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Status of the CONUS+ experiment

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The CONUS+ experiment is a new project which aims to detect coherent elastic neutrino-nucleus scattering (CEvNS) of reactor antineutrinos on germanium nuclei in the fully coherent regime, continuing in this way the CONUS physics program. After refurbishment, the four 1 kg point-contact high-purity germanium detector operate at significantly improved energy thresholds and resolutions. In combination with an additional shield optimization, we expect a boost in the sensitivity of the experiment and the detection of a CEvNS signal in CONUS+. The CONUS+ experiment was installed during summer 2023 in the Leibstadt nuclear power plant, Switzerland, at a distance of about 20 m from the 3.6 GWth reactor core. The experiment has been fully operational since October 2023 and it is currently in the physics data taking phase.

The CONUS+ design will be shown, together with the background characterization of the new experimental location. Preliminary data demonstrate the good performance of the upgraded germanium detectors and veto system at reactor place. Finally, the physics potential of the project will be presented.

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