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Neutrinos from galactic compact binaries

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The recent observation of an astrophysical flux of neutrinos at the IceCube telescope represents the ''first light" in the burgeoning field of neutrino astronomy. Motivated by this long-awaited discovery, we re-examine the potential high energy neutrino emission from compact binaries on the basis of state-of-the-art proton acceleration models, and interaction of those protons with plasma from accreting matter. We show that under reasonable assumptions compact binary sources could produce neutrinos up to the maximum observed energies. We also use the spatial distribution of these sources (as collected from various surveys) to bound the Galactic contribution to the diffuse flux of neutrinos. We conclude that Galactic sources could provide a dominant contribution to the IceCube flux.

Collaboration

– not specified –

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