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DSSD Characterization for the Beta-decay Paul Trap[1] L. VARRIANO, G. SAVARD, University of Chicago, Argonne Natl Lab, J. A. CLARK, Argonne Natl Lab, N. D. SCIELZO, Lawrence Livermore Natl Lab, D. BURDETTE, University of Notre Dame, M. T. BURKEY, A. T. GALLANT, Lawrence Livermore Natl Lab, T. Y. HIRSH, Soreq NRC, Israel, B. LONGFELLOW, Lawrence Livermore Natl Lab — The Beta-decay Paul Trap (BPT) at Argonne National Laboratory measures the beta-neutrino angular correlation coefficient $a_{\beta\nu}$ in the Gamow-Teller decay of ^{8}Li and ^{8}B (decaying to ^{8}Be$^{*} \rightarrow 2\alpha$) to search for a tensor component in the weak interaction, a beyond-Standard Model possibility. The BPT has an ultimate measurement goal of 0.1% uncertainty in $a_{\beta\nu}$. Two of the remaining systematic uncertainties that must be overcome to achieve the measurement goals are related to the cuts to the data and to alpha energy losses due to detector effects. Both of these systematic uncertainties can be improved through a better understanding of the detector response of the double-sided silicon strip detectors (DSSDs) in use. Of particular interest is a characterization of the interstrip gap region of the detector, where electron-hole pairs can be trapped by the passivated top layer and affect the pulse height to energy ratio for approximately 1% of events. A DSSD used by the BPT was characterized at ATLAS using an alpha beam at several different energies; preliminary results will be presented. In addition, other improvements for the next iteration of the BPT will be discussed.

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