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Neutrino physics from a gauged U(1) extension of the Standard Model

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Superweak force is a U(1) extension of the standard model, which in addition to accompanying neutral gauge boson, adds three massive sterile Majorana neutrinos and a complex singlet scalar to the particle zoo. It aims to explain dark matter, accelerating expansion of the universe, neutrino mass generation, vacuum metastability, cosmic inflation and baryonic asymmetry of the universe. In the talk I will discuss the neutrino phenomenology of this model. The model exhibits suppressed nonstandard neutrino interactions and potential to discover the disappearance of active neutrino flavours to sterile flavours via future experiments, such as Faser, NA62, SHiP and MATHUSLA. In addition, I will discuss the sub-leading corrections to neutrino masses arising from one-loop contribution to light neutrino self-energies.

In-person participation

Yes

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