITES Journal (Central Focus on Digital India, Green Transportation and Smart Cities)* 19(1): 15.1-15.14.
- Raj Baldev (2016). Building a Holistic Perspective of India in the 21<sup>st</sup> Century. Convocation Address at the International Yoga Day. *University News: A Weekly Journal of Higher Education-Association of Indian Universities* 54 (25): 24-33.
- Rajani MB (2016). The Expanse of Archaeological Remains at Nalanda: A Study using Remote Sensing and GSI. *Archives of Asian Art* 66(1): 1-23.
- Rajaram Shankar (2016). Amoga megahm. *Sanskrita Pratibha* 60 (July-Sep): 35-37.
- Ramaprasad Arkalgud, Chetan B Singai, Tanveer Hasan, Thant Syn and Mohan Thirumalai (2016). India's National Higher Education Policy Recommendations since Independence: An Ontological Analysis. *Journal of Educational Planning and Administration* XXX (1): 5-24.
- Rao Veena and Vidyanand Nanjundiah (2016). Ernst Mayr's interactions with J. B. S. Haldane. *History and Philosophy of the Life Sciences* 38(1): 138-150.
- Ramy M, M Karthika, R Selvakumar, Baldev Raj and K R Ravi (2017). A Facile and Efficient Single Step Ball Milling Process for Synthesis of Partially Amorphous Mg-Zn-Ca Alloy Powders for Dye Degradation. *Journal of Alloys and Compounds* 696: 185-192.
- Rao Naren and Sangeetha Menon (2016). A Heuristic Model Linking Yoga Philosophy and Self-Reflection to Examine Underlying Mechanisms of Add-on Yoga Treatment in Schizophrenia. *International Review of Psychiatry* 28(3): 265-272.
- Rao Abha S, B Sunil, G Raju, E Ekstrand, E Heylen and A Shet (2016). Disclosure of a Cancer Diagnosis in India: Does Family Matter?. *Asian Pacific Journal of Cancer Prevention* 17(4): 1779-1784.
- Rayudu P V (2016). Truth through Nonviolence. *GITAM Journal of Gandhian Studies* 5(1): 143-150.
- Rajangam Krupa (2017). Best Laid Plans: Research Design and the Field in a Study of Crafts in the Hampi Region. *Craft Research* 8(1): 9-31.
- Rout Bharat Chandra (2017). Social Stratification among Muslims. *Economic and Political Weekly* 52(5): 69-70.
- Salam Jeebanlata (2016). The Idea of Indianness. *The New Leam* 2(13): 46-48.



- Salam Jeebanlata (2016). Insurgency and Everyday Violence in Northeast India: The Educational Challenge. *The New Learn* 2(1): 5-8.
- Sarukkai Sundar (2017). Location of the Humanities. *Comparative Studies of South Asia, Africa and the Middle East* 37(1): 151-161.
- Sarukkai Sundar (2016). The Sociality of Science. *Current Science* 111(11): 1731-1732.
- Senthil Sutha, K R Ravi, P Biji and Baldev Raj (2017). Self-Cleaning Coating for Solar Panel Applications. *The Masterbuilder* 19(3): 72-76.
- Sharma Narayan, Michael A Huffman, Shreejata Gupta, Himani Nautiyal, Renata Mendonca, Luca Morino and Anindya Sinha (2016). Watering Holes: The Use of Arboreal Sources of Drinking Water by Old World Monkeys and Apes. *Behavioural Processes* 129: 18-26.
- Sengupta Asmita and Sindhu Radhakrishna (2016). Influence of Fruit availability on Fruit Consumption in a Generalist Primate, the Rhesus Macaque *Macaca mulatta*. *International Journal of Primatology* 37: 703-717.
- Singh Jagjit Srari, Mukesh Kumar, Gary Graham, Wendy Phillips, James Tooze, Ashutosh Tiwari, Simon Ford, Paul Beecher, Baldev Raj, Mike Gregory, Manoj Kumar Tiwari, B Ravi, Andy Neely and Ravi Shankar (2016). Distributed Manufacturing: Scope, Challenges and Opportunities. *International Journal of Production Research* 54(23): 6917-6935.
- Sundar Sumithra (2016). When Modern meets Contemporary: Venkatappa Art Gallery and Information Art Education in Bangalore. *Artha: Journal of Social Sciences* 15(3): 67-80.
- Sreekantan B V and Ram Cowsik (2017). M.G.K.Menon (1928-2016). *Science* 355(6325): 586.
- Srinivasan Sharada (2016). Tamil Chola Bronzes and Swamimalai Legacy: Metal Sources and Archaeotechnology. *JOM: The Journal of The Minerals, Metals and Materials Society* 68(8): 2207-2221.
- Srinivasan Sharada (2017). Iron Age Beta (23% tin) Bronze: Peninsular Indian Bowls of Adichanallur, Nilgiris, and Boregaon. *Materials and Manufacturing Processes* 32(7-8):807-812.
- Srinivasan Sharada (2017). Ultrahigh-Carbon 'Wootz' from Crucible Carburization of Molten Iron: Hypereutectoid Steel from "Tamil Nadu Process" at Mel-Siruvalur. *Materials and Manufacturing Processes*. DOI: 10.1080/10426914.2016.1221106
- Srinivasan Sharada (2016). Indian High-Tin Bronzes and the Grecian and Persian World. *Indian Journal of History of Science* 51(4): 601-612.
- Srinivasan Sharada (2016). Copper Smelting Slags at Ingaldhal Mines, Karnataka: Early Historic Satavahana Links. *Transactions of the Indian Institute of Metals* 70(2): 541-546.
- Sundaresan Lalitha, S Chandrashekar and B Jasani (2017). Discriminating Uranium and Copper Mills using Satellite Imagery. *Remote Sensing Applications: Society and Environment* 5: 27-35.
- Sutha S, Sisira Suresh, Baldev Raj and K R Ravi (2017). Transparent Alumina based Superhydrophobic Self-Cleaning Coatings for Solar Cell Cover Glass Applications. *Journal of Solar Energy Materials and Solar Cells* 165: 128-137.
- Thakur Hema (2017). Early Historic Material Culture in Karnataka with Particular Reference to Banavasi, North Kanara, India. *Ancient Asia* 8(2): 1-11.
- Thakur Hema (2016). Chandravalli – An Early Historic Settlement in Karnataka, India. *Journal of Ancient History and Archeology* 3(3): 49-54.
- Thakur Hema (2016). Early Historic Culture at Vadgaon-Madhavapur, (c.300 BC-c.300 AD): An Archaeo-material Perspective. *Pragmata: Journal of Human Sciences* 3(1): 70-82.



Upadhyaya Carol (2016). Engineering Equality? Education and im/mobility in Coastal Andhra Pradesh, India. *Contemporary South Asia, Special issue on Mobility* 24(3): 242-256.

Vishwanathan Arun (2016). India's Entry into the NSG: A Long-winded Process. *Indian Foreign Affairs Journal* 11(3): 217-223.

Vishwanathan Arun (2016). Nuclear Deterrence and Southern Asia. *Journal of the United Services Institution of India* CXLVI (605): 336-343.

## BOOK CHAPTERS

Baker M, P Pebsworth and Sindhu Radhakrishna (2017). Conflicted Primatologists: A Survey on Primatologists' Views on Conflict and Resolution between Human and Nonhuman Primates. In: *Ethnoprimatology: A Practical Guide to Research at the Human-Nonhuman Primate Interface* edited by K Dore, E Riley and A Fuentes. Cambridge: Cambridge University Press, pp. 154-168.

Binoy V V (2017). When Science Meets the Public-Bridging the Gap In: *Bridging the Communication Gap in Science and Technology: Lessons from India* edited by Pallava Bagla and V V Binoy. Singapore: Springer, pp. 1-12.

Binoy V V, Sindhu Radhakrishna and Anitha Kurup (2017). Bridging Educational Institutions for a Citizen Science Project: A Case Study from Malappuram District, Kerala, India In: *Bridging the Communication Gap in Science and Technology: Lessons from India* edited by Pallava Bagla and V V Binoy). Singapore: Springer, pp.269-278.

Jayapandian J, V Jayaraman, U Kamachi Mudali and Baldev Raj (2017). Principles and Applications of Sensors In: *Sensor Science and Technology* edited by Baldev Raj and U Kamachi Mudali. New Delhi: Narosa Publishing House, pp. 2.1-2.37.

Kurup Anitha (2017). Gender, Science and Technology Education in India In: *Feminists and Science: Critiques and Changing Perspectives in India* edited by Sumi Krishan and Gita Chadha Vol 2. New Delhi: Sage, pp 278-298.

Lahiri B B, S Bagavathiappan, Baldev Raj and John Philip (2017). Infrared Thermography for Detection of Diabetic Neuropathy and Vascular Disorder In: *Application of Infrared to Biomedical Sciences, Part of the Series in BioEngineering* edited by E Y K Ng and M Etehadtavakol. Singapore: Springer Nature, pp.217-247.

Mathew Leya (2017). Betrayed Futures: Uneconomic Schooling in Liberalizing Kerala (India) In: *Anthropological Perspectives on Student Futures (Anthropological Studies of Education)* edited by Amy Stambach and Kathleen D Hall. Palgrave Macmillan, pp. 103-118.

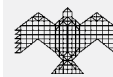
Mayilvaganan M (2016). Chinese New Maritime Silk Route Initiative: Opportunity or Threat for India? In: *Sino-Indian Relations: Contemporary Perspective* edited by R Sidda Goud. Hyderabad; Mumbai: Allied Publishers, pp. 67-81.

Mayilvaganan M (2017). India, Sri Lanka and Maldives: Shared Commonality yet Challenges to Sub-regional Cooperation In: *Sub-Regional Cooperation in South Asia: India, Sri Lanka and Maldives* edited by Joshy M Paul and Venugopal B Menon. Vij Books.

Meenakshisundaram S S (2017). Communicating issues related to Land and Natural Resources In: *Bridging the Communication Gap in Science and Technology: Lessons from India* edited by Pallava Bagla and V V Binoy. Singapore: Springer, pp.63-74.

Menon Sangeetha (2016). Consciousness and Cognition In: *Oxford Bibliographies in Hinduism* edited by Alf Hiltebeitel. New York: Oxford University Press.

Menon Srikumar M (2016). Megalithic Astronomy in India In: *History of Indian Astronomy – A Handbook* edited by K Ramasubramanian, A Sule and Mayank Vahia. Mumbai: IIT and TIFR, pp.63-83.



Mishra C and Anindya Sinha (2016). Munzalas in the Mist. In: *Nature Conversations* edited by P Sankaran and J Rajan. Mysuru: Nature Conservation Foundation, pp 27-32.

Nagappa Rajaram (2017). Design and Structures of Aircraft Engines In: *Aerospace Materials and Technologies, Vol 2* edited by N Eswara Prasad and R J Wanhill. Springer, pp. 279-303.

Nagaraj Nithin and Karthi Balasubramanian (2017). Measuring Complexity of Chaotic Systems with Cybernetics Applications In: *Handbook of Research on Applied Cybernetics and Systems Science. (Advances in Computational Intelligence and Robotics)* edited by Snehanshu Saha, Abhyaday Mandal and Anand Narasimhamurthy. Hershey, PA: IGI Global Information Science Reference, pp.301-334.

Radhakrishna Sindhu (2017). Culture, Conflict and Conservation: Living with Nonhuman Primates in Northeastern India In: *Ethnoprimateology: A Practical Guide to Research at the Human-Nonhuman Primate Interface* edited by K Dore, E Riley and A Fuentes. Cambridge: Cambridge University Press, pp. 271-283.

Radhakrishna Sindhu (2017). Cultural and Religious aspects of Primate Conservation In: *The International Encyclopedia of Primatology* edited by A Fuentes. New York: Wiley-Blackwell.

Raj Baldev, B Venkataraman and S Ranganathan (2016). NDT in Art and Archaeology, Reference Modules, Elsevier.

Raj Baldev, U Kamachi Mudali and J Jayapandian (2017). Historical Perspectives, Challenges and Future Directions In: *Sensor Science and Technology* edited by Baldev Raj and U Kamachi Mudali. New Delhi: Narosa Publishing House, pp.1.1-1.14.

Raj Baldev and U Kamachi Mudali (2017). Nanotechnologies in Sodium-Cooled Fast Spectrum Reactor and Closed Fuel Cycle Sustainable Nuclear Energy System In: *Nanotechnology for Energy Sustainability* edited by Baldev Raj, Van de Voorde Marcel and Yashwant Mahajan. John Wiley Publication.

Raj Baldev and P Chellapandi (2017). Indian Advances in Fast Breeder Nuclear Reactor Engineering In: *Energy Engineering: Proceedings of CAETS 2015 Convocation on Pathways to Sustainability* edited by K V Raghavan and Purnendu Ghosh. Singapore: Springer, pp.39-49.

Rajangam Krupa (2017). Linking People and Heritage: Lessons from Community Engagement Initiatives in India In: *Heritage, Conservation and Communities: Engagement, Participation and Capacity Building (Heritage, Culture and Identity)* edited by Gill Chitty. New York: Routledge, pp.213-225.

Rana Subir (2016). Nomads In: *The Encyclopedia of Postcolonial Studies* edited by Sangeeta Ray et.al. Wiley-Blackwell.

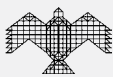
Ravi K R, Jayakrishnan Nampoothiri and Baldev Raj (2017). Nanotechnology for Transport Applications In: *Nanotechnology for Energy Sustainability* edited by Baldev Raj, Van de Voorde Marcel and Yashwant Mahajan. John Wiley Publication.

Rao B P C, B Sasi, S Thirunavukkarasu, T Jayakumar and Baldev Raj (2017). Sensor Data Management and Sensor Modelling In: *Sensor Science and Technology* edited by Baldev Raj and U Kamachi Mudali. New Delhi: Narosa Publishing House, pp.11.1-11.21.

Ravi K R, J Nampoothiri, Baldev Raj (2017). Nanocomposites: A Gaze through their Applications in Transport Industry In: *Nanotechnology for Energy Sustainability* edited by Baldev Raj, Van de Voorde Marcel and Yashwant Mahajan. John Wiley Publication.

Roy Sisir and Rodolfo Llinas (2016). Non-local Hydrodynamics of Swimming Bacteria and Self-Activated Process In: *BIOMAT 2015 Proceedings of the International Symposium on Mathematical and Computational Biology*. World Scientific, pp. 153-165.

Sarukkai Sundar (2016). Cognitive Innovation in Mathematics In: *Off the Lip: Transdisciplinary Approaches to Cognitive Innovation*. CogNovo and Transtechnology Research, Plymouth, Devon, UK: Plymouth University.



Sarukkai Sundar (2016). The Contemporary: Between Time and Art or Time as Art? In: *Tilt Pause Shift: Dance Ecologies in India* edited by Anita E Cherian Chennai: Tulika Books, pp. 55-70.

Sarukkai Sundar (2016). Is Metaphysics Political? In: *India and the Unthinkable: Backwaters Collective on Metaphysics and Politics* edited by Vinay Lal and Roby Rajan. New Delhi: OUP, pp.1-18.

Sarukkai Sundar (2016). Philosophical implications of Connective Histories of Science In: *The Bright Dark Ages: Comparative and Connective Perspectives. History of Science and Medicine Library/Knowledge Infrastructure and Knowledge Economy (53/5)* edited by Arun Bala and Prasenjit Duara. Leiden: Brill, pp. 40-56.

Simonds P E and Anindya Sinha (2016). Bonnet Macaque *Macaca radiata* In: *All the World's Primates*, [www.alltheworldsprimates.org](http://www.alltheworldsprimates.org) edited by N Rowe and M Myers. Charlestown, RI, USA: Primate Conservation Inc, pp. 198-199.

Sinha Anindya (2016). Arunachal macaque *Macaca munzala* In: *All the World's Primates*, [www.alltheworldsprimates.org](http://www.alltheworldsprimates.org) edited by N Rowe and M Myers. Charlestown, RI, USA: Primate Conservation Inc, pp 191-192.

Sinha Anindya (2016). An old wife's Tale In: *Nature Conversations* edited by P Sankaran and J Rajan. Mysuru: Nature Conservation Foundation, pp. 52-55.

Sinha Anindya and Sreedhar Vijayakrishnan (2017). Primates in Urban Settings In: *The International Encyclopedia of Primatology* edited by Agustín Fuentes. John Wiley and Sons Inc., pp 1-8. doi: 10.1002/9781119179313.wbprim0458.

Srinivasan Sharada (2016). Techniques of Bronze Casting In: *Ecstasy of Classical Art: Indian Bronze, National Museum Collection* by Tejpal Singh, Sanjib Kumar Singh and Sharada Srinivasan. New Delhi: National Museum, pp.18-44.

Srinivasan Sharada (2016). From Temple to Mantelpiece: Changing Paradigms in the Art and Craft of South Indian Metal Icons In: *Traditional Arts of South Asia: Continuity in Contemporary Practice and Patronage* by Crispin Branfoot (Saffron Asian Art & Society Series). London: Saffron Books, pp. 125-147.

Vahia M N, N Yadav and Srikumar M Menon (2016). Roots of Indian Astronomy In: *History of Indian Astronomy – A Handbook* edited by K Ramasubramanian, A Sule and Mayank Vahia. Mumbai: IIT and TIFR, pp 1-43.

## BOOK REVIEWS

Joshi Kshitija A (2016). Book Review of *Public Transport Planning and Management in Developing Countries* by Ashish Verma and T V Ramanayya (Florida: CRC Press, 2015). *Current Science* 110(5): 914-916.

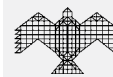
Rana Subir (2016). Book Review of *A Companion to Diaspora and Transnationalism* edited by Ato Quayson and Girish Daswani (Wiley-Blackwell, 2013). *Diaspora Studies* 9(2): 199-203.

Rana Subir (2016). Book Review of *Comparative Study of Child Soldiering on Myanmar-China Border: Evolutions, Challenges and Countermeasures* by Kai Chen (Singapore: Springer, 2014). *Journal of Refugee Studies* 29 (3): 418-421.

Rana, Subir (2016). Book Review of *Walking a Tightrope: Defending Human Rights in China* by Gert Holmgaard Nielsen (Copenhagen: NIAS Press, 2014). New Books.asia.

Ranganathan S (2017). Book Review of *Investment Casting: A Treasure Trove* by A M Sriramamurthy (New Delhi: DESIDOC, 2015). *Current Science* 112(7): 1587.

Rout Bharat Chandra (2017). Book Review of *Psychological Perspectives on Childcare in Indian Indigenous Health Systems* by Malavika Kapur (New Delhi: Springer India, 2016). *Current Science* 112(6): 1279-1280.



Shyam Hari P (2016). Book Review of *Networks of Rebellion: Explaining insurgent cohesion and collapse* by Paul Staniland (Ithaca: Cornell University Press, 2014). *Journal of Defence Studies*, 10(3): 97-101.

Upadhyaya Carol (2017). Book Review of *Life Support: Biocapital and the New History of Outsourced Labour* by Kalindi Vora (Minneapolis: University of Minnesota Press, 2015). *Pacific Affairs* 90(1): 185-187.

## CONFERENCE PAPERS

Jayasree V (2017). Drought Severity Assessment and Mapping in the Drier Region of Karnataka, India In: *3rd Disaster Risk and Vulnerability Conference*, 29-31 March 2017. Department of Geology, University of Kerala.

Jayasree V and Venkatesh B (2017). Landscape Changes and Hydrological Alterations: A Case Study of the Varahi river Catchment, Karnataka India In: *International Conference on Hydraulic and Environmental systems (ICHES)*, 23-25 March 2017, KLE Dr. M. S. Sheshgiri College of Engineering and Technology, Belagavi.

Nagai Yuichiro, Mukund Rao, Hideaki Shiroyama, K R Sridhara Murthi and Motoko Uchitomi (2016). *Specifics of Space Cooperation Potential Between Japan and India (IAC-16-E3.1.9)* In: 67<sup>th</sup> International Astronautical Congress (IAC), 26-30 September 2016, Guadalajara, Mexico.

Rao Mukund, K R Sridhara Murthi and Baldev Raj (2016). *Future Indian Space-Perspectives of Game Changers (IAC-16.E3.3.12)* In: 67<sup>th</sup> International Astronautical Congress (IAC), 26-30 September 2016, Guadalajara, Mexico.

## CONFERENCE ABSTRACTS

Kurup Anitha and Shalini Dixit (2016). Learning Disabilities and Gifted: Twice Exceptional in India In: *Enabling the Learning Disabled* edited by B. William Dharmaraja. Thirunelveli: MS University.

--Binoy VV, CM Akhila and Sindhu Radhakrishna (2016). ICT in Biology Education: the Indian scenario. *26<sup>th</sup> Biennial Conference of the Asian Association for Biology Education*. Goa, India, September 20 – 24, 2016.

Babu A N, C Unnithan, E Niehaus, S Shah, S Balwan, VV Binoy, PS Ramkumar (2016) DisApp: A Novel Approach to Model Building and Community Engagement for Epidemic Prevention. *FOSS4G*, Bonn, Germany, August 2016.

Binoy V V (2016). Fish Migration: Human Induced Rapid Environmental Changes (HIREC) and its impact on Cognition and Behaviour. *Seminar on Linking Rivers, Barrages and Fish Migration*. ATREE and Kerala University of Fisheries and Ocean Sciences (KUFOS), Kochi. 21 May 2016.

Chaitanya P V and Sharada Srinivasan (2017). Bell Making and Vahanam Making by Traditional Brass Artisans of Southern India, *Composit 17*, IIT-Kharapur March 2017.

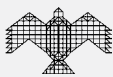
Desai Meghna (2017). Ethnoarchaeological Analysis of Historical Chitvel. *Seminar on 'Field Archaeology'*, Kerala University, Thiruvananthapuram, January 2017.

Gupta Sreejata and Anindya Sinha (2016). Gesture Sequences of Wild Bonnet Macaques *Macaca radiata* in the Bandipur National Park, India. *Twenty-Sixth Congress of the International Primatological Society and Thirty-Ninth Meeting of the American Society of Primatologists*, Chicago, USA, August 2016.

Joshi Kshitija A (2016). Monitoring and Value-Add by Indian Venture Capital Firms in Business Ventures – A Study of 3 Distinct VC Firm Clusters. *International Conference of Corporate Finance and Financial Markets*, IIT Madras, 12-13 August 2016.

Joshi Kshitija A (2016). Specialization and Syndication as Risk Management Strategies for Venture Capital Firms in India. *International Conference on Business Analytics and Intelligence*, IISc, Bangalore, 19-21 December 2016.

Kathpalia Aditi and Nithin Nagaraj (2017). On the Limitations of Causality Measures in Neuroscience, *BSSSE Annual Research Symposium 2017: Computational Bioengineering*, IISc, Bangalore. 27-28 January 2017.



Nagaraj Nithin and K R Sahasranand (2016). Separating a Heterogeneous Mixture of Chaotic Signals using Compressed Sensing, *Conference on Nonlinear Systems and Dynamics (CNSD 2016)*, IISER Kolkata, 16-18 December 2016.

Nautiyal H, M A Huffman and Anindya Sinha (2016). Farming the Forest Edge: Local Perceptions of Human-Primate Conflict in Six High-Altitude Villages in the Garhwal Himalayas, Uttarakhand, India. *Fifth Asian Primate Symposium*, Sri Jayewardenepura, Sri Lanka, October 2016.

Panneerselvam Prakash (2016). Good Order at Sea: India's Role. *National Seminar*, UGC Maritime Centre, Pondicherry University, 18-19 April 2016.

Rajangam Krupa (2017). Shifting Meanings, Mutable Materiality: Material Culture in Nation Building Narratives at Hampi World Heritage Site. *National Conference on Nation, Community, and Citizenship in Contemporary India*, NIAS, 9-10 January 2017.

Roy Sisir and Nepal Banerjee (2016). Information Theory and Living Organism. *Souvenir Programme and Book of Abstracts of the International Conference / Science and Scientist*, Bangalore University 2016, pp 85-91.

Vijaykrishnan S and Sinha A. 2016. In God's own country: Elephants as Religious and Cultural Icons, and as Celebrities. *The SOAS Elephant Conference*, Bangalore, April 2016

## CONFERENCE POSTERS

---

Srinivasaiah N M, R Sukumar, S Vaidyanathan, M Bannerghatta and Anindya Sinha (2016). Boy Scouts in Asian Elephant Society. *Fifth CCT-Bio International Workshop on Tropical Biodiversity and Conservation*, University of Kyoto, Kyoto, Japan; September 2016.

Dhawale A K, Anindya Sinha and M A Kumar (2017). Behavioural responses of Lion-tailed Macaques *Macaca silenus* to a Matrix of Anthropogenic Habitats in Southern India. *Annual Talks*, National Centre for Biological Sciences, Bangalore, January 2017.

Sharada Srinivasan (2016). High-tin bronzes from Peninsular India: Some Corrosion and Conservation issues. *International ICOM Metals-2016 Conference*, IGNC, New Delhi, 26-30 September 2016, pp. 66-67.

## PATENTS

---

Single Fibre grid with improved Spatial Resolution in Distributed Optical Fibre sensor system – [696/MUM/2009 dated 24-Mar-2009] – IGCAR

Inventors: C. Babu Rao, C. Pandian, Jayakumar T, Baldev Raj

Patent No. 280741 696/MUM/20091, Dated 24/9.2009

Granted on 27/02/2017

## STATUS PAPERS AND POLICY REPORTS

---

Agrawal Pawan Kumar, Abraham Verghese, Sindhu Radhakrishna and Kesavan Subaharan (2016). Human Animal Conflict in Agro-Pastoral Context: Issues & Policies. New Delhi: Indian Council of Agricultural Research.

Raj Baldev et al. (2016). Material Policy for Strategic Materials for Defence Research and Development Organization.

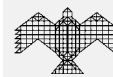
Raj Baldev et al. (2016). Rare Earths Policy for India, NITI Aayog.

## OUTREACH ARTICLES

---

Behera Anshuman (2017). India's Growing Strategic Concerns in Nepal, January 20, 2017, *Science, Technology and Security Forum*, Manipal University, available at <http://stsfor.org/content/indias-growing-strategic-concerns-nepal>





Chandrashekar S and Soma Perumal (2016). China's Constellation of Yaogan Satellite and the ASBM: May 2016 Update. <http://issp.in>

Jayashree V (2017). Water Scarcity amidst Plenty. *India Water Portal*, 9 May 2017.

Keerthi Naresh (2017). Spring Blossoms and Forgotten Poetry. *The Hindu*, 16 April 2017.

Madhan Kuhan (2016). India's Pluralist Islam under Siege. *The Diplomat*.

Mayilvaganan M (2017). Towards Mutual Benefit: Paradigm Shift in India's Development Cooperation with Myanmar, *Diplomatist*, January 2017, pp. 15-17.

Menon Srikumar M (2017). Beyond the Tourist's Badami. *Deccan Herald*, 17 January 2017.

Menon Srikumar M (2016). A Fortress in the Wilderness. *Deccan Herald*, 15 November 2016.

Menon Srikumar M (2016). The Land of Forgotten Temples. *Deccan Herald*, 11 May 2016.

Menon Srikumar M (2016). A Blend of Art and Adventure. *Deccan Herald Spectrum*, 1 October 2016.

Menon Srikumar M (2017). Beat of a Different Drum, *Deccan Herald Spectrum*, 28 March 2017.

Nathan Hippu Salk Kristle and Baldev Raj (2016). Can Energy Equality improve India's Human Development Index? *The Indian Economist*, 11 December 2016.

Nagappa Rajaram (2017). Does Pakistan's Ababeel Medium Range Ballistic Missile have MIRV capability. *The Delhi Defence Review*.  
<http://www.delhidedefencereview.com/2017/02/03/does-pakistans-ababeel-medium-range-ballistic-missile-really-have-mirv-capability/>

Nathan Hippu Salk Kristle (2017). Rooftop Solar Power Output Up, But Future Hazy. *The Hindu*, 23 January 2017.

Nathan Hippu Salk Kristle and Manmeet Singh (2016). Undimmed: Nuturing Indian Solar-Power Technology within the Strictures of the WTO. *The Caravan*, April 2016, pp 22-24.

Nathan Hippu Salk Kristle and Venkat Posina Rayadu (2016). Indivisible Morality. Comment on "Intrinsic Honesty and the Prevalence of Rule Violations across Societies" by Simon Gächter and Jonathan F. Schulz. *Nature* 531: 496-499, 11 April 2016.

Pani Narendar (2017). When Institutions are out on the Mat. *Business Line*, 22 January 2017.

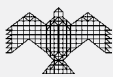
Pani Narendar (2017). Drowned in Lakeside Controversies. *Business Line*, 22 March 2017.

Pani Narendar (2016). It's Governance without Compassion. *Business Line*. 22 December 2016.

Panneerselvam Prakash and Sandhya Puthanveedu (2016). 6 Months Later: The 'Comfort Women' Agreement. *The Diplomat*, 11 May 2016. URL: <http://thediplomat.com/2016/05/6-months-later-the-comfort-women-agreement/>

Panneerselvam Prakash (2016). Modi's trip to Tokyo: takeaway for India-Japan Relations. *The Diplomat*, 17 Nov 2016. URL: <http://thediplomat.com/2016/11/modis-trip-to-tokyo-takeaways-for-india-japan-relations/>

Panneerselvam Prakash (2016). Indo-Japan Maritime Security Cooperation in a Changing Environment, *ICRIER*, 28 September 2016. URL: <http://earp.in/en/indo-japan-maritime-security-cooperation-in-a-changing-environment/>



Panneerselvam Prakash (2016). 10 Years of Fighting Pirates in Asia, *The Diplomat*, 1 September 2016. URL: <http://thediplomat.com/2016/09/10-years-of-fighting-pirates-in-asia/>

Panneerselvam Prakash (2016). DPP – 2016: A New Face of "Make in India" in Defence, *ISSSP*, April 18, 2016.

Radhakrishna Sindhu and T R Shankar Raman (2016). Get the Monkey off the Back. *OPED, The Tribune*, 23 August 2016.

Rajani MB (2016). Know about the Study of Past Cultures. *Deccan Herald*, 20 October 2016.

Sarukkai Sundar (2016). The Age of Post-Truth Politics. *The Hindu*, 22 November 2016.

Sarukkai Sundar (2017). Moving Bus Movies. *The Hindu*, 18 February 2017.

Sarukkai Sundar (2017). When the Unelected Set the Agenda. *The Hindu*, 22 February 2017.

Senthil Sutha, K R Ravi, P Biji and Baldev Raj (2017). Self-Cleaning Coating for Solar Panel Applications. *The Masterbuilder* 19(3): 72-76.

Srikanth R (2017). Green Calling: Forests from the Mines. *Deccan Chronicle*, 20 February 2017.

Srikanth R and Baldev Raj (2016). Coal can Choke your Breath or Light your House. What will India choose?. *The Indian Economist*, 10 November 2016.

Srikanth R and Baldev Raj (2016). Industrial Smoke Levels are Rising Rapidly: Does India have a Combat Plan?. *The Indian Economist*, 11 November 2016.

Srinivasan Sharada (2017). Iron Age and History of Indian Iron. *Steel Association of India*. <http://indiansteelassociation.in/iron-age/>

Srinivasan Sharada (2016). Hampi: Splendours of a World Heritage site, *NIAS BRICS Forum*, September 2016.

Suba Chandran D (2016). Is America's Trump, South Asia's loss?. *Friday Times*. 18 November 2016.

Suba Chandran D (2016). Trump's Muddle East. *The Friday Times*, 25 November 2016.

Suba Chandran D (2017). An Eyewash or a Turning Point?. *The Hindu*, 9 February 2017.

Tukdeo Shivali (2016). 50 years of Kothari Commission Report. *Counter Currents*. 16 August. <http://www.countercurrents.org/2016/08/16/50-years-of-kothari-commission-report/>

---

## PRESS REPORTS AND REVIEWS

---

Basu Mihika (2016). Copper Smelting in State can trace its Roots to 1<sup>st</sup> Century BCE. *Bangalore Mirror*, 29 September.

Basu Mihika (2017). Tipu's Lost Paradise Found. *Bangalore Mirror*, 20 January.

Shekhar Divya (2017). Here's how Technology is helping Conservationists to Document Restore and Maintain our History. *The Economic Times*. 16 April.

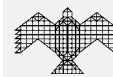
Srinivasan Sharada (2016). The Never Ending story of Bronze Artifacts from South India. *Research Matters*.

---

## NIAS PUBLICATIONS

---

Ashok Kaveri, Arun Vishwanathan, S Chandrashekar, L V Krishnan, Lalitha Sundaresan and Rajaram Nagappa (2016). Advanced Techniques in Environmental Monitoring (NIAS Report No. R39-2016).



Bajar Sumedha (2017). *Locational Mismatch between the Demand for Jobs and the Demand for Skills in India (NIAS Working Paper No. WP6-2017)*.

Banerjee Debosree (2016). *Inequality and Farmers' Suicides in India (NIAS Working Paper No. WP5-2016)*.

Binoy VV and Chidambaran Iyer, and Patnaik, Lalith Mohan and Raj, Baldev (2016). *Science, technology and Indian society: An anthology of perspectives (NIAS Report No. R38-2016)*.

Gangopadhyay, Anasuya and Hippu Salk Kristle Nathan (2017). *Institutional Rooftop Solar: NIAS Experience with a 100 KWP Solar System (NIAS Special Publication No. SP8-2017)*.

ISSSP, NIAS (2016). *Report of the NIAS-KAS Conference on Armed Conflict, Peace Audit and Early Warning: Decennial Review 2016. Conference Report*.

Kurup Anitha, Shalini Dixit and Ajay Chandra (2016). *Traits of Gifted Children in India: An analysis of NIAS Gifted Education Programme (NIAS Report No. R40-2016)*.

Nagappa Rajaram (2017). *Summary of NIAS-CISAC Dialogue, NIAS Report No. R58-2017*.

Radhakrishna Sindhu and Asmita Sengupta (2016). *Seed Dispersal by Rhesus macaques Macacamulatta. Final Technical Report*.

Raj Baldev, D Suba Chandran, Srikumar Menon, and Hamsa Kalyani (2017). *Transformation through Research, Dialogues and Policies 2016*.

Raj Baldev, Sharada Srinivasan and Sundar Sarukkai (2016). *Hampi Splendours of a World Heritage Site. BRICS Young Scientists Forum, Bangalore Conclave 25 September-4 October 2016*.

Srinivasan TN (2016). *Micro Foundations of Public Policy: Some Thoughts Inspired by Contributions of M. N. Srinivas (NIAS Lecture No. L9-2016)*.

Venkatachaliah MN (2016) *Constitutional Ideals and Justice in Plural Societies (NIAS Lecture L10-2016)*.

## NIAS STRATEGIC FORECASTS

Bibu Prasad Routray. *Bangladesh 2017: Resurgence of Radicalism, NIAS Strategic Forecast No.17, March 2017*.

Bhartendu Kumar Singh. *China 2017: Foreign Policy Offensive?, NIAS Strategic Forecast No.16, March 2017*.

Prakash Panneerselvam. *East Asia 2017: In the age of Donald Trump, NIAS Strategic Forecast No.15, March 2017*.

Amit Gupta. *United States 2017: Trump and Asia, NIAS Strategic Forecast No.14, March 2017*.

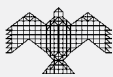
D Suba Chandran. *The Raddul Fasaad Fallouts: Will it succeed where Zarb-e-Azb failed?, NIAS Strategic Forecast No.13, March 2017*.

D Suba Chandran. *Military Courts in Pakistan: Will they return? What are the implications?, NIAS Strategic Forecast No.12, January 2017*.

D Suba Chandran. *LoC, J&K and New Delhi: New Pak COAS and Likely Challenges for India, NIAS Strategic Forecast No.11, December 2016*.

D Suba Chandran. *Pakistan's New Army Chief: The Sharif Balance Sheet and the Bajwa Forecast, NIAS Strategic Forecast No.10, November 2016*.

Amit Gupta. *The US Elections: Trump, Hillary and India, NIAS Strategic Forecast No.9, July 2016*.



Vijay Shankar. The New Symphony: Emerging Indo-US Security Entente, NIAS Strategic Forecast No.8, July 2016.

Vijay Shankar. Global Transformations: Four Tectonic Shifts, NIAS Strategic Forecast No.7, April 2016.

Teshu Singh. China and the Arctic: Evolving Geopolitics, NIAS Strategic Forecast No.6, April 2016.

## WEDNESDAY DISCUSSION MEETING REPORTS

---

Abha S Rao. Health Inequalities: The Indian Context, 4 January 2017.

Leya Mathew. What Counts as College Preparation? In Pre-Liberalisation and Liberalising India, 16 November 2016.

Jeebanlata Salam. Sociology of Right to Education: A Dynamic View through Northeast India, 2 November 2016.

Sumedha Bajar. The 'where' of Skill Development, 26 October 2016.

R Srikanth. Risk Assessment and Management: Why should we be concerned?, 19 October 2016.

Shivali Tukdeo. Theorising Policy Mobility: Inter-Governmental Organisations (IGOs) and New Policy Regimes in Education, 31 August 2016.

Kshitija A Joshi. Financial Inclusion in India: An Exploration of Supply and Demand Side Issues, 24 August 2016.

Posina Venkata Rayudu. Revisiting Gandhi: Truth through Non-violence, 10 August 2016.

N Chandrasekaran. Enabling Users: Spatial Distribution of Big Data, 3 August 2016.

Shailaja D Sharma. Pre-University Math: Looking Back to Look Forward, 27 July 2016.

MB Rajani. Evidence from Landscape Archaeology: The Search for Odantapuri, 20 July 2016.

Shalini Dixit. Development of Historical Understanding: Socio-Cultural Influences, 13 July 2016.

M Mayilvaganan. Are the Indian Fishermen 'Carefully Careless?': Fishing Conflicts in the Palk Bay, 29 June 2016.

DP Sen Gupta. She gave her all to India: Sister Nivedita, 15 June 2016.

Adarsh Vijay. Blue Economy: A Maritime Strategy for India's Growth, 15 June 2016.

Sourina Bej and Albertina Nithya. Rising Radicalisation in India's Neighbourhood: Bangladesh and Myanmar, 8 June 2016.

## NIAS RESOURCES

---

Menon Sangeetha, M B Rajani and V Girija (2016). *NIAS NEWSLETTER 2(2-4)*.

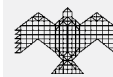
Menon Sangeetha, D Suba Chandran, V Girija and M B Rajani (2017). *NIAS NEWSLETTER 3(1)*.

NIAS Annual Report 2015-2016.

NIAS Events and Activities. January 2017.

NIAS Events and Activities. February, 2017.

NIAS Events and Activities. March 2017.

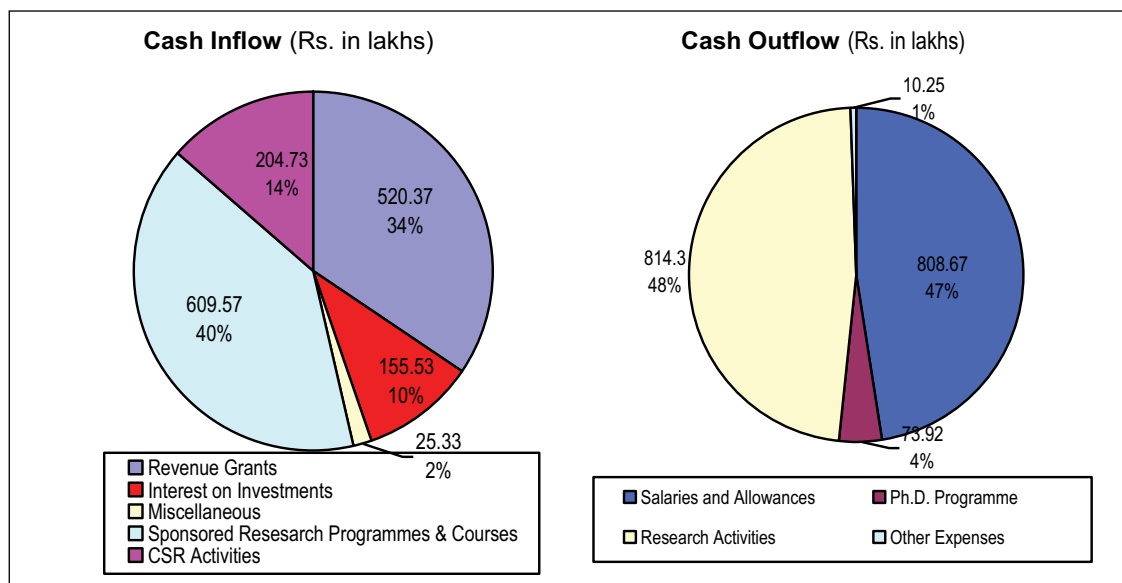


# ADMINISTRATION

As a registered society, NIAS derives its administrative and financial authority through the society, represented by the general body. The Council of Management which is currently chaired by Mr S Ramadorai, is vested with full power and authority to do all acts, deeds, etc which are necessary for the promotion and fulfillment of the objectives set out in the Memorandum of Association. The Director, presently Prof Baldev Raj is the chief executive and exercises general, administrative and financial control over the affairs of NIAS. The Director is assisted in the administrative and finance matters by Head (Admin. & Finance).

Besides management of all resources such as infrastructure, finance, human resources, estates etc. general administrative matters are also handled by Head (Admin. & Finance). Administration enables recruitment and deployment of staff, servicing their needs and empowering them to effectively contribute to the objectives of NIAS. It services the students programme in which forty-three students work for their Ph.D. degrees. Administration also takes care of the campus, its facilities such as the Auditorium, lecture halls, meeting rooms, classrooms, guesthouse, dining halls, etc and all other infrastructure of NIAS. Administration also plays a unique role in conducting various programmes including training courses. Procurement of materials and consumables, maintenance of facilities, inventory control, etc are also done by Administration. Compliance with various statutory requirements such as Provident Fund, Professional Tax, Income Tax, etc., is also taken care by Administration. The administrative set up consists of, in addition to the Head-Administration, an Office Manager, two Assistant Managers in the area of Administration and Accounts & Finance and other Secretarial/Office/Supporting Staff, in all numbering 28.

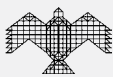
Finance management, accounting, auditing (internal and statutory), resource mobilization and expenditure control are carried out systematically. An overview of finances for the year 2016-17 is given below:



NIAS has a specified investment of Rs.1914 lakhs (exclusive of project funds) as on March 31, 2017.

During the year, the Institute has received 15 new research projects with a total value of Rs.542 lakhs. Total value of projects handled during the year including the projects sanctioned in the earlier years was Rs.2256 lakhs. This is inclusive of CSR funded initiatives. Foreign exchange component included in this sum was Rs.99 lakhs.

The construction of TCS Knowledge Centre with the financial support from TCS Foundation is under progress and we anticipate the completion by end March 2018. This would enable us to house the growing faculty and student population.



**P Srinivasa Aithal**  
Head, Administration & Finance

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**Joined NIAS on:** November 1, 1995



**B Lalu**  
Office Manager

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**A Deva Raju**  
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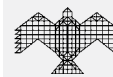
**Joined NIAS on:** June 22, 2009



**V Girija**  
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**Bharat Chandra BK**  
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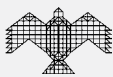
**Joined NIAS on:** February 22, 2016



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**R Vijayalakshmi**  
Senior Executive Assistant

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**VB Mariyammal**  
Executive Assistant

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**AS Mary Stella**  
Executive Assistant

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**Joined NIAS on:** June 23, 1994



**MS Shiva Kumar**  
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**Joined NIAS on:** July 7, 2008

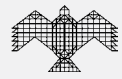


**VA Ramesh**  
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**Joined NIAS on:** July 1, 2011

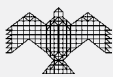




## SUPPORT STAFF



*Left to Right Top: SR Rathnam, G Venugopal, Gajanana S Naik, G Nagaraja, Mujeeb Pasha, MV Sudhakara, R Harish  
Left to Right Bottom: Mohammed Umar, N Rajesh, V Srinivasa, N Sathya Murthy, S Sampath, B Shivanandappa, N Ramesh*



# NIAS FINANCIAL REPORTS

## NATIONAL INSTITUTE OF ADVANCED STUDIES

### SIGNIFICANT ACCOUNTING POLICIES AND NOTES ON ACCOUNTS FORMING PART OF THE FINANCIAL STATEMENTS AS AT MARCH 31, 2017

#### 1) (a) Organization Overview :

The National Institute of Advanced Studies ("Society/Institute") is registered as a Society under the Karnataka Societies Registration Act, 1960, vide No.139/88-89 dated June 20, 1988.

Society is registered under Section 12A (a) of the Income Tax Act, 1961, vide No. Trust/718/ 10A.Vol. AII/86/459/1986-87/CIT.II, dated April 15, 1986.

Society is registered under Foreign Contribution (Regulation) Act, 1976 ("FCRA") vide registration no. 094420614 dated October 1, 1993. During the year, FCRA authorities has renewed FCRA certificate for the period starting from November 1, 2016 to October 31, 2021 dated June 27, 2016.

#### (b) The main objectives of the Society include:

- I. To establish and develop an Institute of Advanced Studies in order to impart higher knowledge and conduct Research;
- II. To set up and sponsor research groups on problems relating to the development of the country and for identifying problems which require immediate study and resolution; and
- III. To provide programmers of varying duration for executives and officers of Government, Public and Private Enterprises, and Personnel of Universities, Defense services and the Professions, to broaden their cultural and academic background for the successful performance of their duties.

#### 2) Significant Accounting Policies:-

##### A. Basis of Preparation of Financial Statements:

The financial statements has been prepared in accordance with historical accounting convention and on the accrual basis of accounting. The Accounting Policies adopted in preparation of financial statement are consistent with those followed in the previous year.

##### B. Fixed Assets:

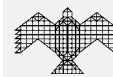
Fixed assets are stated at written down values i.e. cost of acquisition less accumulated depreciation. Cost of acquisition of fixed assets includes all direct expenses relating to acquisition of the asset.

##### C. Depreciation:

Depreciation on the fixed assets has been provided on written down value basis, in accordance with the rates prescribed under Income Tax Act, 1961.

##### D. Revenue Recognition:

- a) Donation/Revenue Grants are recognized as income in the Income and Expenditure Account in the period in which the collections are actually received.
- b) Earmarked grants are initially credited to a liability account in the Balance Sheet and are transferred to Income and Expenditure Account in the year in which and to the extent to which the Institute complies with the conditions attached to them.
- c) Interest Income is recognized in the time proportion basis taking into account the amount outstanding.
- d) Income from symposia, seminars and workshops are recognized as income as and when symposia, seminars and workshops are organized and held.



**E. Foreign Exchange Transactions:**

Transactions denominated in foreign currency are accounted at the transacted exchange rates.

**F. Investments:**

Investments are stated at cost less provision for diminution, other than temporary, in the value of such investments.

**G. Employee Benefits:**

**I. Short Term Benefits:** Short term Employee Benefits are accounted as an expenses in the income and expenditure account in the year in which service is rendered.

**II. Post employment Benefits and other long term Employee Benefits:**

**a. Provident Fund:** The Society has created a provident fund Trust. The society's contribution to the provident fund is recognized as expenses in the Income and Expenditure account of the year in which the contribution is paid to the provident fund trust. Any deficit in the Provident Fund Trust is recognized as expense in the Income & Expenditure Account of the Society.

**b. Gratuity Fund:** The Society has created a Gratuity Trust. The Society's contribution to the Gratuity Fund is recognized as expenses in the Income and Expenditure account of the year in which the contribution is paid to the gratuity trust. Any deficit in the Gratuity Trust is recognized as expense in the Income & Expenditure Account of the Society.

**H. Provisions and Contingent Liabilities:**

Provisions are recognized when the society recognizes that it has a present obligation as a result of past events, it is more likely than not that an outflow of resources will be required to settle the obligation and the amount can be reasonably estimated.

Provisions are not discounted to their present value and are determined based on best estimate required to settle the obligation at the balance sheet date. These are reviewed at each balance sheet date and adjusted to reflect the current best estimates.

Contingent liabilities are not recognized but disclosed in the notes to financial statement. Contingent assets are neither recognized nor disclosed in the financial statement.

**I. Revolving Fund:**

Revolving Fund is in the nature of contingency reserve fund. The interest earned on investment made out of the Revolving fund is used to meet the revenue expenditure of the Institute and the fund may be used to meet shortfall, if any, in general fund and replenished back as and when surplus funds are available, in order to keep the revolving fund intact.

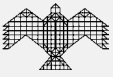
**J. Recognition of Capital Grants:**

Capital Grants received towards cost of fixed assets is credited to Capital fund. The society has adopted Accounting Standard -12 issued by ICAI, in the case of Capital Grants. Accordingly, an amount equal to the depreciation on the assets created out of such grants is transferred from Capital fund to Income and Expenditure Account.

18. The Society is registered under Section 12AA of the Income Tax Act, 1961, vide No. Trust/718/ 10A.Vol. AII/86/459/1986-87/CIT.II, dated April 15, 1986 which entitles it to claim an exemption from Income tax provided certain conditions laid down in the Income Tax Act 1961 are complied with. Provision for tax will be made only in the year in which the Society is unable to establish reasonable certainty of its ability to fulfill these conditions.

19.A) Prior period adjustment aggregating Rs. 405,180 disclosed in the Income and Expenditure account in the current year relates to rectification of error on account of migration of tally accounts in the earlier years.

B) During the previous year, prior period adjustment shown in the Income and Expenditure account relate to the Depreciation provided in the earlier years to the extent of Rs. 49,054,839 on the assets created



out of the specific capital grants received from the Tata Trusts and others. This has been done to give effect to the first time adoption of Accounting Standard 12 issued by the ICAI, as stated under Significant Accounting policies in '**2(J) - Recognition of Capital Grants**' during previous year. Consequently, the total accumulated depreciation provided up to March 31, 2015 has been credited back to the Income and Expenditure Statement as a prior period adjustment in the previous year. Correspondingly, the said amount had been reduced from the Capital Fund account.

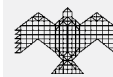
20 Previous years' figures have been regrouped/ reclassified wherever necessary.

**For and on behalf of National Institute of Advanced Studies**

Place : Bangalore  
Date: September 22, 2017

Sd/-  
**Prof. Baldev Raj**  
Director

Sd/-  
**P. Srinivasa Aithal**  
Head-Administration



## BALANCE SHEET AS AT MARCH 31, 2017

Particulars	As at March 31, 2017 (In Rupees)	As at March 31, 2016 (In Rupees)
<b>FUNDS AND LIABILITIES</b>		
<b>Funds</b>		
(a) Capital Fund	2,52,93,724	2,67,53,785
(b) Corpus Fund	3,35,00,000	3,35,00,000
(c) Earmarked Funds	6,04,99,201	6,39,50,381
(d) Other Funds	17,78,87,372	17,76,33,518
(e) Income & Expenditure Account	3,10,96,551	5,32,63,628
	<b>32,82,76,848</b>	<b>35,51,01,312</b>
<b>Current Liabilities and Provisions</b>		
(a) Current Liabilities	35,33,592	17,47,000
(b) Provisions	2,07,31,325	22,54,775
	<b>2,42,64,917</b>	<b>40,01,775</b>
<b>TOTAL</b>	<b>35,25,41,765</b>	<b>35,91,03,087</b>
<b>ASSETS</b>		
(a) Fixed assets		
-Tangible Assets	5,29,23,887	5,69,83,765
-Capital Work-in-Progress	18,49,508	-
(b) Investments	10,45,39,000	9,25,00,000
(c) Loans and advances	97,90,932	1,11,97,746
(d) Cash and bank balances	18,34,38,438	19,84,21,576
<b>TOTAL</b>	<b>35,25,41,765</b>	<b>35,91,03,087</b>
<b>See accompanying notes forming part of the financial statements</b>		

In terms of our report attached.  
For **Deloitte Haskins & Sells LLP**  
Chartered Accountants

For **National Institute of Advanced Studies**

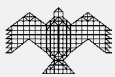
Sd/-  
**Joe Pretto**  
Partner

Sd/-  
**Prof. Baldev Raj**  
Director

Sd/-  
**P. Srinivasa Aithal**  
Head-Administration

Place : Mumbai  
Date : September 22, 2017

Place : Bangalore  
Date : September 22, 2017



## INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED MARCH 31, 2017

Particulars	2016-17 (In Rupees)	2015-16 (In Rupees)
<b>Income</b>		
Grant income	13,49,27,294	10,61,19,013
Other income	1,80,85,460	2,19,28,216
<b>Total Income</b>	<b>15,30,12,754</b>	<b>12,80,47,229</b>
<b>Expenses</b>		
(i) Sponsored Research Expenditure	8,14,30,086	5,10,54,963
<b>Total (A)</b>	<b>8,14,30,086</b>	<b>5,10,54,963</b>
(ii) Employee Benefit Expenses	7,53,61,084	4,82,93,405
(iii) Other Expenses	1,29,87,540	1,82,42,591
(iv) Depreciation	49,95,941	55,62,609
<b>Total (B)</b>	<b>9,33,44,565</b>	<b>7,20,98,605</b>
<b>Total Expenses</b>	<b>17,47,74,651</b>	<b>12,31,53,568</b>
<b>Excess of (Expenditure over Income) / Income over Expenditure for the year</b>	<b>(2,17,61,897)</b>	<b>48,93,661</b>
<b>Add: Prior Period adjustments</b>	<b>(4,05,180)</b>	<b>4,90,54,839</b>
<b>Excess of (Expenditure over Income) / Income over Expenditure for the year</b>	<b>(2,21,67,077)</b>	<b>5,39,48,500</b>
<b>See accompanying notes forming part of the financial statements</b>		

In terms of our report attached.  
For **Deloitte Haskins & Sells LLP**  
Chartered Accountants

For **National Institute of Advanced Studies**

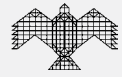
Sd/-  
**Joe Pretto**  
Partner

Sd/-  
**Prof. Baldev Raj**  
Director

Sd/-  
**P. Srinivasa Aithal**  
Head-Administration

Place : Mumbai  
Date : September 22, 2017

Place : Bangalore  
Date : September 22, 2017



# NIAS COUNCIL OF MANAGEMENT

**Mr S Ramadorai (Chairman)**

Former Vice-Chairman, Tata Consultancy Services  
1<sup>st</sup> Floor, Bombay House  
24, Homi Mody Street  
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**Mr R Venkataramanan**

Executive Trustee  
Sir Dorabji Tata Trust  
Bombay House  
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**Prof Padma Sarangapani**

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**Prof Baldev Raj**

Director  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bengaluru 560012

**Mr Bhanu Pratap Sharma**

Secretary  
Ministry of Personnel, Public Grievances & Pensions  
Government of India  
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**Prof Ashutosh Sharma**

Secretary  
Department of Science and Technology  
Government of India  
Technology Bhavan  
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**Mr Jawid Akathar**

Principal Secretary  
Higher Education Department  
Government of Karnataka  
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**Mr ISN Prasad**

Principal Secretary  
Finance Department  
Government of Karnataka  
Vidhana Soudha  
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**Prof Anurag Kumar**

Director  
Indian Institute of Science  
Bengaluru 560012

**Prof S Siraj Hasan**

Honorary Professor  
Indian Institute of Astrophysics  
Koramangala  
Bengaluru 560034

**Ambassador Nirupama Rao**

The Watson Institute  
Brown University  
Providence 02912  
United States

**Dr P Venkat Rangan**

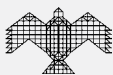
Vice Chancellor  
Amrita Vishwa Vidyapeetham  
Amritanagar, Ettimadai  
Coimbatore 641112

**Ms Swati Ramanathan**

Chairperson, Jana Urban Space  
Co-founder, Janaagraha Centre for Citizenship and  
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Bengaluru 560052

**Prof Sundar Sarukkai (Secretary)**

National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bengaluru 560012



# NIAS SOCIETY

**Mr S Ramadorai (Chairman)**

Former Vice-Chairman, Tata Consultancy Services  
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**Mr R Venkataramanan**

Executive Trustee  
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**Prof Baldev Raj**

Director  
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Indian Institute of Science Campus  
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Ministry of Personnel, Public Grievances & Pensions  
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**Prof Ashutosh Sharma**

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**Mr ISN Prasad**

Principal Secretary  
Finance Department  
Government of Karnataka  
Vidhana Soudha  
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**Prof Anurag Kumar**

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Indian Institute of Science  
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**Prof S Siraj Hasan**

Honorary Professor  
Indian Institute of Astrophysics  
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**Ambassador Nirupama Rao**

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United States

**Dr P Venkat Rangan**

Vice Chancellor  
Amrita Vishwa Vidyapeetham  
Amritanagar, Ettimadai  
Coimbatore 641112

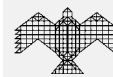
**Ms Swati Ramanathan**

Chairperson, Jana Urban Space  
Co-founder, Janaagraha Centre for Citizenship and  
Democracy  
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Thimmaiah Road, Vasanth Nagar  
Bengaluru 560052

**Prof Sundar Sarukkai (Secretary)**

National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bengaluru 560012





# NIAS STAFF

## **Director**

Baldev Raj

## **Professors Emeritus**

K Kasturirangan  
Roddam Narasimha  
VS Ramamurthy

## **Visiting Professors**

S Chandrashekar, *JRD Tata Chair Visiting Professor*  
DP Sen Gupta (*till January 31, 2017*)  
PS Goel, *Raja Ramanna Chair Visiting Professor*  
Malavika Kapur  
SS Meenakshisundaram  
N Shantha Mohan  
Bishnu N Mohapatra, *Sir Ashutosh Mukherjee Chair Visiting Professor (June 1, 2016 to December 31, 2016)*  
Rajaram Nagappa, *Dean (School of Conflict and Security Studies)*  
N Ramani  
V Bhujanga Rao, *ISRO Chair Professor*  
Sisir Roy, *TV Raman Pai Chair Visiting Professor*  
Lalitha Sundaresan

## **Honorary Visiting Professors**

S Ranganathan  
S Settar  
BV Sreekantan

## **Professors**

Dilip R Ahuja (*till September 14, 2016*)  
Janaki Balakrishnan  
D Suba Chandran  
Anitha Kurup, *Dean (School of Social Sciences)*  
Sangeetha Menon  
Narendar Pani  
Sindhu Radhakrishna, *Dean (School of Natural Sciences and Engineering)*  
Sundar Sarukkai  
Anindya Sinha  
R Srikanth  
Sharada Srinivasan, *Dean (School of Humanities)*  
Carol Upadhyaya

## **Associate Professors**

M Mayilvaganan  
TS Gopi Rethinaraj  
Shivali Tukdeo

## **Assistant Professors**

Anshuman Behera  
VV Binoy  
Shoibal Chakravarty  
Shalini Dixit  
Smriti Haricharan  
Chidambaran G Iyer (*till August 19, 2016*)  
Nithin Nagaraj  
Hippu Salk Kristle Nathan  
MB Rajani  
Abha S Rao  
Jeebanlata Salam  
Arun Vishwanathan (*till December 16, 2016*)

## **Research Officer**

Srikumar M Menon

## **Post Doctoral Associates**

Samira Agnihotri  
Sumedha Bajar  
Debosree Banerjee (*till December 31, 2016*)  
Sravanthi Choragudi  
Sudharsana V Iyengar  
Kshitija A Joshi  
Gangan Deep Kaur (*till February 23, 2017*)  
Leya Mathew  
Prakash Panneerselvam  
Musarrat Parween  
Subir Rana (*till September 28, 2016*)  
Bharat Chandra Rout (*till September 30, 2016*)

## **Library & Information Officer**

Hamsa Kalyani

## **Head (Administration & Finance)**

P Srinivasa Aithal

## **Office Manager**

B Lalu

## **Assistant Manager (Administration)**

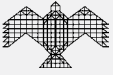
A Deva Raju

## **Assistant Manager (Accounts & Finance)**

P Satish Bhat

## **Administrative Coordinators**

V Girija  
KS Rama Krishna  
S Lalitha  
Gayathri N Lokhande

**Communication Officer**

Bharat Chandra BK

**Senior Executive Assistants**

JN Sandhya

R Vijayalakshmi

**Executive Assistants**

VB Mariyammal

AS Mary Stella

**Junior Executive Assistants**

VA Ramesh

MS Shivakumar

**Support Staff**

R Harish

N Sathya Murthy (*till March 1, 2017*)

G Nagaraja

Gajanana S Naik

Mujeeb Pasha

N Rajesh

N Ramesh

SR Rathnam

S Sampath

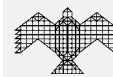
B Shivanandappa

V Srinivasa

MV Sudhakara (*till January 31, 2017*)

Mohammed Umar

G Venugopal



# NIAS ADJUNCT PROFESSORS AND ADJUNCT FACULTY

## ADJUNCT PROFESSORS

### **Vice Admiral RN Ganesh**

International Strategic and Security Studies  
Programme

### **Dr LV Krishnan**

International Strategic and Security Studies  
Programme

### **Dr Kota Harinarayana**

International Strategic and Security Studies  
Programme

### **Dr Mukund Rao**

School of Natural Sciences and Engineering

### **Mr B Muthuraman**

School of Social Sciences

### **Dr BN Gangadhar**

School of Humanities  
(till December 31, 2016)

### **Mr YS Rajan**

International Strategic and Security Studies  
Programme  
(till January 1, 2017)

### **Prof LM Patnaik**

School of Humanities

### **Prof Bhupendra Jasani**

International Strategic and Security Studies  
Programme

### **Prof S Siraj Hasan**

School of Humanities

### **Dr BN Suresh**

School of Natural Sciences and Engineering

### **Dr TN Shorey**

School of Natural Sciences and Engineering

### **Prof B Ravi**

School of Social Sciences

### **Prof Jay Amar**

School of Social Sciences

### **Prof KP Vijayalakshmi**

International Strategic and Security Studies  
Programme

### **Prof SS Mantha**

School of Social Sciences

### **Prof TR Gopalakrishnan Nair**

School of Humanities

### **Prof Gautam Sen**

International Strategic and Security Studies  
Programme

### **Prof S Ayyappan**

School of Natural Sciences and Engineering

### **Dr Ramamoorthy**

International Strategic and Security Studies  
Programme

### **Prof EW Dwarakadasa**

School of Humanities

### **Mr RN Nayak**

Energy and Environment Research Programme

### **Prof Nagaraj Nareppa**

Energy and Environment Research Programme

### **Prof SS Iyengar**

Education Programme

### **Mr VVR Sastry**

International Strategic and Security Studies  
Programme

### **Mr Ricky Kej**

School of Social Sciences

### **Mr Suresh P Prabhu**

School of Social Sciences

### **Dr Arun Shourie**

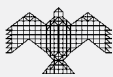
School of Social Sciences

### **Prof PR Krishnaswamy**

Consciousness Studies Programme

### **Prof Sudipto Chatterjee**

School of Natural Sciences and Engineering



## ADJUNCT FACULTY

### Mr P Soma

International Strategic and Security Studies Programme

### Vice Admiral Vijay Shankar

International Strategic and Security Studies Programme

### Amb Saurabh Kumar

International Strategic and Security Studies Programme

### Dr V Siddhartha

International Strategic and Security Studies Programme

### Prof Subrata Ghoshroy

International Strategic and Security Studies Programme

### Dr N Chandrasekaran

School of Humanities  
(till March 4, 2017)

### Prof S Srinivasa Murthy

School of Natural Sciences and Engineering  
(till March 4, 2017)

### Dr Catharine Turner

School of Humanities

### Dr Gillian Juleff

School of Humanities

### Dr Stephen Hodge

School of Humanities

### Prof Bruce Alan Bradley

School of Humanities

### Dr K Raghuraman

International Strategic and Security Studies Programme  
(till November 17, 2016)

### Mr Amal K Chakrabarti

International Strategic and Security Studies Programme

### Dr Maan Barua

School of Natural Sciences and Engineering

### Dr Prathibha Karanth

School of Humanities  
(till August 19, 2016)

### Dr Viswesh Guttal

School of Humanities  
(till December 22, 2016)

### Dr PA Suresh

School of Humanities  
(till December 31, 2016)

### Dr Bindu M Kutty

School of Humanities  
(till January 4, 2017)

### Dr Nalini Dwarakanath

School of Humanities  
(till January 8, 2017)

### Dr Vijay Bhatkar

School of Humanities  
(till January 7, 2017)

### Dr Prahlada

International Strategic and Security Studies Programme  
(till December 31, 2016)

### Dr Jamuna Rajeswaran

School of Humanities  
(till January 11, 2017)

### Mr Shivanand Kanavi

School of Humanities

### Mr S Raghotham

School of Humanities

### Dr Shailaja D Sharma

School of Social Sciences

### Dr PS Ram Kumar

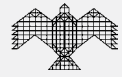
School of Humanities  
(till March 31, 2017)

### Dr Esha Shah

School of Natural Sciences and Engineering

### Dr Michael Goldman

School of Social Sciences



**Amb Ranjit Gupta**

International Strategic and Security Studies  
Programme

**Dr Ing BVA Rao**

School of Social Sciences/ School of Natural Sciences  
and Engineering  
(till January 31, 2017)

**Mr S Gopal**

School of Natural Sciences and Engineering  
(till April 30, 2016)

**Ms Meera Natampally**

School of Humanities  
(till May 16, 2016)

**Dr Veena Rao**

School of Humanities  
(till May 1, 2016)

**Dr Jaikishan**

School of Humanities  
(till May 31, 2016)

**Prof John P John**

School of Humanities  
(till May 4, 2016)

**Dr Frank Krueger**

School of Humanities  
(till May 8, 2016)

**Dr Prabhat Kumar**

School of Natural Sciences and Engineering  
(till May 12, 2016)

**Amb Arundhati Ghose**

School of Natural Sciences and Engineering  
(till July 25, 2016)





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