

# Resolution Studies of the FRS Spectrometer Experiment using $^{16}\text{O}(p,d)$ Reaction at Energies from 400 to 1200 MeV/u

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The influence of the nuclear tensor force was investigated via the  $^{16}\text{O}(p,d)$  reaction[1] with the fragment separator FRS at different energies from 400 MeV/u to 1200 MeV/u.

The important observable is the deuteron spectrum reflecting the ground state and various excitation levels of  $^{15}\text{O}$ . The required high momentum resolution was achieved by operating the FRS as a spectrometer in an overall dispersive ion-optical mode[2], where the resolving power of all dipole magnet stages are added. The object size of the spectrometer was restricted by a stripe target of 1mm and no other matter was placed in the optical system up to the final focal plane.

The influence of the longitudinal and transverse phase of the primary beam, the reaction kinematics, the target thickness, the optical aberrations and the influence of the position-sensitive tracking detectors are investigated in simulation and compared with the experimental data.

[1] H.J. Ong et al. Phys. Lett. B 725 (2013) 277.

[2] H. Geissel et to be published

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