Graduate School Seminar

www.physik.uni-rostock.de/grk/
grk.sfb652@uni-rostock.de

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Dr. Manfred Kitze
Astrophysikalisches Institut
und Universitätssternwarte Jena

Investigation of the Superflare-frequency on sun-like Kepler-stars

During the last centuries historic observations revealed the magnetic activity of the sun. The large-scaled poloidal magnetic field reverses during a cycle of about 11 years. Especially during the maximum of particular cycles, dark sun spots can occur on the solar surface, which can store a huge amount of magnetic energy. If magnetic reconnection happens in the solar atmosphere, strong explosions and eruptions of material can be generated, which are called *flares*. The radiation which is accompanied by such events, covers a wide range of the electromagnetic spectrum, including the optical part. Particular strong events with coronal mass ejections and high energetic particles can enter the atmosphere of Earth and cause large damage on the biosphere and telecommunication.
It is of special interest to study numerous stars with properties similar to the sun to draw meaningful statistics on flares in high energy ranges. Space-based observations in the optical wavelength range, for example obervations of Kepler and CoRoT provide a unique chance to homogeneously study several thousands of sun-like stars. In previous studies the first 120d and 500d of Kepler-data have been investigated. It could be shown, that sun-like stars are able to create flares which are one to six orders of magnitude larger than the strongest events on the sun (called *superflares*). These results provide a challenge for theorists working on hydrodynamical dynamo-models of partly convective stars with spectral type similar to the sun.

Talk: English
Slides: English

Location: Institute of Physics, Albert-Einstein-Str. 24, HS1

Talks in SS 2016

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