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Supermassive primordial black holes at high redshifts

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We consider some properties and possible observational manifestations of very heavy primordial black holes, with mass $\sim 10^9$ - 10^{10} solar masses. These black holes should be surrounded by dense dark matter and barionic halos even at early cosmological epochs. The gas dynamics properties of the barions provide the mechanisms as for emission of radiation and for deep absorption at the periphery of the halos. We calculate the absorption profile in the 21 cm line of atomic hydrogen by solving the equations of radiation transfer in the barionic halo around the primordial black holes. The possible astronomical method of search for such objects are also discussed.

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