^{109}Xe

In 2006, Liddick et al. reported the observation of ^{109}Xe in the paper "Discovery of ^{109}Xe and ^{105}Te: Superallowed α decay near doubly magic ^{100}Sn" (2006Li41). A ^{54}Fe target was bombarded with 220−225 MeV ^{58}Ni beams and ^{109}Xe was formed in the (3n) fusion-evaporation reaction. Reaction products were separated with the Holifield Radioactive Ion Beam Facility Recoil Mass Spectrometer in Oak Ridge and implanted into a double-sided silicon strip detector which also recorded subsequent α decays. "A total of 100 $\alpha - \alpha$ decay events were attributed to the ^{109}Xe$\rightarrow^{105}$Te$\rightarrow^{101}$Sn decay chain... Using the method of [the reference] the half-life of ^{109}Xe is 13$\pm$2 ms."

Adapted from reference (2013Ka01)

2006Li41 S. N. Liddick, R. Grzywacz, C. Mazzocchi, R. D. Page *et al.*, Phys. Rev. Lett. **97**, 082501 (2006).

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