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Future sensitivity on unitarity, light-sterile neutrinos and neutrino magnetic moment from low-energy experiments

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We study the future sensitivities to a non-unitarity neutrino mixing matrix for different short-baseline coherent elastic neutrino-nucleus scattering (CEvNS) proposed experiments. We also identify the best configuration for measuring the oscillation parameters on the (3+1) scheme for light sterile neutrinos and find the estimated sensitivity for their parameters. Finally, we study the conversion to massive sterile neutrinos (in the keV-MeV energy mass) through transition magnetic moments and find the sensitivities for actual COHERENT results as well as future experiments of CEvNS and electron neutrino scattering with a proposed Cr-51 neutrino source experimental setup.

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