TECHNISCHE UNIVERSITÄT CHEMNITZ

PHYSIKALISCHES KOLLOQUIUM

Mittwoch, den 09.05.2012, um **17:15 Uhr**

Ort: Reichenhainer Str. 90; Neues Hörsaalgebäude, Raum: 2/N013

Prof. Dr. Thomas E. Cowan

Helmholtz-Zentrum Dresden-Rossendorf
Technische Universität Dresden

Ion Acceleration in Ultra-Intense Laser-Matter Interactions, and Applications in Radiation Oncology

The interaction of ultra-intense (Petawatt) laser pulses with matter, produces a fully relativistic plasma response, and creates extreme conditions in terms of energy and current density, field strengths, and radiation and particle flux. One particularly interesting result is the generation of intense, ultra-low emittance, multi-MeV proton and ion beams. These have in turn opened many possible applications in fundamental and applied research, ranging from new means to create and probe extreme states of matter, to the development of compact very-high gradient laser-driven particle accelerators. A particular emphasis at the Helmholtz-Zentrum Dresden-Rossendorf (HZDR) and the Medical Faculty of the TU Dresden, is the application of laser-accelerated proton beams in the developing field of Ion Beam Therapy in Radiation Oncology. In this talk, this exciting intersection between relativistic laser-plasma physics and medicine will by described, including the prospect of future compact laser-ion accelerators in light of emerging developments in high-intensity, high repetion-rate solid-state lasers at HZDR.

Alle Zuhörer sind ab 17:00 Uhr zum Kaffee vor dem Hörsaal eingeladen.

Informationen zum Vortrag erteilt Prof. Dr. Michael Hietschold, Tel.: 0371 531-33203