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Search for Pre-Existing Delta States at BLAST from ${}^2\text{D}(e, e'\Delta^{++})$

CHANA GREENE, Massachusetts Institute of Technology, BLAST COLLABORATION — At the MIT-Bates Linear Accelerator Center a comprehensive study of low- Q^2 spin-dependent electron scattering from deuterium is being carried out using the Bates Large Acceptance Spectrometer Toroid(BLAST). This experiment has employed a polarized electron beam from the MIT-Bates linear accelerator incident on an internal polarized deuterium target and the BLAST detector. Deuterium's simple composition is an important factor in understanding the structure of the inter-nucleon potential. The pion production region has a resonant structure and is a promising location to search for pre-existing delta particles in deuterium. Theoretical calculations predict that delta resonant states account for anywhere from 0.25 to 3.60% of the nuclear wave function more realistic predictions for deuterium range from 0.3 to 1.0 %. We present here a preliminary report on the search for pre-existing deltas in the BLAST data. In the pursuit of this study Monte Carlo, data filtering and data quality techniques have been employed in order to ensure the best quality of data.

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