THEORETICAL PHYSICS SEMINAR

Title: Model of multi magnetic flux tube configurations in the Lower Solar Atmosphere

Speaker: Dr. Viktor Fedun, Univ of Sheffield, UK.

Date/Time/Venue: 10th April (Thursday)/4:00 PM/ Room No. 469

ABSTRACT

In this talk we will show the possibility of analytical construction of realistic magnetic field configurations, typical of the lower solar atmosphere. The magneto-hydrostatic equilibrium is obtained by taking into account the presence of external forces. Systems incorporating open single and multiple flux tubes and closed magnetic loops can be combined to form magnetic structures that could even represent complex solar active regions. The developed model successfully spans the Interface Region of the solar atmosphere, from the photosphere up to the solar corona across the challenging transition region, while retaining physically valid plasma pressure, density and magnetic flux. Modelling magnetic structures can depict the main characteristics of solar intergranular lanes or active regions. HMI data can be used, as an initial magnetic field distribution, to construct a realistic magnetic field distribution. The model includes a number of free parameters, which makes the solution applicable to a variety of other physical problems, and it may therefore be of more general interest.

All are welcome to attend