^{16}O(^{7}Li,npγ) 2003Th01,2003Th04,2005Wh05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	R. B. Firestone	NDS 127, 1 (2015)	15-Jan-2015

2003Th01,2003Th04: E(^{7}Li)=27 MeV. Measured Eγ, γγ, γγ(θ)(DCO) using the GASP array in conjunction with the ΔE-E Si-ball ISIS. The GASP array consists of 40 Compton-suppressed Ge detectors. Deduced octupole-deformed molecular bands based on ^{16}O+n+α molecular configurations.

^{21}Ne Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0#	3/2+		
351.21# 20	5/2+	7.17 ps 12	
1745.9# 3	7/2+		
2790&	1/2−	81 ps 5	$T_{1/2}$: 2003Th01 give 110 ps.
2795.7a 22	1/2+		
2866.0# 3	9/2+		
3664.0@ 8	3/2−		
3736?a	5/2+		
3884.7@ 7	5/2−		
4430.0# 4	11/2+		Jπ: DCO=1.06 2 for 1566γ, DCO=0.50 2 for 2687γ.
4526d	5/2+		
4680a 3	3/2+		
4723.1& 16	3/2−		
5334.1@ 10	7/2−		
5428d	7/2+		
≈5551c	3/2+		
5690b	1/2+		
5815.4 13	7/2−		
6030.1@ 6	9/2−		
6169b	5/2+		
6261c	7/2+		
6271.3a 8	9/2+		
6412.5 13			
6443.5#	13/2+		
6543.7d 13	9/2+		
6551.6 13	9/2		
6642.0&	9/2(−)		
7022.8 13	7/2+		
7042b	9/2+		
7370.6& 17	(7/2−)		
7420.3@ 10	11/2−		
7960.9@ 13	11/2(−)		Jπ: DCO=1.04 8 for 5093γ.
8156.2 13	9/2		
8223.7 14			
8237b	11/2+		
9397@	13/2−		
9690d	13/2+		
9861# 4	(15/2+)		
11983.6@ 22	(15/2−)		

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$^{16}O(^{7}Li,np\gamma)$ 2003Th01,2003Th04,2005Wh05 (continued)

^{21}Ne Levels (continued)

† From least-squares fit to Eγ's by evaluator. assuming Δ(Eγ)=1 KeV.
‡ From Adopted Levels and band assignments.
# Band(A): $K^{\pi}=3/2^{+}$ band.
@ Band(B): $K^{\pi}=3/2^{-}$ band.
& Band(C): $K^{\pi}=1/2^{-}$ band.
a Band(D): $K^{\pi}=1/2^{+}$ band.
b Band(E): $K^{\pi}=1/2^{+}$ band.
c Band(F): $K^{\pi}=3/2^{+}$ band.
d Band(G): $K^{\pi}=5/2^{+}$ band.

$\gamma(^{21}Ne)$

DCO ratios are based on gates on ΔJ=1 dipole transition.

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
221†	6.3 *3*	3884.7	$5/2^-$	3664.0	$3/2^-$	
351.2 *2*		351.21	$5/2^+$	0	$3/2^+$	
697†		6030.1	$9/2^-$	5334.1	$7/2^-$	
873.7 *8*	1.10 *8*	3664.0	$3/2^-$	2790	$1/2^-$	
1120.2 *2*	81.2 *25*	2866.0	$9/2^+$	1745.9	$7/2^+$	DCO=1.00 *1*
1394.7 *2*		1745.9	$7/2^+$	351.21	$5/2^+$	DCO=1.10 *1*
1448.7 *15*	0.16 *6*	5334.1	$7/2^-$	3884.7	$5/2^-$	
1564.0 *2*	51.0 *16*	4430.0	$11/2^+$	2866.0	$9/2^+$	DCO=1.06 *2*
1746.1 *8*		1745.9	$7/2^+$	0	$3/2^+$	
2013.5 *2*	29.5 *9*	6443.5	$13/2^+$	4430.0	$11/2^+$	
2087		7420.3	$11/2^-$	5334.1	$7/2^-$	
2145.1 *12*	1.09 *8*	6030.1	$9/2^-$	3884.7	$5/2^-$	
2211.0 *15*	0.58 *8*	6642.0	$9/2^{(-)}$	4430.0	$11/2^+$	
2440†		2790	$1/2^-$	351.21	$5/2^+$	
2443		2795.7	$1/2^+$	351.21	$5/2^+$	
2514.0 *5*	37.9 *12*	2866.0	$9/2^+$	351.21	$5/2^+$	
2534		6271.3	$9/2^+$	3736?	$5/2^+$	
2683.3 *7*	12.1 *4*	4430.0	$11/2^+$	1745.9	$7/2^+$	DCO=0.50 *2*
2790†		2790	$1/2^-$	0	$3/2^+$	
2795.5 *22*	0.9 *14*	2795.7	$1/2^+$	0	$3/2^+$	
2948		5815.4	$7/2^-$	2866.0	$9/2^+$	
3163.5 *7*	3.51 *14*	6030.1	$9/2^-$	2866.0	$9/2^+$	DCO=0.67 *5*
3311.8 *12*	2.69 *16*	3664.0	$3/2^-$	351.21	$5/2^+$	
3367.3 *19*	1.26 *10*	9397	$13/2^-$	6030.1	$9/2^-$	
3393		6261	$7/2^+$	2866.0	$9/2^+$	
3405.0 *7*	5.74 *24*	6271.3	$9/2^+$	2866.0	$9/2^+$	
3532.9 *7*		3884.7	$5/2^-$	351.21	$5/2^+$	
3545		6412.5		2866.0	$9/2^+$	
3575.6 *13*	4.11 *19*	6443.5	$13/2^+$	2866.0	$9/2^+$	
3684		6551.6	9/2	2866.0	$9/2^+$	
3736†		3736?	$5/2^+$	0	$3/2^+$	
3776.2 *10*	2.98 *14*	6642.0	$9/2^{(-)}$	2866.0	$9/2^+$	
3790		8223.7		4430.0	$11/2^+$	
4173		7042	$9/2^+$	2866.0	$9/2^+$	DCO=0.74 *6*
4174		4526	$5/2^+$	351.21	$5/2^+$	DCO=0.74 *6*
4284.4 *9*	4.66 *18*	6030.1	$9/2^-$	1745.9	$7/2^+$	DCO=1.05 *4*

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^{16}O(^{7}Li,npγ) 2003Th01,2003Th04,2005Wh05 (continued)

γ(^{21}Ne) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Comments
4328 *3*	1.65 *18*	4680	$3/2^+$	351.21	$5/2^+$	
4371.4 *15*	2.74 *16*	4723.1	$3/2^-$	351.21	$5/2^+$	
4504.3 *18*	1.79 *11*	7370.6	$(7/2^-)$	2866.0	$9/2^+$	
4553.8 *9*	5.93 *22*	7420.3	$11/2^-$	2866.0	$9/2^+$	DCO=0.69 *2*
4797		6543.7	$9/2^+$	1745.9	$7/2^+$	DCO=1.29 *11*
4895.0 *22*	1.42 *10*	6642.0	$9/2^{(-)}$	1745.9	$7/2^+$	
4982.7 *11*	4.30 *21*	5334.1	$7/2^-$	351.21	$5/2^+$	DCO=0.86 *8*
5093		7960.9	$11/2^{(-)}$	2866.0	$9/2^+$	
5260		9690	$13/2^+$	4430.0	$11/2^+$	
5276		7022.8	$7/2^+$	1745.9	$7/2^+$	
5430 *4*	0.47 *8*	9861	$(15/2^+)$	4430.0	$11/2^+$	
5539.3 *21*	0.90 *7*	11983.6	$(15/2^-)$	6443.5	$13/2^+$	
5623 *4*	0.58 *7*	7370.6	$(7/2^-)$	1745.9	$7/2^+$	
5909		6261	$7/2^+$	351.21	$5/2^+$	
6409		8156.2	9/2	1745.9	$7/2^+$	

† Placement of transition in the level scheme is uncertain.

$^{16}O(^{7}Li,np\gamma)$ 2003Th01,2003Th04,2005Wh05

Level Scheme

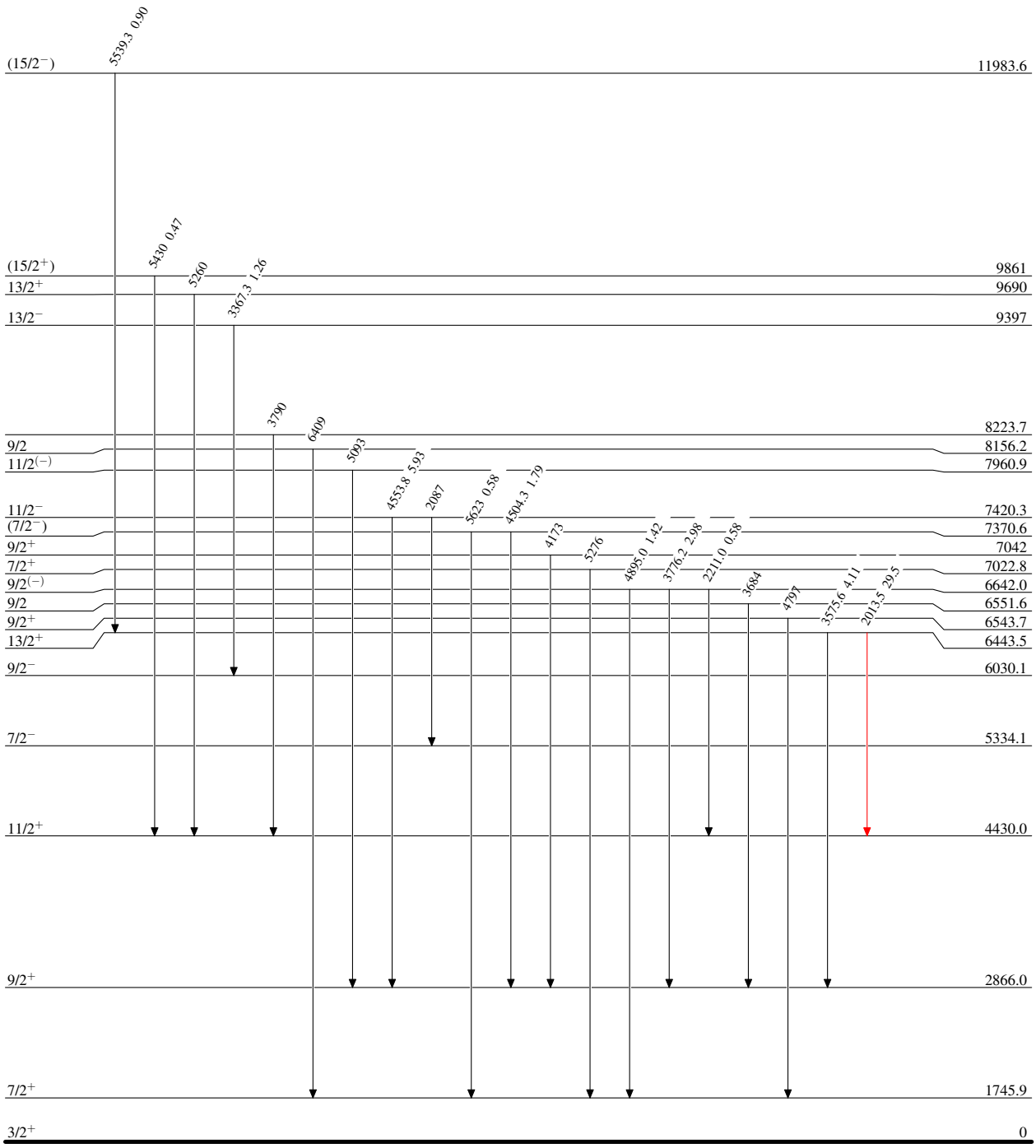
Intensities: Relative I_γ

Legend

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

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

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



$^{21}_{10}Ne_{11}$

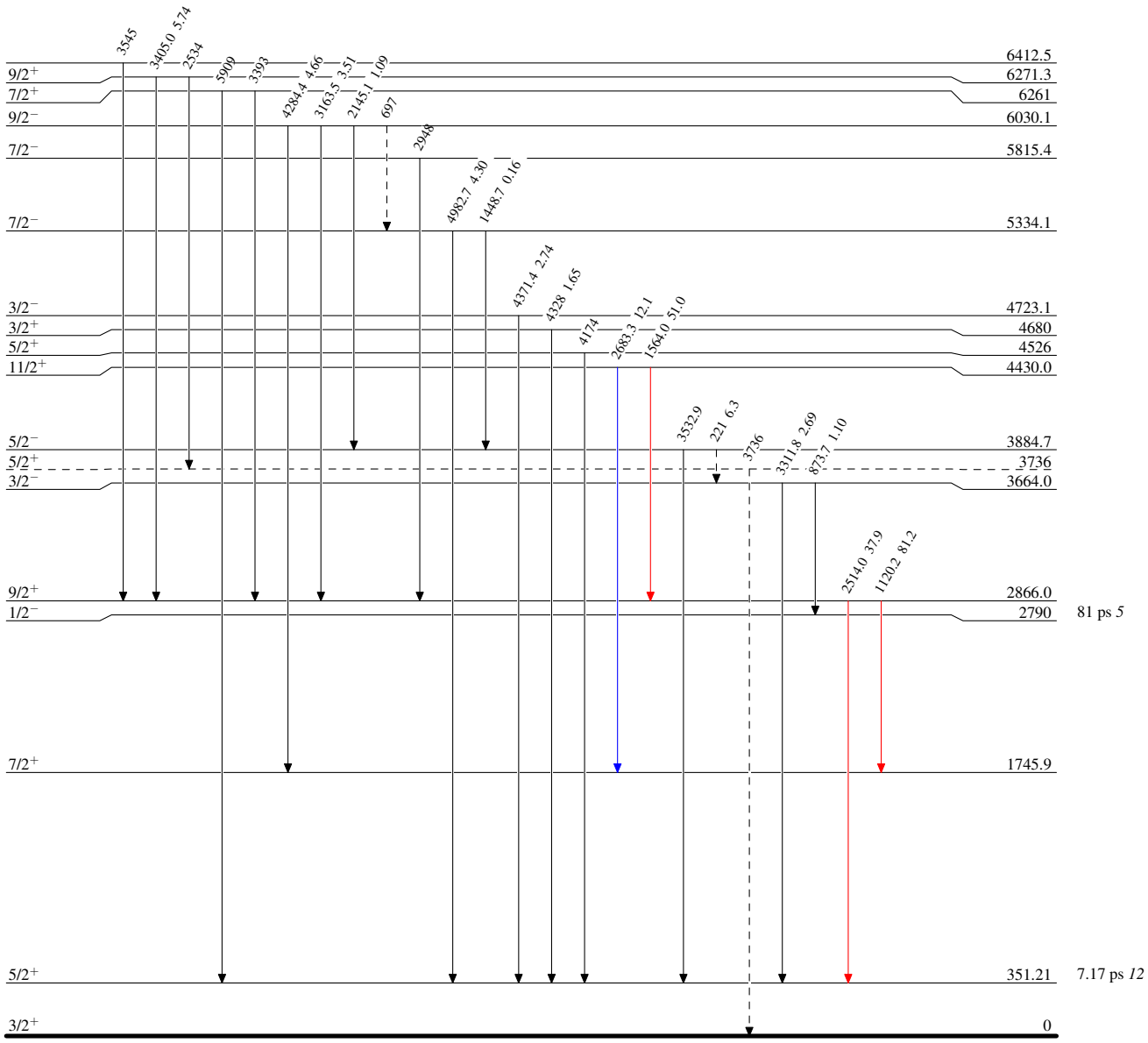
^{16}O(^{7}Li,npγ) 2003Th01,2003Th04,2005Wh05

Level Scheme (continued)

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)



$^{21}_{10}Ne_{11}$

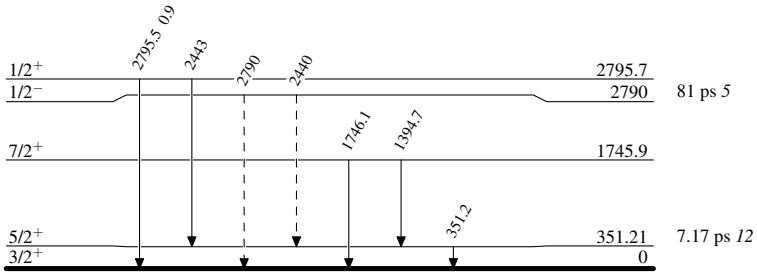
^{16}O(^{7}Li,npγ) 2003Th01,2003Th04,2005Wh05

Legend

Level Scheme (continued)

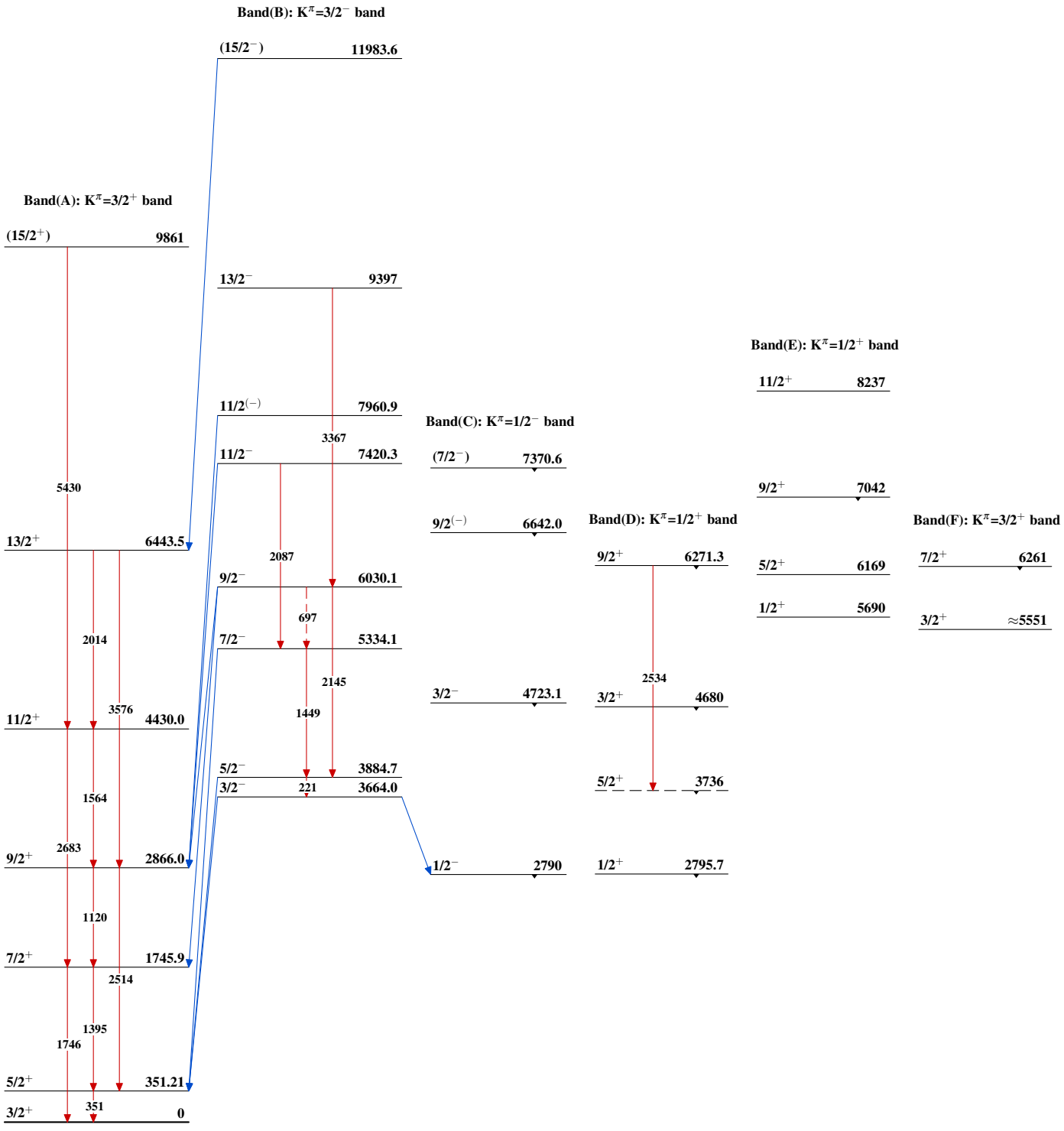
Intensities: Relative I_γ

γ Decay (Uncertain)



$^{21}_{10}Ne_{11}$

$^{16}O(^{7}Li,np\gamma)$ 2003Th01,2003Th04,2005Wh05



$^{21}_{10}Ne_{11}$

$^{16}O(^{7}Li,npγ)$ 2003Th01,2003Th04,2005Wh05 (continued)

Band(G): $K^{\pi}=5/2^{+}$ band

$13/2^{+}$ 9690

$9/2^{+}$ 6543.7

$7/2^{+}$ 5428

$5/2^{+}$ 4526

$^{21}_{10}Ne_{11}$