

$^{54}\text{Fe}(\text{n},\text{n}'\gamma)$ 1985Ko42,1973Di07,1967Be50

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yang Dong, Huo Junde	NDS 121, 1 (2014)		20-Jun-2014

Additional information 1.1973Di07: E=4.85-6.45 MeV. Ge(Li), measured $E\gamma$, $I\gamma$, $d\sigma/d\Omega$.1967Be50: E=1.81-5.25 MeV. Measured $\sigma(\theta)$, excitation curves, deduced δ .1985Ko42: E=fast, measured $\gamma(\theta)$, IBM analysis.

Other: see 1978Ve02.

 ^{54}Fe Levels

E(level) [#]	J π [†]	T _{1/2} [‡]	E(level) [#]	J π [†]	E(level) [#]
0	0 ⁺		4070.9 6		5275 6
1408.15 20	2 ⁺		4267.8 5	4 ⁺	5392 6
2538.2 3	4 ⁺		4290.1 11	0 ⁺	5453 7
2561.3 4	0 ⁺		4579.2 9	2 ⁺	5482 5
2949.6 6	6 ⁺		4654.8 11		5506 6
2959.0 5	2 ⁺	0.052 ps 7	4696? 3		5539 6
3165.8 5	2 ⁺	0.14 ps +4-3	4700.0 9		5621 6
3294.8 4	4 ⁺		4782.2 6	3 ⁻	5809 7
3344.7 3	3 ⁺		4947.1 11		5828 7
3833.2 5	4 ⁺	0.061 ps +15-11	5080 4		5955 8
4030.8 6	5 ⁺		5145 6		6038 8
4047.7 4	4 ⁺		5248 6		6124 8

[†] From Adopted Levels.[‡] From 1985Ko42.[#] From least-squares fits to $E\gamma$'s. **$\gamma(^{54}\text{Fe})$**

E_γ [†]	I_γ [#]	$E_i(\text{level})$	J π_i	E_f	J π_f	Mult. [‡]	δ [‡]
411.4 5		2949.6	6 ⁺	2538.2	4 ⁺		
703.0 3	45	4047.7	4 ⁺	3344.7	3 ⁺		
736.0 4		4030.8	5 ⁺	3294.8	4 ⁺		
756.6 3	80	3294.8	4 ⁺	2538.2	4 ⁺	M1+E2	0.15 5
806.5 3	40	3344.7	3 ⁺	2538.2	4 ⁺	M1+E2	0.02 1
1129.9 3	>97	2538.2	4 ⁺	1408.15	2 ⁺	E2	
1153.1 3		2561.3	0 ⁺	1408.15	2 ⁺		
1294.9 4	10	3833.2	4 ⁺	2538.2	4 ⁺		
1355	45	4700.0		3344.7	3 ⁺		
1360		4654.8		3294.8	4 ⁺		
1408.1 @ 2		1408.15	2 ⁺	0	0 ⁺	E2	
1487.2 9	30	4782.2	3 ⁻	3294.8	4 ⁺		
1509.4 8	25 &	4047.7	4 ⁺	2538.2	4 ⁺		
1550.7 5	45	2959.0	2 ⁺	1408.15	2 ⁺	M1+E2	0.10 2
1729.6 4	80	4267.8	4 ⁺	2538.2	4 ⁺		
1757.6 5	30	3165.8	2 ⁺	1408.15	2 ⁺		
1887	20	3294.8	4 ⁺	1408.15	2 ⁺		
1936.5 4	60	3344.7	3 ⁺	1408.15	2 ⁺	M1+E2	0.51 4
2162 2	40	4700.0		2538.2	4 ⁺		
2244.1 7	15	4782.2	3 ⁻	2538.2	4 ⁺		
2409	65	4947.1		2538.2	4 ⁺		

Continued on next page (footnotes at end of table)

$^{54}\text{Fe}(\text{n},\text{n}'\gamma)$ [1985Ko42](#),[1973Di07](#),[1967Be50](#) (continued) $\gamma(^{54}\text{Fe})$ (continued)

$E_\gamma^\dagger$	$I_\gamma^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	Comments
2425.2 7	90	3833.2	4 ⁺	1408.15	2 ⁺		
2639.4 4	30	4047.7	4 ⁺	1408.15	2 ⁺		
2662.7 5	>90	4070.9		1408.15	2 ⁺		
2859.6 6	20	4267.8	4 ⁺	1408.15	2 ⁺		
2881.9 10		4290.1	0 ⁺	1408.15	2 ⁺		
2959.4 8	55	2959.0	2 ⁺	0	0 ⁺	E2	
3166.0 10	70	3165.8	2 ⁺	0	0 ⁺	E2	
3171	70	4579.2	2 ⁺	1408.15	2 ⁺		
3288 3	100	4696?		1408.15	2 ⁺		
3294 3	15	4700.0		1408.15	2 ⁺		
3373.9 12	55	4782.2	3 ⁻	1408.15	2 ⁺		
3537 5	35	4947.1		1408.15	2 ⁺		
3672 5	70	5080		1408.15	2 ⁺		
3737 6	>70	5145		1408.15	2 ⁺		
3840 6		5248		1408.15	2 ⁺		
3867 6		5275		1408.15	2 ⁺		
3984 6		5392		1408.15	2 ⁺		
4074 ^a 5	>80	5482		1408.15	2 ⁺		E _γ : Corrected by evaluator, E=4044 in 1973Di07 .
4098 6		5506		1408.15	2 ⁺		
4131 6		5539		1408.15	2 ⁺		
4213 6		5621		1408.15	2 ⁺		
4401 7		5809		1408.15	2 ⁺		
4420 7		5828		1408.15	2 ⁺		
4579 2	30	4579.2	2 ⁺	0	0 ⁺		
5080 7	30	5080		0	0 ⁺		
5453 7		5453		0	0 ⁺		
5955 8		5955		0	0 ⁺		
6038 8		6038		0	0 ⁺		
6124 8		6124		0	0 ⁺		

[†] From [1973Di07](#).[‡] D+Q, Q from $\gamma(\theta)$, see [1985Ko42](#). Mult given are adopted values.[#] Relative photon branching, from [1973Di07](#).[@] Anisotropy is nearly 2.[&] Possibly complex.^a Placement of transition in the level scheme is uncertain.

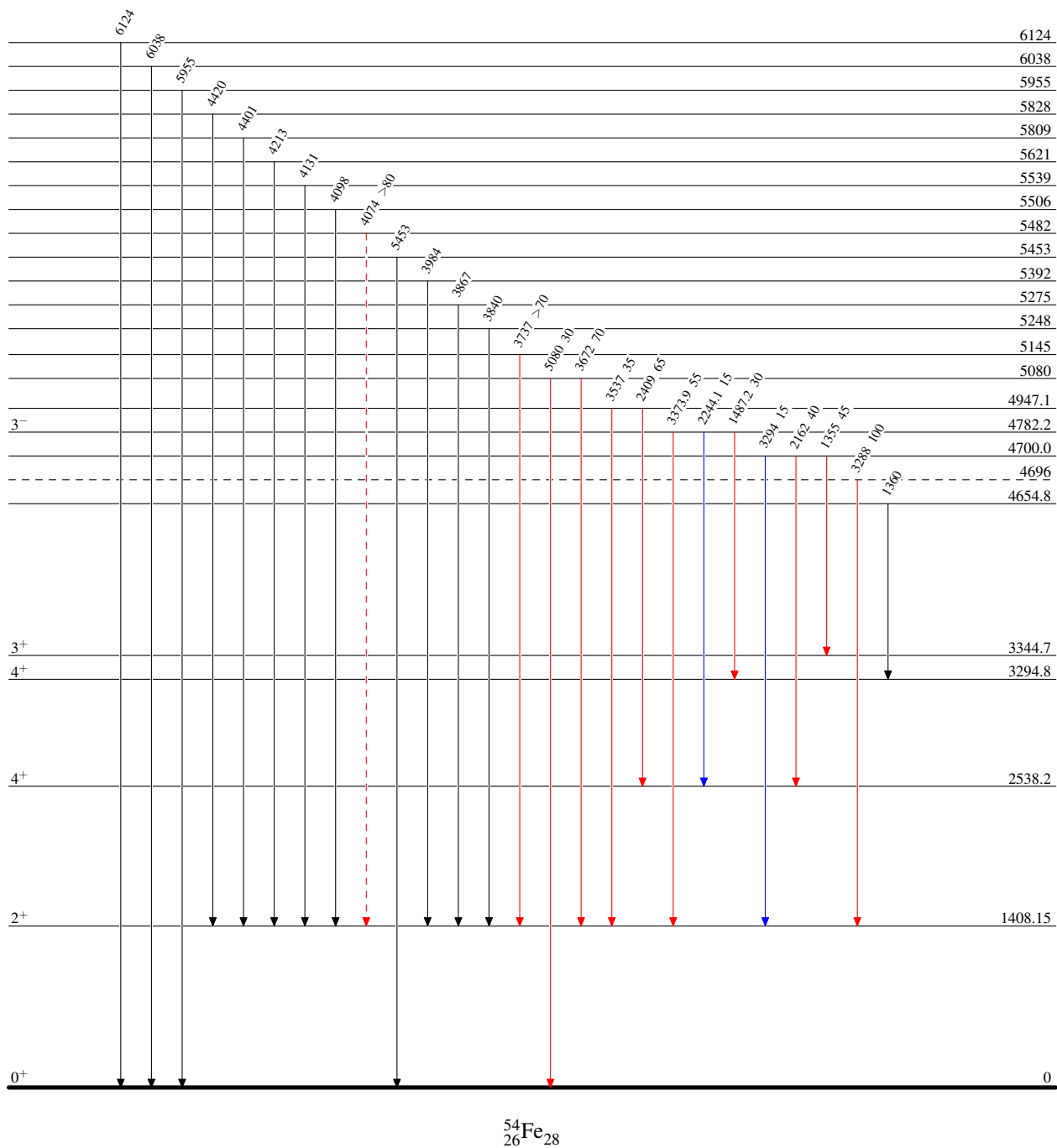
$^{54}\text{Fe}(n,n'\gamma)$ 1985Ko42,1973Di07,1967Be50

Legend

Level Scheme

Intensities: Relative I_γ

- $I_\gamma < 2\% \times I_\gamma^{\max}$
- $I_\gamma < 10\% \times I_\gamma^{\max}$
- $I_\gamma > 10\% \times I_\gamma^{\max}$
- - - - -→ γ Decay (Uncertain)



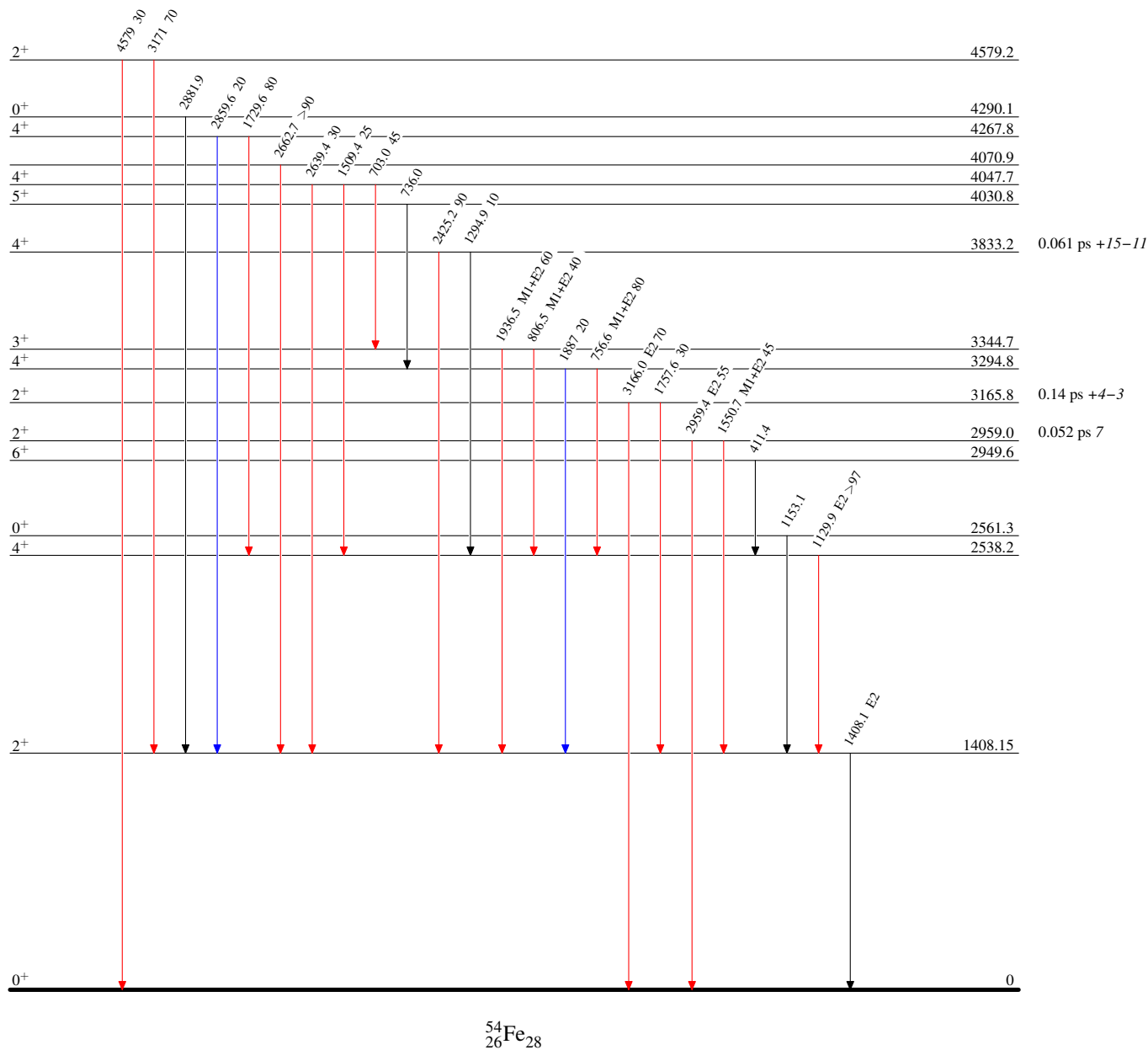
$^{54}\text{Fe}(n,n'\gamma)$ 1985Ko42,1973Di07,1967Be50

Level Scheme (continued)

Intensities: Relative I_γ

Legend

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$

 $^{54}_{26}\text{Fe}_{28}$