

HINDU

September 14, 2002

## Quantum leap by Indian scientists?

**NEW DELHI, SEPT. 13.** Four Indian scientists have solved the question of what limits exist on the speed of a quantum computer, the futuristic computer that could make the conventional machine look like a mere toy.

Physicists Arun K. Pati of the Institute of Physics, Bhubaneswar, Sudhir Ranjan Jain and Abhas Mitra of the Bhabha Atomic Research Centre (BARC), Mumbai, and former Atomic Energy Commission Chairman, Raja Ramanna, have discovered that the speed and running time of a quantum computer is limited by the type of fundamental interactions present inside the system.

The discovery will help future designers of quantum computers to decide the type of interaction which could be allowed to achieve the desired speed.

The findings, which are to be published in the coming issue of the Amsterdam science journal *Physics Letters A* suggest that quantum computers built on different elementary particles can be labelled according to their speed, running time and physical interaction between the particles. Quantum computer, which scientists are trying hard to make, could solve complicated problems that classic computers or even super computers would find it impossible to do.

The revolutionary quantum computer emerges from the application of quantum theory, the ultimate theory of nature, to information science. In a quantum computer, data is stored and processed by quantum bits called qubits which exist in binary state. — UNI