Vorlesungsankündigung SoSe 2020

„High-Energy-Density Physics“

Ort: Heinrich-Heine-Universität Düsseldorf, Seminarraum 25.42.02.31 (Institut für Laser- und Plasmaphysik) (or online via Skype, depending on the Corona situation)

Vorbesprechung am 23.06.2020, 14:30-16:30

Dozent: Priv.-Doz. Dr. Jens Osterholz

Umfang: 2 SWS entsprechend 3 ECTS Credit Points

Anmeldung: Online im HIS-LSF: https://lsf.uni-duesseldorf.de
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Abstract
High-energy-density phenomena play an important role in many areas of nature and technology, including astrophysics, planetary science, inertial confinement fusion and space technology. High-energy-density physics has recently been emerging as a novel area of research investigating matter under extreme conditions. Today, the production of high-energy-density states in the laboratory, e.g. by high-power lasers or by hypervelocity impact, allows to study high-energy-density states under well-controlled conditions. Laboratory experiments have contributed to a more detailed understanding of this fascinating topic.

The lecture gives an introduction to high-energy-density physics. Examples from astrophysics, geology and space technology are presented. In addition, the production and investigation of high energy density states in the laboratory and numerical modeling of high-energy-density phenomena are addressed.

The crab nebula – a typical example of high-energy-density phenomena. The formation and evolution of this supernova remnant are governed by radiative hydrodynamics. Image by NASA.