

## Errata

**Erratum: Magnetic and electric fine structure in helium Rydberg states**  
**[Phys. Rev. A 19, 1830 (1979)]**

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On page 1831, the formulas for the fine-structure matrix elements should read

$$\langle NL1L+1M | H | NL1L+1M \rangle = E_{NL1} + Lh_{so} + [2L/(2L+3)]h_{ss},$$

$$\langle NL1L-1M | H | NL1L-1M \rangle = E_{NL1} - (L+1)h_{so} + [(2L+2)/(2L-1)]h_{ss}.$$

Owing to a numerical error, column 3 of Table V is incorrect. The corrected table is given below. The correction alters the conclusion drawn from comparison between experiment and theory for the *D-F* and *F-G*

TABLE V.

<i>nL</i>	Hydrogenic matrix elements of $H_{rel}$ (MHz)		First-order ( $M=1,2$ ) matrix elements of $H_{mp}$ (MHz)	
	Direct	Exchange	Direct	Exchange
3D	-973.68	8.55	120.50	141.97
4D	-581.89	5.00	55.08	81.66
5D	-350.49	2.90	29.18	47.01
6D	-223.11	1.79	17.19	28.85
7D	-149.62	1.17	10.94	18.78
8D	-104.82	0.80	7.38	12.85
9D	-76.12	0.60	5.21	9.15
10D	-56.95	0.42	3.81	6.74
11D	-43.69	0.32	2.87	5.10
12D	-34.23	0.25	2.21	3.96
4F	-268.98	0.01	9.39	0.14
5F	-190.28	0.01	5.37	0.12
6F	-130.39	0.01	3.29	0.09
7F	-91.24	0.01	2.14	0.06
8F	-65.70	0.00	1.46	0.04
9F	-48.65	0.00	1.04	0.03
10F	-36.93	0.00	0.77	0.02
11F	-28.64	0.00	0.58	0.02
12F	-22.64	0.00	0.45	0.01
5G	-101.27	0.00	1.29	0.00
6G	-78.88	0.00	0.83	0.00
7G	-58.50	0.00	0.55	0.00
8G	-43.97	0.00	0.38	0.00
9G	-33.39	0.00	0.28	0.00
10G	-25.80	0.00	0.20	0.00
11G	-20.28	0.00	0.16	0.00
12G	-16.20	0.00	0.12	0.00

electric-fine-structure intervals. Table VI, which is given below corrected and revised to incorporate improved experimental results, suggests that the “retardation terms” may well be present in the data at about *twice* the predicted level.

Finally, we note that the relativistic and mass corrections applied in Table VI, the term corresponding to relativistic increase in electron mass, dominates by an order of magnitude. An explicit expression for this term is given in Ref. 2.

TABLE VI. Direct electric fine structure (values in MHz).

Interval	Experimental reference	Spinless interval	Theoretical nonrelativistic interval	Theoretical interval with relativistic and mass corrections	Theoretical interval with relativistic, mass, and radiative corrections
7D-7F	1	38 304.78(17)	37 770(−1.4%)	37 815(−1.3%)	38 054(−0.7%)
8D-8F	1	25 844.88(10)	25 480(−1.4%)	25 510(−1.3%)	25 673(−0.7%)
9D-9F	1	18 239.83( 6)	17 985(−1.4%)	18 006(−1.3%)	18 122(−0.6%)
10D-10F	1	13 342.89( 6)	13 155(−1.4%)	13 170(−1.3%)	13 255(−0.7%)
11D-11F	1	10 050.14(10)	9 908(−1.4%)	9 920(−1.3%)	9 984(−0.7%)
7F-7G	1	5 736.12( 7)	5 620(−2.0%)	5 650(−1.5%)	5 664(−1.3%)
8F-8G	1,2	3 898.54( 4)	3 859(−1.0%)	3 879(−0.5%)	3 888(−0.3%)
9F-9G	1	2 765.26( 6)	2 739(−1.0%)	2 753(−0.4%)	2 760(−0.2%)
10F-10G	1	2 030.41(14)	2 010(−1.0%)	2 020(−0.5%)	2 025(−0.3%)
11F-11G	1	1 533.68(24)	1 518(−1.0%)	1 526(−0.5%)	1 530(−0.2%)

<sup>1</sup>J. W. Farley, K. B. MacAdam, and W. Wing, Phys. Rev. A **20**, 1754 (1979).

<sup>2</sup>David R. Cok and S. R. Lundeen, Phys. Rev. A **23**, 2488 (1981).

**Erratum: Interaction of a composite system with the quantized radiation field in an approximately relativistic theory**  
[Phys. Rev. A **23**, 2810 (1981)]

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In Eq. (12), the third term on the right-hand side,

$$+ \sum_{\mu=1}^N \frac{e_{\mu}}{4m_{\mu}^2 c^2} \vec{s}_{\mu} \cdot [(\vec{p}_{\mu} \times \vec{E}_{\mu}) - (\vec{E}_{\mu} \times p_{\mu})]$$

should read

$$- \sum_{\mu=1}^N \frac{e_{\mu}}{2m_{\mu}^2 c^2} \vec{s}_{\mu} \cdot (\vec{E}_{\mu} \times \vec{p}_{\mu}).$$

This does not change any of the results in the paper except for some minor changes in Eqs. (40), (44), (50), (52), and (85c). The reader can easily make the changes by the mere inspection of the corresponding terms in these equations, coming from the above-mentioned term in Eq. (12). For example, in Eq. (85c), the second line on the right-hand side