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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 (σ2n) with the calculations made by using the KDE0(v1) Skyrme Force. The best fitted neck-length parameter ΔR has been shown as a function of E*for 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 ΔR is nearly the same for these two different reaction, the small change of (± 0.13fm) (except E* = 20.7MeV) ΔR being due to the spread in energy. This result strongly agrees with experiment and supports our previous findings [3,4].

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