GENERALIZED FOLDING MODEL FOR ELASTIC AND INELASTIC NUCLEUS–NUCLEUS SCATTERING WHICH INCLUDES DENSITY-DEPENDENT NUCLEON–NUCLEON INTERACTIONS AND KNOCK-ON EXCHANGE

D. T. Khoa[1], *G. R. Satchler*[2]

A generalized double-folding model for elastic and inelastic nucleus-nucleus scattering is presented. It is designed to accommodate effective nucleon-nucleon interactions that depend upon the density of nuclear matter in which the two nucleons are immersed. The effects of exchange of the interacting pair are included in an accurate local approximation. The interaction parameters were chosen to reproduce the saturation properties (density and binding energy) of normal nuclear matter. Examples of the application of this model to the scattering of light heavy-ion systems are presented.

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[1]Hahn-Meitner Institute, Berlin, Germany.
[2]Guest assignee from University of Tennessee, Knoxville.