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Black Dark Matter and Antimatter

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It is shown that the dense population of the early universe with well developed galaxies and supermassive black holes (quasars), observed by HST and JWST, nicely fits the conjecture that the galaxies and quasars are seeded by primordial black holes (PBHs), proposed in our work more than 30 years ago. This idea of galaxy seeding by massive black holes is rediscovered in recent publications by several groups. The predicted log-normal mass spectrum of PBHs very well agrees with the data. Our other prediction of noticeable amount of antimatter in the Galaxy is also supported by the data. It is argued that the cosmological dark matter may fully consist of PBHs.

Information on the subject:

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3. A.D. Dolgov, Massive and supermassive black holes in the contemporary and early Universe and problems in cosmology and astrophysics, Phys. Usp. 61 (2018) 2, 115.
4. A.D. Dolgov, Tension between HST/JWST and ΛCDM Cosmology, PBH, and Antimatter in the Galaxy, Contribution to: MULTIF2023, e-Print: 2310.00671 [astro-ph.CO].

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