Nuclear Experiment

Low and medium energy deuteron-ind ced reactions on ^{63,65}Cu nuclei

E. Simeckova, P. Bém, M. Honusek, M. Stefánik, U. Fischer, S.P. Simakov, R.A. Forrest, A.J. Koning, J.-C. Sublet, M. Avrigeanu, F.L. Roman, V. Avrigeanu

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The activation cross sections of (d,p), (d,2n), (d,3n), and (d,2p) reactions on 63,65Cu were measured in the energy range from 4 to 20 MeV using the stacked-foils technique. Then, following the available elastic-scattering data analysis that provided the optical potential for reaction cross sections calculations, an increased effort has been devoted to the breakup mechanism, the direct reaction stripping, and the pre-equilibrium and compound-nucleus cross section calculations, corrected for the breakup and stripping decrease of the total reaction cross section. The overall agreement between the measured and calculated deuteron activation cross sections proves the correctness of the nuclear mechanisms account, next to the simultaneous analysis of the elastic-scattering and reaction data.

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