

$^{54}\text{Fe}(^3\text{He},2\text{pn}\gamma)$ 1986Lo13

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

Additional information 1.

Includes ($^3\text{He},\text{dpg}$), ($^3\text{He},^3\text{He}'\gamma$).1986Lo13: E=27 MeV, measured $\gamma\gamma$ -coin, $\gamma(\theta)$. Shell-model description of states. ^{54}Fe Levels

E(level) [†]	J ^π	Comments
0		
1407.9 7		
2537.8 9		
2560.9 13		
2949.6 11		
2958.7 8		
3165.6 8		
3294.8 9		
3345.7 10		
3437.4 12	(4 ⁺)	J ^π : from $\gamma(\theta)$.
3794.2 15		
3832.1 10		
3840.7 13		
4031.6 11		
4048.6 9		
4099.7 14		
4103.8 15		
4266.2 10		
4655.4 11		
5045.4 12		
5279.7 15		
5431.7 16		
5461.3 14		
5919.7 15		
6381.9 14		
6527.5 14		
6725.1 17		

[†] From least-squares fits to $E\gamma$'s. $\gamma(^{54}\text{Fe})$

<u>E_γ</u> [†]	<u>I_γ</u> [‡]	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_f</u>	<u>Mult.#</u>	<u>$\delta^\#$</u>
145.6	16	6527.5		6381.9		
197.6	8	6725.1		6527.5		
386.3@	≈3	5431.7		5045.4		
411.8@	10	2949.6		2537.8		
487.9	10	3437.4	(4 ⁺)	2949.6		
538.0	11	3832.1		3294.8		
606.0	≈15	4655.4		4048.6		
703.4	56	4048.6		3345.7		
737.4&	47	4031.6		3294.8		
757.6	120	3294.8		2537.8	D+Q	+7.1
804.9	60	4099.7		3294.8		

Continued on next page (footnotes at end of table)

$^{54}\text{Fe}(^3\text{He},2\text{pn}\gamma)$ 1986Lo13 (continued) $\gamma(^{54}\text{Fe})$ (continued)

E_γ [†]	I_γ [‡]	$E_i(\text{level})$	J_i^π	E_f	Mult. #	δ [#]	Comments
807.5	25	3345.7		2537.8			
844.6	15	3794.2		2949.6			
899.5	2	3437.4	(4 ⁺)	2537.8			δ : -0.5 or +2.7.
1013.9	17	5045.4		4031.6	D+Q	+2.7	
1089.2	2	4048.6		2958.7			
1130.8	525	2537.8		1407.9			
1153.0		2560.9		1407.9			I_γ : $I_\gamma(1153\gamma)+I_\gamma(1154\gamma)=2$.
1154.2		4103.8		2949.6			
1248.0	9	5279.7		4031.6			
1295.3	3	3832.1		2537.8			
1361.4	7	4655.4		3294.8			
1409.0 [@]	1000	1407.9		0			
1493.4	9	4031.6		2537.8	D+Q	-1.2 +12-35	
1509.1	6	4048.6		2537.8			
1550.6	12	2958.7		1407.9			
1730.6	5	4266.2		2537.8			
1758.1	3	3165.6		1407.9			
1888.4	15	3294.8		1407.9			
1938.5	23	3345.7		1407.9	D+Q	+1.3	$\Delta\delta$: +14- ∞ .
2095.6	6	5045.4		2949.6			
2166.4 ^{&}	16	5461.3		3294.8			
2422.5	6	3832.1		1407.9			
2432.7	2	3840.7		1407.9			
2641.9	13	4048.6		1407.9			
2856	1	4266.2		1407.9			
2958.0	8	2958.7		0			
2970	≈ 7	5919.7		2949.6			
3165	23	3165.6		0			
3432.2	5	6381.9		2949.6			
3577.8	<1	6527.5		2949.6			

[†] From coincidence spectra.

[‡] Relative photon intensity. Intensity uncertainties vary 1-50% depending on peak size.

[#] From $\gamma(\theta)$.

[@] Transition also in ^{55}Fe .

[&] Transition also in ^{55}Co .

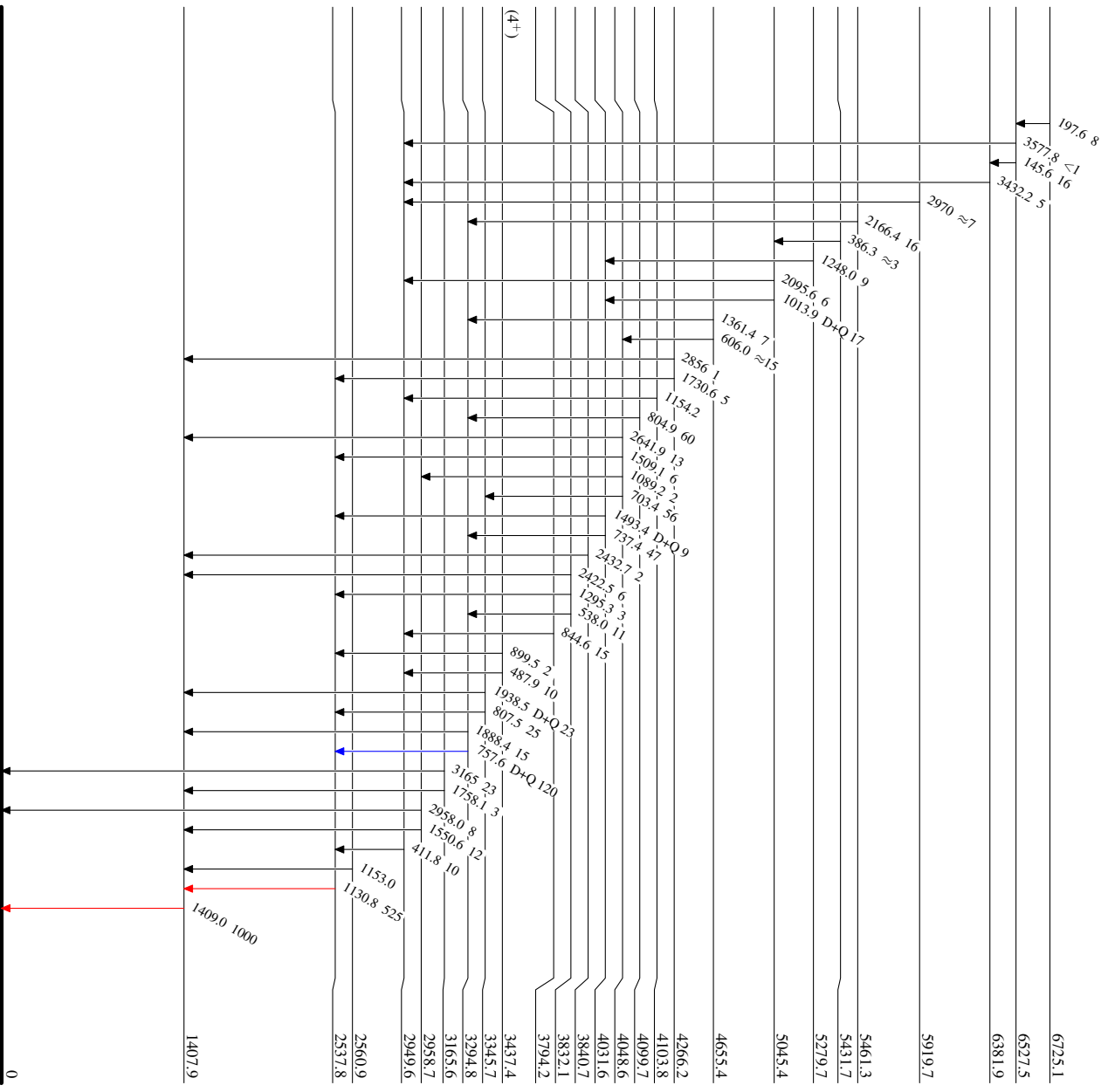
⁵⁴Fe(³He,2pn γ) 1986Lo13

Level Scheme

Intensities: Relative I γ

Legend

- \blacktriangleright I γ < 2% \times I γ^{max}
- \blacktriangleleft I γ < 10% \times I γ^{max}
- \blacktriangleright I γ > 10% \times I γ^{max}



⁵⁴Fe₂₈