

## <sup>79</sup>Ge

The identification of <sup>79</sup>Ge was reported by Karras et al. in “Radioactive nucleides <sup>79</sup>Ge and <sup>82</sup>As” in 1970 ([1970Ka04](#)). The Arkansas 400 kV Cockcroft-Walton linear accelerator was used to produce 14.7 MeV neutrons by the <sup>3</sup>H(<sup>2</sup>H,n)<sup>4</sup>He reaction. The neutrons irradiated enriched <sup>82</sup>Se samples and  $\gamma$ - and  $\beta$ -rays were measured with Ge(Li) and NaI(Tl) detectors, respectively. “The 42 sec activity with  $\beta$ -rays of 4.3 and 4.0 and the coincident  $\gamma$ -ray of 230 keV can be assigned to <sup>79</sup>Ge based on the following: (i) the  $\beta$ -decay Q-value of  $4.3 \pm 0.2$  MeV is in agreement with the estimated value of 4.0 MeV for <sup>79</sup>Ge. <sup>82</sup>As is estimated to have a  $Q_{\beta} \approx 7.4$  MeV; (ii) the 42 sec activity was found to be considerably enhanced when enriched <sup>82</sup>Se was bombarded and analyzed; and (iii) the 42 sec 230 keV  $\gamma$ -ray was observed to follow the Ge fraction separated from irradiated natural Se.” The half life of the ground-state ( $19.1 \pm 0.3$  s) was first observed for years later by Grapengiesser et al. ([1974Gr29](#)).

Adapted from reference ([2012Gr19](#))

- [1970Ka04](#) M. Karras, T. E. Ward, and H. Ihochi, Nucl. Phys. A **147**, 120 (1970).  
[1974Gr29](#) B. Grapengiesser, E. Lund, and G. Rudstam, J. Inorg. Nucl. Chem. **36**, 2409 (1974).  
[2012Gr19](#) J. L. Gross and M. Thoennessen, At. Data Nucl. Data Tables **98**, 983 (2012).

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