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Contribution of primordial black holes to quasar microlensing considering a bimodal mass-spectrum of BHs and stars

The amplitude and frequency of gravitational microlensing can be used to detect Primordial Massive Black Holes (PBHs). However, they can be mixed with the normal stellar population that can also contribute to microlensing. To separate the contributions from both populations, we perform numerical simulations to study the possible degeneracy of a bimodal distribution of masses with a single-mass function plus a smooth component. This degeneracy is supported by analytical calculations in the low mass surface density case but needs to be studied with numerical simulations in the general case. From this analysis and the experimental microlensing results by Mediavilla et al. (2017), we discuss the possible existence of a PBHs population mixed with the stellar component.

Presenter: ANA ESTEBAN GUTIÉRREZ