

Erratum: “Quantifying the photoionization cross section of the hydroxyl radical” [J. Chem. Phys. 150, 141103 (2019)]

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We have noticed that the photon energy scale used in the graph of Fig. 4 of the original paper¹ was not corrected with our final calibration. The original energy scale used in the paper was too high by 6 meV in the region of the absolute measurement (at 13.8 eV). This error only affects the ion yield spectrum, not the photon energy of the absolute measurement. Consequently, the ion yield was not set on an absolute scale at the right fixed energy of the spectrum. In the final calibrated spectrum displayed here, the positions of the structures agree with those of the spectra of Dehmer² and Cutler *et al.*³ within 3 meV.

By scaling the calibrated spectrum with the absolute measurement, we obtained a slightly different cross section. As the correction on the energy in the region of interest was only 6 meV, the uncertainty on the photon energy of the absolute measurement (estimated to be 10 meV, see the original paper) has to be included in the uncertainty propagation. This uncertainty was neglected in our initial treatment and is now included. The relative final cross section error bars (at 2σ) are now about 15% larger than in the original paper.

Figure 4 of the original paper and its caption should be replaced by the present Fig. 4.

This correction decreases by less than 3% the photoionization cross section (largely included in our initial absolute measurement error bar) and does not affect any discussion made in the original paper. Nevertheless, it highlights the importance of photon energy uncertainties (in both the absolute measurement and relative ion yield measurement) when putting an ion yield on an absolute cross section scale.

SUPPLEMENTARY MATERIAL

The corresponding data available in the original supplementary material should be replaced by the OH_photoion_cross_section.txt file included here as [supplementary material](#).

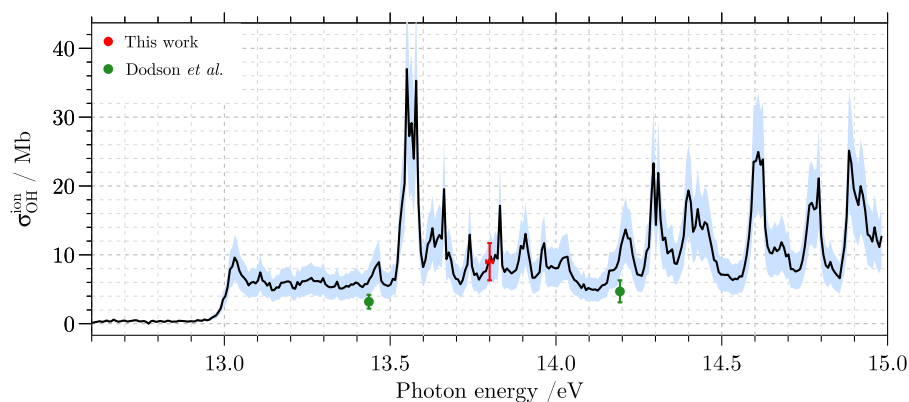


FIG. 4. Absolute photoionization cross section of OH (black curve) as a function of the incident photon energy; the blue-shaded area defines the 2σ uncertainties. The red dot and its error bars at 13.800 ± 0.010 eV correspond to the absolute measurement used to scale the entire ion yield displayed in the lower panel of Fig. 3. The green dots and their error bars are the absolute measurements of Dodson *et al.*⁴

REFERENCES

- ¹O. J. Harper, M. Hassenfratz, J.-C. Loison, G. A. Garcia, N. de Oliveira, H. R. Hrodmarsson, S. T. Pratt, S. Boyé-Péronne, and B. Gans, "Quantifying the photoionization cross section of the hydroxyl radical," *J. Chem. Phys.* **150**, 141103 (2019).
- ²P. M. Dehmer, "Photoionization of OH in the region 750–950 Å," *Chem. Phys. Lett.* **110**, 79–84 (1984).
- ³J. N. Cutler, Z. X. He, and J. A. R. Samson, "Relative photoionization cross section study of OH and OD from 68 nm to 95 nm," *J. Phys. B: At., Mol. Opt. Phys.* **28**, 4577 (1995).
- ⁴L. G. Dodson, J. D. Savee, S. Gozem, L. Shen, A. I. Krylov, C. A. Taatjes, D. L. Osborn, and M. Okumura, "Vacuum ultraviolet photoionization cross section of the hydroxyl radical," *J. Chem. Phys.* **148**, 184302 (2018).