

# Systematics of $\gamma$ SF and LD in samarium



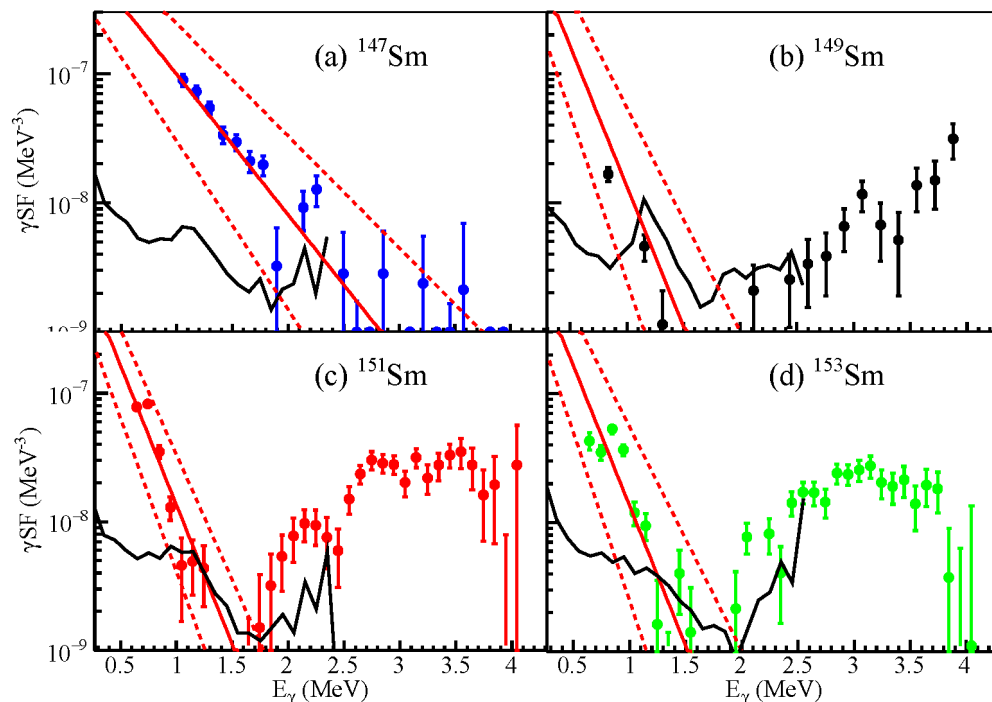
The level density (LD) for all the Sm isotopes investigated in this work follows the constant temperature model.

The  $\gamma$ -ray strength function ( $\gamma$ SF) shows a low-energy enhancement for all four isotopes and the scissors mode for the deformed  $^{151,153}\text{Sm}$ .

Shell-model calculations were unable to reproduce the strength of the upbend due to limitations of the model, however the transition from upbend to scissors is well reproduced.



STARLiTeR array at TAMU



M1 component of the measured  $\gamma$ SF (points) with the fit to upbend and its uncertainty (red lines) and shell-model results (black line)