

The OOPS Program at Bates: Measurements of the $\gamma^*N \rightarrow \Delta$ Transition and Virtual Compton Scattering on the Proton Below Pion Threshold

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Preliminary results from the 2000-2001 OOPS run at MIT-Bates will be presented, where the newly commissioned CW beam was used for the first time. Data were taken on the $\gamma^*N \rightarrow \Delta$ transition at $Q^2=0.127$ (GeV/c)², and on virtual Compton scattering on the proton below pion threshold. For the NYD measurements the out-of-plane OOPS spectrometers were used to isolate the RLT and RTT response functions. The sensitivity of these data to the g^*NYD quadrupole amplitudes is explored through comparisons with model calculations. The VCS data were taken at $Q^2=0.05$ (GeV/c)², and final photon energies from 28 to 115 MeV. The placement of the OOPS spectrometers was optimized for measurement of the generalized electric and magnetic polarizabilities of the proton. The outlook for obtaining precision measurements of these fundamental polarizabilities at low Q^2 will be discussed. Future plans for measurements of the nucleon spin-polarizabilities at Bates, Mainz, HIGS and elsewhere will be briefly presented.