

$^{39}\text{K}(n,\gamma),(\text{pol } n,\gamma) \text{ E=thermal } 1984\text{Vo01},2013\text{Fi01},1972\text{Op01}$

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

- 1984Vo01:** (n, γ) Thermal neutrons were produced from the high-flux reactor of the Institut Laue-Langevin at Grenoble. Targets were 36 mg $^{\text{nat}}\text{KCl}$ in wrapped in Al or 190 mg and 62 mg $^{\text{nat}}\text{KF}$ in a graphite container. γ rays were detected with the ILL curved-crystal spectrometers GAMS, a large-volume Ge(Li) detector and a pair spectrometer. Measured $E\gamma$, $I\gamma$. Deduced levels. A total of 427 γ rays were reported out of which 302 were placed amongst 63 levels, with 38 γ rays doubly or multiply assigned.
- 2013Fi01:** (n, γ) Thermal neutrons were provided by the 10-MW Budapest Reactor. Target was a 0.02 g stoichiometric, high purity KCl. γ rays were detected with a Compton-suppressed HPGe detector. Measured $E\gamma$, total radiative neutron σ . Deduced levels, J, π , feedings. Monte Carlo simulations using computer code DICEBOX. Comparison with statistical model calculations, previous studies, and ENSDF evaluations. A total of 320 γ rays were reported out of which 291 γ rays were associated with 83 levels.
- 1972Op01:** (n, γ) thermal neutrons were produced from the high-flux reactor at Petten, Netherlands. Targets were 400 mg natural K_2CO_3 or 400 mg 98.3% enriched K_2CO_3 . γ rays were detected with two Ge(Li) detectors (FWHM=3.0 and 2.6 keV at 1.33 MeV). Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin. Deduced levels. A total of 222 γ rays were reported out of which 187 γ rays were associated with 56 levels. $\gamma\gamma$ -coin data involved about 25 transitions.
- 1970Jo04:** (n, γ) thermal neutrons were produced from the McMaster reactor. Target was a 35 g sample of natural potassium metal sealed in a quartz tube. γ rays were detected with Ge(Li) detectors. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin. Deduced levels. A total of 252 γ rays were reported out of which 202 γ rays were associated with 56 levels. $\gamma\gamma$ -coin data involved 62 transitions.
- 2002Va28:** (n, γ). Measured $\gamma\gamma$ -coin, two-quantum cascades. A total of 70 intermediate levels were found from 96 cascades.

Others:

2003MoZU, 2002Re13: Compilations.

2001Ac04: (n, γ). Measured $E\gamma$, $I\gamma$. Deduced k_0 factor.

1988Se06: (n, γ). Measured $\gamma\gamma(\theta)$.

1974Op01, 1972Op02, 1969Ab03: (pol n, γ). Measured $\gamma(\text{circ pol})$ of capture γ rays to nine levels. Deduced interference in capture state.

1974IsZX: (n, γ). Measured $E\gamma$, $I\gamma$.

1972Se19: (n, γ). Measured relative intensities for six secondary γ rays and nine primary γ rays.

1972GoZN, 1971GoYN: (n, γ). Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ -coin, $\gamma\gamma(\theta)$. Deduced levels, J, π , Q.

1970Ei03: (pol n, γ). Measured $\gamma(\text{circ pol})$ of capture γ rays to 30-keV level.

1969Bo04: (n, γ). Measured $\gamma\gamma(t)$ for 30-keV level.

1966Ke07: (n, γ). Measured $E\gamma$, $I\gamma$.

1965Ru06: (n, γ). Measured $E\gamma$, $I\gamma$.

1956Br42, 1956Ad49, 1952Ki32: (n, γ). Measured $E\gamma$, $I\gamma$.

The γ -ray placements and the resulting level scheme is primarily from **1984Vo01**, which is mostly based on earlier (n, γ) studies of **1972Op01** and **1970Jo04** combined with other reaction studies. However, based on a better $E\gamma$ precision achieved in the work of **1984Vo01**, placements for several γ rays are different than proposed by **1970Jo04** and/or **1972Op01**. Based on consistency with level energies, intensity balance through the level scheme and spin-parity considerations, **2013Fi01** have resolved many multiple placements of γ rays by **1984Vo01**, and have also placed many unplaced γ rays in **1984Vo01**. New levels are proposed by **2013Fi01** based on these new placements as well as new γ -ray transitions observed in their work.

 ^{40}K Levels

The following levels reported by **1972Op01** and/or **1970Jo04** have been omitted since they have not been confirmed in the high-resolution work of **1984Vo01** and **2013Fi01** (either the γ rays decaying from these levels were not observed or were placed differently based on better precision in **1984Vo01** and **2013Fi01**): 4586.8, 4665.8 from **1972Op01**; 2457.5, 2557.9, 2978.6, 3378.3, 3875.0, 4273.3, 4579.6 from **1970Jo04**; 2947.5, 3711.1, 3902.1, 4908.5 from **1972Op01** and **1970Jo04**.

E(level) [†]	J π [#]	T _{1/2}	Comments
0.0	4 ⁻		
29.8299 5	3 ⁻ @	4.26 ns 8	T _{1/2} : from $\gamma\gamma(t)$ in 1969Bo04 .

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$^{39}\text{K}(\text{n},\gamma),(\text{pol n},\gamma) \text{E=thermal}$ 1984Vo01,2013Fi01,1972Op01 (continued) ^{40}K Levels (continued)

E(level) [†]	J ^π #	Comments
521.7? ^a 10		
800.1430 19	2 ⁻ @	
891.404 18	5 ⁻	
1084.3? ^a 10		
1173.4? ^a 16		
1228.2? ^a 5		
1248.4? ^a 3		
1330.5? ^a 19		
1409.2? ^a 17		
1520.7? ^a 11		
1556.6? ^a 22		
1643.641 10	0 ⁺	
1877.7? ^a 8		
1959.072 10	2 ⁺	
2047.339 16	2 ⁻ @	
2069.805 20	3 ⁻ &	
2076.1? ^a 7		
2103.682 22	1 ⁻ &	J ^π : (1,2,3) ⁻ (1974Op01).
2260.48 3	3 ⁺	
2271.1? ^a 10		
2289.871 10	1 ⁺	
2290.531 19	3 ⁻	
2397.206 23	4 ⁻	
2419.167 14	2 ⁻ @	
2422.1? ^a 16		
2423.7? 8		E(level): this level is proposed in 2013Fi01 only based on the placement of a 2688.1γ from the 5111.9 level. But this level was neither observed in other work nor listed in Table 3 of populated levels in 2013Fi01. The evaluator has considered this level as questionable.
2575.946 25	2 ⁺	J ^π : 2 ⁺ (1984Vo01).
2618.1? ^a 12		
2626.003 22	0 ⁻	
2730.356 18	1	
2746.93 5	3 ⁻	
2756.674 23	2 ⁺	J ^π : 2 ⁺ ,(3) (1984Vo01).
2786.646 16	3 ⁺	
2807.88 4	(1,2) ⁻	
2925.1? ^a 10		
2939.2? ^a 8		
2946.2? ^a 11		
2985.86 3	(2 ⁻ ,3 ⁺)	
3000.0? ^a 4		
3027.971 23	(2 ⁻ ,3 ⁺)	
3063.5? ^a 11		
3093.8? ^a 7		
3109.56 4	1 ⁺ ,2 ⁺	
3128.463 25	(2 ⁻ ,3 ⁺)	J ^π : (2 ⁻ ,3,4 ⁺) (1984Vo01).
3140.7? ^a 2		
3146.42 4	1 ⁽⁻⁾	
3153.84 6	(2 ⁻ ,3)	J ^π : 3 ⁻ (1984Vo01).
3228.66 5	2 ⁻	
3305.2? ^a 12		
3326.6? ^a 6		

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$^{39}\text{K}(\text{n},\gamma),(\text{pol n},\gamma) \text{E=thermal}$ 1984Vo01,2013Fi01,1972Op01 (continued) ^{40}K Levels (continued)

E(level) [†]	J ^π #	Comments
3367.98 8	(2,3) ⁻	
3373.47 ^a 15		
3393.67 5	2 ⁻	
3414.35 3	2 ⁺	
3428.97 ^a 7		
3439.145 25	(2 ⁺) [@]	J ^π : (1,2) (1974Op01), 1 ⁻ ,2 ⁺ (1984Vo01).
3486.09 4	2 ⁻	
3517.77 ^a 11		
3528.47 ^a 9		
3557.32 7	(1 ⁻ to 4 ⁺)	
3578.37 ^a 10		
3599.223 24	2 ⁻	
3629.98 4	2 ⁻ ,3 ⁻	J ^π : (2,3) ⁻ (1984Vo01).
3655.67 ^a 3		
3663.798 24	(1 ⁻ ,2,3,4 ⁺)	J ^π : (2 ⁻ ,3,4 ⁺) (1984Vo01).
3709.57 ^a 13		
3713.09 [‡] 7	(2) ⁻	
3719.67 ^a 12		
3738.47 3	1 ⁺	J ^π : 1 ⁺ ,(2 ⁻ ,3 ⁺) (1984Vo01).
3768.49 14	(2) ⁻	J ^π : (1 ⁻ ,2,3) (1984Vo01).
3797.55 3	1 ⁺	
3807.87 ^a 11		
3821.47 3	2 ⁻	
3840.254 24	(1,2 ⁺)	
3856.47 ^a 6		
3868.67 4	2 ⁻	J ^π : 3 ⁻ ,(2 ⁻) (1984Vo01).
3887.83 4	(1 ⁻ ,2 ⁻)	
3924.15 7	(2 ⁻ ,3 ⁺)	
3933.07 ^a 15		
4020.36 4	(2) ⁻	
4058.37 ^a 10		
4104.47 4	(1 ⁻ ,2,3 ⁻)	
4110.82 3	2	
4149.03 3	(2 ⁻ ,3 ⁺)	
4165.47 ^a 7		
4179.99 4	(3 ⁻)	
4213.03 6	(2 ⁻ ,3 ⁺)	
4251.59 [‡] 14	(1,2 ⁻)	
4253.68 4	(1,2) ^{-&}	J ^π : (1,2) ⁻ (1974Op01).
4280.51 9	2 ⁻	
4313.94 [‡] 11	2 ⁻	
4350.69 [‡] 20	(2 ⁻)	
4395.86 3	(2) ⁻	J ^π : (≤ 3) ⁻ (1984Vo01).
4419.38 7	(2 ⁻ ,3,4 ⁺)	
4463.61 [‡] 6	(1 ⁻ ,2,3,4 ⁻)	
4473.05 7	(2 ⁻ ,3,4 ⁻)	
4537.06 4	(2 ⁻)	
4544.12 [‡] 5	(2 ⁻)	
4662.29 [‡] 24	(2 ⁻)	
4666.46 [‡] 6	(2 ⁻)	
4744.134 25	(2 ⁺)	
4789.01 8	2 ⁻	J ^π : 1 ⁺ from 2013Fi01.

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${}^{39}\text{K}(\text{n},\gamma),(\text{pol n},\gamma)$ E=thermal 1984Vo01,2013Fi01,1972Op01 (continued) ${}^{40}\text{K}$ Levels (continued)

E(level) [†]	J^π [#]	Comments
4807.76 [‡] 11	(0,1,2,3) ⁻	
4851.22 [‡] 12	(2 ⁻ ,3,4 ⁺)	
4872.58 6	(2,3) ⁻	
4906.9? ^a 13		
4960.23 [‡] 5	(2,3 ⁻)	
4993.14 5	(2 ⁻)	J^π : (1 ⁻ :4 ⁺) (1984Vo01).
5023.92 [‡] 14	(2 ⁻ ,3,4 ⁻)	
5063.38 5	(2 ⁻ ,3 ⁺)	
5111.9 [‡] 7	(2,3) ⁻	
5189.86 [‡] 4	(2 ⁻)	
5213.70 [‡] 12	2 ⁻	
5246.85 [‡] 17		
5488.76 [‡] 5	(2 ⁻ ,3,4 ⁻)	
6098.24 [‡] 4	(1 ⁻ ,2,3,4 ⁻)	
6311? ^a 3 (7799.553 14)	1 ⁺ ,2 ⁺	E(level): S(n)=7799.62 6 (2012Wa38). J^π : s-wave capture in ${}^{39}\text{K}$ (g.s. $J^\pi=3/2^+$). From $\gamma\gamma(\theta)$, an incoherent superposition of 1 ⁺ and 2 ⁺ is allowed, while from $\gamma(\text{circ pol})$, superposition is coherent, with either constructive or destructive interference.

[†] From a least-squares fit to γ -ray energies, unless otherwise noted. Doubly or multiply placed γ rays were not used in the least-squares procedure. Uncertainties of some γ rays were increased by a factor 2 or 4 in the fitting procedure in order to get an acceptable fit (reduced $\chi^2 < 3$).

[‡] Levels proposed by 2013Fi01.

[#] From Adopted Levels, unless otherwise noted.

@ Based on $\gamma(\text{circ pol})$ in 1974Op01 and $\gamma\gamma(\theta)$ in 1988Se06.

& Based on $\gamma(\text{circ pol})$ in 1974Op01 and arguments in Adopted Levels.

^a From 2002Va28 based on two-quantum cascades. These levels are not included in the Adopted Levels due to insufficient information about decay modes and J^π values.

γ(⁴⁰K)

Iγ normalization: normalized assuming Σ(Iγ to g.s.)=100 (1984Vo01). However, observed deexcitation intensity from the capture state is 89% of g.s. feeding. σ_n=2.1 2 (1981MuZQ), 2.19 3 (2003MoZU). 2013Fi01 measured a total cross section of 2.252 b 16 observed feeding the GS and the 30-keV levels and they also deduce σ=2.28 b 4 or 2.35 b 15 using two different approaches that both combine measured data and simulations based on statistical model accounting for unobserved statistical GS feeding.

The following γ rays reported by 1972Op01 and/or 1970Jo04 have been omitted since they are not confirmed in the high-resolution work of 1984Vo01 and 2013Fi01: 246.9, 380.2, 1582.9, 1674.1, 2102.1, 2294.9, 3120.5, 3447.0, 4299.9, 4452.6, 4769.5, 4908.6, 5495.9 and 5840.9 from 1972Op01; 243.6, 284.6, 291.5, 297.5, 300.3, 368.3, 387.1, 421.6, 432.6, 475.9, 485.3, 608.6, 701.8, 720.7, 734.6, 1008.3, 1139.1, 1410.6, 1468.5, 1583.6, 1646.0, 1659.0, 1675.8, 1747.8, 2105.2, 2136.6, 2304.1, 2620.2, 2860.3, 2978.6, 3473.3, 3767.6, 3794.4, 3829.1, 4122.3, 4239.7, 4638.3, 4770.4, 5133.7, 5341.5, 5366.5, 5461.3, and 5841.8 from 1970Jo04.

γγ-coin information is from 1970Jo04 as shown by 1984Vo01.

Level	γγ(θ) results (1988Se06)		A ₂	A ₄	A ₂ (if A ₄ =0)
	γ ₁	γ ₂			
1644	843	770	-0.04 7	+0.09 10	-0.01 6
1959	1159	770	-0.072 22	+0.03 3	-0.062 20
2047	1247	770	-0.09 4	+0.05 6	-0.08 4
2104	1304	770	+0.18 6	-0.14 8	+0.14 6
2419	1619	770	-0.09 6	+0.09 8	-0.06 5
2626	522 (1304)	770	-0.10 15	-0.18 21	-0.16 13 a
2626	522	1304	-0.03 21	+0.5 3	+0.10 19
2626	522	2074	-0.12 15	-0.03 22	-0.13 14
2808	2008	770	-0.09 10	+0.18 14	-0.03 9
3439	1480	1159	+0.05 11	+0.04 16	+0.06 10
3439	1480 (1159)	770	+0.07 11	-0.05 16	+0.05 10 a
7800	4360	1480	+0.34 16	-0.16 21	+0.30 16
7800	5173	522	+0.04 13	-0.10 18	+0.01 12
7800	5380	1619	+0.32 5	+0.01 6	+0.32 5
7800	5380 (1619)	770	-0.01 3	0.00 5	-0.01 3 a
7800	5509	646	+0.17 7	+0.03 9	+0.18 6
7800	5695	1304	-0.21 9	+0.14 14	-0.17 8
7800	5695	2074	+0.09 7	0.00 9	+0.09 6
7800	5752	1247	-0.13 7	-0.02 10	-0.14 6
7800	5752 (1247)	770	+0.04 8	-0.11 11	0.00 7 a
7800	5752	2018	-0.1 4	+0.1 3	+0.06 21
7800	5752	2047	-0.19 14	-0.01 20	-0.20 12
7800	6999	770	-0.06 5	0.00 8	-0.06 5

a: triple γ(γ)γ(θ)

γ(circ pol), γγ(θ) Results (1974Op01) For Primary Transitions						
γ ₁	Intermediate level	R	γ ₂	Final level	A ₂	F
3546	4254	+0.49 10				
4360	3439	+0.98 9				
5380	2419	0.00 3	1619	800	+0.19 2	0.96 2 d
5509	2290	+0.70 6				

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5695	2104	-0.41	4	2074	30	+0.05	2		d
5695	2104			1304	800	-0.13	2		
5729	2070	-0.46	5	2070	0	+0.07	6	1	
5729	2070			2040	30	-0.20	2		
5729	2070			1178	800				
5752	2047	+0.08	3	2047	0	-0.09	2	0.02	1 d
5752	2047			2017	30	+0.08	2		
5752	2047			1247	800	-0.21	1		
6999	801	+0.63	6					0.09	4 c, 0.91 4
7769	30	-0.50	3 e					1	

R: γ (circ pol) Coefficient

F: Fraction Of 2⁺ Component In ⁴⁰K Capture State

c: Constructive Interference. d: Destructive Interference

e: -0.48 16 (1970Ei03)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Mult. #	δ #	Comments
29.8299 5	86 7	29.8299	3 ⁻	0.0	4 ⁻	D(+Q) ^d	≤ 0.073 ^d	I_γ : from total feeding of 30-keV level using $\alpha(M1)=0.298$. $\sigma_\gamma=1.938$ b 15 (2013Fi01). $\sigma_\gamma=0.00058$ b 4 (2013Fi01). $\sigma_\gamma=0.00080$ b 15 (2013Fi01). E_γ : also placed from 3414 and 3924 levels by 1984Vo01, resolved by 2013Fi01.
106.1 ^a 3	0.0247 ^a 17	2397.206	4 ⁻	2290.531	3 ⁻			$\sigma_\gamma=0.00029$ b 7 (2013Fi01).
185.97 10	0.118 19	2289.871	1 ⁺	2103.682	1 ⁻			E_γ : 1970Jo04 report an unplaced γ ray at E=284.6 13, not observed in 1984Vo01 and 2013Fi01.
249.54 ^a 16	0.012 ^a 3	3663.798	(1 ⁻ ,2,3,4 ⁺)	3414.35	2 ⁺			$\sigma_\gamma=0.00286$ b 23 (2013Fi01). $\sigma_\gamma=0.00176$ b 21 (2013Fi01).
284.1&g		1084.3?		800.1430	2 ⁻			E_γ : also placed from 2419 and 4789 levels by 1984Vo01, resolved by 2013Fi01.
311.13 4	0.133 5	2730.356	1	2419.167	2 ⁻			
315.52 8	0.062 8	2575.946	2 ⁺	2260.48	3 ⁺			
320.9 6	0.009 5	3128.463	(2 ⁻ ,3 ⁺)	2807.88	(1,2) ⁻			
327.23 8	0.062 8	2397.206	4 ⁻	2069.805	3 ⁻			
330.798 7	0.33 3	2289.871	1 ⁺	1959.072	2 ⁺			$\sigma_\gamma=0.0069$ b 3 (2013Fi01).
335.44 ^f 14	0.040 ^f 6	3821.47	2 ⁻	3486.09	2 ⁻			
335.44 ^f 14	0.040 ^f 6	4872.58	(2,3) ⁻	4537.06	(2 ⁻)			
337.75 12	0.036 6	2756.674	2 ⁺	2419.167	2 ⁻			
349.33 4	0.053 7	2419.167	2 ⁻	2069.805	3 ⁻			$\sigma_\gamma=0.00117$ b 20 (2013Fi01).
371.792 10	0.172 18	3128.463	(2 ⁻ ,3 ⁺)	2756.674	2 ⁺			$\sigma_\gamma=0.00404$ b 25 (2013Fi01). E_γ : also placed from 2419 level by 1984Vo01.
376.53 3	0.031 4	3486.09	2 ⁻	3109.56	1 ⁺ ,2 ⁺			
383.01 18	0.020 4	3797.55	1 ⁺	3414.35	2 ⁺			$\sigma_\gamma=0.00095$ b 21 (2013Fi01).
397.28 17	0.030 7	3153.84	(2 ⁻ ,3)	2756.674	2 ⁺			
440.77 7	0.047 7	4104.47	(1 ⁻ ,2,3 ⁻)	3663.798	(1 ⁻ ,2,3,4 ⁺)			
^x 444.43 8	0.037 5							
454.19 8	0.038 5	3868.67	2 ⁻	3414.35	2 ⁺			$\sigma_\gamma=0.00069$ b 18 (2013Fi01).

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γ(⁴⁰K) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡e}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Comments</u>
460.092 14	0.136 15	2419.167	2 ⁻	1959.072	2 ⁺	σ _γ =0.00412 b 23 (2013Fi01). E _γ : also placed from 2104 level by 1984Vo01.
496.06 4	0.047 5	2786.646	3 ⁺	2290.531	3 ⁻	σ _γ =0.00115 b 27 (2013Fi01).
504.5 5	0.062 18	4104.47	(1 ⁻ ,2,3 ⁻)	3599.223	2 ⁻	
521.7&g		521.7?		0.0	4 ⁻	
522.319 7	1.53 16	2626.003	0 ⁻	2103.682	1 ⁻	σ _γ =0.0391 b 8 (2013Fi01).
528.76 ^f 14	0.017 ^f 3	2575.946	2 ⁺	2047.339	2 ⁻	
528.76 ^f 14	0.017 ^f 3	3557.32	(1 ⁻ to 4 ⁺)	3027.971	(2 ⁻ ,3 ⁺)	
534.3 ^f 3	0.009 ^f 3	3109.56	1 ⁺ ,2 ⁺	2575.946	2 ⁺	
534.3 ^f 3	0.009 ^f 3	3663.798	(1 ⁻ ,2,3,4 ⁺)	3128.463	(2 ⁻ ,3 ⁺)	
534.3 ^f 3	0.009 ^f 3	4020.36	(2) ⁻	3486.09	2 ⁻	
534.3 ^f 3	0.009 ^f 3	4789.01	2 ⁻	4253.68	(1,2) ⁻	
554.741 ^{b@} 23	0.133 17	3663.798	(1 ⁻ ,2,3,4 ⁺)	3109.56	1 ⁺ ,2 ⁺	σ _γ =0.0034 b 3 (2013Fi01).
^x 558.73 10	0.044 7					
563.86 [@] 6	0.073 9	4744.134	(2 ⁺)	4179.99	(3 ⁻)	σ _γ =0.0010 b 3 (2013Fi01).
^x 569.98 7	0.062 8					σ _γ =0.0027 b 3 (2013Fi01).
602.26 17	0.034 6	3629.98	2 ⁻ ,3 ⁻	3027.971	(2 ⁻ ,3 ⁺)	
613.384 24	0.203 23	3599.223	2 ⁻	2985.86	(2 ⁻ ,3 ⁺)	σ _γ =0.0053 b 3 (2013Fi01).
^x 616.43 6	0.096 11					
620.96 ^f 7	0.070 ^f 8	3367.98	(2,3) ⁻	2746.93	3 ⁻	
620.96 ^f 7	0.070 ^f 8	3768.49	(2) ⁻	3146.42	1 ⁽⁻⁾	
626.1 ^f 3	0.010 ^f 3	2730.356	1	2103.682	1 ⁻	
626.1 ^f 3	0.010 ^f 3	4020.36	(2) ⁻	3393.67	2 ⁻	
627.66 3	0.095 10	3414.35	2 ⁺	2786.646	3 ⁺	σ _γ =0.00250 b 28 (2013Fi01).
640.4 6	0.044 22	3868.67	2 ⁻	3228.66	2 ⁻	σ _γ =0.0018 b 3 (2013Fi01). E _γ : also placed from 3768, 4744 and 4789 levels by 1984Vo01, resolved by 2013Fi01.
646.223 5	2.10 12	2289.871	1 ⁺	1643.641	0 ⁺	σ _γ =0.0508 b 9 (2013Fi01).
657.39 3	0.078 8	4395.86	(2) ⁻	3738.47	1 ⁺	σ _γ =0.00137 b 23 (2013Fi01).
666.91 ^b 5	0.057 6	2626.003	0 ⁻	1959.072	2 ⁺	σ _γ =0.00198 b 24 (2013Fi01).
678.13 ^f 20	0.027 ^f 5	3486.09	2 ⁻	2807.88	(1,2) ⁻	
678.13 ^f 20	0.027 ^f 5	3663.798	(1 ⁻ ,2,3,4 ⁺)	2985.86	(2 ⁻ ,3 ⁺)	
678.13 ^f 20	0.027 ^f 5	4789.01	2 ⁻	4110.82	2	
695.31 8	0.042 6	2985.86	(2 ⁻ ,3 ⁺)	2290.531	3 ⁻	σ _γ =0.00125 b 23 (2013Fi01). E _γ : also placed from 3924 level by 1984Vo01, resolved by 2013Fi01.
720.5&g		1520.7?		800.1430	2 ⁻	E _γ : 1970Jo04 report an unplaced γ ray at E=720.7 10, not observed in 1984Vo01 and 2013Fi01.
727.1 ^f 3	0.014 ^f 3	3146.42	1 ⁽⁻⁾	2419.167	2 ⁻	
727.1 ^f 3	0.014 ^f 3	4213.03	(2 ⁻ ,3 ⁺)	3486.09	2 ⁻	
730.48 15	0.024 4	3840.254	(1,2 ⁺)	3109.56	1 ⁺ ,2 ⁺	

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³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01 (continued)

γ(⁴⁰K) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡e}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult. #</u>	<u>δ[#]</u>	<u>Comments</u>
737.45 3	0.146 15	3027.971	(2 ⁻ ,3 ⁺)	2290.531	3 ⁻			σ _γ =0.0036 b 3 (2013Fi01).
740.89 6	0.26 3	4179.99	(3 ⁻)	3439.145	(2 ⁺)			σ _γ =0.0064 b 3 (2013Fi01).
756.4&g		1556.6?		800.1430	2 ⁻			
756.4 ^f 6	0.08 ^f 4	3153.84	(2 ⁻ ,3)	2397.206	4 ⁻			
756.4 ^f 6	0.08 ^f 4	3486.09	2 ⁻	2730.356	1			
756.4 ^f 6	0.08 ^f 4	4149.03	(2 ⁻ ,3 ⁺)	3393.67	2 ⁻			
756.4 ^f 6	0.08 ^f 4	4419.38	(2 ⁻ ,3,4 ⁺)	3663.798	(1 ⁻ ,2,3,4 ⁺)			
760.6 4	0.12 4	2807.88	(1,2) ⁻	2047.339	2 ⁻			
770.3053 18	43 4	800.1430	2 ⁻	29.8299	3 ⁻	D(+Q) ^d	+0.04 ^d +3-6	σ _γ =1.017 b 14 (2013Fi01).
^x 783.82 4	0.103 11							
^x 791.06 4	0.50 5							σ _γ =0.0117 b 5 (2013Fi01).
798.8 ^f 3	0.062 ^f 7	4213.03	(2 ⁻ ,3 ⁺)	3414.35	2 ⁺			
798.8 ^f 3	0.062 ^f 7	4537.06	(2 ⁻)	3738.47	1 ⁺			
800.3 3	0.063 7	800.1430	2 ⁻	0.0	4 ⁻			σ _γ =0.0029 b 3 (2013Fi01). E _γ : also placed from 3557 level by 1984Vo01.
811.39 13	0.023 4	3797.55	1 ⁺	2985.86	(2 ⁻ ,3 ⁺)			
813.12 7	0.046 6	4993.14	(2 ⁻)	4179.99	(3 ⁻)			σ _γ =0.0013 b 3 (2013Fi01). E _γ : also placed from 3439 level by 1984Vo01, resolved by 2013Fi01.
827.552 15	0.45 5	2786.646	3 ⁺	1959.072	2 ⁺			σ _γ =0.0109 b 5 (2013Fi01).
838.8 5	0.066 17	3128.463	(2 ⁻ ,3 ⁺)	2289.871	1 ⁺			σ _γ =0.00107 b 23 (2013Fi01).
843.478 16	1.57 16	1643.641	0 ⁺	800.1430	2 ⁻			σ _γ =0.0222 b 6 (2013Fi01).
848.7 3	0.104 19	2807.88	(1,2) ⁻	1959.072	2 ⁺			σ _γ =0.00218 b 25 (2013Fi01). E _γ : also placed from 3110 level by 1984Vo01.
862.2 ^f 3	0.012 ^f 3	891.404	5 ⁻	29.8299	3 ⁻			
862.2 ^f 3	0.012 ^f 3	4419.38	(2 ⁻ ,3,4 ⁺)	3557.32	(1 ⁻ to 4 ⁺)			
^x 869.97 4	0.143 15							σ _γ =0.0036 b 3 (2013Fi01).
891.372 21	0.90 9	891.404	5 ⁻	0.0	4 ⁻			σ _γ =0.0213 b 7 (2013Fi01).
903.878 23	0.150 15	4744.134	(2 ⁺)	3840.254	(1,2 ⁺)			σ _γ =0.0034 b 3 (2013Fi01).
^x 915.38 16	0.017 3							
920.12 ^f 18	0.017 ^f 3	4149.03	(2 ⁻ ,3 ⁺)	3228.66	2 ⁻			
920.12 ^f 18	0.017 ^f 3	4789.01	2 ⁻	3868.67	2 ⁻			
926.24 ^b 15	0.019 4	3713.09	(2) ⁻	2786.646	3 ⁺			
938.72 6	0.098 11	3228.66	2 ⁻	2289.871	1 ⁺			
946.29@ 8	0.037 4	4744.134	(2 ⁺)	3797.55	1 ⁺			
951.16 7	0.043 5	4179.99	(3 ⁻)	3228.66	2 ⁻			
958.35 9	0.026 3	3027.971	(2 ⁻ ,3 ⁺)	2069.805	3 ⁻			σ _γ =0.0009 b 3 (2013Fi01).
^x 971.74 19	0.028 5							
976.85 ^b 6	0.109 12	5189.86	(2 ⁻)	4213.03	(2 ⁻ ,3 ⁺)			σ _γ =0.0029 b 3 (2013Fi01).

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γ(⁴⁰K) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Comments
981.03 @ 7	0.103 12	3557.32	(1 ⁻ to 4 ⁺)	2575.946	2 ⁺	$\sigma_\gamma=0.0025$ b 3 (2013Fi01). E_γ : also placed from 3768 level by 1984Vo01.
1001.05 @ 5	0.081 9	4110.82	2	3109.56	1 ⁺ ,2 ⁺	
^x 1018.11 4	0.141 15					
1023.21 4	0.26 3	3599.223	2 ⁻	2575.946	2 ⁺	$\sigma_\gamma=0.0051$ b 3 (2013Fi01).
1027.09 24	0.036 8	2985.86	(2 ⁻ ,3 ⁺)	1959.072	2 ⁺	$\sigma_\gamma=0.0012$ b 3 (2013Fi01).
^x 1031.1 3	0.020 5					
1034.28 f 20	0.038 f 6	3821.47	2 ⁻	2786.646	3 ⁺	
1034.28 f 20	0.038 f 6	4020.36	(2) ⁻	2985.86	(2 ⁻ ,3 ⁺)	
1034.28 f 20	0.038 f 6	4473.05	(2 ⁻ ,3,4 ⁻)	3439.145	(2 ⁺)	
^x 1043.58 12	0.023 3					
1058.03 b 4	0.112 12	4544.12	(2 ⁻)	3486.09	2 ⁻	$\sigma_\gamma=0.0024$ b 3 (2013Fi01).
1062.20 8	0.052 6	3109.56	1 ⁺ ,2 ⁺	2047.339	2 ⁻	$\sigma_\gamma=0.0019$ b 3 (2013Fi01).
1068.87 3	0.40 4	3027.971	(2 ⁻ ,3 ⁺)	1959.072	2 ⁺	$\sigma_\gamma=0.0089$ b 5 (2013Fi01). E_γ : also placed from 4993 level by 1984Vo01, resolved by 2013Fi01.
1074.39 9	0.144 17	3821.47	2 ⁻	2746.93	3 ⁻	$\sigma_\gamma=0.0029$ b 3 (2013Fi01).
1077.5 & g		1877.7?		800.1430	2 ⁻	
1079.44 13	0.100 13	4473.05	(2 ⁻ ,3,4 ⁻)	3393.67	2 ⁻	$\sigma_\gamma=0.0016$ b 3 (2013Fi01).
1082.92 7	0.200 22	4110.82	2	3027.971	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0038$ b 5 (2013Fi01).
1086.707 19	1.11 11	2730.356	1	1643.641	0 ⁺	$\sigma_\gamma=0.0250$ b 8 (2013Fi01).
1090.9 3	0.037 9	3821.47	2 ⁻	2730.356	1	
^x 1096.72 7	0.101 11					
1100.13 18	0.042 6	4253.68	(1,2) ⁻	3153.84	(2 ⁻ ,3)	
^x 1110.50 7	0.114 12					
1113.3 3	0.029 5	2756.674	2 ⁺	1643.641	0 ⁺	$\sigma_\gamma=0.0013$ b 3 (2013Fi01).
1118.38 13	0.054 7	4104.47	(1 ⁻ ,2,3 ⁻)	2985.86	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0009$ b 3 (2013Fi01).
1121.77 7	0.111 12	3868.67	2 ⁻	2746.93	3 ⁻	$\sigma_\gamma=0.0021$ b 3 (2013Fi01).
1124.91 6	0.120 13	4110.82	2	2985.86	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0019$ b 3 (2013Fi01). E_γ : also placed from 3229, 4252 and 4789 levels by 1984Vo01, resolved by 2013Fi01.
1131.17 5	0.103 11	3887.83	(1 ⁻ ,2 ⁻)	2756.674	2 ⁺	$\sigma_\gamma=0.0014$ b 3 (2013Fi01).
1143.5 & g		1173.4?		29.8299	3 ⁻	
1144.7 5	0.08 3	4744.134	(2 ⁺)	3599.223	2 ⁻	$\sigma_\gamma=0.0016$ b 3 (2013Fi01).
1150.58 18	0.23 4	3109.56	1 ⁺ ,2 ⁺	1959.072	2 ⁺	$\sigma_\gamma=0.0042$ b 5 (2013Fi01).
1158.901 20	7.8 8	1959.072	2 ⁺	800.1430	2 ⁻	$\sigma_\gamma=0.180$ b 3 (2013Fi01).
1162.59 24	0.31 5	4149.03	(2 ⁻ ,3 ⁺)	2985.86	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0061$ b 5 (2013Fi01). E_γ : also placed from 3738 level by 1984Vo01, resolved by 2013Fi01.
^x 1172.20 11	0.042 5					
1178.38 4	0.36 4	2069.805	3 ⁻	891.404	5 ⁻	$\sigma_\gamma=0.0078$ b 9 (2013Fi01).
1187.45 8	0.062 7	3146.42	1 ⁽⁻⁾	1959.072	2 ⁺	$\sigma_\gamma=0.0025$ b 3 (2013Fi01).
1195.81 @ 7	0.055 6	3486.09	2 ⁻	2290.531	3 ⁻	$\sigma_\gamma=0.0014$ b 3 (2013Fi01).
1198.3 & g		1228.2?		29.8299	3 ⁻	

γ(⁴⁰K) (continued)

E_γ^\dagger	$I_\gamma^{\ddagger e}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.#	$\delta^\#$	Comments
1201.86 ^b 5	0.106 11	3599.223	2 ⁻	2397.206	4 ⁻			$\sigma_\gamma=0.0025$ b 3 (2013Fi01).
1204.36 ^b 10	0.046 6	4313.94	2 ⁻	3109.56	1 ⁺ ,2 ⁺			
1213.53 ^{b@} 8	0.047 5	4020.36	(2) ⁻	2807.88	(1,2) ⁻			$\sigma_\gamma=0.0011$ b 3 (2013Fi01).
^x 1219.47 11	0.041 5							
1221.71 7	0.067 7	3797.55	1 ⁺	2575.946	2 ⁺			$\sigma_\gamma=0.0017$ b 3 (2013Fi01).
^x 1226.31 5	0.071 8							$\sigma_\gamma=0.0016$ b 3 (2013Fi01).
1232.74 3	0.134 14	3629.98	2 ⁻ ,3 ⁻	2397.206	4 ⁻			$\sigma_\gamma=0.0034$ b 3 (2013Fi01).
1247.173 24	3.8 4	2047.339	2 ⁻	800.1430	2 ⁻	M1+E2	+0.10 4	$\sigma_\gamma=0.0883$ b 15 (2013Fi01). Additional information 1.
1248.4 ^{&g}		1248.4?		0.0	4 ⁻			
1255.29 ^b 9	0.107 12	5023.92	(2 ⁻ ,3,4 ⁻)	3768.49	(2) ⁻			$\sigma_\gamma=0.0024$ b 3 (2013Fi01).
1262.1 ^a 3	0.068 ^a 13	3887.83	(1 ⁻ ,2 ⁻)	2626.003	0 ⁻			E_γ : 1261.1 9 (1970Jo04), placed from 3367 level by 1970Jo04. $\sigma_\gamma=0.0016$ b 3 (2013Fi01).
1265.54 9	0.199 23	4419.38	(2 ⁻ ,3,4 ⁺)	3153.84	(2 ⁻ ,3)			
1267.5 ^f 3	0.105 ^f 21	3557.32	(1 ⁻ to 4 ⁺)	2289.871	1 ⁺			
1267.5 ^f 3	0.105 ^f 21	4253.68	(1,2) ⁻	2985.86	(2 ⁻ ,3 ⁺)			
1267.5 ^f 3	0.105 ^f 21	4395.86	(2) ⁻	3128.463	(2 ⁻ ,3 ⁺)			
1269.56 5	0.47 5	2069.805	3 ⁻	800.1430	2 ⁻			$\sigma_\gamma=0.0081$ b 5 (2013Fi01).
^x 1283.3 3	0.051 16							$\sigma_\gamma=0.0009$ b 3 (2013Fi01).
1303.53 7	2.7 3	2103.682	1 ⁻	800.1430	2 ⁻	D+Q ^d	+0.13 ^d 8	$\sigma_\gamma=0.0619$ b 14 (2013Fi01).
1308.9 4	0.043 17	3599.223	2 ⁻	2289.871	1 ⁺			$\sigma_\gamma=0.0018$ b 3 (2013Fi01). E_γ : also placed from 3599 to 2290.5 ($J^\pi=3^-$), 4419 and 4537 levels by 1984Vo01, resolved by 2013Fi01.
1320.9 4	0.30 3	3367.98	(2,3) ⁻	2047.339	2 ⁻			$\sigma_\gamma=0.0074$ b 6 (2013Fi01).
1330.5 ^{&g}		1330.5?		0.0	4 ⁻			
^x 1331.58 4	0.152 16							$\sigma_\gamma=0.0028$ b 5 (2013Fi01).
1335.48 18	0.033 6	3439.145	(2 ⁺)	2103.682	1 ⁻			
1348.06 14	0.035 4	3924.15	(2 ⁻ ,3 ⁺)	2575.946	2 ⁺			$\sigma_\gamma=0.0008$ b 5 (2013Fi01). E_γ : also placed from 3768 and 4104 levels by 1984Vo01, resolved by 2013Fi01.
1354.12 3	0.161 7	4110.82	2	2756.674	2 ⁺			$\sigma_\gamma=0.0039$ b 5 (2013Fi01).
1365.06 ^b 24	0.066 12	4350.69	(2 ⁻)	2985.86	(2 ⁻ ,3 ⁺)			$\sigma_\gamma=0.0016$ b 3 (2013Fi01).
1373.227 21	1.29 13	3663.798	(1 ⁻ ,2,3,4 ⁺)	2290.531	3 ⁻			$\sigma_\gamma=0.0283$ b 8 (2013Fi01).
^x 1377.16 11	0.122 16							
1393.16 ^{c@} 8	0.126 14	5189.86	(2 ⁻)	3797.55	1 ⁺			$\sigma_\gamma=0.0021$ b 5 (2013Fi01). E_γ : placed by 1984Vo01 from 4180 level.
1399.03 4	0.53 5	2290.531	3 ⁻	891.404	5 ⁻			$\sigma_\gamma=0.0117$ b 6 (2013Fi01).
1402.73 ^b 9	0.125 14	4960.23	(2,3 ⁻)	3557.32	(1 ⁻ to 4 ⁺)			$\sigma_\gamma=0.0033$ b 7 (2013Fi01).
1409.2 ^{&g}		1409.2?		0.0	4 ⁻			E_γ : 1970Jo04 report an γ ray at E=1410.6 9, placed from 4538 level, not observed in 1984Vo01 and 2013Fi01.
^x 1416.67 9	0.048 6							

γ(⁴⁰K) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡e}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.#</u>	<u>δ[#]</u>	<u>Comments</u>
^x 1419.01 3	0.233 24							σ _γ =0.0034 b 5 (2013Fi01).
1424.229 23	0.36 4	3821.47	2 ⁻	2397.206	4 ⁻			σ _γ =0.0078 b 6 (2013Fi01).
1427.45 18	0.022 3	4537.06	(2 ⁻)	3109.56	1 ⁺ ,2 ⁺			
1434.50 6	0.140 15	3393.67	2 ⁻	1959.072	2 ⁺			σ _γ =0.0024 b 5 (2013Fi01).
1438.72 4	0.218 23	3486.09	2 ⁻	2047.339	2 ⁻			σ _γ =0.0055 b 5 (2013Fi01).
^x 1449.98 6	0.047 5							
1452.39 ^b 12	0.0200 20	3713.09	(2) ⁻	2260.48	3 ⁺			
^x 1454.90 10	0.025 3							
^x 1460.81 10	0.049 6							σ _γ =0.0025 b 5 (2013Fi01).
1466.11 [@] 3	0.26 3	3109.56	1 ⁺ ,2 ⁺	1643.641	0 ⁺			σ _γ =0.0053 b 5 (2013Fi01).
^x 1473.66 16	0.036 5							
1478.01 6	0.32 3	3738.47	1 ⁺	2260.48	3 ⁺			σ _γ =0.0041 b 9 (2013Fi01).
1480.09 4	1.54 16	3439.145	(2 ⁺)	1959.072	2 ⁺	D(+Q) ^d	+0.22 ^d 22	δ: from δ=0.00 45 in 1988Se06. σ _γ =0.0398 b 10 (2013Fi01).
^x 1483.86 8	0.077 9							σ _γ =0.0011 b 5 (2013Fi01).
1487.42 ^f 9	0.097 ^f 12	3557.32	(1 ⁻ to 4 ⁺)	2069.805	3 ⁻			
1487.42 ^f 9	0.097 ^f 12	4473.05	(2 ⁻ ,3,4 ⁻)	2985.86	(2 ⁻ ,3 ⁺)			
1489.77 5	1.21 12	2289.871	1 ⁺	800.1430	2 ⁻			σ _γ =0.0312 b 9 (2013Fi01).
1496.0 ^a 3	0.051 ^a 21	3599.223	2 ⁻	2103.682	1 ⁻			σ _γ =0.0012 b 5 (2013Fi01).
1503.00 10	0.41 4	3146.42	1 ⁽⁻⁾	1643.641	0 ⁺			σ _γ =0.0096 b 6 (2013Fi01).
1509.9 ^f 3	0.022 ^f 4	3153.84	(2 ⁻ ,3)	1643.641	0 ⁺			
1509.9 ^f 3	0.022 ^f 4	3557.32	(1 ⁻ to 4 ⁺)	2047.339	2 ⁻			σ _γ =0.0020 b 3 (2013Fi01).
^x 1517.10 9	0.122 14							
^x 1521.02 21	0.059 9							
1530.7 3	0.058 14	3821.47	2 ⁻	2290.531	3 ⁻			
1536.84 ^{b@} 5	0.26 3	3797.55	1 ⁺	2260.48	3 ⁺			σ _γ =0.0039 b 5 (2013Fi01).
1551.77 9	0.102 12	3599.223	2 ⁻	2047.339	2 ⁻			σ _γ =0.0034 b 5 (2013Fi01).
1560.44 19	0.175 21	3629.98	2 ⁻ ,3 ⁻	2069.805	3 ⁻			σ _γ =0.0030 b 7 (2013Fi01).
^x 1562.78 7	0.31 3							
1566.21 ^{b@} 7	0.155 17	4960.23	(2,3 ⁻)	3393.67	2 ⁻			σ _γ =0.0029 b 6 (2013Fi01).
1578.97 12	0.035 4	3868.67	2 ⁻	2289.871	1 ⁺			
1597.88 ^c 4	0.29 3	3887.83	(1 ⁻ ,2 ⁻)	2289.871	1 ⁺			σ _γ =0.0063 b 3 (2013Fi01).
1613.84 4	5.7 6	1643.641	0 ⁺	29.8299	3 ⁻	[E3]		E _γ : placed by 1984Vo01 from 3557 level. σ _γ =0.1345 b 23 (2013Fi01).
1619.00 4	6.2 6	2419.167	2 ⁻	800.1430	2 ⁻	D+Q ^d	+0.24 ^d 6	δ: other: +0.06 6 or +1.9 3 (1974Op01). σ _γ =0.1461 b 24 (2013Fi01).
1625.67 ^b 14	0.32 4	4251.59	(1,2 ⁻)	2626.003	0 ⁻			σ _γ =0.0077 b 5 (2013Fi01).
1634.26 ^a 8	0.277 ^a 22	3924.15	(2 ⁻ ,3 ⁺)	2289.871	1 ⁺			E _γ : 1635.1 9 (1970Jo04), placed from 3738 level by 1970Jo04. σ _γ =0.0065 b 5 (2013Fi01).
1665.43 4	0.143 15	4395.86	(2) ⁻	2730.356	1			σ _γ =0.0032 b 5 (2013Fi01).
^x 1667.69 5	0.102 11							σ _γ =0.0024 b 5 (2013Fi01).

γ(⁴⁰K) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Comments
1680.8 ^b 4	0.010 3	4666.46	(2 ⁻)	2985.86	(2 ⁻ ,3 ⁺)	
1691.26 6	0.111 12	3738.47	1 ⁺	2047.339	2 ⁻	$\sigma_\gamma=0.0017$ b 5 (2013Fi01).
1695.44 8	0.100 11	5063.38	(2 ⁻ ,3 ⁺)	3367.98	(2,3) ⁻	
1702.35 ^b 3	0.33 3	6098.24	(1 ⁻ ,2,3,4 ⁻)	4395.86	(2) ⁻	$\sigma_\gamma=0.0054$ b 5 (2013Fi01).
1704.70 20	0.31 16	4280.51	2 ⁻	2575.946	2 ⁺	$\sigma_\gamma=0.0075$ b 8 (2013Fi01).
1704.73 9	0.94 12	3663.798	(1 ⁻ ,2,3,4 ⁺)	1959.072	2 ⁺	$\sigma_\gamma=0.0200$ b 8 (2013Fi01).
^x 1710.19 24	0.023 4					
1718.68 4	0.166 7	4872.58	(2,3) ⁻	3153.84	(2 ⁻ ,3)	$\sigma_\gamma=0.0024$ b 5 (2013Fi01).
1725.68 ^f 17	0.033 ^f 5	4473.05	(2 ⁻ ,3,4 ⁻)	2746.93	3 ⁻	
1725.68 ^f 17	0.033 ^f 5	4872.58	(2,3) ⁻	3146.42	1 ⁽⁻⁾	
1751.76 5	0.225 23	4149.03	(2 ⁻ ,3 ⁺)	2397.206	4 ⁻	$\sigma_\gamma=0.0045$ b 5 (2013Fi01).
1754.72 ^{b@} 17	0.036 5	3713.09	(2) ⁻	1959.072	2 ⁺	
1761.10 ^f 7	0.030 ^f 4	4179.99	(3 ⁻)	2419.167	2 ⁻	
1761.10 ^f 17	0.030 ^f 4	4789.01	2 ⁻	3027.971	(2 ⁻ ,3 ⁺)	
1765.24 15	0.224 23	3868.67	2 ⁻	2103.682	1 ⁻	$\sigma_\gamma=0.0054$ b 5 (2013Fi01).
1771.4 ^f 5	0.031 ^f 9	3414.35	2 ⁺	1643.641	0 ⁺	
1771.4 ^f 5	0.031 ^f 9	3840.254	(1,2 ⁺)	2069.805	3 ⁻	
1779.14 ^a 8	0.328 ^a 22	3738.47	1 ⁺	1959.072	2 ⁺	$\sigma_\gamma=0.0077$ b 5 (2013Fi01).
1795.45 4	1.34 14	3439.145	(2 ⁺)	1643.641	0 ⁺	$\sigma_\gamma=0.0329$ b 9 (2013Fi01).
^x 1811.2 3	0.032 6					
1813.94 14	0.072 9	4104.47	(1 ⁻ ,2,3 ⁻)	2290.531	3 ⁻	Additional information 2.
1817.9 ^{&g}		2618.1?		800.1430	2 ⁻	
1820.35 ^{c@} 5	0.27 3	4395.86	(2) ⁻	2575.946	2 ⁺	$\sigma_\gamma=0.0057$ b 6 (2013Fi01). E _γ : placed from 3924 and 4111 levels by 1984Vo01.
1825.77 5	0.65 7	2626.003	0 ⁻	800.1430	2 ⁻	$\sigma_\gamma=0.0166$ b 8 (2013Fi01).
1832.01 ^{b@} 5	0.117 12	4960.23	(2,3 ⁻)	3128.463	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0032$ b 6 (2013Fi01).
1838.61 8	0.44 4	3797.55	1 ⁺	1959.072	2 ⁺	$\sigma_\gamma=0.0106$ b 7 (2013Fi01).
1843.33 9	0.065 7	4419.38	(2 ⁻ ,3,4 ⁺)	2575.946	2 ⁺	
1846.72 6	0.105 11	4993.14	(2 ⁻)	3146.42	1 ⁽⁻⁾	$\sigma_\gamma=0.0026$ b 6 (2013Fi01). E _γ : also placed from 4473 level by 1984Vo01, resolved by 2013Fi01.
^x 1854.99 5	0.202 21					
1858.51 5	0.54 5	4149.03	(2 ⁻ ,3 ⁺)	2290.531	3 ⁻	$\sigma_\gamma=0.0034$ b 5 (2013Fi01).
1881.20 5	0.50 5	3840.254	(1,2 ⁺)	1959.072	2 ⁺	$\sigma_\gamma=0.0122$ b 6 (2013Fi01).
1888.43 8	0.098 11	4149.03	(2 ⁻ ,3 ⁺)	2260.48	3 ⁺	$\sigma_\gamma=0.0104$ b 6 (2013Fi01).
^x 1892.0 3	0.037 5					
^x 1901.6 4	0.029 5					
^x 1910.70 6	0.171 18					
1916.51 6	0.26 3	4020.36	(2) ⁻	2103.682	1 ⁻	$\sigma_\gamma=0.0037$ b 5 (2013Fi01).
1919.28 ^a 20	0.149 ^a 22	4179.99	(3 ⁻)	2260.48	3 ⁺	$\sigma_\gamma=0.0043$ b 5 (2013Fi01).
1929.34 10	1.8 3	1959.072	2 ⁺	29.8299	3 ⁻	$\sigma_\gamma=0.0035$ b 5 (2013Fi01). $\sigma_\gamma=0.0447$ b 10 (2013Fi01).

γ(⁴⁰K) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Mult.#	$\delta^\#$	Comments
1930.2 3	0.5 3	2730.356	1	800.1430	2 ⁻			
1931.23 ^a 20	0.32 ^a 3	5488.76	(2 ⁻ ,3,4 ⁻)	3557.32	(1 ⁻ to 4 ⁺)			$\sigma_\gamma=0.0075$ b 6 (2013Fi01).
1935.7 3	0.125 22	4744.134	(2 ⁺)	2807.88	(1,2) ⁻			
1946.43 17	0.040 6	2746.93	3 ⁻	800.1430	2 ⁻			
1953.74 6	0.31 3	5063.38	(2 ⁻ ,3 ⁺)	3109.56	1 ⁺ ,2 ⁺			$\sigma_\gamma=0.0051$ b 6 (2013Fi01).
1956.58 5	1.84 18	2756.674	2 ⁺	800.1430	2 ⁻			$\sigma_\gamma=0.0457$ b 12 (2013Fi01).
1961.11 6	0.154 16	4537.06	(2 ⁻)	2575.946	2 ⁺			$\sigma_\gamma=0.0037$ b 6 (2013Fi01).
1964.27@ 23	0.037 6	3924.15	(2 ⁻ ,3 ⁺)	1959.072	2 ⁺			
1973.00 4	0.32 3	4020.36	(2) ⁻	2047.339	2 ⁻			$\sigma_\gamma=0.0070$ b 6 (2013Fi01).
^x 1994.08 15	0.188 24							$\sigma_\gamma=0.0035$ b 6 (2013Fi01).
2001.24 20	0.137 20	4104.47	(1 ⁻ ,2,3 ⁻)	2103.682	1 ⁻			$\sigma_\gamma=0.0020$ b 5 (2013Fi01).
2007.71 4	2.5 3	2807.88	(1,2) ⁻	800.1430	2 ⁻			$\sigma_\gamma=0.0578$ b 14 (2013Fi01).
2013.90 20	0.17 3	4744.134	(2 ⁺)	2730.356	1			
^x 2014.24 11	0.201 23							
2017.53 4	2.7 3	2047.339	2 ⁻	29.8299	3 ⁻	M1+E2	+0.07 4	δ : or -9 2 (1974Op01). Other: +0.25 21 or ≤ -8 (1988Sc06). $\sigma_\gamma=0.0608$ b 14 (2013Fi01).
2022.32 17	0.165 23	4419.38	(2 ⁻ ,3,4 ⁺)	2397.206	4 ⁻			$\sigma_\gamma=0.0043$ b 6 (2013Fi01).
2031.6 3	0.26 4	4789.01	2 ⁻	2756.674	2 ⁺			
2039.94 4	2.7 3	2069.805	3 ⁻	29.8299	3 ⁻	M1(+E2)	+0.2 2	$\sigma_\gamma=0.0585$ b 15 (2013Fi01).
2047.28 4	2.7 3	2047.339	2 ⁻	0.0	4 ⁻	E2		$\sigma_\gamma=0.0605$ b 15 (2013Fi01).
2057.07 5	0.141 16	4104.47	(1 ⁻ ,2,3 ⁻)	2047.339	2 ⁻			$\sigma_\gamma=0.0025$ b 5 (2013Fi01).
^x 2067.53 11	0.28 3							
2070.08 15	2.01 20	2069.805	3 ⁻	0.0	4 ⁻	M1(+E2)	+0.01 10	$\sigma_\gamma=0.0409$ b 11 (2013Fi01).
2073.74 10	6.5 7	2103.682	1 ⁻	29.8299	3 ⁻			$\sigma_\gamma=0.155$ b 3 (2013Fi01).
2076.1&g		2076.1?		0.0	4 ⁻			
2077.41 ^a 13	0.33 ^a 3	4807.76	(0,1,2,3) ⁻	2730.356	1			$\sigma_\gamma=0.0078$ b 6 (2013Fi01).
2094.61 10	0.048 5	3738.47	1 ⁺	1643.641	0 ⁺			
2109.9 ^a 3	0.064 ^a 21	4179.99	(3 ⁻)	2069.805	3 ⁻			$\sigma_\gamma=0.0015$ b 5 (2013Fi01).
2115.77 14	0.031 4	4872.58	(2,3) ⁻	2756.674	2 ⁺			
^x 2122.02 5	0.121 13							$\sigma_\gamma=0.0018$ b 5 (2013Fi01).
2124.9&g		2925.1?		800.1430	2 ⁻			
^x 2131.66 17	0.036 5							
2139.0&g		2939.2?		800.1430	2 ⁻			
2143.37 11	0.139 16	4213.03	(2 ⁻ ,3 ⁺)	2069.805	3 ⁻			$\sigma_\gamma=0.0025$ b 5 (2013Fi01).
2149.93 5	0.43 4	4253.68	(1,2) ⁻	2103.682	1 ⁻			$\sigma_\gamma=0.0083$ b 6 (2013Fi01).
2153.81 4	0.79 8	3797.55	1 ⁺	1643.641	0 ⁺			$\sigma_\gamma=0.0178$ b 8 (2013Fi01).
2162.16@ 17	0.041 5	4789.01	2 ⁻	2626.003	0 ⁻			
2168.16 4	0.179 19	4744.134	(2 ⁺)	2575.946	2 ⁺			$\sigma_\gamma=0.0043$ b 5 (2013Fi01).
2173.67 ^b 8	0.094 10	4960.23	(2,3 ⁻)	2786.646	3 ⁺			$\sigma_\gamma=0.0032$ b 5 (2013Fi01).
2183.70 20	0.47 24	4253.68	(1,2) ⁻	2069.805	3 ⁻			$\sigma_\gamma=0.0223$ b 8 (2013Fi01).
2185.70 20	0.47 24	2985.86	(2 ⁻ ,3 ⁺)	800.1430	2 ⁻			
2196.61 5	0.34 4	3840.254	(1,2 ⁺)	1643.641	0 ⁺			$\sigma_\gamma=0.0086$ b 6 (2013Fi01).

γ(⁴⁰K) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Comments
2199.8&g		3000.0?		800.1430	2 ⁻	
2204.08 ^b @ 10	0.34 4	4960.23	(2,3 ⁻)	2756.674	2 ⁺	$\sigma_\gamma=0.0062$ b 7 (2013Fi01).
2206.35 10	0.75 8	4253.68	(1,2) ⁻	2047.339	2 ⁻	$\sigma_\gamma=0.0187$ b 14 (2013Fi01). E _γ : also placed from 4993 level by 1984Vo01, resolved by 2013Fi01.
2221.27@ 11	0.183 24	4179.99	(3 ⁻)	1959.072	2 ⁺	
2230.54 5	0.81 8	2260.48	3 ⁺	29.8299	3 ⁻	$\sigma_\gamma=0.0228$ b 11 (2013Fi01).
2233.0 4	0.16 16	4280.51	2 ⁻	2047.339	2 ⁻	
2241.2&g		2271.1?		29.8299	3 ⁻	
2246.3 ^a 3	0.14 ^a 3	4350.69	(2 ⁻)	2103.682	1 ⁻	$\sigma_\gamma=0.0034$ b 6 (2013Fi01).
2260.11@ 10	0.31 3	2260.48	3 ⁺	0.0	4 ⁻	$\sigma_\gamma=0.0078$ b 6 (2013Fi01).
2263.4&g		3063.5?		800.1430	2 ⁻	
^x 2271.19 12	0.085 10					$\sigma_\gamma=0.0017$ b 3 (2013Fi01).
2290.58 7	2.8 3	2290.531	3 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0655$ b 15 (2013Fi01).
2310.70 ^b 5	0.51 5	(7799.553)	1 ⁺ ,2 ⁺	5488.76	(2 ⁻ ,3,4 ⁻)	$\sigma_\gamma=0.0102$ b 7 (2013Fi01).
^x 2322.75 13	0.127 14					$\sigma_\gamma=0.0021$ b 5 (2013Fi01).
^x 2330.16 10	0.28 3					$\sigma_\gamma=0.0051$ b 6 (2013Fi01).
2346.05 10	0.69 7	3146.42	1 ⁽⁻⁾	800.1430	2 ⁻	$\sigma_\gamma=0.0155$ b 8 (2013Fi01).
2348.72 9	0.24 3	4395.86	(2) ⁻	2047.339	2 ⁻	$\sigma_\gamma=0.0054$ b 6 (2013Fi01).
2359.8 ^a 8	0.034 ^a 21	5488.76	(2 ⁻ ,3,4 ⁻)	3128.463	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0008$ b 5 (2013Fi01).
2367.17 5	0.58 6	2397.206	4 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0177$ b 8 (2013Fi01).
^x 2373.74 5	0.102 11					$\sigma_\gamma=0.0074$ b 6 (2013Fi01).
2375.85 ^b 5	0.113 12	4666.46	(2 ⁻)	2290.531	3 ⁻	
^x 2384.99 11	0.141 15					$\sigma_\gamma=0.0042$ b 5 (2013Fi01).
2389.18 5	1.34 13	2419.167	2 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0339$ b 11 (2013Fi01).
2393.84 ^b 12	0.108 12	4463.61	(1 ⁻ ,2,3,4 ⁻)	2069.805	3 ⁻	$\sigma_\gamma=0.0026$ b 6 (2013Fi01).
2397.12 6	0.224 23	2397.206	4 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0061$ b 6 (2013Fi01).
2403.04 ^c 9	0.119 13	5189.86	(2 ⁻)	2786.646	3 ⁺	$\sigma_\gamma=0.0038$ b 6 (2013Fi01). E _γ : placed by 1984Vo01 from 4473 level.
2416.06 ^b 11	0.194 23	4463.61	(1 ⁻ ,2,3,4 ⁻)	2047.339	2 ⁻	
2418.69 15	0.63 6	2419.167	2 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0158$ b 8 (2013Fi01).
2422.1&g		2422.1?		0.0	4 ⁻	
^x 2424.66 5	0.54 6					$\sigma_\gamma=0.0123$ b 8 (2013Fi01).
2428.28 9	0.25 3	3228.66	2 ⁻	800.1430	2 ⁻	
^x 2448.11 17	0.045 6					
^x 2450.5 3	0.031 5					
2454.7 3	0.025 4	4744.134	(2 ⁺)	2289.871	1 ⁺	
2459.48 ^b 5	0.191 20	5189.86	(2 ⁻)	2730.356	1	$\sigma_\gamma=0.0041$ b 5 (2013Fi01).
2467.31 10	0.067 7	4110.82	2	1643.641	0 ⁺	$\sigma_\gamma=0.0011$ b 5 (2013Fi01). E _γ : also placed from 4537 level by 1984Vo01, resolved by 2013Fi01.
^x 2471.5 3	0.025 4					
2483.8 3	0.029 8	4744.134	(2 ⁺)	2260.48	3 ⁺	

γ(⁴⁰K) (continued)

E_γ^\dagger	$I_\gamma^{\ddagger e}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
2505.0&g		3305.2?		800.1430	2 ⁻	
^x 2518.8 3	0.045 7					
2526.5&g		3326.6?		800.1430	2 ⁻	
2528.44 11	0.139 15	4789.01	2 ⁻	2260.48	3 ⁺	
2539.87 ^{b@} 7	0.27 3	6098.24	(1 ⁻ ,2,3,4 ⁻)	3557.32	(1 ⁻ to 4 ⁺)	$\sigma_\gamma=0.0041$ b 5 (2013Fi01).
^x 2542.92 6	0.77 8					$\sigma_\gamma=0.0099$ b 6 (2013Fi01).
2545.85 10	2.8 3	2575.946	2 ⁺	29.8299	3 ⁻	$\sigma_\gamma=0.0604$ b 14 (2013Fi01).
2552.64 ^b 17	0.020 3	(7799.553)	1 ⁺ ,2 ⁺	5246.85		
^x 2557.03 13	0.027 4					
^x 2564.89 19	0.055 7					
2568.8 ^f 4	0.033 ^f 6	3367.98	(2,3) ⁻	800.1430	2 ⁻	
2568.8 ^f 4	0.033 ^f 6	4213.03	(2 ⁻ ,3 ⁺)	1643.641	0 ⁺	
^x 2572.08 11	0.113 13					
2573.2&g		3373.4?		800.1430	2 ⁻	
2577.63 10	0.32 3	4537.06	(2 ⁻)	1959.072	2 ⁺	$\sigma_\gamma=0.0059$ b 6 (2013Fi01).
2586.06 ^b 14	0.094 11	(7799.553)	1 ⁺ ,2 ⁺	5213.70	2 ⁻	
^x 2589.23 11	0.146 16					
2593.32 10	0.50 5	3393.67	2 ⁻	800.1430	2 ⁻	$\sigma_\gamma=0.0109$ b 6 (2013Fi01).
^x 2604.0 4	0.12 3					$\sigma_\gamma=0.0021$ b 3 (2013Fi01).
2609.98 ^{c@} 9	1.40 9	(7799.553)	1 ⁺ ,2 ⁺	5189.86	(2 ⁻)	$\sigma_\gamma=0.0240$ b 8 (2013Fi01). E _γ : placed by 1984Vo01 from 4254 level.
2614.21 9	1.16 7	3414.35	2 ⁺	800.1430	2 ⁻	$\sigma_\gamma=0.0186$ b 7 (2013Fi01).
2627.7 ^{b@} 3	0.18 3	5023.92	(2 ⁻ ,3,4 ⁻)	2397.206	4 ⁻	$\sigma_\gamma=0.0012$ b 3 (2013Fi01).
2638.93 11	1.04 7	3439.145	(2 ⁺)	800.1430	2 ⁻	$\sigma_\gamma=0.0162$ b 7 (2013Fi01).
2644.0 3	0.26 4	5063.38	(2 ⁻ ,3 ⁺)	2419.167	2 ⁻	$\sigma_\gamma=0.0032$ b 5 (2013Fi01).
^x 2659.7 4	0.098 20					
2668.8 ^b 4	0.107 20	4960.23	(2,3) ⁻	2290.531	3 ⁻	$\sigma_\gamma=0.0019$ b 5 (2013Fi01).
2680.4 ^b 5	0.073 19	5488.76	(2 ⁻ ,3,4 ⁻)	2807.88	(1,2) ⁻	$\sigma_\gamma=0.0024$ b 6 (2013Fi01).
2685.6 3	0.24 5	3486.09	2 ⁻	800.1430	2 ⁻	$\sigma_\gamma=0.0045$ b 8 (2013Fi01).
2688.1 ^{bg} 4	0.19 5	5111.9	(2,3) ⁻	2423.7?		E _γ : also placed from 4789 level by 1984Vo01, resolved by 2013Fi01. E _γ : placed by 2013Fi01 to a level at 2324. But this level was neither observed in other work nor listed in Table 3 of populated levels in 2013Fi01. The evaluator have considered this placement as questionable. $\sigma_\gamma=0.0021$ b 7 (2013Fi01).
^x 2697.6 3	0.144 22					
2702.60 16	0.28 3	4993.14	(2 ⁻)	2290.531	3 ⁻	$\sigma_\gamma=0.0041$ b 7 (2013Fi01).
2716.95 11	0.50 4	2746.93	3 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0088$ b 7 (2013Fi01).
2726.62 7	1.58 9	2756.674	2 ⁺	29.8299	3 ⁻	$\sigma_\gamma=0.0253$ b 10 (2013Fi01).
2728.2&g		3528.4?		800.1430	2 ⁻	
2736.09 9	0.83 5	(7799.553)	1 ⁺ ,2 ⁺	5063.38	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0130$ b 8 (2013Fi01).
2747.00 18	0.26 3	2746.93	3 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0034$ b 6 (2013Fi01).

γ(⁴⁰K) (continued)

E _γ [†]	I _γ ^{‡e}	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
2755.2&g		3557.32	(1 ⁻ to 4 ⁺)	800.1430	2 ⁻	
2756.81 7	1.93 10	2786.646	3 ⁺	29.8299	3 ⁻	σ _γ =0.0307 b 11 (2013Fi01).
2775.21 ^b 17	0.27 3	(7799.553)	1 ⁺ ,2 ⁺	5023.92	(2 ⁻ ,3,4 ⁻)	σ _γ =0.0038 b 6 (2013Fi01).
2778.1&g		3578.3?		800.1430	2 ⁻	
2784.4 4	0.21 5	4744.134	(2 ⁺)	1959.072	2 ⁺	σ _γ =0.0044 b 6 (2013Fi01).
2787.0 6	0.14 5	2786.646	3 ⁺	0.0	4 ⁻	
2799.30 18	0.95 10	3599.223	2 ⁻	800.1430	2 ⁻	σ _γ =0.0163 b 8 (2013Fi01).
2806.53 12	1.76 13	(7799.553)	1 ⁺ ,2 ⁺	4993.14	(2 ⁻)	σ _γ =0.0288 b 10 (2013Fi01).
2839.71 ^{b@} 7	1.87 10	(7799.553)	1 ⁺ ,2 ⁺	4960.23	(2,3 ⁻)	σ _γ =0.0322 b 10 (2013Fi01).
2855.4&g		3655.6?		800.1430	2 ⁻	
2857.15 ^{b@} 15	0.29 3	4960.23	(2,3 ⁻)	2103.682	1 ⁻	σ _γ =0.0063 b 6 (2013Fi01).
2892.19 ^b 15	0.36 3	4851.22	(2 ⁻ ,3,4 ⁺)	1959.072	2 ⁺	σ _γ =0.0071 b 6 (2013Fi01).
^x 2897.9 7	0.061 20					
2909.3&g		3709.5?		800.1430	2 ⁻	
2912.6 ^c 3	0.145 21	4960.23	(2,3 ⁻)	2047.339	2 ⁻	σ _γ =0.0037 b 6 (2013Fi01). E _γ : placed by 1984Vo01 from 4873 level.
2916.3&g		2946.2?		29.8299	3 ⁻	
^x 2917.81 9	0.89 5					σ _γ =0.0148 b 8 (2013Fi01).
2919.4&g		3719.6?		800.1430	2 ⁻	
2922.91 20	0.33 3	4993.14	(2 ⁻)	2069.805	3 ⁻	σ _γ =0.0068 b 7 (2013Fi01).
2925.1&g		2925.1?		0.0	4 ⁻	
2926.85 10	0.73 5	(7799.553)	1 ⁺ ,2 ⁺	4872.58	(2,3) ⁻	σ _γ =0.0116 b 8 (2013Fi01).
2938.32 9	0.67 4	3738.47	1 ⁺	800.1430	2 ⁻	σ _γ =0.0109 b 7 (2013Fi01).
2949.23 ^{b@} 15	0.63 4	(7799.553)	1 ⁺ ,2 ⁺	4851.22	(2 ⁻ ,3,4 ⁺)	σ _γ =0.0099 b 7 (2013Fi01).
2955.94 16	0.41 3	2985.86	(2 ⁻ ,3 ⁺)	29.8299	3 ⁻	σ _γ =0.0056 b 6 (2013Fi01).
2967.8 3	0.163 19	3768.49	(2) ⁻	800.1430	2 ⁻	σ _γ =0.0027 b 5 (2013Fi01).
2992.60 ^{b@} 14	0.50 3	(7799.553)	1 ⁺ ,2 ⁺	4807.76	(0,1,2,3) ⁻	σ _γ =0.0073 b 8 (2013Fi01).
^x 3000.4 3	0.133 17					
3007.6&g		3807.8?		800.1430	2 ⁻	
3010.55 14	0.50 3	(7799.553)	1 ⁺ ,2 ⁺	4789.01	2 ⁻	σ _γ =0.0079 b 8 (2013Fi01).
3027.7 3	0.139 18	3027.971	(2 ⁻ ,3 ⁺)	0.0	4 ⁻	σ _γ =0.0027 b 6 (2013Fi01).
3034.43 ^b 17	0.293 24	4993.14	(2 ⁻)	1959.072	2 ⁺	σ _γ =0.0077 b 6 (2013Fi01).
3040.24 13	0.62 4	3840.254	(1,2 ⁺)	800.1430	2 ⁻	σ _γ =0.0101 b 7 (2013Fi01).
3055.58 12	2.86 17	(7799.553)	1 ⁺ ,2 ⁺	4744.134	(2 ⁺)	σ _γ =0.0523 b 14 (2013Fi01).
3056.2&g		3856.4?		800.1430	2 ⁻	
3063.5&g		3063.5?		0.0	4 ⁻	
3063.9&g		3093.8?		29.8299	3 ⁻	
3068.7 4	0.25 4	3868.67	2 ⁻	800.1430	2 ⁻	σ _γ =0.0051 b 6 (2013Fi01).
3088.3 5	0.19 4	3887.83	(1 ⁻ ,2 ⁻)	800.1430	2 ⁻	σ _γ =0.0038 b 7 (2013Fi01).
3098.56 20	0.37 14	3128.463	(2 ⁻ ,3 ⁺)	29.8299	3 ⁻	σ _γ =0.0143 b 8 (2013Fi01).

γ(⁴⁰K) (continued)

E _γ [†]	I _γ ^{‡e}	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
3100.42 20	0.37 14	4744.134	(2 ⁺)	1643.641	0 ⁺	
3128.06 13	0.61 4	3128.463	(2 ⁻ ,3 ⁺)	0.0	4 ⁻	σ _γ =0.0093 b 6 (2013Fi01).
3132.8&g		3933.0?		800.1430	2 ⁻	
3133.49 ^b @ 14	0.51 4	(7799.553)	1 ⁺ ,2 ⁺	4666.46	(2 ⁻)	σ _γ =0.0075 b 6 (2013Fi01).
3137.3 ^a 4	0.102 ^a 21	(7799.553)	1 ⁺ ,2 ⁺	4662.29	(2 ⁻)	σ _γ =0.0024 b 5 (2013Fi01).
3140.7&g		3140.7?		0.0	4 ⁻	
3144.30 ^c 19	0.28 3	5213.70	2 ⁻	2069.805	3 ⁻	σ _γ =0.0046 b 5 (2013Fi01). E _γ : placed by 1984Vo01 from 4789 level.
3153.5 3	0.38 3	3153.84	(2 ⁻ ,3)	0.0	4 ⁻	σ _γ =0.0044 b 5 (2013Fi01).
3198.6 3	0.146 22	3228.66	2 ⁻	29.8299	3 ⁻	σ _γ =0.0034 b 5 (2013Fi01).
^x 3204.7 4	0.101 20					σ _γ =0.0021 b 5 (2013Fi01).
^x 3214.12 24	0.223 24					σ _γ =0.0048 b 5 (2013Fi01).
3220.08 21	0.24 3	4020.36	(2 ⁻)	800.1430	2 ⁻	σ _γ =0.0055 b 6 (2013Fi01).
3229.4 4	0.128 21	3228.66	2 ⁻	0.0	4 ⁻	σ _γ =0.0024 b 5 (2013Fi01).
3255.9 ^b 4	0.37 7	(7799.553)	1 ⁺ ,2 ⁺	4544.12	(2 ⁻)	σ _γ =0.0066 b 6 (2013Fi01).
3258.1&g		4058.3?		800.1430	2 ⁻	
3262.56 12	2.43 17	(7799.553)	1 ⁺ ,2 ⁺	4537.06	(2 ⁻)	σ _γ =0.0423 b 12 (2013Fi01).
3286.4 8	0.15 5	4179.99	(3 ⁻)	891.404	5 ⁻	
3304.24 11	0.99 7	4104.47	(1 ⁻ ,2,3 ⁻)	800.1430	2 ⁻	σ _γ =0.0164 b 8 (2013Fi01).
3310.9 5	0.12 3	4110.82	2	800.1430	2 ⁻	σ _γ =0.0026 b 5 (2013Fi01).
3326.44 12	0.79 6	(7799.553)	1 ⁺ ,2 ⁺	4473.05	(2 ⁻ ,3,4 ⁻)	σ _γ =0.0141 b 8 (2013Fi01).
3326.6&g		3326.6?		0.0	4 ⁻	
3336.3 ^c 10	1.7 8	(7799.553)	1 ⁺ ,2 ⁺	4463.61	(1 ⁻ ,2,3,4 ⁻)	σ _γ =0.0184 b 15 (2013Fi01). E _γ : placed by 1984Vo01 from 3368 level.
3338.2 ^a 3	0.24 ^a 6	3367.98	(2,3) ⁻	29.8299	3 ⁻	E _γ : 3339.1 6 (1972Op01), also placed by 1972Op01. σ _γ =0.0056 b 14 (2013Fi01).
3348.91 10	1.12 7	4149.03	(2 ⁻ ,3 ⁺)	800.1430	2 ⁻	σ _γ =0.0194 b 9 (2013Fi01).
3368.9 6	0.10 3	3367.98	(2,3) ⁻	0.0	4 ⁻	σ _γ =0.0021 b 5 (2013Fi01).
3380.3 4	0.22 4	(7799.553)	1 ⁺ ,2 ⁺	4419.38	(2 ⁻ ,3,4 ⁺)	σ _γ =0.0044 b 6 (2013Fi01).
3384.66 24	0.40 5	3414.35	2 ⁺	29.8299	3 ⁻	σ _γ =0.0070 b 7 (2013Fi01).
3403.59 11	1.00 7	(7799.553)	1 ⁺ ,2 ⁺	4395.86	(2 ⁻)	σ _γ =0.0188 b 9 (2013Fi01).
3418.5 ^a 6	0.08 ^a 3	5488.76	(2 ⁻ ,3,4 ⁻)	2069.805	3 ⁻	E _γ : 3419.2 8, unplaced in 1970Jo04. σ _γ =0.0019 b 6 (2013Fi01).
3428.9&g		3428.9?		0.0	4 ⁻	
^x 3429.8 7	0.09 3					
3448.8 ^a 5	0.33 ^a 8	(7799.553)	1 ⁺ ,2 ⁺	4350.69	(2 ⁻)	E _γ : 3448.7 8, unplaced in 1970Jo04; 3447.0 5, unplaced in 1972Op01. σ _γ =0.0078 b 18 (2013Fi01).
3452.2 10	1.71 10	4253.68	(1,2) ⁻	800.1430	2 ⁻	σ _γ =0.0278 b 16 (2013Fi01).
3480.6 5	0.13 3	4280.51	2 ⁻	800.1430	2 ⁻	σ _γ =0.0015 b 9 (2013Fi01).
3517.7&g		3517.7?		0.0	4 ⁻	
3518.85 10	1.05 7	(7799.553)	1 ⁺ ,2 ⁺	4280.51	2 ⁻	σ _γ =0.0209 b 10 (2013Fi01).
3526.99@ 10	1.02 7	3557.32	(1 ⁻ to 4 ⁺)	29.8299	3 ⁻	σ _γ =0.0191 b 10 (2013Fi01).

γ(⁴⁰K) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Comments
3545.95@ 6	4.7 3	(7799.553)	1+,2+	4253.68	(1,2) ⁻	$\sigma_\gamma=0.0840$ b 20 (2013Fi01).
3548.8 ^a 4	0.29 ^a 8	(7799.553)	1+,2+	4251.59	(1,2) ⁻	$\sigma_\gamma=0.0068$ b 18 (2013Fi01).
3569.30 8	0.45 3	3599.223	2 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0082$ b 7 (2013Fi01).
^x 3578.2 3	0.070 12					
3586.53 13	0.217 17	(7799.553)	1+,2+	4213.03	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0038$ b 6 (2013Fi01).
3599.62 20	0.185 19	3629.98	2 ⁻ ,3 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0033$ b 6 (2013Fi01).
3619.40 6	0.77 4	(7799.553)	1+,2+	4179.99	(3 ⁻)	$\sigma_\gamma=0.0146$ b 9 (2013Fi01).
3629.94 15	0.33 3	3629.98	2 ⁻ ,3 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0071$ b 7 (2013Fi01).
3633.88 9	0.63 4	3663.798	(1 ⁻ ,2,3,4 ⁺)	29.8299	3 ⁻	$\sigma_\gamma=0.0105$ b 8 (2013Fi01).
3650.34 5	2.22 11	(7799.553)	1+,2+	4149.03	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0400$ b 15 (2013Fi01).
3663.32 ^c 9	0.44 3	4463.61	(1 ⁻ ,2,3,4 ⁻)	800.1430	2 ⁻	$\sigma_\gamma=0.0070$ b 7 (2013Fi01).
3683.3 ^a 5	0.10 ^a 3	3713.09	(2) ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0024$ b 6 (2013Fi01).
3688.67 15	1.49 12	(7799.553)	1+,2+	4110.82	2	$\sigma_\gamma=0.0311$ b 12 (2013Fi01).
3695.15 11	1.43 10	(7799.553)	1+,2+	4104.47	(1 ⁻ ,2,3 ⁻)	$\sigma_\gamma=0.0260$ b 11 (2013Fi01).
3737.01 10	1.14 7	4537.06	(2 ⁻)	800.1430	2 ⁻	$\sigma_\gamma=0.0217$ b 7 (2013Fi01).
3743.2 ^b 3	0.21 3	4544.12	(2 ⁻)	800.1430	2 ⁻	$\sigma_\gamma=0.0029$ b 5 (2013Fi01).
^x 3764.84 19	0.180 17					
3778.99 10	0.93 6	(7799.553)	1+,2+	4020.36	(2) ⁻	$\sigma_\gamma=0.0035$ b 6 (2013Fi01).
3791.9 3	0.18 3	3821.47	2 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0161$ b 8 (2013Fi01).
3822.17 ^{b@} 13	0.264 19	3821.47	2 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0037$ b 6 (2013Fi01).
						E_γ : 3820.5 (2002Va28), also placed by 2002Va28 from γγ-coin.
						$\sigma_\gamma=0.0052$ b 6 (2013Fi01).
3838.50 7	0.62 4	3868.67	2 ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0126$ b 8 (2013Fi01).
3857.97 11	0.305 21	3887.83	(1 ⁻ ,2 ⁻)	29.8299	3 ⁻	$\sigma_\gamma=0.0054$ b 6 (2013Fi01).
3868.3 10	0.12 5	3868.67	2 ⁻	0.0	4 ⁻	
3874.7 3	0.28 6	(7799.553)	1+,2+	3924.15	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0090$ b 7 (2013Fi01).
3895.7 11	0.21 11	3924.15	(2 ⁻ ,3 ⁺)	29.8299	3 ⁻	
^x 3899.0 7	0.32 11					
3911.49 18	0.96 9	(7799.553)	1+,2+	3887.83	(1 ⁻ ,2 ⁻)	$\sigma_\gamma=0.0078$ b 8 (2013Fi01).
3930.64 5	1.56 8	(7799.553)	1+,2+	3868.67	2 ⁻	$\sigma_\gamma=0.0189$ b 10 (2013Fi01).
3943.81 6	0.98 5	4744.134	(2 ⁺)	800.1430	2 ⁻	$\sigma_\gamma=0.0310$ b 12 (2013Fi01).
3959.19 5	1.48 8	(7799.553)	1+,2+	800.1430	2 ⁻	$\sigma_\gamma=0.0195$ b 10 (2013Fi01).
3977.83 5	1.29 7	(7799.553)	1+,2+	3840.254	(1,2 ⁺)	$\sigma_\gamma=0.0284$ b 11 (2013Fi01).
				3821.47	2 ⁻	$\sigma_\gamma=0.0247$ b 11 (2013Fi01).
3989.07 ^b 14	0.242 19	4789.01	2 ⁻	800.1430	2 ⁻	$\sigma_\gamma=0.0038$ b 6 (2013Fi01).
4001.78 5	1.61 9	(7799.553)	1+,2+	3797.55	1 ⁺	$\sigma_\gamma=0.0296$ b 12 (2013Fi01).
4008.1 ^b 3	0.139 15	4807.76	(0,1,2,3) ⁻	800.1430	2 ⁻	
4031.58@ 14	0.221 17	(7799.553)	1+,2+	3768.49	(2) ⁻	$\sigma_\gamma=0.0047$ b 5 (2013Fi01).
4060.92 5	1.53 8	(7799.553)	1+,2+	3738.47	1 ⁺	$\sigma_\gamma=0.0275$ b 11 (2013Fi01).
4080.69 12	0.325 22	4110.82	2	29.8299	3 ⁻	$\sigma_\gamma=0.0066$ b 7 (2013Fi01).
4086.13 ^b 9	0.46 3	(7799.553)	1+,2+	3713.09	(2) ⁻	$\sigma_\gamma=0.0079$ b 8 (2013Fi01).
4106.7&g		4906.9?		800.1430	2 ⁻	
4110.39 ^a 20	0.32 ^a 3	4110.82	2	0.0	4 ⁻	E_γ : 4110.6 from 2002Va28, 4110.7 8 from 1972Op01, 4111.4 10 from 1970Jo04. Also

γ(⁴⁰K) (continued)

E_γ †	I_γ ‡e	E_i (level)	J_i^π	E_f	J_f^π	Comments
						placed by 2002Va28. $\sigma_\gamma=0.0075$ b 7 (2013Fi01).
4118.5&g		4149.03	(2 ⁻ ,3 ⁺)	29.8299	3 ⁻	
4135.58 5	3.41 18	(7799.553)	1 ⁺ ,2 ⁺	3663.798	(1 ⁻ ,2,3,4 ⁺)	$\sigma_\gamma=0.0634$ b 19 (2013Fi01).
4135.6&g		4165.4?		29.8299	3 ⁻	
4148.4 3	0.134 18	4149.03	(2 ⁻ ,3 ⁺)	0.0	4 ⁻	
4165.4&g		4165.4?		0.0	4 ⁻	
4169.31 9	0.71 4	(7799.553)	1 ⁺ ,2 ⁺	3629.98	2 ⁻ ,3 ⁻	$\sigma_\gamma=0.0134$ b 8 (2013Fi01).
4200.04 5	2.23 12	(7799.553)	1 ⁺ ,2 ⁺	3599.223	2 ⁻	$\sigma_\gamma=0.0448$ b 16 (2013Fi01).
4223.66 7	0.83 5	4253.68	(1,2) ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0141$ b 9 (2013Fi01).
4242.47@ 11	0.45 3	(7799.553)	1 ⁺ ,2 ⁺	3557.32	(1 ⁻ to 4 ⁺)	$\sigma_\gamma=0.0092$ b 9 (2013Fi01).
4249.5 4	0.119 16	4280.51	2 ⁻	29.8299	3 ⁻	
4280.35 22	0.37 4	4280.51	2 ⁻	0.0	4 ⁻	$\sigma_\gamma=0.0071$ b 5 (2013Fi01).
4312.8 3	0.28 4	(7799.553)	1 ⁺ ,2 ⁺	3486.09	2 ⁻	$\sigma_\gamma=0.0055$ b 5 (2013Fi01).
4319.6 ^a 5	0.068 ^a 13	4350.69	(2 ⁻)	29.8299	3 ⁻	$\sigma_\gamma=0.0016$ b 3 (2013Fi01).
4360.19 6	4.33 24	(7799.553)	1 ⁺ ,2 ⁺	3439.145	(2 ⁺)	$\sigma_\gamma=0.0874$ b 24 (2013Fi01).
4384.95 7	1.47 8	(7799.553)	1 ⁺ ,2 ⁺	3414.35	2 ⁺	$\sigma_\gamma=0.0278$ b 12 (2013Fi01).
4389.32 ^c 18	0.37 3	5189.86	(2 ⁻)	800.1430	2 ⁻	$\sigma_\gamma=0.0057$ b 8 (2013Fi01).
						E_γ : placed by 1984Vo01 from 4419 level.
4405.36 11	0.42 3	(7799.553)	1 ⁺ ,2 ⁺	3393.67	2 ⁻	$\sigma_\gamma=0.0073$ b 8 (2013Fi01).
^x 4421.15 14	0.294 22					$\sigma_\gamma=0.0056$ b 7 (2013Fi01).
4431.17 16	0.59 5	(7799.553)	1 ⁺ ,2 ⁺	3367.98	(2,3) ⁻	$\sigma_\gamma=0.0105$ b 9 (2013Fi01).
4472.80 11	0.40 3	4473.05	(2 ⁻ ,3,4 ⁻)	0.0	4 ⁻	$\sigma_\gamma=0.0074$ b 5 (2013Fi01).
4506.96 7	0.77 5	4537.06	(2 ⁻)	29.8299	3 ⁻	$\sigma_\gamma=0.0179$ b 10 (2013Fi01).
4652.94 8	0.52 3	(7799.553)	1 ⁺ ,2 ⁺	3146.42	1 ⁽⁻⁾	$\sigma_\gamma=0.0124$ b 8 (2013Fi01).
4662.1 ^a 3	0.21 ^a 3	4662.29	(2 ⁻)	0.0	4 ⁻	$\sigma_\gamma=0.0050$ b 6 (2013Fi01).
4667.0 ^b 4	0.110 21	4666.46	(2 ⁻)	0.0	4 ⁻	
4670.84 10	0.66 4	(7799.553)	1 ⁺ ,2 ⁺	3128.463	(2 ⁻ ,3 ⁺)	$\sigma_\gamma=0.0190$ b 10 (2013Fi01).
4688.9 5	0.052 11	(7799.553)	1 ⁺ ,2 ⁺	3109.56	1 ⁺ ,2 ⁺	$\sigma_\gamma=0.0018$ b 5 (2013Fi01).
4842.8 4	0.076 12	4872.58	(2,3) ⁻	29.8299	3 ⁻	
4851.16 ^b 25	0.120 13	4851.22	(2 ⁻ ,3,4 ⁺)	0.0	4 ⁻	$\sigma_\gamma=0.0020$ b 7 (2013Fi01).
4860.4&g		(7799.553)	1 ⁺ ,2 ⁺	2939.2?		
4872.47 14	0.252 19	4872.58	(2,3) ⁻	0.0	4 ⁻	
4874.5&g		(7799.553)	1 ⁺ ,2 ⁺	2925.1?		
4906.9&g		4906.9?		0.0	4 ⁻	E_γ : 1972Op01 report a γ ray at E=4908.6 13 placed from a 4908 level. This γ ray was not observed in 1984Vo01 and 2013Fi01.
^x 4912.4 7	0.044 11					
4929.3 ^b 3	0.183 21	4960.23	(2,3) ⁻	29.8299	3 ⁻	$\sigma_\gamma=0.0028$ b 5 (2013Fi01).
4962.2 4	0.107 19	4993.14	(2 ⁻)	29.8299	3 ⁻	
4991.38 5	2.18 11	(7799.553)	1 ⁺ ,2 ⁺	2807.88	(1,2) ⁻	$\sigma_\gamma=0.0487$ b 16 (2013Fi01).
4993.9&g		4993.14	(2 ⁻)	0.0	4 ⁻	

γ(⁴⁰K) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡e}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Comments</u>
5012.47 6	1.17 6	(7799.553)	1 ⁺ ,2 ⁺	2786.646	3 ⁺	σ _γ =0.0255 b 12 (2013Fi01).
5042.43 6	1.78 9	(7799.553)	1 ⁺ ,2 ⁺	2756.674	2 ⁺	σ _γ =0.0395 b 17 (2013Fi01).
5062.9 4	0.070 9	5063.38	(2 ⁻ ,3 ⁺)	0.0	4 ⁻	
5068.65 [@] 6	1.25 7	(7799.553)	1 ⁺ ,2 ⁺	2730.356	1	σ _γ =0.0252 b 14 (2013Fi01).
5111.5 ^a 7	0.081 ^a 21	5111.9	(2,3) ⁻	0.0	4 ⁻	σ _γ =0.0019 b 5 (2013Fi01).
5173.19 5	2.30 12	(7799.553)	1 ⁺ ,2 ⁺	2626.003	0 ⁻	σ _γ =0.0454 b 17 (2013Fi01). E _γ : 5073.19 In 1984Vo01 is a misprint.
5181.5 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	2618.1?		
5188.8 ^b 3	0.053 6	5189.86	(2 ⁻)	0.0	4 ⁻	
5216.9 ^b 6	0.020 4	5246.85		29.8299	3 ⁻	
5223.14 7	0.377 20	(7799.553)	1 ⁺ ,2 ⁺	2575.946	2 ⁺	σ _γ =0.0099 b 9 (2013Fi01).
^x 5228.86 24	0.057 5					
5377.5 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	2422.1?		
5379.84 6	7.9 4	(7799.553)	1 ⁺ ,2 ⁺	2419.167	2 ⁻	σ _γ =0.164 b 5 (2013Fi01).
5488.5 ^a 5	0.14 ^a 3	5488.76	(2 ⁻ ,3,4 ⁻)	0.0	4 ⁻	E _γ : 5489.3 15, unplaced in 1970Jo04. σ _γ =0.0033 b 6 (2013Fi01).
5509.12 7	3.17 16	(7799.553)	1 ⁺ ,2 ⁺	2289.871	1 ⁺	σ _γ =0.0674 b 21 (2013Fi01).
5528.5 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	2271.1?		
5695.38 7	5.6 3	(7799.553)	1 ⁺ ,2 ⁺	2103.682	1 ⁻	σ _γ =0.128 b 3 (2013Fi01).
5723.5 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	2076.1?		
5729.21 7	2.28 12	(7799.553)	1 ⁺ ,2 ⁺	2069.805	3 ⁻	σ _γ =0.0492 b 20 (2013Fi01).
5751.60 7	5.5 3	(7799.553)	1 ⁺ ,2 ⁺	2047.339	2 ⁻	σ _γ =0.122 b 3 (2013Fi01).
5921.9 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1877.7?		
6067.6 ^b 3	0.050 5	6098.24	(1 ⁻ ,2,3,4 ⁻)	29.8299	3 ⁻	σ _γ =0.0014 b 3 (2013Fi01).
6243.0 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1556.6?		
6278.9 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1520.7?		
6310.9 ^{&g}		6311?		0.0	4 ⁻	
6390.4 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1409.2?		
6469.1 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1330.5?		
6551.2 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1248.4?		
6571.4 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1228.2?		
6626.2 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1173.4?		
6715.3 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	1084.3?		
6998.77 10	2.15 11	(7799.553)	1 ⁺ ,2 ⁺	800.1430	2 ⁻	σ _γ =0.0503 b 23 (2013Fi01).
7277.9 ^{&g}		(7799.553)	1 ⁺ ,2 ⁺	521.7?		
7768.75 19	5.6 3	(7799.553)	1 ⁺ ,2 ⁺	29.8299	3 ⁻	σ _γ =0.113 b 5 (2013Fi01).

[†] From 1984Vo01, unless otherwise noted. Values reported in 2013Fi01 are in a good agreement with the quoted values here but with less precision. Extensive E_γ

γ(⁴⁰K) (continued)

and I_γ data are also available from 1972Op01 1970Jo04, but are much less precise, thus not considered here.

‡ From 1984Vo01, unless otherwise noted. To convert relative I_γ values in 1984Vo01 to cross section values, multiply by 0.0235 3, which is obtained by 2013Fi01 from a least-squares fit to their cross-section values versus the corresponding relative I_γ values in 1984Vo01. Cross-section values from 2013Fi01 are given under comments.

Based on γ(circ pol) in 1974Op01, unless otherwise noted.

@ Uncertainties were increased by a factor of 2 in the least-squares fit, except for 554.741γ, 1213.53γ, 1393.16γ, 1466.11γ, 1820.35γ, and 2539.87γ, increased by a factor of 4. Poor fit for 554.741γ with the fitted energy deviates by about 5 times the quoted energy uncertainty.

& From γγ-coin data of 2002Va28.

^a Observed and placed in 2013Fi01, not observed in 1984Vo01. Relative intensities are deduced by evaluator by dividing cross-section values in 2013Fi01 by 0.0235 3.

^b Placed by 2013Fi01, unplaced in 1984Vo01.

^c Placed by 2013Fi01, placed differently in 1984Vo01.

^d From γγ(θ) in 1988Se06.

^e Intensity per 100 neutron captures.

^f Multiply placed with undivided intensity.

^g Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

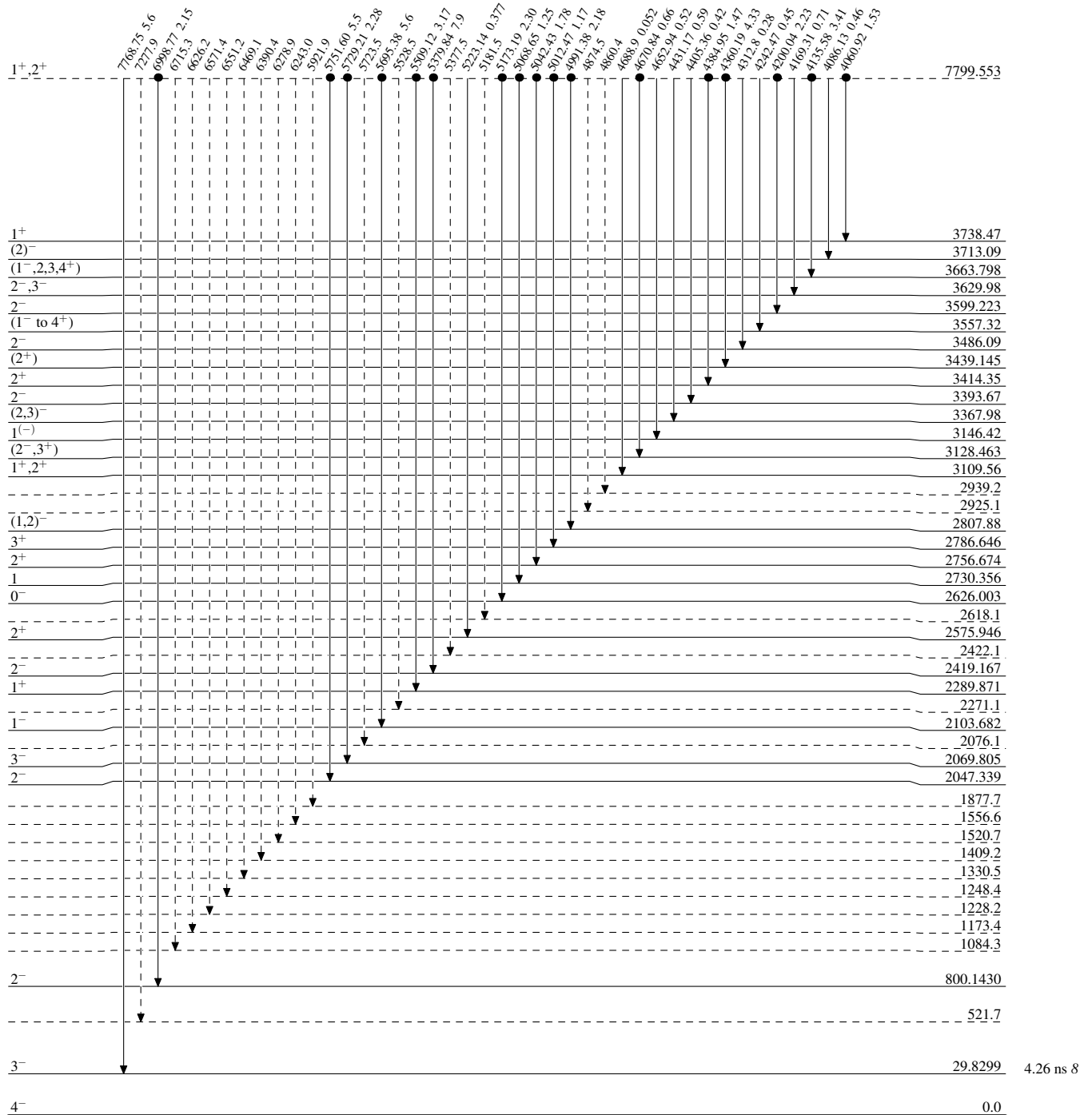
³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme

Intensities: Relative I_γ

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)
- Coincidence



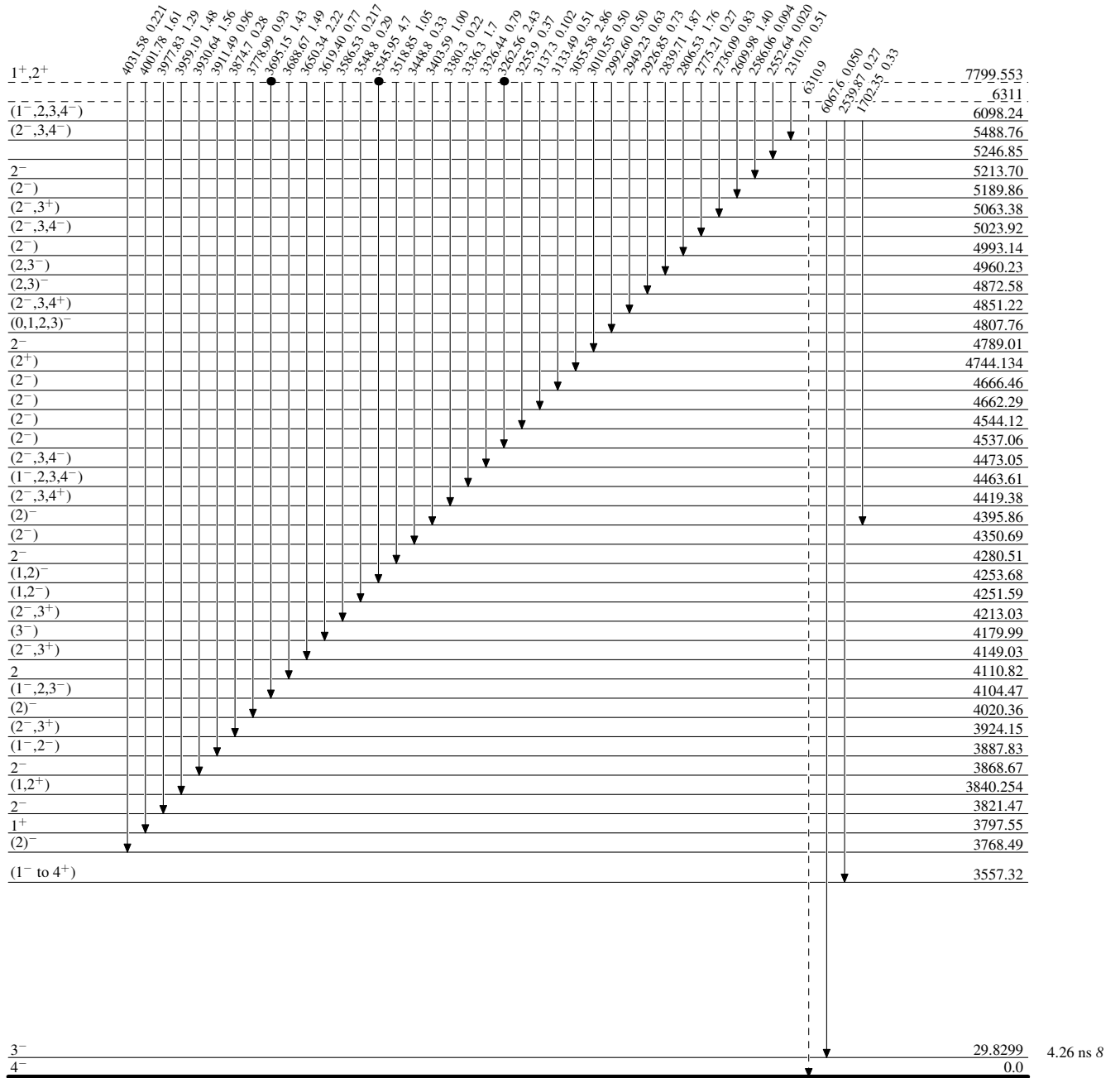
³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)

Intensities: Relative I_γ

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)
- Coincidence



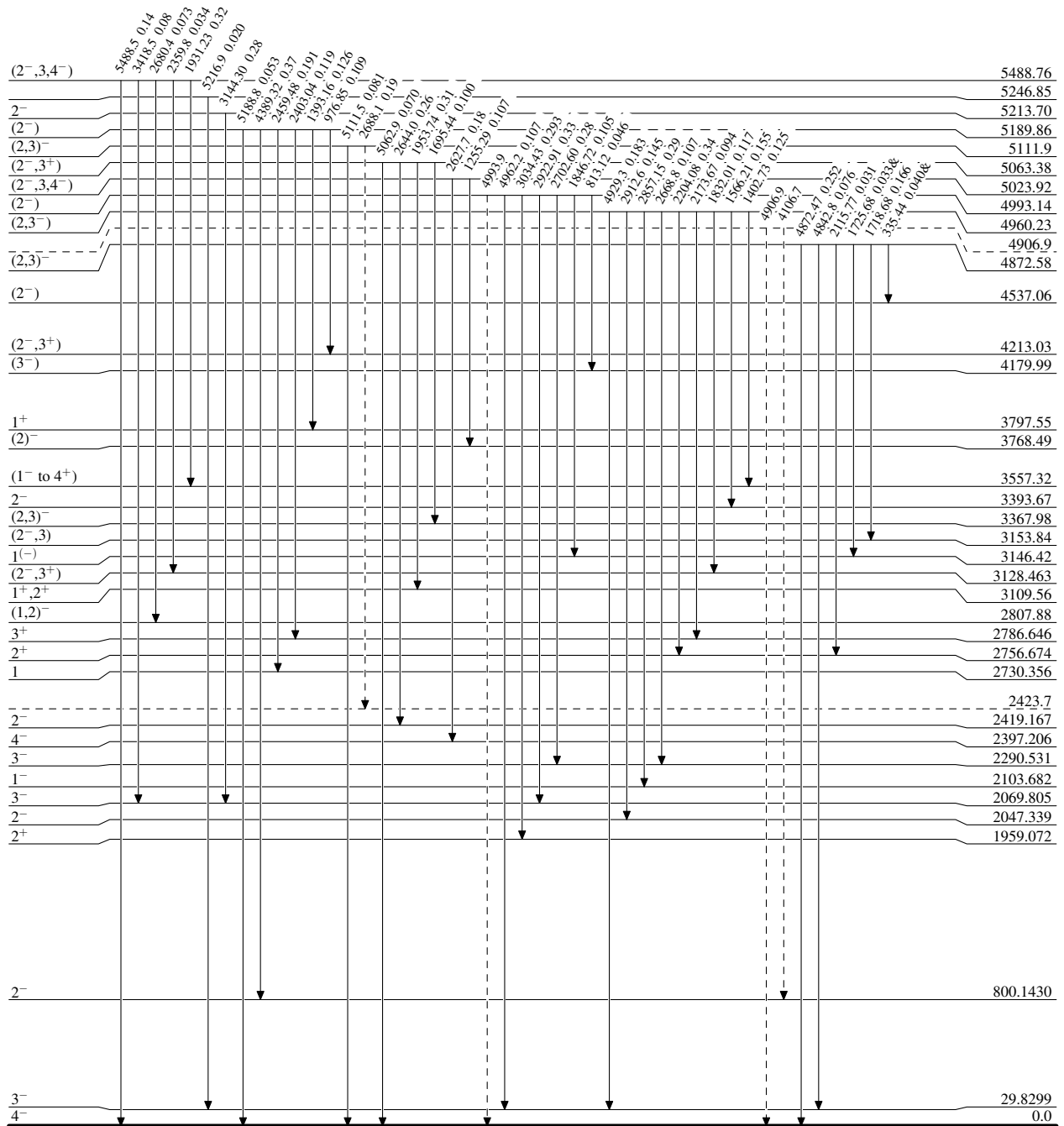
⁴⁰K₂₁

³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)



4.26 ns 8

⁴⁰K₂₁

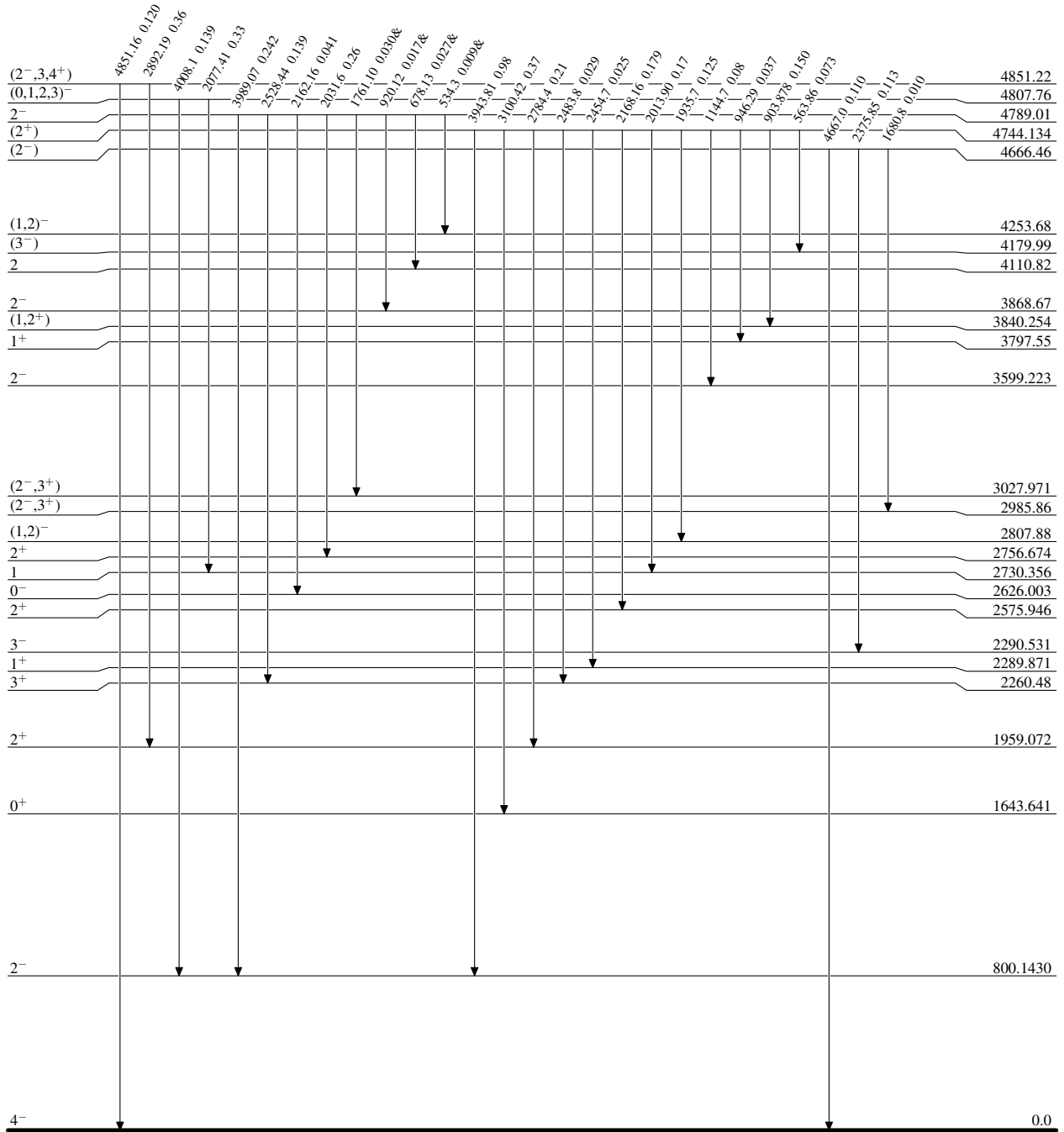
$^{39}\text{K}(n,\gamma),(\text{pol } n,\gamma) \text{ E=thermal } 1984\text{Vo01},2013\text{Fi01},1972\text{Op01}$

Level Scheme (continued)

Legend

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



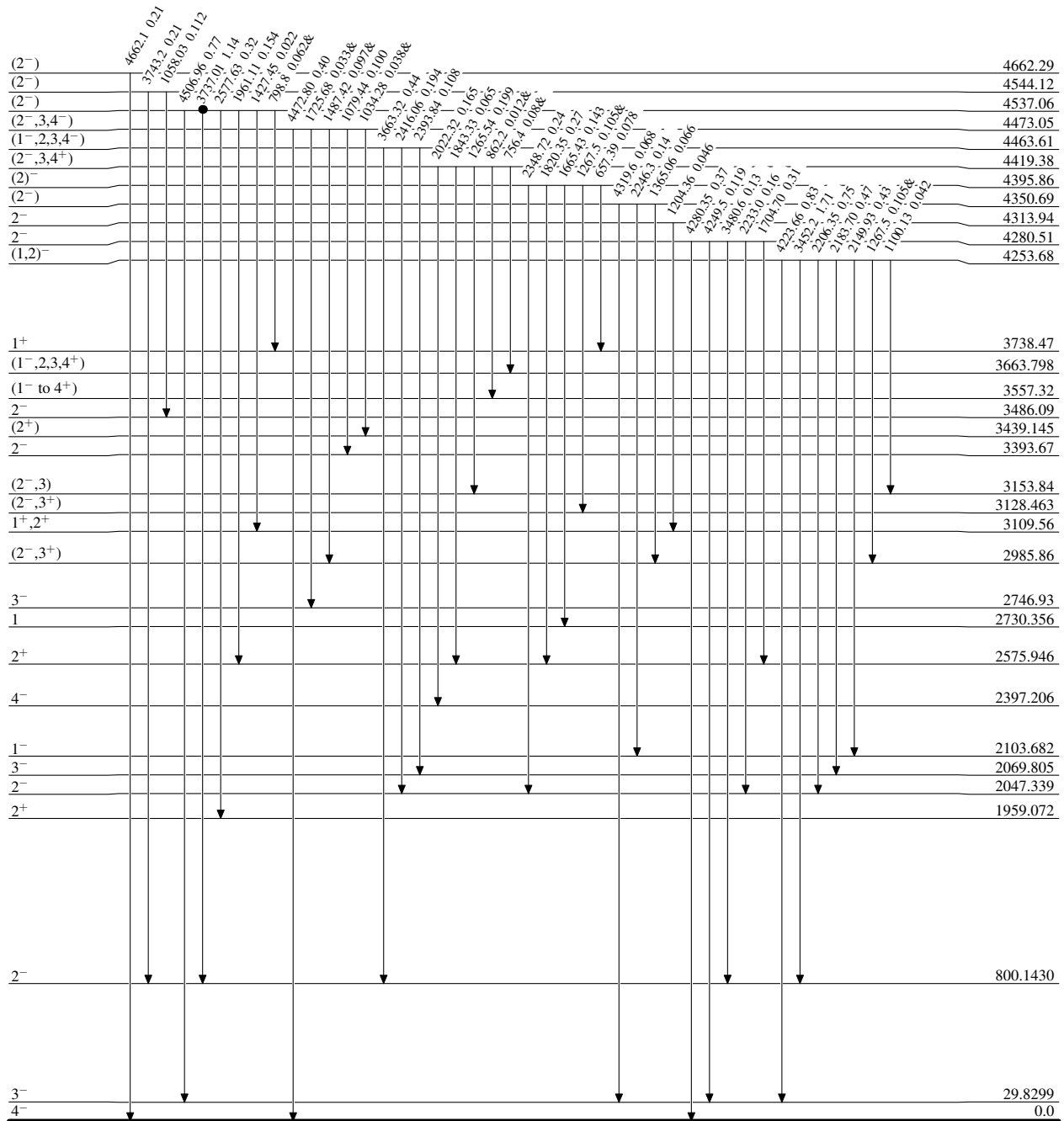
³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- Coincidence



⁴⁰K₂₁

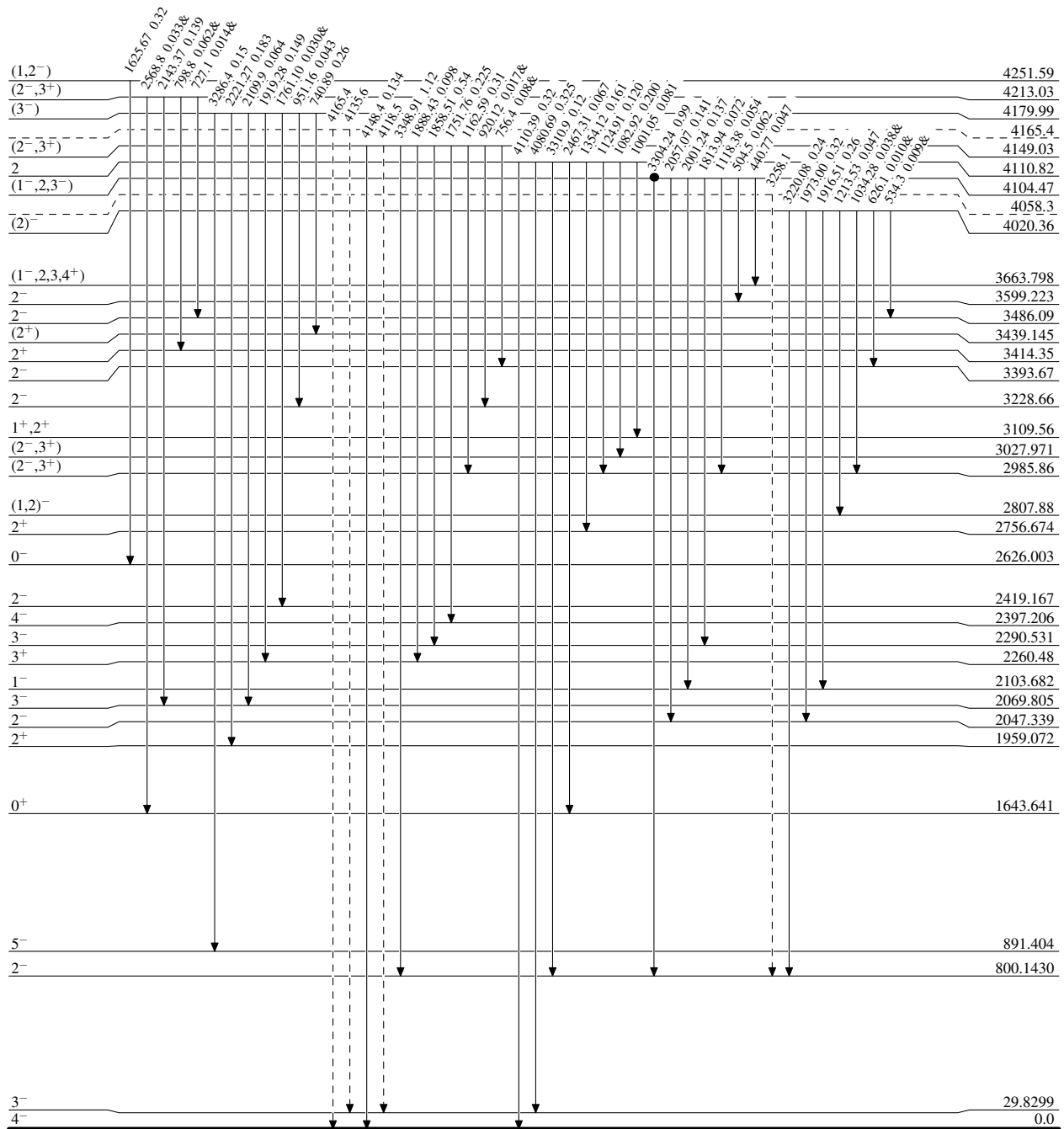
³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)
- Coincidence



⁴⁰K₂₁

4.26 ns 8

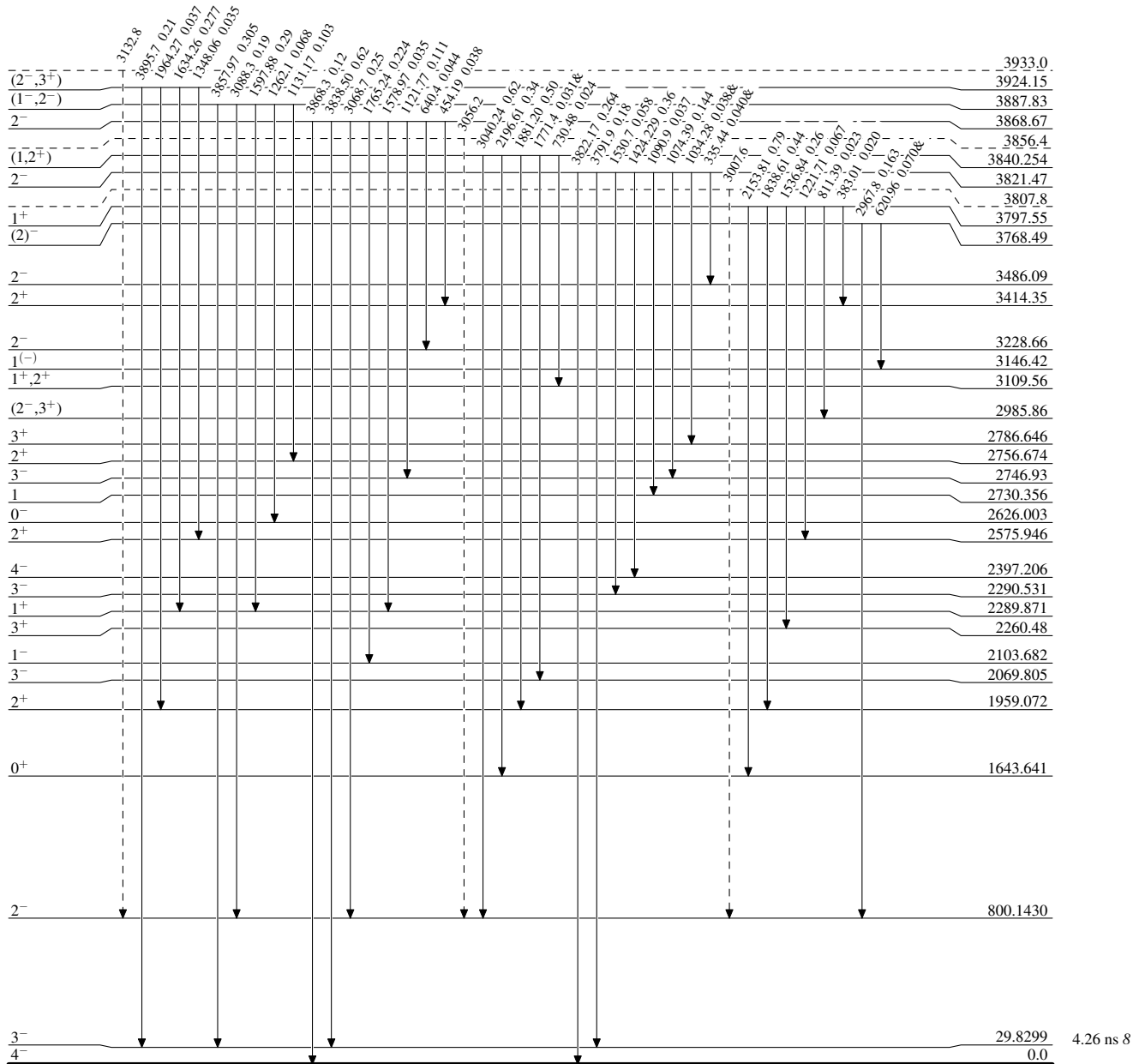
³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Level Scheme (continued)

Intensities: Relative I_γ
& Multiplied placed: undivided intensity given

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - → γ Decay (Uncertain)



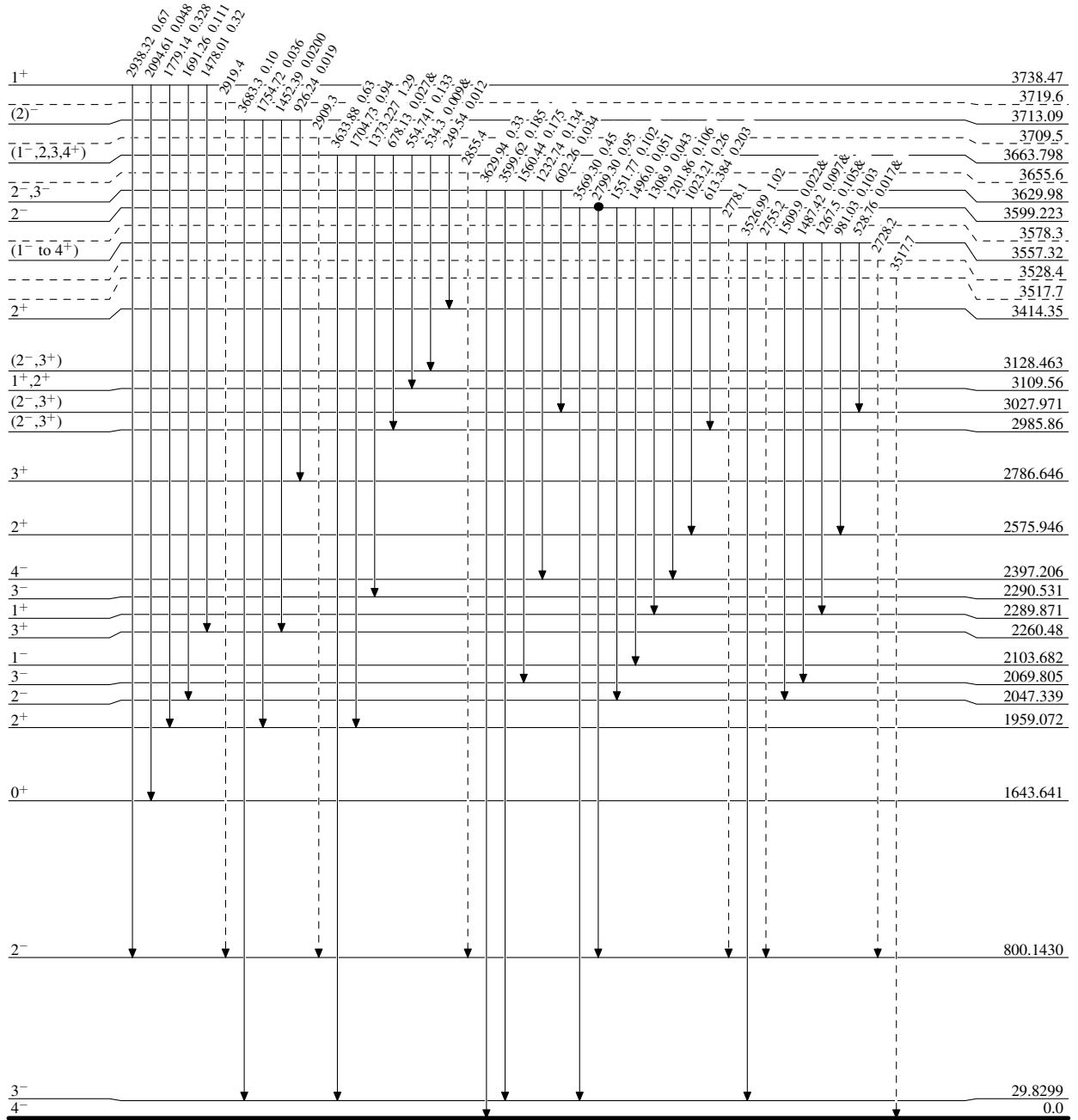
⁴⁰K₂₁

³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)
- Coincidence



⁴⁰K₂₁

4.26 ns 8

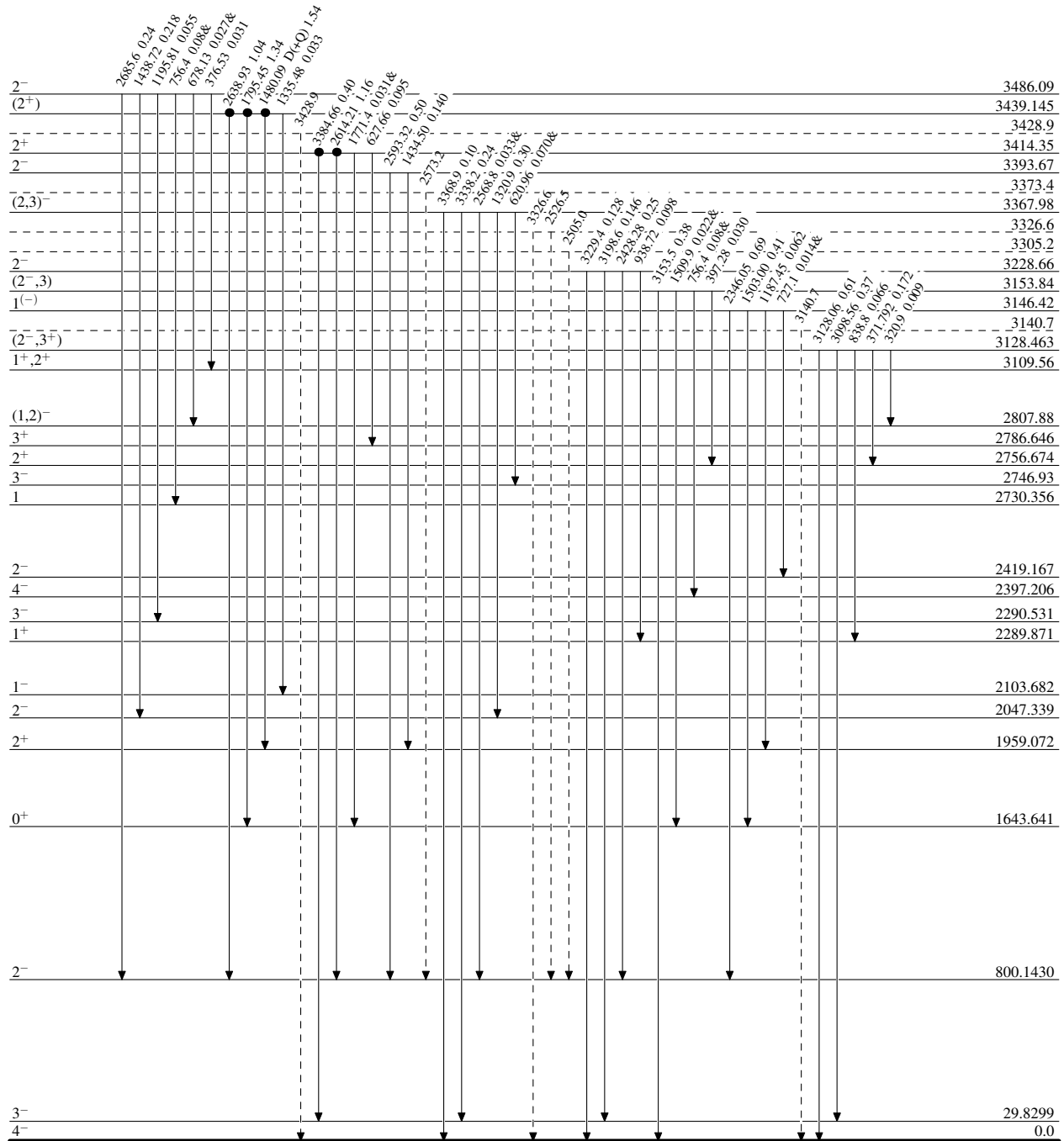
³⁹K(n,γ),(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- γ Decay (Uncertain)
- Coincidence



4.26 ns 8

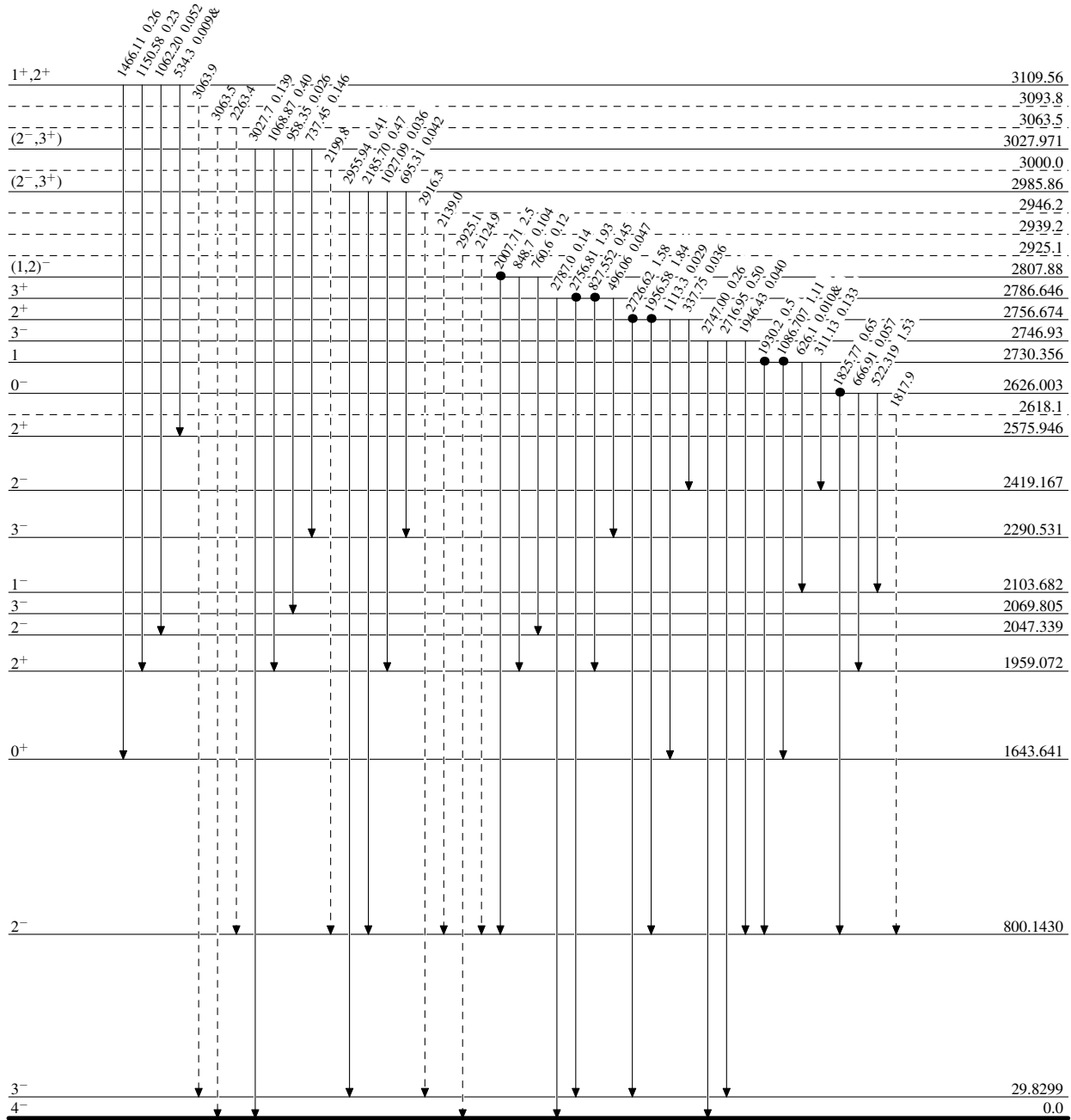
⁴⁰K₂₁

³⁹K(n,γ)(pol n,γ) E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- - - - - γ Decay (Uncertain)
- Coincidence



⁴⁰K₂₁

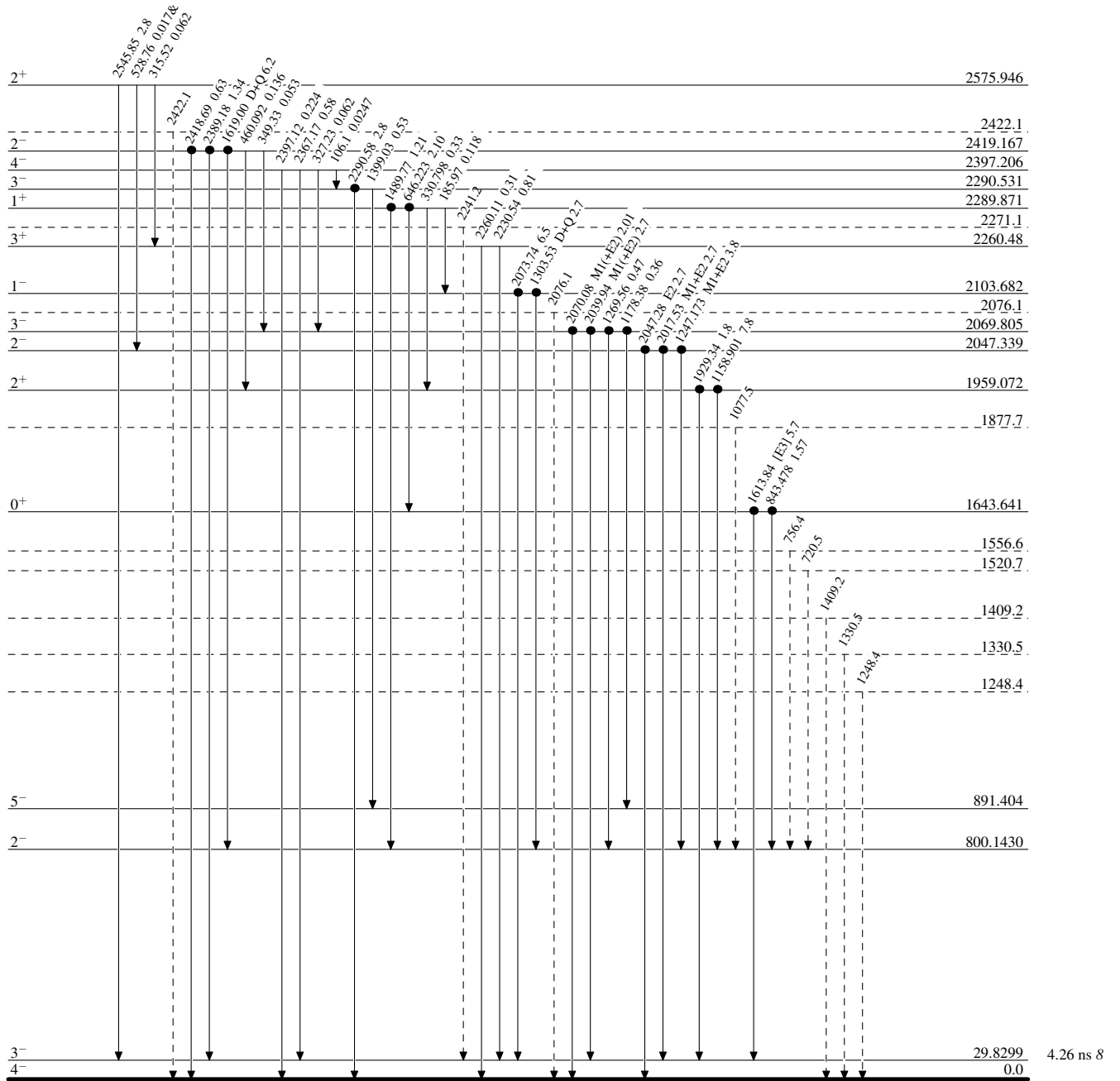
$^{39}\text{K}(n,\gamma)(\text{pol } n,\gamma) \text{ E=thermal } 1984\text{Vo01}, 2013\text{Fi01}, 1972\text{Op01}$

Legend

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



$^{40}_{19}\text{K}_{21}$

$^{39}\text{K}(n,\gamma),(\text{pol } n,\gamma)$ E=thermal 1984Vo01,2013Fi01,1972Op01

Legend

Level Scheme (continued)
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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

