



Contribution ID: 49

Type: **not specified**

Primordial black hole formation in a slow-reheating scenario

Monday 19 May 2025 15:00 (20 minutes)

In scalar field dark matter models, virialized halos form condensed central cores known as solitons. We extend this idea to the reheating phase of the early universe, a critical period that sets the stage for the emergence of structure after inflation. We study the formation of primordial black holes (PBHs) from the gravitational collapse of virialized configurations arising during this era. Focusing on free (pure massive) scalar fields, we derive threshold conditions for collapse—either of the full structure or its central core—in terms of the primordial density contrast. Our results highlight how the dynamics of reheating can influence PBH production and contribute to their overall abundance.

Author: PADILLA ALBORES, Luis Enrique (Queen Mary University of London)

Presenter: PADILLA ALBORES, Luis Enrique (Queen Mary University of London)

Session Classification: PBHs from inflation & other formation scenarios