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Revisiting Constraints Placed on Sub-Lunar Mass Primordial Black Holes

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Primordial black holes are the only dark matter candidate that does not invoke a new elementary particle that survives to the present day, primordial black holes (PBHs) have garnered a lot of attention recently. Up to now, various observations have strongly constrained most of the mass range for PBHs, leaving only small ranges where PBHs could make up a substantial fraction of the dark matter. Here we revisit the PBH constraints for the asteroid-mass range,i.e., the mass range $3.5\times10^{-17}M_{sun} < m_{PBH} < 4\times10^{-12}~M_{sun}$. In particular, we will be focusing on the constraints on the destruction of white dwarfs by PBHs passing through them while also discussing constraints placed due to optical microlensing and dynamical capture of PBHs by stars.

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