



Contribution ID: 45

Type: **not specified**

Determining mass and spin of light PBHs

Tuesday, 18 June 2024 17:25 (10 minutes)

We propose methods to determine the mass and spin of PBHs based on measuring specific features of the primary emitted Hawking spectra. In the previous edition of this conference, we focused on masses between 5×10^7 and 10^{12} kg and adimensional spin parameter $a = 0.1-0.5$. Now we extend those ranges in distant independent ways.

We investigate values of $a \approx 0.6$, measuring the energy and emission rate at the dipolar and quadrupolar peaks in the primary photon spectrum. This method is valid for any mass of the PBH.

We propose a multi-messenger approach to accurately measure the mass and spin of a PBH from its Hawking photon and neutrino primary emission spectra. This is of particular interest for temperature beyond the TeV scale since it is independent of putative interactions between new possible degrees of freedom and the Standard Model particles.

Primary authors: CALZA, Marco (University of Coimbra); ROSA, João (University of Coimbra)

Presenter: CALZA, Marco (University of Coimbra)

Session Classification: Session 8