Sensitivity of exclusive proton knockout spin observables to different Lorentz invariant representations of the NN interaction

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abstract Within the framework of the relativistic plane wave impulse approximation, we study the observable consequences of employing a complete Lorentz invariant representation of the NN scattering matrix in terms of 44 independent amplitudes, as opposed to the previously-employed, but ambiguous, five-term Lorentz invariant parametrization of the NN scattering matrix, for the prediction of complete sets of exclusive (\vec{p}, 2\vec{p}) polarization transfer observables. Two kinematic conditions are considered, namely proton knockout from the 3s_{1/2} state of 208Pb at an incident energy of 202 MeV for coplanar scattering angles (28.0°, −54.6°), as well as an incident energy of 392 MeV for the angle pair (32.5°, −80.0°). The results indicate that certain spin observables are ideal for discriminating between the two representations.