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Dark matter and dark radiation from primordial black holes

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Primordial black holes (PBHs) lighter than 5×10^{14} g cannot constitude the dark matter (DM) because they are already evaporated, but they are constrained by early universe phenomena (BBN, CMB). PBHs lighter than 10^9 g, however, are at present mostly unconstrained. In this talk, we will present scenarios where light (spinning) PBHs with $M_{\rm PBH} < 10^9$ g evaporate in the early universe before BBN and produce either a warm DM particle or dark radiation. We will then confront the predictions on respectively structure formation and $\Delta N_{\rm eff}$ to observations to conclude with Hawking radiation constraints on these light PBHs.

Summary

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