

^{181}Tl

In the 1996 paper “ α -decay properties of ^{181}Pb ” Toth et al. described the identification of ^{181}Tl (1996To01). A 400 MeV ^{92}Mo beam from the Argonne tandem linac accelerator system bombarded a ^{90}Zr target and ^{181}Tl was formed in the fusion evaporation reaction $^{90}\text{Zr}(^{92}\text{Mo},1p)$. Reactions were separated with the Argonne Fragment Mass Analyzer (FMA) and implanted in a double-sided silicon strip detector which also detected subsequent α decay. “In [the figures], there are several close-lying groups slightly above 6.0 MeV. These are assigned to ^{177}Au [6110 (65%) and 6150 (35%) keV] and to the 6180-keV transition associated with the new isotope ^{181}Tl .” The α energy corresponds to the decay of an isomeric state and no half-life was reported. Two years later, Toth et al. reported half-lives of 3.2(3) s and 1.4(5) ms for the ground state and the isomeric state, respectively (1998To14). A previous observation of a 3.4(6) s half-life was published by Bolshakov et al. only in a conference proceeding (1993BoZK). A measurement of an α -decay energy of 6566 keV and a half-life of 2.7 ms reported in a Ph.D. thesis was incorrect (1984ScZQ).

Adapted from reference (2013Fr04)

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1998To14 K. S. Toth, X. J. Xu, C. R. Bingham, J. C. Batchelder *et al.*, Phys. Rev. C **58**, 1310 (1998).
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