

**Tuesday,
August 6th
At 3:45 pm**



Precision Measurements in ^{20}F Beta Decay

ABSTRACT:

The beta decay of ^{20}F is an attractive low-energy probe for new physics. A parameter in beta decay highly sensitive to interactions beyond the standard model is the Fierz term. Since ^{20}F is a Gamow-Teller decay, the Fierz term corresponds to tensor couplings in weak interactions. A beta spectrum shape measurement was done to measure the Fierz term in ^{20}F . The analysis is not yet completed but a preliminary result is presented here. The current value of the Fierz term obtained $0.0021 \pm 0.0051_{\text{stat}} \pm 0.0084_{\text{sys}}$.

In addition to the shape measurement, a half-life measurement was done. Previous measurements were inconsistent. The half-life was measured as $11.0011 \pm 0.0069_{\text{stat}} \pm 0.0030_{\text{sys}}$ s. This is the most precise measurement of the half-life of ^{20}F , and is 17 standard deviations away from the previously adopted value. This result has been confirmed by an additional measurement from another group using a different technique

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Refreshments will be
served at 3:30 pm



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