

Primordial black hole dark matter evaporating on the neutrino floor

Primordial black holes are hypothetical Black Holes generated in the first instants of the Universe life. Focusing on Primordial Black Hole masses in the range $[5 \times 10^{14} - 5 \times 10^{15}]$ g, we point out that the neutrinos emitted by PBHs evaporation can interact through the coherent elastic neutrino-nucleus scattering producing an observable signal in multi-ton Dark Matter direct detection experiments. The envisaged high exposures for the next-generation facilities allow us to limit Primordial Black Hole abundance today, improving the existing neutrino limits obtained with Super-Kamiokande. We also quantify how Primordial Black Holes would modify the “neutrino floor”.

Primary author(s) : CALABRESE, Roberta; MIELE, GENNARO; MORISI, STEFANO; FIORILLO, Damiano; PALAZZO, Antonio

Presenter(s) : CALABRESE, Roberta

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