Detailed $\beta$-Decay Study of Neutron Rich $^{76}\text{Cu}$ and Structure of $^{76}\text{Zn}$ Isotope

The $\beta$ decay of neutron rich $^{76}\text{Cu}$ to levels in $^{76}\text{Zn}$ has been studied using 4-HPGe clover detectors at HRIBF of Oak Ridge National Lab. We have used a pure $^{76}\text{Cu}$ ion beam provided by the high resolution mass separator and data on $\gamma$-ray emission following $\beta$ decay including $\beta\gamma$ and $\gamma\gamma$ coincidences were obtained. Gated $\gamma\gamma$ spectra were analyzed to identify the statistically significant coincidences, and decay schemes have been developed for all daughter nuclei within the decay chain. Presented here is the case for $^{76}\text{Cu}$ $\beta$ decay. We have identified 58 $\gamma$ rays associated with this decay and have extended the decay scheme up to 5.6 MeV. Finally, we have compared this reconstructed decay scheme with shell-model calculations.