https://www.chalcogen.ro/1055_SalloumAD.pdf

EFFECT OF ENERGY AND MASS NUMBER ON ENERGY TRANSITION RATES IN PRE-EQUILIRIUM REGION

A. D. SALLOUM , J. F. MOHAMMAD , A. M. THEEBAN

Digest Journal of Nanomaterials and Biostructures Vol.13, No.4, October-December 2018, p. 1055-1061

Abstract:

Digest Journal of Nanomaterials and Biostructures Vol.13, No.4, October-December 2018, p. 1055-1061In this paper the behavior of a transition rates with increasing the excitation energy and mass numbers have been studied. The transition rates of creation, annihilation and inelastic scattering are studied with increasing the excitation energy for proton-proton, protonneutron and neutron-neutron interactions, where it is found for all processes that the transition rates of creation increases with increasing energy and the transition rates of annihilation decreases with increasing the excitation energy while that for inelastic scattering does not affected by the increasing of excitation energy. Also All transition rates for proton-proton interaction are studied with three different values of mass numbers for 40Ca,56Fe and 90Zr where it is found the transition rates for creation increases with increasing the mass number, the transition rates for annihilation increases with increases the mass number up to 40 MeV then become has the same values with different mass numbers and the transition rates for inelastic scattering decreases with increasing the mass number

Keywords: Pre-equilibrium reactions, Exciton model, Transition rates