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The Gravitational Sunyaev-Zeldovich Effect as a Probe of Primordial Black Holes as Dark Matter Candidates

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Primordial black holes (PBHs) are plausible dark matter candidates that formed from the gravitational collapse of primordial density fluctuations. Current observational constraints allow asteroid-mass PBHs to account for all of the cosmological dark matter. We show that elastic scattering of a cosmological gravitational wave background, these black holes generate spectral distortions on the background of 0.3% for cosmologically relevant frequencies without considering coherent scattering and 5% when the coherent enhancement is included. Scattering from stellar objects induce much smaller distortions. Detectability of this signal depends on our ultimate understanding of the unperturbed background spectrum.

Mini Symposia (Invited Talks Only)

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