

## $^{213}\text{Bi}$

Hagemann et al. from Argonne National Laboratory discovered  $^{213}\text{Bi}$  in 1947 in “The (4n+1) radioactive series: the decay products of  $\text{U}^{233}$ ” (1947Ha02). The half-lives and  $\alpha$ - and  $\beta$ -decay energies of the nuclides in the decay chain of  $^{233}\text{U}$  were measured. “These decay products, which constitute a substantial fraction of the entire missing, 4n+1, radioactive series are listed together with their radioactive properties, in [the table].” The measured half-life was 47 min. Hagemann et al. acknowledge the simultaneous observation of  $^{213}\text{Bi}$  by English et al. which was submitted only a day later and published in the same issue of Physical Review on the next page (1947En03).

Adapted from reference (2013Fr04)

- 1947En03 A. C. English, T. E. Cranshaw, P. Demers, J. A. Harvey *et al.*, Phys. Rev. **72**, 253 (1947).  
1947Ha02 F. Hagemann, L. I. Katzin, M. H. Studier, A. Ghiorso, and G. T. Seaborg, Phys. Rev. **72**, 252 (1947).  
2013Fr04 C. Fry and M. Thoennessen, At. Data Nucl. Data Tables **99**, 365 (2013).

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