

Stars with a stable magnetic field: from pre-main sequence to compact remnants (second announcement)

August 28 - September 01, 2017

Department of Theoretical Physics and Astrophysics, Brno, Czech Republic

The registration is open until the 15th of August at
<http://magnetic17.physics.muni.cz/registration/>
Abstract submission deadline is the 1st of July.

Information about accommodation is available at
<http://magnetic17.physics.muni.cz/location/accommodation/>

Scientific Rationale:

Magnetic fields play an important role in the evolution of all stellar objects, through their ability to influence and alter the angular momentum evolution, internal mixing, activity phenomena, surface abundances and mass-loss of stars. This research field benefits from new highly accurate measurements and numerical simulations, enabling stellar astrophysicists to take magnetic fields into account in most models of stellar structure and evolution. We want to bring together researchers from different fields where magnetic fields play an important role to join their efforts and discuss their common interests.

The following topics will be covered:

- Characteristics of surface magnetic fields in early-type stars
- Magnetic fields and the stellar structure and evolution
- Magnetism, accretion and braking of PMS stars
- Surface structure formation in the presence of magnetic field: connection with diffusion and accretion
- Magnetic field origin and stability
- Magnetically-confined winds
- Stellar pulsations in the presence of global magnetic fields
- Post main sequence evolution of early-type magnetic stars
- Final phases of stellar evolution: magnetism in compact objects
- The future of magnetic field measurements in hot stars

The proceedings of the conference will be published in the Contributions of the Astronomical Observatory Skalnaté Pleso.

Here is the current list of invited talks:

Introductory review

Impact of magnetic fields on stellar structure and evolution: L. Ferrario, Australia

Session 1- Magnetized stellar formation

Magnetic fields of Giant Molecular Clouds: P. Padoan, Spain

The fossil field theory: models versus observations: K. Augustson, France

Photospheric magnetic geometry and channelled accretion of PMS stars: G. Hussain, ESO

Modelling the magnetized accretion and outflows in young stellar objects: C. Fendt, Germany

The role of turbulence and magnetic fields for star formation: C. Federrath, Australia

Session 2- Magnetic activity including pulsations of upper main-sequence stars and binaries

Numerical simulations of stellar dynamos: G. Guerrero, Brazil (TBC)

Stellar activity and stellar pulsations from ground and space based: TBA

Magnetic fields of intermediate mass objects: P. Petit, France

Surface mapping tools: theories versus observations: O. Kochukhov, Sweden

Asteroseismology of magnetic stars: P. Walczak, Poland

Magnetic fields in binary systems: Y. Naze, Belgium

Session 3- Origin and impact of magnetic fields in massive stars

The dynamo theory: models versus observations: S. Mathis, France

Magnetic fields of massive stars: C. Neiner, France

Modelling complex magnetic fields in stars with radiative envelopes: J. Silvester, Sweden

Magnetic field stability in massive stars: A. Bonanno, Italy

Magnetic confinement, structure and variability of hot-star winds: TBA

Session 4- Magnetic fields in the ultimate stages of stellar evolution

The evolution of magnetic fields from the main-sequence to very late stages: TBA

Magnetic fields of cool giant and supergiant stars: models versus observations: H. Korhonen, Denmark

Magnetic fields of AGB stars and planetary nebulae: models versus observations: W. Vlemmings, Sweden

Magnetic fields of white dwarfs: A. Kawka, Czech Republic

Magnetic fields of neutron stars: A. Reisenegger, Chile (TBC)

Angular momentum evolution of magnetic black holes: B. Mukhopadhyay, India (TBC)

Session 5- The future of magnetic field measurements

The current status of the observational capabilities to characterize magnetic fields: S. Bagnulo, UK (TBC)

Upcoming instruments suitable to measure magnetic fields: G. Wade, Canada

Impact of new instruments and satellite missions: W. Weiss, Austria

Weblink: <http://magnetic17.physics.muni.cz/>