

## Dark matter and black holes



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## Primordial black holes from inflation and their observational imprints (online)

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Primordial black holes (PBH) have recently emerged as a very interesting candidate for the cold dark matter in the universe. We study their generation in a single field inflationary model with an inflection point potential and found that PBHs can be produced in our scenario in the asteroid-mass window with a nearly monochromatic mass fraction, accounting for the total dark matter in the universe. Further, we study the induced stochastic gravitational waves background (ISGWB) arising from the second order scalar perturbations. We found that the ISGWB in our scenario can be generated in the frequencies range from nanoHz to kHz that covers the observational scales corresponding to future space based GW observatories such as IPTA, LISA, DECIGO and ET as well as Advanced LIGO and BBO. Moreover, we also explore various observational imprints on ISGWB due to the Hawking evaporation of ultralight PBH and from the memory burden effect.

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