



Contribution ID: 134

Type: Oral

Experimental results on level densities and spin distribution from particle evaporation

The nuclear level density is an important input in nuclear reaction codes to calculate reaction cross sections. Experimental data are limited and theoretical models suffer from large uncertainties. This motivates further experimental studies.

The data on the level density and the spin cutoff parameter for the ^{59}Ni isotope were obtained from the analysis of the angular distribution of evaporated neutrons with the alpha induced reaction on the ^{56}Fe isotope. The spin cutoff parameter was confirmed to be a fraction of the value estimated with the rigid body moment of inertia of a nucleus below the neutron separation energy.

Also the level densities of $^{35,36,37}\text{Cl}$ isotopes were obtained from proton evaporation using ^{12}C induced reactions on $^{24,25,26}\text{Mg}$ nuclei. The isovector dependence of the level density parameter was derived and compared with model predictions. Data show smooth mass dependence of the model parameter for $^{35-37}\text{Cl}$ isotopes. This behavior is not supported by level density models which predict larger parameter variations due to shell effects. New data might shed light on development of level density models.

Primary author: VOINOV, Alexander (Ohio University)

Presenter: VOINOV, Alexander (Ohio University)

Session Classification: Poster Session

Track Classification: Poster Presentations