THE TIMES OF INDIA, PUNE * THURSDAY, JANUARY 13, 2011

'More work on experimental particles needed'

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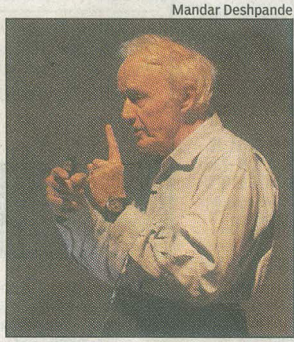
Mandar Deshpande



Anthony Leggett at the IUCAA on Wednesday

Pune: Nobel laureate Anthony J Leggett said on Wednesday that India needs to improve its work on experimental particles in physics. The British physicist, who won the Nobel prize for physics in 2003 for his seminal work on superfluidity, spoke to TOI on the sidelines of a public lecture held at the Chandrashekhar auditorium of the Inter-University Centre for Astronomy and Astrophysics (IUCAA).

Leggett urged Indian scientists to work on particles and design experiments to test quantum mechanics at the macroscopic level. "There are some areas like experimental particles where Indians are not competent," he said. "I think more concrete work needs to be done. I have been interacting with students since I came to India and I have realised that they are very sensible and raise quality questions."

Leggett addressed one of the deepest questions in physics, 'Why can't time run backwards?' He said, "We all feel that we can remember the past and affect the future, not vice-versa. So there is a very clear 'arrow' of time built into our interpretation of our everyday experience. Yet the fundamental microscopic laws of physics, be it classical or quantum-mechanical, look exactly the same if the direction of time is reversed."

"The few experiments done so far suggest that quantum mechanics is indeed valid in the macroscopic domain — scientists have observed currents, for instance, that at the same appear clockwise and anticlockwise," he said.

"The question is, will quantum mechanics break down at some point as we go to larger and larger macroscopic systems?" Leggett asked.

Leggett said that India has several very good scientists working in quantum theory and he was looked forward to their work in the coming years.