
Accretion/ejection coupling in black holes HMXBs at low luminosities through the study of Be/BH systems

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Abstract

Astrophysical jets have allowed to gain knowledge on the accretion/ejection coupling in X-ray binaries containing stellar-mass black holes (BHs). In particular, observations conducted in low-mass X-ray binary systems (LMXBs) have yielded a non-linear X-ray/radio correlation which reflects the coupling in these systems. Together with supermassive black holes, these studies have allowed to discover the Fundamental Plane of black hole activity. However, high-mass X-ray binaries (HMXBs) have not been included in these studies up to now: the only of such sources in the Galaxy, namely Cygnus X-1, is always a bright X-ray/radio object which does not vary enough to trace the correlation. The recent discovery of the first binary system containing a Be star and a BH, namely MWC 656, has allowed the discovery of the first quiescent BH HMXB. Here we report on recent X-ray/radio observations of MWC 656 that allow us to study the correlation with BH HMXB for the first time. Our results show that the obtained X-ray/radio luminosities for this quiescent BH HMXB are fully compatible with those of the X-ray/radio correlations derived from quiescent BH LMXBs. These results reveal that the accretion/ejection coupling in stellar-mass BHs is independent of the nature of the donor star. We will also report on ongoing and planned observations of MWC 656 and other similar systems aimed at constraining the correlation for BH HMXB at low luminosities.

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Keywords: black holes, X, ray binaries, massive stars, accretion/ejection coupling, correlation studies