

COMPUTATIONAL RESEARCH in BOSTON and BEYOND SEMINAR

THE MILKY WAY IN SEVEN DIMENSIONS

HARSHIL KAMDAR

Harvard University

ABSTRACT:

The clustered nature of star formation and the presence of spiral arms in our galaxy should produce a high degree of structure in both the kinematics and the chemical make-up of stars. In this talk, I will present a new dynamical model of the galactic disk that takes into account the clustered nature of star formation. This model predicts that the combined phase and chemical space is rich in substructure and that this structure is sensitive both to the precise nature of clustered star formation and the galaxy's large-scale properties. The model self-consistently evolves 4 billion stars over the last 5 Gyr in a realistic potential that includes an axisymmetric component, a bar, spiral arms, and giant molecular clouds. We demonstrate that the combination of chemical and phase space information is much more effective at identifying truly co-natal populations than either chemical or phase space alone. I will highlight a few key results from the simulations and the potential for harnessing the synergies between current data and our models to reveal the assembly history of the galaxy.

FRIDAY, DECEMBER 4, 2020

12:00 PM – 1:00 PM

ZOOM MEETING info:

<https://mit.zoom.us/j/96155042770>

Meeting ID: 961 5504 2770

<http://math.mit.edu/crib/>