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DESCRIPTION OF HEAVY-ION FRAGMENTATION REACTIONS AT FERMI ENERGIES IN COMBINED TRANSPORT-STATISTICAL APPROACH.

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**Heavy-ion-induced projectile fragmentation reactions at Fermi energies are of interest to investigate the properties of nuclei far from the valley of stability, to know more about nuclear potential and equation of state of nuclear matter. These reactions are also useful to obtain exotic nuclei to be used as secondary beams. The reaction mechanism of these reaction is complicated, this energy region is in between the deep-inelastic collisions and direct reactions. This can be seen from the shape of velocity distributions of fragments. These distributions are peaked at project velocity, which is usual at relativistic energies. But they have long tail to the lower velocities due to deep-inelastic mode of the reaction. Here we treat such reactions in a microscopic approach [1], which consists of several steps: initialization of ground states of the colliding nuclei, dynamical evolution until the freeze-out point, calculation of the excitation energy of the primary fragments, and their de-excitation by emission of particles and radiation. For the dynamical evolution we use a Boltzmann–Vlasov type transport method, and for the de-excitation a statistical multi-fragmentation description. We apply this approach to collisions of 40Ar projectile nuclei on 9Be target, and calculate isotope distributions and velocity spectra of the produced isotopes. We compare the results of our calculations to experimental data obtained at COMBAS set-up in FLNR, JINR [2].

REFERENCES

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