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Lyman- α constraints on the primordial black hole dark matter

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Primordial black holes are one of the most well-motivated dark matter candidates and it is important to devise new search strategies for them. Low-mass PBHs (masses between $\sim 10^{15}$ g to 10^{18} g) can be detected via their Hawking radiation. Evaporating PBHs inject energy into the intergalactic medium (IGM), which can significantly alter the thermal and ionization history of the Universe. At the low redshifts, measurements of the Lyman- α forest informs us about the temperature of IGM. In this work, we use these measurements to derive new constraints on the PBH abundance as the dark matter for both the non-spinning and spinning black holes.

Session

Astroparticle Physics and Cosmology

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