Coulomb excitation 1985DeZR,1958Ne03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	B. Singh, J. K. Tuli, E. Browne	NDS 170, 499 (2020)	8-Oct-2020

1985DeZR (thesis, also 1976De46,1977BeXT,1978DeZH): (^{84}Kr,^{84}Kr′γ),E=340, 460 MeV. Measured Eγ, Iγ.
1958Ne03: ^{233}U(α,α′γ) E(α)=2.85 MeV.
All data are from 1985DeZR unless otherwise stated.

^{233}U Levels

E(level)[†]	Jπ[‡]	$T_{1/2}$	Comments
0.0[#]	5/2+		
40.41[@] *14*	7/2+	≈0.12 ns	B(E2)↑=5 *3* B(E2)=12 *2* was obtained by 1958Ne03, α(40γ)=870 *+150−100* corresponding to %M1/%E2=4.2 was assumed. α(40.4γ)=350 *190* has been adopted by the evaluators from ^{233}Pa β^- decay. Correction for the adopted α yields B(E2)=4.8 *29*. $T_{1/2}$: deduced from B(E2)=5 *3*.
92.47[#] *16*	9/2+		B(E2)=2.38 *14* was given by 1958Ne03 assuming δ(51.5γ)=2.0 *+30−5*, α(51.5γ)=279, α(92γ)=14.5. There are no ce data available for 51.5γ. B(E2)≤2.8 *4* was deduced by 1968St22 from ^{233}U(d,d′) data.
155.65[@] *21*	11/2+		
230.09[#] *19*	13/2+		
298.80[&] *20*	5/2−		
301.85 *16*	5/2−		Possible 5/2[752] bandhead.
311.5 *3*	3/2+		Possible 3/2[631] bandhead.
315.25[@] *21*	15/2+		
320.35[&] *23*	7/2−		
330.59 *18*	7/2+		Possible 7/2[624] bandhead.
353.88[&] *22*	9/2−		
398.0[&] *4*	11/2−		
411.71[#] *21*	17/2+		
517.96[@] *23*	19/2+		
635.5[#] *3*	21/2+		
761.6[@] *3*	23/2+		
899.2[#] *3*	25/2+		
1043.5[@] *4*	27/2+		
1199.8[#] *4*	29/2+		
1361.1[@] *4*	31/2+		
1535.2[#] *4*	33/2+		
1711.8[@] *5*	35/2+		
1902.8[#] *5*	37/2+		
2093.6[@] *5*	39/2+		
2300.3[#] *10*	41/2+		

[†] From least-squares fit to Eγ data.
[‡] As proposed by 1985DeZR.
[#] Band(A): ν5/2[633],α=+1/2.
[@] Band(B): ν5/2[633],α=−1/2.
[&] Band(C): Band based on 5/2−.

Coulomb excitation 1985DeZR,1958Ne03 (continued)

$\gamma(^{233}U)$

E_γ[†]	I_γ[‡]	E_i(level)	J^π_i	E_f	J^π_f	α[&]	Comments
40.4[#] 2		40.41	7/2+	0.0	5/2+	3.5×10² 19	I_γ: 100 (1958Ne03).
51.5[#] 5		92.47	9/2+	40.41	7/2+		I_γ: 12.2 20 (1958Ne03).
63.4 2	9[@] 4	155.65	11/2+	92.47	9/2+		
74.5 2	10 4	230.09	13/2+	155.65	11/2+		I_γ: 10 4 at E(^{84}Kr)=340 MeV.
85.1 2	16 6	315.25	15/2+	230.09	13/2+		I_γ: 12 3 at E(^{84}Kr)=340 MeV.
92.5 2	16 5	92.47	9/2+	0.0	5/2+		I_γ: 57 5 (1958Ne03). I_γ: 10 8 at E(^{84}Kr)=340 MeV.
96.49 15	24 7	411.71	17/2+	315.25	15/2+		I_γ: 20 4 at E(^{84}Kr)=340 MeV.
106.27 15	8 4	517.96	19/2+	411.71	17/2+		I_γ: 5 2 at E(^{84}Kr)=340 MeV.
137.57 12	44 4	230.09	13/2+	92.47	9/2+		I_γ: 52 4 at E(^{84}Kr)=340 MeV.
159.62 12	60 5	315.25	15/2+	155.65	11/2+		I_γ: 79 7 at E(^{84}Kr)=340 MeV.
181.63 12	69 8	411.71	17/2+	230.09	13/2+		I_γ: 93 9 at E(^{84}Kr)=340 MeV.
198.7 5	6 2	353.88	9/2−	155.65	11/2+		
202.69 12	95 10	517.96	19/2+	315.25	15/2+		I_γ: 100 9 at E(^{84}Kr)=340 MeV.
223.80 15	90 9	635.5	21/2+	411.71	17/2+		I_γ: 66 7 at E(^{84}Kr)=340 MeV.
238.0 2	9 3	330.59	7/2+	92.47	9/2+		
243.6 2	100 5	761.6	23/2+	517.96	19/2+		I_γ: 47 2 at E(^{84}Kr)=340 MeV.
261.4[a] 2	9[a] 2	301.85	5/2−	40.41	7/2+		
261.4[a] 2	9[a] 2	353.88	9/2−	92.47	9/2+		I_γ: 7 2 at E(^{84}Kr)=340 MeV.
263.68 15	81 9	899.2	25/2+	635.5	21/2+		I_γ: 28 2 at E(^{84}Kr)=340 MeV.
279.9 3	14 4	320.35	7/2−	40.41	7/2+		
281.91 15	82 7	1043.5	27/2+	761.6	23/2+		I_γ: 16 2 at E(^{84}Kr)=340 MeV.
290.4 2	20 6	330.59	7/2+	40.41	7/2+		
298.8 2	12 3	298.80	5/2−	0.0	5/2+		I_γ: 6 2 at E(^{84}Kr)=340 MeV.
300.60 15	57 6	1199.8	29/2+	899.2	25/2+		I_γ: 7 2 at E(^{84}Kr)=340 MeV.
301.9 2	6[@] 2	301.85	5/2−	0.0	5/2+		
305.5 3	8 3	398.0	11/2−	92.47	9/2+		
311.5 3	4[@] 2	311.5	3/2+	0.0	5/2+		
313.2 4	5 3	353.88	9/2−	40.41	7/2+		
317.67 15	39 4	1361.1	31/2+	1043.5	27/2+		I_γ: 5 3 at E(^{84}Kr)=340 MeV.
320.4 3	10 2	320.35	7/2−	0.0	5/2+		
330.0 5	6 3	330.59	7/2+	0.0	5/2+		
335.4 2	20 4	1535.2	33/2+	1199.8	29/2+		I_γ: 3 1 at E(^{84}Kr)=340 MeV.
350.7 2	12 3	1711.8	35/2+	1361.1	31/2+		
367.6 2	13 3	1902.8	37/2+	1535.2	33/2+		
381.8 2	8 3	2093.6	39/2+	1711.8	35/2+		
397.5 8	6 3	2300.3	41/2+	1902.8	37/2+		

[†] From 1985DeZR, unless otherwise stated. Weighted averages taken (by the evaluators) from two sets of energies listed by 1985DeZR, one at E(^{84}Kr)=340 MeV and the second at 460 MeV.
[‡] From 1985DeZR at E(^{84}Kr)=460 MeV, unless otherwise stated.
[#] From 1958Ne03.
[@] From E(^{84}Kr)=340 MeV data, relative to 100 for 202.7γ; γ not reported in E(^{84}Kr)=460 MeV data.
[&] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[a] Multiply placed with undivided intensity.

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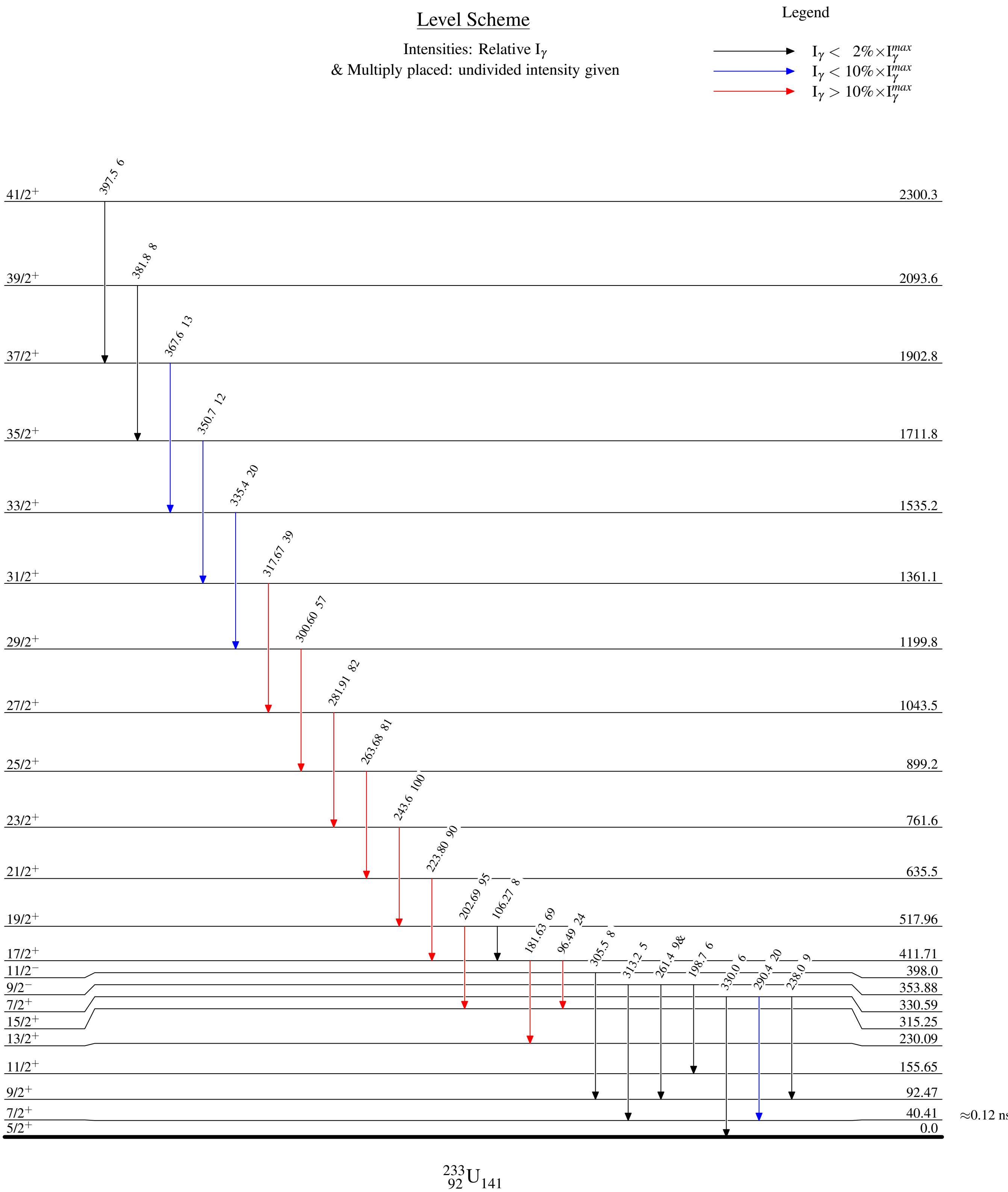
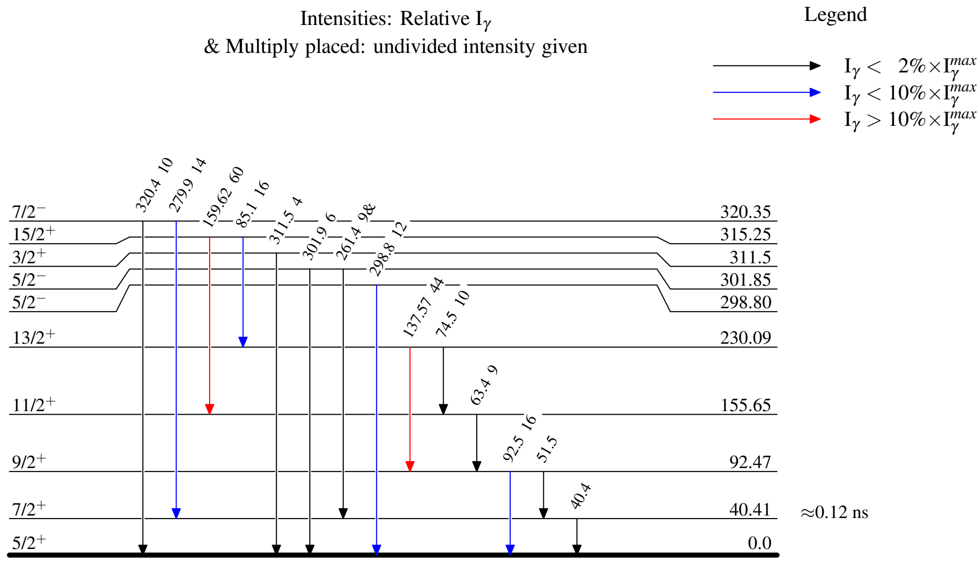


Coulomb excitation 1985DeZR,1958Ne03

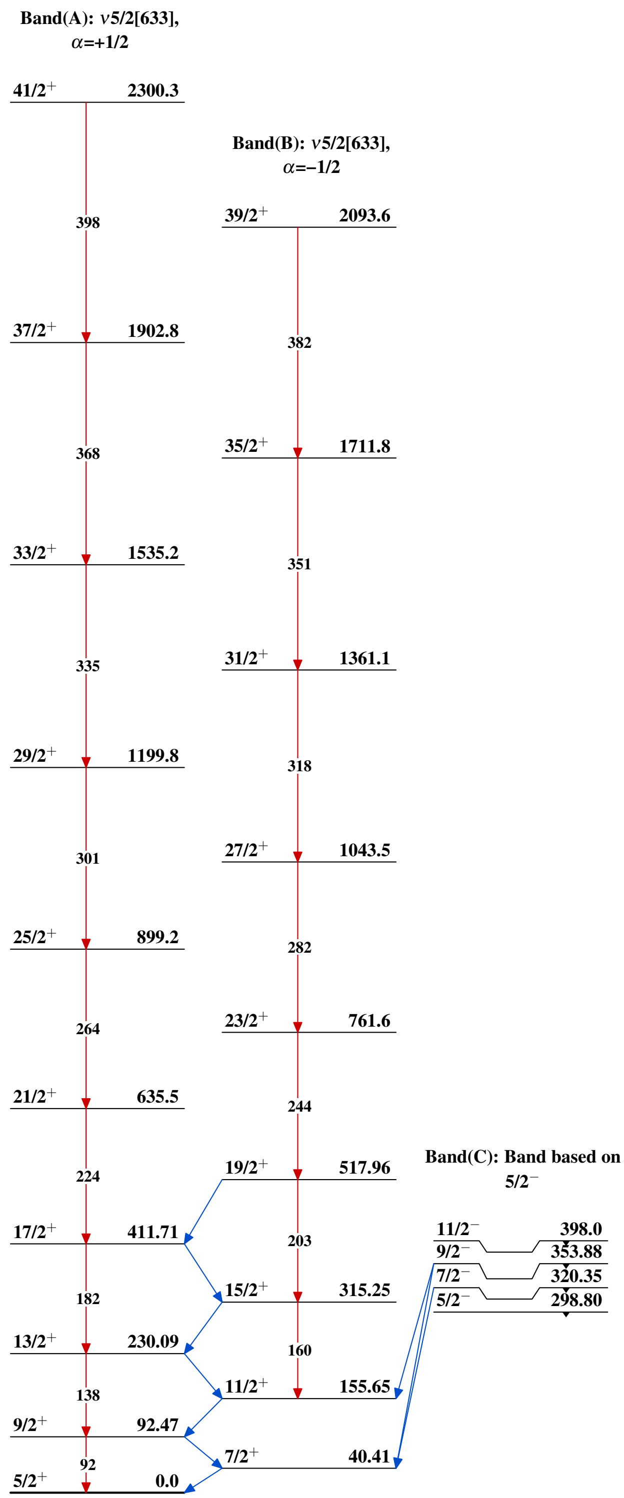
Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given



$^{233}_{92}U_{141}$

Coulomb excitation 1985DeZR,1958Ne03



$^{233}_{92}U_{141}$