XV Black Holes Workshop



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M. Zhu: Primordial black holes from bouncing cosmology

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The non-singular bouncing cosmology is an alternative paradigm to inflation, where the background energy density vanishes at the bounce point in the context of Einstein's gravity. Therefore, the non-linear effects in the evolution of density fluctuations ($\delta\rho$) may be strong in the bounce phase, which potentially provides a mechanism to enhance the abundance of primordial black holes (PBHs). We present a comprehensive illustration for PBH enhancement in the bounce phase and find that the bounce phase can potentially enhance the PBH abundance sufficiently.

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