

member of the A2 collaboration. The known Gerasimov-Drell-Hearn (GDH) sum rule predicts a dependence of the spin asymmetry of the total photo-absorption cross section on the fundamental characteristics of the nucleon. S.S. Kamalov together with Mainz theorists developed a package of programs for the multipole analysis of meson photoproduction processes (MAID). S.B.Gerasimov used the MAID fit to receive experimentally checkable relationships including multipion photoproduction cross section on neutrons which measurements are an important part of A2 collaboration.

The experiments carried out at the accelerator Van de Graaff of the Czech Technical University with a 14-MeV polarized neutron beam and a polarized deuteron target permit to see the effect of three-nucleon forces (3NF) in the two-spin asymmetry in the total cross section of scattering neutrons on deuterons $\Delta\sigma_T$ and $\Delta\sigma_L$ (transversal and longitudinal asymmetries). Improvement of the experiment condition will be reached with the increase of the deuteron polarization up to approximately 80 % with the use of Trityl radical and the increase of the deuteron polarization up to 60 % and the beam intensity. This may be reached with the neutron generation on the Tritium target in the resonance region of dt reaction at the energy of polarized deuterons about 105 keV. The deuteron polarization is made by Kaminsky's method at the capture of the polarized electrons from magnetized Nickel single-crystal foil by deuterons with the use of channeling effect.

The previous success of the Dubna group of physicists and cryogenic experts and its wealth of experience gained in the development of polarized targets raises no doubt in the implementation of the stated objectives of the upcoming Project experiments.

The requested resources and time schedule are reasonable. Taking into account considerable scientific importance of the both parts of the Project under consideration; high probability to obtain pioneering results; decisive and key role of JINR physicists both in the theoretical and experimental parts of the Project, I recommend the Scientific and Technical Council of the participating JINR Laboratories and to the JINR PAC **approve the Project for the period 2023-2025 with the first priority.**

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22.06.2022

