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Signatures of primordial black hole dark matter at DUNE and THEIA

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Primordial black holes (PBHs) are a potential dark matter candidate whose masses can span over many orders of magnitude. If their masses lie in the $10^{15} - 10^{17}$ g range, they can emit sizeable fluxes of MeV neutrinos through evaporation via Hawking radiation. We investigate the possibility of detecting light (non-)rotating PBHs with future neutrino experiments DUNE and THEIA. We show that these next-generation facilities will be able to set competitive constraints on PBH dark matter, providing complementary probes in a part of the PBH parameter space currently constrained mainly by photon data.

Author: DE ROMERI, Valentina (IFIC CSIC/UV Valencia)

Presenter: DE ROMERI, Valentina (IFIC CSIC/UV Valencia)

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