Ultraluminous X–ray Sources in External Galaxies

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[Invited Review Talk, 30 min.]

Abstract

I consider models for the class of ultraluminous non–nuclear X–ray sources (ULXs) seen in a number of galaxies and probably associated with star–forming regions. While some individual ULXs could involve massive ($> 10^5 M_{\odot}$) black holes emitting isotropically, this is not a promising model for the class. The assumption of mild X–ray beaming suggests instead that ULXs may represent a shortlived but extremely common stage in the evolution of a wide class of X–ray binaries. The best candidate for this is the phase of thermal–timescale mass transfer inevitable in many intermediate and high–mass X–ray binaries. This in turn suggests a link with the Galactic microquasars. The short lifetimes of high–mass X–ray binaries would explain the association of ULXs with episodes of star formation.

CATEGORY: BLACK HOLE AND NEUTRON STAR BINARIES NORMAL GALAXIES