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Manipulating Atoms with Light: Achievements and Perspectives

by

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Abstract: During the last few decades spectacular progress has been achieved in the control of atomic systems by light. In this lecture, it will be shown how it is possible to use the basic conservation laws in atom-photon interactions for polarizing atoms, for trapping them, and for cooling them to extremely low temperatures, in the microkelvin and even in the nanokelvin range. A review will be given of recent advances in this field and of new applications, including atomic clocks with very high relative stability and accuracy, atomic interferometers allowing precise measurement of rotation speeds and gravitational fields, the realization of new states of matter such as Bose-Einstein condensates, matter waves and atom lasers. New perspectives opened by these results will be also briefly discussed.

Date: Wednesday, 1 March 2006
Time: 4:30 pm
Venue: Multi-Media Conference Room,
Cheng Yick-chi Building,
City University of Hong Kong

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