Recent results of the CONUS experiment

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The CONUS reactor neutrino experiment aims to measure coherent elastic neutrino nucleus scattering (CEvNS) on germanium nuclei. The experiment is located at about 17 m distance from the 3.9 GWth core of the commercial nuclear power plant in Brokdorf, Germany. Four 1 kg point contact germanium detectors equipped with electric cryocooling allow to measure at the sub keV range with background rates in the order of 10 events per kg, day and keV. Constraints on the CEvNS rate with the first analyzed dataset including 248.7 kg d with the reactor turned on and background data of 58.8 kg d with the reactor off are reported. To improve the systematic uncertainty, a precise measurement of the ionization quenching factor of nuclear recoils in germanium was performed and the latest results will be shown. Moreover, the most recent CONUS limits on several parameters related to physics beyond the standard model such as non-standard neutrino interactions are presented.

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