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A GEANT4 STUDY OF A GAMMA-RAY COLLIMATION ARRAY

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Proton beam therapy uses high-energy protons to destroy cancer cells which are still uncertain about where in the body they hit. A possible way to answer this question is to detect the gamma rays produced during the irradiation and determine where in the body they are produced. This work investigates the use of collimators to determine where the proton interactions occur. GEANT4 is used to simulate the gamma production of a source interacting with a collimator. Each event simulates a number of gammas obtained as a function of the position along the detector. Repeating for different collimator configurations can thus help determine the best characteristics of a detector device.