

CONSTRAINING THE INITIAL CONDITIONS FOR HUB-FILAMENT SYSTEMS

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Abstract

Nowadays it is widely accepted that present-day stars form almost exclusively in the filamentary structures threading molecular clouds. Among the filament structures, a particularly remarkable case is the junctions of massive filaments, known as hub filament systems (HFS), which are the preferential sites of high-mass star formation. To better understand how star clusters form and develop within the HFS, it is necessary to understand what the conditions prior to the formation of HFS are, and how the matter evolves in such structures.

To this end, we present the results of a series of ideal magnetohydrodynamics simulations, aiming at constraining the initial conditions necessary to form hub filament systems.

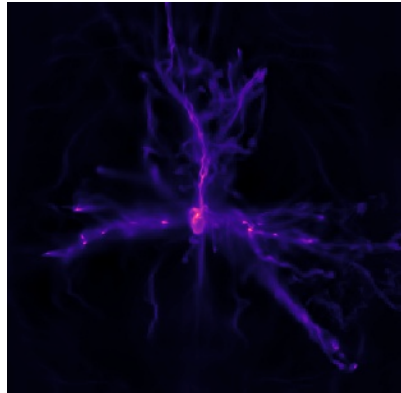


Fig. 1: Hub filament system formed in a magnetized turbulent cloud.