

## EVALUATION OF QUANTUM MONTE CARLO OVERLAPS IN LIGHT-ION TRANSFER REACTIONS

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Single-nucleon transfer reactions continue to be used as spectroscopic tools to study the structure of stable and unstable nuclei. An essential component in transfer reaction theory is the treatment of the bound-state form factor which contains all of the nuclear structure in the reaction. It has become possible to generate form factors for direct reactions using wave functions from *ab initio* nuclear models, such as the Quantum Monte Carlo (QMC) method. Theoretical absolute cross sections are sensitive to the shape of the overlap function far from the nuclear surface and presents an opportunity to evaluate the structure model in this region. To evaluate these overlap functions, a study of the  ${}^6\text{Li}(d,p){}^7\text{Li}$  reaction was performed at the Nuclear Science Laboratory (NSL) at the University of Notre Dame. Absolute cross sections were measured for the  ${}^6\text{Li}(d,p)$  reaction with an emphasis on reducing systematic uncertainties. Results of the reaction theory analysis using conventional Woods-Saxon form factors and those derived from QMC overlap functions and a comparison to previous experimental works for  $p$ -shell nuclei will be presented.

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