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Preliminary measurement of the germanium ionisation yield and first studies of the new silicon crystal detectors of the Ricochet experiment

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Coherent elastic neutrino nucleus scattering (CEvNS) was first measured experimentally by the COHERENT experiment in 2017 and is currently being studied by many experiments all around the world. In this context, the Ricochet international collaboration aims to detect the CEvNS process in order to search for new physics. The detectors used are germanium crystals operated at cryogenic temperatures, which can simultaneously readout the ionization and heat energies resulting from particle interactions occurring in the crystal.This dual measurement allows both particle identification, by discriminating between electronic and nuclear recoils, and determination of the recoil energy of the interactions. This presentation focuses on a preliminary study dedicated to measure the ionization yield of nuclear recoils in germanium detectors at the keV energy scale, based on the first commissioning data from the Ricochet experiment. Furthermore, as the Ricochet experiment is planning to use silicon as a new crystal material, this presentation is also covering the first hardware developments and preliminary performance analysis of the silicon detectors.

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