FAST PROTON INDUCED REACTIONS ON NATURAL In

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Nuclear reactions induced by fast protons with emission of neutrons on natural Indium were investigated. Cross sections, for incident protons energies from neutron threshold up to 25 MeV were evaluated with Talys [1]. For each cross section, decomposition into different nuclear reaction mechanisms and type of residual nuclei states (discrete, continuum) was realized. Theoretical evaluations and existing experimental data are in a satisfactory agreement and this allowed to extract the isomer ratios in the ^{113}In(p,n)^{113m,g}Sn and ^{115}In(p,3n)^{113m,g}Sn reactions and parameters of optical potential for incident and emergent channels. Isomer ratios were obtained further by using cross sections [2] calculated with Talys and considering a target with finite dimensions.

Cross sections and isomer ratios measurements will be effectuated based on this research proposal at FLNP JINR Dubna basic facilities.

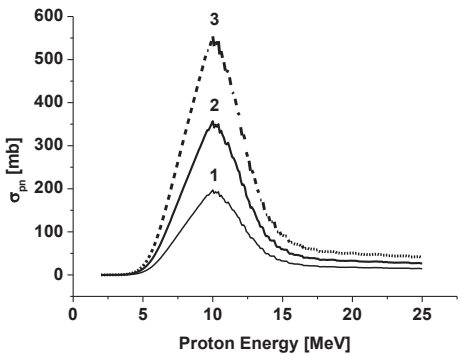

Fig.1. Cross section (XS) of ^{113}In(p,n)^{113m,g}Sn reaction. 1) XS of ground state production 2) XS of isomer state production 3) Total XS of ground + isomer states production.

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2. B.S.Ishkhanov, S.Yu.Troschiev // Moscow University Physics Bulletin 2010. №65. V.1. P.39.