

Abstract Submitted
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Low-Cost Gamma Ray Spectrometry JONATHAN SAMUDIO, McMurry University — Typical gamma ray spectrometry is done using professional grade equipment with expensive scintillation detectors. This project aimed to construct a much lower cost detector which would provide a gamma spectrum that generally matches the accepted spectrum energies for a specific radionuclide. An attempt at constructing a custom high voltage power supply for the experimental apparatus was made, but errors in construction led to the use of a commercial power supply. The detector was assembled and wired to the Theremino software analyzer and a gamma spectrum was obtained and calibrated for Cs-137. This was then compared to control data and literature references and it was determined the low-cost apparatus does produce a recognizable and usable spectrum. However, the output signal is plagued by noise and is generally small which eliminated the possibility of further analyzer developments until the issue can be solved through troubleshooting and potential redesign .

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