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GEANT4 Simulations of Gamma-Gamma Angular Correlations with GRIFFIN CONNOR NATZKE, Department of Physics, Colorado School of Mines, GRIFFIN COLLABORATION — The structure of very neutron rich isotopes has been of recent experimental interest for both nuclear astrophysics and fundamental nuclear structure investigations. In beta-minus decay specifically, beta-delayed gamma cascades can help to shed light on the spin and parity of the states involved. One of the world's most powerful decay spectroscopy tool is the Gamma-Ray Infrastructure For Fundamental Investigations of Nuclei (GRIFFIN) spectrometer at TRIUMF-ISAC in Vancouver, Canada. To investigate the feasibility of these experimental studies, GEANT4 simulations of neutron-rich nuclei are critical, as they are able to provide realistic estimates of what the experimental results may look like. The first such nucleus investigated was ^{44}P, and both the temporal and angular $\gamma\gamma$ correlations were extracted. Furthermore the simulations were used to model various multipole decay possibilities which provide a powerful tool analyzing collected data from such facilities. In the future, the Facility for Rare Isotope Beams (FRIB) at MSU will be an ideal site for such studies on the most exotic nuclei.

Connor Natzke
Department of Physics, Colorado School of Mines

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