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The Beta Decay of 32Cl E. ABOUD, C. WREDE, M.B. BENNETT, S.N. LIDDICK, D. PREZ-LOUREIRO, B.A. BROWN, C. FRY, B.E. GLASSMAN, C. LANGER, N.R. LARSON, W. ONG, C.J. PROKOP, S.B. SCHWARTZ, S. SUCHYTA, X. XU, National Superconducting Cyclotron Laboratory, Michigan State University, D.W. BARDAYAN, Z. MEISEL, P.D. O'MALLEY, Department of Physics, University of Notre Dame, A.A. CHEN, E.I. MCNEICE, M. WALTERS, Department of Physics and Astronomy, McMaster University, K.A. CHIPPS, S.D. PAIN, Oak Ridge National Laboratory, P. THOMPSON, Department of Physics and Astronomy, University of Tennessee — ^{32}Cl is a neutron-deficient isotope with a β-decay half-life of 298 ms and a spin and parity of 1^+. It lies close to stability; therefore it can be produced in large quantities at rare isotope beam facilities making its decay relatively straightforward to study. Previous measurements of ^{32}Cl β-delayed γ rays have yielded β-decay schemes including allowed β decay transitions. In this study, we present the results of a more sensitive measurement of ^{32}Cl beta decay using the CloverShare array of high-purity germanium detectors at the National Superconducting Cyclotron Laboratory. By acquiring the highest-resolution and highest-statistics ^{32}Cl β-delayed γ ray data set to date, this experiment has allowed for the observation of several γ ray transitions that had only been previously observed in nuclear reaction experiments. A more complete decay scheme has been constructed, including the first observation of forbidden Gamow-Teller transitions in ^{32}Cl β decay.

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