

A search for primordial black hole evaporation events with the VERITAS experiment

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Primordial black holes (PBH) are predicted to form from overdense regions in the early universe. These black holes can lose mass through Hawking radiation. Those PBHs of initial mass of 10^{15} g would evaporate in the current epoch, producing a bright burst of gamma rays. Despite the lack of detection from many experiments, the observations of PBH evaporation events provide constraints on their rate-density, which has cosmological implications. We search for excess of gamma-ray burst events that could be associated with primordial black hole evaporations in the archival data of VERITAS, a ground-based Cherenkov telescope array. We present new analysis techniques and search methodologies, and the new constraints on the rate-density of evaporation of primordial black holes.

Subject

Astro/Cosmo

Abstract Title

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Author's e-mail

qifeng@nevis.columbia.edu

Author's Name

Qi Feng

Author's Institute

Columbia University

Presenter: ZITZER, Benjamin

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