

# Annual Report

2006 - 2007



**NATIONAL INSTITUTE OF ADVANCED STUDIES**

Bangalore, India



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April 2006-March 2007

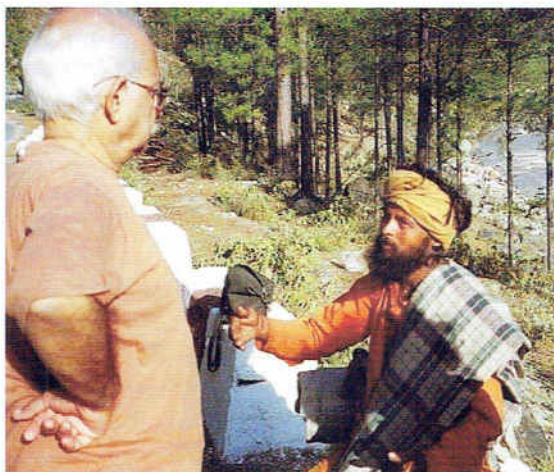
## DIRECTOR'S REPORT

### Introduction

For this third year of my association with NIAS, I am pleased to be presenting a Report of the activities of the Institute for the period between April 2006 and March 2007. It has been a year largely satisfying. The research done by NIAS faculty is being noticed and there are ever more requests for our Reports. Spontaneous collaborations are beginning to take place amongst faculty members and the presence of doctoral students has injected new dynamism in the Institute. During the year, we completed moving to new office spaces in the Centenary Faculty Block. Being in one location instead of half a dozen locations on campus has enhanced the sense of collegial community within the Institute.

But before I mention the highlights of research conducted in the Institute during the past year, first a word of sadness. Professor Ravinder Lal Kapur passed away on 24 November 2006 while working on his book on Himalayan Sadhus at Bellagio in Italy. Professor Kapur was Professor Emeritus at the Institute and has served the Institute from its inception, first as a Deputy Director, then as JRD Tata Visiting Professor. The NIAS Courses that we run to much acclaim today bear the stamp of his design. His lectures to course participants were always well received and generated much discussion. Only three weeks before he passed away, he spoke to the participants of the DST-IV Programme on 4 November 2006 on the *Indian Psyche and Scientific Creativity*. No problem in the Institute

was too small for his attention. During his years at NIAS, Professor Kapur did path-breaking research on creativity amongst Indian scientists and on the psychological profiles of terrorists. He will be much missed. He is survived by his wife, a daughter and a son. Professor Malavika Kapur, his wife, an Honorary Professor at NIAS, will complete his manuscript on the study of the sadhus in the Himalayas.



Professor R.L. Kapur with a Sadhu in the Himalayas

### Highlights of Academic Activities

**School of Humanities:** Professor B. V. Sreekantan has finished editing his book on "Foundations of Sciences" and sent it for publication to the Centre for Civilizations Studies, Indian Council of Philosophical Research. He continues to be both active and productive. Professor S. Settar



continues to do research and publish on his current interest in Early Dravidian Relations as depicted in the Tamil Sangham Literature. Dr. Sangeetha Menon's book on "The Beyond Experience: Consciousness in the Bhagavad Gita" was published this year. Professor S. Ranganathan and Dr. Sharada Srinivasan have published their work on "Wootz Steel in Resonance" and are also examining iron and steel artifacts found at the megalithic site of Kadebakale. Professor Ranganathan has also received a grant to study Indo-US Perspectives in Science and Technology.

The activities of Centre for Philosophy headed by Prof. Sundar Sarukkai included organizing a three week summer course in June 2006 on "Philosophy for the Social Sciences and Humanities" and a workshop on "Buddhist Philosophy and Modern Science" in October 2006 at Nalanda. Dr. Rajesh Kasturirangan, who joined NIAS recently, has initiated a project on "Reconsidering Cognitive Sciences from the viewpoint of Indian Philosophical Traditions".

#### **School of Natural and Engineering Sciences:**

A publication by a doctoral student, Mr. Kishor G. Bhat and Professor K. Ramachandra on the theorem of A. E. Ingham has been accepted for publication in the prestigious *Hardy-Ramanujan Journal*. Professor P. K. Shetty and his team have concluded a study examining the status of research at selected state universities in India. Using chaos theory and non-linear dynamical systems, Professor P. G. Vaidya and a doctoral student, Mr. Nithin Nagaraj were able to recover signals to which 400% noise had been added. Professor Timothy Poston continues to be productive and file patent application at short intervals. Professor Anindya Sinha and his collaborators too continue on their exciting studies, including using techniques of molecular genetics to study populations of macaques both in India and in neighbouring countries. These studies have confirmed the status of the Arunachal Macaque as a new species.

**School of Social Sciences:** The work of Professor A. R. Vasavi and Dr. Carol Upadhyaya on the Indian IT professionals in India and the Netherlands was completed during the year and received a lot of media attention. Among the several requests we received for the report, were requests from the Prime Minister's Office in New Delhi and from the Governor's office in the state. The three documentary films "Coding Culture: Bangalore's

Software Industry" made as a part of this project have been screened globally and enthusiastically received. The School also finalized the Report on the Rajasthan Education Mission, prepared by the Committee constituted by the State's Chief Minister, which included 10 eminent scholars, educationists and administrators. Professor D. P. Sen Gupta and Professor Dilip R. Ahuja also completed their study of the savings in peak electrical energy and other benefits to be obtained from advancing Indian Standard Time by half an hour. Professor Vasavi and Dr. Padma Sarangapani have been making steady progress in the Chamrajanagar District Education Project, perhaps the first of its kind to be attempted in the country. Other ongoing projects of the School are on "Trans-boundary Water Conflict Resolution" and an "Analysis of the Proportion of Women with Ph.D.s in Science Pursuing a Scientific Career".

#### **International Strategic and Security Studies Programme (ISSSP):**

A project on "Pakistan's Ballistic Missile Programme" has been completed and accepted for publication by *Science and Global Security*. Findings of the Pakistan Ballistic Missile study have been presented to DRDO HQ and to the members of the National Security Advisory Board. The ISSSP also initiated and completed a study sponsored by DRDO on the Chinese Ballistic and Cruise Missile Capability. These studies have pioneered some new approaches for analysis, looked at new sources of data and developed new methodologies for looking at strategic problems. They used publicly available information, images and data on the neighbouring missile programmes to make independent assessments of missile capabilities. ISSSP has also been following the developments relating to the ongoing Indo-US dialogues on Indo-US civil nuclear cooperation. The group has brought out two major reports on the subject.

#### **NIAS Doctoral Programme**

With the three new students inducted this year, the total strength of the doctoral programme is now nineteen, close to the full strength that was planned. Students have enrolled either with the Manipal Academy of Higher Education (MAHE) or with Mysore University. Students are continuing to add vigour and dynamism to the campus. Some of them have already begun to make important contributions to the literature and have obtained grants on their own initiative to study local problems.



## NIAS Courses

Continuing the original concept of the founder, Mr. J. R. D. Tata, NIAS organized five programmes for senior and mid-career professionals. These programmes continue to be well-received and appreciated and have acquired a brand image of their own. We continue to be fortunate in being able to draw upon eminent speakers from all walks of life.

The Flagship **NIAS Course for Senior Executives** on "Excellence in Leadership" was inaugurated by Dr. Arun Shourie, Member of Parliament, Rajya Sabha. This was the 21st Course in an uninterrupted series and held between 21-27 January 2007. The valedictory address was given by Shri K. Jairaj, Commissioner, Bangalore Mahanagara Palike. 26 participants from public and private sector offices attended the Course. The Course speakers included Dr. Bimal Jalan, Swami Bodhananda, Shri Javagal Srinath, Dr. Kiran Karnik, Dr. N. Kumar, Dr. N. R. Madhava Menon, Shri Mammen Mathew, Dr. Narendar Pani, Prof. Panjab Singh, Dr. V. S. Ramamurthy, Shri Shyam Benegal, Shri Shyam Saran, Prof. Sourav Mukherjee and Dr. Yogendra Narain. The Course was coordinated by Dr. Sangeetha Menon.

The Tenth NIAS Course on "**An Integrated Approach to Knowledge and Information**" for **University and College Teachers** (6-26 December 2006) was dedicated to Late Prof. R.L. Kapur, who started this course in 1993. The course theme this year was "Current Frontiers of Research in Natural Sciences, Social Sciences and Humanities". This course was co-sponsored by the University Grants Commission (UGC), New Delhi, the Indian Space Research Organization (ISRO), Bangalore and the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore. The course attracted 30 university and college teachers from over 19 states of India, representing over 23 disciplines in Natural Sciences, Social Sciences and Humanities. The course was inaugurated by Prof. P. Rama Rao, Former Secretary of DST. The Valedictory Address was delivered by Prof. P. Venkatrangan, Vice Chancellor of Amrita Vishwa Vidyapeetam, Coimbatore, Tamilnadu. The Course was coordinated jointly by Dr. B. K. Anitha and Prof. Anindya Sinha.

As in the previous years, **the Fourth DST-NIAS Programme on "Multi-disciplinary Perspectives on Science and Technology"** (29 October – 11

November 2006) was sponsored by the Department of Science and Technology, Government of India. The Programme was inaugurated by Dr. Anil Kakodkar, Chairman, Atomic Energy Commission and attended by 25 senior level participants from scientific institutions from across the country. Among the highlights of the Programme, were the lectures by Dr. Shekhar Singh, Commodore Uday Bhaskar and Prof. P. Balaram. The Carnatic Vocal Recital by Shri T. V. Sankaranarayanan was highly appreciated. The purpose of the Programme, as on previous occasions, was to offer scientific, social, economic, and cultural perspectives on the science and technology enterprise in the country. The Course was jointly coordinated by Dr. B. K. Anitha and Prof. Dilip R. Ahuja.

During the year, Prof. S. Ranganathan coordinated two Workshops on Nanotechnology, also sponsored by the Department of Science and Technology. The First DST-NIAS Workshop on "**Dimensions of Nanotechnology: Science, Technology and Society**" was held between 26 June – 1 July 2006 and the second which also included aspects of business, was held between 19-24 March 2007. The two Workshops together attracted 68 participants drawn from different laboratories covering a diversity of disciplines and institutions from the strategic, civil and industrial sectors. The highlights at both Workshops were Addresses by Dr. T. Ramasami, Secretary, Department of Science and Technology, Government of India.

## Conferences Organized

NIAS continued to be a neutral venue for many conferences. Most of them are open to students and citizens of Bangalore. They are on areas of critical importance to the country and some of them have almost immediate impact, such as the recommendations of the Workshop on Higher Mathematics leading to the establishment of Centres of Excellence for Higher Mathematics in the country. Some of the important meetings organized were:

An inter-school workshop on '**Water Challenges in Greater Bangalore**' was organised on 27 March 2007 in collaboration with a local urban study group that is working in the area of urban reforms. The objective of the workshop was to provide a forum for exchange of views and information among different stakeholders—citizens, NGOs, the





A session of the second DST-NIAS Workshop on “Dimensions of Nanotechnology: Science, Technology, Business and Society” in progress (19 – 24 March 2007)  
 Dr. Jean Marie Lafont, Dr. K. Kasturirangan, Mr. Eric Rousseau, Mr. Chiranjiv Singh, and Prof. S. Ranganathan

government, academics, and the private sector, and to collectively brainstorm on new strategies for urban water supply planning and distribution, and on issues of governance and reforms in this sector.

NIAS organized a discussion meet on **“Setting Up a National Agenda Towards Biosecurity”** (23 and 24 November 2006) jointly with the M. S. Swaminathan Research Foundation, Chennai. Biosecurity has wider implications in biological warfare, bioterrorism and agroterrorism. India’s preparedness and capability in the area of biosecurity is of serious concern, particularly after the detection of the H5N1 strain of avian influenza virus in many parts of Maharashtra and Madhya Pradesh. At present, we have no system for detecting, reporting and effectively mitigating outbreaks of new diseases or pests in crop plants and animals. The programme was sponsored by the Ministry of Agriculture, Government of India. The meeting made several recommendations for capacity building, technical requirements and for the regulatory system in the country.

**A workshop on “Perspectives and Future Prospects in Higher Mathematics”** (25 and 26 October 2006) was organized and held at NIAS. The aim of the workshop was to discuss status of

mathematics in India research in pure and applied mathematics as well as the teaching of mathematics; computer science and mathematics, long-term goals, suggestions for the next 5 years, and requirements of the user community. The Workshop came out with specific recommendations to the Government regarding steps to be taken to foster the interests of the future of higher mathematics in the country; to create dedicated Centres for mathematics during the 11th Five Year Plan, as the amounts required are minimal compared to experimental areas or other fields of study. The Department of Science and Technology recently finalized one Centre for Mathematics at the Indian Institute of Science and has shown interest in financing the creation of 5 or 6 more Centres.

NIAS organized a Colloquium on **Karnataka’s Elementary Education System** on 6 and 7 October 2006. This was attended by over 120 people. The **Sixth CISAC-NIAS Dialogue** took place at NIAS on 25-26 September 2006. The themes for the dialogue were disaster management, biological weapon and biological terrorism. An Indian critique of CISAC work, monitoring nuclear weapons and nuclear explosive materials, also featured as a theme for this dialogue. Similar to the meeting on higher mathematics, NIAS organized



a discussion meeting on **Future of Cognitive Science in India** on 22 September 2006. This identified four areas for emphasis and support within the country: Foundations of Cognitive Science from the point of view of the Indian traditions; Language and Cognition; Computational Intelligence; and Cognitive Psychology and Cognitive Neuroscience.

## Annual Memorial Lecture Series

We currently have three endowed annual lecture series. These lectures generally, but not always, are held in conjunction with NIAS Courses. We were again fortunate in having very distinguished personalities for these memorial lectures. Shri Shyam Saran, the Special Envoy of the Prime Minister, delivered the Second Raja Ramanna Memorial Lecture on the *Evolution of India's Nuclear Policies* on 24 January 2007. His Excellency the Governor of West Bengal, Shri Gopal Krishna Gandhi delivered the Second Mohandas Moses Memorial Lecture on *Actors, Acting and Action* on 18 December 2006. Finally the Seventh M. N. Srinivas Memorial Lecture titled *Back to the Village* was delivered by a student of Professor Srinivas, Professor Scarlett Epstein on 7 November 2006.

## Associates' Programme

The Associates' Programme was redesigned, refurbished and reinvigorated during the year, under the able supervision of Professor Settar. The overall idea is to have continuous interaction with the intelligentsia of Bangalore. Associates are entitled to avail NIAS facilities including the library. In addition to lectures, the Associates with an additional companion can also participate in all cultural programmes. There would be about six Associates' Programmes in a year. The first programme, held on 30 September 2006 (Attakalari Modern Dance) was a resounding success.

## Wednesday Lectures

A lecture on a theme of contemporary interest is held in NIAS every Wednesday. The prime aim of the lectures is to expose everyone to the updated information on the activities of the NIAS faculty

and also providing a forum for Ph.D. students to present their work. It attracts considerable interest within the NIAS community, so also others occasionally. It has provided an effective platform for dissemination of latest technological, educational, social, cultural etc. trends, enhancing the academic aura of the Institute. Significant exchange of ideas takes place during the lecture and ensuing discussions.

## Visitors to NIAS

NIAS is also becoming a desirable destination for several scholars and persons distinguished in various fields. As in the previous years, the Institute had several distinguished visitors coming for discussions and lectures both from within India and overseas. Among them were Prof. Arindam Chakraborti, of the University of Hawaii, who gave a series of three superb lectures; Mr. Jeremy Seabrook, the well known British writer and columnist; Ms. Nirmala Deshpande, Member of Parliament and a renowned Gandhian interacted with the faculty and promised to return for a talk. Prof. Joanne Irene Gabrynowicz, University of Mississippi School of Law spoke at NIAS on International Space Law; Prof. Suren Erkman of the University of Lausanne on Industrial Ecology. Dr. Ram-Prasad Chakravarti from the University of Lancaster came to NIAS for a sabbatical. Dr. Scarlett Epstein and Dr. Gopal Krishna Gandhi came for delivering Memorial lectures, and Professor Michael Burawoy from the University of Berkeley gave a series of lectures on Sociology.

## Centenary Faculty Block:

The Centenary Faculty Block was completed on 1 October 2006 and the faculty of NIAS began moving in on 2 October 2006. The architectural style complements existing buildings. There have been several immediate benefits of the move. Since then, we have been able to organize Courses and accommodate 25-30 participants as opposed to 20 in the past. The faculty and students are closer to each other, rather than be dispersed in different locations on campus and spontaneous collaborations have begun to result.



## **Financial Situation:**

Financial position of the Institute is satisfactory. Detailed accounts thereof with auditors report, already appended to the annual report, reveals the true picture.

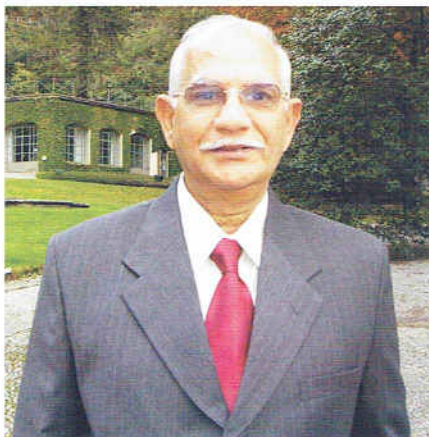
## **Looking Ahead:**

Most of the faculty members requested annual assessment of their academic work and it is proposed to do so soon. The future activities of the Institute would include inducting more and more postdoctoral fellows hiring 4-5 post-doctoral fellows in the next 1-2 years from different areas. The Institute would selectively increase faculty recruitment; create more visiting faculty positions at different academic levels; and would create a few flourishing Institute Centers of world quality. The Institute will be redesigning the residential block and also constructing two suites for Visiting Faculty. The Institute is considering initiating a new programme on "Interdisciplinary Approaches to Economic Issues". The Reserve Bank of India has reviewed our proposal for a corpus fund to support this programme. The focus of the Centre for Urban Affairs would be to find solutions to urban problems. Urbanization is the most important mega-trend that is happening in the country which is likely to drastically transform our society and politics. We are hopeful in raising resources for these multi-disciplinary Centres. Professor Arcot Ramachandran and Professor Andre Beteille have kindly agreed to join the NIAS Council of Management. I welcome them and look forward to working with them, as I do with everyone at NIAS in realizing our shared vision of an institution committed to finding solutions.

(1938 - 2006)

## IN MEMORIAM - PROF. RAVINDER LAL KAPUR

It was with a deep sense of shock and profound sorrow that the NIAS community reacted to the news of the passing away on 24 November 2006 of one of its doyens Prof. R. L. Kapur who had been associated with NIAS right from the beginning of this institution in 1988. Along with Dr. Raja Ramanna, the founder Director of NIAS, Prof. Kapur played a crucial role in the formative years of NIAS and was directly responsible for organizing the first series of courses for the Senior Executives of the country as wished by Shri J.R.D Tata - the visionary who set up the National Institute of Advanced Studies as a unique organization for this very purpose. The course for the Senior Executives has become the flagship course of the institute on the model of which several other courses have been initiated in subsequent years. Prof. Kapur who was in charge of the library of the Institute in the early years is also responsible for the unique collection of rare books on a variety of subjects that the NIAS library is proud of having. During the period 1990 - 1991 when Dr. Ramanna was away in Delhi as Minister of State for Defense, Prof. Kapur was appointed as Deputy Director of the Institute, a position he continued to hold till 1996. His attention to details helped establish a high quality in all these endeavors.



Prof. R. L. Kapur

By training Prof. Kapur was a psychiatrist and in this field he was internationally well known and had held visiting positions in several prestigious institutions in UK and USA. He was Head of the Department of Psychiatry at NIMHANS in Bangalore during 1974 – 1983. Prof. Kapur had published 80 papers in his field of Psychiatry and also three books. Over the last decade, he used to visit almost every year in summer, high altitude stations in the Himalayas to interview Sanyasis and Sadhus to find out the real motivation behind their drastic decisions to change their life style to Sanyas from normal family living. Based on his findings he has written several articles on this subject.

At NIAS, he pursued research on Psychology of violence, nature of scientific creativity and a new look at spirituality and psychotherapy. He was also interested in classical music and theatre and had undergone systematic training in yoga. His approach to academics exemplified the NIAS spirit of interdisciplinary work. Curiosity and an extremely astute mind characterized his approach. A discussion with him would often extend to a few hours and would be illumined by his critical and inquisitive response to the idea. He was not only conversant with different subjects ranging from psychology, physics and philosophy but found ways to integrate them. Over the last few years he pursued more seriously Indian Philosophy and hoped to draw upon these philosophical and folk traditions to reflect on contemporary issues. Much of his work was influenced not just by a critical approach but by a humanistic one. His direct uncomplicated approach to problems of life and genuine concern for the welfare of others endeared him to all those who came in close contact with him, especially the NIAS community of academics, administrators and service staff. Fond memories of his childlike face, sweet smile and witty remarks will remain for a long time in the corridors of NIAS.



## MEMBERS OF THE SCHOOL

Prof. Sundar Sarukkai, *Professor and Dean*  
Prof. B. V. Sreekantan, *Visiting Professor*  
Prof. S. Settar, Dr. S. Radhakrishnan *Visiting Professor*  
Prof. S. Ranganathan, *Visiting Professor*  
Dr. S. Balachandra Rao, *Honorary Professor*  
Dr. Sangeetha Menon, *Fellow*  
Dr. M. G. Narasimhan, *Fellow*  
Dr. Sharada Srinivasan, *Fellow*  
Dr. Rajesh Kasturirangan, *Fellow*  
Dr. Veena Rao, *Honorary Research Associate*

### Doctoral Students

Ms. Meera Baindur  
Mr. S. K. Arun Murthi  
Ms. M. B. Rajani

## INTRODUCTION

The School of Humanities encompasses the subjects of Philosophy, Literature and the Fine Arts. Research in the School currently focuses on the philosophical foundations of sciences including mathematics; on scientific and philosophical studies of consciousness; on the history and philosophy of science and cognitive science. Work is also underway on the analysis of ancient metals, and on translations of Kannada literary classics into English.

## RESEARCH CARRIED OUT

### Prof. Sundar Sarukkai

Themes relating to science, literature and art were of particular focus in this year. His student

Mr. Arun Murthi continues his work on the philosophy of laws of nature and Ms. Meera Baindur on conceptualizations of nature.

### Prof. B.V. Sreekantan

The editorial work on the book *Foundations of Sciences* was completed and the manuscript sent to the Centre for Civilizations Studies for publication in October 2006.

The proceedings of the three-day seminar on Science, Technology and Society held at IAS during 26-29 March 2005 in collaboration with Shimla Institute of Advanced Studies, are under preparation for publication.

### Prof. S. Settar

Continuing his research and publications on the Early Dravidian Relations in the background of the Tamil *Sangam* Literature, he has published five papers during this year in *Sankalana*, a Kannada literary bimonthly, Dharwad.

### Prof. S. Ranganathan

A project for US \$ 30,000 has been granted by the Office of Naval Research Asia to study and report on Indo-US Perspectives in Science and Technology.

### Dr. S. Balachandra Rao

The Indian National Science Academy (INSA), New Delhi, has sanctioned a project on *A Critical Study of Indian Astronomical Tables - Sarinis, Kostakas, Padakas and Vakyas*.

### **Dr. Sangeetha Menon**

Interviews and meetings have been completed for the book being written on *Consciousness, Agency and Spiritual Experience: Scientific Discussions and the Indian Discourse* as part of the GPSS Award Programme.

The book *The Beyond Experience: Consciousness in the Bhagavad Gita* was published in March 2007 (Publisher: Blue Jay Books, New Delhi).

A comparative study of emotions and facial expressions has been initiated. Works of Charles Darwin and Paul Ekman are consulted in conjunction with the Indian text of dramaturgy, Natyasastra.

### **Dr. M. G. Narasimhan**

Has carried research in the following areas: Thought Experiments in Science; Women, Science and Technology as part of an Encyclopaedia Project planned by the Kannada University, Hampi; and Logic in Indian Philosophy.

### **Dr. Sharada Srinivasan**

Research in inter-disciplinary studies in science-based art and archaeology and performing arts.

### **DST Project on Archaeometallurgy of Harappan Sites**

The copper find and copper slags that have been sampled from previous fieldwork to sites such as Dholavira are in the process of being catalogued, photographed and undergoing preliminary examination. Literature survey is being undertaken related to Harappan mining and metallurgy. Preliminary laboratory inspections are in the process of being made through Geological and Metallurgical Laboratory (GML).

### **Fieldwork to Neolithic site of Sanganikallu, Karnataka**

Invited as team member to consult, visit the excavations and examine metal artefacts excavated by the International Sanganikallu project of Cambridge University, UK in collaboration with Dharwar University, Karnataka co-ordinated by Nicole Biovin and Ravi Korisetar.

### **Dr. Rajesh Kasturirangan**

Completed a study on the pragmatics of beliefs. Some of the results of this study were presented at a conference on Brain and Mind in Kolkata in November. Started a project on enactive theories of concepts, the first results of which were presented at an International Cognitive Science conference in Compiègne, France. With Prof. Ram-Prasad Chakravarti of Lancaster (currently visiting NIAS) starting a major project on reconsidering Cognitive Science from the point of view of the Indian philosophical traditions.

### **Dr. Veena Rao**

#### **J. B. S. Haldane's Indian Period**

J. B. S. Haldane was among the leading biologists of the 20th century. In the process of putting together all the data collected from archives in India and the U.K. in the form of a manuscript. The final version shall broadly be divided into three main themes:

- 1) Haldane's role in giving a thrust to science in India;
- 2) Haldane's relationship with India; and
- 3) The influence of India and Hinduism on the Haldanes.

## **OTHER ACTIVITIES**

### **Prof. Sundar Sarukkai**

Taught a course at NIAS on "The Nature and Practice of Thinking", First Semester, 2006.

Lectured, as parts of Foundation Course and the Research Methodology Course for Ph. D. students.

Invited to be an Editorial Member of the Leonardo Book Series Published by MIT Press, USA.

### **Prof. B. V. Sreekantan**

A Workshop on *Perspective and Future Prospects in Higher Mathematics* was organized at NIAS during 25-26 October 2006. The recommendations of the workshop have been published as NIAS Report No. R4-06.



**Prof. S. Settar**

Hosted International Seminar on *Jainism in Karnataka: Art, History, Religion and Literature*, held jointly by NIAS and South Asia Institute, Heidelberg University, Germany. Exhibited a video document on Sravana Belgola, anchored by him and produced by the IGNCA, New Delhi.

Restructured the NIAS' Associates membership during the year.

**Prof. S. Ranganathan**

Coordinated the First DST-NIAS Workshop on "Dimensions of Nanotechnology: Science, Technology and Society" (26 June - 1 July 2006) and the Second DST-NIAS Workshop on "Dimensions of Nanotechnology: Science, Technology, Business and Society" (19 - 24 March 2007).

**Dr. Sangeetha Menon**

Coordinated the 21st NIAS Course for Senior Executives, on "Excellence in Leadership" from 21-27 January 2007.

Organised weekly faculty and guest lectures for "NIAS Wednesday Discussion Meetings".

Oversaw the NIAS publications in the "Excellence in Leadership" Series.

Edited the NIAS Special Publication *The Great Indian Ocean Tsunami of 2004: An overview of a national disaster*, NIAS 2006.

Edited the NIAS Special Publication *Consciousness, Experience and Ways of Knowing: Perspectives from Science, Philosophy and the Arts*, NIAS 2006. The full video of lectures given at the national conference is now available at

[http://www.uip.edu/gpss\\_major/spip.php?rubrique26](http://www.uip.edu/gpss_major/spip.php?rubrique26). Published by the programme of Templeton Foundation on *Global Perspectives on Science and Spirituality*, Paris.

Taught a Course for NIAS doctoral students on Mind in Indian Psychology, Philosophy and Dramaturgy.

Designed a Course for Montfort College, Bangalore on Self and Consciousness: Perspectives from the Gita and Upanishads.

**Dr. Rajesh Kasturirangan**

Along with Dr. Kota Harinarayana of NAL, organized a day long workshop at NIAS on 22 September 2006 to discuss and prepare a proposal for a Cognitive Science Initiative as part of the 11th five year plan of the DST. After the meeting, the proposal has been prepared and sent to DST for further consideration.



## CENTRE FOR PHILOSOPHY

The Centre for Philosophy was established at NIAS on 20 January 2006 with the following objectives:

- To support a culture of philosophy in Indian colleges and Universities;
- To establish structures to enable philosophical thinking and practice in the larger society by organizing public lectures and discussions on philosophical themes of contemporary interest;
- To promote teaching of philosophy in vernacular languages in urban and rural areas;
- To conduct advanced summer schools for graduate and undergraduate students in philosophy;
- To develop outreach programs in undergraduate colleges by offering courses in philosophy by guest faculty;
- To create an infrastructure to enable students and faculty to visit the Centre for Philosophy in order to pursue research, teaching and use the library's resources;
- To enable networking of younger faculty and teachers in philosophy, Humanities and Social Sciences, to know about each others' work and create a sustainable network for future action; and
- To have eminent people from all over the world visit the Centre thereby fostering international cooperation in the fields of Humanities and Social Sciences.

During the year, the Centre organized the following Courses:

### **Summer School on Philosophy for the Social Sciences and Humanities (5 - 23 June 2006)**

The aim was to introduce students to certain aspects of philosophy which are necessary to

understand issues in social sciences and humanities. An overwhelming number of applications from Ph. D. and M.A. students in the area of humanities and social sciences were received. The basic idea of the course was imparting fundamental ideas of philosophy and discuss their relevance for various disciplines in social sciences and humanities. Around forty students were chosen for the course; half of them were from social sciences background and half from philosophy background. The various topics in philosophy broadly covered included logic, epistemology, ontology, phenomenology, philosophy of language, philosophy of the sciences with special emphasis on social sciences such as history and sociology. The speakers were drawn from different institutions across the country and also from NIAS.

A special public lecture on "Philosophy of History" by Prof. D. N. Tripathi, Chairman, ICHR was organized on 21 June 2006 as part of the course. The summer school also provided a good opportunity for the students across different areas to interact amongst themselves and also with the faculty drawn from the different institutes. Coordinator: Prof. Sundar Sarukkai.

Introductory course in philosophy for undergraduate students at Christ College, Bangalore was conducted on Saturday afternoons during February - March 2007.

### **OUTREACH ACTIVITIES**

Darshana Pravesha: Workshop in Kannada on Philosophy Appreciation at Ninasam, Heggodu. (15 -16 April 2006) Sessions conducted by Prof. Sundar Sarukkai.

A Discussion Meeting on Self-Luminosity and Reflexivity of Consciousness - A Debate between

Dualist (VyAsatIrtha) and Non-dualist (Advaitasiddhi) was organized on 1-2 August 2006 with Prof. D. Prahaladachar and Prof. Godavarish Mishra.

National Workshop on "Buddhist Philosophy and Modern Science" (13 – 19 October 2006) at Nalanda, organized jointly with the Nava Nalanda Mahavihara, Nalanda and Sambhasha, Kolkata.

Workshop on "Indian traditions and contemporary thought", organized as part of the NIAS-UGC course on 8 December 2006. Speakers: Dr. Ram-Prasad Chakravarthy, Prof. Sundar Sarukkai, Dr. Sangeetha Menon, Dr. Rajesh Kasturirangan and Dr. Seigfried.

## VISITORS

Dr. Ram-Prasad Chakravarthy, Department of Religious Studies, University of Lancaster, UK. On sabbatical, 2006 - 2007.

Prof. Arindam Chakrabarti, Department of Philosophy, University of Hawaii, July-August 2006. Professor Chakrabarti gave a series of three highly acclaimed lectures.



Prof. Arindam Chakrabarti



# SCHOOL OF NATURAL AND ENGINEERING SCIENCES

## MEMBERS OF THE SCHOOL

Prof P. K. Shetty, *Professor and Dean*  
Prof. Prabhakar G. Vaidya, *Professor*  
Prof. Anindya Sinha, *Professor*  
Prof. Timothy Poston, *Sir Ashutosh Mukherjee  
Visiting Professor*  
Prof. K. Ramachandra, *Visiting Professor*  
Dr. Sindhu Radhakrishna, *Visiting Associate  
Fellow*

### Doctoral Students

Ms. P. S. Sajini Anand  
Mr. Kishor G. Bhat  
Mr. Mayukh Chatterjee  
Ms. Swarnali Majumder  
Mr. M. Murugan  
Mr. Nithin Nagaraj  
Mr. Narayan Sharma  
Ms. K. G. Sreeja

## INTRODUCTION

This School covers research in the field of engineering and mathematics, agriculture, ecology 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; pesticide and environmental stewardship; conservation of wildlife; primate behaviour; and cognition.

## RESEARCH CARRIED OUT

**Prof. P. K. Shetty**

### Higher Education in State Universities in India

The team carried out a detailed study examining the state of higher education and in particular the research scenario in selected State Universities in India. The objectives of this theme include critical examination of the culture of research, based on internationally accepted metrics such as the credentials of the faculty, Ph.D.s awarded, research publications, patents secured and recognition accorded via cited publications, major research grants and awards. To compile and analyse the overall development of higher education in science and technical fields, two Universities each from North, East, South, West and North-eastern regions were identified out of 204 State Universities in the country. Further data analysis and interpretation of data and preparation of report are under progress. This study is supported by the Department of Science and Technology, Government of India.

### Status of Integrated Pest Management in India

The team carried out an extensive analysis to know the present status of Integrated Pest Management (IPM) in India. For this, data available from earlier field studies were used. The sample size of the study was 1039 farmers or respondents from 290 randomly selected villages. Questions were asked on the concept and awareness on IPM; use of IPM tools in crop pest management and the risks and benefits of pesticides. About 64% from a total of 1039 respondents interviewed followed at least one of the IPM practices tools in different agro ecosystems in India. Around 35% of the respondents used resistant varieties in their fields.



There was no significant difference among the farming categories (small, medium and large farmers) regarding the awareness and use of IPM tools in the selected districts. Similarly, literacy level among the respondents had no significant influence on the use of IPM tools and awareness of IPM in farming. The results of the repeated sampling in few of the selected districts show only slight improvement among the respondents' farmers regarding the adoption of IPM tools. The response of IPM in most of the areas surveyed was mixed and is in fragmentary stage therefore rekindling is imperative. Easy availability of good quality IPM components and speedy, effective and timely dissemination of information were the main constraints in implementation of IPM packages at the farm level.

### **Prof. Prabhakar G. Vaidya**

Prof. Vaidya has been trying to relate previously unexplored areas of Mathematics to various applications. The areas of mathematics explored last year include Number theory, Ergodic theory, Nonlinear dynamics and Topology (Embedding and Foliation). This process has led to some very important applications.

One problem has to do with connection of quantum mechanics and chaos. The results of a famous experiment in Quantum Mechanics (known as the "Stern - Gehrlich Experiment") were simulated by using deterministic chaotic equations.

Further details of research carried out with his students are:

With Ms. P. S. Sajini Anand: Singular Value Decomposition can be considered as an effective method for Signal Processing; especially for data compression. Have found some applications of nonlinear SVD to model chaotic dynamical systems. It has lot of applications in various scientific disciplines, notably, two and three dimensional image processing, cryptology, data analysis, graph theory, inverse problems, biomedical engineering, statistical and stochastic models. At present the higher - dimensional singular value decomposition for biological signals specifically ECG data is being examined.

With Mr. Nithin Nagaraj: It has been constructively shown that Arithmetic Coding, a popular entropy coding algorithm (used in

JPEG2000 international standard) which achieves compression asymptotically (as the message length increases) equal to Shannon's entropy, is in fact a chaotic map. Specifically, it turns out to be a specific mode of the piece-wise linear Generalized Luroth Series (GLS) which is a chaotic, ergodic and Lebesgue measure preserving map. These properties also justify the use of Arithmetic Coding as a framework for joint entropy coding and encryption. The above method has been modified to obtain optimal encoding of a constrained ergodic markov source (with certain words forbidden in its message space). Robust chaos has been used to develop a pseudorandom number generator. A joint paper exploring the nature of randomness and chaos and their inter-play has been written.

With Mr. Kishor G. Bhat: Studying ecological models, sounds of animals, Ergodic theory of Theory of Numbers. In the past year, have been applying Ergodic theory of numbers to encryption, arithmetic coding, information theory, and coding and working on some topics in bioacoustics.

With Ms. Swarnali Majumder: A method to find accurate derivatives from data (which was developed at NIAS a few years earlier) was used to find nonlinear equations from computer generated data. In this process it was discovered that there exists some potential for ambiguity in this inverse problem. Some possible solutions for this problem were developed.

Future plans are:

1. Study on non-linear SVD and symbolic embedding and applications to model a chaotic dynamical system. Study of symbolic sequences may reveal nonlinear complexity of binary signals. The aim is to see how symbolic embedding and nonlinear SVD are related to Markov partitions and hence topological entropy.
2. Work on non-linear processing of Biomedical Signals, especially ECG and EEG signals.
3. Further generalize the method on constrained source coding to handle various scenarios (with different transition probabilities). A framework for performing channel coding using a dynamical systems approach is underway. A study of the effect of computer precision on Robust Chaos is planned.



**Prof. Anindya Sinha**

### **Social Organisation and Social Relationships in Wild Bonnet and Rhesus Macaques**

Continuing the long-term research project on bonnet macaques on the investigation of social relationships and social cognition in wild groups of this species, the group has explored two further problems in its social behaviour: (1) the temporal persistence of social relationships within troops and (2) the developmental patterns of infant-mother relationships (with Mr. Rishi Kumar and Mr. Mayukh Chatterjee).



An infant bonnet macaque, photographed by Mr. Mayukh Chatterjee, a NIAS doctoral student, at his field site in Bandipur National Park, Karnataka

Also recently initiated a field study on the demography of pure and mixed-species troops of rhesus and bonnet macaques in the states of Andhra Pradesh and Maharashtra. Two important components of this project are: (1) delineation of the distribution boundary of the rhesus and the bonnet macaques in peninsular India, and (2) studies on the behavioural ecology, demography and conservation status of mixed troops of the two species in selected sites in Maharashtra (with Mr. Rishi Kumar)

### **Demography, Ecology and Social Evolution in Wild Bonnet Macaques**

This long-term project, begun in 2000 and proposed to continue for twenty years, is investigating the demographic structure and ecology of a population of wild bonnet macaques in the Bandipur National Park Mudumalai Wildlife Sanctuary complex in the states of Karnataka and Tamil Nadu. Monitoring of twenty-two troops of the species has continued and a detailed quantitative observations on the

behavioural ecology of five of these groups begun (with Mr. Mayukh Chatterjee and Dr. Kakoli Mukhopadhyay).

### **Communication and Cognition in Wild Bonnet Macaques**

One of the long-term interests has been to investigate the social and mechanical cognitive abilities of wild bonnet macaques with particular reference to the cognitive mechanisms underlying specific behavioural processes including the acquisition of social knowledge and tactical deception as well as the origin, development and function of vocal communication in this species. In this connection, new inter-disciplinary projects with Prof. Prabhakar G. Vaidya and Mr. Kishor G. Bhat on the analyses of vocal communication and with Dr. Rajesh Kasturirangan and Prof. Michael A Huffman on the cognitive mechanisms underlying individual and social behaviour in this macaque species have been initiated (with Mr. Mayukh Chatterjee).

### **Ecology, Behaviour and Conservation of Macaques in North-eastern India**

The team had recently described a primate from Arunachal Pradesh, the Arunachal macaque (with the scientific name *Macaca Munzala*), which is a species new to science. In 2005, a long-term project to explore its demography, behavioural ecology and conservation status in the Tawang and West Kameng districts of western Arunachal Pradesh was initiated. A preliminary survey for the Arunachal macaque in the districts of Upper Subansiri and West Siang in central Arunachal Pradesh has been completed (with Mr. R. Suresh Kumar, Ms. Uttara Mendiratta and Dr. Charudutt Mishra).

A research programme to investigate the demography, behavioural ecology and conservation status of a highly-endangered primate community, consisting of four macaque species - the Assamese macaque, the pigtailed macaque, the rhesus macaque and the stump tailed macaque, together with the hoolock gibbon, the capped langur and the slow loris - in several fragments of low-lying tropical rainforests of the Brahmaputra Valley in Assam has been developed. This project has just completed its first phase during which the occurrence, distribution and status of primate communities in 43 Reserve Forests and Proposed Reserve Forests in eastern Assam have been explored (with Mr. Narayan Sharma and Dr. M. D. Madhusudan).



### **Ecology and Conservation of the Lion-Tailed Macaque in Karnataka State**

The lion-tailed macaque is a highly-endangered primate that is facing imminent local extinction or is on a sharp decline in many protected areas over its distributional range in the Western Ghats Mountains. An important population in this regard is the newly-discovered Sirsi-Honnava population of the macaque, which might mark the northernmost point of its distribution. This study aims to understand the ranging and feeding ecology of this population and plans to initiate conservation measures to protect its habitat and its last constituent groups (with Dr. H. N. Kumara).

### **Molecular Genetics of the Arunachal Macaque, Bonnet Macaque and the Sinica Group of the Genus *Macaca***

This collaborative project, initiated in January 2006, has been exploring the molecular phylogeny of the sinica group of the genus *Macaca*, consisting of five species, in general and those of the bonnet macaque and the newly-discovered Arunachal macaque, in particular. Specific nucleotide sequences from the nuclear genome and mitochondrial DNA have been amplified, sequenced and compared across these species in order to determine the exact phylogenetic position of the Arunachal macaque and the bonnet macaque within the genus. The sub-specific status of the bonnet macaque using a molecular taxonomic approach will be evaluated and the molecular population genetics of the species over its entire distribution range in peninsular India explored (with Mr. Debapriyo Chakraborty and Dr. Uma Ramakrishnan).

### **Prof. Timothy Poston**

Development and testing (with Bangalore collaborators) of a novel image processing algorithm, allowing a 3DOF mouse (reporting rotation) to use the optical hardware of a standard (X-Y-only reporting) mouse: Psychological study launched of usability differences with 3DOF mouse; Indian 3DOF mouse patent application extended to US and EU; Bangalore industrial partner negotiating for 3DOF mouse productisation.

Development of algorithms (based on DNA comparison methods) and software to compare document draft versions and simplify the task of collective authorship. US patent application filed with Swedish collaborators (startup Software Company created for this work).

Development of algorithms and software to navigate between levels of detail in a document; by semantic / syntactic landmarks. US patent application filed with Swedish collaborators.

Discussions with <http://www.lalisio.com/>, a web company providing access to books and scholarly publications, led to their merger with 'Quasm', the company owning a US patent (written with US/UK collaborators) issued last year, for a mutable-hierarchy navigation scheme for knowledge: plans are to implement this first with Lalisio data, then in other applications.

Development of smoother access for web site membership and work in progress on phase aspects of quantum theory.

### **Prof. K. Ramachandra**

Carried research in the following areas: Theorem of A.E.Ingham; and Supplement to a Theorem of P. Turan.

### **Dr. Sindhu Radhakrishna**

#### **Development of Social Relations in the Slender Loris**

This project is studying the development of social relations in a primarily solitary species, the gray slender loris. Specifically, the aims of the study are to (i) compare interactions of juvenile males and adult males with those between juvenile females and adult males, and to (ii) investigate the use of vocalisations in mother-infant interactions. The results of such a study will not only produce vital perspectives into the development of social behaviour and communication in a primarily solitary species, but also reveal the significance of subtle behaviours in maintaining social networks in a nocturnal primate species.

#### **Distribution and Conservation of the Purple-Faced Langur, the Toque Macaque and the Slender Loris in Sri Lanka**

Sri Lanka is global biodiversity hotspot, where over 90% of the primates are endemic and threatened. A collaborative primate conservation programme in Sri Lanka is focusing on population surveys and demographic patterns of its least-known taxa and conservation-oriented studies of its highly threatened taxa. A pilot study provided a conservation action plan that outlined areas where primate conservation efforts should be focused in Sri Lanka. In the second phase of the study, a comprehensive distribution survey of all



the primate species in the country will be conducted so that information may be obtained on primate abundance and distribution in Sri Lanka, and facilitate the implementation of a well-defined, collaborative conservation programme for its endangered primate taxa in the near future (with Prof. Anindya Sinha).

#### **Distribution, Abundance and Conservation Status of the Slender Loris in the Eastern and Western Ghats, India**

This study aims to examine the geographical range limits of the two Indian slender loris subspecies, the Mysore slender and the Malabar slender loris, their population densities, and factors affecting their abundance in the Eastern and Western Ghats mountains. The results of the study will not only provide essential data to assess the conservation status of the species and formulate management strategies for its survival, but will also present a broader perspective of differences in landscape and faunal assemblages in the Eastern and the Western Ghats (with Prof. Anindya Sinha).

#### **Evaluation of Census Methods for Nocturnal Primate Densities**

Nocturnal primate densities are typically estimated through visual sightings via transects. An important methodological debate in this connection has been the role of environmental factors in aiding or obstructing visual sightings of animals. This project aims to test the efficacy of a number of census methodologies in detecting the presence of nocturnal primates against varying environmental conditions (with Dr. H. N. Kumara).

### **OTHER ACTIVITIES**

#### **Prof. Prabhakar G. Vaidya**

Three project students have joined the lab recently. They are implementing an ECG machine with a high resolution data sampling.

#### **Prof. Anindya Sinha**

Coordinated (with Dr. B.K. Anitha) the Tenth NIAS Course on an Integrated Approach to Knowledge and Information for University and College Teachers, 6-26 December 2006.

Taught a ten-day theoretical and field course, consisting of a series of fourteen lectures, demonstration of field techniques, project

assignments and several interactive sessions in *Animal Behavioural Ecology* for Master's degree students of Wildlife Science, Wildlife Institute of India, Dehradun, April 2006.

Coordinated and taught a two-credit course, consisting of lectures and project assignments, on Philosophy of Biology for Master's degree students of the Post-graduate Program in Wildlife Biology and Conservation, Bangalore, September - October 2006.

Coordinated and taught a three-credit course, consisting of lectures, seminars, project assignments and field work techniques, on *Behavioural Ecology* for Master's degree students of the Post-graduate Program in Wildlife Biology and Conservation, Bangalore, February - April 2007.

Delivered two lectures on *Research Methodology* in the *Behavioural Sciences* as part of the Course on Research Methodology for students of the NIAS Doctoral Programme, March 2007.

#### **Prof. Timothy Poston**

Invited article for next issue of *International Encyclopedia of the Social Sciences*, on Catastrophe Theory.

1-semester for-credit course on Catastrophes and Bifurcations, NIAS Ph. D. programme, 2006. Throughout the year, 3 hour Saturday morning not-for-credit session on tensor geometry, manifolds, General Relativity and related topics.

#### **Dr. Sindhu Radhakrishna**

Taught a reading course in Social Ecology for students of the NIAS Doctoral Programme, September - October 2006.

Taught in the Foundation Course for students of the NIAS Doctoral Programme, August-December 2006.

Visiting Scientist at the German Primate Centre, Göttingen, Germany, from November 2006 to January 2007. The major outcomes of this visit included research and training in primate acoustics, interactions with leading German primatologists, presentation of research work in an important German primatology conference, and the development of a collaborative research project on loris phylogenetics.

## **MEMBERS OF THE SCHOOL**

Prof. A. R. Vasavi, *Professor and Dean*  
Prof. Dilip R. Ahuja, *ISRO Professor*  
Prof. N. Shantha Mohan, *Professor*  
Dr. B. K. Anitha, *Fellow*  
Dr. Carol Upadhyya, *Fellow*  
Dr. Padma M. Sarangapani, *Visiting Fellow*

### **Doctoral Students**

Ms. Anu Joy  
Ms. K. Latha  
Mr. Rahul Mukhopadhyay  
Ms. Leena Pascal  
Ms. Sowjanya R. Peddi  
Mr. Sailen Routray  
Ms. Sahana Udupa  
Ms. Indira Vijaysimha

## **INTRODUCTION**

It has been a productive year for the School, with several research projects completed and new endeavours bearing fruition. Work on a diversity of topics with linkages to advocacy and policy making have continued. Collaborative works with other institutions and agencies have been strengthened and new projects and publications linked to these partnerships can be expected in the forthcoming year. Courses on several themes have been offered to the doctoral students at the Institute. Serious and concerted efforts are being made to lend the School's work towards multi-disciplinary engagements.

## **RESEARCH CARRIED OUT**

### **Prof. A. R. Vasavi**

Co-Coordinator of District Quality Education Project, ongoing work with focus on three sets of activities – School-community linkages; Arts in education; and the language development programme.

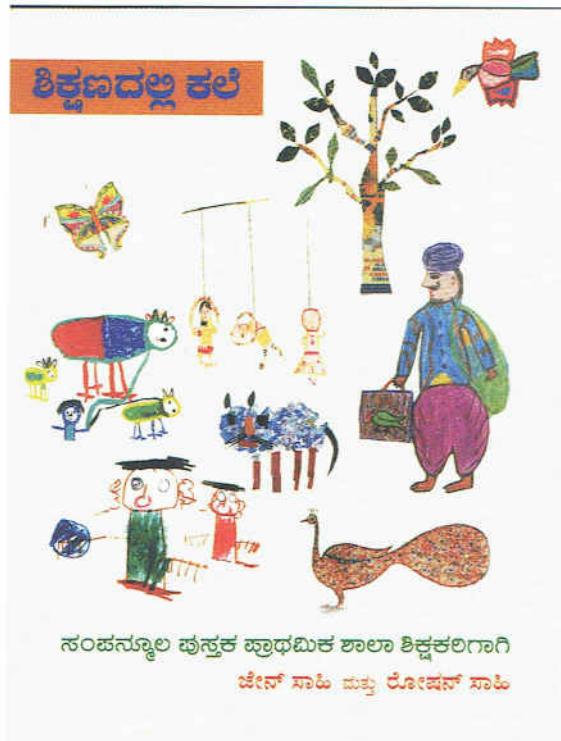
The Making of Agrarian Distress in India. An independent study drawing on reports from five States.

**District Quality Education Project** (Coordinators: Prof. A. R. Vasavi and Dr. Padma M. Sarangapani)

Between June 2006 and now a working collaboration has been established with the District Institute of Education and Training at Chamarajanagar. Three team members from the project work full time with the DIET as loan-faculty/consultants. The project has been able to contribute in small ways to many of the ongoing DIET activities to strengthen its district specific focus and quality of planning and execution. In addition a vibrant resource centre in the district and blocks will be established; interactions between the DIET, blocks and clusters in aspects of teacher and school follow-up, and the management of teacher training will be improved, and a Tribal Education Wing established to focus on the needs of tribal children in the district. The software for teacher management has been developed and needs to be up-scaled by the government to the State level. Currently working on a concept note on restructuring of DIETs. Experiences are being documented in detail for the purposes of providing detailed feedback into the ongoing collaboration and also for research.



**Development and Release of ARTS in EDUCATION Resource Book.** As part of its curriculum development activities, the project team worked closely with educationist Jane Sahi and artist Roshan Sahi to develop Arts in Education Programme. Several teachers from Chamrajnagar were trained to conceptualise and integrate art activities into all subject related teaching learning materials. A novel and user-friendly resource book that can be used by teachers was developed and printed. The resource book (in Kannada) was released at the Department for State Education Resource and Training, Bangalore.



Cover page of the book "Art in Education" developed in Kannada for the DQEP project

English and Hindi versions of the book will be published by Eklavya, Madhya Pradesh. Subsequent to the release of the resource book, two exhibitions of children's work were held at Kollegal and Chamrajnagar towns. Support for the programme was provided by the India Foundation for Arts, Bangalore.

**Kannada Language Development Programme** (in collaboration with The Promise Foundation, Bangalore). After two years of close study, conceptualisation, trialing and monitoring, an innovative package of materials consisting of hundred cards in Kannada was developed and

printed. Along with this package new practices such as a children's reading and exhibition wall and an individual child's portfolio were introduced in the selected schools which act as test sites. Reviews indicate a substantial improvement in children's Kannada learning levels. The Department of Education, Government of Karnataka, has requested an up-scaling of this programme to other districts of the state and the package of cards will be distributed to all the state schools in the forthcoming school year.

**Mid-Project Reflexive Report:** 2006 marked the mid-year of the project. All members of the team and many of the key consultants wrote essays reflecting on their varied experiences and reflections on work related to the project. The coordinators have included a comprehensive overview essay that summarises the work and its implications. Copies of the report have been widely distributed and the report is also available on the NIAS website.

**Internship:** The project has hosted two international interns who have assisted with some of the programmes.

**Prof. Dilip R. Ahuja**

#### **Project on the Benefits of Advancing Indian Standard Time:**

Since the invention of mechanical clocks, three separate and sequential adjustments have been made to time keeping in different countries – the adoption of mean time, of time zones incorporating standard times, finally that of daylight saving time. India has accepted mean times and a standard time but has resisted adopting time zones or daylight savings time for several reasons. The research carried out with collaborators (Prof. D. P. Sen Gupta and Mr. V. K. Agrawal) proposes the advancing of Indian Standard Time by half an hour from being five and a half hours to being six hours ahead of Universal Coordinated Time. The multiple potential benefits of this proposal were identified. The primary benefit is a saving in peak load electricity, the magnitude of which was estimated from regional seasonal load curves to be of the order of Rs.1000 crores annually, and growing in subsequent years. While this might not seem like a large number, the savings constitutes about one-sixth of the additional energy demanded in the evenings, a demand most regions have difficulty in fulfilling.

As a Member of NCERT Sociology Textbook Committee; wrote two chapters for Standard XII CBSE textbooks.

Selected as member of Editorial Advisory Board, Contributions to Indian Sociology.

Hosted Prof. Michael Burawoy (University of California, Berkeley), 31 December 2006 to 3 January 2007 and organised his two lectures and interaction session with students.

Co-organised workshop on 'Water Challenges in Greater Bangalore' (with ASUMM, Bangalore), 27 March 2007.

Taught courses on Social Theory (Parts I and II) (January 2006 – January 2007); Anthropological Theories and Methods (with Prof. A. R. Vasavi); and on Anthropological Perspectives on the Economy.

Coordinated Foundation Course for Ph.D. students with Dr. S. A. Sangeetha Menon.

### **Dr. Padma M. Sarangapani**

Co-coordinator of M. A. Education and visiting faculty at Tata Institute of Social Sciences, Mumbai – a collaborative post graduate programme for the study of elementary education with TISS, Mumbai, HBCSE (TIFR) Mumbai, Eklavya, Madhya Pradesh, Vidhya Bhawan Society, Udaipur, Digantar, Jaipur, for the launch of the programme, coordination of first review of courses and programme on 3-4 October 2006.

Member of core team developing and contributing to source book on constructivist approaches to assessment for NCERT, New Delhi.

Managing Editor and Publisher of Contemporary Education Dialogue, a peer reviewed journal.

Member of the Executive Council of the Sarva Siksha Abhiyan, Karnataka.

Member of the National Resource Group of the Sarva Siksha Abhiyan (MHRD).

Taught a Course on 'Curriculum and School': for the dual-mode MA Education (Elementary) programme of TISS, Mumbai for which NIAS is a collaborating institution.



# INTERNATIONAL STRATEGIC AND SECURITY STUDIES PROGRAMME

## MEMBERS OF THE PROGRAMME

Prof. S. Chandrashekar, *J. R. D. Tata Visiting Professor*

Prof. Rajaram Nagappa, *Visiting Professor*

Mr. Arvind Kumar, *Associate Fellow*

Dr. Sonika Gupta, *Post-doctoral Fellow*

## INTRODUCTION

The International Strategic and Security Studies (ISSS) Programme was established at NIAS in 1996 with a broad objective of conducting academic and policy research in the field of national and international security issues. Over the last eleven years, the ISSS programme has established a fair degree of capability in the area of security and strategic studies. It has both national and international recognition. The ISSS programme has acted as the focal point for track two dialogues between India and the US through its interactions with the Committee on International Security and Arms Control (CISAC) of the National Academy of Sciences (NAS), USA. These dialogues were initiated between the two countries after the 1998 Pokhran explosions to resolve various issues between the two countries.

### Objectives of International Strategic and Security Studies Programme

The current objectives of the programme are:

- to conduct and promote research on issues related to national and international security;
- to make an independent continuing assessment of various issues impacting national security; to review existing policies in the light of these changes and suggest new courses of policy and action;

- to advise various national and other entities on matters related to and affecting national security; and
- to disseminate through publications and other means knowledge and information related to national and international security.

Taking into account the current and future challenges facing India and keeping in mind the above objectives, the programme at NIAS will focus on the following countries and geographies:

- Pakistan and China;
- Other SAARC Countries;
- ASEAN, Middle East and Central Asian Republics;
- United States; and
- Russia, Japan, and Europe.

The themes that would link up specific understanding of each country and region would include some or all of the following:

- Strategic Dimensions of Security including conventional weapons, nuclear weapons, delivery systems including ballistic missiles and other weapons of mass destruction;
- Economic Dimensions of Security including infrastructure, industry, trade and commerce;
- Energy Security including nuclear power; and
- Ethnic and Demographic Dimensions of Security.

### Research Completed:

The ISSS programme completed a research study on an **Assessment of China's Ballistic and Cruise Missile Capability** commissioned by DRDO HQ, New Delhi. Several technical details in terms of ranges, payloads and image analysis in addition to

strategy, decision - making systems in China as well as infrastructure of ballistic missiles and cruise missile facilities formed a major part of study.

The study has also pioneered some new approaches for analysis, looked at new sources of data and developed new methodologies for looking at strategic problems. The study uses publicly available information, images and data on the Chinese missile programme to make an independent assessment of China's missile capabilities. Measurements on images are used as a basis for predicting technical characteristics of the missiles. These are used as inputs into models that predict range and other missile parameters. The results have been compared with publicly available information on the China programme.

#### **Research Initiated:**

The ISSSP has been following the developments relating to the ongoing Indo-US dialogues on Indo-US civil nuclear cooperation. The group has brought out two major reports on the subject. The analyses in both the reports have looked into the area of divergences between India and the US. It has suggested how both the countries can converge on this important area of cooperation.

In addition to the above mentioned work, the group at ISSSP will keep continuing its focus on China and Pakistan as a major area of the research.

## **OTHER ACTIVITIES**

Mr. Abu George delivered a talk on "Legal Dimensions of Nuclear Non-Proliferation Treaty" on 26 May 2006. Mr. George completed this study as an intern at ISSS Programme, NIAS.

Two interns Ms. Ancy Joseph and Ms. Yashothara affiliated with ISSSP made their presentations on their research findings on the themes "India and Central Asia: Potential for collaboration with Kazakhstan" and "China's Strategic Environment" respectively on 12 June 2006. The ISSS Programme had initiated internships for two post-graduate students of the Department of International Studies of Stella Maris College, Chennai.

The ISSS Programme organized a bilateral meeting with the members of CISAC to explore areas on which both NIAS and CISAC can work together and also the future course of CISAC – NIAS dialogue could be based. The meetings were organized at New Delhi on 26 March 2007 and at NIAS during 27-28 March 2007.

The first joint publication between CISAC and NIAS on the theme "Science and Technology to Counter Terrorism" was released on 28 March 2007 at NIAS.



## NIAS LIBRARY

The last one year has been devoted to shifting to the new library premises and designing its interiors. The new facilities in the library include six terminals using thin client technology for browsing with high speed internet connection and provision to connect laptops on all reading tables. The library has recently acquired Libsys software for housekeeping operations. The library proposes to develop a digital library of lectures delivered at NIAS.

The collection has increased substantially during the last year and it today stands at 9000 books, 1329 back volumes of journals, 51 current subscriptions to journals and periodicals, 150 CDs and 1200 audio tapes..

We have received donation of books from Smt. Achala Moulik Moses and former Ambassador C. V. Ranganathan. While Smt. Moses' donation includes over 2000 rare and valuable books in the area of literature, arts and humanities, Ambassador C. V. Ranganathan's collection includes books related to China.



Newly furnished library and reading room of NIAS



## NIAS COURSES

### **The Second DST-NIAS Workshop on “Dimensions of Nanotechnology: Science, Technology, Business and Society” (19 – 24 March 2007)**

In this Workshop 22 invited lecturers from leading institutions in India covered the many facets of nanotechnology. The highlight was the Special Address by Dr. T. Ramasami, Secretary,

Department of Science and Technology, Government of India. 28 participants drawn from diverse disciplines and different institutions from the strategic, civil and industrial sectors expressed their appreciation. Laboratory visits to Nanocentre, Materials Research Centre and the MEMS laboratory were arranged. A sarod recital by Dr. Rajeev Taranath was organized as a part of the Workshop. Coordinator: Prof. S. Ranganathan.



Participants of the second DST-NIAS Workshop on “Dimensions of Nanotechnology: Science, Technology, Business and Society” with faculty  
19 – 24 March 2007

### **The Twenty-First NIAS Course for Senior Executives (21 – 27 January 2007)**

This flagship Course on “Excellence in Leadership” was inaugurated by Dr. Arun Shourie, Member of Parliament, Rajya Sabha. The

valedictory address was given by Shri K. Jairaj, Commissioner, Bangalore Mahanagara Palike. 26 participants from public and private sector attended the Course. The Course speakers included Dr. Bimal Jalan, Swami Bodhananda, Mr. Javagal Srinath, Dr. Kiran Karnik, Dr. N. Kumar, Dr. N. R. Madhava Menon, Mr. Mammen



Mathew, Dr. Narendar Pani, Prof. Panjab Singh, Dr. V. S. Ramamurthy, Mr. Shyam Benegal, Mr. Shyam Saran, Prof. Sourav Mukherjee and Dr. Yogendra Narain. The Course was coordinated by Dr. Sangeetha Menon.



Dr. Bimal Jalan delivering the talk at the twenty-first NIAS Course for Senior Executives  
21 – 27 Januray 2007



Participants of the twenty-first NIAS Course for Senior Executives with faculty  
21 – 27 Januray 2007



A session from the twenty-first NIAS Course for Senior Executives  
21 – 27 Januray 2007



**The Tenth NIAS Course on “An Integrated Approach to Knowledge and Information” for University and College Teachers (6 – 26 December 2006)**

This course was dedicated to Late Prof. R.L. Kapur, the person instrumental in starting this course way back in the year 1993. Prof. Kapur passed away on 24 November 2006.

The course theme for the year 2006 was “Current Frontiers of Research in Natural Sciences, Social Sciences and Humanities”. This course was co-sponsored by the University Grants Commission (UGC), New Delhi, the Indian Space Research Organisation (ISRO), Bangalore and the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore.

The course attracted 30 university and college teachers drawn from 23 disciplines in Natural Sciences, Social Sciences and Humanities from 19 states of India. About 50 percent of lectures were delivered by the NIAS Faculty. Remaining 15 lectures were from leading personalities in Arts, Social Sciences, Natural Sciences and Humanities.

The Topics covered ranged from *Think Big, Write Small – The Art of Nano Lithography* by Prof. Giridhar U. Kulkarni to *Emerging Methods of Participatory Governance and Accountability* by Dr. Gopakumar Thampi to *Leela Dhyana, Kriya*

and *Artha – Quests and Contestations in the Indian Theatre Today* by Shri. S. Raghunandana, Sambandha Theatre Company, Bangalore.

The course was inaugurated by Prof. P. Rama Rao, Former Secretary of DST and Currently Dr. Brahm Prakash Distinguished Professor of ISRO. His lecture was on “The Status of Higher Education in India - Some Personal Perspectives”. The Valedictory Address was delivered by Prof. P. Venkatrangan, Vice Chancellor of Amrita Vishwa Vidyapeetam, Coimbatore, Tamilnadu on “Approaches to Innovation and Transforming them into Societal Successes”

For the first time, we also organized an interactive forum between the research institutions in Bangalore, University teachers and undergraduate students of Bangalore city. Two parallel sessions were organized, one as the Natural Science Forum and the second as the Humanities and Social Science Forum. Each Forum consisted of about four to five speakers, who were leading researchers in the various disciplines, flagging off interesting areas of work in their respective disciplines. This was followed by an hour of discussion where the undergraduate students could directly interact with these researchers. The response to this forum was overwhelming and we had over 100 undergraduate students who participated in this forum. The Course was jointly coordinated by Dr. B. K. Anitha and Professor Anindya Sinha.



Participants of the tenth NIAS Course on “An Integrated Approach to Knowledge and Information” for University and College Teachers with faculty — 6 – 26 December 2006



**The Fourth DST-NIAS Programme on “Multi-disciplinary Perspectives on Science and Technology”** (29 October – 11 November 2006)

As in the previous years, this Course was sponsored by the Department of Science and Technology, Government of India and held at NIAS and at the Kabini River Jungle Lodge. The Programme was inaugurated by Dr. Anil Kakodkar, Chairman, Atomic Energy Commission and attended by 25 senior level participants from scientific institutions from across the country. Among the highlights of the Programme, as revealed by participant evaluations, were two lectures by Dr. Shekhar Singh on Ethics and

Administration and on Exercising the Right to Information; a lecture by Commodore Uday Bhaskar on the Indo-US Nuclear Agreement, and a lecture by Prof. P. Balam on Estimating Scientific Productivity. The participants rated highly their dialogue with Dr. Kasturirangan on Managing Science and Technology Institutions. They also appreciated their visit to Nrityagram and the Carnatic Vocal Recital by Shri T. V. Sankaranarayanan. Prof. B. V. Sreekantan gave the Valedictory Address on “Doing Science in India”. The purpose of the Programme, as on previous occasions, was to offer scientific, social, economic, and cultural perspectives on the science and technology enterprise in the country. The Course was jointly coordinated by Dr. B. K. Anitha and Prof. Dilip Ahuja.



Participants of the fourth DST-NIAS Programme on “Multi-disciplinary Perspectives on Science and Technology” with faculty — 29 October – 11 November 2006

**The First DST-NIAS Workshop on “Dimensions of Nanotechnology: Science, Technology and Society”** (26 June – 1 July 2006)

On an invitation from the Department of Science and Technology, Government of India, this Workshop was organized by NIAS. Eminent faculty including Prof. C. N. R. Rao, Prof. Roddam

Narasimha, Prof. B. V. Sreekantan and Prof. G. Padmanabhan, lectured to 40 participants drawn from different laboratories covering a diversity of disciplines. The valedictory address was delivered by Dr. T. Ramasami, Secretary, Department of Science and Technology. The workshop drew appreciation. Coordinator: Prof. S. Ranganathan.





Participants of the first DST-NIAS Workshop on "Dimensions of Nanotechnology: Science, Technology and Society" with faculty — 26 June – 1 July 2006

## NIAS OUTREACH ACTIVITIES

### MEETINGS AND SEMINARS

#### NIAS – CASUMM Workshop on “Water Challenges in Greater Bangalore” (27 March 2007)

An inter-school workshop on ‘Water Challenges in Greater Bangalore’ was organised in collaboration with CASUMM, a local urban study group that is working in the area of urban reforms. The objective of the workshop was to provide a forum for exchange of views and information among different stakeholders, including Bangalore’s citizens, NGOs, the government, academics, and the private sector, and to collectively brainstorm on new strategies for urban water supply planning and distribution, and on issues of governance and reforms in this sector. Nine presentations were made by knowledgeable professionals, academics, and activists, covering the history and ecology of Bangalore’s water supply, governance issues, the financial challenges, the debate on privatisation of water

supply, social issues and the question of equity, problems of distribution, and the future scenario in the context of Greater Bangalore. The workshop was attended by more than fifty people and gave rise to lively debate and discussion. A short report on the proceedings will be brought out by NIAS, which will provide a basis for further discussions and research.

#### Book Release Function – “Encyclopaedia of Classical Indian Sciences” (8 January 2007)

This Encyclopedia of Classical Indian Sciences edited by Dr. Helaine Selin and Prof. Roddam Narasimha was an attempt to provide an authentic account of natural science, technology and medicine as practiced by Indians and other South Asians. It also includes biographical articles on many ancient Indian scientists, and some articles (polemic in nature) on the history of Indian science and technology, such as the essay on the effects of colonialism. All articles are contributions of acknowledged authorities on their subject drawn from across the world.



Releasing the book by Prof. C. N. R. Rao by handing over a copy to Shri M. V. Rajasekharan — 8 January 2007



Dr. Helaine Selin is the Science Librarian and a Faculty Associate at Hampshire College, Amherst, Massachusetts, USA. She is the editor of several books on science in many cultures and teaches courses on Non-Western and Complementary Medicine. Prof. Roddam Narasimha, formerly Director of IAS has written several essays on the epistemology of classical Indian science, and chairs the Indian National Science Academy's Research Council for the History of Science. The book was released by Prof. C. N. R. Rao, Former Chairman, JNCASR and the presidential remarks was given by Shri M. V. Rajasekharan, Hon'ble Minister of State in the Ministry of Planning, Government of India, New Delhi.

#### **Discussion Meeting on "Setting up a National Agenda towards Biosecurity" (23 – 24 November 2006)**

This meet was jointly organized by IAS and M. S. Swaminathan Research Foundation, Chennai. Biosecurity has wider implications in biological warfare, bioterrorism and agroterrorism. India is one of the most vulnerable countries in the world that run the risk of facing such threats. India's preparedness and capability in the area of biosecurity is of serious concern, particularly after the detection of the H5N1 strain of avian influenza virus in many parts of Maharashtra and Madhya Pradesh. At present, our country has no effective system for detecting, reporting and effectively mitigating outbreaks of new diseases or pests in crop plants and animals. Recently, National Commission on Farmers in its report has also stressed the need for a systematic review of the present infrastructure and institutional framework in the area of agricultural biosecurity, including the World Trade Organization specifications of sanitary and phytosanitary measures. The programme was sponsored by the Ministry of Agriculture, Government of India.

The following are some of the key recommendations of this meeting in terms of regulatory system, technical requirements and capacity building that needs urgent attention.

India needs a biosecurity policy to safeguard the income and livelihood of farm sector, enhance national capacity to monitor, warn, educate and build infrastructure for containment of any eventual pandemic. There is a need for a convergence in the effort of all departments and

Ministries to develop a coherent biosecurity strategy. Regulatory measures, education, and social mobilization are the three pillars necessary to formulate a biosecurity strategy.

There is an urgent need to set up a National Agricultural Biosecurity Council dealing with crops, farm animals, living aquatic resources and agriculturally important micro-organisms, and dealing with the analysis, aversion and management of risks, as well as the operation of an early warning system. A National Agricultural Biosecurity Network will serve as the coordinating and facilitating scientific partnership between various institutions engaged in bio-monitoring and other biosecurity programmes.

In addition to some of the above suggestions, the discussions stressed on an integrated Biosecurity initiative to protect agriculture and livestock, safeguard human health, livelihood and the environment from such threats.

#### **Workshop on "Perspectives and Future Prospects in Higher Mathematics" (25 – 26 October 2006)**

The Conveners of the workshop were three eminent Indian mathematicians Prof. C. S. Seshadri, Prof. M. S. Narasimhan and Prof. M. S. Raghunathan who drew up the programme of the workshop defining its scope. About 60 mathematicians were invited from the research institutes, universities, IITs and Departments like Department of Atomic Energy, Department of Space, Defense Research and Development Organizations and also from the IT Sector. Panel discussions were held on the following topics:

1. Research and Development in Pure Mathematics
2. Applied Mathematics (Research, Training and Application)
3. Higher Education in Mathematics
4. Computers and Mathematics
5. Requirements of User Agencies

After one and a half days of intense deliberations, the drafting committee held detailed discussions and came out with specific recommendations to be made to the Government regarding the steps to be taken to foster the interests of the future of higher mathematics in the country.



The workshop report prepared by the organizer Prof. B. V. Sreekantan contains the recommendations emerging from the workshop. The report will be of use to those interested in the future of higher mathematics in India and to the Government and other agencies for allocating liberal funding to this most important scientific activity which undoubtedly has a great potential and great future in India

**A State-Level Seminar on “Karnataka’s Elementary Education System: Experiences, Achievement and Future Challenges” (6 – 7 October 2006)**

About 150 teachers and education administrators from the state attended the meet. The sessions showcased not only the work of the project but also that of other groups and that of the education department. The Minister for Primary Education attended the last plenary session and addressed several questions and requests that the participants posed. A report of the seminar along with a set of recommendations to improve elementary education in the state has been finalized and shared with all the participants.

**The Sixth CISAC – NIAS Dialogue (25 – 26 September 2006)**

The themes for the dialogue were disaster management, biological weapon and biological terrorism. An Indian critique of CISAC (Committee



Prof. Raymond Jeanloz, CISAC, Chair addressing the participants of Sixth CISAC – NIAS Dialogue  
25 – 26 September 2006

on International Security and Arms Control) work monitoring nuclear weapons and nuclear explosive materials also featured as a theme for the Sixth CISAC – NIAS dialogue.

**Workshop on “Cognitive Science in India” (22 September 2006)**

As we know, Cognitive Science is not well represented in Indian academia and research institutions. At the 108th meeting of the Science and Engineering Research Council (SERC), held in Hyderabad, a decision was taken to prepare an action plan for research in the Cognitive Sciences to be included in the 11th five year plan of the DST. Subsequently, in the 110th meeting, a decision was taken to organize a workshop at NIAS with the aim of furthering the cause of cognitive science in India. The meeting was attended by twenty two of the leading cognitive and neuroscientists of the country as well as the Secretary, DST. During this meeting, four thrust areas for the development of Cognitive Science in India were identified. These are:

1. Foundations of Cognitive Science from the point of view of the Indian traditions.
2. Language and Cognition.
3. Computational Intelligence
4. Cognitive Psychology and Cognitive Neuroscience

A document entitled "A Proposal for a Cognitive Science Research Initiative -11th Five Year Plan of DST" was prepared by Dr. Rajesh Kasturirangan and Dr. Kota Harinarayana which summarizes the recommendations of the people who came to the meeting. This document has been sent to the Secretary, Department of Science and Technology seeking government initiatives.



## MEMORIAL LECTURES

### **Prof. T. Scarlett Epstein**

Director, Practical Education and Gender Support, England

*Seventh M. N. Srinivas Memorial Lecture: 'Back to the Village'*

7 Nov. '06

### **Shri Gopalkrishna Gandhi**

His Excellency the Governor of West Bengal

*Second Mohandas Moses Memorial Lecture: Actors, Acting and Action*

18 Dec. '06



His Excellency, Shri Gopalkrishna Gandhi, the Governor of West Bengal being led to the Auditorium by His Excellency, Shri T. N. Chaturvedi, the Governor of Karnataka, Dr K. Kasturirangan, Director, NIAS etc.  
18 December 2006

### **Shri Shyam Saran**

Special Envoy of Prime Minister, Prime Minister's Office, New Delhi

*Second Annual Dr. Raja Ramanna Memorial Lecture: Evolution of India's Nuclear Policies in the Context of Changing Security Perceptions*

24 Jan. '07



Shri Shyam Saran delivering the Second Annual Dr. Raja Ramanna Memorial Lecture  
24 January 2007



His Excellency, Shri Gopalkrishna Gandhi delivering the Second Mohandas Moses Memorial Lecture  
18 December 2006

## PUBLIC LECTURES

**Prof. Arindam Chakrabarti**

Professor, University of Hawaii  
*On Phenomenology of Fun and Boredom*

3 Aug. '06

**Prof. Suren Erkman**

Head, Industrial Ecology Group, University of  
Lausanne, Switzerland  
*The Emerging Field of Industrial Ecology:  
Perspectives for Research and Action*

18 Aug. '06

**Prof. U. R. Ananthamurthy**

Writer  
*Being a Writer in Indian Languages*

30 Oct. '06

**Commodore Uday Bhaskar**

Institute of Defense and Strategic Analysis, New  
Delhi  
*Indo-US Nuclear Agreement*

31 Oct. '06

**Mr. Prem Chandavarkar**

Director, Chandavarkar and Thacker Associates  
Private Limited, Bangalore  
*The Indian Metropolis in this Age of Globalization*

2 Nov. '06

**Prof. Akito Takahashi**

Professor Emeritus, Nuclear Instrumentation  
Group, Osaka University, Japan  
*Cold Fusion: Condensed Matter Nuclear Science*

6 Nov. '06

**Mr. T. S. R. Subramanian**

Former Cabinet Secretary to the Government of  
India  
*Politics and Bureaucracy*

9 Nov. '06

**Prof. Dame Sandra Dawson**

Director, Judge Business School, Cambridge  
*Management and Leadership in the Global  
Network*

15 Dec. '06

**Shri V. Madhu**

Managing Director, Bangalore Metro Rail  
Corporation Limited  
*Bangalore Metro Rail Project*

16 Dec. '06

**Dr. Ruth Manorama**

President, National Alliance of Women and  
General Secretary Women's Voice  
*Human Rights and Dignity of Dalit Women*

22 Dec. '06



**Prof. D. Prahaladachar and Prof. Godavarish Mishra**

*Self-Luminosity and Reflexivity of Consciousness - A Debate between Dualist (VyAsatIrtha) and Non-dualist (Advaitasiddhi)*

1 and 2 Aug. '06

**Prof. Joanne Irene Gabrynowicz**

Director, NRSSLC, The University of Mississippi School of Law

*International Cooperation in Space Activities with Special Reference to Remote Sensing Programme and Emerging Legal Issues*

8 Aug. '06

**Dr. Indira Thouvenin**

Department of Mechanical Systems, University of Technology, France

*Belief in Virtual Worlds*

23 Aug. '06

**Prof. Radhakrishna**

Bangalore

*Quantum Mechanics and Spooky Action at a Distance*

15 Nov. '06

**Dr. W. Robert Hudgins Frederick**

Maryland, USA

*Predicting the Future: A Biological Imperative*

22 Nov. '06

**Dr. M. V. Ramana and Mr. Ashwin Kumar**

ISEC, Bangalore

*Economics and Safety of Fast Breeder Reactors*

29 Nov. '06

**Prof. Stan van Hooft**

Deakins University, Australia

*Cosmopolitanism as Virtue*

5 Dec. '06

**Prof. Michael Burawoy**

University of California Berkeley, USA

*Sociology and the Fate of Society*

01 Jan. '07

**Dr. Ronald Raymond Horgan**

Centre for Mathematical Sciences, Cambridge

*Particle Physics and Applications to Soft Condensed Matter*

10 Jan. '07

**Prof. Michael Goldman**

University of Minnesota, USA.

*Who's Afraid of the Wolfowitz Bank? Analyzing the New Trajectory of World Bank Developmentalism*

31 Jan. '07

**Prof. Jean Taylor**

Courant Institute, USA

*The Art and Science of Soap Bubbles*

7 Feb. '07

**Prof. David Sims**

Director, Centre for Leadership Learning and Change. Cass Business School, London.

*The Leader Behind the Leader: The Place of Low Visibility Leaders in Enabling Leadership to Happen*

14 Feb. '07

**Prof. Bhupendra Jassani**

King's College, London

*Using Satellite Imagery for Monitoring Nuclear Fuel Cycle Activities*

20 Feb. '07

**Prof. Michael Alan Huffman**

Director, Primate Research Institute, Kyoto  
University, Inuyama, Japan

*Biological and Ecological Foundations of Social  
Learning in Japanese Monkeys and Chimpanzees:  
A Fusion of Wild and Captive Studies*

27 Feb. '07

**Prof. Rachel Schurman**

University of Minnesota, USA

*Chain (Re) Actions: Comparing Activist  
Mobilization against Agricultural Biotechnology  
in the UK and US*

28 Feb. '07



## WEDNESDAY DISCUSSION MEETINGS

**Ms. R. Nandini and Mr. Robin Vijayan**

*Tree and Flying Squirrels: Conservation Priorities in the Developing World: A Report*

12 Apr. '06

**Mr. Rahul Mukhopadhyay**

*Agency in the Context of Decentralization of Education: Policy Prescriptions and Subjective Realities*

19 Apr. '06

**Mr. Arvind Kumar**

*Crisis in Nepal: Implications for India*

26 Apr. '06

**Mr. Arvind Kumar**

*Understanding Indo-US Nuclear Deal: Cost-Benefit Paradigm*

10 May '06

**Dr. M. G. Narasimhan**

*Thought Experiments in Natural Sciences: A Philosophical Overview*

24 May '06

**Dr. Carol Upadhyay**

*Work and Workers in the Indian Information Technology Industry: Cultural and Social Transformations*

31 May '06

**Dr. S. Balachandra Rao**

*Rohini Sakata Bheda – An Indian Astronomical Phenomenon*

7 Jul. '06

**Dr. H. N. Sharan**

Netpro Renewable Energy Private Limited  
*A New Energy Paradigm for Sustainable Development and a Model for Removing Energy Poverty and Real Poverty in Villages*

26 Jul. '06

**Prof. Prabhakar G. Vaidya**

*Chaotons: Chaos Simulating Quantum Mechanics*

20 Sept. '06

**Prof. Dilip R. Ahuja and Prof. D. P. Sen Gupta**

*Benefits of Moving Indian Standard Time Ahead*

27 Sept. '06

**Prof. Anindya Sinha and Mr. Debapriyo Chakraborty**

*The Tail of the Arunachal Macaque and Other Stories*

18 Oct. '06

**Prof. Timothy Poston**

*Trackless Changes: Joint Authoring and DNA*

17 Jan. '07

**Dr. M. G. Narasimhan**

*The History and Philosophy of Science:  
A Tale of Two Metascientific Disciplines*

7 Feb. '07

**Ms. Leena Pascal and Mr. Kishor G. Bhat**

*Anamorphic Art*

26 Feb. '07

**Prof. Timothy Poston**

*Trackless Change II: Joint Authoring and DNA*

7 Mar. '07



## ASSOCIATES' PROGRAMMES

### **Prof. D.N. Tripathi**

Chairman, Indian Council of Historical Research,  
New Delhi

*Philosophy of History*

21 Jun. '06

### **Prof. Jean-Marie Lafont**

Senior Research Scholar, Embassy of France,  
New Delhi

*La Fontaine Fables and Indian Miniatures*

27 Jun. '06

### **Attakkalari Centre for Movement of Arts**

Bangalore

*Cultural Dance Programme*

30 Sept. '06

### **Dr. T. V. Sankaranarayanan and Accompanists**

Chennai

*A Carnatic Vocal Recital*

10 Nov. '06

### **Shri Shyam Benegal**

Well Known Film Maker, Mumbai

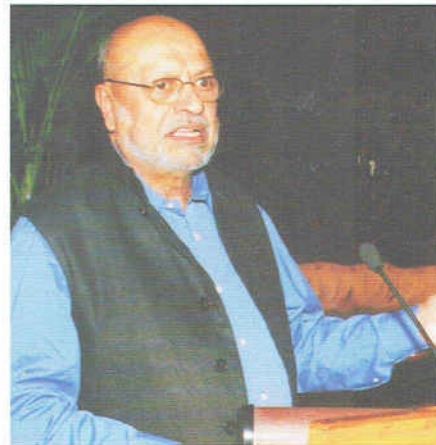
*Indian Cinema and Secularism*

23 Jan. '07

### **Dr. Rajeev Taranath**

*Sarod Recital*

22 Mar. '07



Shri Shyam Benegal speaking on "Indian Cinema and Secularism" — 23 January 2007



Dr. T. V. Sankaranarayanan and Accompanists performing at NIAS — 10 November 2006

## CULTURAL PROGRAMMES

### MUSIC

**Dr. John R. Marr accompanied by Hosahalli Venkataraman - Violin, TAS Mani and Group Percussion**

*Karnatic Music Recital*

17 Feb. '07

### PLAYS

**Acting: V. Swaminathan and Jaita Paul Direction: Sutirth Dey**

*A Musical Play*

3 May '06

**A Play by Ordinary People Theatre Group**

*The Fourth Boon of Nachiketa*

23 Dec. '06

**Habib Tanvir and His Troupe**

*Charandas Chor*

10 Feb. '07

### DANCE

**Mr. Shridhar and Ms. Anuradha Shridhar**

Directors - Khechara Academy of Bharatanatyam, Bangalore

*Kalidasa's Kumarasambhavam*

21 Jan. '07

**Dr. Parul Dhar Pandya**

National Museum Institute, New Delhi

*Bharatanatyam*

24 Feb. '07



## LITERARY AND HERITAGE FORUM

**Ms. Achala Moulik Moses, IAS (Retd)**

*Speaking from her book on "Great authors of the last millennium"*

26 Apr. '06

**Ms. Lakshmi Lal**

*Prakruti : Explorations from Indian Philosophy and English Literature*

31 May '06

**Dr. R. Balasubramaniam**

*Saga of Ferocious Gunpowder and Mighty Cannons of India*

2 Jun. '06

**Mr. C. V. Karthik Narayan**

*Kalki as Historical Novelist and Social Reformer*

26 Jul. '06

**Mr. Sailen Routray**

*Kabita: Four Issues and a Few Poems*

10 Aug. '06

**Mr. Sashi Sivramkrishna**

*Screening of a documentary on The Curse of Talakad*

31 Aug. '06

## SELECTED VISITORS TO NIAS

**Dr. Ram-Prasad Chakravarthy**, Department of Religious Studies, University of Lancaster, UK. On sabbatical, 2006–2007.

**A Team from DRDO Headquarters** visited NIAS during 16 May 2006 and 8 December 2006 and reviewed the study on "An Assessment of China's Ballistic and Cruise Missile Capability".

**Prof. Rajaram Nagappa** from Anna University visited NIAS on 30 May 2006 and gave a briefing on Chinese Cruise Missiles.

**Dr. Brahma Chellaney**, Research Professor, Centre for Policy Research, New Delhi visited NIAS on 3 June 2006 and interacted informally on the Indo-US Deal on Civil Nuclear Cooperation. Two interns of ISSS Programme Ms. Yashothara and Ms. Ancy Joseph working on China and Central Asia respectively interviewed Dr. Chellaney during his visit.

**Dr. Sesh Velmar**, Programme Director, Foundation for the Future, USA and his team visited NIAS on 17 June 2006 for a meeting with Director and NIAS Faculty.

**Dr. Sunil Das Gupta**, Georgetown University visited ISSS Programme on 7 July 2006 and discussed about his planned co-authored book with Dr. Steve Cohen on "India's Military Modernisation Programme".

**Dr Indira Thouvenin** from the French Université de Technologie de Compiègne works on the understanding to be gained (by users and researchers) from virtual reality, creating virtual training systems and 'serious games'. She visited NIAS from 17 July to 30 August 2006 giving an Institute-wide talk and discussing the practical nature of belief and a possible multi-disciplinary water-use training system.

**Prof. Arindam Chakrabarti**, Department of Philosophy, University of Hawaii, July-August 2006. Prof. Chakrabarti gave a series of three highly acclaimed lectures. "On Phenomenology of Fun and Boredom" on 3 August 2006, "Can There Be Perception without Concepts?" on 19 July 2006 and "What is it to Form Possess and Use Concepts?" on 21 July 2006.

**Dr. Nirmala Deshpande**, Hon'ble Member of Parliament visited NIAS on 14 September 2006 and met the Director and NIAS Faculty.

**Dr. Henry H. Willis**, a Policy Researcher at the RAND Corporation's Pittsburgh office visited NIAS on 16 November 2006. The focus of the discussion meeting with him was to exchange views on maritime terrorism: Risk and Liability.

**Prof. Dame Sandra Dawson**, Director, Judge Business School, Cambridge visited NIAS on 15 December 2006 and gave a talk on "Management and Leadership in the Global Network".

**Mr. Frederick J. Kaplan**, Consul for Public Affairs, U.S. Consulate General for South India, Chennai visited NIAS on 6 January 2007. There was an informal interaction with Mr. Kaplan.

**Prof. T. V. Paul**, James McGill Professor of International Relations, Department of Political Science, McGill University, Montreal, Canada visited NIAS on 19 January 2007. He delivered a talk on "The Tradition of Non-use of Nuclear Weapons".

**German Science Delegation** visited NIAS and met Director and NIAS Faculty on 5 February 2007.



**Prof. Bhupendra Jasani** from King's College, London visited NIAS during 20 – 22 February 2007 and had a series of interactions. Prof. Jasani also delivered a talk on the theme "Using satellite imagery for monitoring nuclear fuel cycle activities" at NIAS on 20 February 2007.

**Dr. R. Krishnan**, Director, ADRIN along with his colleague Ms. Novaline Jacob visited NIAS on 2 March 2007 and had informal interaction with the group working at ISSS programme.

**Mr. Jeremy Seabrook**, the well-known British writer who has written several books on India and is a regular columnist for the GUARDIAN, read from his latest essay in the GRANTA special on LOVED ONES on 21 March 2007. This was followed by an open discussion on his work and reporting on India since the past two decades.

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Dr. Nirmala Deshpande

## HONOURS AND AWARDS RECEIVED BY NIAS FACULTY

### **Dr. K. Kasturirangan, Director**

Appointed as "Academician" of the Pontifical Academy of Sciences, Vatican City (2006).

Awarded "Lakshmipat Singhaniania – IIM Lucknow National Leadership Award 2006" by Indian Institute of Management, Lucknow on 23 December 2006.

Conferred Honoris Causa degree by the Alagappa University on the occasion of the 19th Convocation at Karaikudi on 8 December 2006.

Conferred Honoris Causa Degree by the Mysore University on the occasion of the 87th Convocation at Mysore on 9 January 2007.

Selected as one among four across the world, to speak on the occasion of the 50th Anniversary of the launch of Sputnik, organized by the International Astronautical Federation, UNESCO and UN-COPUOS. This talk was delivered on 21 March 2007 at Paris as part of the celebrations of the event on the theme "Potential of Space Technology to serve Humankind .....coming 50 years".

### **Prof. S. Ranganathan**

Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, 2006.

Professor Jai Krishna Memorial Award, Indian National Academy of Engineering, 2006.

### **Prof. N. Shantha Mohan**

Member of the Editorial Committee, Karnataka Development Report: Trends and Future

Directions published by Planning Commission, Government of India, New Delhi and Planning Commission, Government of Karnataka, 2007.

### **Prof. P. K. Shetty**

Appointed as a member of Steering Committee of a project on Biodiversity of MSSRF, Chennai, supported by the Swiss Agency for Development and Cooperation.

### **Prof. Anindya Sinha**

Appointed Visiting Professor at the Centre for Theoretical Studies, Indian Association for Cultivation of Science, Kolkata, from August 2005 to August 2006.

Nominated as a Member, Organising Committee for Theory Section, International Biology Olympiad 2008, to be held in Mumbai in June 2008.

Nominated as a Member, Organising Committee for Practical Section, International Biology Olympiad 2008, to be held in Mumbai in June 2008.

### **Dr. B. K. Anitha**

Member, Third World Organisation of Women Scientists (TWOWS), Trieste-Italy.

Member, Third World Organisation of Women Scientists (India Chapter), Hyderabad.

Executive Committee Member, Mahila Samakhyas, Karnataka - A Government of India Initiative working in nine districts in Karnataka.



**Dr. Sharada Srinivasan**

Malti B. Nagar Ethnoarchaeology Award from Indian Society for Pre-historic and Quaternary studies, based on the paper on 'Megalithic High-tin bronzes: ethnoarchaeological insights into postulated artistic and musical significance'.

Materials Research Society of India Medal 2006 - Medals Lecture presented at annual MRSI meeting at Lucknow, entitled 'Phases and Faces of Bronze: Archaeometallurgical insights'.

**Dr. Carol Upadhy**

Member of NCERT Sociology Textbook Committee.

Member of Editorial Advisory Board, Contributions to Indian Sociology.

**Mr. Arvind Kumar**

Nominated Member of Training Committee for Scientists working in the field of R&D in National Security of National Technical Research Organisation, PMO.

## PUBLICATIONS BY NIAS FACULTY

### BOOKS

Narasimha, R, **Arvind Kumar**, Cohen, S., Guenther, R. eds (2007). Science and technology to counter terrorism: The proceedings of an Indo-US workshop (Washington, D.C.: The National Academies Press).

**Bhat, K G., Ramachandra, K and Vaidya, P G.** An introduction to trigonometry (a New Outlook) (in press).

**Ramachandra, K** (2007). Theory of numbers: A textbook. Narosa Publications.

**Rao, B.** (2006). Bharatiya Khagola Shastra (Kannada). Bangalore: Bhavan's Gandhi Centre of Science and Human Values.

### PAPERS

**Ahuja, D, Sen Gupta, D P and Agrawal, V K** (2007). Energy savings and other benefits from advancing Indian standard time by half an hour. *Current Science* (in press).

**Anitha B K** (2007). (Contributor). Development in social sector **In:** Karnataka development report: trends and future directions. Nodal agency ISEC, Bangalore and sponsored by Planning Commission, Government of India.

**Anitha B K** (2007). (Contributor) Human resources of Karnataka in drivers for development in Karnataka development report: Trends and future directions. Nodal agency ISEC, Bangalore and sponsored by Planning Commission, Government of India.

**Anitha B K** (2006). Women's studies in education **In:** Sixth survey of educational research 1993-2000, Vol 1. New Delhi: NCERT. pp 212-226.

**Anitha B K** (2006). India's Competitiveness and preparedness in science and technology for the coming decades. *Current Science* 90(3): 281-283.

**Arvind Kumar** (2006). Nuclear weapons and missile defences: The maritime dimension in the Asia Pacific **In:** The evolving maritime balance of power in the Asia-Pacific: Maritime doctrines and nuclear weapons at sea (Lawrence W Prabhakar, Joshua H Ho, Sam Bateman, eds.). Singapore: World Scientific and Institute for Defence & Strategic Studies. pp. 187 – 198.

**Arvind Kumar** (2007). Theories of deterrence and nuclear deterrence in the subcontinent in The India-Pakistan nuclear relationship: Theories of deterrence and international relations, (E. Sridharan, ed.), New Delhi: Routledge, 2007 and Abingdon, UK: Routledge, 2007, pp. 239 – 265.

**Bhat, K G and Ramachandra, K** (2006). A remark on a theorem of A.E.Ingham, *Hardy-Ramanujan Journal*. 29: 37-43.

**Chandrashekar, S, Arvind Kumar and Nagappa, R** (2006). Pakistan's ballistic missile programme: An assessment, **In:** India's National Security: Annual Review 2006 (Satish Kumar, ed.), New Delhi: Knowledge World. pp. 356 – 378.

**Chatterjee M** (2006). On the move: What causes animals to disperse? *Resonance* 11: 55-71.

**Gupta, S** (2006). Taiwan's Elections 2004: Impact on domestic politics and cross strait relations. *Strategic Analysis* 30(1): 205-223.



- Kasturirangan, R** (2007). Consciousness across cultures. *Philosophy East and West*. (in press).
- Menon, S** (2006). Hinduism and science **In:** The Oxford handbook of religion and science (Philip Clayton, ed.) pp 7-23.
- Menon, S** (2006). Advaita Vedanta **In:** The Internet encyclopedia of philosophy (peer-reviewed). (James Fieser & Bradley Dowden, Gen eds. Shyam Ranganathan, Area ed.) <http://www.iep.utm.edu/a/adv-veda.htm> for full listing see <http://www.iep.utm.edu/a/>
- Menon, S** (2006). Basics of consciousness **In:** Consciousness, Society and Values, (A V Afonso, ed.). Shimla: Indian Institute of Advanced Study. pp.27-37.
- Mohan, S** (2007).(Contributor). Chapters on Political, cultural and social history of the state and social sector development, Karnataka development report: Trends and future directions. Nodal agency ISEC, Bangalore and sponsored by Planning Commission, Government of India.
- Murugan, M, Mukund, V., Panigrathy, B K, Shetty, P K and Josephraj Kumar, A** (2006). Soil and surface air warming in Cardamom ecosystem in Western Ghats, Kerala, India. *J. Earth System Science* (in press).
- Murugan, M, Josephraj Kumar, A, Sainamolekurian, P, Ambikadevi, D, Vasanthkumar, K and Shetty, P K** (2006). Critiques on the critical issues of cardamom cultivation in Cardamom hill reserves, Kerala, India. *Indian Journal of Areca nut, Spices & Medicinal Plants* (in press).
- Nagappa, R and Baskar, V** (Jan 2006). High temperature characterization of composite materials, *Journal of Aerospace Quality and Reliability*, 2(1).
- Nagaraj, Nithin, Vaidya, Vivek and Vaidya, Prabhakar G.** Re-visiting the one-time pad, *International Journal of Security* (in press).
- Shastry, Mahesh C, **Nagaraj, Nithin, and Vaidya, Prabhakar G.** (July 2006). The B-exponential Map: A generalization of the logistic map, and its applications in generating pseudo-random numbers, [arXiv.org:cs/0607069](http://arXiv.org/cs/0607069).
- Nagaraj, Nithin, Vaidya, Prabhakar G and Bhat, Kishor G** , (August 2006). Joint entropy coding and encryption using robust chaos [arXiv.org:nlin.CD/0608051](http://arXiv.org:nlin.CD/0608051).
- Radhakrishna S, Goswami A and Sinha A** (2006). Population survey and conservation status of the Bengal slow loris *Nycticebus bengalensis* in Assam and Meghalaya, northeastern India. *International Journal of Primatology* 27: 971-982.
- Radhakrishna S** (2006). From *Purgatorius ceratops* to *Homo sapiens*: An evolutionary continuum, Part I: Primate evolutionary history. *Resonance* 11: 51-60.
- Radhakrishna S** (2006). From *Purgatorius ceratops* to *Homo sapiens*: An evolutionary continuum, Part II: Human evolution. *Resonance* 11: 69-80.
- Ramachandra, K, Sankaranarayanan, A & Srinivas, K** (2005). Notes on prime number theorem-II, *J.Indian Mathematical Society* 72(1-4): 13-18.
- Ramachandra, K and Bhat, K G** (2006). A remark on a theory of A. E. Ingham. *Hardy-Ramanujan Journal* 29.
- Ranganathan, S** Guest Editor (June 2006). Cyril Stanley Smith: Renaissance Metallurgist of the Twentieth Century (editorial). *Resonance*, Special Issue 11(6): 1-2.
- E. A. Lord and **Ranganathan, S** (2006) Truchet tilings and their generalizations *Resonance* 11(6): 42.
- Ranganathan, S** and Baldev Raj (December 2006). Nonferrous materials heritage of India *Trans Indian Institute of Metals*.
- Rao, B** (2006). "Grahaghavam" of Ganesha Daivajna, English exposition with mathematical notes and examples, jointly with S.K. Uma, *Ind. Journal of His. of Science*. 41(1-4): S1-S415.
- Rao, B** (2007). Bhaskara-I **In:** Encyclopaedia of Classical Indian Sciences. (Helaine Selin and Roddam Narasimha eds.), Hyderabad: Universities Press, pp.59-66.



- Rao, B** (2006).. Some special features in the procedures of Ganesha Daivajna's 'Grahaghavam *Indian Knowledge Systems, Vol I* Ind. Inst. of Adv. Study (IIAS), Shimla.
- Robin V V, Sukumar R and Thiollay J-M** (2006). Status and distribution of the White-bellied Shortwing *Brachypteryx major* in Karnataka and Goa, India. *Bird Conservation International* **16**: 345-351.
- Sarangapani, Padma M.** Classics with commentary: The Tyler Paradox. *Contemporary Education Dialogue* **4(1)**: 119-141.
- Sarangapani, Padma M.** Open classroom and its critics **In**: Universalisation of elementary education in India: concerns, conflicts and cohesion (Preet Rustagi, ed.) (in press).
- Sarukkai, Sundar.** Subjective foundations of science: Language, consciousness and reason, **In**: Foundations of Science (B. V. Sreekantan, ed.) (in press)
- Sarukkai, Sundar.** Revisiting the unreasonable effectiveness of mathematics, Re-printed in foundations of science, (B. V. Sreekantan ed.) (in press).
- Sarukkai, Sundar.** Logic and Science: Some insights from Indian logic **In**: History of science and philosophy of science (P. K. Sengupta Ed.) (in press).
- Sarukkai, Sundar.** (January 2007). The writing of the social sciences, *SocialSciences*, [http://esocialsciences.com/articles/displayArticle.s.asp?Article\\_ID=810](http://esocialsciences.com/articles/displayArticle.s.asp?Article_ID=810).
- Sarukkai, Sundar.** Mathematics, nature and cryptography: Insights from philosophy of information, *Current Science* **88**, June 25, 2007.
- Sarukkai, Sundar.** Science and the aesthetics of language, **In**: *Science, Literature and Aesthetics* (Amiya Dev ed.) (in press).
- Sarukkai, Sundar.** Literary reality and scientific fiction, *JJCL* **44**, 2007.
- Settar, S** (2006). The Dravidian Relations -paper 4. "From Kaveri to.The historical background of the southern limits of the Kannada Janapada as conceived by the poet of Kavirajamarga" (Kaveriyindama.Margakaranu Kannadadol bhavisida janapadada daksinadancina caritrika hillele). *Sankalana* **5(2)**: 62-75.
- Settar, S** (2006). The Dravidian Relations- paper 5. "Kannada Country of the Sangam Period" (Sangam kalada Kannada-nadu). *Sankalana* **5(3)**: 56-68.
- Settar, S** (2006). The Dravidian Relations-Paper 6. "The Brahmi script that welded the south India of the pre-Christian times" (Kristapurvada daksinabharatavannu :beseda brahmi lipi). *Sankalana* **5(5)**: 51-69.
- Settar, S** (2007). The Dravidian Relations- Paper 7 "The Kannada Land and Language at the dawn of the historical period" ( Musuku-munjavina Kannada nadu mattu nudi). *Sankalana* **6(1)**: 46-58.
- Settar, S** (2007). The Dravidian Relations- Paper 8 " Contributions made by Kodagu, Kankana and Tuluva to the formation of Kannada Nadu - 3rd cent.B.C. to 5th cent.A.D." ( Kannada nadu nirmanakke Kodagu, Konkana and Tuluva koduge -kri.Pu.3- kri.sa.5 ra kala). *Sankalana* **6(2)**: 61-74.
- Shetty P K, Hiremath M B, Sabita M, and Murugan M** (2007). Relating the changes in cropping pattern and farming methods to the incidence of insect pests, diseases in India from the farmer's field study. *J. Asian Agri History*. March 2007 (in press).
- Madhusudan M D, Shankar K, Kumar A, Mishra C, **Sinha A**, Arthur R, Datta A, Rangarajan M, Chellam R, Shahabuddin G, Sankaran R, Singh M, Ramakrishnan U and Rajan P D. (2006). Science in the wilderness: The predicament of scientific research in India's wildlife reserves. *Current Science* **91**: 1015-1019.
- Mallapur A, Waran N, Seaman S and **Sinha A** (2006). Preliminary observations on the differences in reproductive behaviour between breeding and non-breeding captive lion-tailed macaques (*Macaca silenus*) housed in Indian zoos. *Applied Animal Behaviour Science* **97**: 343-348.



- Sinha A, Kumar R S, Gama N, Madhusudan M D and Mishra C.** (2006). Distribution and conservation status of the Arunachal macaque, *Macaca munzala*, in western Arunachal Pradesh, northeastern India. *Primate Conservation* **21**: 145-148.
- Sreekantan, B V** (2006). Sixty years of the Tata Institute of Fundamental Research 1945-2005: The role of young men in the creation and development of this Institute. *Current Science* **90(7)**: 1012-1025.
- Srinivasan, S and Ranganathan, S** (2006). A Tale of Wootz Steel. *Resonance- A Journal of Science Education* **11(6)**: 67-78.
- Srinivasan, S and Ranganathan, S** (2006). Nonferrous materials heritage of mankind. *Transactions of Indian Institute of Metals* **59(6)**: 829-846.
- Srinivasan, S** (2006). Art and Science of Chola Bronzes. *Orientations* (coinciding with Royal Academy of Arts exhibition of Chola: Sacred bronzes from southern India) **37(8)**: 46-55.
- Srinivasan, S** (2006). Megalithic high-tin bronzes: ethnoarchaeological and archaeometallurgical insights on manufacture and possible artistic and musical significance. *Man and Environment* **XXXI(2)**: 1-8.
- Srinivasan, S.** Mirrors: Metal mirrors from India. **In:** Encyclopedia of Non-Western Science, (Selin H ed.) Springer Verlag (in press).
- Srinivasan, S.** Aesthetics and the Foundations of Science: Insights from Indian metallurgical traditions. **In:** B.V. Sreekantan, (ed.) *Foundations of Science*. PHISPC series, New Delhi: Munshiram Manoharlal (in press).
- Srinivasan, S.** Social History of Indian metalcrafts: Some archaeometallurgical and ethnoarchaeological insights. **In:** B.D. Chattopadhyay (ed.) Early Social History of India. PHISPC series, Munshiram Manoharlal (in press).
- Srinivasan, S.** From temple to mantelpiece: Changing paradigms in the art and craft of south Indian bronzes, South Asian Arts (Crispin Branfoot, ed.). New Delhi: Munshiram Manoharlal.
- Upadhyaya, C** (2006). Gender issues in the Indian software industry **In:** Gender in the Information Society: Emerging Issues (Anita Gurusurthy, et.al. eds.). Bangkok: UNDP-APDIP, 2006.
- Vaidya, Prabhakar G and Nagaraj, Nithin.** Foundational issues of Chaos and randomness: God or devil, do we have a choice?, **In:** Foundations of Sciences (B V Sreekantan ed.). New Delhi: Project of History of Indian Science, Philosophy and Culture (PHISPC) (in press).
- Vasavi, A R** (2006). An emergent new rurality?: some reflections from schools **In:** Contested transformations: Changing economies and identities in contemporary India (Mary E John and Surinder S Jodhka eds.). New Delhi: Tulika Books, pp 95-110.
- Vasavi, A R** (2006). Caste Indignities and Subjected Personhoods *Economic and Political Weekly* 3766-3771.
- Vasavi, A R** (2006). Caste Indignities and Subjected Personhoods (Translated into Malayam as Jati Nindhayum, Vidaya Vyaktitvam), Centre for Excellence, Occasional Paper Series-I.
- Vasavi, A R.** Scheduled Communities and Higher Education (edited volume). New Delh: Centre for Dalit Studies (in press).
- Vasavi, A R** (2006). Re-Imagining Education *Seminar* **565**: 14-17.
- Vasavi, A R** (2006). Naye Samaj Ke Liye School Vyavastha: Bharat Mein Shiksha Vanchit ke Samajik aur rajnithi aadhar. (Hindi translation of Schooling for a new society?: The social and political bases of education deprivation in India by A R Vasavi, 2003. *IDS Bulletin* 34(1): 72-80). *Dishabodh*, July-August p.1318.



## WORKING PAPERS

**Upadhy, C** (2006). Indian IT Professionals in Europe: Transnationalism, Work and Identity. IDPAD Working Paper. The Hague, 2006.

## CONFERENCE PAPERS

**Kasturirangan, R** (2007). Pointing with Concepts. *Proceedings of the Workshop on Interaction and Cognition UTC Compiègne* (in press).

**Kasturirangan, R** (2006). Thinking is Believing. *Proceedings of the Conference on Brain and Mind* (in press).

**Menon, S** (2006). Cognition, consciousness and experience: Towards a new epistemology. *History and Philosophy of Science PHISPC-CONSSAVY/ Volume 2, Part VI*. New Delhi: Indian Council of Philosophical Research.

**Menon, S** (2006). Is experience the puzzle for consciousness? *Proceedings of the National Conference on Modern Science, Mysticism and East-West Dialogue*, Pune: Jnana-deepa Vidyapeeth.

**Menon, S** (2006). The puzzle of experiential primacy and consciousness. *Proceedings of the National Seminar on Consciousness, Experience and Ways of Knowing*, NIAS, Sponsored by the Templeton Foundation programme on Global Perspectives on Science and Spirituality, pp 218-228.

**Srinivasan, S** (2006). Art and Archaeometallurgy of Nataraja: Exploring visual metaphors for consciousness. *Consciousness, Experience and Ways of Knowing: Perspectives from Science, Philosophy and the Arts* (S. Menon (ed.)). Bangalore: National Institute of Advanced Studies, pp. 242-254.

**Srinivasan, S**. Dialogue between science and religion: A case study of the Hindu Nataraja bronze. *Proceedings of the 22nd International History of Science Congress* (B.V. Subbarayappa and J. Staune, Eds.). Chinese Academy of Sciences (in press).

**Srinivasan, S**. Authenticating art objects and metal artifacts: global perspectives. *Proceedings of the conference on Authenticity of Art*. Chennai: Government Museum (in press).

## CONFERENCE ABSTRACTS

**Ahuja, D** and D. P. Sen Gupta (December 2006). A proposal to shift to using yearlong day light saving time in India. *Third Future Environmental Trends Conference on Energy, Environment and Development: Analysing Opportunities for Reducing Poverty*. TERI, Bangalore, 14-16 December 2006.

**Anitha, B K** (September 2006). Women integral to Indian science and technology. *The National Seminar on Women in Science and Technology for Socio-Economic Development*. Tarnaka Hyderabad.

**Anitha B K** (March 2007). Engendering science and technology: women scientists key to make Indian science competitive. *The All India Conference of Indian Federation of University Women's Association on Women in the Third Millennium: Winds of Change*. Colaba, Mumbai.

**Mukhopadhyay K, Chatterjee M, Datta-Roy A and Sinha A** (2006). Food, sex and society: ecological variability in social organisation and individual behavioural strategies among wild bonnet macaques in the Bandipur National Park – Mudumalai Wildlife Sanctuary, southern India. *International Journal of Primatology* 27 (Suppl 1): Abstract No 301. *Abstracts of the Twenty-first Congress of the International Primatological Society*, Entebbe, Uganda, June 2006.

**Radhakrishna S** (2006). Birth rate patterns in two wild populations of the slender loris. *Primate Report* 73-1: 25. *Abstracts of the Tenth Meeting of the Gesellschaft für Primatologie*, Leipzig, Germany, December 2006.

**Robin V V, Thiollay J-M, Sinha A and Sancheti A** (2006). Population isolation in a naturally fragmented landscape: the White-bellied Shortwing in the montane evergreen forests of the Western Ghats, southern India. *Journal of Ornithology* 147: 100. *Abstracts of the Twenty-fourth International Ornithological Congress*, Hamburg, Germany, August 2006.



**Sharma N and Sinha A (2006).** Primates in isolation: Managing fragments as a key to their conservation. *Abstracts of the National Seminar on Zoology for Human Welfare*, Zoological Society of Assam, Gauhati University, Guwahati, February 2006.

**Sinha A (2006).** Of memes and macaques: Phenotypic flexibility, behavioural traditions and cultural evolution among wild bonnet macaques in the Bandipur National Park – Mudumalai Wildlife Sanctuary, southern India. *International Journal of Primatology* 27 (Suppl 1): Abstract No 578. *Abstracts of the Twenty-first Congress of the International Primatological Society*, Entebbe, Uganda, June 2006.

**Sinha A, Kumar R S, Datta A, Madhusudan M D and Mishra C (2006).** In search of the munzala: Behavioural ecology and conservation of a newly discovered primate, the Arunachal macaque *Macaca munzala*, in western Arunachal Pradesh, northeastern India. *International Journal of Primatology* 27 (Suppl 1): Abstract No 429. *Abstracts of the Twenty-first Congress of the International Primatological Society*, Entebbe, Uganda, June 2006.

#### BOOK REVIEWS

**Chatterjee M and Sinha A (2007).** A review of the book *Walker's Marsupials of the World* by Ronald M Nowak (The Johns Hopkins University Press, Baltimore, USA, 2005). *Current Science* 92: 691.

**Kasturirangan, R (2006).** Consciousness in the Brain, Book Review of *Inner Presence* by Antti Revonsuo. *Current Science* 91(12).

**Robin V V and Nandini R (2007).** A review of the book *Birds of Two Worlds: The Ecology and Evolution of Migration* by Russell Greenberg and Peter P. Marra (eds) (The John Hopkins University Press, Baltimore, USA, 2005). *Current Science* 92: 692-693.

**Sarukkai, S (29 August 2006).** Engaging with Subjectivity, *Hindu*.

**Sarukkai, S (2006).** Review of *The Enworlded subjectivity: Its Three worlds and beyond* ed. By R Balasubramanian (New Delhi: PHISPC, 2006), *Sandhan*, VI: 195-203.

**Settar, S (2006).** Review of the book *Kallachina Kannada hothagegala vivarana suchi* ed. By G M Umapathy Shastry. (Ujire: Sri Manjunatheshwara Pusthaka Prakashana, 2004). *Sankalana* 5(4): 64-65.

**Upadhya, C (2006).** Dipankar Gupta, *Learning to Forget: The Anti-Memoirs of Modernity*. *The Book Review* June.

**Upadhya, C (2006).** Prophets Facing Backward; Postmodernism, Science, and Hindu Nationalism Meera Nanda. *Indian Economic and Social History Review* 43(4) 2006.

#### TECHNICAL REPORTS

**Radhakrishna S and Sinha A (2006).** Distribution and conservation of primates in Sri Lanka: A pilot study. Technical Report 2-06, Ecology, Behaviour and Conservation Group, National Institute of Advanced Studies, Bangalore, India.

**Sinha A, Kumar R S and Mishra C (2006).** Ecology and conservation of the Arunachal macaque *Macaca munzala*. NCF Technical Report No. 15. Nature Conservation Foundation, National Institute of Advanced Studies, and International Snow Leopard Trust, Mysore, India.

**Kumar R S, Mishra C and Sinha A (2007).** A preliminary survey for macaques in central Arunachal Pradesh, northeastern India. Interim Report. Nature Conservation Foundation and National Institute of Advanced Studies, Mysore, India.

#### REPORTS

**Anitha B K (2006).** (co-author). Ensuring Children Learn - A Review Report on the Project of Naandi Foundation at Sheopur, Mandhya Pradesh, submitted to Ratan Tata Trust Mumbai, June 2006.

**Upadhya, C and Vasavi, A R (August 2006).** Work culture and sociality in the Indian IT industry: A sociological study. Final report submitted to Indo-Dutch programme for alternatives in development.

## NIAS PUBLICATIONS

**Anitha, B K** (2006). Report of the national conference on India's competitiveness and preparedness in science and technology during the coming decades: Issues, challenges and strategies. Bangalore: NIAS and JNCASR Publications.

Workshop brief on changing contours of Indo-US Relations, Bangalore: ISSSP, NIAS, April 2006.

Vijayalakshmi, K P., **Arvind Kumar, Gupta, S.** and **Chandrashekar, S** (2006). Changing contours of Indo-US Relations, Workshop Report. Bangalore: ISSSP, NIAS.

**Gupta, S, Arvind Kumar** and **Chandrashekar, S** (September 2006). Assessing the Indo-US Deal on civil nuclear cooperation: Forging a new partnership. Bangalore: ISSSP, NIAS, NIAS Report, R2-06.

**Gupta, S, Arvind Kumar** and **Chandrashekar, S** (February 2007). Assessing the Indo-US Deal on civil nuclear cooperation. Bangalore: ISSSP, NIAS, NIAS Report, R1-07.

## PATENTS

United States Patent 7,080,059, Search and presentation engine, to **T Poston**, R Raghavan, M S Fenton; D Poston, July 18, 2006.



## SELECTED LECTURES DELIVERED BY NIAS FACULTY

### **Dr. K. Kasturirangan, Director**

17 April 2006: Convocation Address at the M.P. Birla Institute of Management, Associate Bharatiya Vidya Bhavan, Bangalore.

20 July 2006: Dr. K. R. Narayanan Oration on "India's Space Enterprise – A Case Study in Strategic Thinking and Planning", at Canberra, Australia.

6 August 2006: "Environment from the Vantage Point of Space" at the Founder's Day celebration at Centre for Liquid Crystal Research, Bangalore.

4 November 2006: Convocation Address at the Institute of Finance and International Management, Bangalore.

16 November 2006: Jawaharlal Memorial Lecture on "Chandrayaan-1 – India's First Step in Planetary Exploration" at Anand Bhawan, Allahabad.

16 December 2006: Delivered 11th Convocation Address at NIMHANS, Bangalore.

22 January 2007: Plenary Address on "Geographic Information as Public Utility" at the First Map World Forum, Hyderabad.

16 February 2007: 22nd Annual Convocation Address at Chhatrapati Shahu Ji Maharaj University, Kanpur.

31 March 2007: Graduation Day Address at the R.M.D. Engineering College, Kavaraipettai, Tamil Nadu.

### **SCHOOL OF HUMANITIES**

#### **Prof. Sundar Sarukkai**

March – April 2006: Six sessions on "Philosophy of Science" for Indian Institute of Science students held at Management Studies, Indian Institute of Science, Bangalore.

April 2006: Two-day Workshop on "Philosophy" (in Kannada) at Ninasam, Heggodu.

5–23 June 2006: Seven lectures as part of the Summer School Workshop on "Philosophy for the Social Sciences and Humanities", NIAS.

2–3 October 2006: "Philosophy and Cosmopolitanism" and "Science and Cosmopolitanism", Ninasam Shibira, Heggodu.

October 2006: Four lectures as part of the Workshop on "Buddhist Philosophy and Modern Science", Nalanda.

February – March 2007: Seven sessions, "Introduction to Philosophy", Christ College, Bangalore.

#### **Prof. B. V. Sreekantan**

13 May 2006: "New Frontiers of Scientific Research", Annual College Day Celebration, M. S. Ramaiah College, Bangalore.

13 June 2006: "Science and Consciousness", three-week NIAS Summer Course on Philosophy for the Social Sciences and Humanities.

30 June 2006: "It is All a Matter of Scale", First DST-NIAS Workshop on Dimensions of Nanotechnology: Science, Technology and Society.

26 September 2006: "Life and Works of Dr. Raja Ramanna", Raja Ramanna Memorial Lecture organized by Bhavan's Gandhi Centre for Science and Human Values, Institute of World Culture, Bangalore.

6 October 2006: "Current Trends in Modern Science", S. J. B. College, Kengeri, Bangalore.

11 November 2006: "Doing Science in India", Fourth DST-NIAS Programme on Multidisciplinary Perspectives on Science and Technology.

13 December 2006: "Current Trends in Modern Astronomy", Tenth NIAS Course on An Integrated Approach to Knowledge and Information for University and College Teachers.

20 December 2006: "Cosmic Ray Research in India – Work carried out at the Cosmic Ray Laboratory, Ooty", National Seminar on High Energy Physics, Cosmic Ray Laboratory, Ooty.

2 January 2007: "Ancient Insights in the Light of Modern Science", L. S. Venkaji Rao Memorial Lecture, Institute of World Culture, Bangalore.

2 March 2007: "Scientific and Philosophical Studies on Consciousness", Seminar on "Facets of Consciousness", Sri. Chandrasekharendra Saraswathi Viswa Mahavidyalaya, Kanchi.

#### **Prof. S. Settar**

15-16 June 2006: Keynote address, "Study of Vanishing Traditions", National Seminar on Intangible Cultural Heritage of Tamil Nadu, Institute of Tribal Research Centre. Palada, Ooty, and IGRMS, Bhopal.

12-16 September 2006: Keynote address, "Indian Rock-Art", Symposium on the Indian Rock Art on the occasion of the Indian Rock Art Exhibition, jointly organized by the Indira Gandhi Manava Samgrahalaya, Bhopal and Indira Gandhi Centre for the Arts, Southern Regional Centre, Bangalore.

19-21 September 2006: Valedictory address, "Early Artisans of India – 3rd Century B.C.", National Seminar on "Historiography of Indian Art and Emergent Methodological Conclusion", National Museum, New Delhi.

23-24 September 2006: Keynote address, "Conceptualization of Devi by the Ancient and Medieval Indian Artists - The Figurative and Non-Figurative Forms", Seminar on the Culture of the Goddess, Past and Present in Indian Art, National Museum Institute, New Delhi.

5-8 November 2006: Presented paper, "Aspects of Chalukya – Hoysala Architecture", Architecture in India: Text and Context, Centre for Archaeological Studies and Training, Eastern India, Kolkata.

9-15 February 2007: "Bengal Hero-Stones Studied in the Perspective of Ancient and Medieval Hero-Stones of India", International Conference on the Art of Bengal", The International Centre for Study of Bengal Art, Dhaka, Bangladesh.

12-16 March 2007: "Early Kharoshti Artisans and the Buddhist Art of North-Western India" (2B.C.-3A.D.), International Seminar on the Art of Central Asia and the Indian Sub-continent in Cross-Cultural Prospective (1st Century A.D. to 14th Century A.D.), National Museum Institute, New Delhi.

24-25 March 2007: Keynote address, "The Jaina Temple Terminologies used during the First Millennium A.D. – A Comprehensive Study of Kannada Inscriptions and Literary Works", International Seminar on "Jainism in Karnataka: Art, History, Religion and Literature", jointly held by the NIAS, Bangalore and South-Asia Institute, Heidelberg University, Germany.

#### **Prof. S. Ranganathan**

11 May 2006: "Dimensions of Nanotechnology: Science, Technology and Society", Technology Day Celebrations, National Metallurgical Laboratory, Jamshedpur.

12 May 2006: "Prof Cyril Stanley Smith: A Renaissance Metallurgist of the Twentieth Century, Materials Research Society of India", Jamshedpur Chapter.



27 May 2006: "Prof Cyril Stanley Smith: A Renaissance Metallurgist of the Twentieth Century", Department of Metallurgy, Indian Institute of Science, Bangalore.

9 June 2006: "Materials: Quest and Conquest", POINTS Programme, Defence Institute of Advanced Technology, Pune.

26 June 2006: "Nanotechnology: An Overview", first DST-NIAS Workshop on Dimensions of Nanotechnology: Science, Technology and Society.

27 June 2006: "Imaging Nanomaterials", first DST-NIAS Workshop on Dimensions of Nanotechnology: Science, Technology and Society.

16-19 August 2006: "The Evolution of Materials Education: The Indian Scenario", International Symposium on Frontiers in Nanoscale Science, Technology and Education, Cochin.

26-28 August 2006: "Dimensions of Nanotechnology: Science, Technology, Education and Society", International Conference on Nanoscience and Nanotechnology, Sesquicentennial Celebrations of University of Madras, Chennai.

11-13 September 2006: "Materials Heritage of India", IIM Diamond Jubilee Celebrations, New Delhi.

9-10 December 2006: "The Triple Helix: Academia, Industry and Government", Prof Jai Krishna Memorial Medal Lecture, Annual Convention, Indian National Academy of Engineering, New Delhi.

11-13 December 2006: "Design of Materials", Twenty five years of Innovation, Tata Research, Development and Design Centre, Pune.

18-20 December 2006: "Professor Cyril Stanley Smith (1903-1992): A Renaissance Metallurgist of the Twentieth Century", International Symposium for Research Scholars on Metallurgy, Materials Science & Engineering, Indian Institute of Technology Madras, Chennai.

19 March 2007: "Discovering the Nanoscale: An Overview" second DST-NIAS Workshop on Dimensions of Nanotechnology: Science, Technology, Business and Society.

#### **Dr. S. Balachandra Rao**

10-14 July 2006: "A Comparative Study of the Procedures of Three Astronomers of the Early 16th Century -Copernicus, Nilakantha Somayaji and Ganesha Daivajna" in the 13th World Sanskrit Conference held at Edinburgh, Scotland.

15 July 2006: "Hindu Astronomy" at the Bharatiya Vidya Bhavan, London.

12 September 2006: "Indian Mathematicians and Astronomers" at the Bangalore P.U. College, Sirigere, Chitradurga District.

11 October 2006: "Planetary System in Indian Astronomy" at the Bharatiya Vidya Bhavan, Bangalore.

1 November 2006: "Glimpses of India's Contribution to Mathematics" at the Orientation Programme for students, organised by the Karnataka Rajya Vijnana Parishat at Indian Institute of Science, Bangalore.

1-2 December 2006: "Mathematics and Astronomy in Sanskrit" at the National Conference on Fast Computational Techniques held at Dayananda Sagar Institutions, Bangalore.

9-10 December 2006: "True Positions of the Sun and the Moon according to Grahalaghavam" at the National Conference on Jyotisham, Hyderabad.

21 December 2006: "Indian Astronomy A Historical Perspective", Tenth NIAS Course for University and College Teachers.

22 December 2006: "Astronomy and Belief in Astrology" (Kannada) at the 73rd All India Kannada Sahitya Sammelana held at Shimoga.

28-29 December 2006: "Astronomy in Sanskrit" at the National Conference on Mathematics and Astronomy in Sanskrit held at Madurai.

1 January 2007: "Indian Mathematics and Astronomy" at the Hongirana College, Sagar Taluk, Shimoga.

2 February 2007: "Indian Mathematicians and Astronomers" at the Nightingales Elders Enrichment Centre, Bangalore.

9 February 2007: "Highlights of Indian Astronomy" at the Seminar organized by Sri Tirunarayana Trust at BMS College for Women, Bangalore.

22 and 23 February 2007: Two lectures on "Indian Mathematics and Indian Astronomy," at the Teachers' Workshop held at the MES Teachers College, Bangalore.

13 March 2007: "Copernicus and Indian Astronomers of the early 16th Century" at Dayananda Sagar Institute of Technology, Bangalore.

#### **Dr. Sangeetha Menon**

12 June 2006: "Indian Theories of Mind and Consciousness", NIAS Summer Course on Philosophy for the Social Sciences and Humanities.

28 July 2006: "How do I know you? Where do I find you?: A Science Spirituality Dialogue on Consciousness and the Indian Discourse", International Conference on Science and Spirituality: Global Perspectives, organised by Interdisciplinary University de Paris and Templeton Foundation at Hotel The Pavillon Henri IV, Saint Germain en Laye, Paris.

16 September 2006: "Self and Consciousness in Advaita Vedanta", the National Seminar jointly organized by Indian Business Academy, Bangalore and Madras Development Institute, Chennai.

9 October 2006: "Emotions and Consciousness Studies", the anniversary celebrations of Indian Business Academy, New Delhi.

18 November 2006: "Consciousness and Indian Psychology", Banasthali Viswa Mahavidyalaya, Jaipur.

8 December 2006: "Emotions, Face and Indian Psychology: Discussions on Darwin, Ekman and Natyasastra", Tenth NIAS Course for University and College Teachers.

2 February 2007: "Emotions, Experience and Consciousness", National Conference on "Facets of Consciousness", Sri Chandrasekharendra Saraswati Viswa Mahavidyalaya, Kanchipuram.

#### **Dr. M. G. Narasimhan**

17 September 2006: "The Role of Thought Experiments in Sciences", Department of Mechanical Engineering, Stevens Institute of Technology, Hoboken, New Jersey.

1 November 2006: "The Character and Role of Logic in Indian Philosophy", Stevens Institute of Technology, Hoboken, New Jersey.

28 February 2007: "Philosophy of Science" (in Kannada), the Jayaprakash Narayan Memorial Lecture, Gandhi Sahitya Sangha, Bangalore.

15 March 2007: "DNA - Then and Now", NMKRV First Grade College, Bangalore.

#### **Dr. Sharada Srinivasan**

11 October 2006: "Dance As Ritual in Negotiations of Inner and Outer Space: Insights from South Indian Prehistory", International Conference on Change and Stability in Rituals. South Asia Institute, Max Mueller Bhavan and Heidelberg University.

13 January 2007: "The Singing Pillars of Hampi", INTACH-Belgium, Leuven, during the BOZAR Tejas-exhibition of 5000 years of Indian Art.

19 January 2007: "Siva as Cosmic Dancer", Royal Academy of Arts, London, during the Royal Academy of Arts Chola Bronze Exhibition.

24 January 2007: "Technology as Social Construct: A Case Study of Chola Bronzes", Nottingham University, Nottingham.

31 January 2007: "Indian Arts Circle", School of Oriental and African Studies, London, during 'South Indian Bronzes and Dance; Concepts of Inner and Outer Space'.



6 February 2007: "Art and Science of Chola Bronzes", Royal Asiatic Society, London.

7 February 2007: "Chola Bronzes: Art, Science, Dance and Iconography", Exeter University, UK.

16 February 2007: "India's Legendary Wootz Steel", Centre des Recherches et Restauration des Musee de France, Louvre.

#### **Dr. Rajesh Kasturirangan**

19 July 2006: "Three Problems in Cognitive Science", Department of Molecular Reproduction, Development and Genetics, Indian Institute of Science, Bangalore.

29 August 2006: "Pointing with Concepts", Centre for the Study of Culture and Society, Bangalore.

16 November 2006: "Pointing with Concepts", Microsoft Research, Bangalore.

24 November 2006: "Thinking is Believing", Saha Institute, Kolkata.

18 December 2006: "Language and Perception", Microsoft Research, Bangalore.

26 January 2007: "An Enactive Model of Concepts", UTC, Compiègne, France.

21-23 February 2007: Three lectures on "Cognitive Science: Concepts, Computation and Consciousness", University of Hyderabad, Hyderabad.

#### **Dr. Veena Rao**

6 April 2006: "J. B. S. Haldane's Indian Period", INSA Project Investigators' Meet, Indian National Science Academy, New Delhi.

25 October 2006: "J.B.S. Haldane and Science in India", Indian Institute of World Culture, Bangalore.

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

#### **Prof. P. K. Shetty**

20 July 2006: "Genetically Modified Crops: Boon or Bane", The Bangalore Science Forum, Dr. H. N. Hall, National College, Bangalore.

18 August 2006: "Genetically Modified Crops: Science, Safety and Society", Nightingales Old Age Home, Bangalore.

11 September 2006: "Opportunities in Biotechnology", Brindavan College, Bangalore.

7 October 2006: "Trends in Genetic Engineering", M. S. Ramaiah Science College, Bangalore.

12 December 2006: "Genetically Modified Food: Controversy and Uncertainty" Tenth NIAS course for University and College Teachers.

#### **Prof. Prabhakar G. Vaidya**

29 May 2006: R-R Variability and Synchronization of Cardiac Cells, "Systems Biology Dynamics: from Genes to Organisms", McGill University.

20-22 July 2006: "Joint Arithmetic Coding and Encryption using Chaotic Maps", National Conference on Mathematical Foundations of Coding, Complexity, Computation and Cryptography, Indian Institute of Science, Bangalore (with Mr Nithin Nagaraj and Mr Kishor G. Bhat).

15 December 2006: "The Frontier of Chaos" Tenth NIAS Course on An Integrated Approach to Knowledge and Information for University and College Teachers.

12-15 December 2006: "A Generalization of the Logistic Map and its Applications in Generating Pseudo-Random Numbers", International Conference on Mathematical Modelling and Computer Simulation, LNMIIT, Jaipur (with Mr. Mahesh C. Shastry and Mr. Nithin Nagaraj)

**Prof. Anindya Sinha**

23 April 2006: "Monkeys of the Deep Forest: The Discovery of a Macaque in Arunachal Pradesh", Bangalore Science Forum, National College, Bangalore.

10 May 2006: "The Animal Mind", Summer School for High School Students, Indian Association for the Cultivation of Science, Kolkata.

27 June 2006: "Monkeys of the Deep Forest: A New Macaque from Arunachal Pradesh, Northeastern India", International Primatological Congress, Entebbe, Uganda.

29 June 2006: "Of Memes and Macaques: Phenotypic Flexibility, Behavioural Traditions and Cultural Evolution among Wild Bonnet Macaques", International Primatological Congress, Entebbe, Uganda.

21 September 2006: "Social Cognition in Primates: Mental Representation", Indo-German Lecture Workshop on Behavioural Neurobiology, Centre for Cellular and Molecular Biology, Hyderabad.

22 September 2006: "Social Cognition in Primates: Distributed Cognition", Indo-German Lecture Workshop on Behavioural Neurobiology, Centre for Cellular and Molecular Biology, Hyderabad.

1 November 2006: "Of Monkeys, Men and Morals: Studying Primates in India", Agharkar Research Institute, Pune.

2 November 2006: "The Arunachal Macaque: Morphology, Genetics and Evolution", Department of Zoology, Pune University, Pune.

30 November 2006: "How Monkeys See the World: The Search for An Animal Mind", Thursday Colloquium, Raman Research Institute, Bangalore.

6 December 2006: "Monkeys of the Deep Forest: A New Macaque from Arunachal Pradesh, Northeastern India", Centre for Ecological Sciences, Indian Institute of Science, Bangalore.

7 December 2006: "Of Monkeys, Men and Morals: Studying Primates in India", Tenth NIAS Course for University and College Teachers.

14 December 2006: "The Tail of the Arunachal Macaque...and Other Stories of Its Skull and Mitochondrial DNA", Tata Institute of Fundamental Research, Mumbai.

6 March 2007: "What Makes a Species a Species? Insights from the Arunachal Macaque, a Newly-Discovered Primate from Northeastern India", National Centre for Biological Sciences, Bangalore.

20 March 2007: "The Primate Programme in NIAS and NCF – An Overview", Annual Talks 2007, Nature Conservation Foundation, Mysore.

20 March 2007: "The Arunachal Macaque and Its Cousins – More Stories of Tails, Skulls, Skins and Genes", Annual Talks 2007, Nature Conservation Foundation, Mysore.

**Prof. Timothy Poston**

30 June 2006: "The Nature of Differentiation", Maths Department, University of Umeå, Sweden.

13 December 2006: "Navigating Knowledge", Tenth NIAS Course for University and College Teachers.

18 December 2006: "Navigating Knowledge: Propping up the Signposts on the Information Superhighway", Unisys Maithri 2006, Bangalore.

8 March 2007: "Three Dimensions and Beyond", ENGINEER 2007, Karnataka National Institute of Technology (KNIT Surathkal Tech Fest), Mangalore.

**Prof. K. Ramachandra**

January – February 2007: Series of lectures on "Prime Number Theorem" at NIAS.

March – April 2007: Series of lectures on "Vinogradov's Three Primes Theorem" at NIAS.



### **Mr. Arvind Kumar**

8 April 2006: Opening Remarks at a Panel Discussion on "Recent Developments in Nepal and Their Impact on India's Security" organized by Asia Centre, Bangalore

24 May 2006: "India and Central Asia" and "India and the UN" to the post graduate and Ph.D. students of the Department of Political Science, Bangalore University.

18 August 2006: "Conflict Resolution" at the Post graduate Department of International Studies, Stella Maris College, Chennai.

6 September 2006: Panelist for the session on "Indo-US Nuclear Deal" at Stella Maris College, Chennai.

14 October 2006: "India – China Cooperation" at a Seminar on Economic Developments in India and China organized by CHINDIA Association at Bangalore.

7 December 2006: "Politics of the Indo-US Nuclear Deal" at the Tenth NIAS Course for University and College Teachers.

15–16 January 2007: "India and Kuwait: Partners in Democracy" organized by Department of Geopolitics, Manipal University, Manipal.

### **Dr. Sonika Gupta**

14–18 June 2006: "New Challenges to Human Security from The Global War on Terror": A South Asian Perspective" at the Pugwash Conference on New Challenges to Human Security held at Wageningen, The Netherlands.

12–14 October 2006: Panelist at the America and the World Conference organised by the Chicago Council of Foreign Affairs, Chicago on the theme "The Rise of India and China: Implications for the World Order".

## CONFERENCES / MEETINGS ATTENDED BY NIAS FACULTY

### SCHOOL OF HUMANITIES

#### Prof. Sundar Sarukkai

4 June 2006: "Philosophy and Lived Experience: Speaking for and Speaking of Others", in the seminar on Indigenous Philosophizing: Indian Horizons, Dharmaram College, Bangalore.

9 July 2006: "Visualism in Mathematics: Diagrams and Writing", National Conference at Jadavpur University.

5 October 2006: "Space and Philosophy", OLATS Conference on "Exploration in Space", Valencia, Spain.

6 October 2006: "Philosophy of human migration", Plenary Panel, IAF Conference, Valencia, Spain.

16 December 2006: "Science and Humanism", Plenary Panel, World Interim Philosophy Congress, Delhi University, New Delhi.

6 January 2007: "Indian logic, semiotics and modern science", International Conference on Logic, Navya-nyaya and applications: A homage to B.K. Matilal, January 3-7, 2007, Jadavpur University, Kolkata.

8 January 2007: "Scientific essentialism and necessity", International Conference on "Necessity and Contingency", Department of Philosophy, Calcutta University, Kolkata.

11 January 2007: "Logic and explanation", Second Indian Conference on Logic and its relationship with other disciplines, IIT Bombay.

29 January 2007: "Ethics of knowing", National Conference on Ethics and Indian Society, Department of Philosophy, University of Hyderabad.

1-3 February 2007: Resource person, National Conference on Debate and Dialogue in Indian Traditions, Department of Philosophy, University of Madras, Chennai.

12 February 2007: "Philosophy of science and its impact on science and mathematics education", Episteme-2, International Conference on Science and Mathematics Education, HBCSE, Mumbai.

15 February 2007: "Love and/of knowledge", National Seminar on Love and Hate in Literature, Philosophy and Society, Department of English, University of Pune.

23 February 2007: "Innovations in Curriculum – A Philosophical Perspective, National Seminar on Exploring Excellence in Higher Education, Christ College, Bangalore.

27 February 2007: "Phenomenology and natural science", National Seminar on Dialogue and Debates: Engaging With Philosophical Hermeneutics, Department of Humanities and Social Sciences, IIT Madras.

#### Prof. S. Ranganathan

September 2006: Leader of a six member delegation deputed by the Indian National Academy of Engineering to the Sixth International Conference on the Beginnings of the Uses of Metals and Alloys, Beijing.

2 November 2006: Leader of a DST delegation for Nanotechnology under IBSA (India, Brazil and South Africa) Sao Paulo, Brazil.



3 November 2006: Advisor to the Government of Kazakhstan on Metallurgy and Nanotechnology, Almaty, Kazakhstan.

**Dr. Sharada Srinivasan**

23 October 2006: "Archaeometallurgical and Astro-Archaeological Studies on South Indian Bronzes". UNESCO Workshop on Science in Cultural Heritage. International Centre for Theoretical Physics, Trieste.

**Dr. Rajesh Kasturirangan**

21-24 November 2006: International Conference on "Brain and Mind", Saha Institute, Kolkata.

22-26 January 2007: Workshop on "Interaction and Cognition", UTC, Compiègne, France.

**SCHOOL OF NATURAL AND ENGINEERING SCIENCES**

**Prof. Anindya Sinha**

25-30 June 2006: Twenty-first Congress of the International Primatological Society, Entebbe, Uganda.

18-22 September 2006: Indo-German Lecture Workshop in Behavioural Neurobiology, Centre for Cellular and Molecular Biology, Hyderabad.

20-22 March 2007: Annual Research Seminar of the Nature Conservation Foundation, Mysore.

**Dr. Sindhu Radhakrishna**

7-8 December 2006: Tenth Meeting of the Gesellschaft für Primatologie, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany.

**SCHOOL OF SOCIAL SCIENCES**

**Prof. A. R. Vasavi**

14 May 2006: "Globalisation and India", University of Amsterdam, Amsterdam, the Netherlands.

**Prof. Dilip R. Ahuja**

17-21 April 2006: Evaluation Meeting for the Mid-Term Assessment of the Government of India-UNDP Country Programme (2003-07), New Delhi.

1-6 May 2006: The 14th Session of the Commission on Sustainable Development as a part of the ICSU delegation, New York, USA.

30-31 May 2006: International Energy Workshop, organized by The InterAcademy Council (IAC) and The Indian National Science Academy (INSA), New Delhi.

21-22 June 2006: Workshop of the InterAcademy Council on "Transitions to Sustainable Energy Systems" at the Académie des Sciences, Paris, France.

24-25 June 2006: IAC Energy Study Panel Meeting on "Transitions to Sustainable Energy Systems" at the Royal Academy of Arts and Sciences, Amsterdam, the Netherlands.

10-13 October 2006: Intergovernmental Panel on Climate Change, Working Group 3 - Fourth Lead Authors' Meeting, University of Canterbury, Christchurch, New Zealand.

26-29 November 2006: Meeting of the Writing Team with the Study Co-Chairs, IAC Study on Transitions to Sustainable Energy Systems, Washington, DC, USA.

16 December 2006: Symposium on Energy and Global Warming organized by the Science Council of Japan, Tokyo.

29 January-2 February 2007: Meeting of the Writing Team with the Study Co-Chair, IAC Study on Transitions to Sustainable Energy Systems; also on 29 March -30 March, Amsterdam, The Netherlands.

22 March 2007: The First Advisory Board Meeting of the Breathing Space Advisory Board, the Shell Foundation, New Delhi.

26-28 March 2007: Meeting of Experts and Institutions on Finance and Investments to Address Climate Change, Bonn, Germany.

**Prof. N. Shantha Mohan**

15-21 August 2006: Country Water Partnership Meeting, Consulting Partners Meeting and Opening Session of World Water Week in Stockholm, Sweden, organised by the Global Water Partnership.

28-29 September 2006: "National Strategy on CEDAW" organized by AALI at New Delhi.

14-16 November 2006: South Asian Regional Consultation on Optional Protocol to CEDAW, organised by AALI at Male, Maldives.

1-2 December 2006: Round table meetings on "Access to Water" and "Water and Productivity" organised by the Global Water Partnership in Colombo.

5-7 December 2006: GWP meeting on "Water Issues in the Asian Region", at New Delhi.

1-11 February 2007: FY 2006 Empowerment Seminar for Women Leaders in the Asia Pacific Region organised by the National Women's Education Centre, Tokyo, Japan.

**Dr. B. K. Anitha**

9-12 June 2006: Brain Storming Workshop on "Research Focus: New Models or Higher Technical Education" at IIIT, Hyderabad organized by IIIT, Hyderabad.

19 September 2006: Resource person for Gender Sensitisation Training for the Income Tax Officials for the Southern region at the Training Centre, Income tax Office, Bangalore.

**Dr. Carol Upadhy**

17-19 August 2006: Sietar India Inaugural Conference (Society for Intercultural Education, Training and Research), Bangalore. Presentation and screening of film 'Fun @ Sun'.

1-3 November 2006: 2006 IDPAD End Symposium, 'India's Split Development: Reflections on Development Theory and Practice', Hyderabad Presented paper, 'Employment and Exclusion in the Indian IT Industry'.

2-3 February 2007: IAWS Southern Regional Workshop, 'Feminist Perspectives and the Struggle to Transform the Disciplines', Presentation on Feminist Theory and Sociology, Bangalore.

3-4 February 2007: Panel on 'Formation of Sociology in India: Documenting Knowledge, Scholars, Practices and Institutions', Department of Sociology, University of Pune.

9-10 February 2007: Panel discussion on The Media, IT/ITES/ICTs and Gender, during 5th National Meeting of the Network of Women in Media, India (NWMI), Bangalore. Also screened portions of 'Coding Culture' films.

22-23 February 2007: - Seminar, 'Beneath IT - Formations of Industry and Labour in the IT sector', Centre for Jawaharlal Nehru Studies (CJNS) and Centre for Culture, Media and Governance (CCMG), Jamia Millia Islamia, New Delhi, Presented paper, 'Trajectories of capitalism in an outpost of the global economy: capital, labour, and culture in the Indian software outsourcing industry'.

**Dr. Padma M. Sarangapani**

11-12 January 2007: National Seminar on "Quality of Education", Digantar and ICICI-SIG, Jaipur.

**INTERNATIONAL STRATEGIC AND SECURITY STUDIES PROGRAMME**

**Mr. Arvind Kumar**

3 June 2006: Panel discussion on "Changing Contours of Indo-US Relations" organised by Asia Centre, Bangalore.

5 June 2006: Interactive session on China's Approach to Economic Reforms and Its Unfinished Economic Reforms Agenda" organized by Bangalore International Centre.

22 December 2006: "China's Defense Potential" organized by the Institute for Defense Studies & Analyses (IDSA) at DRDO HQ, New Delhi.



23 February 2007: "NTRO Scientists Training Committee" meeting organized by NTRO, PMO at New Delhi.

15–16 March 2007: "NTRO Scientists Training Committee" meeting organized by NTRO, PMO at NIAS.

26 March 2007: Preparatory and Exploratory Meeting on the "Future Course of CISAC – NIAS Dialogue" organized by ISSS Programme at New Delhi.

**Dr. Sonika Gupta**

30 June 2006: Seminar on "The US and the Rising Powers: India and China" organised by Centre for Security Analysis, Chennai.

**Prof. M. S. Swaminathan (Chairman)**

Chairman  
M. S. Swaminathan Research Foundation  
3rd Cross Street, Taramani Institutional Area  
Chennai 600 113

**Prof. P. Balaram**

Director  
Indian Institute of Science  
Bangalore 560 012

**Prof. Andre Beteille**

Chairman  
Indian Council of Social Science Research  
JNU Institutional Area  
Aruna Asaf Ali Marg  
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**Mr. Xerxes Desai**

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**Mr. N. Gokulram**

Principal Secretary to the Government  
Finance Department  
Government of Karnataka  
Bangalore 560 001

**Dr. J. J. Irani**

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**Dr. Devaki Jain**

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**Dr. K. Kasturirangan**

Director  
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**Mr. Homi R. Khusrokhhan**

Executive Director  
Tata Chemicals Limited.  
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24, Homi Mody Street  
Mumbai 400 001

**Mr. Satyananda Mishra**

Secretary  
Ministry of Personnel,  
Public Grievances and Pensions  
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**Mr. Kaushik Mukherjee**

Principal Secretary to the Government  
Higher Education Department  
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**Mr. N. R. Narayana Murthy**

Chairman of the Board  
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**Dr. Arcot Ramachandran**

No.3, Crescent Road  
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**Dr. T. Ramasami**

Secretary  
Department of Science and Technology  
Government of India  
New Delhi 110 016

**Dr. Kiran Mazumdar - Shaw**

Chairman and Managing Director  
Biocon India Limited  
20th KM Hosur Road,  
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Bangalore 560 100

**Prof. B. V. Sreekantan**

Visiting Professor  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012

**Prof. Dilip R. Ahuja (Member – Secretary)**

ISRO Professor of Science and Technology Policy  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012

## NIAS COUNCIL OF MANAGEMENT

**Prof. M. S. Swaminathan (Chairman)**

Chairman  
M. S. Swaminathan Research Foundation  
3rd Cross Street, Taramani Institutional Area  
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**Prof. P. Balaram**

Director  
Indian Institute of Science  
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**Prof. Andre Beteille**

Chairman  
Indian Council of Social Science Research  
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41, 4th Cross  
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**Dr. J. J. Irani**

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**Dr. Devaki Jain**

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National Institute of Advanced Studies  
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**Mr. Homi R. Khusrokhhan**

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Bombay House  
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Mumbai 400 001

**Mr. Satyananda Mishra**

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Ministry of Personnel,  
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New Delhi 110 001

**Mr. Kaushik Mukherjee**

Principal Secretary to the Government  
Higher Education Department  
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Bangalore 560 001

**Mr. N. R. Narayana Murthy**

Chairman of the Board  
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Hosur Road, 3rd Cross, Electronic City  
Bangalore 561 229



**Dr. Arcot Ramachandran**

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New Delhi 110 016

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Bangalore 560 100

**Prof. Dilip R. Ahuja (Secretary)**

ISRO Professor of Science and Technology Policy  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bangalore 560 012

### **Director**

K. Kasturirangan

### **Professor Emeritus**

Roddam Narasimha

### **Visiting Professors**

S. Chandrashekar, J. R. D. Tata Visiting Professor

S. S. Meenakshisundaram

Rajaram Nagappa

Timothy Poston, Sir Ashutosh Mukherjee Visiting Professor

K. Ramachandra

S. Ranganathan

S. Settar, S. Radhakrishnan Visiting Professor

B. V. Sreekantan

### **Honorary Professors**

N. Balakrishnan

Vijay Chandru

D. P. Sen Gupta

Malavika Kapur

Arcot Ramachandran

S. Balachandra Rao

B. V. Subbarayappa

V. J. Sundaram, Lt. Gen.

### **Professors**

Dilip R. Ahuja, ISRO Professor of Science and Technology Policy Studies

N. Shantha Mohan

Sundar Sarukkai

P. K. Shetty

Anindya Sinha

Prabhakar G. Vaidya

A. R. Vasavi

### **Fellows**

B. K. Anitha

Rajesh Kasturirangan

Sangeetha Menon

M. G. Narasimhan

Sharada Srinivasan

Carol Upadhya

### **Visiting Fellow**

Padma M. Sarangapani

### **Associate Fellow**

Arvind Kumar

### **Visiting Associate Fellow**

Sindhu Radhakrishna

### **Post-Doctoral Fellow**

Sonika Gupta

### **Honorary Research Associate**

Veena Rao

### **Doctoral Students**

P. S. Sajini Anand

Meera Baidur

Kishor G. Bhat

Mayukh Chatterjee

Anu Joy

K. Latha

Swarnali Majumder

Rahul Mukhopadhyay

S. K. Arun Murthi

M. Murugan

Nithin Nagaraj

Leena Pascal

Sowjanya R. Peddi



M. B. Rajani  
Narayan Sharma  
K. G. Sreeja  
Sailen Routray  
Sahana Udupa  
Indira Vijaysimha

**Dean (Administration)**

S. Rajagopal

**Office Manager**

V. A. Joseph

**Accountant**

P. Srinivasa Aithal

**Assistant Librarian**

Hamsa Kalyani

**Administrative Staff**

A. Devaraju  
V. Girija  
K. S. Rama Krishna  
S. Lalitha  
Gayathri N. Lokhande  
V. B. Mariyammal  
J. N. Sandhya  
C. Shashidharan  
A. S. Mary Stella  
R. Vijayalakshmi

**Support Staff**

Sukhdev Behra  
R. Krishna  
G. Nagaraja  
Mujeeb Pasha  
N. Rajesh  
N. Ramesh  
S. R. Rathnam  
S. Revanna  
S. Sampath  
N. Sathyamurthy  
B. Shivanandappa  
V. Srinivasa  
M. V. Sudhakara  
Mohammed Umar  
G. Venugopal

**FINANCIAL STATEMENTS**  
For the Year 2006-2007

**National Institute of Advanced Studies**  
Indian Institute of Science Campus  
Bangalore - 560 012

**SANTHAPPA & CO.**  
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St. Marks Road, Bangalore - 560 001



## AUDITORS' REPORT

1. We have audited the attached Balance Sheet of "NATIONAL INSTITUTE OF ADVANCED STUDIES", Indian Institute of Science Campus, Bangalore - 560 012, as at 31st March 2007, the General Income and Expenditure Account and Sponsored Projects Income and Expenditure Account for the year ended on that date, annexed thereto. These Financial Statements are the responsibility of the Institute's Management. Our responsibility is to express an opinion on these Financial Statements based on our Audit.
2. We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our Audit.
3. In our opinion, proper Books of Accounts as required by law have been kept by the Institute so far as appears from our examination of such books.
4. The Balance Sheet and the Income and Expenditure Account dealt with by this report are in agreement with the books of account.

We conducted our audit in accordance with Auditing standards generally accepted in India. Those Standards require that we plan and perform the audit to obtain reasonable assurance about whether the Financial Statements are free of material misstatement. An Audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the Financial Statements. An audit also includes assessing the accounting principles used and significant estimates by Management, as well as evaluating the overall Financial Statement presentation. We believe that our audit provides a reasonable basis for our opinion.

5. In our opinion and to the best of our information and according to the explanations given to us, the said accounts read with the schedules and notes thereon give a true and fair view in conformity with the accounting principles generally accepted in India:

a) In the case of the Balance Sheet, of the state of affairs of the Institute as at 31st March 2007,

AND

b) In the case of Income and Expenditure Account, of the surplus in the General Income and Expenditure Account and surplus/deficit in the Sponsored Projects Income and Expenditure Account for the year ended on that date.

for **SANTHAPPA & CO.**  
Chartered Accountants

PLACE: BANGALORE  
DATE: 16 MAY 2007

Sd/-  
(A. C. RAJU)  
PARTNER  
M.NO.18134

**NATIONAL INSTITUTE OF ADVANCED STUDIES**  
INDIAN INSTITUTE OF SCIENCE CAMPUS, BANGALORE - 560 012

**BALANCE SHEET AS AT 31ST MARCH, 2007**

Particulars	As on 31/03/2007	As on 31/03/2006
	Rs.	Rs.
<b>I. SOURCES OF FUNDS:</b>		
a) Capital Fund	38399465	37472934
b) Other Funds	187487499	187739393
c) Current Liabilities	1090430	576553
d) Depreciation Fund	50943453	47650090
Total Rs.	277920847	273438970
<b>II. APPLICATION OF FUNDS:</b>		
a) Fixed Assets	126077095	88100893
b) Investments	144904000	179999443
c) Advances and Deposits	2849616	2557268
d) Cash at Banks	4090136	2781366
Total Rs.	277920847	273438970

As per our report of even date  
for SANTHAPPA & CO.  
CHARTERED ACCOUNTANTS

Sd/-  
(DR. K. KASTURIRANGAN)  
DIRECTOR

Sd/-  
(A. C. RAJU)  
PARTNER

PLACE: BANGALORE  
DATE :16 MAY 2007

Sd/-  
(E. K. KUTTY)  
HEAD-ADMINISTRATION



**NATIONAL INSTITUTE OF ADVANCED STUDIES**  
INDIAN INSTITUTE OF SCIENCE CAMPUS, BANGALORE - 560 012

**GENERAL INCOME AND EXPENDITURE ACCOUNT FOR  
THE YEAR ENDED 31ST MARCH, 2007**

Particulars	2006-07	2005-06
	Rs.	Rs.
<b>A. INCOME:</b>		
Grants and Donations	3000000	3000000
Interest on Investments	11298881	11046071
Overhead and Administrative Charges Received	1452009	1511875
Research, Symposia and Course Receipts	5059988	4879663
Miscellaneous Income	4060928	5594643
TOTAL (A) Rs.	24871805	26032252
<b>B. EXPENDITURE:</b>		
Administrative Expenses	12637218	10374317
Travelling Expenses	553606	360408
Repairs and Maintenance Expenses	1663242	1436102
Research, Symposia and Course Expenses	5505382	5215789
Professorship Expenses	835422	824242
Miscellaneous Expenses	78030	90228
TOTAL (B) Rs.	21272900	18301084
<b>C. SURPLUS BEFORE DEPRECIATION (A-B)</b>	3598905	7731168
<b>LESS: DEPRECIATION</b>	2672375	2948895
<b>D. SURPLUS/(DEFICIT) AFTER DEPRECIATION</b>	926530	4782273

As per our report of even date  
for SANTHAPPA & CO.  
CHARTERED ACCOUNTANTS

Sd/-  
(DR. K. KASTURIRANGAN)  
DIRECTOR

Sd/-  
(A. C. RAJU)  
PARTNER

PLACE: BANGALORE  
DATE : 16 MAY 2007

Sd/-  
(E. K. KUTTY)  
HEAD-ADMINISTRATION

**NATIONAL INSTITUTE OF ADVANCED STUDIES**  
INDIAN INSTITUTE OF SCIENCE CAMPUS, BANGALORE - 560 012

**SPONSORED PROJECTS INCOME AND EXPENDITURE ACCOUNT  
FOR THE YEAR ENDED 31ST MARCH, 2007**

Particulars	Scientific Research As on 31/03/2007	Scientific Research As on 31/03/2006	Social Science Research As on 31/03/2007	Social Science Research As on 31/03/2006
	Rs.	Rs.	Rs.	Rs.
<b>A. INCOME:</b>				
Projects Receipts	17054191	14226412	7610477	10674912
TOTAL (A) Rs.	17054191	14226412	7610477	10674912
<b>B. EXPENDITURE:</b>				
Projects Expenditure	15445776	12761124	8962211	9532460
Depreciation	405232	588418	215757	368485
TOTAL (B) Rs.	15851008	13349542	9177968	9900945
<b>C. SURPLUS/(DEFICIT) FOR YEAR (A-B) TRANSFERRED TO PROJECTS FUND</b>	1203183	876870	-1567490	773967

As per our report of even date  
for SANTHAPPA & CO.  
CHARTERED ACCOUNTANTS

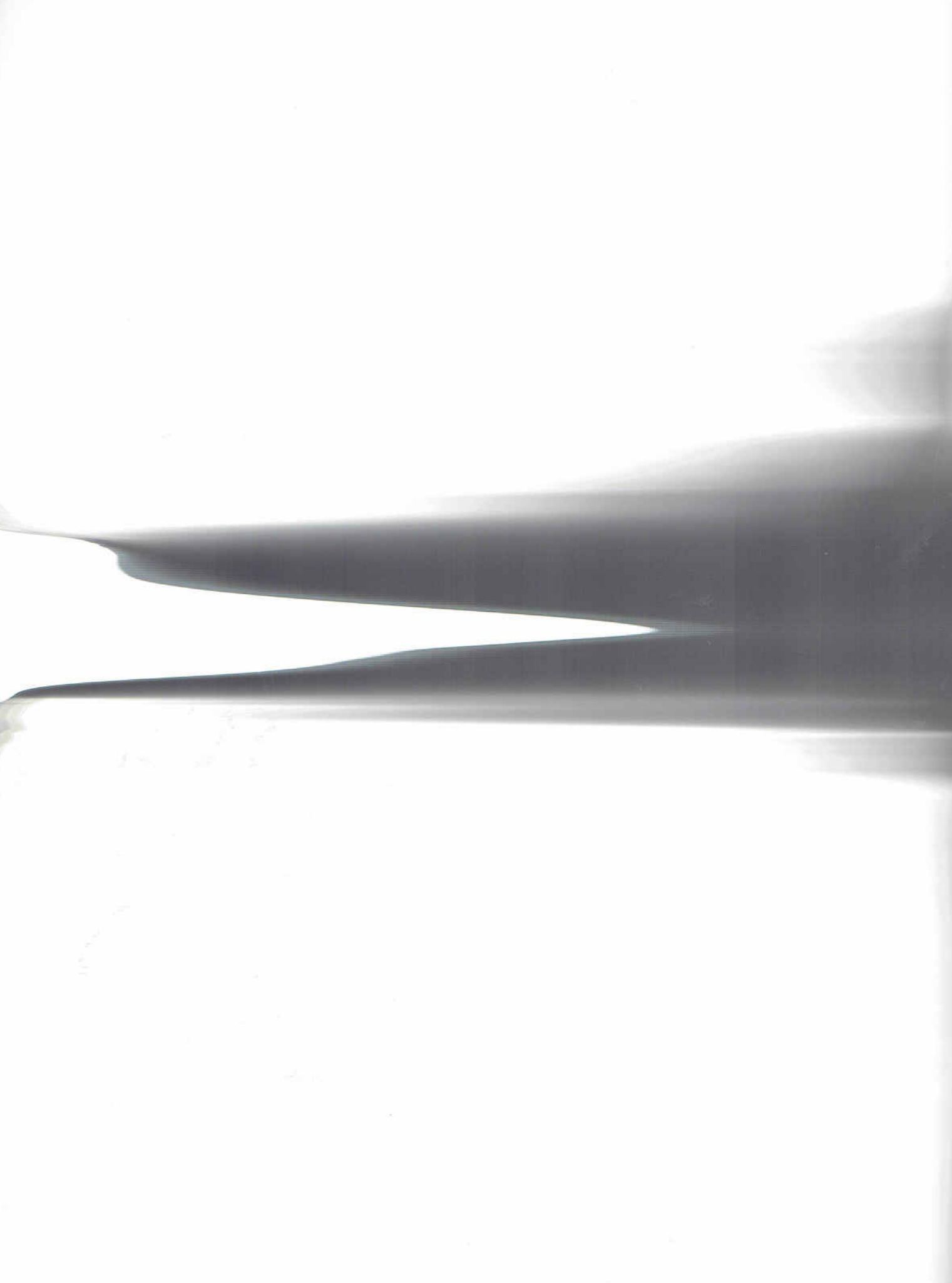
Sd/-  
(DR. K. KASTURIRANGAN)  
DIRECTOR

Sd/-  
(A. C. RAJU)  
PARTNER

PLACE : BANGALORE  
DATE : 16 MAY 2007

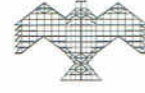
Sd/-  
(E. K. KUTTY)  
HEAD-ADMINISTRATION





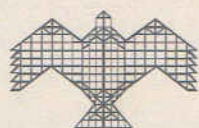






The NIAS emblem can be traced back to a remarkable Sanskrit work called the Śulva-sūtras, which, while being one of the four Kalpa-sūtra texts concerned chiefly with vedic ritual, displays a deep knowledge of geometry from pre-Euclidean times. Śulva (or śulba) stands for rope, string or cord, and is derived from the root śulv, meaning “to measure”; the Śulva-sūtras are therefore literally “The Rules of the Cord”. (To this day a cord is part of the basic equipment carried by an Indian mason, to be used in surveying or in laying out a structure in any construction activity.) The text is in fact a handbook of ritual geometry, and describes a series of geometric ‘constructions’ or procedures (using only strings and pegs) for the layout of sacrificial altars and fires of various shapes and dimensions, usually specified with extraordinary precision.

There are four extant versions of the Śulva-sūtras, but the one attributed to Baudhāyana is considered to be the oldest as well as the most systematic and detailed. Scholars are not agreed on the precise date of the Sūtras, but the text clearly pre-dates Pānini and must have been composed before the 6th century B.C. The procedures described in the text, however, must have been known very much before its composition, as the text itself acknowledges.



## NATIONAL INSTITUTE OF ADVANCED STUDIES

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