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**A Precision Measurement of the  $\beta$ - $\nu$  Angular Correlation in  ${}^8\text{Li}$  with the Argonne  $\beta$ -decay Paul Trap<sup>1</sup>**

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Precise measurements of the  $\beta$ - $\nu$  angular correlation coefficient,  $a$ , provide information on the presence of possible exotic couplings in the weak interaction. In the  $\beta$ -decay of  ${}^8\text{Li}$  to  ${}^8\text{Be}^*$  and subsequent breakup into two alpha particles, the large  $Q$  value and the  $\beta$ - $\alpha$ - $\nu$  correlation provide enhanced sensitivity to any potential tensor coupling. In an initial measurement using the  $\beta$ -decay Paul Trap (BPT) at Argonne National Laboratory  $2 \times 10^4$   $\beta$ - $\alpha$ - $\alpha$  coincidences were detected and a value of  $a$  was inferred that places an upper limit of 1.5% on any tensor contribution. The BPT has since been upgraded with improved double-sided silicon strip detectors—including finer segmentation, thinner dead layers, and thicker active silicon—along with new plastic scintillators to kinematically over-determine the decay. We will discuss the results from recent experiments where more than  $4 \times 10^5$   $\beta$ - $\alpha$ - $\alpha$  coincidences were measured.

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