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Are supermassive black holes primordial?

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Black holes with masses between a million and a billion solar masses are seen in the centres of many galaxies, even at high redshift. Their origin remains unknown and hard to explain, raising the possibility that these black holes are primordial rather than astrophysical. I will discuss the motivation for this scenario and the difficulty in finding a working model of the early universe (e.g. inflation) which can generate them. In particular, I will discuss the CMB spectral distortions which tightly constrain non-standard initial conditions on the relevant length scale for supermassive black holes. This talk is primarily based on <https://inspirehep.net/literature/2781654> and <https://inspirehep.net/literature/2781818> with Lesgourgues and Sharma.

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