

Abstract Submitted
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**Half-life measurements of isotopes relevant to the astrophysical
p-process carried out via photoactivation at the Madison Accelerator
Laboratory (MAL)**

TYLER HAIN, ADRIANA BANU, James Madison University — One of the projects underway at MAL is related to measurement of photodisintegration reaction rates for the nucleosynthesis of the *p*-nuclei. Due to the low isotopic abundances of the *p*-nuclei, the half-lives of isotopes with fewer neutrons than the *p*-nuclei tend to be measured with large uncertainties. Our goal was to improve the uncertainty on existing data for the half-lives of ^{73}Se , ^{69}Ge , ^{83}Sr , and ^{63}Zn . These isotopes were produced at MAL via photoactivation, γ -spectroscopy was used to measure the activity of the samples over time and determine the half-life of each isotope using three data analysis methods. To confirm that they gave accurate results, we first tested these methods on a well-known isotope; an isomer of indium ($^{116\text{m1}}\text{In}$) with a half-life of 54.29(17) min. A weighted mean of 8 separate measurements yielded a measured half-life for $^{116\text{m1}}\text{In}$ of 54.35(02) min, which agrees with the accepted value and is more precise. The final results and uncertainties obtained for the half-lives of ^{73}Se , ^{69}Ge , ^{83}Sr , and ^{63}Zn will be presented by comparing the three data analysis methods that were applied.

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