

Formation of Protostars

Terrence Tricco

Canadian Institute for Theoretical Astrophysics

University of Toronto

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ABSTRACT: The formation of protostars is a multi-physics problem spanning a wide range of dynamical length and time scales. Forming out of immense clouds of cold molecular gas ($\sim 10^6$ solar mass), dense clumps of gas undergo nearly a 20 order of magnitude increase in density before a protostar is formed. This environment in which protostars form is highly turbulent, and the protostars themselves eject beautiful jets and outflows back into their surroundings. Modeling star formation numerically is therefore challenging, as combining all the relevant scales and physical process from start to finish is not possible in a single simulation. I use simulations targeting a specific scale or physical process to understand the star formation puzzle one piece at a time. I will discuss results from some of our simulations, along with our efforts to develop the required numerical methods and softwares.

ALL ARE WELCOME!