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Announcement

CONSTRAINING SOLAR/STELLAR ACTIVITY AND MAGNETICALLY-DRIVEN VARIABILITY

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A splinter session *Constraining Solar/Stellar Activity and Magnetically-Driven Variability* will be held at the Cool Stars 19 meeting in Uppsala, Sweden, on June 7th and on June 9th, 2016.

Co-chairs: Damian Fabbian & Rosaria Simoniello, SOC members: R. Collet; S. Criscuoli; H. Korhonen; N. Krivova; K. Oláh; A. Shapiro; A. Vidotto; N. Vitas

SCIENTIFIC MOTIVATION

The richness of solar observations, for which continuous monitoring is now available at extremely high spatial resolution and throughout the electromagnetic spectrum (e.g., HINODE, SDO), is complemented by a wealth of new spectro-polarimetric observations and information at increasing spatial and temporal resolution in the new era of statistical studies based on unprecedentedly huge samples of stars observed from space-borne observatories like *Kepler* and *CoRoT*. Together with the results of advanced theoretical and computational tools and the availability of massively-parallel supercomputers, these new data are rapidly changing our view of stellar magnetic activity and variability throughout stellar evolution.

Solar-like stars are known to show chromospheric activity similar to that on the Sun, e.g. in the Ca II H and K emission indicators. Magnetic activity shows erratic, multi- or single-periodic behaviour, interrupted by long quiescent periods (grand minima). What is the origin of this broad range of variability in stellar activity and how does it relate to solar variability and activity? In solar-like stars, the cyclic activity is ascribed to a dynamo mechanism maintained through differential rotation at the tachocline. However, the tachocline moves towards increasing depths with later spectral types, disappearing around spectral-type M4. Thus, a direct comparison between the stellar activity in solar-type with lower-mass stars is essential for the understanding of the effect of stellar mass on the resulting magnetic activity through a dynamo mechanism.

This Splinter is aimed at offering a synthetic view of the recent progresses in the domain of variability of stellar magnetism from different perspectives. We invite astrophysicists to present their latest results on this topic, in particular in relation to the solar-stellar

connection and the intimate interplay between magnetic activity and variability of our Sun and cool stars.

Key questions/scientific motivation:

- How does the Sun's variability and activity compare to that of other solar-like stars?
- What do we know about magnetically-driven variability and activity in FGK-type stars of different evolutionary stages?

In particular, the different sessions will focus on:

1. Solar/stellar variability: observational properties and theory
2. Stellar magnetic fields and their impact on the surrounding environment
3. Rotation/activity relation from stellar survey and theory
4. Constraining solar/stellar dynamo theory

We kindly invite solar and stellar astrophysicists to present their latest results on this topic, in particular in relation to the solar-stellar connection and on the peculiarities and common features between magnetic activity and variability of our Sun and cool stars.

Please consider attending and contributing and save the dates to your diary.

Abstract submission deadline: Friday, April 29th, 2016

For contributed talks, you can already send your abstract through the splinter webpage: http://www.mso.anu.edu.au/∼remo/cs19/splinters/stellar-var/

For posters, please note that abstracts should be submitted during the compulsory registration to the plenary session via the CS19 website at http://www.coolstars19.com/

Further announcements about this splinter session will follow soon including confirmed invited speakers and other relevant instructions.

http://www.mso.anu.edu.au/∼remo/cs19/splinters/stellar-var/