^{28}Si(^{32}S,2αnγ) 2000Ek02,2004Ek03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Wang Jimin and Huang Xiaolong	NDS 144, 1 (2017)	1-Mar-2016

2000Ek02, 2004Ek03: E=130 MeV. Measured Eγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO) using GAMMASPHERE array consisting of 78 Compton-suppressed HPGe detectors with the Heavimet collimators removed. For the detection of light charged particles the 4π CsI-array Microball was used. The Neutron Shell, consisting of 30 liquid-scintillator detectors, replaced the five most forward rings of Gammasphere to enable the detection of evaporated neutrons.

All information below is taken from 2000Ek02, unless noted otherwise.

^{51}Fe Levels

E(level)[†]	J$^\pi$[@]	T$_{1/2}$	Comments
0[&]	5/2$^-$		
253.5[a] *5*	(7/2$^-$)		
1146.5[&] *11*	(9/2$^-$)		
1516.5[a] *10*	(11/2$^-$)		
2953.4[&] *24*	(13/2$^-$)		
3275.7[a] *24*	(15/2$^-$)		
3589.7[&] *24*	(17/2$^-$)	1.99 ns *+6−8*	T$_{1/2}$: from 2000Ek02. 15% systematic uncertainty not added.
4097.9[a] *25*	(19/2$^-$)		
5608[&] *3*	(21/2$^-$)		
6492[a] *3*	(23/2$^-$)		
7269[a] *3*	(27/2$^-$)		
7933[&] *3*	(25/2$^-$)		
11468[‡] *7*	(29/2$^-$)[#]		
11712?[‡] *14*	(29/2$^-$)[#]		
12650[‡] *11*	(31/2$^-$)[#]		

[†] From least-squares fit to Eγ's.
[‡] From 2004Ek03.
[#] From comparison of the T$_z$=−1/2 nucleus ^{51}Fe with T$_z$=1/2 nucleus ^{51}Mn levels.
[@] From Adopted Levels, except as noted.
[&] Band(A): structure based on 5/2$^-$.
[a] Band(B): structure based on 7/2$^-$.

$\gamma(^{51}Fe)$

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	Comments
253.5 *5*	100 *3*	253.5	(7/2$^-$)	0	5/2$^-$	D	R(DCO)=0.64 *4*.
314.0 *5*	39 *2*	3589.7	(17/2$^-$)	3275.7	(15/2$^-$)	D	R(DCO)=0.70 *7*.
322.3 *9*	6 *1*	3275.7	(15/2$^-$)	2953.4	(13/2$^-$)	D	R(DCO)=0.69 *25*.
370.0 *5*	27 *2*	1516.5	(11/2$^-$)	1146.5	(9/2$^-$)	D	R(DCO)=0.55 *5*.
508.2 *3*	98 *3*	4097.9	(19/2$^-$)	3589.7	(17/2$^-$)	D	R(DCO)=0.74 *5*.
636.3 *7*	43 *2*	3589.7	(17/2$^-$)	2953.4	(13/2$^-$)	Q	R(DCO)=1.03 *8*.
664 *2*	4 *2*	7933	(25/2$^-$)	7269	(27/2$^-$)		
777.2 *4*	58 *2*	7269	(27/2$^-$)	6492	(23/2$^-$)	Q	R(DCO)=1.26 *7*.
883.9 *5*	72 *3*	6492	(23/2$^-$)	5608	(21/2$^-$)	D	R(DCO)=0.66 *5*.
893 *2*	42 *2*	1146.5	(9/2$^-$)	253.5	(7/2$^-$)	D	R(DCO)=0.62 *5*.
1146 *3*	5 *1*	1146.5	(9/2$^-$)	0	5/2$^-$		
1263 *1*	61 *3*	1516.5	(11/2$^-$)	253.5	(7/2$^-$)	Q	R(DCO)=1.15 *9*.

Continued on next page (footnotes at end of table)

^{28}Si(^{32}S,2αnγ) 2000Ek02,2004Ek03 (continued)

γ(^{51}Fe) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ	Comments
1437 *4*	40 *2*	2953.4	(13/2$^-$)	1516.5	(11/2$^-$)	D		R(DCO)=0.39 *5*.
1441 *3*	9 *5*	7933	(25/2$^-$)	6492	(23/2$^-$)			
1510.0 *8*	75 *3*	5608	(21/2$^-$)	4097.9	(19/2$^-$)	D		R(DCO)=0.84 *6*.
1759 *3*	54 *3*	3275.7	(15/2$^-$)	1516.5	(11/2$^-$)	Q		R(DCO)=1.01 *9*.
1807 *5*	26 *2*	2953.4	(13/2$^-$)	1146.5	(9/2$^-$)	Q		R(DCO)=1.39 *15*.
2394 *1*	17 *2*	6492	(23/2$^-$)	4097.9	(19/2$^-$)			
4199† *6*	2.0† *5*	11468	(29/2$^-$)	7269	(27/2$^-$)	(M1+E2)	>0.2	Mult.: D+Q from $R_{141-97}=I_\gamma(141°)/I_\gamma(97°)=0.4$ *2* (2004Ek03); D+Q is assumed to be M1+E2 due to considerable mixing ratio being observed in 2004Ek03. Level scheme requires (M1+E2). δ: From 2004Ek03.
4443†# *13*	0.5† *5*	11712?	(29/2$^-$)	7269	(27/2$^-$)			
5381† *10*	1.0† *5*	12650	(31/2$^-$)	7269	(27/2$^-$)			

† From 2004Ek03.
‡ From R(DCO); mult=D is for $\Delta J=1$, and mult=Q for $\Delta J=2$.
# Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

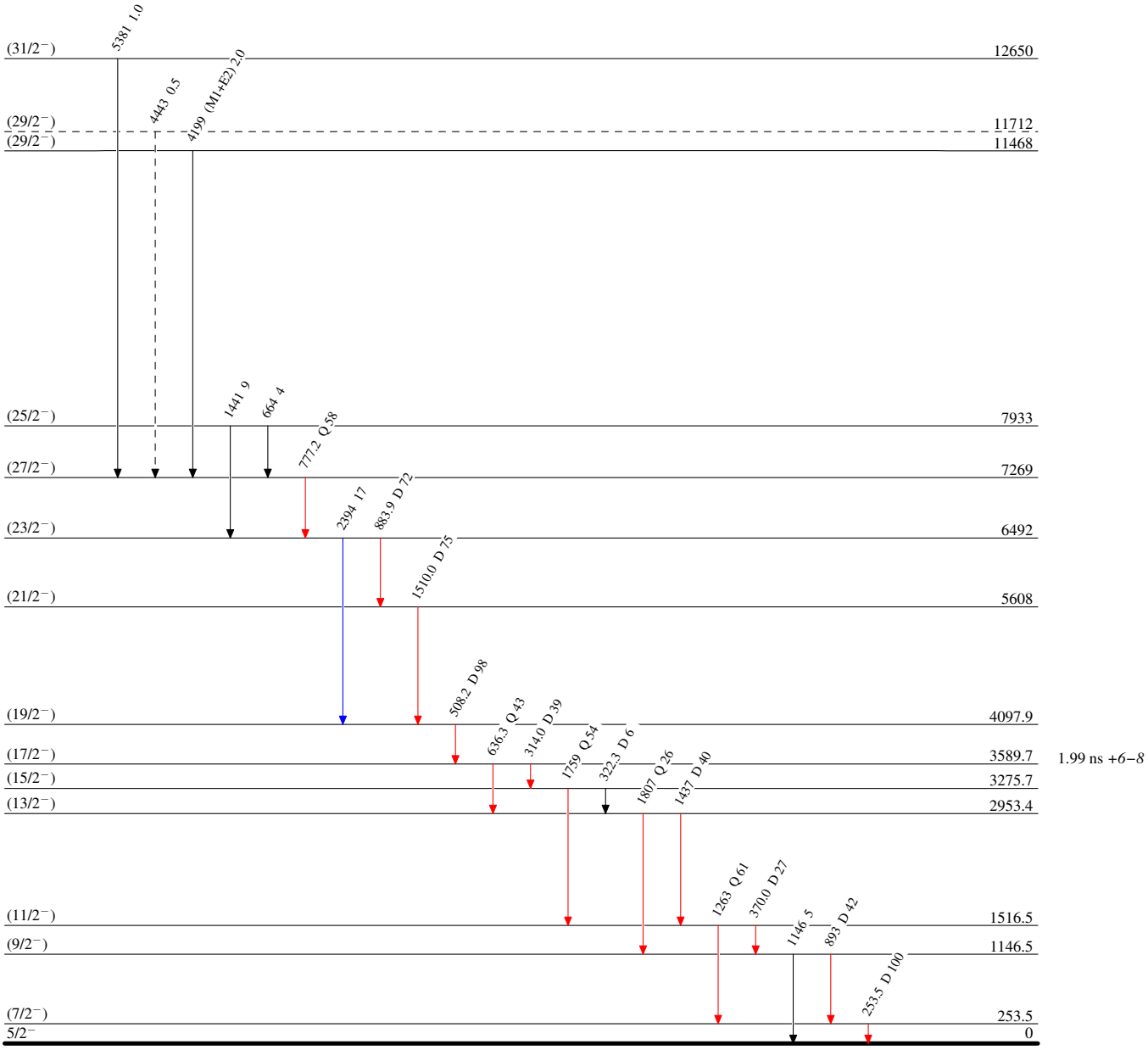
Legend

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

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

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

γ Decay (Uncertain)



$^{51}_{26}Fe_{25}$

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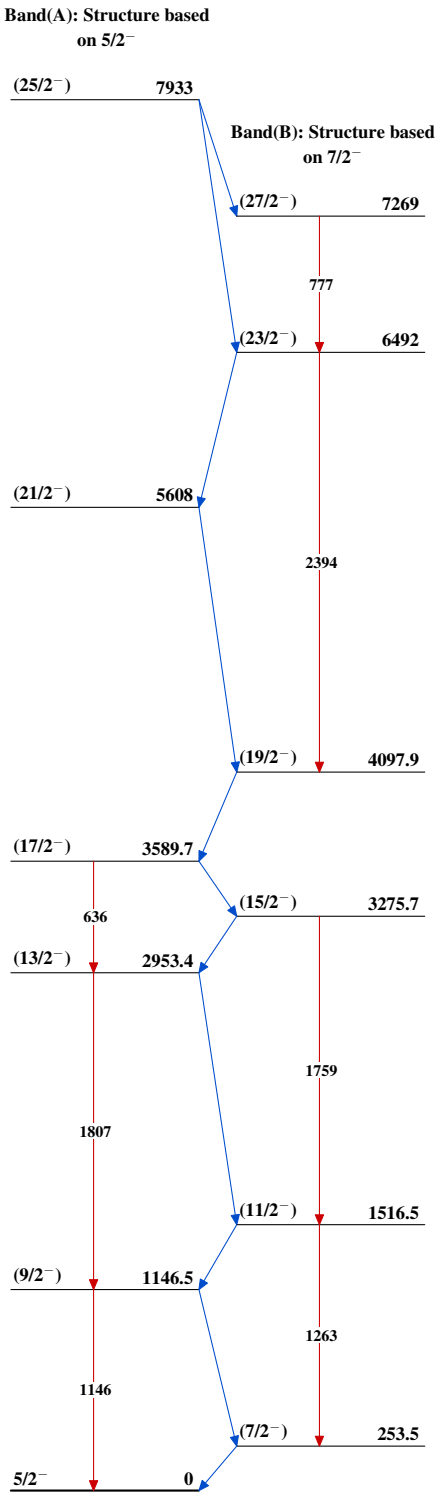

$^{51}_{26}Fe_{25}$