

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh		NDS 124, 1 (2015)	30-Nov-2014

Q(β^-)=11541 4; S(n)=3844 5; S(p)=13128 5; Q(α)=-8456 4 [2012Wa38](#)
 S(2n)=9251 5, S(2p)=29260 400 (syst), Q(β^- n)=5380 4 ([2012Wa38](#)).

⁸⁶As produced and identified by [1973Kr06](#) (also [1974KrZG](#),[1975Kr08](#)) in neutron-induced fission of ²³⁵U followed by chemical separation and half-life measurements. Earlier studies ([1966To02](#),[1967De01](#),[1968To18](#),[1968To19](#),[1969WaZS](#)) reported decays of mixed ⁸⁵As and ⁸⁶As activities by observing the decay of its descendants ⁸⁶Se and ⁸⁶Br, and by counting of delayed neutrons after separation of arsenic sample from other fission products of ²³⁵U. A 2-s half-life reported for this mixture most likely corresponded to ⁸⁵As activity.

T_{1/2} and % β^- n measurements: [2013Ma22](#), [1993Ru01](#), [1978Cr03](#), [1973Kr06](#) (also [1974KrZG](#),[1975Kr08](#)).

Precise mass measurements: [2008Ha23](#) (Penning-trap method), [2008Su19](#) (also [2010Li02](#)) (isochronous mass spectrometry).

[2013Ma22](#): proton beam was provided by the Oak Ridge Isochronous Cyclotron (ORIC) at the HRIBF-ORNL facility.

Target=²³⁸UC_x. Fission fragments were ionized to charge state +1 then purified using H₂S gas, a mass pre-separator and electromagnetic separation. The purified beams were then sent to the Low-energy Radioactive Ion Beam Spectroscopy Station (LeRIBSS) and implanted in a moving tape collector (MTC). Measured E γ , I γ , E β , $\beta\gamma$ -coin, half-life of ⁸⁶As g.s. using two plastic scintillation counters and four HPGe detectors. Comparison with the gross theory of β decay, the finite-range droplet model and the continuum quasiparticle random-phase approximation.

⁸⁶As Levels

E(level)	T _{1/2}	Comments
0.0	0.945 s 8	% β^- =100; % β^- n=35.5 6 (2014Ag12); % β^- 2n=? T _{1/2} : measured by 1993Ru01 . Others: 0.861 s 64 (2013Ma22), \approx 0.9 s (1978Cr03), 0.9 s 2 (1973Kr06). % β^- n: measured by 2014Ag12 . Others: 33 4 (1993Ru01), 3.8 +17-10 (1973Kr06), 10.5 22 (1978Cr03), 26 7 (2002Pf04 compilation). Theoretical % β^- n=12.8 (1997Mo25), 6.6, 65.6 (2002Pf04). Systematic (KHF) % β^- n=6.0 (2002Pf04). Theoretical % β^- 2n=0.02 (1997Mo25). Additional information 1 .