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Precise Measurement of the Neutron Magnetic Form Factor in the Few-GeV^2 Region[1] GERARD GILFOYLE, University of Richmond, JEFFREY LACHNIET, Carnegie Mellon University, WILLIAM BROOKS, Universidad Tecnica Federico Santa Maria, BRIAN QUINN, Carnegie Mellon University, MICHAEL VINEYARD, Union College, CLAS COLLABORATION — The neutron elastic magnetic form factor G_M^n has been extracted from quasielastic scattering from deuterium in the CEBAF Large Acceptance Spectrometer at Jefferson Lab. The kinematic coverage of the measurement is continuous from 1 (GeV/c)^2 to nearly 5 (GeV/c)^2 in four-momentum transfer squared and eclipses the previous data in this region. High precision was achieved with a ratio technique, where many uncertainties cancel, and a simultaneous in-situ calibration of the neutron detection efficiency, the largest correction to the data. Neutrons were detected using the CLAS electromagnetic calorimeters and the time-of-flight scintillators. Data were taken at two different electron beam energies, allowing up to four semi-independent measurements of G_M^n to be made at each value of Q^2. The dipole parameterization is found to provide a good description of the data for $Q^2 > 1$ $(GeV/c)^2$. The impact of these new data on the world data for G_M^n will be presented.

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