Erratum: Transition frequencies between the 2*S* and 2*P* states of the lithiumlike ion O^{5+} [Phys. Rev. A 100, 032505 (2019)]

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In our published paper [Phys. Rev. A **100**, 032505 (2019)], we only listed partial values of $Q_1^{(0)}$, $Q^{(0)}$, and $Q^{(1)}$ in Table IV by mistake. The full values should be obtained by adding $-\ln(Z)\langle\sum_i \delta(\mathbf{r}_i)\rangle$ to $Q_1^{(0)}$ and $[1-\ln(Z)]\langle\sum_{i<j}\delta(\mathbf{r}_{ij})\rangle$ to $Q^{(0)}$, respectively. These full values are now listed in the updated Table IV given here. The update of Table VI of the original paper is also given here. The final transition frequencies between the 2*S* and 2*P* states of O^{5+} are changed only slightly.

TABLE IV. Expectation values of the QED correction operators $Q_1^{(0)}$, $Q^{(0)}$, and $Q^{(1)}$ for the $1s^2 2s\ ^2S$ and $1s^2 2p\ ^2P$ states of O^{5+}. In atomic units.

Ω	$Q_1^{(0)}$	$Q^{(0)}$	$Q^{(1)}$
		$1s^2 2s\ ^2S$	
7	−862.200 895	−21.206 33	70.103 65
8	−862.203 241	−21.204 34	70.109 42
9	−862.203 543	−21.203 70	70.110 18
10	−862.204 142	−21.203 44	70.110 38
11	−862.204 125	−21.203 36	70.110 28
12	−862.204 154	−21.203 36	70.110 37
13	−862.204 164	−21.203 35	70.110 37
Extrap.	−862.204 17(2)	−21.203 37(2)	70.110 37(2)
		$1s^2 2p\ ^2P$	
7	−823.497 137	−19.166 62	67.206 98
8	−823.498 379	−19.161 61	67.214 41
9	−823.499 772	−19.160 72	67.226 82
10	−823.500 613	−19.159 59	67.222 61
11	−823.500 657	−19.159 61	67.222 90
12	−823.500 738	−19.159 51	67.222 75
13	−823.500 785	−19.159 51	67.222 61
Extrap.	−823.500 85(7)	−19.159 51(1)	67.222 6(3)

TABLE VI. Contributions to the transition frequencies of $2S_{1/2} - 2P_{1/2}$ and $2S_{1/2} - 2P_{3/2}$ in $^{16}O^{5+}$, in eV.

Term	$2S_{1/2} - 2P_{1/2}$	$2S_{1/2} - 2P_{3/2}$
E_{NR}	11.913 212 895 015(25)	11.913 212 895 015(25)
μ/M	−0.003 076 610 370(2)	−0.003 076 610 370(2)
$(\mu/M)^2$	−0.000 000 010 367(1)	−0.000 000 010 367(1)
α^2	0.044 456 904(4)	0.110 087 74(4)
$(\mu/M)\alpha^2$	0.000 004 259 62(3)	0.000 001 191 43(4)
α^3	−0.005 354 0(2)	−0.005 190 0(2)
$(\mu/M)\alpha^3$	0.000 001 875(2)	0.000 001 871(4)
α^4	−0.000 64(6)	−0.000 64(6)
α^5	0.000 13(4)	0.000 13(4)
$(\mu/M)(\alpha^4 + \alpha^5)$	0.000 000 10(2)	0.000 000 10(2)
Nuclear size	−0.000 016 00(7)	−0.000 016 00(7)
Total (Theory)	11.948 72(10)	12.014 51(10)
Johnson *et al.* (Theory) [1]	11.955 05(27)[a]	12.021 01(35)[a]
	11.948 98[b]	
Yerokhin *et al.* (Theory) [3]	11.948 2(16)	12.013 8(16)
Edlen (Experiment) [4]	11.948 98(12)	12.014 69(12)

[a]Results calculated using the RMBP method without QED corrections.
[b]RMBP results from Ref. [1] supplemented by the QED corrections calculated by McKenzie and Drake [2].

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[1] W. R. Johnson, S. A. Blundell, and J. Sapirstein, Phys. Rev. A **37**, 2764 (1988).
[2] D. K. McKenzie and G. W. F. Drake, Phys. Rev. A **44**, R6973 (1991); **48**, 4803(E) (1993).
[3] V. A. Yerokhin, A. Surzhykov, and A. Müller, Phys. Rev. A **96**, 042505 (2017).
[4] B. Edlén, Phys. Scr. **28**, 51 (1983).