Testing the Standard Model with the help of St. Benedict*

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Nuclear beta decays provide a unique avenue for testing the electroweak part of the Standard Model through precision measurements. Physics beyond the Standard Model would manifest itself in these transitions through a variety of possible effects including the non-unitarity of the Cabibbo-Kobayashi-Maskawa quark mixing matrix, scalar or tensor currents, and interactions involving right-handed neutrinos. Probing these various effects in superallowed mixed beta decay transitions can be done through precision measurement of the beta-neutrino angular correlation parameter. To perform such measurements, the Superallowed Transition Beta-Neutrino Decay Ion Coincidence Trap (St. Benedict) has been constructed at the Nuclear Science Laboratory of the University of Notre Dame. The science program of St. Benedict as well as recent commissioning results will be presented.

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