

DEPARTMENT OF ASTRONOMY & ASTROPHYSICS

SPECIAL ASTRONOMY SEMINAR

February 9, 2011

Speaker : Prof. Holger Baumgardt
University of Queensland, Australia

Title : Dynamics of Intermediate Mass Black Holes
in Star Clusters and Galactic Nuclei

Day, Date & Time : Monday, 14 February, 2011 at 16.00 hrs

Venue : TAP Seminar Room (A269)

(A. Gopakumar)

Abstract

X-ray observations of starburst and interacting galaxies have revealed a class of ultra-luminous X-ray sources (ULX), whose luminosities exceed the Eddington luminosities of stellar mass black holes by orders of magnitude, making them good candidates for intermediate mass black holes (IMBHs). If real, IMBHs would provide an important link between the supermassive black holes in galactic centers and "normal" stellar mass black holes.

In my talk, I will present results of N-body simulations of the dynamical evolution of young star clusters. Conditions under which run-away merging can lead to the growth of intermediate-mass black holes are illustrated for low and high mass clusters. I will then show how clusters containing IMBHs evolve at later times and discuss evidence that some galactic globular clusters host IMBHs. I will finally discuss if the recently discovered hyper-velocity

stars in the galactic halo were ejected by inspiralling IMBHs in the galactic center.