

## ***Interactive comment on “Multiple-sulfur isotope effects during photolysis of carbonyl sulfide” by Y. Lin et al.***

**Y. Lin et al.**

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Response to Dr. Danielache:

Thank you for your comments.

Specific comments:

> The use of scale parameters for theoretically calculated frequencies is common place yet I haven't seen any study that address the question if this parameters as they are can be applied to isotopologues, in my understanding this remains an open question.

Reply: The scaling factor for estimating vibrational frequencies of isotopologues has been discussed, for example, by Schauble (2004). One could test different scaling

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factors to see sensitivity but that usually has very minor effect. Such a sensitivity test seems a bit beyond the scope of this study.

> How the photodissociation of Sn species is approached?

Reply: Please see separate comment (to Dr. Johnson) about Sn chemistry. Overall, S<sub>2</sub> recombination (S<sub>2</sub>+S<sub>2</sub>→S<sub>4</sub>) is much faster than the S<sub>2</sub> photolysis.

Reference:

Schauble, E. A.: Applying stable isotope fractionation theory to new systems, in Rev. Mineral. Geochem., 55, 65-111, 2004.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 14233, 2011.

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