
Accretion shocks on Young Stars: recent results and perspectives

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Abstract

One of the first stages in pre-main sequence stars' evolution is mainly governed by exchanges of mass and momentum between the proto-star and its accretion disk. These quantities remain uncertain due to numerous unanswered questions concerning the topology of the accretion flow, its temperature, its observability in the UV and X-ray bands, its (a)periodic behavior, if and how accretion affects the coronal activity of the proto-star, etc.

In this talk, I will focus on 1D simulations of accretion columns falling onto a dynamically heated stellar chromosphere. I will present the method used for the radiative hydrodynamics. I will specifically focus then on the creation of dedicated opacity tables, using SYNSPEC code. With this method, we studied two phenomena: first, the mutual feedback between a dynamically heated chromosphere and the accretion process, then the coupling between radiation and matter. I will finally present our perspectives on this topic.

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