

RELATIVE PROBABILITY OF HIGH-SPIN ISOMERIC STATES POPULATION IN (α ,n)-REACTIONS

Thursday, 14 July 2022 17:09 (20 minutes)

Experiments which were performed by use of the alpha-particle beam of SINP MSU cyclotron are the subject of the present talk. Results of the investigations of the relative yield of high-spin and low-spin isomers in reactions $^{86}\text{Sr}(\alpha, n)^{89}\text{Zr}$, $^{112}\text{Sn}(\alpha, n)^{115}\text{Te}$, $^{134}\text{Ba}(\alpha, n)^{137}\text{Ce}$ in the energy range of the alpha particles 15 – 31 MeV based on off-beam measurements of induced activity of members of the isomeric pair are presented. Uniquely large isomeric cross-section ratios for the first and the second reactions are obtained. The features of the third reaction, which are promising for its application in fundamental research, are revealed. The first of the reactions can also be used as an injection reaction for generating beams of high-spin isomers. Quality of the description of such reactions by popular computer codes is analyzed and some problems of these codes are detected.

The speaker is a student or young scientist

No

Section

1. Experimental and theoretical studies of nuclear reactions

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