Hao Xie

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EDUCATION

PhD in geochemistry — March 2021
California Institute of Technology

MSc in geochemistry — 2017
California Institute of Technology

BSc in geochemistry — 2015
University of Science and Technology of China (USTC)

TEACHING

Teaching Assistant, Ge 101 Introduction to Geology and Geochemistry, *Caltech* Fall 2018-2019

Teaching Assistant, Ch/Ge 127 Nuclear Chemistry, *Caltech* — Fall 2017-2018

Teaching Assistant, Ge 1 Earth and Environment, *Caltech* — Spring 2016-2017

PUBLICATIONS

Accepted:

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

Shuai Y., **Xie, H.** et al., Recognizing the pathways of microbial methanogenesis through methane isotopologues in the subsurface biosphere Accepted 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.

Dong, G., **Xie, H.**, Formolo, M., Lawson, M., Sessions, A., Eiler, J. (2021). Clumped

isotope effects of thermogenic methane formation: insights from pyrolysis of hydrocarbons. *Geochimica et Cosmochimica Acta*.

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

Clumped methane isotope analysis using HR-IRMS. Thermo Fischer Scientific Application Note, 2020. Avalable at: https://www.thermofisher.com/order/catalog/product/0723316/07

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

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