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Three-nucleon force study by the pd breakup measurements at the intermediate energy region YUKIE MAEDA, TORU SAITO, H. MIYASAKO, University of Miyazaki, TOMOHIRO UESAKA, RIKEN, SINSUKE OTA, S. KAWASE, T. KIKUCHI, H. TOKIEDA, CNS, Univ. of Tokyo, TAKAHIRO KAWABATA, Kyoto Univ., KENTARO YAKO, CNS, Univ. of Tokyo, TOMOTSUGU WAKASA, SATOSHI SAKAGUCHI, Kyushu Univ., R. CHEN, RIKEN, HARUTAKA SAKAGUCHI, T. SHIMA, T. SUZUKI, ATSUSHI TAMII, RCNP, Osaka Univ. — The effects of three-nucleon force (3NF) has been actively studied by using the nucleon-deuteron (Nd) scattering states. The differential cross sections of the elastic Nd scattering at the energy below 150 MeV can be well reproduced by the Faddeev calculation based on modern nucleon-nucleon (NN) interactions and 3NF. On the other hand, the data at 250 MeV was underestimated by the Faddeev calculations with 3NF by 50%. For the systematic study to understand the missing picture of 3NF, we performed the measurements of the pd breakup reactions at 170 and 250 MeV. Concerning about the ${}^2\text{H}(p,pp)n$ exclusive breakup reaction at $E_p = 250$ MeV, the data of the differential cross sections are well reproduced by the Faddeev calculations. However in the case of the ${}^2\text{H}(p,p)pn$ inclusive breakup reaction at $E_p = 170$ MeV, our data shows large discrepancies between the data and the calculations with 3NFs, which is similar to the results of the ${}^2\text{H}(p,p)$ inclusive breakup reaction at 250 MeV.

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