

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	D. M. Symochko, E. Browne, J. K. Tuli		NDS 110,2945 (2009)	1-Dec-2008

Q(β⁻)=-7.71×10³ 20; S(n)=11967 19; S(p)=1515 18; Q(α)=1.61×10³ 4 [2012Wa38](#)

Note: Current evaluation has used the following Q record -7.71E+3 2011967 191515 171610 30 [2009AuZZ,2003Au03](#).

Assignment: 600-MeV protons on La, mass separation ([1978Ek03,1978Fi01,1972Ra16](#)); 24-GeV protons on Ta, Th and U, mass separation ([1969Ch18](#)).

Theory: IBFM structure calculations ([1984A119](#)).

¹¹⁹Cs Levels

The assignment of the 9/2⁺ state as the g.s. is based on systematics of heavier Cs isotopes.

Cross Reference (XREF) Flags

A (HI,xnγ)

E(level)	J ^π	T _{1/2}	XREF	Comments
0.0	9/2 ⁺	43.0 s 2	A	%ε+%β ⁺ =100 Q=+2.8 1; μ=+5.46 3 J ^π =9/2 ⁺ member of 9/2[404] band. μ,Q: LASER induced optical pumping of atomic beam (2005St24); μ value relative to μ=+2.582 1 for ¹³³ Cs (7/2 ⁺ g.s.), Q value includes the Sternheimer correction (2005St24). Possible delayed α emitter, %α<2×10 ⁻⁸ (1975Ho09). T _{1/2} : from ¹¹⁹ Cs decay. Value from γ(t) (1984IcZY). Others: 37.7 s 10 from β(t) (1972Ra16), 38 s 8 from β(t) (1969Ch18), 43 s 1 from γ(t) (2001Ge01). J ^π : from optical pumping of atomic beam (1978Fi01); shell model, configuration=(π 9/2[404]).
0.0+x	3/2 ⁽⁺⁾	30.4 s 1	A	%ε+%β ⁺ =100 Q=+0.9 1; μ=+0.838 5 Additional information 1 . μ,Q: see the above comments and references. J ^π : from optical pumping of atomic beam (1978Ek03); shell model, configuration=(π 3/2[422]). T _{1/2} : from ¹¹⁹ Cs decay. Value from γ(t) (1984IcZY). Other: 28 s 1 (quoted in 1978Ek03), 29 s 1 from γ(t) 2001Ge01 .
0.0+y ^a	(11/2 ⁻) [‡]		A	Additional information 2 . J ^π : syst of 11/2 ⁻ states in heavier odd Cs isotopes.
239.7& 8	(11/2 ⁺) [†]		A	
288.0+y ^a 10	(15/2 ⁻) [‡]		A	
509.3& 8	(13/2 ⁺) [†]		A	
762.0+y ^a 15	(19/2 ⁻) [‡]		A	
806.8& 10	(15/2 ⁺) [†]		A	
1128.7& 11	(17/2 ⁺) [†]		A	
1381.0+y ^a 18	(23/2 ⁻) [‡]		A	
1471.6& 12	(19/2 ⁺) [†]		A	
1830.0 13	(21/2 ⁺) [@]		A	
2111.0+y ^a 20	(27/2 ⁻) [‡]		A	
2199.8 13	(23/2 ⁺) [@]		A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

¹¹⁹Cs Levels (continued)

E(level)	J ^π	XREF
2575.9 14	(25/2 ⁺) [@]	A
2941.0+y 23	(31/2 ⁻) [#]	A
3857.0+y? 25	(35/2 ⁻) [#]	A
3871.0+y? 23		A
4891+y? 3		A

† From assignment to a band built on 9/2⁺ g.s. on the basis of the cascade of ΔJ=1 γ's and crossover γ's.

‡ From assignment to a band built on level with J^π=(11/2⁻) based on the cascade of ΔJ=2 γ's.

From cascade γ to a band member.

@ From γ's to levels with J-1 and J-2.

& Band(A): 9/2(404) band.

^a Band(B): decoupled band based on 1h_{11/2}.

γ(¹¹⁹Cs)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult. [‡]	Comments
239.7	(11/2 ⁺)	240 1	100	0.0	9/2 ⁺	(D+Q)	
288.0+y	(15/2 ⁻)	288 1	100	0.0+y	(11/2 ⁻)	(Q)	
509.3	(13/2 ⁺)	270 1	100	239.7	(11/2 ⁺)	(D+Q)	
		509 1	3 1	0.0	9/2 ⁺	(Q)	
762.0+y	(19/2 ⁻)	474 1	100	288.0+y	(15/2 ⁻)	(Q)	E _γ : doublet.
806.8	(15/2 ⁺)	297 1	100 20	509.3	(13/2 ⁺)	(D+Q)	
		567 1	19 4	239.7	(11/2 ⁺)	(Q)	
1128.7	(17/2 ⁺)	321 1	100 20	806.8	(15/2 ⁺)	(D+Q)	
		620 1	24 5	509.3	(13/2 ⁺)	(Q)	
1381.0+y	(23/2 ⁻)	619 1	100	762.0+y	(19/2 ⁻)	(Q)	
1471.6	(19/2 ⁺)	343 1	38 8	1128.7	(17/2 ⁺)	(D+Q)	
		665 1	100 20	806.8	(15/2 ⁺)	(Q)	
1830.0	(21/2 ⁺)	359 1	100 20	1471.6	(19/2 ⁺)		
		701 1	33 7	1128.7	(17/2 ⁺)		
2111.0+y	(27/2 ⁻)	730 1	100	1381.0+y	(23/2 ⁻)	(Q)	
2199.8	(23/2 ⁺)	370 1	100 20	1830.0	(21/2 ⁺)		
		728 1	6 1	1471.6	(19/2 ⁺)		
2575.9	(25/2 ⁺)	376 1	21 4	2199.8	(23/2 ⁺)		
		746 1	100 20	1830.0	(21/2 ⁺)		
2941.0+y	(31/2 ⁻)	830 1	100	2111.0+y	(27/2 ⁻)		
3857.0+y?	(35/2 ⁻)	916 [#] 1	100	2941.0+y	(31/2 ⁻)		
3871.0+y?		930 [#] 1		2941.0+y	(31/2 ⁻)		
4891+y?		1020 [#] 1		3871.0+y?			

† From (HI,xnγ) (1992Li22).

‡ From γ(θ) in (HI,xnγ) (1979Ga02).

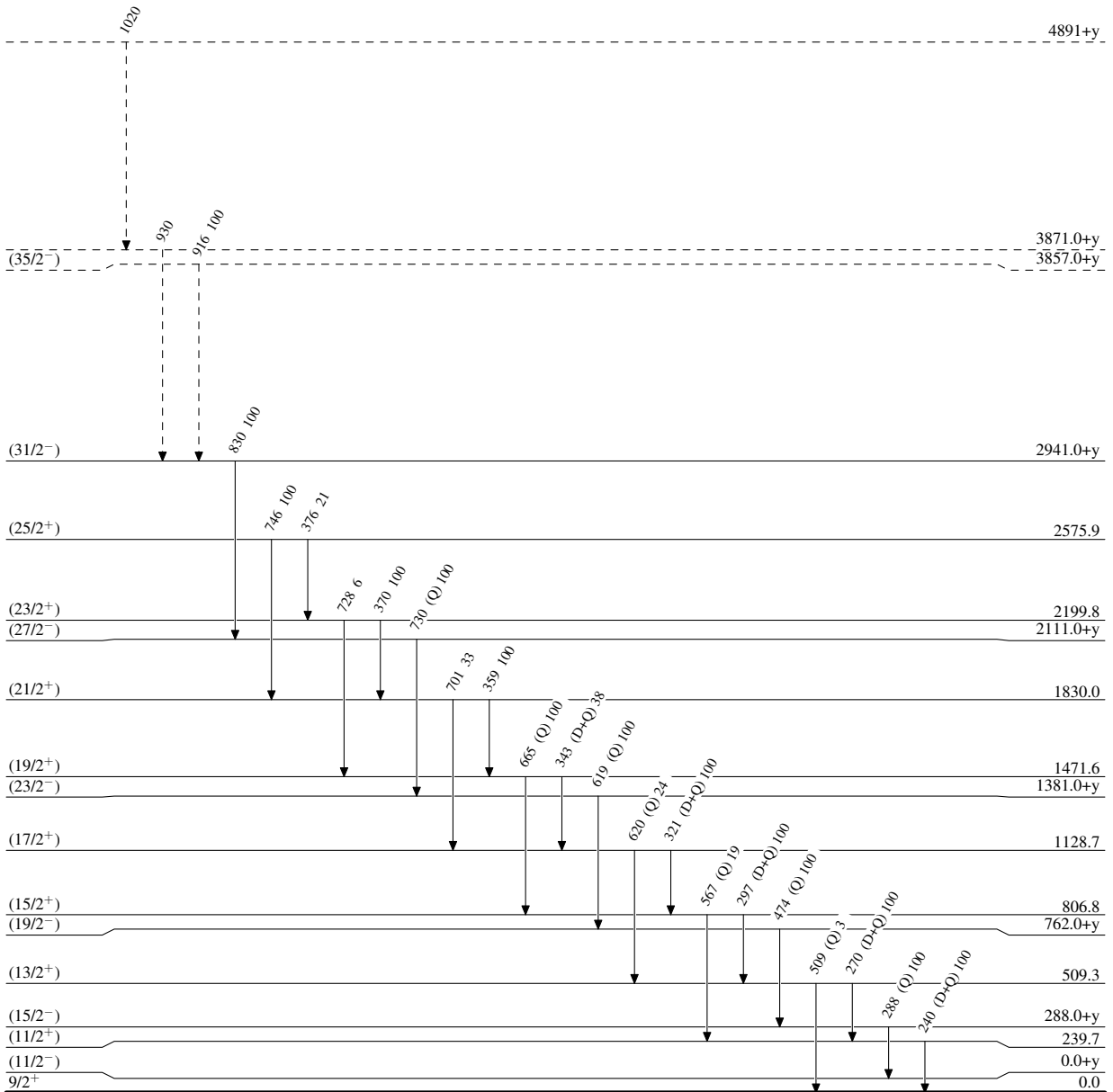
Placement of transition in the level scheme is uncertain.

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Legend

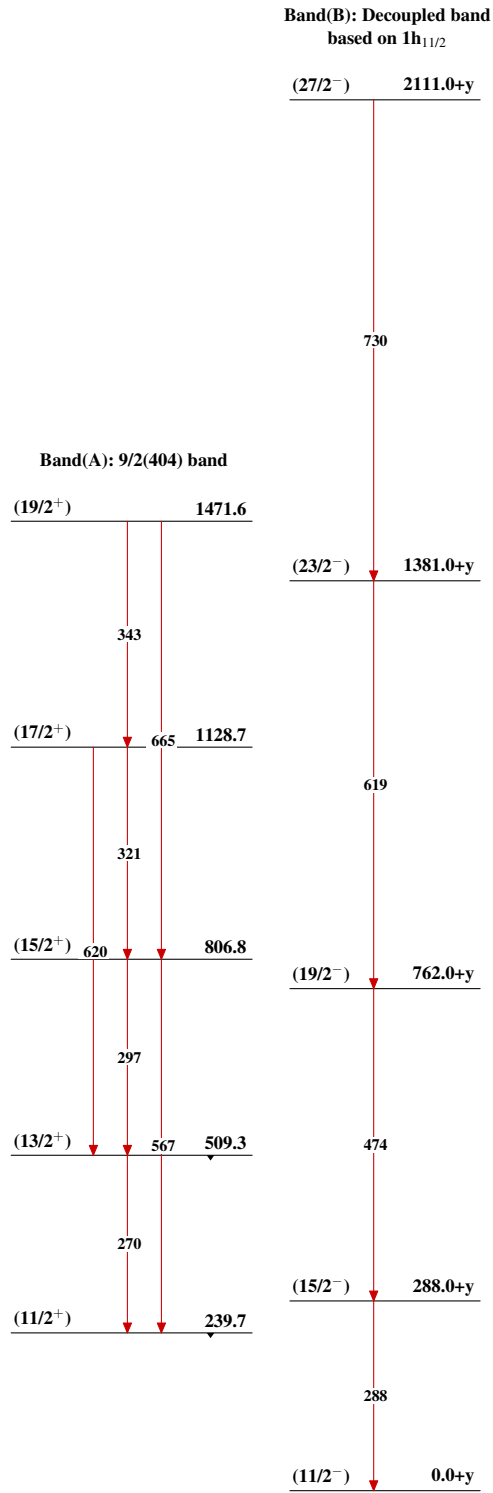
Level Scheme

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)

43.0 s 2

 $^{119}_{55}\text{Cs}_{64}$

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