1 Summary

The purpose of this simulation was to probe bremsstrahlung production using low-Z and high-Z targets. A beam energy of 15 MeV linear electrons were used to check the findings of work published by Mondelaers et Al that a thin radiator of low-Z material would deliver highest absolute monochromatic photons compared to high-Z material [1].

Four millimeters (mm) Tantalum and Graphite blocks were used in the simulation. As shown in Figure-1 and Figure-2, we get more intense monochromatic X-rays with low-Z target material, that is with Graphite block. These kind of accelerators could be used in medical facilities and run different kinds of experiments at the smaller scale.

![Figure 1: Bremsstrahlung scattering angles on the effective crystal surface for a graphite and a tantalum target.](image)

BremAngle_Tant
Entries 23498
Mean 20.69
RMS 14.77

BremAngle_C12
Entries 2231
Mean 1.92
RMS 4.892
Figure 2: Bremsstrahlung spectrum on the effective crystal surface for a graphite and a tantalum target.
References