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Simulation of X-ray tubes using Geant4 Monte Carlo toolkit

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This paper is linked to the research and development in the field of Monte Carlo simulation and its application in the simulation of X-ray sources. In this work, the Geant4 toolkit was used to simulate X-ray spectra produced by the interaction of an electron beam with a dense target of Tungsten in an X-ray tube. Additionally, We simulated the Half-Value Layer (HVL) and spatial distribution of x-rays (anode heel effect). Finally, the obtained results were compared and validated against existing data in the literature. This comparison shows a good agreement between Geant4 results and other data.

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