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N. G. Nicolis

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Neutron excess dependence of fusion barrier parameters

N.G. Nicolis

Department of Physics,

University of Ioannina, Ioannina 45110, Greece

The neutron excess dependence of heavy ion fusion barrier parameters is investigated, guided by predictions of different heavy ion potentials. We develop parametrizations for the fusion barrier height and radius which explicitly involve the entrance channel mass asymmetry and neutron excess of the projectile and target. The developed expressions reproduce theoretical barrier parameters within 0.2%, which represents a big improvement over previous parametrizations. Furthermore, they provide a means to assess the importance of the neutron excess degree of freedom implied by each potential. Application of these expressions to systematics of experimental barrier parameters will be discussed.