

Contribution ID: 15

Type: **not specified**

Protostellar accretion disks and their outflows

Monday, 4 August 2014 15:45 (30 minutes)

Magnetocentrifugal jets and magnetically-driven turbulence have been recognized as the leading candidates for transporting the excess angular momentum of protostellar disks, thereby enabling mass accretion onto the central object. It is also clear that magnetic diffusivity plays a central role in the overall disk accretion and outflow processes. However, the impact of magnetic dissipation on the structure and observational signatures of these objects remains poorly understood. In my talk, I will examine the launching of outflows from the surfaces of weakly-ionised protostellar disks, and present models that calculate the vertical and radial structure of the disk and the emerging wind. These models allow us to study the properties of the disk and wind as a function of location, and the radial extent of the wind-launching region. Finally, I will discuss the implications and future applications of these studies, including the analysis of the observational signatures of the protostellar system.

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Session Classification: Monday Afternoon

Track Classification: Workshop Main Programme