

عنوان مقاله:

Mass Attenuation Coefficients of Human Body Organs using MCNPX Monte Carlo Code

محل انتشار:

مجله فیزیک پزشکی ایران, دوره 14, شماره 4 (سال: 1396)

تعداد صفحات اصل مقاله: 12

نویسندگان:

Huseyin Tekin - *Uskudar University, Turkey*

V. singh - *Karnatak University, Dharwad, India*

Elif Ebru Altunsoy - *Uskudar University, Vocational School of Health Services, Medical Imaging Department, İstanbul ۳۴۶۷۲, Turkey*

(Tugba Manici - *Uskudar University, Medical Radiation Research Center (USMERA*

خلاصه مقاله:

Introduction: Investigation of radiation interaction with living organs has always been a thrust area in medical and radiation physics. The investigated results are being used in medical physics for developing improved and sensitive techniques and minimizing radiation exposure. In this study, mass attenuation coefficients of different human organs and biological materials such as adipose, blood, bone, brain, eye lens, lung, muscle, skin, and tissue have been calculated. Materials and Methods: In the present study, Monte Carlo N-Particle eXtended (MCNP-X) version 2.4.0 was used for determining mass attenuation coefficients, and the obtained results were compared with earlier investigations (using GEometry ANd Tracking [GEANT4] and FLUKA computer simulation packages) for blood, bone, lung, eye lens, adipose, tissue, muscle, brain, and skin materials at different energies. Results: The results of this study showed that the obtained results from MCNP-X were in high accordance with the National Institute of Standards and Technology data. Conclusion: Our findings would be beneficial for use of present simulation technique and mass attenuation coefficients for medical and radiation physics applications.

کلمات کلیدی:

Attenuation Coefficient, Monte Carlo, MCNP-X

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/893269>

