

Abstract Submitted
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Comparing the spatial distributions of HMXBs and star-forming regions in the Small Magellanic Cloud RYAN AGNEW, QUINTON DZURNY, ARASH BODAGHEE, Georgia College and State University — The Small Magellanic Cloud (SMC) is a satellite galaxy of the Milky Way. Thanks to its relative proximity, 234 massive stellar clusters are easily resolved with modern telescopes as are 72 byproducts of these nurseries: so-called high-mass X-ray binaries (HMXBs) which are systems comprising a massive star paired with a collapsed star such as a neutron star or black hole. However, a direct link between an HMXB and its parent cluster is not immediately clear except in rare cases. The purpose of this study is to determine the proximity of these two related populations by performing a statistical analysis of their spatial distributions as observed in the SMC. Our study represents the first ever application of the two-point correlation function to the populations of another galaxy. A significant correlation has been found, and these results provide clues to the evolution of massive stars such as the magnitude of the natal kick received by the HMXB during the supernova, and the time that elapses between the supernova and accretion phases of the HMXB.

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