2001 Vol.36 No.3 pp.313-320 DOI:

# Nucleus-Nucleus Scattering Based on a Modified Glauber Theory

ZHAO Yao-Lin,[1] MA Zhong-Yu[1,2,3] and CHEN Bao-Qiu[1,2]

[1] China Institute of Atomic Energy, P.O. Box 275-18, Beijing 102413, China
[2] Center of Theoretical Nuclear Physics, National Laboratory of Heavy Ion Accelerator, Lanzhou 730000, China
[3] Institute of Theoretical Physics, Academia Sinica, Beijing 100080, China
(Received: 2001-3-26; Revised: )

Abstract: A modified microscopic Glauber theory has been extended to investigation of the reaction and elastic differential cross sections of various projectile-target collisions at low and intermediate energies. Through a systematic study, we find that the inclusion of the finite range interaction and Coulomb modifications plays very important role in the Glauber theory to reproduce the experimental data at these energy ranges. Usually the effect of the Coulomb modification is to decrease the reaction cross sections, on the contrary that of the finite range interaction modification increases them. The angular distributions calculated by the Glauber theory including these two corrections are in good agreement with the experimental data.

PACS: 25.70.-z, 11.80.Fv, 24.10.-i
Key words: nucleus-nucleus scattering, Glauber theory, Coulomb modification

[Full text: PDF]

Close