# Erratum: Evidence for Pauli Exchange Leading to Excited-State Enhancement in Electron Transfer [Phys. Rev. Lett. 92, 133201 (2004)]

J. A. Tanis, A. L. Landers, D. J. Pole, A. S. Alnaser, S. Hossain, and T. Kirchner

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It has come to our attention [1,2] that, in single capture to an initial $F^{7+}(1s2s^3S)$ state, we have incorrectly calculated the relative spin statistics ratios for forming the $1s(2s2p^3P)\ ^4P$, $1s(2s2p^3P)\ ^2P_-$, and $1s(2s2p^1P)\ ^2P_+$ states as 4:2:2, respectively, thereby giving the value $R = {}^4P/({}^2P_- + {}^2P_+) = 1$. From this latter ratio we concluded that the measured intensities of the $^4P$ state were considerably larger than expected based on spin statistics. As recently pointed out to us [1,2], and as shown in Ref. [3], which was published about the same time as our manuscript, the correct spin statistics ratios are 8:1:3 for the $^4P$, $^2P_-$, and $^2P_+$ states, respectively [4]. Thus, based on these correct spin statistics, $R = {}^4P/({}^2P_- + {}^2P_+) = 2$. This larger value reduces the discrepancy between the expected relative intensities and the observed values for the $^4P$, $^2P_-$, and $^2P_+$ states. However, despite this reduction it seems there remains a discrepancy (based on Table I of our Letter) between the observed values of $R$ and the value $R = 2$ based on spin statistics.

Additionally, two other considerations are important in comparing the expected $R$ with its measured value. First, as already noted in our original Letter, resonant-transfer excitation (RTE) increases the intensity of the observed $1s(2s2p^1P)\ ^2P_+$ state by more than a factor of 2 for the collision velocity used while not affecting the $1s(2s2p^3P)\ ^4P$ at all. Consequently, this RTE contribution to $^2P_+$ decreases the expected value of $R$ back to near unity. Second, the measured ratio for $R$ for double transfer to $F^{8+}(1s)$ was found to be similar to that for single transfer to $F^{7+}(1s2s^3S)$. For independent double capture events, the angular momentum coupling of the captured electrons is expected to give spin statistics ratios close to 4:2:2 for the $^4P$, $^2P_-$, and $^2P_+$ states, as stated originally. Thus, we remain confident of our conclusion that the measured enhancement of the $^4P$ state cannot be explained solely on the basis of spin statistics.

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[1] T. J. M. Zouros (private communication).
[2] T. W. Gorczyca (private communication).
[3] E. P. Benis, T. J. M. Zouros, T. W. Gorczyca, A. D. Gonzalez, and P. Richard, Phys. Rev. A **69**, 052718 (2004).
[4] While the ratios 8:1:3 for the $^4P$, $^2P_-$, and $^2P_+$ states are correct, the calculational procedure as described in Ref. [3] leading to these values is not entirely correct. It is understood that the authors of Ref. [3] plan to submit an erratum to Physical Review A to correctly describe the procedure stated there.

 