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**Simulations of an X-Ray Detector Using Geant4** CAMDEN ERTLEY, MARK MCCONNELL, PETER BLOSER, JASON LEGERE, TAYLOR CONNOR, JAMES RYAN, The University of New Hampshire — NASA's Black Hole Finder Probe mission has two proposed concepts. CASTER, one of the proposed concepts, is a scintillator based Coded Aperture Survey Telescope for Energetic Radiation. This paper focuses on the development of a simulation that accurately models the proposed CASTER detector. The current detector design consists of a Lanthanum Bromide ( $\text{LaBr}_3$ ) scintillator directly coupled to a multianode photomultiplier tube (MAPMT). This detector should be optimized to give the best energy and position resolution. The simulation is based on the Geant4 toolkit, a set of detector simulation tools developed at CERN. Geant4 was chosen because it accurately models radiation devices and detectors, while allowing the simulation of transport and boundary conditions of optical photons. The results of the simulation were compared with data taken in the lab with a  $^{57}\text{Co}$  and an  $^{241}\text{Am}$  source. Once validated, the simulations will be used to optimize the final detector design.

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