



Vienna Astrophysics Colloquium

Monday 27 January 2020 | 3 pm | Lecture Hall

Speaker

Denis Shulyak (MPS Göttingen, Germany)

Title

Magnetic fields, rotation, and activity in M dwarf stars

Abstract

M dwarfs are known to generate the strongest magnetic fields among main-sequence stars with convective envelopes, but we are still lacking a consistent picture of the link between the magnetic fields and underlying dynamo mechanisms, rotation, and activity. For instance, models predict that the maximum magnetic flux a star can generate scales with convective energy stored in its envelope, but no accurate measurements existed until recently. Thanks to the progress in analysis methods and observing efforts carried out with world famous instruments such as, e.g., ESPaDOnS/NARVAL (CFHT, Hawaii) and CARMENES (Calar Alto, Spain) we are at the position to have a new look at magnetism in these cool stars.

In this talk I will give an overview of what we have learned so far, and how does this agree with our expectations. I will also comment on possible implications of recent exciting findings and on future endeavors.