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Precision Half-life Measurement of ^{17}F[1] JACOB LONG, MAXIME BRODEUR, University of Notre Dame, TWINSOL COLLABORATION — Precision measurements have led to considerable advances in understanding in several areas of physics, including fundamental symmetry. The precise determination of ft values for superallowed mixed transitions between mirror nuclides could provide an avenue to test the theoretical corrections used to extract the V_{ud} matrix element from superallowed pure Fermi transitions. The calculation of the ft value requires knowledge of the half-life, branching ratio, and Q value. Thus the ^{17}F decay is particularly interesting as it proceeds completely to the ground state of ^{17}O, which removes the need for branching ratio measurements. In the addition the largest uncertainty on the relevant ft value of the ^{17}F mirror transition stems from the uncertainty in the half-life. An experiment to determine this life-time was conducted by the β counting of implanted ^{17}F on a Ta foil that was removed from the beam for counting. The ^{17}F beam was produced by a transfer reaction and separated by the TwinSol facility of the Nuclear Science Laboratory of the University of Notre Dame. The results for ^{17}F will be presented together with preliminary results of more recent half-life measurements. This work is supported in part by the National Science Foundation.

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