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The possibility of observing primordial black holes with hydrogen subordinate lines

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The formation of spectral-spatial distortions of cosmic microwave background radiation near primordial black holes at redshifts 100-1000 is considered. After hydrogen recombination, the radiation from these objects leads to the significant increase in the population of the hydrogen subordinate levels in their surrounding environment. Consequently, this allows for the observation of a Fraunhofer-like absorption spectrum in the cosmic microwave background. These subordinate hydrogen lines currently lie in the radio wavelength range. One should observe circular absorption or emission features around the objects with small angular sizes.

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