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Analysis of One-Nucleon Transfer Cross-Sections

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Abstract: The angular distributions of $^{26}Mg(^{3}H,^{2}H)^{27}Mg$ and $^{30}Si(^{3}H,^{2}H)^{31}Si$ reactions have been successfully studied using distorted wave Born approximation (DWBA) calculations. The optical model potentials are taken to have Woods-Saxon, parity and spin-orbit interactions. The present analysis gives a satisfactory fit to the forward angle data but grossly over estimates the cross-sections in the backward regions. The spin-orbit potential provides the best description of the experimental data and is found to be necessary to account for the large-angle cross sections. The obtained values of the extracted spectroscopic factors are reasonable.