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Comparative Study on X-ray Imaging with CsI(Tl) Scintillators: Monte Carlo Simulation using GEANT4

Wednesday, 15 November 2023 11:00 (15 minutes)

This oral presentation delves into the application of Monte Carlo simulation using GEANT4 software to assess the performance of X-ray detectors. The study focuses on the use of a CsI(Tl) scintillator for X-ray imaging, comparing the outcomes achieved with pixelated and non-pixelated scintillators. The primary objective is to discern the essential differences between these two configurations by calculating the Modulation Transfer Function (MTF) in each case. Furthermore, the evaluation of the Detective Quantum Efficiency (DQE) will allow for an in-depth analysis of performance. The results of this research provide significant insights into the pros and cons of pixelated and non-pixelated scintillators in the context of X-ray imaging, with important implications for enhancing radiology detection techniques. This study presents a valuable contribution to the optimization of X-ray detection systems.

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