

Abstract Submitted
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Search for new physics in a precise ^{20}F beta spectrum shape measurement ELIZABETH GEORGE, PAUL VOYTAS, THOMAS CHUNA, Wittenberg University, OSCAR NAVILIAT-CUNCIC, ALEXANDRA GADE, MAX HUGHES, XUEYING HUYAN, SEAN LIDDICK, KEI MINAMISONO, STANLEY PAULAUSKAS, DIRK WEISSHAAR, NSCL, Michigan State University, GILLES BAN, XAVIER FLECHARD, ETIENNE LIENARD, LPC-Caen — We are carrying out a measurement of the shape of the energy spectrum of β particles from ^{20}F decay. We aim to achieve a relative precision below 3%, representing an order of magnitude improvement compared to previous experiments. This level of precision will enable a test of the so-called strong form of the conserved vector current (CVC) hypothesis, and should also enable us to place competitive limits on the contributions of exotic tensor couplings in beta decay. In order to control systematic effects, we are using a technique that takes advantage of high energy radioactive beams at the NSCL to implant the decaying nuclei in a scintillation detector deep enough that the emitted beta particles cannot escape. The β -particle energy is measured with the implantation detector after switching off the beam implantation. Ancillary detectors are used to tag the 1.633-MeV γ -rays following the β decay for coincidence measurements in order to reduce backgrounds. We will give an overview and report on the status of the experiment.

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