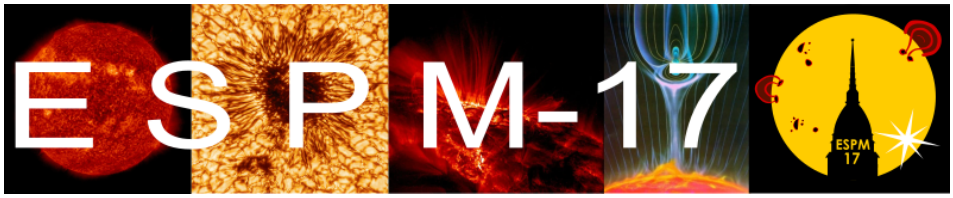

Contribution ID: **95** Type: **Poster**

Chromospheric Fe I lines in the NUV solar spectrum

The near-ultraviolet (NUV) part of the solar spectrum contains a dense haze of spectral lines. Some of the Fe I lines in this region show very broad profiles typical of chromospheric lines which contrast the well-studied photospheric Fe I lines in the visible part of the spectrum. The diagnostic potential of these spectral lines is largely unexplored due to a lack of high-resolution observations. With the SUNRISE III balloon-borne observatory we may for the first time have full spectro-polarimetric data at high spatial resolution of this region, and ground-based observatories can also observe the broad Fe I lines around 400 nm. The goal of this work is to investigate and discuss the formation properties of the spectral lines and their suitability for interpreting observations. First, an initial investigation into the formation of a selection of lines was conducted in the FAL one-dimensional semi-empirical solar atmosphere models using the non-LTE radiative transfer code RH. In agreement with earlier works on the Fe I spectrum, we find that the lines are largely affected by over-ionization in the wings, and by scattering in the line cores. The line cores form well into the chromosphere in the tested atmosphere models except the colder FALX model where the line cores form in the temperature minimum. The next step is to investigate the formation of these lines in the dynamic atmosphere of a 3D radiation-MHD model, made with the chromospheric extension of MURaM, and preliminary results from this will be presented.

Primary author: HARNES, Edvarda (Max Planck Institute for Solar System Research (MPS))

Co-authors: Dr NARAYANAMURTHY, Smitha (Max Planck Institute for Solar System Research (MPS)); Dr KORPI-LAGG, Andreas (Max Planck Institute for Solar System Research (MPS)); Dr PRZYBYLSKI, Damien (Max Planck Institute for Solar System Research (MPS)); Prof. SOLANKI, Sami K. (Max Planck Institute for Solar System Research (MPS))

Session Classification: Coffee break and poster session 2

Track Classification: Diagnostic tools and numerical methods in solar physics