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Constraints on models with light mediators from the latest CONNIE results

The CONNIE experiment, located at a distance of 30 m from the core of the Angra 2 reactor in Brazil, has collected a 3.7 kg-day exposure using a CCD detector array, with an energy threshold of $\sim$1 keV, for the study of coherent elastic neutrino-nucleus scattering (CEνNS). We report the first results of the experiment showing no excess in the reactor-on data. A 95% confidence level limit was established and was used to constrain two simplified extensions of the Standard Model with light mediators. The constraints for a light vector with mass $M_{Z'} < 10$ MeV and a light scalar with mass $M_{\phi} < 30$ MeV are the current best limits among the experiments searching for CEνNS.

Mini-abstract

CONNIE 95% C.L. limit and its constraints on simplified extensions of the SM with light mediators.

Experiment/Collaboration

CONNIE collaboration

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