EXPERIMENTS WITH POLARIZED HD TARGETS AT GRAAL

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Abstract

Within the French-Italian GRAAL collaboration, we have constructed the *Polarized HD Target Factory "HYDILE" (HYdrogen Deuterium for Intersecting Laser Electron beams)*, implanted at IPN Orsay. The expected properties of the HD targets and the results already obtained for the polarization and relaxation times of HD samples at Orsay will be given. New possibilities to measure polarization observables on the proton, the neutron and the deuteron are now opened. All simple and most double polarization measurements for the photoproduction of the low mass pseudoscalar and vector mesons could be performed, by using the high polarization (linear or circular) of the backscattered GRAAL photon beams and the large effective polarization (longitudinal or tranverse) of the target resulting from its good dilution factors. Polarized total cross sections concerning the isovector Drell-Hearn Gerasimov Sum Rule related to the proton neutron difference, could be measured with minimum systematic uncertainties; the HD molecule containing at the same time polarized free and bound protons and one polarized bound neutron.