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Together with
7th Asia Pacific Association of Hydrology and Water Resources (APHW) Conference

Multi-scale plasma wave processes in the solar atmosphere (ST33)

Multi-scale plasma wave processes play a fundamental role for energy transfer from the lower solar atmosphere to corona. The innovative "new generation" hi-resolution solar observing instruments (IBIS/DST, CRISP/SST, ROSA/DST, IRIS, Hinode, SDO, Hi-C) have provided a step-change in understanding the non-thermodynamic physical mechanisms contributing to solar atmospheric heating. Concurrently, results of cutting-edge numerical simulations, hi-resolution observations and theoretical development have produced great advances in multi-scale plasma modelling and data inversion. Scientific debate is still on-going as to how observed MHD-scale waves generated at the photospheric region can be transformed into much smaller (kinetic) length scales where heating processes become more efficient. The current numerical modelling of solar atmospheric waves is separated by two main physical regimes i.e. MHD and kinetic. The large-scale MHD simulations of the wave processes in the lower solar atmosphere include the effects of radiation and partial ionisation. The question is: do contemporary MHD simulations have anything like time/space resolution and the complex magnetic topology (and the additional observed properties such as flux emergence, cancellation, shearing, granular buffeting) required to adequately model what is happening in the small-scale wave/reconnection/heating events?
This is the key motivation of the session ST33.

Invited Speakers

Peng-Fei Chen, Nanjing University, China
Róbert von Fáy-Siebenbürgen (Erdélyi), The University of Sheffield, UK
Marcel Goossens, KU Leuven, Belgium
Elena Khomenko, Instituto de Astrofísica de Canarias, Spain
Takuma Matsumoto, Nagoya University, Japan
Abhishek Srivastava, Indian Institute of Technology, India
Hui Tien, Harvard-Smithsonian Center for Astrophysics, USA
Gary Verth, The University of Sheffield, UK

Conveners

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