

DEPARTMENT OF ASTRONOMY & ASTROPHYSICS

SPECIAL ASTRONOMY SEMINAR

October 13, 2011

Speaker : Mayukh Pahari,
DAA-TIFR

Title : Observational understanding of accretion flow
in Black Hole X-ray Binaries

Day, Date & Time : Wednesday, October 19, 2011 at 1430 hrs

Venue : TAP Seminar Room A-269

(A. Gopakumar)

Abstract

Black hole X-ray binaries (BHXBs) are widely observed sources in the X-ray and radio astronomy but its accretion mechanism and radiation geometry is poorly understood. I would like to discuss basic assumptions and brief review of theoretical models describing accretion flow around BHXBs and the limitation of these models to explain observational data, particularly for GRS 1915+105, an extraordinary galactic microquasar which seems to show random behavior. Comparing results of GRS 1915+105 with other black hole X-ray binaries (GX 339-4, XTE J1650-500 etc.), I would discuss the observational difference of these systems. In this context, I shall discuss the results from the recent outburst of the black hole X-ray binary IGR J17091-3624 which showed some similarities with GRS 1915+105 and may serve as a missing bridge between GRS 1915+105 and other BHXBs. To understand the reason of observational differences in BHXBs, I extended my study to the accretion flow around Neutron Star X-ray Binaries and found some clues to resolve the problem. On the basis of our result, we proposed an identification scheme of BHXBs and

NSXBs. I will also discuss results from some of hard X-ray detector systems which we have studied in our lab for future space experiments.