

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	K. Kitao, Y. Tendow and A. Hashizume		NDS 96,241 (2002)	1-Dec-2001

$Q(\beta^-) = -1.12 \times 10^4$ syst; $S(n) = 1.24 \times 10^4$ 4; $S(p) = 3.9 \times 10^3$ 3; $Q(\alpha) = 1.7 \times 10^3$ 3 [2012Wa38](#)

Note: Current evaluation has used the following Q record -11200 SY12.7E3 113.87E3 301590 syst [1995Au04](#).

The uncertainties given by [1995Au04](#) for $Q(\beta^-)$ and $Q(\alpha)$ are 667 and 388 keV, respectively.

The decay scheme is that proposed by [2000Sm08](#) for positive parity levels and [1991Ce06](#) for negative parity levels.

^{120}Ba Levels

Cross Reference (XREF) Flags

- A (HI,xn γ)
- B ^{121}Ce ϵp decay

E(level) [‡]	J π [†]	T _{1/2}	XREF	Comments
0.0 [#]	0 ⁺	24 s 2	AB	$\% \epsilon + \% \beta^+ = 100$ T _{1/2} : multiscaling of β -gated γ 's (1992Xu04). Others: <90 s (1974Co36), 32 s 5 (1977Bo02).
186.0 [#] 10	(2 ⁺)		AB	
544.0 [#] 15	(4 ⁺)		A	
1040.2 [#] 17	(6 ⁺)		A	
1645 [#]	(8 ⁺)		A	
1763.8 ^{bc} 17	(5 ⁻)		A	
2104.7 ^{bc} 17	(7 ⁻)		A	
2336 [#]	(10 ⁺)		A	
2566.8 ^{bc} 19	(9 ⁻)		A	
3083 [#]	(12 ⁺)		A	
3137.8 ^{bc} 21	(11 ⁻)		A	
3814.8 ^{bc} 24	(13 ⁻)		A	
3856 [@]	(14 ⁺)		A	
4244 ^a	(14 ⁺)		A	
4588 ^{bc} 3	(15 ⁻)		A	
4656 [@]	(16 ⁺)		A	
5064 ^a	(16 ⁺)		A	
5434 ^{bc} 3	(17 ⁻)		A	
5517 [@]	(18 ⁺)		A	
5876 ^a			A	
6455 [@]	(20 ⁺)		A	
6688 ^{&}	(20 ⁺)		A	
7471 [@]	(22 ⁺)		A	
7569 ^{&}	(22 ⁺)		A	
8502 ^{&}	(24 ⁺)		A	
8602 [@]	(24 ⁺)		A	
9548 ^{&}	(26 ⁺)		A	
9786 [@]	(26 ⁺)		A	
10668 ^{&}	(28 ⁺)		A	
11016 [@]	(28 ⁺)		A	

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Adopted Levels, Gammas (continued)

^{120}Ba Levels (continued)

$E(\text{level})^{\ddagger}$	$J^{\pi\dagger}$	XREF	$E(\text{level})^{\ddagger}$	$J^{\pi\dagger}$	XREF	$E(\text{level})^{\ddagger}$	$J^{\pi\dagger}$	XREF
11872 ^{&}	(30 ⁺)	A	13743 [@]	(32 ⁺)	A	17378 ^{&}	(38 ⁺)	A
12339 [@]	(30 ⁺)	A	14510 ^{&}	(34 ⁺)	A	18956 ^{&}	(40 ⁺)	A
13160 ^{&}	(32 ⁺)	A	15897 ^{&}	(36 ⁺)	A	20601 ^{&}	(42 ⁺)	A

- † Given by the authors based on assumption of stretched E2 γ cascades and assigned band structure.
- ‡ From a least-squares fit to $E(\gamma'$ s), with uncertainties of 1 keV assigned by the evaluators to the $E(\gamma'$ s).
- # Band(A): g.s. yrast band.
- @ Band(B): $\pi h_{11/2}^2$ band.
- & Band(C): $\nu h_{11/2}^2 \pi h_{11/2}^2$ band.
- ^a Band(D): $\nu h_{11/2}^2$ band.
- ^b Band(E): negative parity band.
- ^c Suggested configuration as an $h_{11/2}$ proton coupled to a $9/2[404]$ orbital by 2000Sm08.

$\gamma(^{120}\text{Ba})$

$E_i(\text{level})$	J_i^{π}	E_{γ}^{\dagger}	$I_{\gamma}^{\#}$	E_f	J_f^{π}	Mult. #	Comments
186.0	(2 ⁺)	185.8	100	0.0	0 ⁺	(E2)	E_{γ} : from ^{121}Ce ϵp decay.
544.0	(4 ⁺)	358	≈ 100	186.0	(2 ⁺)	(E2)	
1040.2	(6 ⁺)	496	≈ 100	544.0	(4 ⁺)	(E2)	
1645	(8 ⁺)	606		1040.2	(6 ⁺)	(E2)	
1763.8	(5 ⁻)	1220		544.0	(4 ⁺)		
2104.7	(7 ⁻)	341		1763.8	(5 ⁻)		
		457		1645	(8 ⁺)		
		1065		1040.2	(6 ⁺)		
2336	(10 ⁺)	691		1645	(8 ⁺)	(E2)	
2566.8	(9 ⁻)	462		2104.7	(7 ⁻)		
		920		1645	(8 ⁺)		
3083	(12 ⁺)	747		2336	(10 ⁺)	(E2)	
3137.8	(11 ⁻)	571		2566.8	(9 ⁻)		
3814.8	(13 ⁻)	677		3137.8	(11 ⁻)		
3856	(14 ⁺)	773 [‡]		3083	(12 ⁺)	(E2)	
4244	(14 ⁺)	388 [@]		3856	(14 ⁺)	(E2)	
		1161 [‡]		3083	(12 ⁺)		
4588	(15 ⁻)	773		3814.8	(13 ⁻)		
4656	(16 ⁺)	800		3856	(14 ⁺)	(E2)	
5064	(16 ⁺)	820		4244	(14 ⁺)		
5434	(17 ⁻)	846		4588	(15 ⁻)		
5517	(18 ⁺)	861		4656	(16 ⁺)	(E2)	
5876		812		5064	(16 ⁺)		
6455	(20 ⁺)	938		5517	(18 ⁺)	(E2)	
6688	(20 ⁺)	812 [‡]		5876			
7471	(22 ⁺)	1016		6455	(20 ⁺)	Q	
7569	(22 ⁺)	881		6688	(20 ⁺)		
		1112 [@]		6455	(20 ⁺)		
8502	(24 ⁺)	933		7569	(22 ⁺)		
		1030 [‡]		7471	(22 ⁺)		
8602	(24 ⁺)	1131		7471	(22 ⁺)		
9548	(26 ⁺)	1046		8502	(24 ⁺)		
9786	(26 ⁺)	1184		8602	(24 ⁺)		
10668	(28 ⁺)	1120		9548	(26 ⁺)		

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Adopted Levels, Gammas (continued) $\gamma(^{120}\text{Ba})$ (continued)

<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_γ^\dagger</u>	<u>E_f</u>	<u>J_f^π</u>	<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_γ^\dagger</u>	<u>E_f</u>	<u>J_f^π</u>
11016	(28 ⁺)	1230	9786	(26 ⁺)	14510	(34 ⁺)	1350	13160	(32 ⁺)
11872	(30 ⁺)	1204	10668	(28 ⁺)	15897	(36 ⁺)	1387	14510	(34 ⁺)
12339	(30 ⁺)	1323	11016	(28 ⁺)	17378	(38 ⁺)	1481	15897	(36 ⁺)
13160	(32 ⁺)	1288	11872	(30 ⁺)	18956	(40 ⁺)	1576	17378	(38 ⁺)
13743	(32 ⁺)	1404	12339	(30 ⁺)	20601	(42 ⁺)	1645	18956	(40 ⁺)

[†] From authors' drawing (2000Sm08), unless otherwise noted.

[‡] Interband (crossing) transition.

From (HL,xn γ).

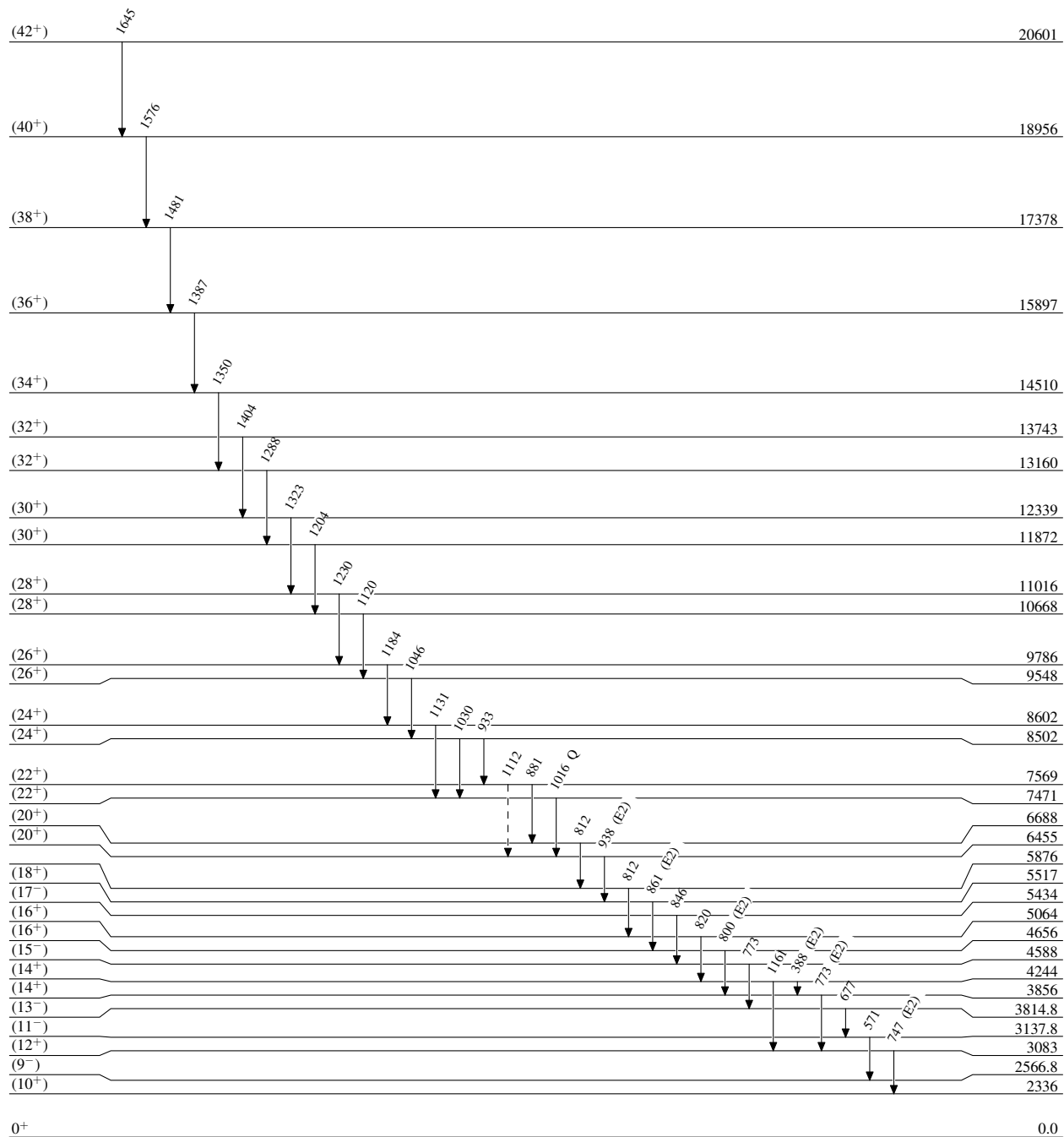
@ Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

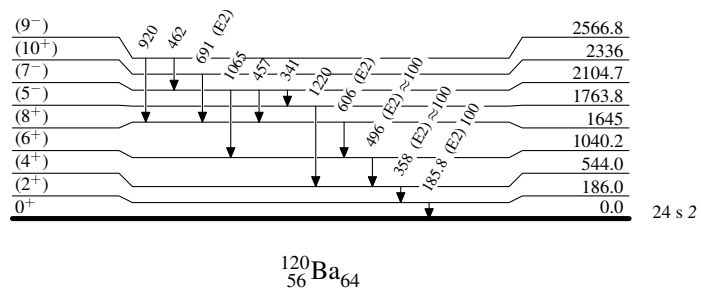
Level Scheme

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level



Adopted Levels, Gammas