

## Hao Xie

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EDUCATION	PhD in geochemistry	expected 2021
	<i>California Institute of Technology</i>	
	MSc in geochemistry	2017
	<i>California Institute of Technology</i>	
	BSc in geochemistry	2015
	<i>University of Science and Technology of China (USTC)</i>	
TEACHING	Teaching Assistant, Ge 101 Introduction to Geology and Geochemistry, <i>Caltech</i>	Fall 2018-2019
	Teaching Assistant, Ch/Ge 127 Nuclear Chemistry, <i>Caltech</i>	Fall 2017-2018
	Teaching Assistant, Ge 1 Earth and Environment, <i>Caltech</i>	Spring 2016-2017

### PUBLICATIONS Submitted:

**Xie, H.** et al., The evolution of intra- and inter-molecular isotope equilibria in natural gases with thermal maturation. Submitted to *Geochimica et Cosmochimica Acta*

Jautzy, J., Douglas P. M., **Xie, H.** et al., CH<sub>4</sub> isotopic ordering records ultra-slow hydrocarbon biodegradation in the deep subsurface. In revision at *Earth and Planetary Science Letters*

### Peer-reviewed publications:

**Xie H.**, Ponton C., Formolo M. J., Lawson M., Ellis G. S., Lewan M. D., Ferreira A. A., Morais E. T., Spigolon A. L. D., Sessions A. L. and Eiler J. M. (2020) Position-specific distribution of hydrogen isotopes in natural propane: effects of thermal cracking, equilibration and biodegradation. *Geochimica et Cosmochimica Acta*, 290, 235–256.

**Xie H.**, Ponton C., Formolo M.J., Lawson M., Peterson B.K., Lloyd M.K., Sessions A.L. and Eiler J.M., 2018. Position-specific hydrogen isotope equilibrium in propane. *Geochimica et Cosmochimica Acta*, 238, pp.193-207.

Thiagarajan N., **Xie H.**, Ponton C., Kitchen N., Peterson B., Lawson M., Formolo M., Xiao Y. and Eiler J.M., 2020. Isotopic evidence for quasi-equilibrium chemistry in thermally mature natural gases. *Proceedings of the National Academy of Sciences*, 117(8), pp.3989-3995.

Thiagarajan N., Kitchen N., **Xie H.**, Ponton C., Lawson M., Formolo M. and Eiler J.M. (2020) Identifying thermogenic and microbial methane in deep water Gulf of Mexico Reservoirs. *Geochim. Cosmochim. Acta* 275, 188–208.

Eiler J. M., Clog M., Lawson M., Lloyd M., Piasecki, A., Ponton C., and **Xie H.** (2018). The isotopic structures of geological organic compounds. *Geological Society, London, Special Publications*, 468(1), 53-81.

### Product literature

Clumped methane isotope analysis using HR-IRMS. Thermo Fischer Scientific, 2020.  
Available at: <https://www.thermofisher.com/order/catalog/product/0723316/0723316>

### CONFERENCE PRESENTA- TIONS (SELECTED)

**Xie, H.**, Formolo, M.J., Eiler, J.M., Predicting Isotopomer Distribution in Products of Thermal Cracking with a Kinetic Monte-Carlo Model. Goldschmidt, 2020.  
**Xie, H.**, Dong, G., Thiagarajan, N., Shuai, Y., Mangenot, X., Formolo, M.J., Lawson, M. and Eiler, J.M., Methane Clumped Isotopologues With High-resolution Gas Source Isotope Ratio Mass Spectrometry. AGUFM (invited talk), 2019, pp.V14B-05.  
**Xie, H.**, Ponton, C., Formolo, M.J., Lawson, M., Sessions, A.L. and Eiler, J.M., Position-specific hydrogen isotope distribution in natural propanes: thermal cracking, equilibration and biodegradation. Goldschmidt, 2019.  
**Xie, H.**, Dong, G., Formolo, M.J., Lawson, M., and Eiler, J.M., Formation mechanisms of thermogenic methane revealed from  $^{13}\text{CH}_3\text{D}$  and  $^{12}\text{CH}_2\text{D}_2$  measurements. International Clumped Isotope Workshop, 2019.  
**Xie, H.**, Formolo, M.J., Lawson, M., Peterson, B.K., Sattler, A., Sessions, A.L. and Eiler, J.M., Hydrogen isotope equilibria in C1-C5 alkanes. Goldschmidt, 2018.

### AWARDS and GRANTS

Facility Training Grant, Center for Environmental Microbial Interactions (CEMI)  
*Caltech* 2018  
Cyrus Tang Scholarship For Personal Development and Community Service  
*USTC* 2011-2015  
Outstanding Student Scholarship  
*USTC* 2011-2015

### COMMUNITY SERVICE

Journal reviewer: Journal of Geophysical Research: Biogeosciences; Chemical Geology.  
Public speech at Ganzhou Houde Foreign Language School