

High resolution solar telescope GREGOR

H. Peter and O. von der Luehe

Kiepenheuer-Institut fuer Sonnenphysik, Freiburg, Germany

GREGOR is a new 1.5 m solar telescope assembled on Tenerife, Spain by a German consortium together with international partners. It is designed for high-precision measurements of the magnetic field and the gas motion in the solar photosphere and chromosphere with a resolution of 70 km on the Sun, and for high resolution stellar spectroscopy. The telescope has a Gregorian configuration mounted in an open structure with a retractable dome for thermal control, and features a multi-conjugate adaptive optics system. GREGOR will be equipped with several post-focus instruments including polarimetric longslit spectrographs for the visible and infrared, and a high resolution Fabry-Perot filter spectrometer for 3D spectroscopy.

Apart from a report on the present status of the instrument, the talk will focus on a selection of science goals of GREGOR. Among these are the emergence, evolution and disappearance of (small-scale) magnetic flux, the energy budget of sunspots and the structure of their penumbrae, as well as the dynamics of the chromosphere. In this context an attempt will be made to put future observations with GREGOR in the context of modeling of the photosphere, chromosphere and corona.