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Primordial Black Hole probes of Heavy Neutral Leptons

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In this talk, I will discuss possible probes of Heavy Neutral Leptons (HNLs) with Primordial Black Holes (PBHs).
If produced in the early Universe with an initial mass of ~ 10^{15} g, PBHs are expected to evaporate at the present time producing sizable
fluxes of particles in their last instants. These "exploding"black holes will emit bursts of
Standard Model particles as well as new degrees of freedom, if present.
We explore the possibility that HNLs mixing with the active neutrinos
are emitted in the final evaporation stage of PBHs.
We evaluate the active neutrino fluence expected
from such an explosion, to which the decays of the heavy sterile neutrinos contribute through
a secondary emission.
We estimate the expected number of muon-neutrino events at IceCube
and we infer sensitivities on the active-sterile neutrino mixing and the sterile neutrino
mass.

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