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Quasi-extremal primordial black holes are a viable dark matter candidate

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Whether primordial black holes (PBHs) can be the totality of the dark matter has always been a contentious issue. On the one hand they represent one of the best motivated candidates to make up for this dark component, but on the other hand a plethora of constraints significantly limit their abundance over a very wide mass range. Some of the most stringent examples come from cosmological and astrophysical bounds limiting the amount of Hawking evaporation that the PBHs can emit. In this talk I will discuss how under the assumption of quasi-extremality, which can be reached by assuming that the PBHs have e.g., a strong (dark) charge, these constraints can be completely erased, thereby reopening the parameter space for very light PBHs to be the dark matter. The results obtained, although relying on a simplified model, are rather general, conservative and should be taken as a proof of principle for future, more model-specific analyses.

Primary author: LUCCA, Matteo (ULB)

Presenter: LUCCA, Matteo (ULB)

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