

Generating function for nucleus-nucleus scattering amplitudes in Glauber theory

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A new approach to deal with the scattering amplitudes in Glauber theory is proposed. It relies on the use of generating function, that has been explicitly found. The main advantage of the method is in a relatively simple analytical form that allows to carry out calculations in the all interaction orders of the Glauber theory. Until now the only way to do it without additional approximations is Monte Carlo calculations.

As an example we apply our method to $^{12}C - ^{12}C$ scattering at the energy 950 MeV per nucleon for which there exist the experimental data. The proposed generating function is appropriate for any pairs of colliding nucleus regardless their atomic weight.

Primary author: Dr SHUVAEV, Andrei (Petersburg Nuclear Physics Institute, Kurchatov National Research Center Gatchina, St. Petersburg 188300, Russia)

Co-author: Prof. SHABELSKI, Yuli (Petersburg Nuclear Physics Institute, Kurchatov National Research Center Gatchina, St. Petersburg 188300, Russia)

Presenter: Dr SHUVAEV, Andrei (Petersburg Nuclear Physics Institute, Kurchatov National Research Center Gatchina, St. Petersburg 188300, Russia)

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