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## ENERGY DEPENDENCE OF TOTAL REACTION CROSS SECTIONS FOR ISOTOPES OF Be ON TARGETS <sup>28</sup>Si, <sup>59</sup>Co, <sup>181</sup>Ta

Tuesday, 12 July 2022 12:10 (20 minutes)

Energy dependence of the total cross sections  $\sigma_R(E)$  for reactions  ${}^{10,11,12}Be + {}^{28}Si$ ,  ${}^{59}Co$ ,  ${}^{181}Ta$  are presented. The  $4\pi$ -methods of  $\sigma_R$  measurements are based on registration of prompt  $\gamma$ -quanta and neutrons using a 12-module  $4\pi$ -spectrometer [1]. The results of the two methods for calculating the total reaction cross sections are presented.

The values of  $\sigma_{\rm R}$  were calculated taking into account:

- 1. the mean detection efficiency  $\langle \varepsilon \rangle$  of the  $4\pi$ -spectrometer, which does not depend on  $\gamma$ -multiplicity  $M_{\gamma}$  [2];
- 2. the distribution of the numbers of triggered detectors during registration of the cascades of particles at a fixed value of multiplicity  $M_{\gamma}$ .

Measurement of the detection efficiency  $\varepsilon(M_{\gamma})$  for various values of  $\gamma$ -multiplicity  $M_{\gamma}$  was carried out using the method described in [3].

- 1. Yu.G. Sobolev, Yu.E. Penionzhkevich, V.V. Samarin, M.A. Naumenko, S.S. Stukalov, I. Siváček, S.A. Krupko, A. Kugler, and J. Louko, Bull. Russ. Acad. Sci.: Phys. 84, 948 (2020).
- Yu.E. Penionzhkevich, Yu.G. Sobolev, V.V. Samarin, and M.A. Naumenko, Phys. Atom. Nucl. 80, 928 (2017).
- 3. Yu.E. Penionzhkevich, Yu.G. Sobolev, V.V. Samarin, M.A. Naumenko, N.A. Lashmanov, V.A. Maslov, I. Siváček, and S.S. Stukalov, Phys. Rev. C 99, 014609 (2019).

## The speaker is a student or young scientist

Yes

## Section

1. Experimental and theoretical studies of nuclear reactions

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