Contribution ID: **185** Type: **Poster report**

PARAMETRIZATION OF ELEMENTARY πN- AND K + N- AMPLITUDES AT INTERMEDIATE ENERGIES

Thursday, 15 October 2020 18:55 (20 minutes)

When studying elastic and inelastic scattering of mesons on light nuclei at intermediate energies based on the Glauber diffraction theory, it becomes necessary to know the scattering amplitudes of these mesons on individual nucleons of the nucleus. The elementary amplitudes of the πN and K + N interactions are input parameters of the Glauber theory. They are usually determined from independent experiments and parameterized in the form of gaussoids.

The differential reaction cross section calculated on the basis of Glauber's theory strongly depends on the value of these parameters. Therefore, the correct determination of their value, depending on the energy of the mesons, is an important task. In the scientific literature there is a wide range of their meaning. However, they are not systematized and in some cases contradict each other. In addition, the main experimental data relate to scattering of pions from nucleons, while there is not much data for scattering of kaons.

In this work, the values of these parameters were found for meson energies from several hundred MeV to 2 GeV, from the best agreement with experiment at a scattering angle of 0 to 50 degrees. The corresponding experimental data were taken from the electronic database SAID [1]. The found parameters are given in the form of tables.

The scientific literature knows the problem associated with the description of the scattering of kaons from nuclei, where there is an indication that the interaction of a kaon with a nucleon in a nucleus differs significantly from its interaction with a free nucleon. For a correct assessment of this difference, it is also important to have an accurate knowledge of the parameters of the amplitude of the free kaon –nucleon interaction in the corresponding kinematic region.

1. CNS DAC Services [Electronic resource] http://gwdac.phys.gwu.edu

Primary author: ABDRAMANOVA, Gulbanu (Kazakh National University named al-Farabi)

Co-author: IMAMBEKOV, Onlassyn (Kazakh National University named al Farabi)

Presenter: ABDRAMANOVA, Gulbanu (Kazakh National University named al-Farabi)

Session Classification: Poster session 2 (part 3)

Track Classification: Section 2. Experimental and theoretical studies of nuclear reactions.