Contributed Talk

Splinter Activity

Spectral variability of photospheric radiation due to small-scale magnetic features

C. M. Norris[1], Y. C. Unruh[1], S. K. Solanki[2,3], N. A. Krivova[2], K. L. Yeo[2], R. Cameron[2], B. Beeck[2]

[1] *Department of Physics, Imperial College London, London SW7 2AZ, UK*
[2] *Max Planck Institute for Solar System Research, Justus-von-Liebig-Weg 3, 37077 Göttingen, Germany*
[3] *School of Space Research, Kyung Hee University, Yougin, 446-701, Gyeonggi, Republic of Korea*

Stellar spectral variability on timescales of a day and longer arise from magnetic surface features such as dark spots and bright faculae. As such, facular contrasts are an important parameter in modelling stellar variability and exoplanet transits. Current 1D models of faculae do not capture the geometric properties and fail to reproduce observed solar facular contrasts. The ultimate goal of this work will be to model the contrasts of faculae using 3D magneto-convection simulations for different spectral types and thus improve the modelling of solar and stellar photospheric variability. This is done by using a radiative transfer algorithm (ATLAS9) on 3D simulated atmospheric snapshots (calculated with MURaM). We derive facular contrasts as a function of limb angle and activity level and discuss their wavelength dependence.