

Precision study of the reaction $d+p\rightarrow{}^3\text{He}+\eta$ at ANKE

T. Rausmann^a, P. Goslawski^a, A. Khoukaz^a, T. Mersmann^a, M. Mielke^a, M. Papenbrock^a, and
A. Täschner^a

^aInstitut für Kernphysik, Westfälische Wilhelms-Universität, Münster, Germany.

The existence of η -mesic nuclei is an open issue of research in hadron physics. In order to search for the possible formation of such a bound systems, production measurements with an η meson and a light nucleus in the final state are of great interest. Therefore, the reaction $d+p\rightarrow{}^3\text{He}+\eta$ has been investigated at the ANKE spectrometer with high precision using a continuously ramped accelerated beam at excess energies ranging from below threshold up to $Q = +12$ MeV. Due to the full geometrical acceptance of the ANKE spectrometer high statistics data have been obtained from which information about the final state interaction and thus about the scattering length of the η -nucleus system have been gained. Additionally, data at excess energies of $Q = 20, 40$ and 60 MeV have been recorded in order to determine total cross sections and to investigate contributions from higher partial waves. The final results of the measurements at higher energies will be presented and compared with the results obtained close to threshold and the results from other experiments on the reaction $d+p\rightarrow{}^3\text{He}+\eta$.

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