Abstract Submitted
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Hard X-ray emitting symbiotics: candidates for type Ia supernova progenitors[1] ASHKBIZ DANEHKAR, University of Michigan — Hard X-ray emitting symbiotics are a subclass of symbiotic binary stars, consisting of an accreting white dwarf (WD) and a red-giant star, which show hard X-ray emission in addition to common soft X-ray. It was thought that their hard X-ray emission is associated with massive WD, so they could be progenitors of type Ia supernovae (SN). In our recent study (MNRAS.500:4801-4817,2021), we investigated X-ray features of the hard X-ray emitting symbiotic star RT Cru using Chandra observations. Our study revealed the presence of soft and hard thermal plasma components in this object, which make this object similar to other hard X-ray emitting symbiotics containing two thermal components. The soft thermal component detected in hard X-ray emitting symbiotics could originate from either a jet or a colliding wind. Recent Suzaku and NuStar +Swift observations of RT Cru also yielded a WD mass of at least 1.25 solar mass, so this symbiotic system could explode as a type Ia SN when its compact core reaches the Chandrasekhar limit. Further X-ray studies of other hard X-ray emitting symbiotics will lead to other candidates for type Ia SN progenitors, which also have some implications for gravitational wave research.

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Ashkbiz Danehkar
University of Michigan

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