

SYSTEMATICS OF (n,2n) REACTIONS AT 14 MeV

E. Holub

Institute "Rudjer Bošković", Zagreb

Total (n,2n) cross sections at 14.6 ± 0.3 MeV for ^{84}Sr , ^{86}Sr , ^{88}Sr , ^{93}Nb , ^{134}Ba and ^{136}Ba were determined using the activation technique and a Ge(Li) detection system. Isomeric cross section ratios were calculated on the basis of the statistical theory using the shifted Fermi-gas and superconductivity models. Theoretical results are compared with experimental data. The results of this work and other new literature data are systematized as a function of the neutron excess of residual nuclei $(N - Z)_R$ at a constant value of the residual excitation energy. The new data systematics show that there are now significant minima in the total (n,2n) cross section mass dependency in the neighbourhood of closed neutron and proton shells. The cross sections follow a smooth, slowly rising curve (the "gross trend").

To be published in Acta Physica Slovaca.