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Exploring coherent elastic neutrino-nucleus scattering with NUCLEUS experiment

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The NUCLEUS experiments aims to perform a high-precision measurement of the coherent elastic neutrino–nucleus scattering (CEvNS) at the EdF Chooz B nuclear power plant in France. CEvNS is a unique process to study neutrino properties and to search for new physics beyond the Standard Model. CEvNS could also represent an unshieldable background for high-sensitivity dark matter experiments. NUCLEUS is based on cryogenic detectors, operated at temperature of the order of 10 mK, with nuclear-recoil energy thresholds of the order of tens eV scale. At present, the experiment is under construction. The commissioning of the full apparatus is scheduled for 2022 at the Underground Laboratory of the Technical University Munich, in preparation for the move to the reactor site.

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