

Abstract Submitted
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Development of a Mossbauer Spectrometer JUSTIN KING,
MICHAEL VINEYARD — A Mossbauer spectrometer is being developed for use in
an undergraduate experimental physics course and for research projects. A Co-57
provides 14.4-keV gamma rays which are detected with a krypton gas proportional
counter. The source is mounted on an electromechanical drive that is operated in
constant velocity mode using a Mossbauer drive controller. A circuit is being devel-
oped to operate the drive in constant acceleration mode so that Mossbauer spectra
can be acquired with a multi-channel analyzer in a computer. Curricular materials
are also being developed to use the Mossbauer spectrometer in the experimental
physics course to measure changes in nuclear energy levels such as isomer shifts,
hyperfine splitting, and quadrupole splitting due to an external magnetic field.

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