Abstract Submitted
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A precision description of deuteron electromagnetic form factors at low Q^2 DANIEL PHILLIPS[1], Ohio University — I will discuss the use of chiral effective theory (χET) to compute the form factors G_C, G_Q, and G_M that are measured in elastic electron-deuteron scattering. I will show that NN potentials derived from χET, when used in concert with the χET current operators, give an accurate description of the ratio G_Q/G_C for momentum transfers $\sqrt{Q^2} < 0.6$ GeV. I will describe ongoing work to achieve similar precision for the magnetic form factor G_M. I will also show a prediction for the charge form factor G_C that is based on a χET calculation at $O(eP^5)$. Such a prediction should be accurate up to corrections of order 1–2% for momentum transfers $\sim M_\pi^2$. I will explain how this uncertainty grows with Q^2, and then close by showing the resulting χET prediction (including theoretical uncertainties) for $A(Q)$ in the range $\sqrt{Q^2} < 0.7$ GeV. This prediction can be compared to recent JLab data on $A(Q)$, taken in the range $0.2 < \sqrt{Q^2} < 0.7$ GeV.

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