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## Nobel Laureate Steven Chu Lectures at HKUST

Nobel Prize-winning physicist Steven Chu gave a lecture today (6 August 2001) on "Biology at the Single Molecule Level" at the Hong Kong University of Science and Technology (HKUST).

Prof Chu is the Theodore and Frances Geballe Professor of Physics and Applied Physics at Stanford University. He flew in to Hong Kong to deliver HKUST's Distinguished Lecture in Science 2001, one of the major academic events celebrating the 10th anniversary of the University. His talk focused on the major recent developments in the study of single biological molecules.



Prof Chu was awarded the 1997 Nobel Prize in Physics jointly with Prof Claude Cohen-Tannoudji of France and Prof William D Phillips of the US for the development of methods to cool and trap atoms with laser light.

He is famed for his invention of "optical molasses", a method which uses strong laser beams to slow individual atoms down from a typical speed of 4,000 kilometers per hour to speeds of less than a tenth of a kilometer per hour, cooling the atoms down to very low temperatures just above absolute zero (-273oC). This powerful technique has enabled scientists to obtain precise measurements of the properties of atoms, and has increased scientific understanding about the interplay of light and matter. The research earned him a share of the 1997 Nobel Prize in Physics.

Building on this work, Prof Chu used laser beams to trap microscopic particles in water. This breakthrough allows him to study and manipulate single strands of polymers, DNA and other biological molecules one at a time.

Prof Chu graduated from the University of Rochester in 1970 with bachelor's degree in Physics and Mathematics. He received his PhD from the University of California, Berkeley in 1976. He joined the Bell Laboratories from 1978 to 1987. Since then, he has been a Professor of Physics and Applied Physics at Stanford University, and has been Chairman of the Physics Department there from 1990 to 1993, and from 1999 until now.

He is a Fellow of the American Physical Society and the Optical Society of America. He is also a Member of the National Academy of Science (US), the American Academy of Arts and Sciences, the Chinese Academy of Sciences and the Academia Sinica.

During his stay at HKUST, Prof Chu also gave a lecture on his path to scientific discovery and participated in an informal discussion session with 45 outstanding secondary-school students attending the Physics Summer School from 3 to 7 August.