Abstract Submitted
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Evaluation of Quantum Monte Carlo Overlaps via ^{6,7}Li(d,p) Reactions[1] S.T. MARLEY, University of Notre Dame/Louisiana State, D. BARDAYAN, A. BATTAGLIA, Y.K. GUPTA, A. GYURJINYAN, A. LONG, S. LYONS, P.D. O'MALLEY, R. TALWAR, W.P. TAN, K. MANUKYAN, University of Notre Dame — A critical component in direct reaction theory is the treatment of the bound-state form factor which encapsulates all of the nuclear structure assumed in the reaction. In recent years, it has become possible to generate form factors for direct reactions using wave functions from modern "ab initio" nuclear models, such as the Quantum Monte Carlo (QMC) technique[2]. To evaluate these overlap functions, a study of the ^{6}Li(d,p)^{7}Li reaction —where all the nuclei involved are well modeled by the QMC— was performed at the Nuclear Structure Laboratory (NSL) at the University of Notre Dame. A 10-MeV deuteron beam was incident on 50-100 ug/cm^2 natural and ^{6}Li-enriched LiF targets located in the 1.6-m diameter General Purpose Scattering Chamber ("R2D2"). Absolute cross sections were measured with an emphasis on reducing the systematic uncertainties. Preliminary results will be presented comparing conventional Woods-Saxon form factors and those derived from QMC overlap functions.

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[2]I. Brida *et al.*, Phys. Rev. **C**51 (2011) 024319

S. T. Marley
University of Notre Dame/Louisiana State

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