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# First observation of reactor antineutrinos by coherent scattering with CONUS+

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Neutrinos are elementary particles that interact only very weakly with matter. Neutrino experiments are therefore usually big, with masses on the multi-ton scale. The thresholdless interaction of coherent elastic neutrino-nucleus scattering (CEνNS) leads to drastically enhanced interaction rates, which allows for much smaller detectors. This could open the path for reactor monitoring through the CEνNS channel. Additionally, the study of this process gives insights into physics beyond the Standard Model of particle physics.

The CONUS+ experiment is a project designed to detect for the first time CEνNS in the fully coherent regime with low-energy neutrinos produced in nuclear reactors. For this purpose, four 1 kg point-contact high-purity germanium detectors with extremely low energy threshold of 160 eV were operated at the Leibstadt nuclear power plant (Switzerland), at a distance of about 21 m from the reactor core. The detector performance and first CONUS+ results after one year of data taking will be presented, including the first observation of a CEνNS signal (395+-106) from from reactor antineutrinos. Finally, the future of CONUS+ will be discused, in particular the replacement of three detectors by newer models with higher Ge crystal masses of 2.4 kg each to further improve the sensitivity of the experiment.

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