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### **R. Z. Ferreira: Primordial black holes and axions: a tale of (galactic and extragalactic) light**

*Tuesday 20 December 2022 14:30 (15 minutes)*

Primordial black holes with asteroid-like masses ( $10^{14-18}$  kg) can still account for all the dark matter. In this talk, I will discuss a new indirect probe of PBH dark matter. I will show that axions with masses in the 0.1eV-MeV range can form in clouds around such PBHs, via superradiance, and ultimately decay, if coupled to photons. The decay products will contribute to the galactic or extragalactic background flux at frequencies between the UV and the gamma-rays, depending on the axion mass. I will show that current data already constraints a large range of parameters and that searches for narrow lines with future experiments such as the Athena X-ray telescope will further test this co-existence of PBH dark matter and axions.

**Session Classification:** Session 7 A