EP 8: Sun II

Zeit: Mittwoch 11:10–12:10 Raum: Zahnklinik

Hauptvortrag EP 8.1 Mi 11:10 Zahnklinik

SUNRISE: High resolution UV/VIS observations of the Sun from the stratosphere — •Achim Gandorfer[1], Peter Barthol[1], Sami Solanki[1], Manfred Schüssler[1], Michael Knoelker[2], Valentin Martinez Pillet[3], Wolfgang Schmidt[4], and Alan Title[5] — [1]Max-Planck-Institut für Sonnensystemforschung, Max-Planck-Strasse 2, D-37191 Katlenburg-Lindau, Germany — [2]High Altitude Observatory, NCAR, 3080 Center Green, Boulder, CO 80301, USA — [3]Instituto de Astrofisica de Canarias, C/Via Láctea, s/n 38205, La Laguna, E-38200 Tenerife, Spain — [4]Kiepenheuer-Institut für Sonnenphysik, Schöneckstr. 6, 79104 Freiburg, Germany — [5]Lockheed-Martin Solar and Astrophysics Laboratory, 3251 Hanover Street, Palo Alto, CA 94304, USA)

SUNRISE is an international project for the development, construction and operation of a balloon-borne solar telescope with an aperture of 1 m, working in the UV/VIS spectral domain. The main scientific goal of SUNRISE is to understand the structure and dynamics of the magnetic field in the atmosphere of the Sun. SUNRISE will provide near diffraction-limited images of the photosphere and chromosphere with an unprecedented resolution down to 35 km on the solar surface. The first stratospheric long-duration balloon flight of SUNRISE is planned in summer 2009 from the Swedish ESRANGE station. This paper will give an overview about the mission and a description of its scientific and technological aspects.

EP 8.2 Mi 11:40 Zahnklinik

HINODE: Simulation of observed local coronal heating events — •Jörg Büchner and Jean Santos — Max-Planck-Institut für Sonnensystemforschung, Max-Planck-Str.2, 37191, Katlenburg-Lindau, Germany

The HINODE spacecraft mission provides unprecedented observations which, in principle, allow a deeper than ever insight into the physics of the coupling between photosphere, chromosphere and corona of the Sun. However, since important elements of the coupling processes (like the magnetic field above the photoshere) are not directly observable, theoretical and modelling approaches have to be applied to obtain a maximum of information from HINODE. The non-local and non-linear character of the coupling requires a numerical treatment of its models.

For this sake we developed a computer code that takes into account the complex structure of the coronal magnetic field in its relation to the photospheric sources, the inhomogeneity of the strongly structured plasma including the transition region and the coupling of ions to the neutral atoms of the chromosphere.

Using this code we investigated the local energization of the transition region and corona of the quiet Sun observed by Hinode.

We found the location of primary heating and that, due to the changing plasma conditions, a transition takes place between DC current heating in the chromosphere and 3D magnetic reconnection in the lower corona.

EP 8.3 Mi 11:55 Zahnklinik

Small-scale transition region loops in the network — •Hardi Peter and Sven Bingert — Kiepenheuer-Institut für Sonnenphysik, Freiburg

Observations of the transition region with SUMER often show small loop-like features of only a few Mm length above the chromospheric magnetic network. These have often been interpreted as following short magnetic field lines emerging and closing back within small patches of network. However, previous studies have not been able to find any magnetic connection to the underlying chromospheric structure. We will re-investigate these previous observations, adding new observational material, and study the relation of the small transition region loops to the photospheric magnetic field. Comparisons to 3D numerical simulations are used to test the hypothesis that the small transition region loop seen in emission do not follow the magnetic field.