

Dynamos, Magnetic Activity and Doppler Tomography: Young stars with HRMOS

Tuesday, 19 October 2021 11:20 (25 minutes)

In their youth, low-mass (0.1-1.5 Msun) stars are rapidly rotating, magnetically active and may be accreting gas from a circumstellar disk. As they age, planets form and possibly migrate, disks disperse and stars spin down, becoming less magnetically active. The magnetic field, generated by a rotation-driven dynamo process, plays a key role in all of these events; the stressing and twisting of buoyant magnetic fields by differential rotation and turbulence leads to manifestations such as starspots, chromospheric and coronal heating and prominences; the magnetic field can couple to the stellar wind or surrounding accretion disk to regulate and lose angular momentum, which in turn feeds back into the dynamo. HRMOS offers a unique opportunity to provide long-term monitoring and Doppler imaging of the surface and coronal magnetic activity, prominences and starspot patterns of large samples of stars in open clusters at a variety of well-determined ages. I will describe some of the science goals and the technical requirements of such a project.

Type

invited talk

Primary author: JEFFRIES, Robin (Keele University)

Presenter: JEFFRIES, Robin (Keele University)

Session Classification: Day 2