

⁶He

⁶He was first observed by Bjerge and Broström in 1936 as reported in the paper “ β -Ray Spectrum of Radio-Helium” (1936Bj01). Neutrons from a beryllium-radon source bombarded a beryllium target and β -rays were detected with a Wilson chamber located in a magnetic field. The experiment was performed in the Physical Laboratory of the Technical Highschool of Denmark in Copenhagen. “The most reasonable assumption as to the formation and disintegration of radio-helium are the processes: ${}^9_4\text{Be} + {}^1_0\text{n} \rightarrow {}^6_4\text{He} + {}^4_2\text{He}$ and ${}^6_2\text{He} \rightarrow {}^6_3\text{Li} + \text{e}^-$. If the energy release in [the decay] is 3.7 m.e.v., the mass of ${}^6_2\text{He}$ would be 6.0207...” It is interesting to note that Bjerge already published the correct half-life (0.9(2) s) earlier, however, he stated “But it can be said that if the maximum energy is greater than 5.5×10^6 e.v., the active body can scarcely be ${}^6\text{He}$, as its mass would then be greater than that of ${}^4\text{He}$ plus two neutrons.” (1936Bj02).

Adapted from reference (2012Th01)

- 1936Bj01 T. Bjerge and K. J. Brostrom, Nature **138**, 400 (1936).
1936Bj02 T. Bjerge, Nature **137**, 865 (1936).
2012Th01 M. Thoennessen, At. Data Nucl. Data Tables **98**, 43 (2012).

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