^{28}Si(^{28}Si,2p2nγ) 1998Ur05,2004Ur02,2005Ga20

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 128, 185 (2015)	10-Jul-2015

Includes Si(^{36}Ar,Xγ) from 2003Ax01 and 2005Ga20.

1998Ur05,2004Ur02: E=115 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$, (charged particle)γ (coin), and lifetimes with the GASP array of 40 Compton-suppressed large volume HPGe detectors, an inner ball of 80 BGO crystals and the ancillary charged-particle detector ISIS, of 40 E-ΔE Si telescopes. See also 1998Le43.

2005Ga20, 2003Ax01: Si(^{36}Ar,Xγ) at E=170 MeV (2005Ga20), 209 MeV (2003Ax01), measured Eγ, Iγ, $\gamma\gamma$, $\beta\gamma$ coin, $\gamma\gamma(\theta)$ using two composite Ge detectors (a Cluster and a large Clover), a 60% single Ge crystal, a second single crystal low-energy Ge detector and a plastic scintillator.

All data are from 1998Ur05, unless otherwise stated.

^{52}Fe Levels

E(level)‡	J$^\pi$†	T$_{1/2}$#	Comments
0.0@	0$^+$		
849.57@ *24*	2$^+$		
2383.9@ *3*	4$^+$	0.22 ps *5*	
3584.8& *3*	4$^+$		J$^\pi$: from Adopted Levels.
4324.9@ *3*	6$^+$	0.17 ps *5*	
4396.1 *4*	3$^-$		
4871.7& *3*	6$^+$	0.21 ps *8*	
5136.9 *4*	5$^-$		J$^\pi$: from Adopted Levels.
6360.21@ *24*	8$^+$	0.15 ps *5*	T$_{1/2}$: 1998Ur05 determined the lifetime of this level from the best fit of the experimental spectrum with that obtained after summing the calculated line shape of the 2035 γ-ray and the experimental line shape of the 2045 contaminant line from ^{49}Cr.
6492.63& *22*	8$^+$	0.18 ps *4*	
6957.5 *4*	12$^+$	45.9 s *6*	%IT=0.009 3 (2005Ga20). E(level): from 2005Ga20; Others: 6957.3 keV *5* (2003Ax01,2004Ur02) and 6820 keV *130* (1998Ur05). T$_{1/2}$: from Adopted Levels. Additional information 1.
7381.4@ *3*	10$^+$		

† Assignments are based on the R(ADO) analysis of γ-rays by 1998Ur05, unless otherwise stated.
‡ From least-squares fit to Eγ's; ΔEγ=0.3 keV assumed for each transition, unless otherwise stated.
# From DSAM in 1998Ur05, except as noted.
@ Band(A): g.s. band.
& Band(B): 4$^+$ band (2004Ur02).

γ(^{52}Fe)

R(ADO)=[[I$\gamma(\theta)$+I$\gamma(180°-\theta)$]/2]/I$\gamma(90°)$. Values given for R(ADO) were measured by 1998Ur05 at θ=60°.

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	Comments
465.0# *3*	0.009# *3*	6957.5	12$^+$	6492.63	8$^+$	E4	Additional information 4. Mult.: From experimental E4 systematics for f7/2-shell nuclei (2005Ga20).

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γ(^{52}Fe) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
597.1[#] *3*	0.012[#] *4*	6957.5	12^+	6360.21	8^+	E4	Additional information 5. Mult.: From experimental E4 systematics for f7/2-shell nuclei (2005Ga20).
740.6 *3*	5.5 *6*	5136.9	5^-	4396.1	3^-	Q	R(ADO)=1.27 *11*.
849.5 *3*		849.57	2^+	0.0	0^+		
888.5 *3*	11.5 *8*	7381.4	10^+	6492.63	8^+	Q	R(ADO)=1.20 *8*.
1021.4 *3*	13.1 *25*	7381.4	10^+	6360.21	8^+		
1286.7 *3*	5.0 *10*	4871.7	6^+	3584.8	4^+		
1534.5 *3*	100.0 *6*	2383.9	4^+	849.57	2^+	Q	R(ADO)=1.16 *4*.
1553 *1*	1.0 *5*	5136.9	5^-	3584.8	4^+	D	E_γ: Uncertainty assigned to transition by evaluators. Mult.: $\Delta J=1$ transition (implied by spin assignment made in 1998Ur05).
1620.8 *3*	14 *3*	6492.63	8^+	4871.7	6^+		
1941.0 *3*	55 *3*	4324.9	6^+	2383.9	4^+	Q	R(ADO)=1.15 *6*.
2035.3 *3*	21 *3*	6360.21	8^+	4324.9	6^+	Q	R(ADO)=1.46 *18*.
2167.6 *3*	20.7 *20*	6492.63	8^+	4324.9	6^+	Q	R(ADO)=1.24 *11*.
2488.0 *3*	21.9 *15*	4871.7	6^+	2383.9	4^+	Q	R(ADO)=1.34 *19*.
2735.0 *3*	15.0 *17*	3584.8	4^+	849.57	2^+		Additional information 2.
2753.0 *3*	10.0 *20*	5136.9	5^-	2383.9	4^+	D	I_γ: Intensity of transition has been corrected for the angular distribution by 1998Ur05. Additional information 3.
3546.3 *3*	7.0 *15*	4396.1	3^-	849.57	2^+	D	R(ADO)=0.92 *8*.

[†] Extracted from the 90° spectrum in coincidence with the 850 keV 2^+ to 0^+ transition in 1998Ur05, so as to avoid the uncertainties introduced by the line shape broadening, except as noted.

[‡] Typical values of R(ADO), in 1998Ur05, for θ=60° in the gasp geometry are ≈1.17 for a stretched $\Delta J=2$ transition and ≈0.85 for a stretched $\Delta J=1$ transition.

[#] From 2005Ga20. Intensities based on combined information of $\gamma\gamma$ coin matrices with and without β-detector veto. For details on methods used to evaluate the intensity, refer to 2005Ga20. Intensity is in photons/100 decays.

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Level Scheme

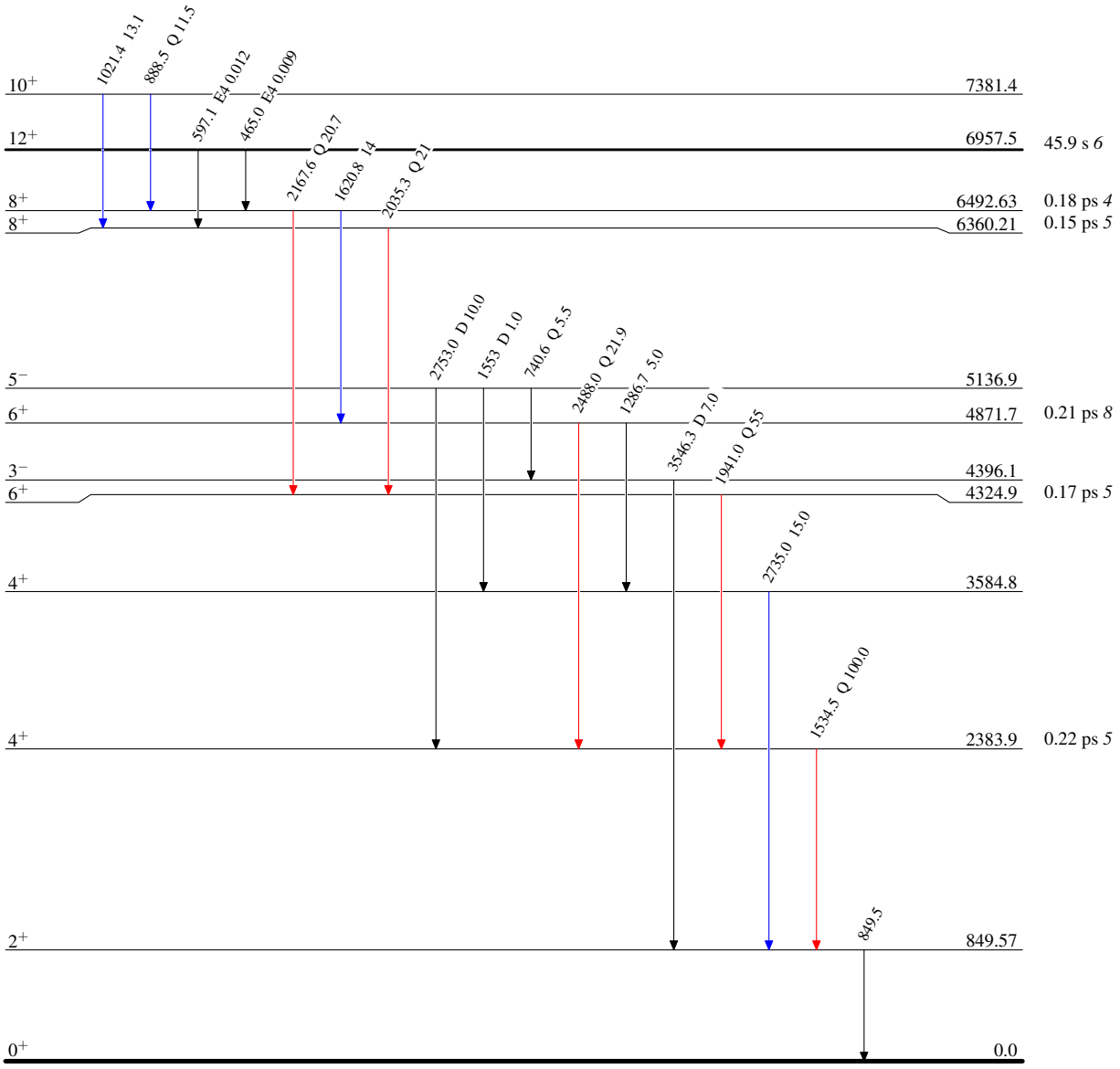
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{52}_{26}Fe_{26}$

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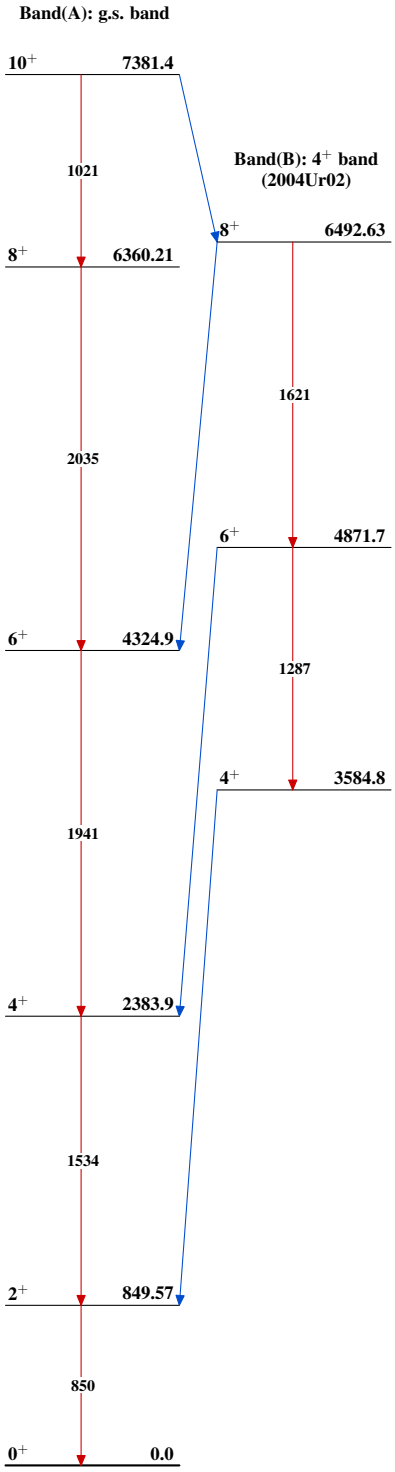

$^{52}_{26}Fe_{26}$