



Institutskolloquium

Am **22. Juni 2005, 16:00 Uhr** spricht:

Prof. Dr. Immanuel Bloch
Universität Mainz, Physik III

über

“Exploring Quantum Matter in Crystals of Light”

The realization of Bose-Einstein condensation in dilute atomic gases marked a milestone in modern quantum physics. For the first time it has become possible to prepare millions of atoms in a single quantum state, with unprecedented possibilities to control and detect them. This novel quantum state of matter can be efficiently loaded into an artificial periodic potential, formed by laser light - a so called optical lattice - that consists of millions of small optical microtraps, which are perfectly aligned. In this system, almost all relevant parameters, such as the lattice shape, lattice depth and even the interaction strength between atoms can be completely controlled. It thus forms a unique laboratory to investigate fundamental questions of modern condensed matter physics, quantum optics and atomic and molecular physics, very much along the lines of what Richard P. Feynman considered a future Quantum Simulator to be. In my talk I will give an introduction and overview to this vibrating novel research field in the ultracold temperature regime and outline future perspectives

Ort: Max-Born-Saal, MBI, Max-Born-Str. 2a

Interessenten sind herzlich eingeladen.

Prof. Dr. I. V. Hertel