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Cosmic coincidences of primordial-black-hole dark matter

If primordial black holes (PBHs) contribute more than 10 percent of the dark matter (DM) density, their energy density today is of the same order as that of the baryons. Such a cosmic coincidence might hint at a mutual origin for the formation scenario of PBHs and the baryon asymmetry of the Universe. Baryogenesis can be triggered by a sharp transition of the rolling rate of inflaton with a transient ultra-slow-roll phase that produces large curvature perturbations for PBH formation in single-field inflationary models. Such a baryogenesis requirement encloses the PBH contribution to entire DM, in the ultralight asteroid mass range, with observable stochastic gravitational wave background for LISA, Advanced LIGO and Virgo.

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