

Abstract Submitted
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Further constraints on the diffuse neutrino background from primordial black holes¹ DUSTIN NGUYEN, Arizona State University — Black holes are very interesting theoretically because their study brings together big theories and fields in science, namely: general relativity, quantum mechanics, and cosmology. It is theorized that primordial black holes (PBHs) with a wide range of masses could have been formed in the early universe as a result of the great compression associated with the Big Bang. For a PBH population with individual masses $M_* < 10^{15}$ g, we expect an explosive burst, through the process of Hawking radiation, which marks the end of their life. We calculate the energy spectra and flux of all three neutrino flavors emitted during the final evaporation of PBHs with mass M_* . We investigate bounds that can be deduced from recent gamma-ray measurements and results from kilometer-scale detectors - an improvement on former work that used primarily only data from atmospheric and solar experiments.

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