Monte Carlo Simulation of X-Ray Spectra in Diagnostic Radiology and Mammography Using MCNP4C

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Abstract : The overall goal Monte Carlo N-atom radioactivity transference PC program (MCNP4C) was done for the regeneration of x-ray groups in diagnostic radiology and mammography. The electrons were transported till they slow down and stopover in the target. Both bremsstrahlung and characteristic x-ray creation were measured in this study. In this issue, the x-ray spectra forecast by several computational models recycled in the diagnostic radiology and mammography energy kind have been calculated by appraisal with dignified spectra and their outcome on the scheming of absorbed dose and effective dose (ED) told to the adult ORNL hermaphroditic phantom quantified. This comprises practical models (TASMIP and MASMIP), semi-practical models (X-rayb&m, X-raytbc, XCOMP, IPEM, Tucker et al., and Blough et al.), and Monte Carlo modeling (EGS4, ITS3.0, and MCNP4C). Images got consuming synchrotron radiation (SR) and both screen-film and the CR system were related with images of the similar trials attained with digital mammography equipment. In sight of the worthy feature of the effects gained, the CR system was used in two mammographic inspections with SR. For separately mammography unit, the capability acquiesced bilateral mediolateral oblique (MLO) and craniocaudal(CC) mammograms attained in a woman with fatty breasts and a woman with dense breasts. Referees planned the common groups and definite absences that managed to a choice to miscarry the part that formed the scientific imaginings.

Keywords : mammography, monte carlo, effective dose, radiology

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