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Associations of X-ray Binaries with Open Clusters and Supernova Remnants

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Abstract: Searching for X-ray binaries projected on open clusters (OCs) and supernova remnants (SNRs), associations of X-ray binaries with OCs and SNRs in the Galaxy are discussed. Three of the high mass X-ray binaries (HMXBs) and four of the low mass X-ray binaries (LMXBs) are projected on open clusters. Five of HMXBs and six of LMXBs are projected on SNRs. The number of the HMXB projections are less than the LMXBs, which is not expected and is surprising since the objects in this study, except the LMXBs, are all young objects. Such associations help us improve distance and age estimates of these objects and understand their origins. We discuss the associations of HMXB 0146+612 with OC NGC 663, HMXB 0749--600 with OC NGC 2516 and LMXB 2259+587 with SNR G109.1--1.0 (CTB 109), and conclude that they may likely be real. We also discuss the interesting associations of SNR G39.7--2.0 (W50) with HMXB 1909+048 (SS433) and association of LMXB 1724--307 with globular cluster Terzan 2 and with OC vdB 228. Other associations are found are to be unreliable.

Key Words: X-ray binaries, open clusters, supernova remnants.

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