Erratum: One- and two-phonon γ -vibrational bands in neutron-rich ^{107}Mo [Phys. Rev. C **96**, 034319 (2017)]

J. Marcellino, E. H. Wang , C. J. Zachary, J. H. Hamilton, A. V. Ramayya, G. H. Bhat, J. A. Sheikh, A. C. Dai, W. Y. Liang, F. R. Xu, J. K. Hwang, N. T. Brewer, Y. X. Luo, J. O. Rasmussen, S. J. Zhu, G. M. Ter-Akopian, and Yu. Ts. Oganessian

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In this Erratum to our paper, we report the new level scheme of ^{107}Mo and the physical influence of those changes and other typographical errors in the original paper. The level scheme has been updated for the following reasons:

In our original paper, we defined level energies based on certain transitions and then adjusted the raw data for other transitions to fit those energies. This is not correct scientific procedure as it alters the original data to match preconceived beliefs, and it has the danger of introducing incorrect transition and level energies into the literature. The main purpose of this Erratum is to provide the original data.

In the interim since our original paper, a new paper from the β -decay experiment Ref. [1] showed that our level scheme is not built on the ground state but on an excited isomer at 65.4 keV. Therefore, all our level energies should be added by this value due to using the correct γ -ray energies and by an additional 65.4 keV. The corrected level scheme is shown in Fig. 1.

Everywhere in the text where our original paper specified transition or level energies, these should now be replaced by the corresponding ones in boldface in Table I. This includes the transition energy labels in the original Figs. 2–4.

TABLE I. List of the γ -ray transition energies in keV in ^{107}Mo . The old energy values are also listed for comparison. In the table, original stands for the original paper, new stands for the correct ones in this Erratum. The adjusted correct γ -ray energies are labeled with asterisks. The other γ -ray energies remain the same.

E_γ		E_i		E_γ		E_i	
Original	New	Original	New	Original	New	Original	New
110.2	110.3*	458.5	532.8	548.7	548.7	1386.7	1452.2
123.4	123.4	581.9	647.3	549.3	549.3	1131.2	1196.7
149.8	150.0*	987.8	1053.4	555.0	555.0	1393.0	1458.6
152.1	152.1	152.1	217.5	556.6	556.9*	2101.9	2167.8
152.3	152.2*	1545.3	1610.9	557.5	557.5	1545.3	1610.9
188.9	188.9	341.0	406.4	601.5	601.5	949.8	1015.3
233.6	233.6	581.9	647.3	602.0	602.0	1995.0	2060.2
240.9	240.5*	581.9	647.3	608.3	607.9*	1995.0	2060.2
255.5	255.5	1386.7	1452.2	638.7	638.5*	2740.6	2806.1
256.1	256.1	838.0	903.6	655.0	655.0	2117.5	2183.0
276.0	276.0	1662.7	1728.1	671.6	671.6	1802.8	1868.3
306.4	306.4	458.5	524.0	672.7	672.7	1131.2	1196.7
331.3	331.3	1462.5	1528.0	674.9	674.9	1662.7	1728.1
332.3	331.9*	1995.0	2060.2	681.9	681.9	2344.6	2410.1
341.0	341.0	341.0	406.4	699.1	699.1	2244.4	2310.0
348.3	348.3	348.3	413.7	708.9	709.2*	2101.9	2167.8
349.6	349.9*	2344.6	2410.1	745.6	745.6	2740.6	2806.1
379.5	379.8*	838.0	903.6	799.3	799.2*	2344.6	2410.1
405.2	405.2	1393.0	1458.6	804.8	804.3*	1386.7	1452.2
405.9	405.9	987.8	1053.4	814.0	814.0	3158.6	3223.9
416.0	416.0	1802.8	1868.3	828.1	828.1	3072.5	3138.1
436.9	436.9	1386.7	1452.2	843.2	843.2	2945.1	3010.7
491.3	491.4*	949.8	1015.3	914.2	913.6*	3158.6	3223.9
512.7	512.7	1462.5	1528.0	943.2	943.2	4015.7	4081.3
531.5	531.1*	1662.7	1728.1	948.5	948.5	3893.6	3958.6

FIG. 1. Level scheme of ^{107}Mo with updated transition and level energies to replace the previous Fig. 1 in the previous paper. The four bands are labeled (1)–(4). Band (1) is the isomeric-state band. The 948.5-keV transition in band (2) and all the transitions in bands (3) and (4) were newly identified in the previous paper. These new transitions are labeled in red. Note that only part of band (1) is shown.

The β -decay paper Ref. [1] assigned the ground state to be $1/2^+$ and the 65-keV isomer to be $5/2^+$. Our theoretical calculations in Table II (similar to the calculation shown in Table II of the original paper) show the adjusted experimental energies compared to the theoretical calculation.

In addition, there was a typographical error previously indicating part (c) of Fig. 3 in the previous paper. The gate was labeled correctly as the 548–379-keV double gate in the previous figure caption but expressed wrongly in the main text as the 557–405 keV double gate (p. 3, right column, line 5). The latter double gate was Fig. 4 in the previous paper.

The previous paper also shows other figures about comparison of neighboring Mo nuclei and triaxial projected shell-model calculation. Those comparisons were normalized to the 0γ bandhead so the 65.4-keV isomer does not change the original comparison. The changes in the transition energies are several tenths of a keV and very small compared to the displayed scale of several MeV. Thus, those figures remain the same.

TABLE II. Excited quasiparticle states of ^{107}Mo from potential-energy surface calculation. Configurations, shape parameters, excitation energies (in keV) are indicated in the table. Assignments from the recent β -decay paper Ref. [1] are listed for comparison. See the text for more details.

Configuration	β_2	γ (deg)	β_4	E_{theo}	E_{expt}
$\nu 5/2^+[413]$	0.331	−17	0.002	0	65
$\nu 5/2^-[532]$	0.315	−19	−0.003	88	
$\nu 7/2^-[523]$	0.328	−19	−0.003	597	414
$\nu 3/2^+[411]$	0.349	0	−0.002	684	
$\nu 9/2^-[514]$	0.306	23	−0.006	2227	

There is a typographical error in the reference list in the original paper, Ref. [23]. That reference has a correct author list but a wrong journal index. The correct reference is “J. K. Hwang *et al.*, Phys. Rev. C **56**, 1344 (1997).”

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- [1] J. Kurpeta, A. Płochocki, W. Urban, A. Abramuk, L. Canete, T. Eronen, A. Fijałowska, S. Geldhof, K. Gotowicka, A. Jokinen, A. Kankainen, I. D. Moore, D. Nesterenko, H. Penttilä, I. Pohjalainen, M. Pomorski, M. Reponen, S. Rinta-Antila, A. Rinta-Antila, T. Rzaca-Urban, M. Vilén, and J. Wiśniewski, [Phys. Rev. C **100**, 034316 \(2019\)](#).