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Unification models with reheating via primordial black holes

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(Submitted on 28 Jul 2011 (v1), last revised 19 Feb 2012 (this version, v2))

We study the possibility of reheating the universe through the evaporation of primordial black holes created at the end of inflation. This is shown to allow for the unification of inflation and dark matter under the dynamics of a single scalar field. We determine the necessary conditions to recover the standard Big Bang by the time of nucleosynthesis after reheating through black holes.

Comments: Updated to match version accepted by PRD

Subjects: **Cosmology and Extragalactic Astrophysics (astroph.CO)**; High Energy Astrophysical Phenomena (astroph.HE); General Relativity and Quantum Cosmology (gr-qc); High Energy Physics - Phenomenology (hep-ph)

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