

Hao Xie

1200 E. California blvd. MC 100-23
Pasadena, California 91125
+1 (626) 787-4678
hxie@caltech.edu
<https://sites.google.com/view/haoxie/homepage>

EDUCATION	PhD in geochemistry	March 2021
	<i>California Institute of Technology</i>	
	MSc in geochemistry	2017
	<i>California Institute of Technology</i>	
	BSc in geochemistry	2015
	<i>Special Class for the Gifted Young, University of Science and Technology of China</i>	

APPOINTMENT	Postdoctoral Scholar, Caltech	07/2021–
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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 Peer-reviewed publications:

Xie H., Dong G., Formolo M., Lawson M., Liu J., Cong F., Mangelot X., Shuai Y., Ponton C. and Eiler J. (2021) The evolution of intra- and inter-molecular isotope equilibria in natural gases with thermal maturation. *Geochimica et Cosmochimica Acta*, 307, 22–41.

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.

Dong, G., **Xie, H.**, Formolo, M., Lawson, M., Sessions, A., and Eiler, J. (2021). Clumped isotope effects of thermogenic methane formation: insights from pyrolysis of hydrocarbons. *Geochimica et Cosmochimica Acta*.

Shuai, Y., **Xie, H.**, Zhang, S., Zhang, Y., & Eiler, J. M. (2021). Recognizing the

pathways of microbial methanogenesis through methane isotopologues in the subsurface biosphere. *Earth and Planetary Science Letters*, 566, 116960.

Jautzy, J., Douglas P. M., **Xie, H.**, Eiler J.M., and Clark I.D. (2021) CH₄ isotopic ordering records ultra-slow hydrocarbon biodegradation in the deep subsurface. *Earth and Planetary Science Letters*, 562, 116841.

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

I co-authored two product literature by Thermo Fischer Scientific. Both can be found at: <https://www.thermofisher.com/order/catalog/product/0723316#/0723316>.

Application Note: Clumped Methane Isotope Analysis using HR-IRMS (2020).

White Paper: Clumped Isotope Analysis of Methane using HR-IRMS: New Insights into Origin and Formation Mechanisms of Natural Gases and a Potential Geothermometer (2020).

CONFERENCE PRESENTATIONS (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 ¹³CH₃D and ¹²CH₂D₂ 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

Agouron Geobiology Postdoctoral Fellowship
Agouron Institute 2021

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.

Reviewer of Graduate Women In Science (GWIS) Fellowship application 2021.

Public speech at Ganzhou Houde Foreign Language School