DEPARTMENT OF ASTRONOMY & ASTROPHYSICS

SPECIAL ASTRONOMY SEMINAR

June 24, 2011

Speaker : Dr. Kanak Saha
Max-Planck-Institute for Extraterrestrial physics, Garching, Germany.

Title : Dynamical evolution of a low mass classical bulge in barred galaxies.

Day, Date & Time : Friday, July 1, 2011 at 14:30 hrs.

Venue : TAP Seminar Room (A269)

(H.M. Antia)

Abstract

Secular evolution is one of the key routes through which galaxies evolve along the Hubble sequence. Not only the disk undergoes morphological and kinematic changes, but also a preexisting classical bulge may be dynamically changed by the secular processes driven primarily by the bar. We study the influence of a growing bar on the dynamical evolution of a low mass classical bulge such as might be present in galaxies like the Milky Way. Using high resolution N-body simulation, it is shown that an initially non-rotating low mass classical bulge absorbs angular momentum emitted by the bar. The basic mechanism of this angular momentum exchange is through resonances. As a result of this angular momentum gain, the initially non-rotating classical bulge transforms into a fast rotating, radially anisotropic and triaxial object. Towards the end of the evolution, the classical bulge develops cylindrical rotation. Some implications of these results will be discussed briefly.