^{38}Ca

The discovery of ^{38}Ca was reported in 1966 by Hardy et al. from Oxford in "Energy Levels of ^{38}Ca From the Reaction ^{40}Ca(p,t)^{38}Ca" (1966Ha32). A 39.8 MeV beam from the Rutherford Laboratory Proton Linear Accelerator bombarded natural calcium targets. A semi-conductor counter telescope was used to detect the emitted particles. The Q value for the ^{40}Ca(p,t)^{38}Ca reaction was measured and a mass excess was calculated for ^{38}Ca. "The value obtained for the ^{40}Ca(p,t)^{38}Ca Q value is -20.459±0.025 MeV." In 1957, a half-life measurement for ^{38}Ca of 0.66 s produced in the ^{40}Ca(γ,2n) reaction was based on the observation of a 3.5 MeV γ-ray (1957Cl23) which could not be confirmed (1968Ka15). Another experiment using the same reaction relied on the 1957 measurement and did not identify ^{38}Ca independently (1966An03).

Adapted from reference (2011Am01)

1957Cl23 J. E. Cline and P. R. Chagnon, Phys. Rev. **108**, 1495 (1957).

1966An03 D. W. Anderson, B. C. Cook, and J. A. Kadlecek, Nucl. Phys. **83**, 584 (1966).

1966Ha32 J. C. Hardy, D. J. Skyrme, and I. S. Towner, Phys. Lett. **23**, 487 (1966).

1968Ka15 R. W. Kavanagh, A. Gallmann, E. Aslanides, F. Jundt, and E. Jacobs, Phys. Rev. **175**, 1426 (1968).

2011Am01 S. Amos, J. L. Gross, and M. Thoennessen, At. Data Nucl. Data Tables **97**, 383 (2011).

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