

**$^{164}\text{Eu}$   $\beta^-$  decay (4.15 s) [2008Os02](#),[2010NaZY](#),[2014Ha38](#)**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen <sup>#</sup>		NDS 147, 1 (2018)	30-Nov-2017

Parent:  $^{164}\text{Eu}$ : E=0;  $J^\pi=(3)$ ;  $T_{1/2}=4.15$  s 20;  $Q(\beta^-)=6390$  50;  $\% \beta^-$  decay=100.0

$^{164}\text{Eu}$ - $T_{1/2}, J^\pi$ : From  $^{164}\text{Eu}$  Adopted Levels.

$^{164}\text{Eu}$ - $Q(\beta^-)$ : From [2017Wa10](#), based on TAGS measurement in [2014Ha38](#) (also [2010Ha38](#)).

[2008Os02](#):  $^{164}\text{Eu}$  identified in U(p,X) at E(p)=24 MeV on target of natural uranium in the form of uranium carbide. The fission fragments mass separated as metallic ions and implanted on to a tape transport system. Measured  $\beta$ ,  $\beta\gamma$  coin,  $\gamma\gamma$  coin, half-life of  $^{164}\text{Eu}$  decay.

[2010NaZY](#):  $^{164}\text{Eu}$  activity formed in  $\text{UC}_x(\text{p},\text{F}), E=32$  MeV reaction followed by mass separation using ISOL technique. Measured gamma spectrum, half-life of the first  $2^+$  state by  $\beta\gamma(t)$  method at Japan Atomic Energy Agency (JAEA) facility.

[2014Ha38](#), [2010Ha38](#): measured  $Q(\beta^-)$  value by total absorption gamma-ray spectroscopy at JAEA facility.

All the studies listed above are from the same laboratory at JAEA.

$^{164}\text{Gd}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	$T_{1/2}$	Comments
0.0	$0^+$		
73.27 5	$(2^+)$	2.77 ns 14	$T_{1/2}$ : measured by <a href="#">2010NaZY</a> using $\beta\gamma(t)$ method.
241.9 3	$(4^+)$		
503.2 4	$(6^+)$		

<sup>†</sup> From Ey data, assuming 0.3 keV uncertainty when not stated.

<sup>‡</sup> From Adopted Levels.

$\gamma(^{164}\text{Gd})$

$E_\gamma$ <sup>†</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Comments
<sup>x</sup> 61.1 <sup>‡</sup>					
73.27 5	73.27	$(2^+)$	0.0	$0^+$	$E_\gamma$ : other: 73.3 ( <a href="#">2008Os02</a> ).
<sup>x</sup> 92.8 <sup>‡</sup>					
168.6	241.9	$(4^+)$	73.27	$(2^+)$	Most intense $\gamma$ ray in spectra displayed by <a href="#">2010NaZY</a> and <a href="#">2008Os02</a> , which may be indicative of $\beta$ feeding to the 241.9 level. $E_\gamma$ : other: 168.8 ( <a href="#">2008Os02</a> ).
<sup>x</sup> 193.1 <sup>‡</sup>					
261.2	503.2	$(6^+)$	241.9	$(4^+)$	This $\gamma$ not reported in <a href="#">2008Os02</a> .

<sup>†</sup> From [2010NaZY](#) unless otherwise stated.

<sup>‡</sup> From Figure 3 in [2008Os02](#).

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

$^{164}\text{Eu}$   $\beta^-$  decay (4.15 s) 2008Os02,2010NaZY,2014Ha38Decay Scheme