^{22}Mg ε decay 2003Ha20,2010Ac01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 127, 69(2015)	1-Apr-2015

Parent: ^{22}Mg: E=0; $J^\pi=0^+$; $T_{1/2}$=3.8755 s *12*; Q(ε)=4781.6 *3*; %ε+%$β^+$ decay=100.0

Other references: 1972Ha58, 1975Ha21.

2003Ha20: ^{22}Mg produced by ^{1}H(^{23}Na,2n) reaction, E=28 MeV/nucleon. Mass separation, measured E_γ, I_γ, βγ-coincidence, and $T_{1/2}$.

2010Ac01: ^{22}Mg produced by ^{1}H(^{23}Na,2n) reaction, E=32 MeV/nucleon. The ^{22}Mg nuclei represented 65% of the secondary beam extracted. Detector system: two-element Si detector telescope, time-of-flight from detector signal and cyclotron rf. γ spectra measured by an HPGe detector. The number of 582-keV γ rays emitted relative to the number of decaying ^{22}Mg nuclei is reported.

^{22}Na Levels

E(level)†	Jπ†	$T_{1/2}$†
0.0	3^+	2.6018 y *22*
583.05 *10*	1^+	
657.00 *14*	0^+	
1936.9 *2*	1^+	

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †‡	Iε‡	Log *ft*	I(ε+β+)‡	Comments
(2844.7 *4*)	1936.9	5.43 *7*	0.01843 *24*	3.46 *1*	5.45 *7*	av Eβ= 783.8 *7*; εK= 0.003108 *3*; εL= 0.0002656 *3*
(4124.6 *3*)	657.00	53.18 *9*	0.03669 *6*	3.487 *1*	53.22 *9*	av Eβ= 1388.5 *7*; εK= 0.0006337 *4*
(4198.6 *3*)	583.05	41.30 *20*	0.02657 *13*	3.64	41.33 *20*	av Eβ= 1424.1 *7*; εK= 0.0005908 *4*

† From γ-ray intensity balance by evaluator.
‡ Absolute intensity per 100 decays.

γ(^{22}Na)

Iγ normalization: From ΣI(γ+ce)(g.s.)=100.

E_γ†	I_γ#&	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α@	Comments
73.9 *1*	58.36 *6*	657.00	0^+	583.05	1^+	(M1)	0.00358	α(K)=0.00338 *5*; α(L)=0.000204 *3*; α(M)=4.53×10^{-6} *7*
583.04 *10*	100.00 *19*	583.05	1^+	0.0	3^+	(E2)		I_γ: measured absolute intensity=101.3% *23* (2010Ac01).
1280.5 *10*	5.40 *7*	1936.9	1^+	657.00	0^+			
1353.8‡	0.015 *3*	1936.9	1^+	583.05	1^+			
1936.8‡	0.032 *3*	1936.9	1^+	0.0	3^+			

† From Adopted Gammas, except otherwise noted.
‡ From level energy difference, recoil energy subtracted.
# From 2003Ha20.

Continued on next page (footnotes at end of table)

^{22}Mg ε decay 2003Ha20,2010Ac01 (continued)

$\gamma(^{22}Na)$ (continued)

@ Additional information 1.
& For absolute intensity per 100 decays, multiply by 0.9997 *19*.

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Decay Scheme

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