HADRON-NUCLEUS SCATTERING IN STOCHASTIC NUCLEAR OPTICS

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S u m m a r y

Basing upon a deep analogy between light optics and the physics of nuclear scattering, the application of methods of the theory of stochastic processes to calculating the parameters of elastic collisions between nuclei has been substantiated. Starting from the model of total absorption with near-surface spin-orbit interaction, the amplitude of the nucleon elastic scattering by atomic zero-spin nuclei, which takes into account the fluctuation character of the nucleon-nucleus interaction, has been built in the diffraction approximation. At small scattering angles, an agreement with experiment concerning both the differential cross-sections (DCSs) and the angular dependences of the scattered nucleon polarization has been achieved. At large angles, calculations are in agreement with experimental data concerning DCSs, if zero oscillations of the nuclear surface are taken into account. The results of calculations are in a qualitative agreement with polarization data. It has been shown that fluctuations of the nuclear density can stimulate fluctuations of the limiting angular momenta of orbital waves.