



PHYSICS AND ASTRONOMY SEMINAR

Dr. Jorge Peñarrubia

Royal Observatory, Edinburgh

“A Dynamical Model of the Local Cosmic Expansion”

Abstract

Galaxies in and around the Local Group provide a spectacular display of the long-standing contest between the Big Bang expansionary velocities and the gravitational pull of matter.

In this talk I will introduce a Bayesian method for modelling the dynamics of these objects within the Lambda-CDM framework which puts (simultaneous) constraints on the Local Group mass, the mass ratio between the Milky Way and Andromeda, the Galactic circular velocity at the solar radius, the Hubble constant and the fractional vacuum energy density. With aid of restricted N-body simulations I will discuss the impact of the Milky Way-Andromeda quadrupole on the accretion of mass onto the Local Group. Finally, I will also show that a local measurement of the Hubble constant can be used to constrain the structure of the Universe around us.

Monday, April 7, 2014

2:00 p.m.

Elliott Building

Room 162