

# IAU Symposium 294

## Solar and Astrophysical Dynamos and Magnetic Activity

### 27-31 August, 2012

The goal of this symposium is to discuss the most important results of recent studies of the cosmic dynamo processes: the origin and evolution of magnetic fields in various astrophysical objects from planets, to stars and galaxies, solar and stellar activity cycles, advances in dynamo theories and numerical simulations, similarities and differences between the solar and stellar activity of different scales, driving mechanisms and triggers of solar and stellar magnetic relaxation phenomena, connections between the dynamo mechanisms in various objects, and other hot topics related to the solar and astrophysical dynamos.

The symposium will overview the state of our understanding of dynamo mechanisms in different astrophysical conditions, discuss new observational results, theoretical models, similarities and differences of the physical processes leading to magnetic field generation and formation of magnetic structures. It will focus on the link between theory and observation, and identify critical problems for future observations and modeling.

The symposium will bring together observers and theorists, and encourage discussions and co-operations among solar, stellar, planetary and galactic astronomers. It will help in the development of new ideas regarding the fundamental dynamo processes, and in understanding links between these processes and magnetic activity on various cosmic scales.

#### **Scientific Organising Committee**

Alexander Kosovichev (USA)  
Yihua Yan (China)  
Lidia van Driel-Gesztelyi (France)  
Elisabete de Gouveia Dal Pino (Brazil)

Rainer Beck (Germany)  
Axel Brandenburg (Sweden)  
Gianna Cauzzi (Italy)  
Arnab Rai Choudhuri (India)  
Louise Harra (UK)  
Maarit Korpi (Finland)  
Vladimir Kuznetsov (Russia)  
Aimee Norton (Australia)  
Kristof Petrovay (Hungary)  
Nikolai Piskunov (Sweden)  
Takashi Sekii (Japan)  
Nataliya Shchukina (Ukraine)

## Final Program

### Monday August 27

**Session 1: Solar dynamo and activity cycles: observations, theories and simulations. I.**

**Chair: Cheng Fang**

[Multi-scale nature of solar magnetism and cyclicity of magnetic activity](#)

Sami Solanki (Germany)

[Helioseismic Measurements of Differential Rotation and Meridional Flows](#)

Junwei Zhao (USA)

[Observations of magnetic and kinetic helicity proxies](#)

Hongqi Zhang (China)

[Sunspot properties and the solar dynamo](#)

Aimee Norton (Australia)

**Session 2: Solar dynamo and activity cycles: observations, theories and simulations. II.**

**Chair: Axel Brandenburg**

[Flux-transport and mean-field dynamo theories of solar cycles](#)

Arnab Choudhuri (India)

[Solar-cycle precursors and predictions](#)

Jie Jiang (China)