Abstract Submitted
for the TSS12 Meeting of
The American Physical Society

Angular distribution of bremsstrahlung produced by electrons with initial energies in the range from 10 to 20 keV incident on thick Ag DANIEL GONZALES, BRANDON CAVNESS, SCOTT WILLIAMS, Angelo State University — Experimental results are presented comparing the intensities of the thick-target bremsstrahlung produced by electrons with initial energies ranging from 10 to 20 keV incident on Ag, measured at forward angles in the range of 0 to 55 degrees. When the data are corrected for attenuation due to photon absorption within the target, the results indicate that the detected radiation is distributed anisotropically only at photon energies $k$that are approximately equal to the initial energy of the incident electrons E_0. The results of our experiments suggest that, as $k/E_0 \rightarrow 0$, the detected radiation essentially becomes isotropic due primarily to the scattering of electrons within the target. Comparison to the theory of Kissel *et al.* [At. Data Nucl. Data Tables **28**, 381 (1983)] suggests that the angular distribution of bremsstrahlung emitted by electrons incident on thick targets is similar to the angular distribution of bremsstrahlung emitted by electrons incident on free-atom targets only when $k/E_0 \approx 1$. The experimental data also are in approximate agreement with the angular distribution predictions of the Monte Carlo program PENELOPE.

Scott Williams
Angelo State University

Date submitted: 09 Feb 2012 Electronic form version 1.4