JOINT TUFTS/MIT COSMOLOGY SEMINAR

Inhomogeneous and Anisotropic Cosmology

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Very little is known about cosmology away from the homogeneous limit. In this talk I will describe a set of novel results regarding universes with arbitrarily large inhomogeneity and anisotropy. I will prove rigorously that the spatial topology strongly constrains the ultimate fate of the universe - for "most" spatial topologies and with matter satisfying the weak energy condition, the universe must expand forever at least somewhere, despite the formation of black holes and other strong gravitational effects. I will present simulations showing how this happens, and demonstrate that no homogeneity in the initial conditions is required for inflation to begin, regardless of the inflationary energy scale or the amplitude or spectrum of the initial density perturbations.

Tuesday, February 16, 2016, 2:30 pm
574 Boston Ave, Room 310
Tufts University

Refreshments at 2:00 outside room 304