

²⁴⁸Cm SF decay 2001Ur01

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni		NDS 109, 2501 (2008)	1-Apr-2008

Parent: ²⁴⁸Cm: E=0; J^π=0⁺; T_{1/2}=3.48×10⁵ y 6; %SF decay=?

Measured E_γ, I_γ, γγ, γγ(θ), DCO, T_{1/2} and linear polarization using EUROGAM-2 spectrometer comprised of 52 large Ge detectors in anti-Compton shields including 24 four-crystal (clover) detectors and 4 LEPS detectors. T_{1/2} measured using a single gamma ray as a start signal while the stop was the detection of at least six gamma rays in coincidence.

⁹⁶Sr Levels

2001Ur01 adopt 1229, 0⁺ and 1465, 0⁺ levels from literature.

E(level) [†]	J ^π &	E(level) [†]	J ^π &	T _{1/2}	E(level) [†]	J ^π &
0.0 [‡]	0 ⁺	2465.9 [@] 4	6 ⁺		3850.6 [#] 5	
814.8 [‡] 3	2 ⁺	2480.3 4			3886.3 [@] 5	(10 ⁺)
1229 [@]	0 ⁺	2785.1 [‡] 4	(6 ⁺)		4130.4 [#] 6	
1465	0 ⁺	2898.7 4			4132.4 5	
1506.3 [@] 3	2 ⁺	3009.0 5			4329.6 5	
1628.4 4	2 ⁺	3125.3 [@] 4	8 ⁺		4444.4 [#] 6	
1792.0 [‡] 3	4 ⁺	3238.2 4			4724.8 [@] 6	
1975.2 [@] 3	4 ⁺	3328.1 4	(7 ⁺)		4786.4 ^{?#} 7	
2119.4 4	4 ⁽⁺⁾	3523.7 5	(9 ⁺)	40 ns 8		
2150.1 3		3604.0 [#] 4	(6 ⁺)			

[†] From least-squares fit to E_γ's, assuming Δ(E_γ)=0.3 keV for each γ ray.

[‡] Band(A): γ-sequence based on g.s..

[#] Band(B): Band based on (6⁺) 3604 level.

[@] Band(C): Band based on 0⁺ 1229 level.

[&] As given by 2001Ur01, from DCO values, Pol, band patterns.

γ(⁹⁶Sr)

For the geometry of the detectors used, DCO(calculated)=0.89 for ΔJ=2, Q; 1.09 for ΔJ=1, dipole and 0.81 for ΔJ=0, dipole.

pol(calculated)=+0.14 for ΔJ=2, E2; +0.09 for ΔJ=1, E1; -0.09 for ΔJ=1, M1; -0.25 for ΔJ=0, E1 and +0.25 for ΔJ=0, M1.

E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π	Comments
195.7	1.7 5	3523.7	(9 ⁺)	3328.1	(7 ⁺)	
246.6	1.8 6	3850.6		3604.0	(6 ⁺)	
279.8	1.0 3	4130.4		3850.6		
312.0	0.7 3	4444.4		4130.4		
328.1	0.7 3	2119.4	4 ⁽⁺⁾	1792.0	4 ⁺	
339.5	1.6 5	3238.2		2898.7		
342.0	0.5 3	4786.4?		4444.4		
347.0	5 1	1975.2	4 ⁺	1628.4	2 ⁺	
361.0	4 1	2480.3		2119.4	4 ⁽⁺⁾	
398.4	9 1	3523.7	(9 ⁺)	3125.3	8 ⁺	DCO=1.14 5. A ₂ =-0.08 2. A ₄ =+0.02 2. pol=-0.3 2.

Continued on next page (footnotes at end of table)

^{248}Cm SF decay **2001Ur01** (continued) $\gamma(^{96}\text{Sr})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
468.8	12 1	1975.2	4 ⁺	1506.3	2 ⁺		
491.0	12 1	2465.9	6 ⁺	1975.2	4 ⁺		
542.8	9 1	3328.1	(7 ⁺)	2785.1	(6 ⁺)		
644.0	1.0 2	2150.1		1506.3	2 ⁺		
659.3	20 1	3125.3	8 ⁺	2465.9	6 ⁺	E2	DCO=0.94 3. A ₂ =+0.08 2. A ₄ =0.00 2. pol=+0.2 1.
673.8	17 1	2465.9	6 ⁺	1792.0	4 ⁺	E2	DCO=0.91 4. A ₂ =+0.10 3. A ₄ =-0.02 1. pol=+0.3 1.
688.2	3 1	2480.3		1792.0	4 ⁺		DCO=0.92 7.
691.7	12 1	1506.3	2 ⁺	814.8	2 ⁺		DCO=1.21 6.
757.8	1.5 3	3238.2		2480.3			
761.0	8 1	3886.3	(10 ⁺)	3125.3	8 ⁺		A ₂ =+0.10 4. A ₄ =+0.01 2.
779.5	1 1	2898.7		2119.4	4 ⁽⁺⁾		
804.3	4 1	4132.4		3328.1	(7 ⁺)		
805.9	3 1	4329.6		3523.7	(9 ⁺)		
810.0	4 1	2785.1	(6 ⁺)	1975.2	4 ⁺		
813.9	9 1	1628.4	2 ⁺	814.8	2 ⁺		DCO=1.12 7.
814.8	100 5	814.8	2 ⁺	0.0	0 ⁺	[E2]	
838.5	4 1	4724.8		3886.3	(10 ⁺)		
862.3	1.7 5	3328.1	(7 ⁺)	2465.9	6 ⁺		
977.5	40 3	1792.0	4 ⁺	814.8	2 ⁺	E2	DCO=0.92 2. A ₂ =+0.12 1. A ₄ =-0.03 1. pol=+0.20 7.
992.9	8 1	2785.1	(6 ⁺)	1792.0	4 ⁺		DCO=1.16 6. A ₂ =+0.11 3. A ₄ =+0.01 2. pol=-0.3 2.
1106.6	2.2 6	2898.7		1792.0	4 ⁺		
1138.0	1.6 5	3604.0	(6 ⁺)	2465.9	6 ⁺		DCO=1.2 1.
1160.4	8 1	1975.2	4 ⁺	814.8	2 ⁺	E2	DCO=0.90 4. A ₂ =+0.09 3. A ₄ =+0.01 2.
1217.0	0.7 3	3009.0		1792.0	4 ⁺		
1304.0	7 1	2119.4	4 ⁽⁺⁾	814.8	2 ⁺		DCO=0.88 4.
1335.0	0.8 2	2150.1		814.8	2 ⁺		
1506.3	6 1	1506.3	2 ⁺	0.0	0 ⁺		
1812.0	0.6 2	3604.0	(6 ⁺)	1792.0	4 ⁺		

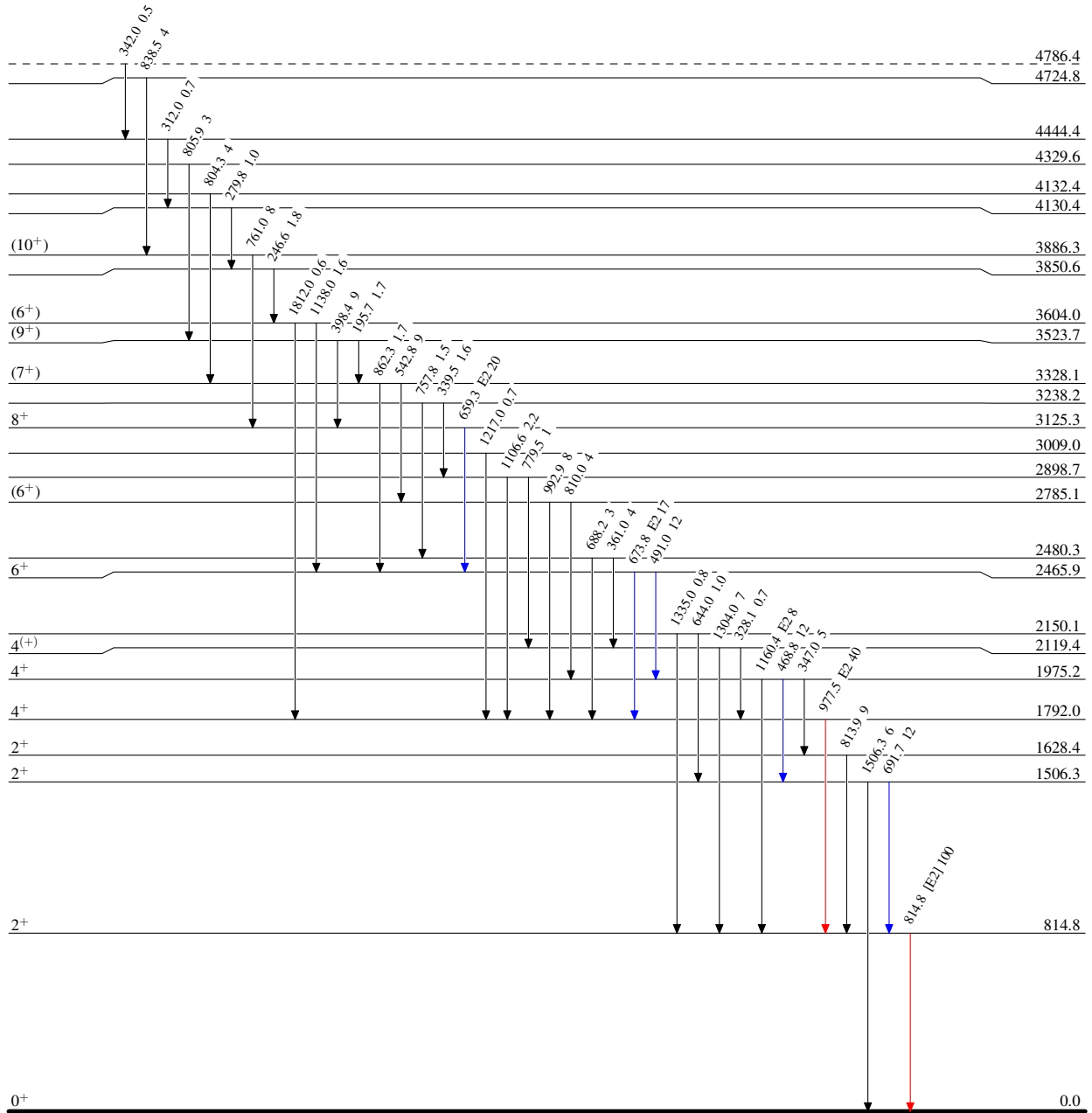
[†] From DCO, linear polarization values.

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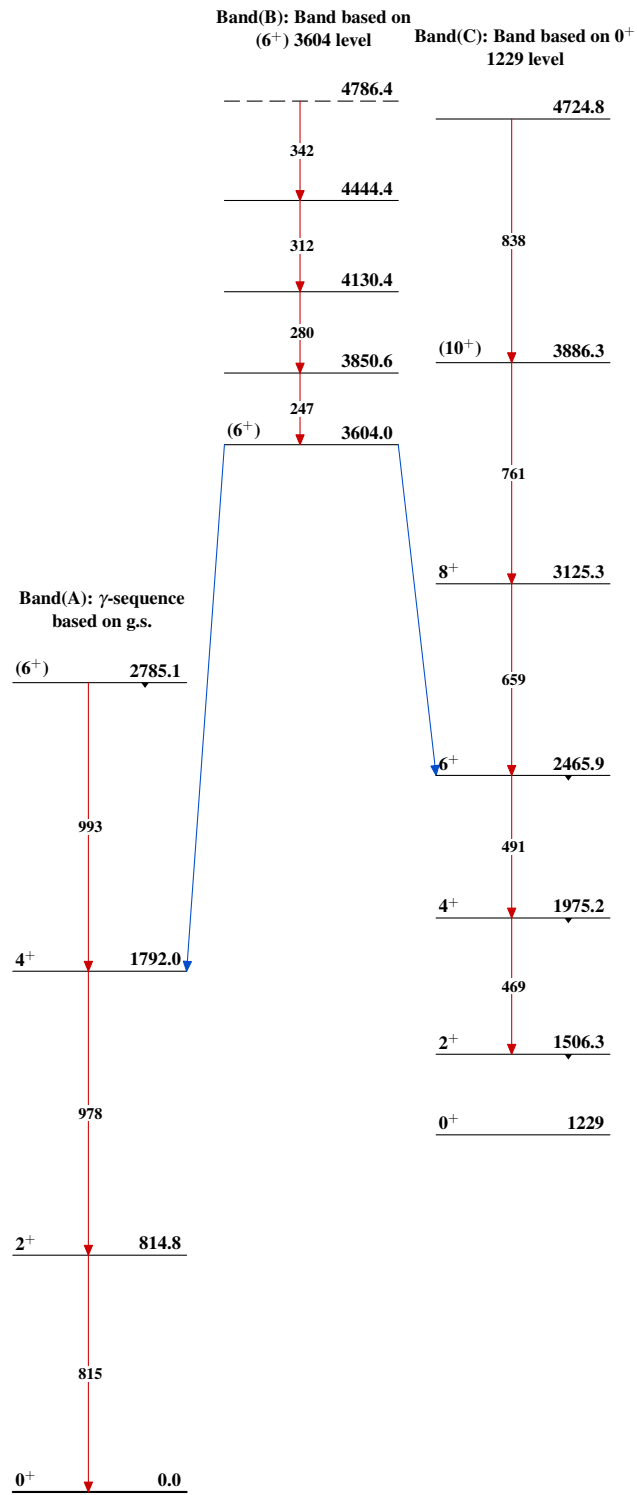
Level Scheme
Intensities: Relative I_γ

Legend

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



$^{96}_{38}\text{Sr}_{58}$

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