

A Zoom-in Simulation of the Accretion Flow surrounding a POP III Protostar

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Population III stars are known to form in a warm environment due to a lack of coolant in the early Universe. The warm nature leads to a high accretion rate and a formation of a massive primordial accretion disk. A massive disk is known to be gravitationally unstable. In previous zoom-in cosmological numerical simulation, a spiral structure emerges out of the disk. The dense region then gradually collapses into several gravitationally bound clumps. To better understand the fragmentation process, we have developed a Poisson solver in the cylindrical coordinate. The numerical scheme allows us to have a closer look on the disk physics. I will present the numerical scheme that have been developed, and a preliminary calculation of the accretion process around POP III protostar.

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Talk/Poster

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