



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
COLLOQUIUM

The Basic Physics of Star Formation

by



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Time: 4:00 - 5:00 p.m.

Place: L2, Science Centre, CUHK

(Light refreshments will be served at [SCNB 1/F lobby](#) from 3:30 to 3:50 p.m.)

ALL INTERESTED ARE WELCOME

Abstract

Star formation is the main driving mechanism for the evolution of galaxies and provides habitable environments in our universe. Recent observations have emphasized the importance of the formation and evolution of magnetized filamentary molecular clouds in the process of star formation. Theoretical and observational investigations have provided convincing evidence for the formation of molecular cloud cores by the gravitational fragmentation of filamentary molecular clouds on the surfaces of supernova remnants or bubbles. Thus, the mass function and rotations of molecular cloud cores should be directly related to the properties of the filamentary molecular cloud, which determines the initial size and mass distribution of a protoplanetary disk around a protostar created in a core. In this talk I explain our current understanding of the star formation processes in the Galactic disk, and summarize various processes that are required in describing the filamentary molecular clouds to understand the star formation rate/efficiency, and the stellar initial mass function. (If time allows) I will also address how massive stars form in dense molecular clouds identified as “hub-filament systems”, which can be understood in an extension of the filament paradigm.