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Precision measurements of differential cross section and analyzing powers in elastic deuteron-deuteron scattering at 65 MeV/nucleon

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We present measurements of differential cross sections and analyzing powers for the elastic $2\text{H}(-d, d)d$ scattering process. The data were obtained using a 130 MeV polarized deuteron beam impinging a liquid-deuterium target. The experiments were conducted at the AGOR facility at KVI using the BINA 4π -detection system. Our measurements are compared to results of previous studies and with independent data taken with the BBS at KVI. The data are found to be in excellent agreement with each other. A thorough systematic analysis has been carried out to provide the most accurate data in elastic deuteron-deuteron scattering at intermediate energies. The results can be used to confront upcoming state-of-the-art calculations in the four-nucleon scattering domain, and will, thereby, provide further insights in the dynamics of three- and four-nucleon forces in few-nucleon systems.

Selected session

few-body systems

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