

ANN PEARSON

Department of Earth and Planetary Sciences
Harvard University
20 Oxford St., Cambridge, MA 02138 USA
Tel.: (617) 384-8392; **E-mail:** pearson@eps.harvard.edu

Education

B.A.: Chemistry, Oberlin College, Oberlin, Ohio, 1992.
Ph.D.: Marine Chemistry and Geochemistry, MIT/WHOI Joint Program in Oceanography, 2000.

Professional Experience

Harvard College Professor, 2016-2021.
Murray and Martha Ross Professor of Environmental Sciences, Harvard University, 2013-
Professor of Biogeochemistry, Harvard University, 2009-2013.
Thomas D. Cabot Associate Professor of Earth and Planetary Sciences, Harvard University, 2005-2009.
Assistant Professor of Geochemistry, Harvard University, 2001-2005.
Reinhart Coastal Research Center (RCRC) Post-doctoral investigator, WHOI, 2000-2001.
EPA Graduate Student Fellow, Woods Hole Oceanographic Institution, 1997-1999.
Graduate Research Assistant, Woods Hole Oceanographic Institution, 1995-97.
Ida M. Green Graduate Student Fellow, MIT, 1994-95.
Volunteer, United States Peace Corps, Ecuador, 1993-94.

Fellowships and Awards

Paul Gast Lectureship, Geochemical Society, 2015.
Gordon and Betty Moore Foundation Investigator, 2013-2018.
Radcliffe Institute Fellow, 2009-2010.
David and Lucille Packard Foundation Fellowship for Science and Engineering, 2004-2009.
C. G. Rossby Award for Best Dissertation in the Program in Atmospheres, Oceans, and Climate;
Department of Earth, Atmospheric, and Planetary Science; MIT, 2000.
EPA STAR Graduate Student Fellowship, 1997-2000.
Geological Society of America, Organic Geochemistry Division, Most Outstanding Paper, 1997.
Ida M. Green Graduate Student Fellowship, MIT, 1994-1995.
Harry Holmes Prize in Chemistry, Oberlin College, 1992.
Sigma Xi, Oberlin College, 1992.
Phi Beta Kappa, Oberlin College, 1991.

Research Interests

- Phylogenetically-directed research on problems in organic geochemistry and environmental microbiology, with emphasis on the evolution of lipid biosynthetic pathways.
- Light isotope ($^{13/12}\text{C}$, $^{14/12}\text{C}$, $^{15/14}\text{N}$, $^{18/16}\text{O}$, and D/H) biogeochemistry, including applications of compound-specific isotopic analysis to:
 - Nitrogen sources for photosynthesis;
 - Anthropogenic perturbation of organic reservoirs and terrestrial carbon dynamics;
 - Bacterial pathways of carbon, nitrogen, and hydrogen assimilation.
- Environmental ecology and metabolism of Archaea.
- New interfaces for mass spectrometry with applications to environmental samples.
- Development of new methods for organism-specific ^{13}C and ^{14}C analysis of DNA and RNA.
- Environmental proteomics; stable isotope ratios of proteins.

Publications

- Colcord DE, Pearson A, Brassell SC (2017) Carbon isotopic composition of intact branched GDGT core lipids in Greenland lake sediments and soils. (*Organic Geochemistry, in review*).
- Wilkes EB, Carter SJ, Pearson A (2017) CO₂-dependent carbon isotope fractionation in the dinoflagellate *Alexandrium tamarense*. (*Geochemica et Cosmochimica Acta, in review*)
- Bradley AS, Swanson PK, Muller EEL, Bringel F, Carroll SM, Pearson A, Vuilleumier S, Marx CJ (2017) Hopanoid-free *Methylobacterium extorquens* DM4 overproduces carotenoids and has widespread growth impairment. (*In review, PLoS One*).
- Mahmoudi N, Beaupré SR, Steen AD, Pearson A (2017) Sequential bioavailability of sedimentary organic matter to heterotrophic bacteria. (*Environmental Microbiology, In revision*)
- Chan AL, Johnston DT, Pearson A (2017) Kinetics of ¹⁸O exchange in sterols. (*Organic Geochemistry, In revision*).
- Pearson A (2017) Lipids (Bacteria and Archaea). In: *Earth Sciences Series, Encyclopedia of Geochemistry*, Ed. W. White; Springer Meteor. (*In press*).
- Tang T, Mohr W, Sattin SR, Rogers DR, Girguis PR, Pearson A. (2017) Geochemically-distinct carbon isotope distributions in *Allochromatium vinosum* DSM 180^T grown photoautotrophically and photoheterotrophically. *Geobiology*, 00:1–16. doi:10.1111/gbi.12221
- Jasper JP, Farina P, Pearson A, Mezes PS, Sabatelli AD (2016) Evaluating practical uses of molecular isotopic engineering. *Pharmaceutical Technology* **40**, 34-45.
- Beaupré SR, Mahmoudi N, Pearson A (2016) IsoCaRB: A novel bioreactor system to characterize the lability and natural carbon isotopic (¹⁴C, ¹³C) signatures of microbially-respired organic matter. *Limnology and Oceanography Methods*, **14**, 668-681.
- Hurley SJ, Elling FJ, Könneke M, Buchwald C, Wankel SD, Santoro AE, Lipp JS, Hinrichs KU, Pearson A (2016) Ammonia oxidation rate affects thaumarchaeal lipid composition and the TEX₈₆ temperature proxy. *Proceedings of the National Academy of Sciences USA* **113**, 7762-7767.
- Hamilton TL, Bovee RJ, Sattin SR, Mohr W, Gilhooly WP, Lyons TW, Pearson A, Macalady JL (2016) Carbon and sulfur cycling below the chemocline in a meromictic lake and the identification of a novel taxonomic lineage in the FCB superphylum, *Candidatus Aegiribacteria*. *Frontiers in Microbiology* **7**, doi:10.3389/fmicb.2016.00598.
- Newman DK, Neubauer C, Ricci J, Wu C-H, Pearson A (2016) Cellular and molecular biological approaches to interpreting ancient biomarkers. *Annual Review of Earth and Planetary Sciences* **44**, 493–522.
- Pearson A, Hurley SJ, Walter SRS, Kusch S, Lichtin S, Zhang YG (2016) Stable carbon isotope ratios of intact GDGTs indicate heterogeneous sources to marine sediments. *Geochimica et Cosmochimica Acta* **181**, 18-35.
- Mohr W, Tang T, Sattin SR, Bovee RJ, Pearson A (2014) Protein stable isotope fingerprinting (P-SIF): Multidimensional protein chromatography coupled to stable isotope-ratio mass spectrometry. *Analytical Chemistry* **86**, 8514-8520.
- Bovee RJ, Pearson A (2014) Strong influence of the littoral zone on sedimentary lipid biomarkers in a meromictic lake. *Geobiology* **12**, 529-541.
- Hamilton TL, Bovee RJ, Thiel V, Sattin SR, Mohr W, Schaperdoth I, Vogl K, Gilhooly WP, Lyons TW, Tomsho LP, Schuster SC, Overmann J, Bryant DA, Pearson A, Macalady JL (2014) Coupled reductive and oxidative sulfur cycling in the phototrophic plate of a meromictic lake. *Geobiology* **12**, 451-468.
- Close HG, Wakeham SG, Pearson A (2014) Lipid and ¹³C signatures of submicron and suspended particulate organic matter in the Eastern Tropical North Pacific: Implications for the contribution of Bacteria. *Deep-Sea Research I* **85**, 15-34.
- Pearson A (2014) Lipidomics for geochemistry. *Treatise on Geochemistry* (2nd Edition) **12**, 291-336; Eds. P. G. Falkowski and K. H. Freeman, Elsevier London.

- Schouten S, Hopmans EC, Rosell-Melé A, Pearson A, et al. (69 authors) (2013) An interlaboratory study of TEX₈₆ and BIT analysis of sediments, extracts and standard mixtures. *Geochem. Geophys. Geosyst.* **14**, 5263-5285.
- Urban M, Nelson DM, Kelly R, Ibrahim T, Dietze M, Pearson A, Hu FS (2013) A hierarchical Bayesian approach to the classification of C₃ and C₄ grass pollen based on SPIRAL δ¹³C data. *Geochimica et Cosmochimica Acta* **121**, 168-176.
- Close HG, Shah SR, Ingalls AE, Diefendorf A, Brodie EL, Hansman RL, Aluwihare LI, Freeman KH, Pearson A (2013) Export of submicron particulate organic matter to the mesopelagic of an oligotrophic gyre. *Proceedings of the National Academy of Sciences USA* **110**, 12565-12570.
- Pearson A, Ingalls AE (2013) Assessing the utility of archaeal lipids as environmental proxies. *Annual Review of Earth and Planetary Sciences* **41**, 359-384.
- Tsao LE, Robinson RS, Higgins MB, Pearson A (2012) Nitrogen isotope ratios of cyanobacterial chlorophyll: chemostat vs. batch culture. *Organic Geochemistry* **49**, 96-99.
- Klepac-Ceraj V, Hayes CA, Gilhooly W, Lyons TR, Kolter R, Pearson A (2012) Microbial diversity in extreme euxinia: Mahoney Lake, Canada. *Geobiology* **10**, 223-235.
- Higgins MB, Robinson RS, Carter SJ, Husson J, Pearson A (2012) Dominant eukaryotic export production during ocean anoxic events reflects the importance of recycled NH₄⁺. *Proceedings of the National Academy of Sciences USA* **109**, 2269-2274.
- Jones DS, Albrecht HL, Dawson KS, Schaperdoth I, Freeman KH, Pi Y, Pearson A, Macalady JL (2012) Community genomic analysis of an extremely acidophilic sulfur-oxidizing biofilm. *ISME Journal* **6**, 158-170.
- Higgins MB, Wolfe-Simon FL, Robinson RS, Qin Y, Saito MA, Pearson A (2011) Paleoenvironmental implications of taxonomic variation among δ¹⁵N values of chloropigments. *Geochimica et Cosmochimica Acta* **75**, 7351-7363.
- Close HG, Bovee RJ, Pearson A (2011) Inverse carbon isotope patterns of lipids and kerogen record heterogeneous primary biomass *Geobiology* **9**, 250-265.
- Sivan O, Adler M, Pearson A, Gelman F, Bar-Or I, John SG, Eckert W (2011) Geochemical evidence for iron-mediated anaerobic oxidation of methane. *Limnology and Oceanography* **56**, 1536-1544.
- Boyd ES, Pearson A, Pi Y, Li WJ, Zhang Y, Zhang CL, Geesey GG (2011) Temperature and pH controls on glycerol dialkyl glycerol tetraether lipid composition in the hyperthermophilic crenarchaeote *Acidilobus sulfurreducens*. *Extremophiles* **15**, 59-65.
- Urban MA, Nelson DM, Jiménez-Moreno G, Châteauneuf J-J, Pearson A, Hu FS (2010) Isotopic evidence of C₄ grasses in southwestern Europe during the middle Miocene-early Oligocene *Geology* **38**, 1091-1094.
- Bradley AS, Pearson A, Saenz JP, Marx CJ (2010) Adenosylhopane: the first step in biosynthesis of hopanoid side chains. *Org Geochem* **41**, 1075-1081.
- Higgins MB, Robinson RS, Carter SJ, & Pearson A (2010) Evidence from chlorin nitrogen isotopes for alternating nutrient regimes in the Eastern Mediterranean Sea. *Earth Planet. Sci. Lett.* **290**, 102-107.
- Pearson A (2010) Pathways of carbon assimilation and their impact on organic matter values of δ¹³C. In: *Handbook of Hydrocarbon Microbiology: Microbial interactions with hydrocarbons, oils, fats, and related hydrophobic substrates and products*. Ed. K. Timmis, Springer-Verlag Berlin: DOI 10.1007/978-3-540-77587-4_9; pp. 143-156.
- Brocks JJ, Bosak T, Pearson A (2009) Oligoprenyl-curcumanes and other new aromatic isoprenoids from the 1.64 billion years old Barney Creek Formation. *Org Geochem* **40**, 795-801.
- Johnston DA, Wolfe-Simon FL, Pearson A, & Knoll AH (2009) Anoxygenic photosynthesis modulated Proterozoic oxygen and sustained Earth's middle age. *Proceedings of the National Academy of Sciences USA* **106**, 16925-16929.
- Mikucki JA, Pearson A, Turchyn AV, Johnston DA, Anbar AD, Priscu J, Schrag D, Farquhar J, & Lee PD (2009) A contemporary microbially-maintained ferrous subglacial 'ocean'. *Science* **324**, 397-400.

- Hansman RL, Griffin S, Watson JT, Druffel ERM, Ingalls AE, Pearson A, & Aluwihare LI (2009) The radiocarbon signature of microbial organisms in the mesopelagic ocean. *Proceedings of the National Academy of Sciences USA* **106**, 6513-6518.
- Schouten S, Hopmans E, Van Der Meer J, Mets A, Bard E, Bianchi T, Diefendorf A, Escala M, Freeman KH, Huguet C, Ingalls A, Ménot-Combes G, Nederbracht AJ, Oba M, Pearson A, Pearson E, Rosell-Melé A, Schaeffer P, Smittenberg R, Talbot HM, Uchida M, Van Mooy B, Yamamoto M, Zhang Z, & Sinninghe Damsté JS (2009) An interlaboratory study of TEX₈₆ and BIT analysis using high performance liquid chromatography/mass spectrometry. *Geochem. Geophys. Geosyst.*, **10**, Q03012, doi:10.1029/2008GC002221.
- Liu Z, Pagani M, Zinniker D, DeConto R, Huber M, Brinkhuis H, Shah S, Leckie M, & Pearson A (2009) Global cooling during the Eocene-Oligocene climate transition. *Science* **323**, 1187-1190.
- Pearson A, Leavitt WD, Saenz JP, Summons RE, Tam CM, & Close HG (2009) Diversity of hopanoids and squalene-hopene cyclases across a tropical land-sea gradient. *Environmental Microbiology* **11**, 1208-1223.
- Pearson A & Rusch D (2009) Distribution of microbial terpenoid lipid cyclases in the global ocean metagenome. *ISME Journal* **3**, 352-363.
- Higgins MB, Robinson RS, Casciotti KL, McIlvin MR, & Pearson A (2009) A method for determining the nitrogen isotopic composition of porphyrins. *Analytical Chemistry* **81**, 184-192.
- Pearson A (2008) Who lives in the sea floor? *News & Views, Nature* **454**, 952-953.
- Ertefai TF, Fisher MC, Fredricks HF, Lipp JS, Birgel D, Udert KM, Cavanaugh CM, Pearson A, Gschwend PM, & Hinrichs KU (2008) Vertical distribution of microbial lipids and functional genes in chemically distinct layers of a highly polluted meromictic lake. *Organic Geochemistry* **39**, 1572-1588.
- Shah SR, Mollenhauer G, Ohkouchi N, Eglinton TI, & Pearson A (2008) Origins of archaeal tetraether lipids in sediments: insights from radiocarbon analysis. *Geochimica et Cosmochimica Acta* **72**, 4577-4594.
- Kontnik R, Bosak T, Butcher RA, Brocks JJ, Losick RM, Clardy J, & Pearson A (2008) Sporulenes, heptaprenyl metabolites from *Bacillus subtilis* spores. *Organic Letters* **10**, 3551-3554.
- Kodner RB, Pearson A, Summons RE, & Knoll AH (2008) Sterols in the red and green algae: quantification, phylogeny, and relevance for the interpretation of geologic steranes. *Geobiology* **6**, 411-420.
- Kodner RB, King NM, Pearson A, Summons RE, & Knoll AH (2008) Sterols in a unicellular relative of the metazoans. *Proceedings of the National Academy of Sciences USA* **105**, 9897-9902.
- Pearson A, Pi Y, Zhao W, Li WJ, Inskeep W, Bonch-Osmolavskaya E, Romanek C, Li S, & Zhang CL (2008) Factors controlling the distribution of archaeal tetraether lipids in terrestrial hot springs. *Applied and Environmental Microbiology* **74**, 3523-3532.
- Nelson DM, HU FS, Scholes D, Joshi N, & Pearson A (2008) Using SPIRAL (Single Pollen Isotope Ratio AnaLysis) to estimate C₃- and C₄-grass abundance in the paleorecord. *Earth and Planetary Science Letters* **269**, 11-16.
- Bosak T, Losick R, & Pearson A (2008) A polycyclic terpenoid that alleviates oxidative stress. *Proceedings of the National Academy of Sciences USA* **105**, 6725-6729.
- Pearson A, Kraunz KS, Dekas AE, Sessions AL, Leavitt WD, & Edwards KJ (2008) Quantifying microbial degradation of petroleum hydrocarbons in salt-marsh sediments using the ¹³C content of bacterial rRNA. *Applied and Environmental Microbiology* **74**, 1157-1166.
- Boyd ES, Jackson RA, Encarnacion G, Zahn JA, Beard T, Leavitt WD, Pi Y, Zhang CL, Pearson A, D'Imperio S, McDermott TR, & Geesey GG (2007) Isolation, characterization, and ecology of sulfur-respiring Crenarchaea inhabiting acid-sulfate-chloride geothermal springs in Yellowstone National Park. *Applied and Environmental Microbiology* **73**, 6669-6677.

- Nelson DM, HU FS, Mikucki JA, Tian J, & Pearson A (2007) Carbon isotopic analysis of individual pollen grains from C₃ and C₄ grasses using a moving-wire combustion interface. *Geochimica et Cosmochimica Acta* **71**, 4005-4014.
- Pearson A, Flood Page SR, Jorgenson TL, Fischer WW, & Higgins MB (2007) Novel hopanoid cyclases from the environment. *Environmental Microbiology* **9**, 2175-2188.
- Shah SR & Pearson A (2007) Ultra-microscale analysis of lipids by ¹⁴C-AMS: Assessment and correction for sample processing blanks. *Radiocarbon* **49**, 69-82.
- Fischer WW & Pearson A (2007) Hypotheses for the origin and early evolution of triterpenoid cyclases. *Geobiology* **5**, 19-34.
- Zhang CL, Pearson A, Li YL, Mills G, & Wiegel J (2006) Thermophilic temperature optimum for crenarchaeol synthesis and its implication for archaeal evolution. *Applied and Environmental Microbiology* **72**, 4419-4422.
- Ingalls AE, Shah SR, Hansman RL, Aluwihare LI, Santos GM, Druffel ERM, & Pearson A (2006) Quantifying archaeal community autotrophy in the mesopelagic ocean using natural radiocarbon. *Proceedings of the National Academy of Sciences USA* **103**, 6442-6447.
- Pearson A, Seewald JS, & Eglinton TI (2005) Bacterial incorporation of relict carbon in the hydrothermal environment of Guaymas Basin. *Geochimica et Cosmochimica Acta* **23**, 5477-5486.
- Brocks JJ & Pearson A (2005) Building the biomarker tree of life. *Reviews in Mineralogy and Geochemistry* **59**, 233-258.
- Ingalls AE & Pearson A (2005) Ten years of compound-specific radiocarbon analysis. *Oceanography* **18**, 18-31.
- Fischer WW, Summons RE, & Pearson A (2005) Targeted genomic detection of biosynthetic pathways: Anaerobic production of hopanoid biomarkers by a common sedimentary microbe. *Geobiology* **3**, 33-40.
- Craig NC, Brickey TW, Lingenfelter PT, Osmani AS, Rathore MO, & Pearson A (2005) Vibrational spectroscopy of 3,4-difluorocyclobutenes: cis-d(0), trans-d(0) and trans-d(4) species. *Spectrochimica Acta A – Molecular and Biomolecular Spectroscopy* **61**, 1571-1583.
- Pearson A, Sessions AL, Edwards KJ, & Hayes JM (2004) Phylogenetically-specific separation of rRNA from prokaryotes for isotopic analysis. *Marine Chemistry* **92**, 295-306.
- Ingalls AE, Anderson RA, & Pearson A (2004) Radiocarbon dating of diatom-bound organic compounds. *Marine Chemistry* **92**, 91-105.
- Pearson A, Ingalls AE, Romanek C, Wiegel J, Freeman KH, Smittenberg RH, & Zhang C (2004) Non-marine crenarchaeol in Nevada hot springs. *Applied and Environmental Microbiology* **70**, 5229-5237.
- Pearson A, Budin M, & Brocks JJ (2003) Phylogenetic and biochemical evidence for sterol synthesis in the bacterium, *Gemmata obscuriglobus*. *Proceedings of the National Academy of Sciences USA* **100**, 15,352-15,357.
- Reddy CM, Pearson A, Eglinton TI, Xu L, McNichol AP, Currie LA, Benner Jr BA, & Wise SA (2002) Radiocarbon as a tool to apportion the sources of polycyclic aromatic hydrocarbons and black carbon in environmental samples, *Environmental Science and Technology* **36**, 1774-1782.
- Currie LA, Benner Jr BA, Kessler JD, Klinedinst DB, Klouda GA, Marolf JV, Slater JF, Wise SA, Cachier H, Cary R, Chow JC, Watson J, Druffel ERM, Masiello CA, Eglinton TI, Pearson A, Reddy CM, Gustafsson O, Hartmann PC, Quinn JG, Hedges JI, Prentice KM, Kirchstetter TW, Novakow T, Puxbaum H, & Schmid H (2002) A critical evaluation of interlaboratory data on total, elemental, and isotopic carbon in the carbonaceous particle reference material, NIST SRM 1649a, *Journal of Research of the National Institute of Standards and Technology*, **107**, 279-298.
- Pearson A, McNichol AP, Benitez-Nelson BC, Hayes JM, & Eglinton TI (2001) Origins of lipid biomarkers in Santa Monica Basin surface sediment: A case study using compound-specific $\Delta^{14}\text{C}$ analysis. *Geochimica et Cosmochimica Acta*, **65**, 3123-3137.

- Eglinton TI & Pearson A (2001) Ocean Process Tracers: Single Compound Radiocarbon Measurements, *In: Encyclopedia of Ocean Sciences*, p.p. 2786-2795, Academic Press, London.
- Pearson A (2000) Biogeochemical applications of compound-specific radiocarbon analysis. PhD Thesis, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution. Cambridge, Massachusetts; 369 pp.
- Pearson A & Eglinton TI (2000) Sources of *n*-alkanes in Santa Monica Basin surface sediments: A model based on compound-specific ¹⁴C and ¹³C analysis. *Organic Geochemistry* **30**, 1103-1116.
- Pearson A, Eglinton TI, & McNichol AP (2000) An organic tracer for surface ocean radiocarbon. *Paleoceanography* **15**, 541-550.
- Pearson A, McNichol AP, Schneider RJ, & vonReden KF (1998) Microscale AMS ¹⁴C measurement at NOSAMS, *Radiocarbon* **40**, 61-75.
- VonReden KF, McNichol AP, Pearson A, & Schneider RJ (1998) ¹⁴C AMS measurements of small samples with a high-current system. *Radiocarbon* **40**, 247-253.
- Eglinton TI, Benitez-Nelson BC, Pearson A, McNichol AP, Bauer JE, & Druffel ERM (1997) Variability in radiocarbon ages of individual organic compounds from marine sediments. *Science* **277**, 796-799.
- Currie LA, Eglinton TI, Benner Jr BA, & Pearson A (1997) Radiocarbon "dating" of individual chemical compounds in atmospheric aerosol: First results comparing direct isotopic and multivariate statistical apportionment of specific polycyclic aromatic hydrocarbons. *Nuclear Instruments and Methods In Physics Research B* **123**, 475-486.
- Craig NC, Hawley SE, Lee LV, & Pearson A (1994) Vibrational spectra and assignments for trans-3,4-difluorocyclobutene. *Spectrochimica Acta (A), Molecular and Biomolecular Spectroscopy* **50**, 191-201.

Invited Lectures

- A. PEARSON, Production and export of lipids of marine Archaea: Implications for paleoclimate reconstruction. Xiamen Symposium on Marine Environmental Sciences (XMAS), Xiamen University, January 2017.
- A. PEARSON, What is microbial heterotrophy? California Institute of Technology, May 2016.
- A. PEARSON, The carbon isotope record and microbial life: Old paradigms and emerging patterns. Gordon Conference on Geobiology, January 2016.
- A. PEARSON, Environmental and physiological influences on the TEX₈₆ proxy: Results from continuous culture studies and stable carbon isotope analyses. American Geophysical Union, San Francisco, December 2015.
- A. PEARSON, [Gast Lecture, Geochemical Society] Organic geochemical proxies. V.M. Goldschmidt Conference, Prague, August 2015.
- A. PEARSON, Do microbial communities have canonical trophic levels? Gordon Conference on Applied and Environmental Microbiology, July 2015.
- A. PEARSON, Understanding microbial carbon sources using compound-specific radiocarbon analysis. University of Calgary, March 2015.
- A. PEARSON, KEYNOTE: Do microbial ecosystems have trophic structure? Southeastern Biogeochemistry Symposium, Georgia Institute of Technology, March 2015.
- A. PEARSON, W. MOHR, T. TANG, R. J. BOVEE, S.R. SATTIN, L.L. JAHNKE, M.N. PARENTEAU, Protein Stable Isotope Fingerprinting (P-SIF): A New Tool to Understand Natural Isotopic Heterogeneity of Mixed Microbial Ecosystems. American Geophysical Union, San Francisco, December 2014.
- A. PEARSON, Lipid biomarker insights to marine export production, past and present, Stony Brook University, November 2014.
- A. PEARSON, Marine productivity during Cretaceous OAE 2: Insights from the nitrogen cycle. University of Toronto, November 2014.

- A. PEARSON, Fundamental differences in the molecular isotopic signatures of prokaryotes and eukaryotes: Two case studies. Massachusetts Institute of Technology, September 2014.
- A. PEARSON, Lipidomics for geochemistry: The intersection of metagenomics, microbial genetics, and environmental lipid profiling. Keynote, Goldschmidt Conference, Sacramento, CA, June 2014.
- A. PEARSON, Molecular and isotopic signatures of early life. Pennsylvania State University, April 2014.
- A. PEARSON, M.B. HIGGINS, R.S. ROBINSON, L. TSAO, F.M. MONTEIRO, A. RIDGWELL, S.J. CARTER, J.M. HUSSON, The fractionation of nitrogen isotopes in chlorophyll biosynthesis: applications to ecology and geology, WHOI, April 2014.
- A. PEARSON, A. INGALLS, S. SHAH WALTER, S. HURLEY, S. KUSCH, Using carbon isotopes to understand sources of archaeal GDGTs in the marine environment: A call for more measurements. Keynote, GDGT Workshop, Texel, Netherlands, April 2014.
- A. PEARSON Protein stable isotope fingerprinting (P-SIF): Multidimensional protein chromatography coupled to stable isotope-ratio mass spectrometry (Poster). Kavli Frontiers of Science Symposium, November 2013.
- A. PEARSON, Molecular and isotopic signatures of early life. Origins of Life Symposium, MPI Dresden, July 2013.
- A. PEARSON, Lipid biomarker insights to marine export production, past and present, University of South Florida, January 2013.
- A. PEARSON, A.E. INGALLS, S.J. HURLEY, Ecological and isotopic insights to the origin of archaeal tetraethers in marine sediments. American Geophysical Union, San Francisco, December 2012.
- A. PEARSON, Lipid biomarker insights to marine export production, past and present, Yale University, November 2012.
- A. PEARSON, Isoprenoid lipids and the tree of life: a geoscientist's perspective, National Tsing Hua University, Taiwan, October 2012.
- A. PEARSON, M.B. HIGGINS, R.S. ROBINSON, F.M. MONTEIRO, A. RIDGWELL, Nitrogen cycling in lower-oxygen oceans, Institute of Earth Sciences, Academia Sinica, Taiwan, October 2012.
- A. PEARSON, The future of organic geochemistry, or why you need a good "elevator speech". Organic Geochemistry Gordon Research Seminar, New Hampshire, July 2012.
- A. PEARSON, Exploring natural microbial communities using lipids and stable isotope ratios, American Society of Microbiology Conference, San Francisco, June 2012.
- A. PEARSON, Nitrogen cycling in lower-oxygen oceans, Insights from nitrogen isotopes of chloropigments and biogeochemical models. University of Kentucky, April, 2012.
- A. PEARSON, M.B. HIGGINS, R.S. ROBINSON, F.M. MONTEIRO, A. RIDGWELL, Nitrogen cycling in lower-oxygen oceans, NSF Advance Workshop: Hothouse Ecosystems, Greenhouse Gases, and Orbital Forcing in Deep Time, Brown University, July 2011.
- A. PEARSON, Environmental and phylogenetic distribution of hopanoid biosynthesis, Terpnet 2011 Conference, Kalmar, Sweden, May 2011.
- A. PEARSON, New perspectives on Proterozoic inverse carbon isotope patterns of lipids and kerogen, Keynote Address, Australian Organic Geochemistry Conference, December 2010.
- A. PEARSON, Hard as a rock: Distinguishing eukaryotes vs. prokaryotes in the geologic record. Harvard Origins of Life forum, November 2010.
- A. PEARSON, Isoprenoid lipids and the tree of life: a geoscientist's perspective. University of Wyoming Molecular Biology Department Seminar Series, November 2010.
- A. PEARSON, M. B. HIGGINS, H. G. CLOSE, Isotopes behaving badly: Biomarker lessons for the Proterozoic. Anaerobic Phototrophic Ecosystems (APE) Field Workshop, Fayetteville Green Lake, Syracuse, NY, October 2010.
- A. PEARSON, V. KLEPAC-CERAJ, C. HAYES Microbial community diversity under extreme euxinia: Mahoney Lake, Canada, V. M. Goldschmidt Conference, Knoxville, TN, June 2010.

- A. PEARSON, Building the biomarker tree of life. Biogeochemistry and Environmental Biocomplexity Seminar Series, Cornell University, September 2009.
- A. PEARSON, T. BOSAK, J. CLARDY, W.W. FISCHER, W.D. LEAVITT, J.P. SAENZ, R.E. SUMMONS, D.B. RUSCH, Adventures in lipidomics for biogeochemistry. International meeting on organic geochemistry (IMOG), Bremen, Germany, September 2009.
- M. B. HIGGINS AND A. PEARSON, Insights into modern and past marine nutrient cycles - Compound specific nitrogen analysis of geoporphyrins, ISOCOMPOUND '09, Potsdam, Germany, June 2009.
- A. PEARSON, Biogeochemical applications of compound-specific organic analyses, past and future. Swiss Federal Institute of Technology, Zurich, November 2008.
- A. PEARSON, Ten years of compound-specific radiocarbon analysis: progress and perspectives. University of Michigan, Smith Lecture Series, September 2008; University of Southern California, November 2008.
- A. PEARSON, The evolution, distribution, and physiology of polycyclic terpenoids: a geoscientist's perspective. Molecular Biology at Massachusetts General Hospital (MGH) Seminar Series, Boston, January 2008.
- A. PEARSON, Ten years of compound-specific radiocarbon analysis: progress and perspectives. University of North Carolina, Marine Sciences Seminar Series, October 2007.
- A. PEARSON, The triterpenoid biosynthetic pathway: a geoscientist's perspective on novel compounds, unknown species, and the role of oxygen. Arizona State University, Chemistry Seminar Series, October 2007.
- A. PEARSON, Factors controlling the ^{14}C contents of organic compounds in oceans and sediments. Keynote Lecture, V. M. Goldschmidt Conference, Cologne, Germany, August 2007.
- A. PEARSON, Building the biomarker tree of life. Microbial Sciences Initiative, Annual Spring Symposium, Harvard University, March 2007.
- A. PEARSON, The mysterious marine Archaea, an organic geochemical perspective. Earth Systems Initiative (ESI) Seminar, MIT, November 2006.
- A. PEARSON, The mysterious marine Archaea, an organic geochemical perspective. Oceanography Seminar, University of Washington, October 2006.
- A. PEARSON, S.R. FLOOD PAGE, T.R. JORGENSON, S.J. CARTER, Novel triterpenoid cyclases in the environment. Gordon Research Conference on Organic Geochemistry, August 2006.
- A. PEARSON, Does the triterpenoid biosynthetic pathway yield insight about oxygen? Agouron Oxygen Meeting, Santa Fe, New Mexico, April 2006.
- A. PEARSON, T. BOSAK, W. W. FISCHER, S. R. FLOOD PAGE, T. R. JORGENSON, Investigating the phylogeny and function of polycyclic triterpenoids. Molecular Geomicrobiology Session; American Geophysical Union Fall Meeting, San Francisco, CA; December, 2005.
- A. PEARSON, Assessing microbial metabolisms *in-situ*: Insights from (radio)carbon isotopic analyses at the molecular level. KEYNOTE Lecture, 15th Annual V.M. Goldschmidt Conference, Moscow, Idaho, May 2005.
- A. PEARSON, J. M. HAYES, A. L. SESSIONS, J. J. BROCKS, AND M. BUDIN, Phylogenetic approaches to geochemical problems. Dartmouth College, May, 2005.
- A. PEARSON, Unraveling the early history of life: using genetics to understand molecular markers in Archean rocks, Geodynamics Seminar Series, Woods Hole Oceanographic Institution, April, 2005.
- A. PEARSON, Placing biosynthetic pathways in geologic context: Reconciling the geochemical record with molecular fossils. AGU Molecular Paleobiology Workshop, Co-sponsored by: NSF Sedimentary Geology and Paleobiology Program, NSF Biogeosciences Program, NSF Earth Systems History, and CHRONOS.org, San Francisco, December 2004.
- A. PEARSON, M. BUDIN, W. W. FISCHER, AND R. E. SUMMONS, Unraveling the early history of life: using genetics to understand molecular markers in Archean rocks. Rice University, November 2004; and Rutgers University, October 2004.

- A. PEARSON, J. M. HAYES, A. L. SESSIONS, J. J. BROCKS, M. BUDIN, AND R. E. SUMMONS, Linking genomics, isotopes, and biogeochemistry: New approaches to old problems. Stanford University, December 2003.
- A. PEARSON, J. M. HAYES, A. L. SESSIONS, J. J. BROCKS, AND M. BUDIN, Phylogenetic approaches to geochemical problems. Symposium on New Approaches in Organic Geochemistry, A Tribute to the Life of John I. Hedges, Friday Harbor Laboratories, University of Washington, August 2003.
- A. PEARSON AND T. I. EGLINTON, Single-compound radiocarbon measurements: Production, preservation, and recycling in the marine environment. Gordon Research Conference on Chemical Oceanography, August 2003.
- A. PEARSON, Molecular and isotopic proxies for microbial processes in the marine environment. Princeton Geological Colloquium Series, Princeton University, March 2003.
- A. PEARSON, A. L. SESSIONS, E. F. DELONG, AND J. M. HAYES, Carbon isotopic analysis of nucleic acids from environmental samples. Goldschmidt Conference, Davos, Switzerland, August 2002.
- A. PEARSON, Molecular and isotopic proxies for microbial processes in the marine environment. Brown Geological Colloquium Series, Brown University, March 2002.
- A. PEARSON, Biogeochemical applications of compound-specific radiocarbon analysis: Exploring prokaryotic metabolism in the marine environment. Geological Sciences Seminar Series, Northwestern University, March 2001.

Synergistic Activities

Academic Teaching and Outreach

- EPS 22: The Fluid Earth: Introduction to Atmospheres, Oceans, and Climate
- EPS 107: Environmental Geochemistry
- LS 110: A Microbial World
- OEB 210: A Microbial World
- EPS 137/187: Biogeochemistry
- EPS 189: Analytical and Field Methods in Geobiology
- EPS 286/287: Advanced Biogeochemistry; Biological and Inorganic Stable Isotope Systematics
- EPS 210: Introduction to Isotope and Trace Element Geochemistry
- EPS 237: Advanced Biogeochemistry
- EPS 242: Biogeochemistry of Light Stable Isotopes
- EPS 286: Current Topics in Biogeochemistry I: Biological and Inorganic Stable Isotope Systematics (with D. Johnston)
- ASTRO 305: Topics in Origins of Life Research (Fall, 2016)
- Freshman Seminar 22p: Science in the Public Eye
- Annenberg Video Curriculum, *Habitable Planet Series*, Chapter 1. (2007)
- Agouon Geobiology Summer Course, USC (Catalina), 2005.
- Departmental field experience, 2006 (China), 2007 (Catalina/Santa Barbara Channel).
- Darwin Summer School on Biogeosciences, Utrecht/Texel, The Netherlands (2011)
- Science in the Streets exhibit for Middle-O, Boston Public Schools (2013)
- Moderator: What's Life Got to Do With It: Integrating Microbiology and Geochemistry, Student workshop, V. M. Goldschmidt Conference, Sacramento, CA (2014)
- Speaker, MIT Astrobiology Soapbox series, MIT Museum (October, 2014) "Microbes, the invisible majority".
- Marine Biological Laboratories, Microbial Diversity summer course, invited lecture (July, 2016)

Committees and Symposia

- 1999, Participant, Dissertations in Chemical Oceanography (DISCO) Workshop, Honolulu, Hawaii.

2001, Participant, Symposium on Reference Materials for the Ocean Sciences, sponsored by NRC Ocean Studies Board.

2002-present, EPS Undergraduate Curriculum Committee.

2003 NSF Review Panel for Molecular and Cellular Biosciences, Microbial Observatories and Microbial Interactions and Processes (MO/MIP).

2003-2004, Harvard University Curricular Review: Working Group on General Education.

2003-present, Steering Committee, Harvard Microbial Sciences Initiative.

2003, Co-Convener, AGU Special Symposium: Effects of Sediment Dynamics on Marine Paleorecords, Fall AGU, San Francisco, CA.

2004-2006, PREVCOM: National Research Council committee to prevent the forward contamination of Mars.

2004, Participant, WHOI Dark Energy Workshop, co-sponsored by the Deep Ocean Exploration Institute and the Ocean Life Institute.

2004, Participant and Invited Speaker, NSF Molecular Paleobiology Workshop, sponsored by Sedimentary Geology and Paleobiology, Biogeosciences, and Earth Systems History programs.

2004 NSF Review Panel for Molecular and Cellular Biosciences, Microbial Observatories and Microbial Interactions and Processes (MO/MIP)

2006, NSF Review Panel for Carbon and Water in the Earth System (CWES)

2006-2009, Faculty Council, Harvard University

2006-2008, Committee on Undergraduate Education (CUE), Harvard University

2007, Planning committee for 2008 Origins Symposium, Radcliffe Institute for Advanced Study.

2007, NSF Review Panel for Microbial Observatories

2007, 2015, 2016 Packard Fellowship selection committee, Harvard University

2007-2009 Committee to decide *Summa cum laude* honors at graduation.

2007-2013, Co-Head Tutor, Department of Earth and Planetary Sciences

2008-present, Head Tutor, Secondary Field in Microbial Sciences

2008, Microbial techniques planning committee for 2009 Goldschmidt Geochemistry Conference, Davos, Switzerland.

2008, Planning committee for the 2009 International Meeting on Organic Geochemistry, Bremen, Germany.

2009, Symposium on Chemical Oceanography in a Changing World, Savannah, GA

2009, Session Chair on organic tracers of biogeochemical and oceanic processes, Chemical Oceanography Gordon Research Conference

2009, Session Chair on analytical advances in geobiology, V.M. Goldschmidt Conference

2008-09, Organizing Committee, International Meeting on Organic Geochemistry, Bremen Germany

2009-2011, NOSAMS Advisory Board (NAPB)

2009, NSF Review Panel for Chemical Oceanography

2010, Planning committee for 2010 Climate and Water Symposium, Radcliffe Institute for Advanced Study.

2010, Organizing Committee for the session on Molecular Geochemistry: Tracing Life's Origins and Evolution through Time, Organic Geochemistry Gordon Research Conference

2010-11, Organizing Committee, International Meeting on Organic Geochemistry, Interlaken, Switzerland

2010-present, Standing Committee on the Concentration in Environmental Science and Public Policy, Harvard University.

2010 – present, EPS Advisory Committee.

2011-2013 Vice-president, Harvard-Radcliffe chapter of Phi Beta Kappa (2011-2012; 2012-2013)

2011-375th Anniversary Committee, Harvard Symposia
2012 – Session Chair: From Genomes to Biomarkers; NASA AbSciCon, Atlanta, Georgia.
2012-2014 FAS Dean’s Faculty Resources Committee, Harvard.
2012-present: Selection Committee, EAOG Travel Scholarship.
2013, Crimson Conversations speaker, Harvard Development (Atlanta, GA).
2013 – Session Chair: Novel climatic proxies: towards realism; V.M. Goldschmidt Conference, Florence Italy.
2013-present: Selection Committee, Alfred Treibs Medal, The Geochemical Society
2013-2015 President, Harvard-Radcliffe chapter of Phi Beta Kappa (2013-2014; 2014-2015)
2014 – Gordon Research Conference on Organic Geochemistry, Vice-Chair.
2015 – 2016 Committee on Research Policy (CRP), Harvard University.
2016 – present, EPS Junior Faculty Mentoring Committee
2016 – Gordon Research Conference on Organic Geochemistry, Chair.
2016-2017 – Theme Chair, V.M. Goldschmidt Conference, Paris (2017).
2016-2018 – Science Committee, V.M. Goldschmidt Conference, Boston (2018).
2016-2017 – General Education Implementation Committee (GEIC), FAS.
2016-2017 – John Harvard Distinguished Science Fellow; Selection Committee, Physical Sciences.
2017 – DOE Joint Genome Institute workshop “From New Lineages of Life to New Functions”, Walnut Creek, CA (April, 2017).

Referee Activities

Reviewed for journals: *Nature*, *Science*, *Proceedings of the National Academy Of Sciences*, *Geochimica et Cosmochimica Acta*, *Geobiology*, *Geology*, *Analytical Chemistry*, *Marine Chemistry*, *Radiocarbon*, *Terra Nova*, *Astrobiology*, *Organic Geochemistry*, *PLoS Biology*, *JGR Biogeosciences*, *Environmental Microbiology*, *Space Science Reviews*, *ISME Journal*, *Deep-Sea Research*, *Microbial Ecology*, *Journal of Physical Chemistry*.

Reviewed proposals for: NSF Chemical Oceanography, Geology & Geophysics, Microbial Observatories, Microbial Interactions and Processes, Genomics, Marine Chemistry, Ecosystem Studies; Petroleum Research Fund; New York Sea Grant; NASA Astrobiology; NOAA; Research Corporation; Earth and Life Sciences Council of the Netherlands; AXA Research Fund.

Editorial Service

Geochimica et Cosmochimica Acta

Organic Geochemistry

Geobiology

Environmental Microbiology/Environmental Microbiology Reports

Professional Affiliations

Member, American Geophysical Union, 1995-present

Member, American Chemical Society, 1996-2006

Member, European Association of Organic Geochemistry, 1999-present.

Member, American Society for Microbiology, 2004-present.

Consultant Activities

Board member, Nature’s Fingerprint™, a division of Molecular Isotope Technologies, LLC.

Collaborators

L.I. Aluwihare (*Scripps Oceanography*), A. Bradley (*Wash U St. Louis*), J. J. Brocks (*Australian National University*), E.L. Brodie (*Lawrence Berkeley*), K. Casciotti (*Stanford*), T.I. Eglinton (*ETH Zurich*), W.W. Fischer (*Caltech*), K.H. Freeman (*Penn State*), P.R. Girguis (*Harvard*), J.M. Hayes (*WHOI*), K.-U. Hinrichs (*U Bremen*), F.-S. Hu (*U Illinois*), L.L. Jahnke (*NASA*), D.T. Johnston (*Harvard*), V. Klepac-Ceraj (*Wellesley College*), A. Knoll (*Harvard*), J. Macalady (*Penn State*), A.P. McNichol (*WHOI*), G. Mollenhauer (*University of Bremen; AWI*), D. M. Nelson (*U Maryland*), M.N. Parenteau (*NASA*), R. Rickaby (*Oxford*), R.S. Robinson (*U Rhode Island*), Shen Yanan (沈延安) (*USTC*), R. Summons (*MIT*), S. Wakeham (*Skidaway*).

Doctoral and Post-Doctoral Advisors

Timothy I. Eglinton, Ann P. McNichol, John M. Hayes, Katrina J. Edwards (deceased)

Current and Former Advisees, and Student and Post-Doctoral Co-Authors

Post-doctoral

Jordon Hemingway, Tracing the origin of marine sedimentary hopanoids using compound-specific isotope analysis. (2017-2018)

Yuki Weber, Influence of metabolic state on tetraether lipids of Archaea (2017-2019).

Rui Bao, Factors affecting rates of carbon preservation and mineralization (2017-2019).

Felix Elling, Compound-specific isotope analysis of tetraether lipids of Archaea (2016-2018).

Jenan Kharbush, Intracellular patterns of nitrogen isotopes; understanding the algal chlorophyll signature and its paleorecord (2015-2018).

Nagissa Mahmoudi, Bioavailability of organic carbon in marine sediments (2014-2018).

Yige Zhang, Resolving the late Miocene CO₂ climate sensitivity “paradox” using biomarkers and their stable isotopes. [HUCE Fellow] (2014-2016).

Sunita Shah Walter, Tracing the origin of marine sedimentary hopanoids using compound-specific isotope analysis. (2014-2016).

Greg Henkes, The evolution of the marine N cycle in the Phanerozoic (2014-2016).

David Naafs, Nitrogen isotope dynamics of Cretaceous OAE 1a. (2014).

Steven Beaupré, Bioavailability of organic carbon in marine sediments (2014).

Evelyn Zeiler, Biosynthesis of tetraether lipids in Archaea (2013-2015).

Tiantian Tang, Stable isotope fingerprints of multiple unicellular trophic levels (2012-2014).

Wiebke Mohr, Protein stable isotope fingerprinting. [Marie Curie Fellow] (2011-2014).

Stephanie Kusch, Tracing the origin of marine sedimentary hopanoids using compound-specific multi-isotope analysis and metagenomics. (2011-2014)

Daniel Rogers, High-throughput sequencing of squalene-hopene cyclase genes from environmental samples. (2010-2012)

Lindsay Hayes, Investigating the Cryogenian Tayshir anomaly using biomarkers and compound-specific isotope analysis. (2010-2013)

Alex Bradley, Hopanoid physiology and biosynthetic pathway (2009-2011). [Now faculty at Washington University, St. Louis]

Felisa Wolfe-Simon, NSF Minority Post-Doctoral Fellow: Metallomics, geobiology, and the rise of oxygen. (2007-2009)

David Johnston, MSI Post-Doctoral Fellow (with Peter Girguis and Andy Knoll): Collaborator on sulfur isotopes in Blood Falls system (2007-2009). [Now faculty at Harvard]

David Nelson, Post-Doctoral Fellow, Institute for Genomic Biology, University of Illinois [co-advisor with Feng-Sheng Hu]. Carbon isotopic analysis of individual pollen grains. (2006-2008). [Now faculty at U Maryland]

Jill Mikucki, NSF Polar Programs Post-Doctoral Fellow: Biogeochemistry and microbiology of Blood Falls, McMurdo dry valleys, Antarctica. (2005-2007). [Now faculty at U Tennessee]

Kim Kraunz, Post-Doctoral Investigator: Environmental large-insert clone libraries and isotopic analysis of DNA. (2005-2007).

Tanja Bosak, MSI Post-Doctoral Fellow: Function and expression of a squalene-hopene cyclase analogue in *Bacillus subtilis*. (2005-2007) [Now faculty at MIT; Dept. of Earth, Atmospheric, and Planetary Sciences.]

Anitra Ingalls, Post-Doctoral Fellow: Compound-specific radiocarbon dating of diatom-bound, individual polyamines derived from sillafins. (2002-2004) [Now faculty at University of Washington; Department of Oceanography.]

Jochen Brocks, Harvard Junior Fellow: Collaborator on biosynthesis of sterols. (2002-2005) [Now faculty at Australian National University.]

Graduate

Ana Camila Gonzalez Valdes, Ph.D Student: Carbon isotopic structure of microbial mat communities. (2016-).

Jiaheng Shen, Ph.D. Exchange student, Chinese Academy of Sciences/USTC: Biogeochemistry of the late Ordovician. (2014-2017).

Elise Wilkes, Ph.D. Student: Expanding the understanding of algal ϵ_P . (2012-).

Sarah Hurley, Ph.D. Student: Biogeochemistry of marine Thaumarchaeota. (2010-2016).

Roderick Bovee, Ph.D. Student: Metagenomic and proteomic investigations of sulfur-rich microbial communities (2008-2014)

Yundan Pi, M.S. Student: Geobiology, physiology, and environmental context of bacterial terpenoids. (2007-2010).

Hilary Close, Ph.D. Student: Stable isotopic insights to sources and fluxes of membrane lipids in the marine water column. (2006-2012).

Meytal Budin Higgins, Ph.D. Student: Stable nitrogen isotope analysis of geoporphyrins. (2003-2009).

Sunita Shah, Ph.D. Student: Metabolic “fingerprinting” of uncultivable archaea: Insights from compound-specific ^{14}C and from organism-specific nucleic acid analysis. (2002-2008).

Graduate Committee

Frasier Liljestrånd, Ph.D. Student (Johnston): Committee member. (2015-)

Emma Bertran, Ph.D. Student (Johnston): Committee member. (2013-)

Andrew Masterson, Ph.D. Student (Johnston): Committee member. (2012-)

Katherine French, Ph.D. Student (Summons, MIT): Committee member. (2011-2014)

William Leavitt, Ph.D. Student (Johnston): Collaborator on the environmental distribution of hopanoids; biogeochemistry of the marine sulfur cycle (2006-2014).

Chris Follett, Ph.D. Student (Repeta, WHOI): Committee member and collaborator on ^{14}C in DOC. (2011-2013)

Yoda Patta, Ph.D. Student (Cima, MIT, Materials science and engineering): Committee member and collaborator on ^{13}C -drug delivery from solid-state devices. (2012)

James Saènz, Ph.D. Student (Eglinton, WHOI): Committee member and collaborator on hopanoids. (2004-2010).

Robin Kodner, Ph.D. Student (Knoll): Committee member and collaborator on the distribution of sterols in algae. (2003-2008).

Woodward Fischer, Ph.D. Student (Knoll): Committee member and collaborator on the biosynthesis of hopanoids. (2001- 2007).

Undergraduate

Alyssa Chan, Kinetics of ^{18}O exchange in organic alcohols [Joint with D. Johnston]. (2014-2016; Senior Thesis 2016)

Laura Fontanills, Sterols of microeukaryotes in the water column. Senior Thesis (2012).

Leah Tsao, Further investigation of $\delta^{15}\text{N}$ values of chloropigments. (2011).

Laura Fontanills, Investigation of soil biomarkers: looking for sporulenes and their breakdown products. (2010)

Yelun Qin, Growth of prokaryotic phototrophs under different nitrogen sources for determining N-isotope fractionation. (2010)

Barrett Kenny, Honors student: Synthetic catalysis of methanotrophy. [Joint with T. Betley]. (2009)

Clarmyra Hayes, Undergraduate research student, Microbial Sciences Initiative summer fellow.
Characterization of squalene-hopene cyclase diversity in Mono Lake and Storr's Lake. (2009)

Alexa Weingarden, Honors Student: Characterization of microbial eukaryotes associated with a high-temperature hydrothermal vent chimney [Joint with P. Girguis]. (2008)

Lauren Wolchok, Honors Student: Variability in extractable triterpenoid content and identification of 2-methyl hopanoids in the Planctomycete, *Gemmata obscuriglobus*. (2007; Hoopes Prize Winner; *Summa Cum Laude*).

Jon Husson, Honors Student: Nitrogen isotopes of kerogen and bitumen from a Cretaceous Ocean Anoxic Event (OAE). (2007).

Tyler Jorgenson (ASU), Undergraduate research student: Fluorescent detection of intracellular sterols in *Gemmata obscuriglobus* and detection of environmental squalene-hopene cyclases (2004, 2005).

Karen Chow (ASU), Undergraduate research student: Growth of *Chloroflexus aurantiacus* under heterotrophic and autotrophic conditions for isotopic analysis (2005).

Melvin Rivera, Undergraduate research student: Searching for malabaricatriene in sulfidic sediments. (2005).

Anne Dekas, Honors Student: Incorporation of $^{13}\text{CH}_4$ by anaerobic, methane-oxidizing consortia. (2004; *Magna Cum Laude*) [Now Asst. Prof. at Stanford]

Duncan French (2003) Preliminary assessment of the $\delta^{18}\text{O}$ values of sterols.