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Correlating Gravitational Wave and Gamma-ray Signals from Primordial Black Holes

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Primordial black holes are produced in the early Universe by large curvature perturbations and can explain the dark matter abundance within current constraints. During their creation, gravitational waves are produced that could be measured by future gravitational wave detectors. These black holes will also produce a visible electromagnetic signature through Hawking radiation that may similarly be detectable in future gamma-ray detectors. Through the observation of both signals, precise measurement of the primordial curvature perturbations can be made.

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