

First Measurement of the Beam Normal Single Spin Asymmetry in Delta Resonance Production by Q-weak

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The beam normal single spin asymmetry (B_n) is generated in the scattering of normally polarized electrons from unpolarized nuclei. The asymmetry arises from the interference of the imaginary part of the two-photon exchange with the one-photon exchange amplitude. The Q-weak experiment has made the first measurement of B_n in the production of the $\Delta(1232)$ resonance, using the Q-weak apparatus in Hall-C at the Thomas Jefferson National Accelerator Facility. The measurement was performed with beam energy of 1.160 GeV at an average scattering angle of about 8.3 degrees. B_n for the Δ is the only observable, that we know of, that is sensitive to the elastic form-factors ($\gamma\Delta\Delta$) *in addition to the generally studied transition form-factors* ($\gamma N\Delta$), but extracting this information will require significant theoretical input. The status of the analysis and a preliminary result will be presented and compared to a calculation.

Is this an abstract for a New Perspectives presentation?

NP presentation

Primary author: Dr NURUZZAMAN, Nuruzzaman (Universidad Técnica Federico Santa María)

Presenter: Dr NURUZZAMAN, Nuruzzaman (Universidad Técnica Federico Santa María)

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