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A strong bound on the dark matter fraction in primordial black holes from astronomical data.

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The idea that primordial black holes (PBHs) of O(10) solar mass can account for most of the dark matter has been recently reconsidered after the discovery of gravitational waves from binary-black hole merger events.
I present a significant update of a robust bound on this scenario based on a conservative modeling of the gas accretion and the subsequent radio and X-ray emission originating by a population of PBHs in our Galaxy.
I will address in particular the impact of several key aspects: 1) The dark matter phase-space distribution 2) The accretion physics, by considering realistic numerical simulations that properly capture the radiative feedback mechanism, and model the accretion efficiency as a function of the BH speed. 3) The BH mass distribution, with specific examples (log-normal, power-law distribution)
I show that the upper limit on the DM fraction in PBHs is significantly stronger if all these effects are taken into account and a broad mass function is considered.
In the last part, I show that our method and formalism can be turned into a window of future detection of a subdominant population of PBHs that amounts to a small fraction of the DM, and present several forecasts focused on forthcoming radio experiments.

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