

CORRECTION

[View Article Online](#)
[View Journal](#) | [View Issue](#)Cite this: *Chem. Sci.*, 2018, 9, 3893

DOI: 10.1039/c8sc90072h

www.rsc.org/chemicalscience

Correction: Spectroscopic observation of two-center three-electron bonded (hemi-bonded) structures of $(\text{H}_2\text{S})_n^+$ clusters in the gas phase

Dandan Wang and Asuka Fujii *Correction for 'Spectroscopic observation of two-center three-electron bonded (hemi-bonded) structures of $(\text{H}_2\text{S})_n^+$ clusters in the gas phase' by Dandan Wang *et al.*, *Chem. Sci.*, 2017, 8, 2667–2670.

The authors regret that some important references were omitted from the original article. These references are presented herein.

The experimental observation of the sulfur–sulfur hemi-bond was pioneered by Asmus and coworkers.^{1–6} They observed transient absorption due to the $\sigma^*-\sigma$ electronic transition in solution. Moreover, they observed the transient absorptions of the hemi-bonds of sulfa with a variety of counter atoms as well as those of N–N and I–I hemi-bonds.^{7–11} The electronic spectrum of $(\text{H}_2\text{S})_2^+$ in aqueous solution was also reported by Asmus, though detailed structural information is difficult to extract from the broadened electronic transition.³

The S–S hemi-bond in gas phase molecules was first reported using mass spectrometry.⁵ The stable dimer cation formation of bis(isopropyl)sulfide was observed and hemi-bond formation was proposed on the basis of the fragmentation pattern. Gas phase dimerization equilibrium measurement of dimethyl sulfide cations has also suggested formation of the S–S hemi-bond.¹² Very recently, infrared Stark spectroscopy was applied to Cl-NH_3 in He droplets,¹³ and hemi-bond formation was concluded by the shift of the NH stretch and dipole moment measurements. This result is consistent with the prediction by high level computation of similar systems.¹⁴

Theoretical calculations of the S–S hemi-bond were first performed by Clark for $(\text{H}_2\text{S})_2^+$,¹⁵ and the series of his study has been extended to a variety of hemi-bonded systems.^{16–18}

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.

References

- 1 D. Bahnemann and K.-D. Asmus, *J. Chem. Soc., Chem. Commun.*, 1975, 238–239.
- 2 K.-D. Asmus, *Acc. Chem. Res.*, 1979, 12, 436–442.
- 3 S. A. Chaudri and K.-D. Asmus, *Angew. Chem., Int. Ed.*, 1981, 20, 672–673.
- 4 M. Göbl, M. Bonifačić and K.-D. Asmus, *J. Am. Chem. Soc.*, 1984, 106, 5984–5988.
- 5 T. Drewello, C. B. Lebrilla, H. Schwarz, L. J. de Koning, R. H. Fokkens, N. M. M. Nibbering, E. Anklam and K.-D. Asmus, *J. Chem. Soc., Chem. Commun.*, 1987, 1381–1383.
- 6 K.-D. Asmus, in *Sulfur-Centered Reactive Intermediates in Chemistry and Biology*, NATO-ASI Series, Series A: Life Sciences, Springer, 1990, pp. 155–172.
- 7 M. Bonifačić and K.-D. Asmus, *J. Chem. Soc., Perkin Trans. 2*, 1980, 758–762.
- 8 K.-D. Asmus, M. Göbl, K.-O. Hiller, S. Mahling and J. Möning, *J. Chem. Soc., Perkin Trans. 2*, 1985, 641–646.
- 9 H. Hungerbühler, S. N. Guha and K.-D. Asmus, *J. Chem. Soc., Chem. Commun.*, 1991, 999–1001.
- 10 R. W. Alder, M. Bonifačić and K.-D. Asmus, *J. Chem. Soc., Perkin Trans. 2*, 1986, 277–284.
- 11 H. Mohan and K.-D. Asmus, *J. Am. Chem. Soc.*, 1987, 109, 4745–4746.
- 12 A. J. Illies, P. Livant and M. L. McKee, *J. Am. Chem. Soc.*, 1988, 110, 7980–7984.
- 13 C. P. Moradi, C. Xie, M. Kaufmann, H. Guo and G. E. Doublerly, *J. Chem. Phys.*, 2016, 144, 164301.
- 14 J. L. Li and H. Guo, *J. Chem. Phys.*, 2013, 138, 141102.

Department of Chemistry, Graduate School of Science, Tohoku University, Sendai 980-8578, Japan. E-mail: asukafujii@m.tohoku.ac.jp



- 15 T. Clark, *J. Comput. Chem.*, 1981, **2**, 261–265.
- 16 T. Clark, *J. Comput. Chem.*, 1982, **3**, 112–116.
- 17 T. Clark, *J. Comput. Chem.*, 1983, **4**, 404–409.
- 18 T. Clark, *J. Am. Chem. Soc.*, 1988, **110**, 1672–1678.

