

³⁹P

³⁹P was discovered by Butler et al. in “Observation of the new nuclides ²⁷Ne, ³¹Mg, ³²Mg, ³⁴Al, and ³⁹P” in 1977 ([1977Bu11](#)). ³⁹P was produced in the spallation reaction of 800 MeV protons from the Clinton P. Anderson Meson Physics Facility LAMPF on a uranium target. The spallation fragments were identified with a silicon ΔE-E telescope and by time-of-flight measurements. “All of the stable and known neutron-rich nuclides (except ²⁴O and the more neutron-rich Na isotopes) are seen. The five previously unobserved neutron-rich nuclides ²⁷Ne, ³¹Mg, ³²Mg, ³⁴Al, and ³⁹P are clearly evident. Each of these peaks contains ten or more events.”

Adapted from reference ([2012Th10](#))

[1977Bu11](#) G. W. Butler, D. G. Perry, L. P. Remsberg, A. M. Poskanzer *et al.*, Phys. Rev. Lett. **38**, 1380 (1977).

[2012Th10](#) M. Thoennessen, At. Data Nucl. Data Tables **98**, 933 (2012).

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