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The Simulation of a Nuclear Astrophysics Detection System CHRISTOPHER HOWARD, ARTHUR CHAMPAGNE, CHRISTIAN ILIADIS, The University of North Carolina — The Laboratory for Experimental Nuclear Astrophysics (LENA), which is part of TUNL, houses a gamma-ray spectrometer designed for directly measuring stellar fusion reactions. The detection systems are made up of multiple detectors, taking advantage of multi-photon coincidence counting in order to reduce environmental background. This talk will describe the various methods of coincidence gating and associated Geant4 simulations. A number of examples will be presented and discussed: point source data, in-beam data, and an extended source – the detection of aluminum-26 in a meteorite fragment.

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