Erratum: Backbending in the pear-shaped $^{223}_{90}\text{Th}$ nucleus: Evidence of a high-spin octupole to quadrupole shape transition in the actinides [Phys. Rev. C **95**, 034304 (2017)]

G. Maquart, L. Augey, L. Chaix, I. Companis, C. Ducoin, J. Dudouet, D. Guinet, G. Lehaut, C. Mancuso, N. Redon, O. Stézowski, A. Vancraeynest, A. Astier, F. Azaiez, S. Courtin, D. Curien, I. Deloncle, O. Dorvaux, G. Duchêne, B. Gall, T. Grahn, P. Greenlees, A. Herzan, K. Hauschild, U. Jakobsson, P. Jones, R. Julin, S. Juutinen, S. Ketelhut, M. Leino, A. Lopez-Martens, P. Nieminen, P. Petkov, P. Peura, M.-G. Porquet, P. Rahkila, S. Rinta-Antila, M. Rousseau, P. Ruotsalainen, M. Sandzelius, J. Sarén, C. Scholey, J. Sorri, S. Stolze, and J. Uusitalo

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In Table I of the original article we published a misleading compilation by not indicating which results were new and which were obtained from an earlier (1988) paper. In particular, many intensities in Table I were essentially carried over from Ref. [8]. That paper provided total decay intensities and conversion coefficients. Our listed γ -ray intensities (and their uncertainties) in column 2 were obtained from that earlier paper by dividing the total intensities given in Ref. [8] by $(1 + \alpha)$, where α is the conversion coefficient, also given in Ref. [8]. We should have given proper attribution, in particular, because those numbers do not appear explicitly in the 1988 paper but were nonetheless obtained directly from it. Accordingly, the caption for our Table I is misleading when it refers to “Observed γ rays...” and states “Intensities measured in this experiment are given...,” whereas many of those intensities stemmed from the 1988 paper. This Erratum gives a corrected Table I and caption. The first part of the caption is revised from the original publication. Data taken from the 1988 paper are identified by boldface font. The other results and conclusions of the original article are not affected. We apologize for not having indicated which part of the data presented in Table I of the original article were taken from an earlier publication.

TABLE I. γ -ray transitions observed in this paper and in Ref. [8], ordered by energy belonging to ^{223}Th . Uncertainties in transition energies are typically between 0.1 and 0.5 keV. γ -ray transitions and their intensities and uncertainties measured in Ref. [8] are listed in boldface font and marked with a dagger ($\dagger$) along with others seen for the first time in this experiment and which are given with the requirement that a minimum of three unsuppressed Ge detectors fired in prompt coincidence. All γ -ray intensities are normalized to the 123.5-keV transition. For total intensity, see Ref. [8] when a conversion coefficient has been calculated. Spin and parity are determined under the assumption that the spin parity of the ground state is $\frac{5}{2}^{+}$. ($\circ$) The angular distribution ratio is calculated in the presence of an unresolved doublet. (*) Tentative γ ray. ($\bullet$) Unplaced transition. ($\dagger$, **boldface**) Transition intensity and uncertainty adopted from Ref. [8].

E_{γ} (keV)	I_{γ}	R_{ADO}	ΔI	I_i^{π}	I_f^{π}	Localization
31.9$\dagger$	19(9)$\dagger$		1	$\frac{11}{2}^{+}$	$\frac{9}{2}^{-}$	1b-1a
51.3$\dagger$	7(2)$\dagger$		1	$\frac{7}{2}^{+}$	$\frac{5}{2}^{+}$	1b-2b
67.5$\dagger$	12(3)$\dagger$		1	$\frac{9}{2}^{+}$	$\frac{7}{2}^{+}$	2b-1b
76.8$\dagger$	63(12)$\dagger$		1	$\frac{13}{2}^{+}$	$\frac{11}{2}^{-}$	2b-2a
87.4$\dagger$	44(5)$\dagger$		1	$\frac{19}{2}^{-}$	$\frac{17}{2}^{+}$	2a-2b
92.3$\dagger$	83(12)$\dagger$		1	$\frac{15}{2}^{-}$	$\frac{13}{2}^{+}$	2a-2b
93.4$\dagger$	11(3)$\dagger$		1	$\frac{11}{2}^{+}$	$\frac{9}{2}^{+}$	1b-2b
103.8	36(14)	0.91(7)	1	$\frac{23}{2}^{-}$	$\frac{21}{2}^{+}$	2a-2b
104.8	45(14)	0.84(6)	1	$\frac{15}{2}^{+}$	$\frac{13}{2}^{-}$	1b-1a
108.6	10(5)		1	$\frac{13}{2}^{+}$	$\frac{11}{2}^{+}$	2b-1b
111.4$\dagger$	76(4)$\dagger$	0.63(7)	1	$\frac{13}{2}^{-}$	$\frac{11}{2}^{+}$	1a-1b
118.4$\dagger$	35(8)$\dagger$	0.73(7)	1	$\frac{17}{2}^{-}$	$\frac{15}{2}^{+}$	1a-1b
118.7$\dagger$	6(3)$\dagger$		2	$\frac{9}{2}^{+}$	$\frac{5}{2}^{+}$	2b-2b
123.5$\dagger$	77$\dagger$	0.88(8)	1	$\frac{11}{2}^{-}$	$\frac{9}{2}^{+}$	2a-2b
127.8$\dagger$	14(3)$\dagger$	0.87(7)	1	$\frac{27}{2}^{-}$	$\frac{25}{2}^{+}$	2a-2b

TABLE I. (*Continued.*)

E_γ (keV)	I_γ	R_{ADO}	ΔI	I_i^π	I_f^π	Localization
129.3[†]	50(4)[†]	0.67(7)	1	$\frac{9}{2}^-$	$\frac{7}{2}^+$	1a-1b
131.9[†]	37(8)[†]	0.72(7)	1	$\frac{21}{2}^-$	$\frac{19}{2}^+$	1a-1b
145.8 ^(•)						Linked to 1a
150.0[†]	18(4)[†]	0.84(8)	1	$\frac{31}{2}^-$	$\frac{29}{2}^+$	2a-2b
156.9	51(5)	0.81(7)	1	$\frac{17}{2}^+$	$\frac{15}{2}^-$	2b-2a
157.2	34(5)	0.73(7)	1	$\frac{25}{2}^-$	$\frac{23}{2}^+$	1a-1b
158.3[†]	64(5)[†]	0.69(8)	1	$\frac{19}{2}^+$	$\frac{17}{2}^-$	1b-1a
161.0[†]	15(5)[†]		2	$\frac{11}{2}^+$	$\frac{7}{2}^+$	1b-1b
169.0[†]	8(4)[†]	1.12(12)	2	$\frac{15}{2}^-$	$\frac{11}{2}^-$	2a-2a
169.6	10.6(24)	0.75(9)	1	$\frac{35}{2}^-$	$\frac{33}{2}^+$	2a-2b
183.1[†]	38(9)[†]	0.74(7)	1	$\frac{23}{2}^+$	$\frac{21}{2}^-$	1b-1a
187.3[†]	49(3)[†]	0.71(7)	1	$\frac{29}{2}^-$	$\frac{27}{2}^+$	1a-1b
190.0	5.3(15)	0.74(10)	1	$\frac{39}{2}^-$	$\frac{37}{2}^+$	2a-2b
191.1[†]	38(3)[†]	0.67(7)	1	$\frac{27}{2}^+$	$\frac{25}{2}^-$	1b-1a
197.8	25.3(37)	0.69(7)	1	$\frac{31}{2}^+$	$\frac{29}{2}^-$	1b-1a
200.3	44(3)	0.89(7)	1	$\frac{21}{2}^+$	$\frac{19}{2}^-$	2b-2a
200.9	18(2)		2	$\frac{13}{2}^+$	$\frac{9}{2}^+$	2b-2b
201.2	15.7(42)	0.63(10)	1	$\frac{39}{2}^+$	$\frac{37}{2}^-$	1b-1a
202.7	13.6(27)	0.73(10)	1	$\frac{35}{2}^+$	$\frac{33}{2}^-$	1b-1a
210.7	1.9(9)	0.65(1)	1	$\frac{43}{2}^-$	$\frac{41}{2}^+$	2a-2b
213.1	35.1(63)	0.76(7)	1	$\frac{33}{2}^-$	$\frac{31}{2}^+$	1a-1b
216.6[†]	20(4)[†]	1.03(7)	2	$\frac{15}{2}^+$	$\frac{11}{2}^+$	1b-1b
222.6	34(3)	0.77(7)	1	$\frac{25}{2}^+$	$\frac{23}{2}^-$	2b-2a
223.2			2	$\frac{17}{2}^-$	$\frac{13}{2}^-$	1a-1a
237.0[†]	30(3)[†]	0.87(8)	1	$\frac{29}{2}^+$	$\frac{27}{2}^-$	2b-2a
240.5	16.5(35)	0.82(8)	1	$\frac{37}{2}^-$	$\frac{35}{2}^+$	1a-1b
243.9[†]	14(6)[†]	1.26(9)	2	$\frac{19}{2}^-$	$\frac{15}{2}^-$	2a-2a
249.5	6(4)		2	$\frac{17}{2}^+$	$\frac{13}{2}^+$	2b-2b
250.0 ^(•)	25(5)	0.80(7)	1	$\frac{33}{2}^+$	$\frac{31}{2}^-$	2b-2a
250.0 ^(•)	3.4(14)	0.80(7)	1	$\frac{45}{2}^+$	$\frac{43}{2}^-$	2b-2a
259.5 ^(•)	10.4(29)	0.70(9)	1	$\frac{37}{2}^+$	$\frac{35}{2}^-$	2b-2a
260.5 ^(•)	6.4(17)	0.70(9)	1	$\frac{41}{2}^+$	$\frac{39}{2}^-$	2b-2a
268.7	16.1(43)	0.80(9)	1	$\frac{33}{2}^-$	$\frac{31}{2}^+$	3b-3a
269.8	7.8(22)	0.64(9)	1	$\frac{41}{2}^-$	$\frac{39}{2}^+$	1a-1b
276.9[†]	10.7(25)[†]	1.31(8)	2	$\frac{19}{2}^+$	$\frac{15}{2}^+$	1b-1b
288.4[†]	3.9(9)[†]	1.43(11)	2	$\frac{21}{2}^+$	$\frac{17}{2}^+$	2b-2b
290.5[†]	15(2)[†]	1.30(7)	2	$\frac{21}{2}^-$	$\frac{17}{2}^-$	1a-1a
296.8	9.2(26)	0.73(12)	1	$\frac{29}{2}^-$	$\frac{27}{2}^+$	3b-3a
300.8	10.5(34)	0.78(10)	1	$\frac{25}{2}^-$	$\frac{23}{2}^+$	3b-3a
305.2[†]	19(2)[†]	1.38(9)	2	$\frac{23}{2}^-$	$\frac{19}{2}^-$	2a-2a
315.2[†]	4.8(9)[†]	1.19(9)	2	$\frac{23}{2}^+$	$\frac{19}{2}^+$	1b-1b
326.6	4.4(18)	1.15(12)	2	$\frac{25}{2}^+$	$\frac{21}{2}^+$	2b-2b
331.4	6.5(24)	1.44(11)	2	$\frac{27}{2}^+$	$\frac{23}{2}^+$	3a-3a
340.7[†]	8.1(27)[†]	1.31(8)	2	$\frac{25}{2}^-$	$\frac{21}{2}^-$	1a-1a

TABLE I. (*Continued.*)

E_γ (keV)	I_γ	R_{ADO}	ΔI	I_i^π	I_f^π	Localization
348.6[†]	10.8(36)[†]	1.05(10)	2	$\frac{27}{2}^+$	$\frac{23}{2}^+$	1b-1b
351.0[†]	19.9(54)[†]	1.23(8)	2	$\frac{27}{2}^-$	$\frac{23}{2}^-$	2a-2a
353.3	11.6(19)	0.82(9)	1	$\frac{23}{2}^{(+)}$	$\frac{21}{2}^+$	3a-2b
357.9	8.0(17)	0.79(9)	1	$\frac{27}{2}^{(+)}$	$\frac{25}{2}^+$	3a-2b
365.5	9.2(22)	0.75(11)	1	$\frac{31}{2}^{(+)}$	$\frac{29}{2}^+$	3a-2b
366.2[†]	9.1(27)[†]	1.60(15)	2	$\frac{29}{2}^+$	$\frac{25}{2}^+$	2b-2b
371.7	3.4(10)	0.72(10)	1	$\frac{35}{2}^{(+)}$	$\frac{33}{2}^+$	3a-2b
373.1	9.3(23)	1.15(9)	2	$\frac{31}{2}^{(+)}$	$\frac{27}{2}^{(+)}$	3a-3a
378.6	9.2(28)	1.29(10)	2	$\frac{29}{2}^-$	$\frac{25}{2}^-$	1a-1a
386.0[†]	4.6(19)[†]	1.24(11)	2	$\frac{31}{2}^+$	$\frac{27}{2}^+$	1b-1b
387.7[†]	11(3)[†]	1.48(9)	2	$\frac{31}{2}^-$	$\frac{27}{2}^-$	2a-2a
400.3	12(3)	1.21(11)	2	$\frac{33}{2}^+$	$\frac{29}{2}^+$	2b-2b
(406.1) ^(*)	5.0(35)	1.29(10)	2	$\frac{35}{2}^{(+)}$	$\frac{31}{2}^{(+)}$	3a-3a
411.5	7.1(13)	1.24(8)	2	$\frac{33}{2}^-$	$\frac{29}{2}^-$	1a-1a
416.9	10.6(25)	1.28(11)	2	$\frac{35}{2}^+$	$\frac{31}{2}^+$	1b-1b
420.1	8.0(19)	1.44(9)	2	$\frac{35}{2}^-$	$\frac{31}{2}^-$	2a-2a
428.8	8.8(22)	1.34(10)	2	$\frac{37}{2}^+$	$\frac{33}{2}^+$	2b-2b
434.7 ^(•)	< 0.8					
442.7 ^(◦)	8.5(22)	1.34(9)	2	$\frac{39}{2}^+$	$\frac{35}{2}^+$	1b-1b
444.4 ^(◦)	9.4(25)	1.34(9)	2	$\frac{37}{2}^-$	$\frac{33}{2}^-$	1a-1a
450 ^(◦)	3.5(14)	1.34(10)	2	$\frac{39}{2}^-$	$\frac{35}{2}^-$	2a-2a
452 ^(◦)	3.3(13)	1.34(10)	2	$\frac{41}{2}^+$	$\frac{37}{2}^+$	2b-2b
455.6	0.8(4)	1.29(15)	2	$\frac{49}{2}^+$	$\frac{45}{2}^+$	2b-2b
461.9	1.5(9)	1.18(13)	2	$\frac{45}{2}^+$	$\frac{41}{2}^+$	2b-2b
463.1	5.4(17)	1.13(11)	2	$\frac{43}{2}^+$	$\frac{39}{2}^+$	1b-1b
471.7	7.2(34)	1.17(12)	2	$\frac{41}{2}^-$	$\frac{37}{2}^-$	1a-1a
472.5	5.4(21)	1.62(11)	2	$\frac{43}{2}^-$	$\frac{39}{2}^-$	2a-2a
475.8	1.4(7)	1.52(18)	2	$\frac{47}{2}^-$	$\frac{43}{2}^-$	2a-2a
(487.9) ^(*)	2.2(10)	1.38(13)	2	$\frac{45}{2}^-$	$\frac{41}{2}^-$	1a-1a

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