^{29}Na β^- decay 1987Ba46

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 113, 909 (2012)	1-Jan-2012

Parent: ^{29}Na: E=0.0; $J^\pi=3/2^+$; $T_{1/2}$=44.1 ms *9*; Q(β^-)=13272 *17*; %β^- decay=100.0

Others: 1984Gu19, 1974Ro31.

^{29}Na was produced bombarding a uranium carbide target with proton beam, E=600 MeV, from CERN synchrocyclotron; Na atoms were ionized, mass separated and collected on Mylar tape at ISOLDE facility; HPGe detector with Be window, Ge(Li) detector; Measured: Eγ, Iγ, Iβ, $\beta^-\gamma$ and $\gamma\gamma$ coin, $T_{1/2}$.

^{29}Mg Levels

E(level)†	J^π	$T_{1/2}$	Comments
0	$3/2^+$		J^π: From Adopted Levels.
54.60 *10*		1.27 ns *7*	$T_{1/2}$: Deduced from the delayed coincidence measurement of cascade 2560γ-55γ and 3169γ-55γ in the ^{29}Na β^- decay.
1094.53 *21*			
1638.05 *19*			
2499.9 *10*			
2614.9 *4*			
3223.70 *24*			
3227.4 *6*			
3674.1 *15*			
3985.7 *15*			

† From a least-squares fit to γ-ray energies.

β^- radiations

E(decay)	E(level)	Iβ^-†‡	Log *ft*	Comments
(9286 *17*)	3985.7	0.29 *6*	6.24 *9*	av Eβ=4396.9 *85*
(9598 *17*)	3674.1	0.8 *2*	5.86 *11*	av Eβ=4550.9 *85*
(10048 *17*)	3223.70	12 *2*	4.78 *8*	av Eβ=4773.5 *84*
(10657 *17*)	2614.9	38 *7*	4.40 *8*	av Eβ=5074.5 *84*
(10772 *17*)	2499.9	0.22 *5*	6.66 *10*	av Eβ=5131.3 *85*
(11634 *17*)	1638.05	<0.4	>6.6	av Eβ=5557.4 *84*
(12177 *17*)	1094.53	<0.2	>7.0	av Eβ=5826.0 *84*
(13272 *17*)	0	24 *8*	5.06 *15*	av Eβ=6366.8 *84*

† From 1987Ba46, deduced from γ-ray intensity balance.

‡ Absolute intensity per 100 decays.

$\gamma(^{29}Mg)$

Eγ†	Iγ†	E$_i$(level)	E$_f$	J^π_f	Eγ†	Iγ†	E$_i$(level)	E$_f$	J^π_f
54.6 *1*	>115	54.60	0	$3/2^+$	2445.1 *13*	0.4 *1*	2499.9	54.60	
1039.9 *2*	4.6 *3*	1094.53	54.60		2499.9 *13*	0.2 *1*	2499.9	0	$3/2^+$
1585.6 *2*	15.6 *9*	3223.70	1638.05		2560.2 *4*	100	2614.9	54.60	
1638.0 *2*	16.3 *9*	1638.05	0	$3/2^+$	x2614.6‡ *9*	6.7‡ *7*			
2129.0 *6*	3.7 *3*	3223.70	1094.53		2614.8 *5*	4.7 *3*	2614.9	0	$3/2^+$
2132.8 *8*	1.5 *2*	3227.4	1094.53		x2658.1‡ *15*	1.75‡ *65*			
x2146.3‡ *12*	1.9‡ *9*				3169.0 *8*	10.3 *6*	3223.70	54.60	

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^{29}Na β^- decay 1987Ba46 (continued)

$\gamma(^{29}Mg)$ (continued)

E_γ †	I_γ †	E_i(level)	E_f	J^π_f	E_γ †	I_γ †	E_i(level)	E_f	J^π_f
3172.6 *10*	0.4 *1*	3227.4	54.60		[x]3677.0‡ *15*	3.25‡ *65*			
3223.6 *10*	4.4 *4*	3223.70	0	$3/2^+$	3985.4 *15*	0.8 *1*	3985.7	0	$3/2^+$
3227.3 *10*	6.6 *5*	3227.4	0	$3/2^+$	[x]3992.3‡ *9*	1.5‡ *5*			
3673.9 *15*	2.3 *2*	3674.1	0	$3/2^+$					

† From 1987Ba46, except otherwise noted.
‡ From 1984Gu19.
[x] γ ray not placed in level scheme.

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Decay Scheme

Intensities: Relative I_γ