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Testing the Klein-Nishina Model for Compton Scattering of 0.662 MeV Photons with a Focus on Lower Scattering Angles

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Testing the Klein-Nishina Model for Compton Scattering of 0.662 MeV Photons with a Focus on Lower Scattering Angles

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The Thomson and Klein-Nishina equations for obtaining the differential cross section by Compton scattering of photons from free electrons in aluminum will be tested using 0.662 MeV photons from a Cesium-137 source. A NaI detector will be used to count the number of photons scattering from the target as a function of the scattering angle. A previous experiment carried out by VU student Josh Vredevoogd showed good agreement with the Klein-Nishina theory for angles greater than 45 but discrepancies with angles less than 45 degrees. This experiment will concentrate on testing the Klein-Nishina theory at angles less than 45 degrees.

Information about the Author:

This research is an extended project of an experiment performed in Physics 345 and is an application of nuclear physics. Joel Rogers has found nuclear physics to be his favorite course taken here at Valpo and wanted to choose a senior research project related to this field.

Faculty Sponsor: Dr. Shirvel Stanislaus

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