

## Study of the Coulomb decay of light fragment produced in the ternary fission of $^{252}\text{Cf}$

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Theoretical analysis of experimental data on the ternary fission of  $^{252}\text{Cf}$  is performed in the semi-classical trajectory approach. The energy and angular distributions, total kinetic energies of the fragments in the ternary fission of  $^{252}\text{Cf}$  are obtained in this model using the Monte-Carlo simulations. The calculations well reproduce these experimental data with the same set of the model parameters for different types of the lightest fragments, i.e. hydrogen, helium, lithium, beryllium isotopes. As earlier suggested in [1], there is a contribution of short-living isotopes to the energy spectra of  $^{4,6}\text{He}$ , such as  $^5\text{He}$  and  $^7\text{He}$ . Using the estimated [2] decay width of  $^7\text{He}$  we have calculated the energy and angular distribution of the  $^4\text{He}$  fragment obtained in the  $4n$  decay of  $^8\text{He}$  emitted in the ternary fission. The energy and angular distributions of the neutrons on this decay are also estimated. We can conclude, that study of neutron and fragment energy and angular distributions in ternary fission may provide the information on decay of neutron-rich short living isotopes as  $^8\text{He}$ .

[1] Yu. N. Kopatch et al., Phys.Rev. C 65(2002), 044614

[2] M. Pfutzner et.al., Rev. Mod. Phys. 68(2012), 567

### Section

Nuclear structure: theory and experiment

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