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A new mechanism for primordial black hole formation during reheating

Monday, 22 August 2022 14:20 (20 minutes)

In this talk, we explore the possibility of primordial black holes (PBHs) forming from the gravitational collapse of either the structures virialized during reheating (referred as inflaton halos or inflaton clusters), or from the collapse of the central core of these configurations (referred as inflaton stars). We compute the threshold amplitude for the density contrast to undergo this process, for both the free and self-interacting scalar fields. We discuss our results in light of the constraints to PBHs abundances at the lower end of the mass spectrum and apply our findings to an example inflationary scenario.

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