EFFECTIVE PROBABILITIES METHOD FOR HEAVY-ION ELASTIC SCATTERING ANGULAR DISTRIBUTION ANALYSIS

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Previously proposed the new approach to heavy-ion elastic scattering angular distributions analysis is generalized for the cases when the total (i.e. summed over all channels) partial probabilities of “fusion” (in general complete and incomplete fusion, quasifission and deep inelastic collisions) enhancement are comparable with total partial probabilities of “fusion” hindrance. It became possible due to effective total partial probabilities introduction, every of which is a linear combination of either actual total partial probabilities. It is shown that introduced in such manner probabilities have quite definite physical meaning. Really, effective total partial probabilities allow to calculate entrance channel “fusion” cross section and certain reference peripheral processes cross section, comparison with which calculated or measured correspondingly “fusion” or total peripheral reaction cross section allows one to predetermine about “fusion” or peripheral reactions enhancement or hindrance. It is also established that “fusion” enhancement is accompanied by peripheral reactions hindrance, and vice versa.