

Dubna Delta-Sigma Experiment. Results of Treatment and Analysis of Statistics Accumulated in 2001 Data Taking Run on Energy Dependence of $\Delta\sigma_L(np)$

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Measurements of energy behaviours of spin-dependent np total cross section differences $\Delta\sigma_{L,T}(np)$ over an energy range of 1.2 - 3.7 GeV are performed under a program of the DELTA-SIGMA experiment. The aims of these studies are to obtain the values of imaginary and real parts of the spin-dependent forward np -scattering amplitudes over this energy range for the first time. A possibility for measurements of the np spin-dependent observables over a few GeV energy region exists now at the Dubna Synchrophasotron (JINR LHE) only.

These studies were started [1-4] by the measurements of $\Delta\sigma_L$. The values of $\Delta\sigma_L$ were measured as a difference between the np total cross sections for parallel and anti-parallel beam and target polarizations, both oriented along the beam momentum. Measurements of the $\Delta\sigma_L(np)$ were carried out using a quasi-monochromatic polarized neutron beam and a polarized proton target at the polarization facility of the JINR LHE.

In 2001 a successful data taking run on a continuation of measurements of the $\Delta\sigma_L(np)$ energy dependence was carried out. The $\Delta\sigma_L(np)$ values were measured at neutron beam energies of 1.4, 1.7, 1.9 and 2.0 GeV. Results of treatment and analysis of these data are presented.

References

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