^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. R. Bhat	NDS 85, 415 (1998)	24-Sep-1998

1969Ko05: polarization=75% *2* and 85% *3*. Measured γ-CP; Ge(Li).
1975Ta09: measured $\gamma\gamma(\theta)$; Ge(Li) (primaries), NaI (secondaries; 90°,135°,155°).
1978Ve06: polarization= 90% *5*. Measured γ-CP; Ge(Li).
1980Ve05: measured γ's; Ge(Li).
1989Ul01: measured $T_{1/2}$ from γ-ray induced Doppler broadening (grid) after thermal neutron capture using double crystal spectrometer.
1992Ku17: measured $T_{1/2}$ from γ-ray induced Doppler-broadened (grid) line shape analysis in thermal-neutron capture using double-crystal spectrometer.
Others: see 1977Au04, 1970Ra51, and the neutron bibliography cited in the present abstract. See 1969Be40 for a study of the Mossbauer effect.

^{57}Fe Levels

Resonance parameters: see 1981MuZQ and resonance data given below. Also see 1983CoZZ and 1981Ra01. See 1974Lu04 for calculations of the correlations between reduced neutron and radiative widths in neutron resonances using (n,γ) and (γ,n) data.

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	$1/2^-$		Configuration: see footnote on J^π for 1627 and 1725 states.
14.4129 *6*	$3/2^-$		E(level): from Adopted Levels. Configuration: see footnote on J^π for 1627 and 1725 states.
136.495 *12*	$5/2^-$		
366.762 *7*	$3/2^-$		J^π: 3/2 from $\gamma\gamma(\theta)$ and intensity of primary γ (1964Ba02; NaI).
706.416 *13*	$5/2^-$		
1007.31 *14*	$7/2^-$		
1197.5 *5*	$9/2^-$		
1265.077 *21*	$1/2^-$		
1357.24 *19*	$7/2^-$		
1627.267 *14*	$3/2^-$[#]	56 fs *20*	J^π: CP consistent with 3/2, not 1/2. $T_{1/2}$: unweighted average of 36 fs *3* (1992Ku17) and 76 fs *+7−6* which is a reanalyzed value of 1989Ul01 quoted by 1992Ku17 and published in a thesis of s.ulbig (Gottingen Univ. 1991) not available to the evaluator.
1725.423 *17*	$3/2^-$[#]	35 fs *9*	J^π: CP consistent with 3/2, not 1/2. $T_{1/2}$: unweighted average of 26 fs *2* (1992Ku17) and 43 fs *4* which is a reanalyzed value of 1989Ul01 quoted by 1992Ku17 and published in a thesis of S.Ulbeg (Gottingen Univ. 1991) not available to the evaluator.
1976.4 *11*	$(1/2^-,3/2,5/2^-)$		
2113.13 *17*	$(1/2,3/2,5/2^-)$		
2206.88 *13*	$5/2^-$		
2217.77 *17*	$(5/2^+)$		
2330.11 *13*	$(1/2,3/2,5/2^+)$		
2455.1 *7*	$9/2^+$		
2505.31 *14*	$5/2^+$		
2564.37 *21*	$3/2^-$		
2599.99 *22*	$(1/2,3/2,5/2^+)$		
2697.36 *16*	$1/2^-$		
2758.52 *10*			
2821.19 *23*	$(1/2,3/2,5/2^+)$		
2835.93 *6*	3/2,5/2		J^π: CP excludes J=1/2, but not J=5/2. $\Gamma(4809\gamma)$ does not absolutely exclude $5/2^-$ (1978Ve06).
2855.1 *4*			

Continued on next page (footnotes at end of table)

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

^{57}Fe Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$	Comments
2904.32 *24*			
2921.60 *11*	1/2$^-$,3/2$^-$		
2971.08 *14*	(1/2,3/2,5/2$^+$)		
2987.59 *11*	(1/2,3/2,5/2$^+$)		
3059.3 *3*	1/2$^+$		
3099.27 *18*			
3122.78 *20*			
3182.99 *14*	1/2$^-$,3/2$^-$		
3205.6 *5*	5/2$^-$,7/2$^-$		
3240.16 *17*	1/2$^+$		
3302.02 *10*	(5/2$^-$,7/2$^-$)		
3322.66 *10*	1/2$^-$,3/2$^-$		
3336.56 *25*			
3339.8 *7*			
3371.53 *16*	3/2$^-$		
3427.67 *5*	3/2$^-$	3.0 fs *+6−29*	
3535.96 *16*			
3561.72 *11*			
3608.56 *20*			
3791.63 *8*	3/2$^+$		Jπ: L(n)=2 in (d,p). J=5/2 is excluded by CP (1978Ve06).
3862.41 *17*			
3936.1 *7*	5/2$^-$,7/2$^-$		
3982.17 *15*	3/2$^-$		
4042.75 *22*	5/2$^-$,7/2$^-$		
4136.98 *10*	(1/2,3/2,5/2$^+$)		
4143.6 *5*	(1/2,3/2,5/2$^+$)		
4209.65 *11*	(3/2)$^-$		Jπ: (3/2) from CP (1978Ve06).
4378.98 *11*	(1/2,3/2,5/2$^-$)		J=1/2 is excluded by CP (1978Ve06).
4459.75 *11*	5/2$^-$,7/2$^-$		
4572.5 *4*	1/2$^+$		
4597.7 *3*	5/2$^+$		
4691.68 *11*	(5/2$^+$)		
5140.36 *18*	(1/2,3/2,5/2$^+$)		
5179.43 *16*	1/2$^+$		
5221.61 *25*	(1/2$^-$,3/2,5/2$^+$)		
5238.7 *4*	(1/2,3/2,5/2$^+$)		
(7646.20 *10*)	1/2$^+$		Jπ: thermal capture. Configuration: see footnote on J^π for 1627 and 1725 states.

† Calculated using least-squares adjustment procedures. The energies of the 14.4 and capture states were held fixed in the calculation, and gammas whose placement was uncertain were not included. These data are in good agreement with those given by 1980Ve05.

‡ From Adopted Levels; supporting arguments from this data set are indicated. CP (1969Ko05) confirm previous J^π assignments for g.s. and 14 states.

1975Ta09 note that these states are both strongly populated following thermal capture, both have Jπ=3/2$^-$, and yet one decays to the g.s., 1/2$^-$, and the other to the 14, 3/2$^-$. They explain this on the basis of shell-model calculations.

calibration uncertainty from 1980Ve05.
All data from 1980Ve05, except as noted. There is very good agreement between 1978St25 (NaI,pair spectrometer; Eγ>1600) and 1980Ve05.
Coincidence data are from 1962Fi05 (NaI,3-crystal pair spectrometer; slow-fast coin) and 1964Ca21 (NaI).
See 1977Au04 and 1970Or05 for additional unplaced gammas.

E_γ[†]	I_γ[†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
14		14.4129	3/2$^-$	0.0	1/2$^-$		From 1975Ta09.
122.08 *2*	0.5[#]	136.495	5/2$^-$	14.4129	3/2$^-$		
136.52 *2*	4.1[#]	136.495	5/2$^-$	0.0	1/2$^-$		
211.87 *9*	0.08 *1*	3182.99	1/2$^-$,3/2$^-$	2971.08	(1/2,3/2,5/2$^+$)		
230.29 *2*	0.87 *5*	366.762	3/2$^-$	136.495	5/2$^-$		
251.1 *3*	0.04 *1*	1976.4	(1/2$^-$,3/2,5/2$^-$)	1725.423	3/2$^-$		
335.9 *3*	0.04 *1*	4378.98	(1/2,3/2,5/2$^-$)	4042.75	5/2$^-$,7/2$^-$		
339.54 *18*	0.08 *1*	706.416	5/2$^-$	366.762	3/2$^-$		
352.36 *1*	9.5 *5*	366.762	3/2$^-$	14.4129	3/2$^-$	D,E2	Mult.,δ: from $\gamma\gamma(\theta)$ (1964Ba02; NaI). δ=− 0.05 *3* or + 5.0 *5*.
366.75 *1*	1.68 *8*	366.762	3/2$^-$	0.0	1/2$^-$		
460.1 *4*	0.03 *1*	1725.423	3/2$^-$	1265.077	1/2$^-$		
564.19 *6*	0.22 *1*	3322.66	1/2$^-$,3/2$^-$	2758.52			
569.92 *4*	0.52 *3*	706.416	5/2$^-$	136.495	5/2$^-$		
575.09 *19*	0.19 *10*	4136.98	(1/2,3/2,5/2$^+$)	3561.72			
[x]598.63 *14*	0.22 *2*						
601.3 *2*	0.14 *2*	4209.65	(3/2)$^-$	3608.56			
603.54 *19*	0.16 *2*	2821.19	(1/2,3/2,5/2$^+$)	2217.77	(5/2$^+$)		
657.56 *9*	0.25 *3*	2987.59	(1/2,3/2,5/2$^+$)	2330.11	(1/2,3/2,5/2$^+$)		
692.03 *2*	4.75 *19*	706.416	5/2$^-$	14.4129	3/2$^-$		
703.4 *4*	0.05 *2*	2330.11	(1/2,3/2,5/2$^+$)	1627.267	3/2$^-$		
706.4 *2*	0.27 *10*	706.416	5/2$^-$	0.0	1/2$^-$		
723 *2*	0.01 *1*	2835.93	3/2,5/2	2113.13	(1/2,3/2,5/2$^-$)		
735.1 *3*	0.04 *1*	3240.16	1/2$^+$	2505.31	5/2$^+$		
[x]747.31 *7*	0.12 *2*						
[x]749.4 *4*	0.04 *1*						
803.09 *8*	0.21 *1*	3561.72		2758.52			
[x]818.6 *3*	0.04 *1*						
834.91 *8*	0.21 *1*	4136.98	(1/2,3/2,5/2$^+$)	3302.02	(5/2$^-$,7/2$^-$)		
837.9 *3*	0.07 *1*	2564.37	3/2$^-$	1725.423	3/2$^-$		
849.5 *5*	0.04 *1*	2113.13	(1/2,3/2,5/2$^-$)	1265.077	1/2$^-$		
870.75 *17*	0.17 *1*	1007.31	7/2$^-$	136.495	5/2$^-$		
884.78 *10*	0.28 *2*	3339.8		2455.1	9/2$^+$		
898.28 *2*	1.90 *8*	1265.077	1/2$^-$	366.762	3/2$^-$		
920.85 *2*	0.76 *4*	1627.267	3/2$^-$	706.416	5/2$^-$		

$^{57}_{26}$Fe$_{31}$-3

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

$\gamma(^{57}Fe)$ (continued)

E_γ [†]	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π	Comments
942.0 *14*	0.02 *1*	2206.88	5/2$^-$	1265.077	1/2$^-$	
977.1 *7*	0.05 *3*	3182.99	1/2$^-$,3/2$^-$	2206.88	5/2$^-$	
988.2 *5*	0.03 *1*	3205.6	5/2$^-$,7/2$^-$	2217.77	(5/2$^+$)	
991.8 *5*	0.04 *1*	1007.31	7/2$^-$	14.4129	3/2$^-$	
1006.9 *5*	0.03 *1*	4378.98	(1/2,3/2,5/2$^-$)	3371.53	3/2$^-$	
1019.02 *2*	1.74 *5*	1725.423	3/2$^-$	706.416	5/2$^-$	
1022.0 *3*	0.05 *1*	3240.16	1/2$^+$	2217.77	(5/2$^+$)	
1026.4 *3*	0.05 *1*	4209.65	(3/2)$^-$	3182.99	1/2$^-$,3/2$^-$	
1041.1 *5*	0.03 *1*	3371.53	3/2$^-$	2330.11	(1/2,3/2,5/2$^+$)	
[x]1043.9 *4*	0.07 *1*					
1077.3 *3*	0.04 *1*	4136.98	(1/2,3/2,5/2$^+$)	3059.3	1/2$^+$	
1110.9 *3*	0.05 *1*	4209.65	(3/2)$^-$	3099.27		
1115.64 *15*	0.09 *1*	3322.66	1/2$^-$,3/2$^-$	2206.88	5/2$^-$	
1119.8 *6*	0.02 *1*	4459.75	5/2$^-$,7/2$^-$	3339.8		
1159.5 *13*	0.02 *1*	3982.17	3/2$^-$	2821.19	(1/2,3/2,5/2$^+$)	
[x]1186.0 *5*	0.04 *1*					
1197.27 *6*	0.36 *2*	5179.43	1/2$^+$	3982.17	3/2$^-$	
1215.38 *4*	0.10 *2*	4136.98	(1/2,3/2,5/2$^+$)	2921.60	1/2$^-$,3/2$^-$	
[x]1218.55 *4*	0.07 *1*					
1250.99 *9*	0.12 *2*	1265.077	1/2$^-$	14.4129	3/2$^-$	
1255.5 *8*	0.02 *1*	4378.98	(1/2,3/2,5/2$^-$)	3122.78		
1260.60 *3*	2.50 *8*	1627.267	3/2$^-$	366.762	3/2$^-$	
1263.3 *3*	0.10 *1*	3240.16	1/2$^+$	1976.4	(1/2$^-$,3/2,5/2$^-$)	
1282.3 *6*	0.09 *4*	4136.98	(1/2,3/2,5/2$^+$)	2855.1		
1284.0 *5*	0.10 *5*	3982.17	3/2$^-$	2697.36	1/2$^-$	
1300.9 *4*	0.09 *2*	4136.98	(1/2,3/2,5/2$^+$)	2835.93	3/2,5/2	
1305.3 *3*	0.07 *2*	4209.65	(3/2)$^-$	2904.32		
1345.2 *5*	0.06 *1*	3322.66	1/2$^-$,3/2$^-$	1976.4	(1/2$^-$,3/2,5/2$^-$)	
1355.6 *4*	0.13 *3*	4691.68	(5/2$^+$)	3336.56		
1358.71 *4*	0.90 *4*	1725.423	3/2$^-$	366.762	3/2$^-$	
1360.48	0.05 *2*	4459.75	5/2$^-$,7/2$^-$	3099.27		E_γ: from the energy difference of initial and final levels; Eγ=1351.8 *10* (1980Ve05) which the evaluator feels must be a typographical error.
1369.1 *2*	0.13 *2*	4691.68	(5/2$^+$)	3322.66	1/2$^-$,3/2$^-$	
[x]1371.6 *4*	0.06 *2*					
1381.7 *2*	0.13 *1*	3982.17	3/2$^-$	2599.99	(1/2,3/2,5/2$^+$)	
[x]1412.01 *12*	0.17 *1*					
[x]1430.2 *4*	0.04 *1*					
[x]1435.58 *8*	0.22 *1*					
1447.0 *3*	0.08 *2*	3561.72		2113.13	(1/2,3/2,5/2$^-$)	
1457.4 *5*	0.04 *1*	3182.99	1/2$^-$,3/2$^-$	1725.423	3/2$^-$	
1460.9 *3*	0.08 *1*	3791.63	3/2$^+$	2330.11	(1/2,3/2,5/2$^+$)	
1487.2 *9*	0.03 *1*	4691.68	(5/2$^+$)	3205.6	5/2$^-$,7/2$^-$	
1492.4 *4*	0.06 *1*	2758.52		1265.077	1/2$^-$	

$^{57}_{26}Fe_{31}$-4

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

$\gamma(^{57}Fe)$ (continued)

E_γ [†]	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	Comments
[x]1506.0 *2*	0.08 *1*							
1584.6 *3*	0.07 *1*	3791.63	$3/2^+$	2206.88	$5/2^-$			
1612.78 *2*	5.38 *16*	1627.267	$3/2^-$	14.4129	$3/2^-$	M1+E2	−0.35 *5*	δ: $-25\le\delta\le-9$ or $-0.4\le\delta\le-0.3$ (1975Ta09). Shell model favors smaller value (see footnote on 1627 level).
1627.05 *7*	0.21 *1*	1627.267	$3/2^-$	0.0	$1/2^-$			
1646.0 *3*	0.07 *1*	3371.53	$3/2^-$	1725.423	$3/2^-$			
1655.51 *11*	0.15 *2*	3862.41		2206.88	$5/2^-$			
[x]1672.1 *8*	0.04 *2*							
1674.62 *12*	0.08 *2*	3302.02	$(5/2^-,7/2^-)$	1627.267	$3/2^-$			
[x]1691.0 *10*	0.07 *1*							
[x]1697.34 *12*	0.27 *2*							
1700.8 *3*	0.11 *2*	4459.75	$5/2^-,7/2^-$	2758.52				
1705.0 *8*	0.03 *1*	4209.65	$(3/2)^-$	2505.31	$5/2^+$			
1710.2 *3*	0.25 *5*	1725.423	$3/2^-$	14.4129	$3/2^-$			
[x]1717.2 *3*	0.07 *1*							
1722.40 *12*	0.33 *3*	2987.59	$(1/2,3/2,5/2^+)$	1265.077	$1/2^-$			
1725.29 *3*	6.3 *3*	1725.423	$3/2^-$	0.0	$1/2^-$	M1+E2	+0.40 *5*	δ: $-10\le\delta\le-5.5$ or $+0.35\le\delta\le+0.45$ (1975Ta09). CP (1978Ve06) show that δ=+ 0.40 *5* is preferred.
[x]1760.1 *2*	0.12 *1*							
[x]1802.3 *6*	0.04 *1*							
1810.51 *16*	0.25 *2*	3535.96		1725.423	$3/2^-$			
1812.9 *5*	0.07 *2*	2821.19	$(1/2,3/2,5/2^+)$	1007.31	$7/2^-$			
1825.9 *3*	0.09 *2*	3182.99	$1/2^-,3/2^-$	1357.24	$7/2^-$			
1828.9 *10*	0.03 *2*	2835.93	3/2,5/2	1007.31	$7/2^-$			
1836.4 *4*	0.06 *1*	4691.68	$(5/2^+)$	2855.1				
[x]1841.9 *4*	0.09 *3*							
1851.3 *4*	0.06 *1*	2217.77	$(5/2^+)$	366.762	$3/2^-$			
1855.9 *4*	0.06 *1*	4691.68	$(5/2^+)$	2835.93	3/2,5/2			
1899.5 *5*	0.06 *2*	5140.36	$(1/2,3/2,5/2^+)$	3240.16	$1/2^+$			
[x]1927.6 *5*	0.04 *2*							
1931.8 *7*	0.06 *2*	4136.98	$(1/2,3/2,5/2^+)$	2206.88	$5/2^-$			
[x]1943.1 *5*	0.29 *12*							
1965.3 *2*	0.29 *3*	3322.66	$1/2^-,3/2^-$	1357.24	$7/2^-$			
1973.4 *4*	0.15 *2*	4572.5	$1/2^+$	2599.99	$(1/2,3/2,5/2^+)$			
1976.4 *11*	0.04 *2*	1976.4	$(1/2^-,3/2,5/2^-)$	0.0	$1/2^-$			
1982.1 *4*	0.08 *2*	3608.56		1627.267	$3/2^-$			
[x]1987.0 *7*	0.04 *1*							
1991.0 *10*	0.03 *1*	2697.36	$1/2^-$	706.416	$5/2^-$			
2033.2 *2*	0.05 *2*	4597.7	$5/2^+$	2564.37	$3/2^-$			
[x]2039.7 *4*	0.05 *1*							
[x]2045.7 *4*	0.07 *1*							
2066.17 *11*	0.49 *3*	3791.63	$3/2^+$	1725.423	$3/2^-$			
[x]2068.9 *5*	0.11 *3*							
2081.2 *3*	0.10 *2*	2217.77	$(5/2^+)$	136.495	$5/2^-$			

$^{57}_{26}Fe_{31}$-5

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

$\gamma(^{57}Fe)$ (continued)

E_γ †	I_γ †c	E_i(level)	J_i^π	E_f	J_f^π
2091.85 *15*	0.38 *3*	3099.27		1007.31	$7/2^-$
2097 *2*	0.05 *3*	4209.65	$(3/2)^-$	2113.13	$(1/2,3/2,5/2^-)$
x2101.3 *14*	0.08 *4*				
2104.5 *5*	0.14 *3*	3302.02	$(5/2^-,7/2^-)$	1197.5	$9/2^-$
2113.4 *3*	0.15 *2*	2113.13	$(1/2,3/2,5/2^-)$	0.0	$1/2^-$
2129.48 *7*	0.67 *3*	2835.93	3/2,5/2	706.416	$5/2^-$
2138.63 *17*	0.17 *2*	2505.31	$5/2^+$	366.762	$3/2^-$
x2151.5 *2*	0.17 *2*				
2164.69 *17*	0.20 *2*	3791.63	$3/2^+$	1627.267	$3/2^-$
2186.6 *4*	0.04 *1*	4691.68	$(5/2^+)$	2505.31	$5/2^+$
2192.8 *4*	0.25 *4*	2206.88	$5/2^-$	14.4129	$3/2^-$
2198.2 *5*	0.17 *4*	2904.32		706.416	$5/2^-$
2202.7 *8*	0.13 *4*	2217.77	$(5/2^+)$	14.4129	$3/2^-$
2206.8 *6*	0.21 *5*	2206.88	$5/2^-$	0.0	$1/2^-$
2216.2 *5*	0.12 *4*	2921.60	$1/2^-,3/2^-$	706.416	$5/2^-$
x2246.0 *5*	0.11 *2*				
2348.9 *9*	0.06 *3*	4459.75	$5/2^-,7/2^-$	2113.13	$(1/2,3/2,5/2^-)$
x2351.7 *5*	0.11 *3*				
2385.3 *4*	0.09 *2*	5221.61	$(1/2^-,3/2,5/2^+)$	2835.93	3/2,5/2
2391.8 *2*	0.22 *2*	2758.52		366.762	$3/2^-$
2407.4 *4*	0.10 *2*	(7646.20)	$1/2^+$	5238.7	$(1/2,3/2,5/2^+)$
2415.1 *3*	0.16 *2*	4042.75	$5/2^-,7/2^-$	1627.267	$3/2^-$
2424.3 *9*	0.06 *2*	(7646.20)	$1/2^+$	5221.61	$(1/2^-,3/2,5/2^+)$
2462.1 *7*	0.07 *1*	2599.99	$(1/2,3/2,5/2^+)$	136.495	$5/2^-$
2466.0 *9*	0.08 *2*	(7646.20)	$1/2^+$	5179.43	$1/2^+$
2480.2 *6*	0.06 *2*	5179.43	$1/2^+$	2697.36	$1/2^-$
2486.0 *6*	0.08 *2*	4691.68	$(5/2^+)$	2206.88	$5/2^-$
2490.8 *13*	0.03 *1*	2505.31	$5/2^+$	14.4129	$3/2^-$
2507.2 *7*	0.04 *1*	(7646.20)	$1/2^+$	5140.36	$(1/2,3/2,5/2^+)$
2517.0 *5*	0.10 *3*	4143.6	$(1/2,3/2,5/2^+)$	1627.267	$3/2^-$
2526.2 *3*	0.29 *6*	3791.63	$3/2^+$	1265.077	$1/2^-$
x2534.0 *6*	0.06 *3*				
2537.1 *5*	0.08 *2*	2904.32		366.762	$3/2^-$
2562.4 *5*	0.04 *1*	2564.37	$3/2^-$	0.0	$1/2^-$
2574.3 *3*	0.11 *2*	5140.36	$(1/2,3/2,5/2^+)$	2564.37	$3/2^-$
2582.0 *3*	0.09 *2*	4209.65	$(3/2)^-$	1627.267	$3/2^-$
2598.1 *11*	0.03 *1*	2599.99	$(1/2,3/2,5/2^+)$	0.0	$1/2^-$
2603.1 *15*	0.07 *2*	2971.08	$(1/2,3/2,5/2^+)$	366.762	$3/2^-$
2618.9 *9*	0.05 *2*	2987.59	$(1/2,3/2,5/2^+)$	366.762	$3/2^-$
2654.3 *4*	0.05 *2*	4378.98	$(1/2,3/2,5/2^-)$	1725.423	$3/2^-$
2682.5 *3*	0.43 *2*	2697.36	$1/2^-$	14.4129	$3/2^-$
2691.6 *5*	0.07 *2*	3059.3	$1/2^+$	366.762	$3/2^-$
2696.6 *3*	0.30 *4*	2697.36	$1/2^-$	0.0	$1/2^-$

$^{57}_{26}Fe_{31}$-6

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

$\gamma(^{57}Fe)$ (continued)

E_γ [†]	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]
[x]2704.6 *9*	0.05 *2*					
2721.17 *6*	1.37 *4*	3427.67	3/2$^-$	706.416	5/2$^-$	
2734.2 *3*	0.15 *2*	4459.75	5/2$^-$,7/2$^-$	1725.423	3/2$^-$	
[x]2753.0 *2*	0.42 *3*					
2755.9 *2*	0.57 *10*	3122.78		366.762	3/2$^-$	
2815.0 *6*	0.09 *2*	3182.99	1/2$^-$,3/2$^-$	366.762	3/2$^-$	
2821.5 *6*	0.10 *2*	2835.93	3/2,5/2	14.4129	3/2$^-$	
2832.46 *17*	0.53 *4*	4459.75	5/2$^-$,7/2$^-$	1627.267	3/2$^-$	
2835.43 *17*	0.25 *3*	2835.93	3/2,5/2	0.0	1/2$^-$	
2873.7 *3*	0.37 *2*	3240.16	1/2$^+$	366.762	3/2$^-$	
2935.8 *8*	0.05 *2*	3302.02	(5/2$^-$,7/2$^-$)	366.762	3/2$^-$	
2943.4 *5*	0.08 *2*	4209.65	(3/2)$^-$	1265.077	1/2$^-$	
[x]2950.2 *9*	0.07 *2*					
2954.04 *17*	0.36 *3*	(7646.20)	1/2$^+$	4691.68	(5/2$^+$)	
2970.0 *3*	0.18 *2*	3336.56		366.762	3/2$^-$	
3014.7 *3*	0.12 *2*	5221.61	(1/2$^-$,3/2,5/2$^+$)	2206.88	5/2$^-$	
3027.55 *13*	0.11 *1*	5140.36	(1/2,3/2,5/2$^+$)	2113.13	(1/2,3/2,5/2$^-$)	
3047.9 *7*	0.04 *1*	(7646.20)	1/2$^+$	4597.7	5/2$^+$	
3060.90 *15*	0.15 *2*	3427.67	3/2$^-$	366.762	3/2$^-$	
3075.1 *5*	0.11 *5*	(7646.20)	1/2$^+$	4572.5	1/2$^+$	
3103.1[a] *4*	0.67 *7*	3240.16	1/2$^+$	136.495	5/2$^-$	
3166.9 *11*	0.16 *13*	3182.99	1/2$^-$,3/2$^-$	14.4129	3/2$^-$	
3186.0 *2*	0.68 *3*	(7646.20)	1/2$^+$	4459.75	5/2$^-$,7/2$^-$	
3225.3 *4*	0.30 *5*	3240.16	1/2$^+$	14.4129	3/2$^-$	
3239.3 *2*	0.35 *3*	3240.16	1/2$^+$	0.0	1/2$^-$	
3267.05 *12*	1.29 *5*	(7646.20)	1/2$^+$	4378.98	(1/2,3/2,5/2$^-$)	
3291.1 *2*	0.30 *5*	3427.67	3/2$^-$	136.495	5/2$^-$	
3356.3 *2*	0.34 *2*	3371.53	3/2$^-$	14.4129	3/2$^-$	
3412.90 *9*	1.61 *8*	3427.67	3/2$^-$	14.4129	3/2$^-$	
3436.4 *3*	1.63 *11*	(7646.20)	1/2$^+$	4209.65	(3/2)$^-$	
3504.5 *8*	0.18 *5*	(7646.20)	1/2$^+$	4143.6	(1/2,3/2,5/2$^+$)	
3508.6 *5*	0.05 *3*	(7646.20)	1/2$^+$	4136.98	(1/2,3/2,5/2$^+$)	
3610.2 *8*	0.05 *2*	5238.7	(1/2,3/2,5/2$^+$)	1627.267	3/2$^-$	
[x]3641.33 *15*	0.20 *6*					
[x]3649 *2*	0.03 *2*					
3663.0 *2*	0.13 *1*	(7646.20)	1/2$^+$	3982.17	3/2$^-$	
[x]3689.4 *7*	0.06 *2*					
[x]3710.9 *5*	0.07 *2*					
[x]3723.6 *7*	0.18 *3*					
3776.6 *2*	0.08 *3*	3791.63	3/2$^+$	14.4129	3/2$^-$	
3842.4 *3*	0.29 *2*	4209.65	(3/2)$^-$	366.762	3/2$^-$	
3854.0 *2*	0.19 *2*	(7646.20)	1/2$^+$	3791.63	3/2$^+$	D(+Q)[b]
3921.5 *7*	1.34 *8*	3936.1	5/2$^-$,7/2$^-$	14.4129	3/2$^-$	

$^{57}_{26}Fe_{31}$-7

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

$\gamma(^{57}Fe)$ (continued)

E_γ †	I_γ †c	E_i(level)	J_i^π	E_f	J_f^π
x3955.3 *8*	0.11 *3*				
3981.7 *4*	0.10 *2*	3982.17	3/2$^-$	0.0	1/2$^-$
x3991 *2*	0.05 *2*				
4073.3 *3*	0.21 *2*	4209.65	(3/2)$^-$	136.495	5/2$^-$
4194.8 *4*	0.13 *3*	4209.65	(3/2)$^-$	14.4129	3/2$^-$
4210.2 *10*	0.07 *2*	4209.65	(3/2)$^-$	0.0	1/2$^-$
4217.98 *11*	6.77 *19*	(7646.20)	1/2$^+$	3427.67	3/2$^-$
4274.5 *2*	0.25 *5*	(7646.20)	1/2$^+$	3371.53	3/2$^-$
4323.8 *4*	0.12 *3*	(7646.20)	1/2$^+$	3322.66	1/2$^-$,3/2$^-$
4378.3 *4*	0.16 *2*	4378.98	(1/2,3/2,5/2$^-$)	0.0	1/2$^-$
4405.74 *8*	1.64 *8*	(7646.20)	1/2$^+$	3240.16	1/2$^+$
x4418.2 *3*	0.13@ *4*				
4462.5 *4*	0.52 *5*	(7646.20)	1/2$^+$	3182.99	1/2$^-$,3/2$^-$
4555.3 *3*	0.09 *2*	4691.68	(5/2$^+$)	136.495	5/2$^-$
x4597.4 *5*	0.15 *3*				
4659.3 *6*	0.09 *3*	(7646.20)	1/2$^+$	2987.59	(1/2,3/2,5/2$^+$)
4675.1 *2*	0.40 *4*	(7646.20)	1/2$^+$	2971.08	(1/2,3/2,5/2$^+$)
x4687 *2*	0.11 *8*				
4724.0 *3*	0.28 *3*	(7646.20)	1/2$^+$	2921.60	1/2$^-$,3/2$^-$
4809.83 *14*	1.85 *11*	(7646.20)	1/2$^+$	2835.93	3/2,5/2
4825.6 *13*	0.07 *3*	(7646.20)	1/2$^+$	2821.19	(1/2,3/2,5/2$^+$)
x4840 *2*	0.07 *3*				
x4845.5 *5*	0.10 *3*				
4856.6 *13*	0.10 *4*	5221.61	(1/2$^-$,3/2,5/2$^+$)	366.762	3/2$^-$
x4914 *2*	0.15 *9*				
4948.3 *3*	0.85 *8*	(7646.20)	1/2$^+$	2697.36	1/2$^-$
5042.1 *8*	0.18 *5*	5179.43	1/2$^+$	136.495	5/2$^-$
5047.4 *10*	0.17 *5*	(7646.20)	1/2$^+$	2599.99	(1/2,3/2,5/2$^+$)
x5179.7 *8*	0.05 *3*				
5318 *2*	0.09 *4*	(7646.20)	1/2$^+$	2330.11	(1/2,3/2,5/2$^+$)
x5325.8 *10*	0.18 *3*				
x5730.64 *15*	0.46 *5*				
x5784.9 *7*	0.19 *3*				
x5901.4 *12*	0.19 *6*				
5920.35 *7*	9.6 *7*	(7646.20)	1/2$^+$	1725.423	3/2$^-$
x5992 *2*	0.22 *16*				
6018.42 *7*	9.9 *8*	(7646.20)	1/2$^+$	1627.267	3/2$^-$
x6102.1 *10*	0.05 *2*				
x6129.3 *4*	0.12 *3*				
x6219.4 *13*	0.08 *3*				
x6276.4 *4*	0.12@ *4*				
6380.47 *15*	1.11 *12*	(7646.20)	1/2$^+$	1265.077	1/2$^-$
x6548.5 *8*	0.16@ *4*				

$^{57}_{26}Fe_{31}$-8

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05 (continued)

$\gamma(^{57}Fe)$ (continued)

E_γ [†]	I_γ [†c]	E_i(level)	J_i^π	E_f	J_f^π
[x]6717.4 *2*	0.45[@] *4*				
[x]6742 *2*	0.12 *6*				
[x]7199 *2*	0.10 *4*				
7278.82 *9*	6.0 *6*	(7646.20)	$1/2^+$	366.762	$3/2^-$
7631.18[&] *10*	29 *4*	(7646.20)	$1/2^+$	14.4129	$3/2^-$
7645.58[&] *10*	25 *3*	(7646.20)	$1/2^+$	0.0	$1/2^-$

[†] The ΔE_γ and ΔI_γ quoted are statistical only; 1980Ve05 estimate a systematic uncertainty of 25 ppm for ΔE_γ and a calibration uncertainty of 10% for ΔI_γ. I_γ are normalized such that $\Sigma I_\gamma E_\gamma$=100Q. See 1980Ve05 for photon branching ratios.

[‡] From $\gamma\gamma(\theta)$ and shell model arguments (1975Ta09), except as noted.

[#] Photons per 100 n captures (renormalized by evaluators using abundance(^{56}Fe)=91.72% from 1981MuZQ) from 1970Or05 (triple-coin pair spectrometer; Ge(Li)-NaI); efficiency calibration poorly known below E$\gamma\approx$ 200 keV (1980Ve05).

[@] Obscured by Ge(n,γ) lines; Iγ corrected for Ge(n,γ) contributions (1980Ve05).

[&] Others: 7631.33 *17* and 7645.74 *17* (1976Al16; Ge(Li), resolution (FWHM)=6 keV at 6 MeV. Relative to 6129.170 *43* (^{16}O)).

[a] Not placed by 1980Ve05. Placement from 1977Au04.

[b] Pure Q ruled out by measured CP but not an admixture. δ not given by authors (1978Ve06).

[c] For intensity per 100 neutron captures, multiply by 1.00 *10*.

[x] γ ray not placed in level scheme.

$^{57}_{26}Fe_{31}$-9

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Legend

Level Scheme

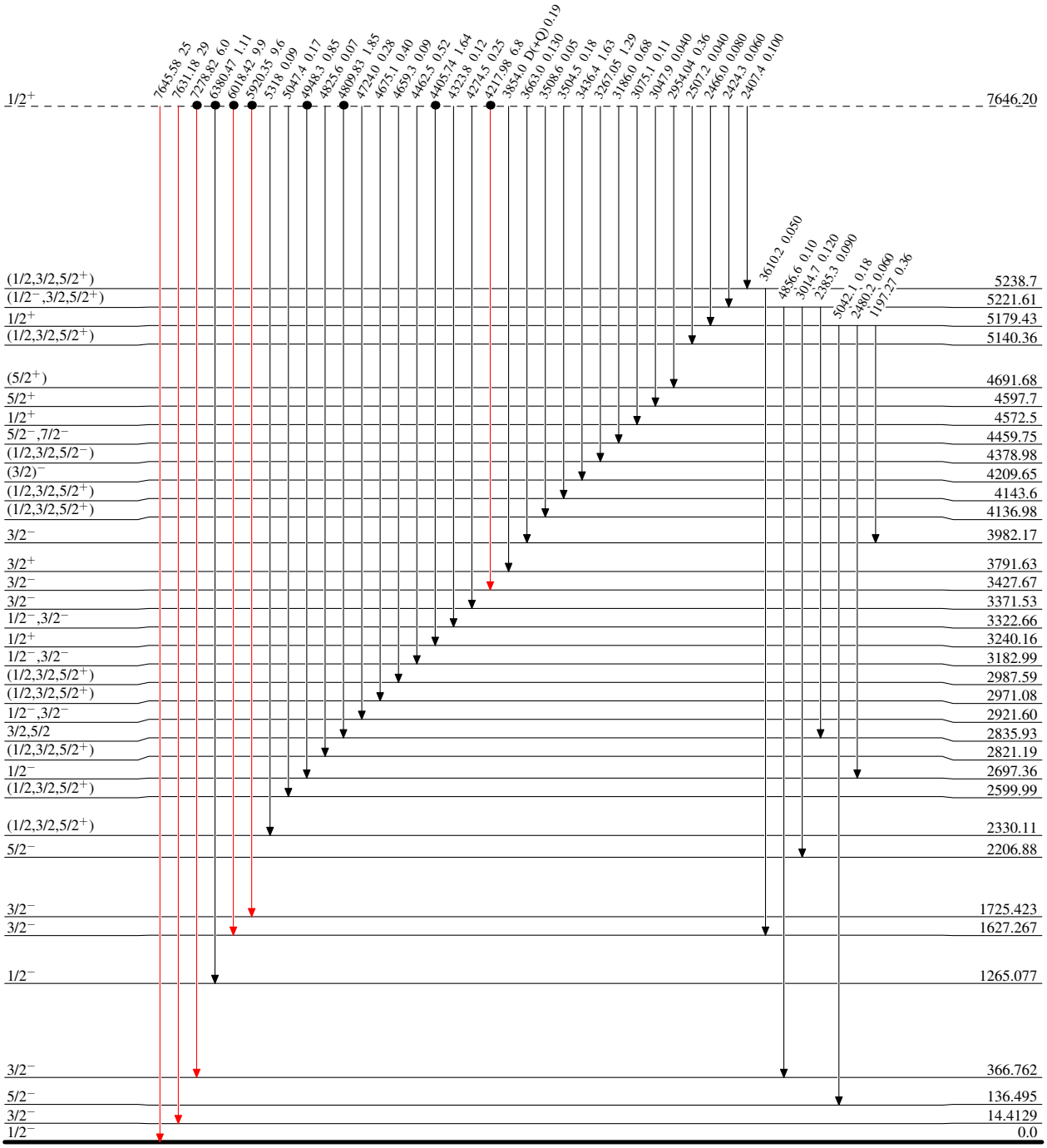
Intensities: Intensity per 100 neutron captures

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

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

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

Coincidence



$^{57}_{26}Fe_{31}$

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Level Scheme (continued)

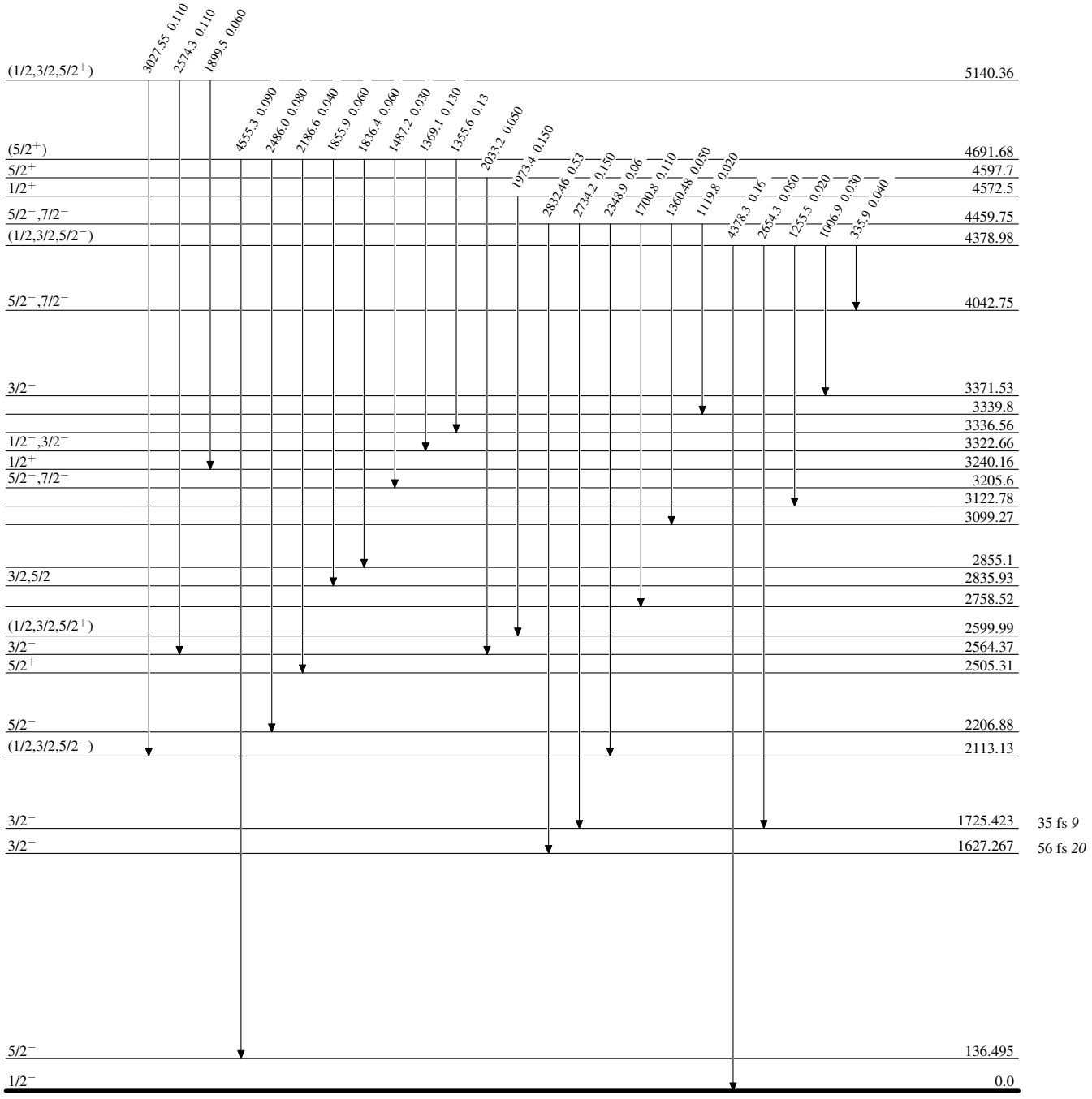
Intensities: Intensity per 100 neutron captures

Legend

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

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

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



$^{57}_{26}Fe_{31}$

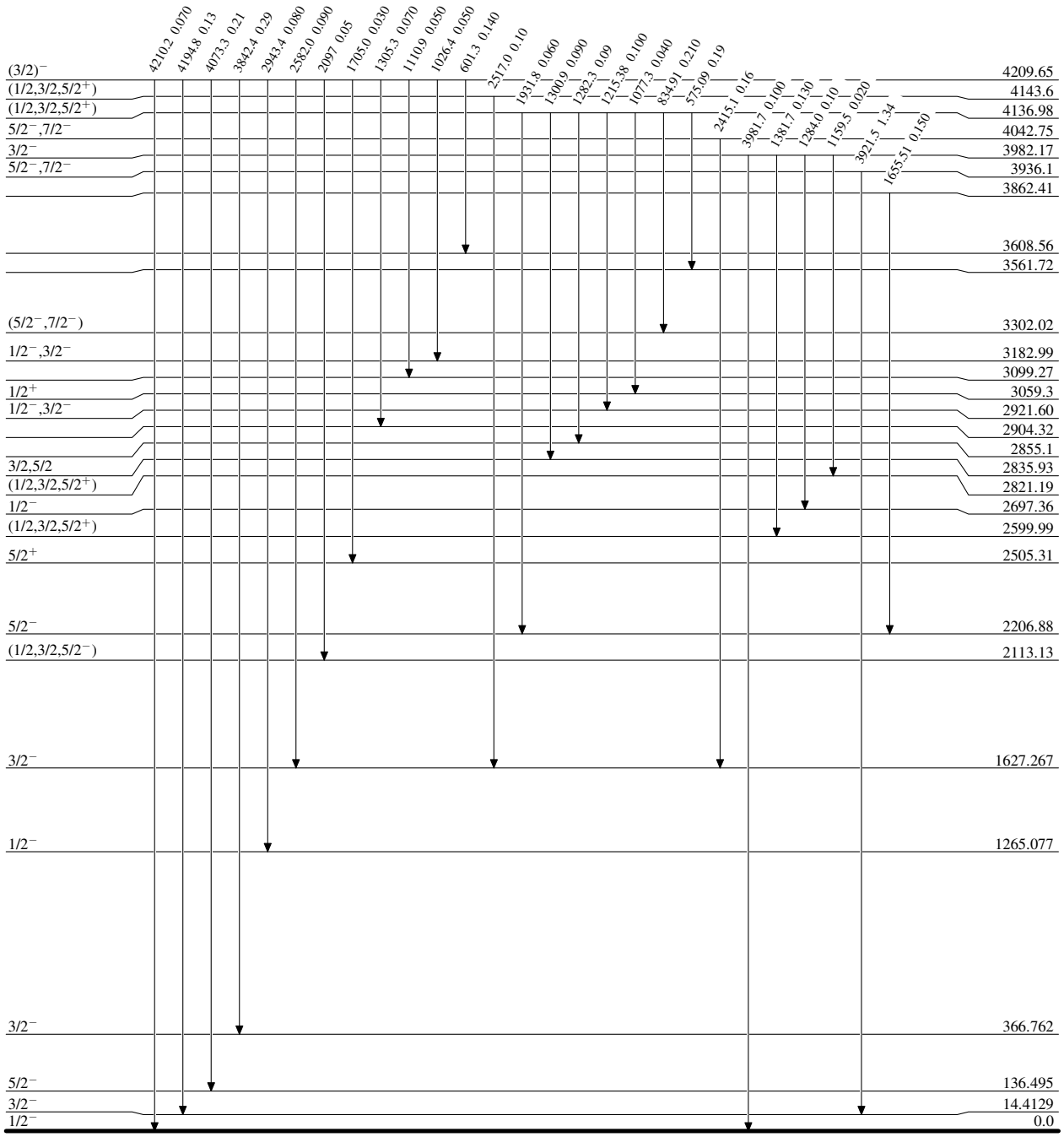
^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Legend

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

Level Scheme (continued)

Intensities: Intensity per 100 neutron captures



$^{57}_{26}Fe_{31}$

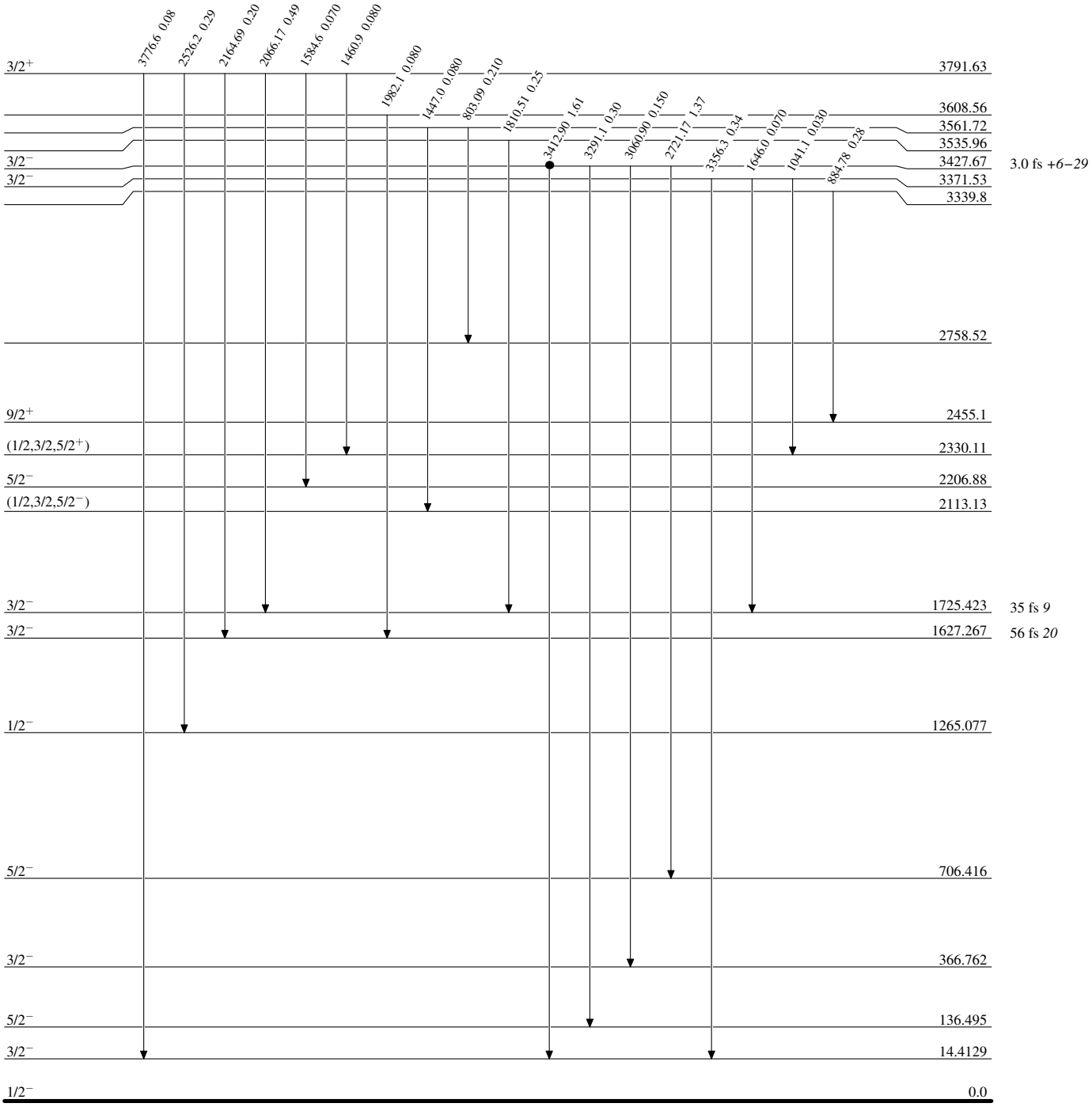
^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Legend

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

Level Scheme (continued)

Intensities: Intensity per 100 neutron captures

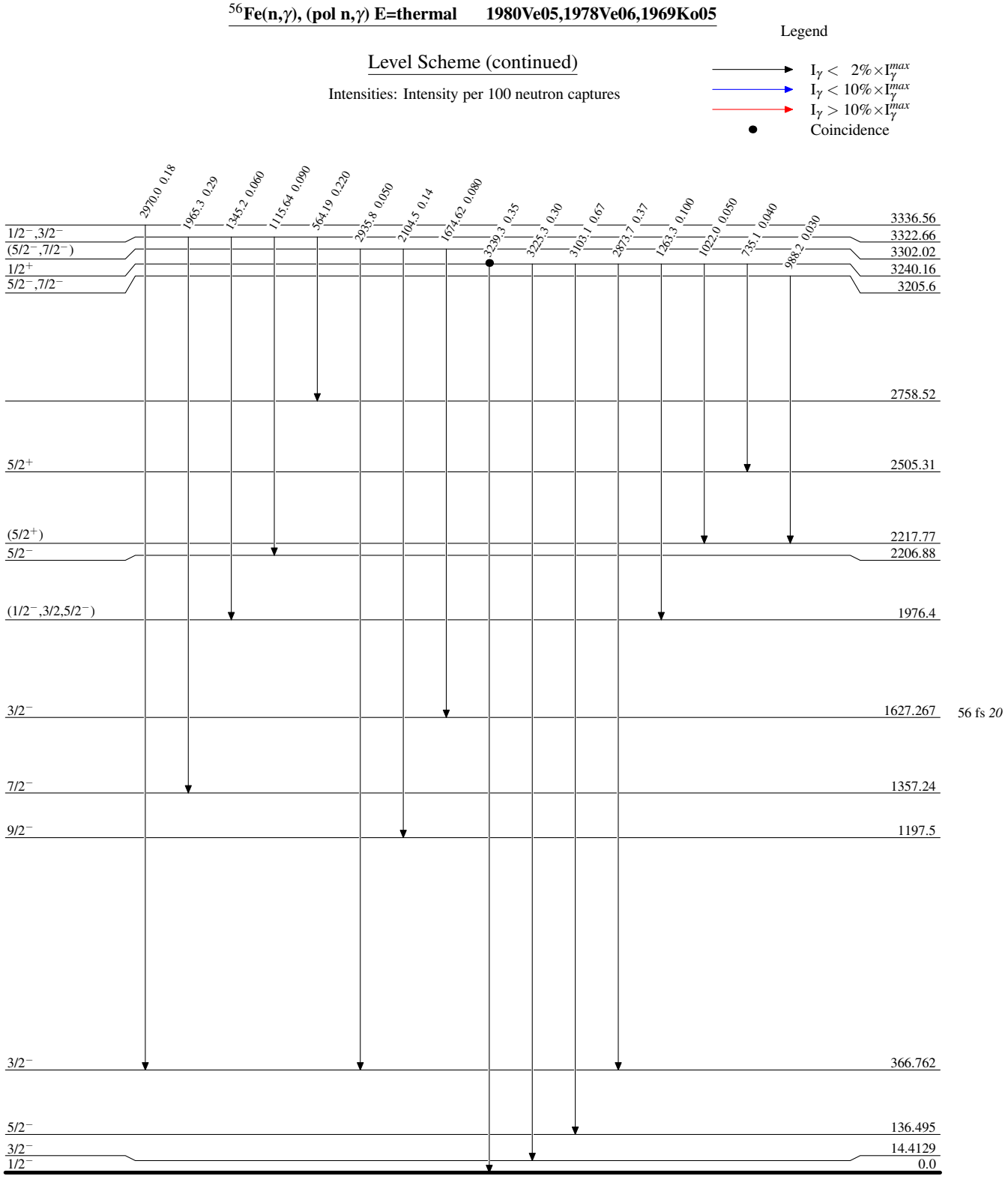


$^{57}_{26}Fe_{31}$

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Level Scheme (continued)

Intensities: Intensity per 100 neutron captures



$^{57}_{26}Fe_{31}$

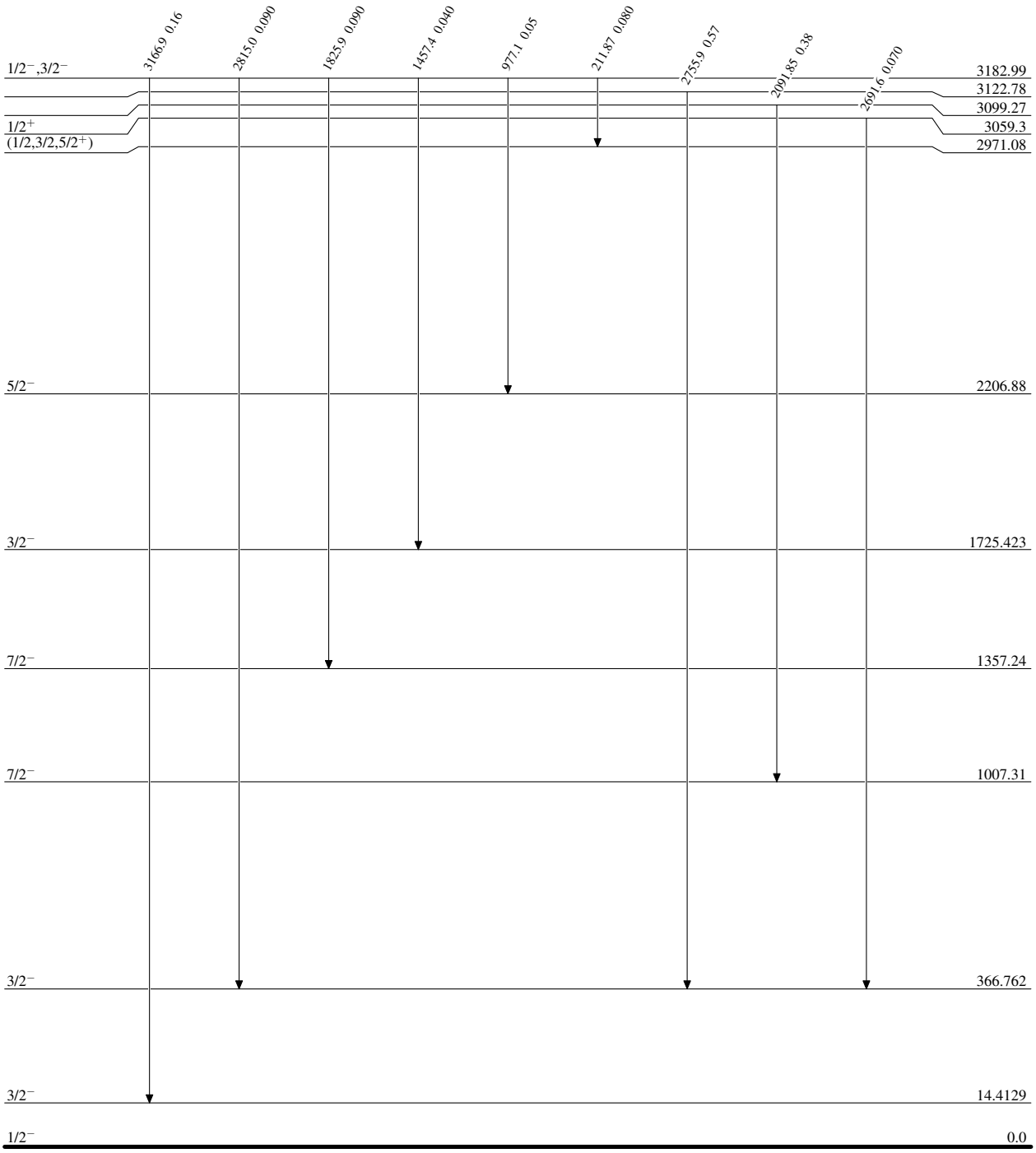
^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Legend

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

Level Scheme (continued)

Intensities: Intensity per 100 neutron captures



$^{57}_{26}Fe_{31}$

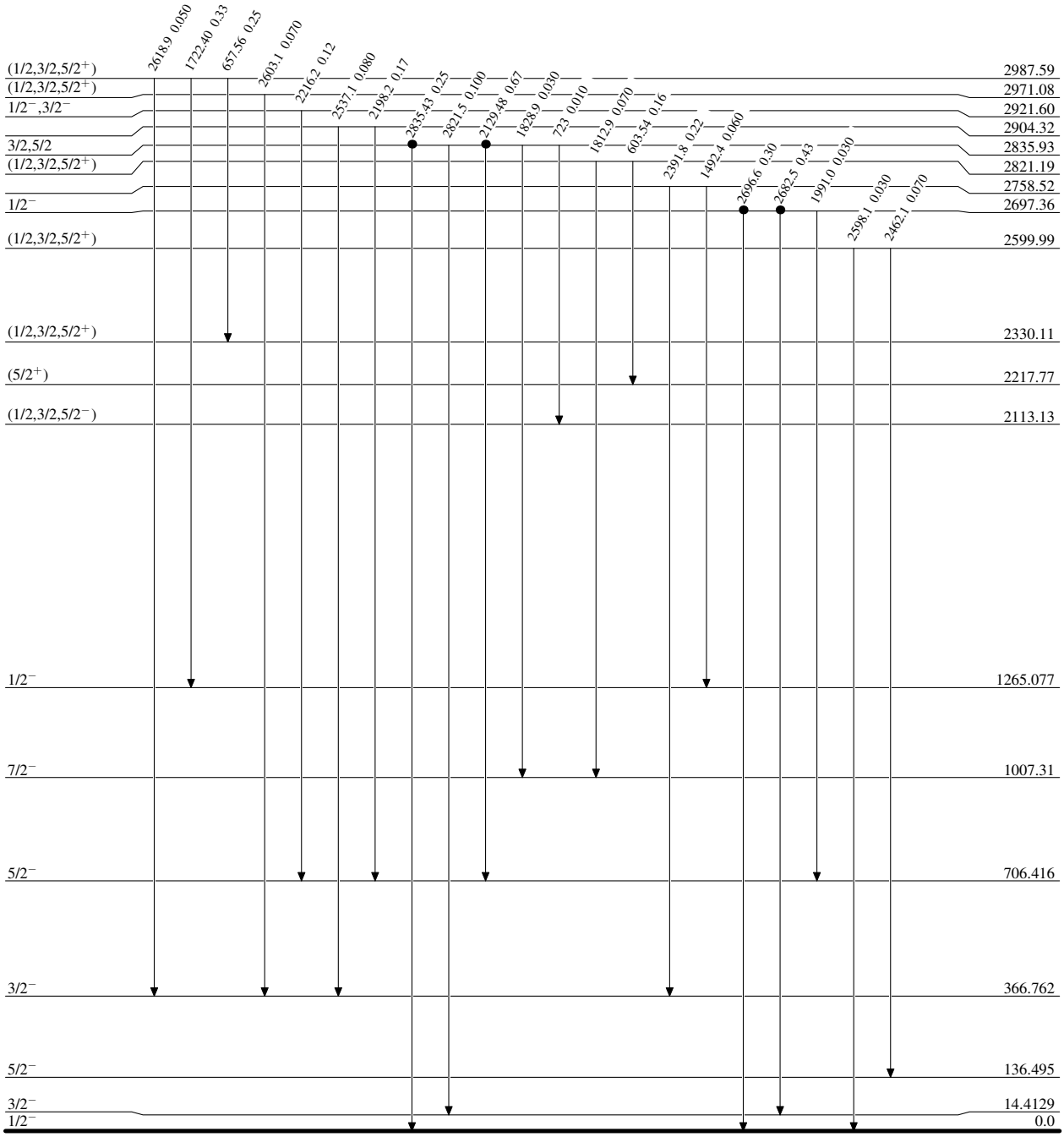
^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Legend

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

Level Scheme (continued)

Intensities: Intensity per 100 neutron captures



$^{57}_{26}Fe_{31}$

^{56}Fe(n,γ), (pol n,γ) E=thermal 1980Ve05,1978Ve06,1969Ko05

Legend

Level Scheme (continued)

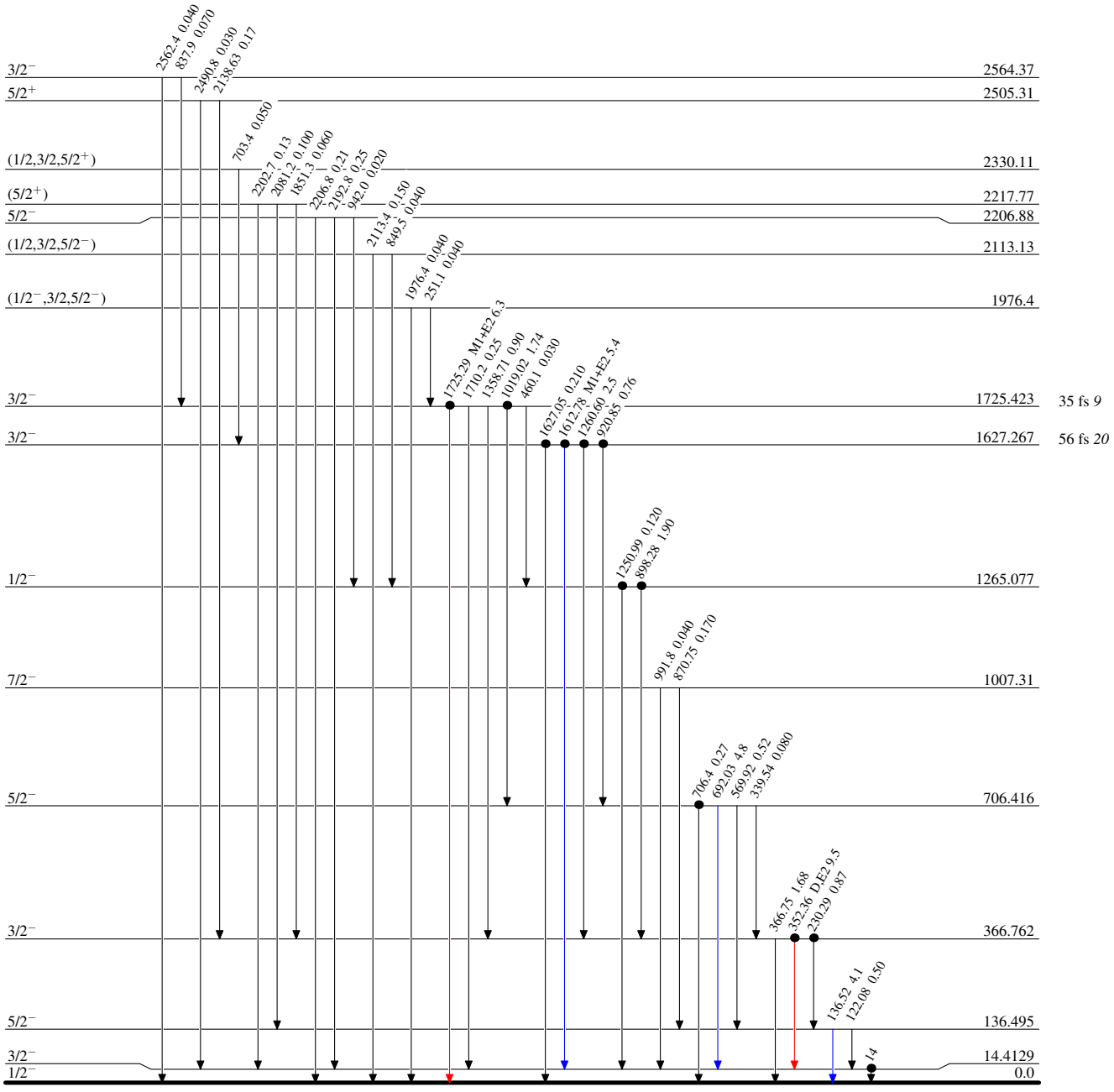
Intensities: Intensity per 100 neutron captures

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

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

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

Coincidence



$^{57}_{26}Fe_{31}$