

Dark matter and primordial black holes: an overview of constraints.

Primordial black holes (PBHs) are an attractive alternative in the absence of direct detection of dark matter particles. Unlike exotic candidates, PBHs are solutions of general relativity that could have originated in the early universe from density fluctuations. This talk will present a concise overview of the current constraints on their viability as a component of dark matter. The most relevant limits derived from quantum evaporation (Hawking radiation), gravitational microlensing, and binary mergers observed by LIGO-Virgo-KAGRA will be discussed. These results allow us to identify regions of mass space still compatible with a significant contribution from PBHs, in particular the sublunar or asteroid range. Finally, we will highlight how these constraints establish a link between cosmology and astroparticle physics, allowing us to evaluate the role of PBHs within dark matter and their connection to high-energy physics scenarios.

Author: CANCELADO MEDINA, Diego (Estudiante)

Presenter: CANCELADO MEDINA, Diego (Estudiante)

Session Classification: Dark Matter