Development of the Off-line Analysis Code for GODDESS.[1]

HEATHER GARLAND, Gettysburg College, JOLIE CIZEWSKI, ALEX LEP-AILLEUR, DAVID WALTERS, Rutgers University, STEVE PAIN, Oak Ridge National Laboratory, KARL SMITH, University of Tennessee — Determining (n,γ) cross sections on unstable nuclei is important for understanding the r-process that is theorized to occur in supernovae and neutron-star mergers. However, (n,γ) reactions are difficult to measure directly because of the short lifetime of the involved neutron rich nuclei. A possible surrogate for the (n,γ) reaction is the (d,pγ) reaction; the measurement of these reactions in inverse kinematics is part of the scope of GODDESS — Gammasphere ORRUBA (Oak Ridge Rutgers University Barrel Array): Dual Detectors for Experimental Structure Studies. The development of an accurate and efficient off-line analysis code for GODDESS experiments is not only essential, but also provides a unique opportunity to create an analysis code designed specifically for transfer reaction experiments. The off-line analysis code has been developed to produce histograms from the binary data file to determine how to best sort events. Recent developments in the off-line analysis code will be presented as well as details on the energy and position calibrations for the ORRUBA detectors.

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