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Exploring coherent neutrino-nucleus scattering with NU-CLEUS

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The detection of coherent-neutrino nucleus scattering opens up new opportunities to probe physics beyond the Standard Model of Particle Physics such as the search for a neutrino magnetic moment or sterile neutrinos. We present a novel cryogenic neutrino experiment at a nuclear power reactor which allows for precision measurements with a miniaturized detector size. With a recent demonstrator we have achieved ultra-low thresholds of 20eV, one order of magnitude lower than previous devices, using a novel type of detector based on CRESST technology. We have initiated the NU-CLEUS experiment which aims to operate at close distance to a power reactor and observe coherent neutrino-nucleus scattering within a measuring time of a few weeks. This poster will report on the most recent results on the NU-CLEUS cryogenic detector, ongoing background measurements and the experimental strategy of NU-CLEUS.

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