

^{30}Mg β^- decay 2008Hi05,1984Gu19

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 111, 2331 (2010)	30-Jun-2010

Parent: ^{30}Mg : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=335$ ms 17; $Q(\beta^-)=6962$ 16; $\% \beta^-$ decay=100.0

Other: 1979De02.

2008Hi05: ^{30}Mg produced in reaction $^9\text{Be}(^{48}\text{Ca},X)$, $E=140$ MeV/u at NSCL; A1900 fragment separator; Particles implanted in double-sided silicon strip detector, segmented array of 12 Ge detectors; Measured: E_γ , I_γ , $\beta^- \gamma \gamma$ coin, deduced level scheme.

1984Gu19: ^{30}Mg was produced in the fragmentation of iridium target by 10 GeV protons from the CERN synchrotron, recoiled fragments were thermalized, ionized and mass-separated; Ge(Li) detector, Measured: E_γ , $\beta^- \gamma \gamma$ coin, absolute I_γ . The sum of the I_β was only 73% (1984Gu19).

The decay scheme of 1984Gu19 and 2008Hi05 is the same, 2008Hi05 reports the additional 2413 keV level. 2165 γ was reported by 1979De02 without placement, however the 2170 γ is placed from 2413 keV level by 2008Hi05.

 ^{30}Al Levels

E(level) [†]	J^π [‡]
0	3 ⁺
244.1 4	2 ⁺
688.0 5	1 ⁺
2413.5 12	1 ⁺

[†] From a least square fit to the γ -ray energies.

[‡] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	I_β^- ^{†‡}	Log ft	Comments
(4549 16)	2413.5	7 1	4.30 7	av $E_\beta=2060.9$ 79
(6274 16)	688.0	68 20	3.96 13	av $E_\beta=2908.1$ 79

[†] From γ -ray intensity balance by the evaluator.

[‡] Absolute intensity per 100 decays.

 $\gamma(^{30}\text{Al})$

I_γ normalization: Deduced by the evaluator from measured absolute intensity 71 10 of 444 γ reported by 1984Gu19 and the relative intensity of 96 2 (2008Hi05).

E_γ [†]	I_γ ^{‡#}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
244.1 4	100	244.1	2 ⁺	0	3 ⁺	I_γ : Absolute intensity of 244.3 γ > 71 (1984Gu19).
444.0 4	96 2	688.0	1 ⁺	244.1	2 ⁺	I_γ : Absolute intensity 71 10 (1984Gu19).
687.8 9	2.3 3	688.0	1 ⁺	0	3 ⁺	
1724.9 [‡] 15	6.4 8	2413.5	1 ⁺	688.0	1 ⁺	
^x 2168.9 12	3.0 10					
2169.3 9	3.5 5	2413.5	1 ⁺	244.1	2 ⁺	

[†] Weighted average of 2008Hi05 and 1984Gu19, except otherwise noted.

[‡] From 2008Hi05.

Continued on next page (footnotes at end of table)

${}^{30}\text{Mg}$ β^- decay **2008Hi05,1984Gu19** (continued)

$\gamma({}^{30}\text{Al})$ (continued)

For absolute intensity per 100 decays, multiply by 0.74 *IO*.

^x γ ray not placed in level scheme.

$^{30}\text{Mg} \beta^-$ decay 2008Hi05,1984Gu19

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence

