

April 4, 1993

CEBAF Proposal - PAC6

MEASUREMENT OF THE MAGNETIC FORM FACTOR
OF THE NEUTRON AT LARGE MOMENTUM TRANSFERS

THE HALL-A COLLABORATION*

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Abstract

We propose to extract the magnetic form factor of the neutron by exploring inclusive quasielastic electron-deuteron scattering to its practical limit of $Q^2 = 6.5$ (GeV/c)². The experiment will use the electron High Resolution Spectrometer and the deuterium/hydrogen cryotarget of Hall-A. The required beam energies range from 0.9 to 4.0 GeV. The spectrometer will be fixed at the backward scattering angle of 120° to eliminate any possible contributions to the quasielastic cross sections from the electric neutron form factor. We request 10 days of data taking calculated at 50% efficiency. The results will be of great importance in understanding the structure of the nucleons.

* Pending final approval at its May 93 Meeting.

† SLAC is not sponsoring this initiative as an Institution, given its policy of only supporting research activities at SLAC. The participation of G. G. Petratos is possible because of his fixed term research appointment at SLAC.