Abstract Submitted
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The St. Benedict Ion Trapping System at the Nuclear Science Laboratory[1] D.P. BURDETTE, M. BRODEUR, University of Notre Dame, J.A. CLARK, Argonne National Laboratory, J. LONG, P.D. O'MALLEY, A. PARDO, University of Notre Dame, R. RINGLE, National Superconducting Cyclotron Laboratory, G. SAVARD, A.A. VALVERDE, Argonne National Laboratory — St. Benedict, the Superallowed Transition Beta-Neutrino Decay-Ion-Coincidence Trap, is under construction at the University of Notre Dame's Nuclear Science Laboratory. This ion trapping system is composed of three main components; a large-volume gas cell, a radio frequency quadrupole (RFQ), and a Paul trap. In tandem, the gas cell and RFQ will prepare radioactive beams produced by the TwinSol facility for injection into the Paul trap. While trapped, the radioactive species of interest will be allowed to decay, and coincidence measurements of recoiling nuclei and beta particles will allow for reconstruction of the beta spectrum, and consequently, the extraction of the β-ν angular correlation coefficient, $a_{\beta\nu}$. This will allow for the determination of the Fermi to Gamow-Teller mixing ratio, ρ, for members of the ensemble of T=1/2 superallowed β decays whom have not had this quantity measured experimentally. The determination of ρ for these decays will allow for the calculation of a precise V_{ud} value complementary to the current precision limit provided by superallowed $0^+ \rightarrow 0^+$ decays. The current status of the project will be presented.

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Daniel Burdette
University of Notre Dame

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