

Highly absorbed X-ray binaries in the Small Magellanic Cloud

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Many of the high mass X-ray binaries (HMXRBs) discovered in recent years in our Galaxy are characterized by a high absorption, most likely intrinsic to the system, which hampers their detection at the softest X-ray energies. We have undertaken a search for highly-absorbed X-ray sources in the Small Magellanic Cloud (SMC) with a systematic analysis of 62 XMM-Newton SMC observations. We obtained a sample of 30 sources showing evidence for an equivalent hydrogen column density larger than $3 \times 10^{23} \text{ cm}^{-2}$. Five of these sources are clearly identified as HMXRBs: four were already known (including three X-ray pulsars) and one, XMM J005605.8-720012, reported here for the first time. For the latter, we present optical spectroscopy confirming the association with a Be star in the SMC. The other sources in our sample have optical counterparts fainter than magnitude ~ 16 in the V band, and many of them have possible NIR counterparts consistent with highly reddened early type stars in the SMC. While their number is broadly consistent with the expected population of background highly-absorbed active galactic nuclei, a few of them could be HMXRBs in which an early type companion is severely reddened by local material.

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