Abstract Submitted
for the DNP19 Meeting of
The American Physical Society

Precise half-life measurement of the superallowed mixed-miror decaying ^{15}O[1] DANIEL P. BURDETTE, MAXIME BRODEUR, SEBASTIAN AGUILAR, TAN AHN, DANIEL W. BARDAYAN, University of Notre Dame, FREDERICK D. BECCHETTI, University of Michigan, DREW BLANKSTEIN, CHEVELLE BOOMERSHINE, LOUIS CAVES, SAMUEL HENDERSON, JAMES J. KELLY, JAMES KOLATA, BIYING LIU, JACOB LONG, PATRICK D. O'MALLEY, SABRINA Y. STRAUSS, University of Notre Dame — The Standard Model encapsulates our current understanding of matter and interactions in the universe, however there are some known shortcomings which provide a strong incentive to probe explicit experimental evidence of new physics. One such test lies in investigating the unitarity of the CKM matrix. The current limit is provided by a determination of the V_{ud} matrix element, which relies on measurements of half-lives, branching ratios, and Q-values for the ensemble of $0^+ \rightarrow 0^+$ decays in order to extract $\mathcal{F}t$ values. This calculation, however, also requires knowledge of theoretical corrections, so it is ambitious to confirm the result with another ensemble such as T=1/2 mixed-mirror decays. Aligning with these interests, the half-life of ^{15}O was measured using the β-Counting Station at the Nuclear Science Laboratory of the University of Notre Dame. Prior to this measurement the uncertainty of the $\mathcal{F}t$ value was dominated by the lifetime. The measurement, along with its impact of the $\mathcal{F}t$ value will be presented.

[1]This work was supported in part by the National Science Foundation under Grants No. PHY-1713857, No. PHY-1401343, and No. PHY-1401242.

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Date submitted: 01 Jul 2019 Electronic form version 1.4