Measurement of spin observables in three-body break-up in deuteron-deuteron scattering at 130 MeV

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Propositions

Belonging to the PhD thesis

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1- Deuteron-deuteron scattering with a polarized deuteron beam offers a comprehensive phase space and a rich set of hadronic channels to investigate three-nucleon force effects.

2- Part of the data of the four-nucleon scattering process are described well by theoretical approximations while *ab-initio* calculations are still missing.

3- The usage of Monte Carlo simulations is a necessity in any data analysis and an effective way to investigate different aspects of scattering reactions.

4- For the presented measurements of observables in the deuteron-deuteron reaction, the neutron identification using time-of-flight information is essential.

5- The most straight forward way to validate the analysis of the deuteron-neutron final state of the three-body break-up channel is by identifying the deuteron-proton final state whereby the proton is treated like a neutron in the analysis procedure.

6- Hard work is necessary but not sufficient to reach the goals in research.