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Search for Primordial Black Holes with the Whipple Atmospheric Cerenkov Telescope ERIC LINTON, University of Chicago, VERITAS COLLABORATION — Stephen Hawking's prediction that black holes should radiate like black bodies has several important consequences, including the possibility for the detection of small ($\sim 10^{15}$ g) black holes created in the very early universe. The detection of such primordial black holes (PBHs) would not only validate Hawking's theory, but would provide useful insights into the history of the early universe. A search through 5.5 years of archival data from the Whipple Atmospheric Cerenkov Telescope was made for TeV gamma-ray bursts on 1 s, 3 s, and 5 s timescales. Based on a null result, an upper-limit on the evaporation rate of PBHs of 2.69×10^6 pc^{-3} yr^{-1} (99% CL) was made, assuming the Standard Model of particle physics. When combined with the results of an earlier search through Whipple data, this limit was lowered to 1.33×10^6 pc^{-3} yr^{-1}, which is nearly a factor of 2 better than the previous limit at this energy range.

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