^{25}Mg(α,nγ) 1981Gl05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 114, 1189 (2013)	1-Apr-2013

Others: 1969Al01, 1969La13, 1969Li03, 1975Di07, 1978Gr15, 1985Ab13, 1987Ab02.

99% enriched ^{25}Mg target; Projectile: α, E=14$^-$, 14.5-, and 15.5-MeV; γ rays were detected by two Ge(Li) and a plastic scintillator; neutrons were detected by time-of-flight spectrometer. Measured Eγ, γ ray branching, n-$\gamma(\theta)$, deduced excited level energies, spin/parity, mean lifetime. Also studied ^{27}Al(p,γ) reaction.

^{28}Si Levels

E(level)†	Jπ‡	$T_{1/2}$#	E(level)†	Jπ‡	$T_{1/2}$#
0.0			10188 *3*	3$^-$,5$^-$	<35 fs
1779.030 *11*			10666 *3*		
4617.86 *4*		100@ fs *20*	10916 *3*		
4979.92 *8*		60@ fs *20*	10945 *3*		
6276.20 *7*		1.15@ ps *13*	11099 *3*		<11 fs
6690.74 *15*		180@ fs *40*	11259 *3*		
6878.79 *8*		2.7@ ps *6*	11331 *3*		
6887.65 *10*		70@ fs *20*	11509 *3*		<21 fs
7380.59 *9*			11577 *3*		
7416.26 *9*			11931 *3*		
8258.74 *10*			12151 *3*	6$^+$	<7 fs
8413.33 *10*			12204 *3*	6$^-$,4$^-$	<21 fs
8543.56 *20*			12994 *3*		<11 fs
8945.20 *13*			13584 *3*		<28 fs
9164.68 *17*	4$^+$		13741 *3*		<21 fs
9315.92 *10*			14643 *3*		
9702.34 *12*					

† Level energies up to 9702 keV are from Adopted Levels. Above 9702 keV, energies are quoted from 1981Gl05.

‡ From 1981Gl05, based on γ-decay modes, n-γ angular correlations, and mean lifetime measurements.

From 1981Gl05, except otherwise noted. Mean lifetimes were measured using the Doppler shift attenuation method.

@ From 1969Li03.

γ(^{28}Si)

E_i(level)	J_i^π	E_γ†	I_γ	E_f	Mult.	δ‡
8413.33		1525.59		6887.65	D+Q	+0.18 *4*
10188	3$^-$,5$^-$	3309	100	6878.79		
10666		1350.01	20 *2*	9315.92		
		3249.34	13 *3*	7416.26		
		4389.07	23 *5*	6276.20		
10916		1599.98	12 *2*	9315.92		
		6296.63	14 *3*	4617.86		
		9133.80	74 *3*	1779.030		
10945		2685.99	13 *3*	8258.74		
		3528.27	18 *3*	7416.26		
		3563.93	10 *3*	7380.59		
		5963.73	9 *2*	4979.92		
		9162.78	50 *5*	1779.030		
11099		6479.54	100	4617.86		
11331		2385.58	18 *3*	8945.20		

Continued on next page (footnotes at end of table)

^{25}Mg(α,nγ) 1981Gl05 (continued)

$\gamma(^{28}Si)$ (continued)

E_i(level)	J_i^π	E_γ †	I_γ	E_f	J_f^π	E_i(level)	J_i^π	E_γ †	I_γ	E_f	J_f^π
11331		6711.43	82 *3*	4617.86		12204	6^-,4^-	2015.85	9 *2*	10188	3^-,5^-
11509		2344.11	21 *2*	9164.68	4^+			3790.12	91 *2*	8413.33	
		4620.54	58 *4*	6887.65		12994		4449.69	100	8543.56	
		6889.33	21 *2*	4617.86		13584		5039.47	100	8543.56	
11577		1874.53	93 *2*	9702.34		13741		2163.82	17 *3*	11577	
		3033.09	7 *2*	8543.56				3552.52	26 *3*	10188	3^-,5^-
11931		7311.11	100	4617.86				4038.04	57 *6*	9702.34	
12151	6^+	5262.30	100	6887.65		14643		6098.03	100	8543.56	

† Calculated from level energy differences. Recoil energy subtracted.
‡ From 1981Gl05.

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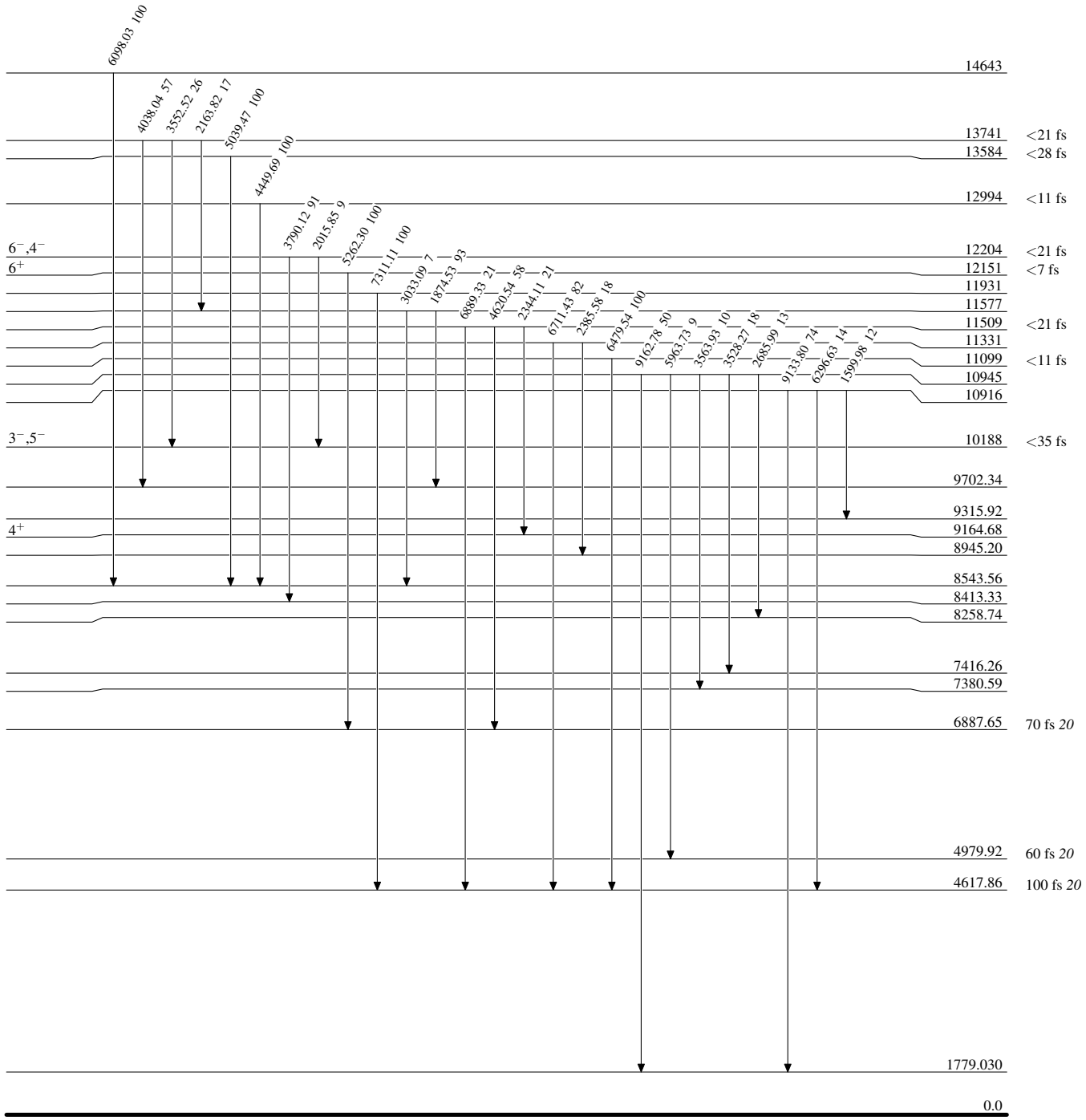
Level Scheme

Intensities: % photon branching from each level

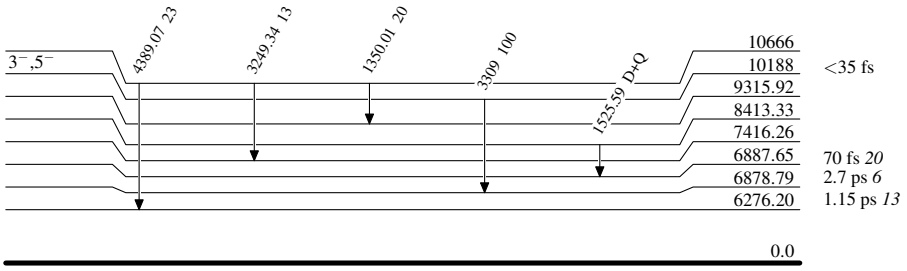


$^{28}_{14}Si_{14}$

^{25}Mg(α,nγ) 1981Gl05

Level Scheme (continued)

Intensities: % photon branching from each level



$^{28}_{14}Si_{14}$