

VELOCITY DISTRIBUTIONS OF PROJECTILE-LIKE FRAGMENTS IN FRAGMENTATION REACTIONS AT FERMI ENERGIES

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Fragmentation reactions at Fermi energies are studied for decades since 1970th. They are of interest because in these reactions nuclei far from stability line are produced. The properties of these exotic nuclei can shed light on better understanding the nature of nuclear forces. The striking feature of heavy-ion induced fragmentation reactions is that the velocities of projectile-like fragments are peaked at projectile velocity. This would be natural for the reactions at relativistic energies in which direct processes prevail, but not so evident at lower ones which have dissipative nature. It is therefore of interest to understand in detail the production mechanism of these fragments. In these report we analyze velocity distributions of forward emitted fragments for several reactions on Be and Ta targets at energies in the vicinity of Fermi energy in terms of microscopic approach [1]. We also deduce the ratio of direct and dissipative components [2] as a function of mass fragment and study its dependence on the projectile energy and other characteristics of the reaction. This can be helpful in planning future experiments with radioactive beams.

¹ T. I. Mikhailova et al., EPJ Web of Conferences. 173. 04010 (2017).

² B. Erdemchimeg et al., Bulletin of RAS: Physics. 85. 1457. (2021).

The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

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