Contribution ID: **15**   Type: **not specified**

Angular and energy dependence of Ay, Ayy and Axx analyzing powers in dp elastic scattering and dp breakup reaction investigation

Tuesday, 17 September 2019 15:10 (25 minutes)

Energy dependence of the vector Ay and tensor Ayy and Axx analyzing powers in deuteron-proton (dp) elastic scattering is investigated in the energy range from 400 MeV - 2000 MeV at large scattering angles. The detection of the dp elastic scattering events has been done by the coincident measurement of deuteron and proton in the the angular range of 60-135 deg. in the cm. The Ay, Ayy and Axx analyzing powers have been measured for the sixteen and fifteen angles defined by the position of the counters placed in the horizontal and vertical planes, respectively. Preliminary results of differential cross sections and analyzing powers for dp elastic scattering are compared with theoretical predictions based on relativistic multi-scattering model which includes besides single and double scattering terms also delta isobar excitation. Strong sensitivity to the short range spin structure of the isoscalar nucleon-nucleon correlations is observed in deuteron analyzing powers. There are interesting parts of deuteron proton breakup reaction phase space in which three nucleon forces, relativistic or coulomb effects can be studied separately. Preliminary results of the cross section for the dp breakup reaction have been obtained in the energy range from 300 - 500 MeV of incoming deuteron for particular detector configurations in which the sensitivity to the nucleon-nucleon, three nucleon forces as well as relativistic effects are assumed.

Authors: JANEK, Marian; LADYGIN, Vladimir (Joint Institute for Nuclear Research (JINR)); LADYGINA, Nadezhda (JINR); AVERYANOV, Alexander (JINR); CHERNYKH, Eugene (JINR); ENACHE, DAN DUMITRU (IFIN-HH ROMANIA); GURCHIN, Yuri (JINR); ISUPOV, Alexander (JINR); KARACHUK, Julia-Tatiana (National Institute for R&D in Electrical Engineering ICPE-CA); KRIVENKOV, Dimitry (JINR); KURILKIN, Pavel (JINR); LIVANOV, Alexei (JINR); MEZHENSKA, Olena (P.-J. Safarik University, Slovakia); PIYADIN, Semen (JINR); REZNIKOV, Sergei (JINR); SKHOMENKO, Yaroslav (JINR); TEREKHIN, Arkady (JINR); TISHEVSKY, Alexei (JINR); Dr UESAKA, Tomohiro (Nishina Center for Accelerator-Based Science, RIKEN)

Presenter: JANEK, Marian

Session Classification: Parallel 3

Track Classification: Few- and many-body physics