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Low-mass X-ray binaries from black-hole retaining globular clusters MATTHEW GIESLER, DREW CLAUSEN, CHRISTIAN OTT, Caltech — Recent studies suggest that globular clusters (GCs) may retain a substantial population of stellar-mass black holes (BHs), in contrast to the long-held belief of a few to zero BHs. We model the population of BH low-mass X-ray binaries (BH-LMXBs), an ideal observable proxy for elusive single BHs, produced from a representative group of Milky Way GCs with variable BH populations. We simulate the formation of BH-binaries in GCs through exchange interactions between binary and single stars in the company of tens to hundreds of BHs. Additionally, we consider the impact of the BH population on the rate of compact binaries undergoing gravitational wave driven mergers. The characteristics of the BH-LMXB population and binary properties are sensitive to the GCs structural parameters as well as its unobservable BH population. We find that GCs retaining $\sim$ 1000 BHs produce a galactic population of $\sim$ 150 ejected BH-LMXBs whereas GCs retaining only $\sim$ 20 BHs produce zero ejected BH-LMXBs. Moreover, we explore the possibility that some of the presently known BH-LMXBs might have originated in GCs and identify five candidate systems.

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