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Young stars and disk interaction

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Young stellar objects are characterised by highly dynamical processes related to the interaction of the still accreting star and its proto-planetary disk. These include accretion of matter, funnelled through magnetic field lines from the disk to the stellar surface, as well as mass ejection in the form of collimated jets and disk winds, responsible for the disk dissipation and removal of angular momentum. The spatial scales of the inner star-disk interaction region (i.e. within 1 au) cannot be directly resolved, however the relevant processes can be individually investigated through high resolution spectroscopy.
In particular, spectroscopic surveys of YSOs in young clusters can provide observational foundation to the magnetospheric accretion paradigm and help in the understanding of how the accretion and ejection properties evolve with time and depend on stellar properties (such as mass, luminosity, age, metallicity). In this contribution, I will address the potential of a facility like HRMOS for the above science and which are the needed instrument requirements.

Type

invited talk

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