

²⁴⁸Cm SF decay 2015Ko05,1998Bh09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	31-Dec-2016

Parent: ²⁴⁸Cm: E=0.0; J^π=0⁺; T_{1/2}=3.48×10⁵ y 6; %SF decay=8.39 16

²⁴⁸Cm-T_{1/2}: From ²⁴⁸Cm Adopted Levels in ENSDF database.

²⁴⁸Cm-%SF decay: %SF=8.39 16 from ²⁴⁸Cm decay.

2015Ko05: measured E_γ, high-fold γγ-coin, γγ(θ) using EUROGAM-2 array. Deduced high-spin levels, J, π, configurations.

Comparison with shell-model calculations using OXBASH code.

1998Bh09: Measured E_γ, γγ, lifetimes using Eurogam II array consisting of 124 Ge detectors and four LEPS spectrometers.

¹³⁵Sb Levels

E(level) [†]	J ^π	T _{1/2}	Comments
0.0 [‡]	(7/2 ⁺) [‡]		
706.9 [‡] 1	(11/2 ⁺) [‡]		
1118.1 [‡] 2	(15/2 ⁺) [‡]		
1343.2 [‡] 2	(19/2 ⁺) [‡]	≈20 ns	T _{1/2} : from γ(t) (1998Bh09).
1972.7 3	(23/2 ⁺)		Configuration=πg _{7/2} ⊗v(f _{7/2} h _{9/2}).
2837.7 4	(21/2,23/2)		J ^π : 23/2 ⁻ suggested from proposed configuration= πh _{11/2} ⊗v f _{7/2} ² ₆₊ . However, a 21/2 ⁺ state is also predicted (see Figure 3 in 2015Ko05) in shell-model calculations.
3249.2 4	(27/2 ⁻)		Configuration=πg _{7/2} ⊗v(i _{13/2} f _{7/2}) ₁₀₋ .
3687.9 5	(29/2 ⁻)		Configuration=πg _{7/2} ⊗v(i _{13/2} h _{9/2}) ₁₁₋ .

[†] From E_γ data.

[‡] Member of πg_{7/2}v(f_{7/2}²) multiplet. This multiplet together with the long half-life of 19/2⁺ state is consistent with the calculated (**1998Bh09**) spectrum from shell model.

γ(¹³⁵Sb)

In γγ(θ), expected A₂=+0.102 and A₄=+0.009 for stretched quadrupole-stretched quadrupole cascade and A₂=-0.071 and A₄=0.0 for stretched quadrupole-stretched dipole cascade.

E _γ [†]	I _γ [†]	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [‡]	Comments
225.1 1	31 3	1343.2	(19/2 ⁺)	1118.1	(15/2 ⁺)	(E2)	E _γ : 224.9 (1998Bh09).
411.2 1	57 4	1118.1	(15/2 ⁺)	706.9	(11/2 ⁺)	Q	γγ(θ): A ₂ =+0.074 16, A ₄ =-0.018 28. E _γ : 410.9 (1998Bh09).
438.7 3	3 1	3687.9	(29/2 ⁻)	3249.2	(27/2 ⁻)		γγ(θ): A ₂ =+0.090 23, A ₄ =-0.009 37.
629.5 2	12 2	1972.7	(23/2 ⁺)	1343.2	(19/2 ⁺)	Q	E _γ : 629.1 (1998Bh09).
706.9 1	100 5	706.9	(11/2 ⁺)	0.0	(7/2 ⁺)	Q	γγ(θ): A ₂ =+0.060 53, A ₄ =-0.139 89. E _γ : 706.5 (1998Bh09).
1276.5 2	5 1	3249.2	(27/2 ⁻)	1972.7	(23/2 ⁺)		γγ(θ): A ₂ =+0.090 23, A ₄ =-0.009 37.
1494.5 3	1.5 5	2837.7	(21/2,23/2)	1343.2	(19/2 ⁺)		

[†] From **2015Ko05**. Values from **1998Bh09** are available for only the first four states, and given without uncertainties.

[‡] Stretched quadrupole from γγ(θ), assigned as (E2) in **2015Ko15**. Evaluator assigns Q, in the absence of supporting data for parity assignment.

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Level Scheme

Intensities: Relative I_γ

Legend

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

