

Seminar

by

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Monday, 11. March 2019, at 15:00 Uhr in HS

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Energy transport and dissipation in solar flares

Solar flares represent the rapid conversion of energy as the magnetically stressed solar corona relaxes, with magnetic energy going into plasma heating, the kinetic energy of accelerated particles, and mass motions. Flares are now observed in exquisite detail with imaging and spectroscopy across the electromagnetic spectrum, allowing increasingly meaningful comparisons with detailed theory. In this talk I will give an introduction to solar flares, summarise some recent flare observations that indicate an important role for turbulence and magnetic fluctuations, and discuss these in the context of models motivated in part by processes in the Earth's magnetosphere. I will also show how the combination of radiation hydrodynamics modeling and high spectral resolution observations may be able to constrain models for flare energy transport and dissipation.