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Study of decay of 260Sg* formed in 51V + 209Bi and 52Cr +208Pb fusion reaction using KDE0(v1) Skyrme Force

In the present work, we have studied the excitation functions (EFs) of 260Sg, formed in fusion reactions 51V+209Bi [1] and 52Cr+208Pb [2] 208Pb at energies E = 20-26 MeV, based on Dynamical Cluster-decay Model (DCM) [3,4], to use some other nuclear interaction potentials derived from Skyrme energy density functional (SEDF) based on semi-classical extended Thomas Fermi (ETF) approach. Wew have studied the comparison of experimental cross section (σ 2n) with the calculations made by using the KDE0(v1) Skyrme Force. The best fitted neck-length parameter Δ R has been shown as a function of Efor 2n evaporation channel cross section of 260Sg. An interesting result from our calculations, we notice that, though cross sections for the 2n decay channel in two reactions are quite different (i.e. cross section 208Pb(52Cr,2n)260Sg 3-5 times larger than 209Bi(51V,2n)260Sg as shown in fig1(a)) but Δ R is nearly the same for these two different reaction, the small change of (± 0.13fm) (except E^{*} = 20.7MeV) Δ R being due to the spread in energy. This result strongly agrees with experiment and supports our previous findings [3,4].

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