

PeV Scale Supersymmetric Neutrino Sector: neutrino masses, sterile neutrino dark matter, PeV neutrinos, and a 3.5 keV line

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Obtaining light active neutrino masses as well as phenomenologically interesting (keV-GeV) sterile neutrino masses without any unnaturally small parameters hints at a new symmetry in the neutrino sector that is broken at the PeV scale, presumably tied to supersymmetry breaking. This framework can also explain the recently observed PeV energy neutrinos at IceCube and the 3.5 keV X-ray line.

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