

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

DEPARTMENT OF ASTRONOMY & ASTROPHYSICS

ASTRONOMY SEMINAR

March 17, 2010

Speaker : Harshal Bhadkamkar
TIFR-DAA

Title : Understanding the luminosity function of
High mass X-ray binaries

Day, Date & Time : Tuesday, 23 March, 2010 16.00 hrs

Venue : Lecture Theater (AG66)

(J.S. Yadav)

Abstract

We present here theoretical calculations for the luminosity function of High Mass X-ray Binaries (HMXBs). Observationally motivated probability density functions of parameters of primordial binaries, which are progenitors of HMXBs, are transformed using standard results in probability theory. Resulting distributions are further transformed to obtain luminosity function using analytical fitting formulae for stellar evolution and models of wind mass loss from massive stars. Properties of luminosity function and its dependence on model parameters is investigated. We finally present the comparison of our results with observationally obtained luminosity functions of HMXBs. We indicate possible shortcomings of the model and show probable direction for testing our theoretical calculations.