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Coherent Elastic Neutrino-Nucleus Scattering and its implications in the search of new Physics

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The process of Coherent Elastic Neutrino-Nucleus Scattering (CEvNS) has now been measured by the COHERENT collaboration with two different technologies, including CsI and LAr as detection materials. In this work, we use the results from these experiments to constrain parameters of the Standard Model at low energies, such as the weak mixing angle and nuclear physics parameters, through the determination of the neutron rms radius of the target material. We also use the experimental data to constrain new physics parameters in the Non-Standard Interactions approach. We show that data from the latest measurement with LAr, allow to significantly improve the constraints obtained with the results from the first measurement with CsI. In addition, we discuss the results from future measurements with reactor antineutrino sources. We show that they can be combined with accelerator data to get more robust constraints on these parameters, as long as the systematic errors are under control.

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