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Measuring the Neutron Magnetic Form Factor to High-Q^2 Using the Ratio Method and the New Super BigBite Spectrometer JUAN CARLOS CORNEJO, Carnegie Mellon University, SUPER BIGBITE SPECTROMETER COLLABORATION — Few measurements of the Neutron Magnetic Form Factor (G_M^n) exist at high-Q^2 and these have large systematic uncertainties. These uncertainties can be significantly reduced by using the Ratio Method in which a ratio of the quasi-elastic electron-neutron and electron-proton scattering from a deuterium target is used to extract G_M^n. The GMn experiment will use the Ratio Method to measure G_M^n for a Q^2 of 3.5 to 13.5 $(GeV/c)^2$ with high precision. This experiment will be the first to use the new large-aperture spectrometer being built as part of the SBS program in Hall A at Jefferson Lab. The spectrometer will be used to vertically separate the protons and neutrons, which will then be detected by a new hadron calorimeter. The scattered neutrons and protons will be detected in coincidence with electrons scattered into the existing BigBite spectrometer. In this talk I will discuss the experiment and specifics of how we intend to minimize the systematic uncertainties.

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