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Addition/Correction

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Correction to Spectroscopy and Structure of the Simplest Actinide Bonds

Michael C. Heaven,* Beau J. Barker, and Ivan O. Antonov

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In the discussion of the results for the ThF^+ ion, we presented evidence in support of the assignment of the ground state as $X^1\Sigma^+$. The evidence consisted of a rotationally resolved vibronic band that appears to exhibit an R(0) line (Figure 7). The viable alternative assignments for the ground state are $^1\Sigma^+$ and $^3\Delta_1$. Observation of the R(0) line indicates that the former is correct. However, high-resolution spectra recorded by Gresh et al.[1] now show definitively that the ground state is $X^3\Delta_1$. We have subsequently reinvestigated the origin of the rotational line that we had assigned as R(0). We find that this can be reasonably reassigned as the R(21) line. Although the rotational temperature of the low-energy rotational levels was on the order of 20 K, additional modeling shows that the population of the higher J levels was not consistent with a Boltzmann distribution due to the kinetic limitations of jet cooling. The population residing in $J = 21$ was sufficient to produce a significant feature at the R(0) position. We are therefore in agreement with Gresh et al.'s[1] reassignment of the ground state as $X^3\Delta_1$.

REFERENCES

(1) Gresh, D. N.; Cossel, K. C.; Zhou, Y.; Ye, J.; Cornell, E. "Broadband velocity modulation spectroscopy of ThF^+ for use in a measurement of the electron electric dipole moment" *J. Mol. Spectrosc.* Submitted.

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