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Measurement of the weak magnetism form factor in ⁶He decay OSCAR NAVILIAT-CUNCIC, XUEYING HUYAN, DANIEL BAZIN, ALEXAN-DRA GADE, MAXIMILIAN HUGHES, SEAN LIDDICK, KEI MINAMISONO, SHUMPEI NOJI, Michigan State University, STANLEY PAULAUSKAS, University of Tennessee, ANNA SIMON, University of Notre Dame, PAUL VOYTAS, Wittenberg University, DIRK WEISSHAAR, Michigan State University — The Fierz interference terms constitutes a very sensitive probe to searches for exotic scalar and tensor couplings in beta decay. It can directly be determined through measurements of the beta spectrum shape. To this end, the ⁶He decay happens to have a similar kinematic sensitivity than neutron decay despite its end-point is 4.5 larger; the electromagnetic and radiative corrections can be calculated accurately and, since the ⁶He ground state is member of an isospin triplet, hadronic contributions to the weak currents can be calculated using CVC. In this contribution we describe an experiment, performed at the National Superconducting Cyclotron Laboratory, which measures the shape of the beta energy spectrum in ⁶He decay. The technique is based on the implantation of the nuclei of interest in suitable detectors, eliminating thereby the major systematic effect in such measurements related to the back-scattering of beta particles in surrounding matter and detectors. The first goal is to measure the weak magnetism form factor, which has never been measured in ⁶He decay, and which will provide a sensitivity test of the technique. The status of the data analysis will be presented.

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