ABSTRACT

RESEARCH PAPER: Klein-Nishina electronic cross section, Compton scattering cross section, linear attenuation coefficient and build up factor of Wax for radiation protection and safety.

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One of the most effective ways to get rid of a tumor is to treat it with radiation. Radiation can be used to target specific parts of the body to treat cancer. However, radiation can be dangerous and can harm normal tissues if exposed to high dose for long time. Therefore, shielding and protection of body or normal tissues is important when work in radiation area. Different forms of shielding material help to ensure that radiation only reaches the targets and does not damage healthy cells. To achieve the goal of safety it is important to know various properties of shielding material before they are used practically.

The purpose of this work is to study and calculate Klein-Nishina electronic cross section e^{σ}, Compton scattering cross section $\frac{\sigma}{\rho}$, and linear attenuation coefficient μ and build up factor B of Wax for radiation protection and safety purposes. Gamma rays of certain energies are going to be used to calculate Klein-Nishina electronic cross-sections for wax. The cross sections are further used to calculate Compton scattering coefficients. Build up factors will be calculated using narrow beams and broad beams of gamma radiation under the same conditions. Respective graph will be obtained to analyze the results obtained.