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Abstract for an Invited Paper for the APR12 Meeting of the American Physical Society

The Smallest Supermassive Black Holes

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I discuss our ongoing efforts to search for the smallest supermassive black holes (BHs) with masses of 10^4 - 10^6 M_{sun}. The number density and location of these enigmatic sources provide some of our only observational constraints on the first primordial seed BHs. Merging BHs in this mass range are expected to be strong gravitational wave sources. Finally, since these BHs live in very different environments from their more massive cousins, they allow us to study the interactions between BHs and galaxies in a new way. Unfortunately, low-mass BHs are hard to find. I will discuss the known BHs in this mass regime and the path forward to a definitive understanding of the population.