

Abstract Submitted
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Level densities and spin cutoff parameters for ^{60}Co and ^{62}Ni from proton evaporation spectra ALEXANDER VOINOV, STEVEN GRIMES, CARL R. BRUNE, Department of Physics and Astronomy, Ohio University, Athens OH, 45701, ALEXANDER BURGER, ANDREAS GORGEN, MAGNE GUT-TORMSEN, ANN CECILIE LARSEN, Department of Physics, University of Oslo, M-0316 Oslo, Norway, TOMAS MASSEY, Department of Physics and Astronomy, Ohio University, Athens OH, 45701, SUNNIVA SIEM, Department of Physics, University of Oslo, M-0316 Oslo, Norway — Prediction of reaction cross sections remains a major problem in applications such as data evaluations or/and astrophysics reaction rate calculations. There is big progress in the development of nuclear reaction codes which now include different reaction mechanisms. However, these codes use many input parameters. The variety of input parameters helps us to describe existing experimental data but it creates problems when it comes to predictions. The uncertainties of the level density and the spin cutoff parameter cause the major concern. The proton spectra from α and lithium induced reactions have been measured and analyzed with the Hauser-Feshbach model. Different input level density models have been tested. The level densities and spin cutoff parameters were obtained with Monte-Carlo technique taking into account known spins of discrete low-lying levels of residual nuclei. It was found that the best description is achieved with the Gilbert and Cameron model functions. Excitation energy dependence of spin cutoff parameters was found to be different for ^{60}Co and ^{62}Ni nuclei. It is inconsistent with Fermi-gas model which is usually used to calculate spin cutoff parameters.

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