

Publications

Jiasong Fang

- Xu, Y., Ge, H., and Fang*, J., 2017. Biogeochemistry of the hadal trenches: recent developments and Future perspectives, *Deep Sea Research II*. In review.
- Fang, F., Dasgupta, S., Zhang, L., and Zhao, W., 2017. Lipid biomarkers in geomicrobiology: Analytical techniques and applications. In Alessi, D.S., Eds., *Analytical Geomicrobiology*, in review.
- Liu, L., Wang, L., Wei, Y., Fang*, J., 2017. The hadal biosphere: recent insights and new directions. *Deep-Sea Research II*, doi.org/10.1016/j.dsr2.2017.04.015.
- Fang*, J., Kato, C., Runko, G. M., Nogi, Y., Hori, T., Li, J., Morono, Y., Inagaki, F., 2017. Predominance of viable spore-forming piezophilic bacteria in high-pressure enrichment cultures from ~1.5 to 2.4 km-deep coal-bearing sediments below the ocean floor. *Frontiers in Microbiology*, 8:137. doi: 10.3389/fmicb.2017.00137.
- Dasgupta, D., and Fang*, J., 2017. Mitochondrial clock: moderating evolution of early eukaryotes in light of the Proterozoic oceans. *Biologia* 71, 843-852, 72/5: 586.
- Wei Y., Cao J, Fang* J, Kato C, Cui W. 2017. First complete genome sequence of *Marinilactibacillus piezotolerans* strain 15R, a marine lactobacillus isolated from coal-bearing sediment 2.0 kilometers below the seafloor, determined by PacBio single-molecule real-time technology. *Genome Announcement* 5, e01625-16. <https://doi.org/10.1128/genomeA.01625-16>
- Wei, Y., Cao, J., Fang*, J., Kato, C., Cui, W., 2017. Complete Genome Sequence of *Bacillus subtilis* strain 29R7-12, a Piezotolerant Bacterium Isolated from Coal-Bearing Sediment 2.4 km Below the Seafloor. *Genome Announcement* 5, e01621-16.
- Li, L., Zhou, H., Wang, F., Geng, G., Cui, J., W, Z., Liu, Y., and Fang*, J., 2016. Fe-Si-rich low-temperature hydrothermal precipitates in the Lau Basin: the characteristics of mineralogy, geochemistry, ultrastructure and microbiology. *Chemical Geology*, submitted.
- Liu, Q., Li, J., Wei, B., Zhang, X., Zhang, L., Zhang, Y., and Fang*, J., 2016. *Leeuwenhoekiella nanhaiensis* sp. nov., isolated from the deep-sea water of the South China Sea. *International Journal of Systematic and Evolutionary Microbiology* 66, 1352-1357.
- Li, J., Zhou, H., Fang*, J., Wu, Z., Peng, X., 2016. Microbial distribution in a hydrothermal plume of the Southwestern Indian Ridge. *Geomicrobiology J.*, 33, 401-415.
- Li, J., Wei, B., Wang, J., Liu, Y., Dasgupta, S., Zhang, L., Fang*, J., 2015. Variation in abundance and community structure of particle-attached and free-living bacteria in the South China Sea. *Deep-Sea Research II* 122, 64-73.
- Kim, S.-H., Tian, Q., Fang, J., and Sung, S., 2015. Removal of 17- β estradiol in water by sonolysis. *International Biodeterioration & Biodegradation*, 102, 11–14.
- Wei, B., Li, J., Zhang, L., Liu, Y., Fang*, J., 2015. The ^{234}Th : ^{238}U disequilibria and their applications in studying marine particulates dynamics. *Marine Geology Frontiers* 31, 1-9.
- Fang*, J., Zhang, L., Li, J., Kato, C., Zhang, Y., Tamburini, C., Wang, G., Wang, F., and Dang, H., 2015. The POM-DOM piezophilic microorganism continuum (PDPMC) – the role of piezophilic microorganisms in the global ocean carbon cycle. *Science China (Earth Sciences)* 57, 1-10.
- Nilsen, F., Hyrenbach, K.D., Fang, J., and Jensen, B., 2014. Use of indicator chemicals to characterize the plastic fragments ingested by Laysan albatross. *Marine Pollution Bulletin* 87, 230–236.

- Li, J., Zhou, H., Fang*, J., Sun, Y., and Dasgupta, S., 2014. Microbial distribution in different spatial positions within the walls of a black sulfide hydrothermal chimney. *Mar. Ecol. Prog. Ser.* **508**, 67–85.
- Fang*, J., Li, C., Zhang, L., Kato, C., and Bartlett, D. G., 2014. Variations in δD of fatty acids biosynthesized by piezophilic bacterium *Moritella japonica* DSk1 reflect different biosynthetic pathways. *Chemical Geology* **367**, 34–38.
- Wang, J., Li, J., Dasgupta, S., Zhang, L., and Fang*, J., 2014. Alterations in membrane lipid composition of piezophilic Gram-positive bacterium *Sporosarcina* sp. DSK25 at high pressures. *Lipids*, **49**, 347–356.
- Zhang, L., Fang*, J., and Joeckel, A.M., 2013. Microbial biomass and community structure in alkaline lakes of the Nebraska Sand Hills, USA. *Chemical Geology* **356**, 171–180.
- Dasgupta, S., Fang*, J., Brake, S. S., Hasiotis, S.T., and Zhang, L., 2013. Stable isotope fractionation in lipids of *Euglena*-dominated biofilms from an acid mine drainage site: interpretation of environmental conditions, microbial physiology, and biosynthetic pathways. *Chemical Geology* **354**, 15–21.
- Dasgupta, S., Fang*, J., Li, J., Zhang, L., Wang, J., and Wei, B., 2013. Microeukaryotes in modern acid mine drainage: biodiversity, physiology, and biogeochemistry and clues to the evolution of life and the early Earth environment. *Quaternary Science*, **33**, 68–78.
- Li, J., Sun, Y., Fang, J., Chen, S., P. X., Wu, Z., and Zhou, H., 2013. Aerobic and anaerobic ammonia-oxidizing microorganisms in low-temperature hydrothermal Fe-Si-rich precipitates of the southwestern Pacific Ocean. *Geomicrobiology Journal* DOI: 10.1080/01490451.2013.802397.
- Bazylinski, D.A., Williams, T.J., Lefèvre, C.T., Trubitsyn, D., Fang, J., Beveridge, T.J., Moskowicz, B.M., Ward, B., Schübbe, S., Dubbels, B.L., and Simpson, B. 2012. *Magnetovibrio blakemorei*, gen. nov. sp. nov., a new magnetotactic bacterium (Alphaproteobacteria: Rhodospirillaceae) isolated from a salt marsh. *International Journal of Systematic and Evolutionary Microbiology* **63**, 1824–1833.
- Li, J., Zhou, H., Peng, X., Wu, Z., Chen, S., and Fang, J., 2012. Microbial diversity and biomineralization in low-temperature hydrothermal iron–silica-rich precipitates of the Lau Basin hydrothermal field. *FEMS Microbiology Ecology* **81**, 205–216.
- Dasgupta, S., Fang*, J., Brake, S.S., Hasiotis, S.S., and Zhang, L., 2012. Biosynthesis of sterols and wax esters by *Euglena* of acid mine drainage biofilms: Implications for eukaryotic evolution and the early Earth. *Chemical Geology* **306–307**, 139–145.
- Wu, X., Fang, J., Xiang, M.O., Ling, H.E., Xin-Ting, S., 2011. Driving mechanisms for the DOC increases in surface waters released from Northern Peatlands under global change. *Earth Science Frontiers* **18**, 72-78.
- Shelton, J.M., Kim, L., Fang, J., Ray, C., and Yan, T., 2011. Assessing the severity of rainfall derived infiltration and inflow and sewer deterioration based on the flux stability of sewage markers. *Environmental Science and Technology*. **45**, pp 8683–8690.
- Fang, J., and L. Zhang, 2011. Piezophilic bacteria. In: *The Encyclopedia of Geobiology, the Springer Encyclopedia of Earth Sciences Series* (J. Reitner and V. Thiel, eds.), Springer-Verlag, Heidelberg, Germany.
- Fang, J., and L. Zhang, 2011. Genomics, metagenomics, and microbial oceanography—A sea of opportunities. *Science China (Earth Sciences)* **54**, 473–480.
- Fang, J., and L. Zhang, 2011. Explore the deep biosphere. *Science China (Earth Sciences)* **54**, 1–9.

- Fang, J., L. Zhang, and Bazylinski, D.A., 2010. The deep-sea piezosphere and piezophiles: geomicrobiology and biogeochemistry. *Trends in Microbiology* **18**, 413-422.
- Fang, J., and Kato, C., 2010. Deep-sea piezophilic bacteria: geomicrobiology and biotechnology. In: *Geomicrobiology: Biodiversity and Biotechnology* (S. K. Jain, ed.), pp. 47-77. Blackwell Publishing.
- Fang, J., and Bazylinski, D. A., 2008. Deep-sea geomicrobiology. In: *High-Pressure Microbiology* (C. Michiels and D. H. Bartlett, eds.), American Society for Microbiology, Washington, D.C. pp. 237-264.
- Fang, J., and Kato, C., 2008. Deep-sea piezophilic bacteria, ocean carbon cycle, and climate change. In: *the Encyclopedia of Global Warming and Climate Change* (S. George Philander, ed.), Golson Books, Ltd., 2:557-558.
- Fang, J., and Kato, C., 2007. FAS or PKS, lipid biosynthesis and stable carbon isotope fractionation in deep-sea piezophilic bacteria. In: *Communicating Current Research and Educational Topics and Trends in Applied Microbiology (2007)*, The Formatex Microbiology Book Series (A. Méndez-Vilas, ed.), Formatex Center, Spain, pp. 190-200.
- Fang, J., Gupta, S. D., Hasiotis, S. T., Brake, S. S., and Bazylinski, D. A., 2007. Microbial community structure of a stromatolite from an acid mine drainage system, implications for the role of microeukaryotes in the formation of ancient Fe-rich stromatolites. *Chemical Geology* **243**, 191-204.
- Fang, J., Lyon, D. Y., Alvarez, P. J. J., Wiesner, M., and Dong, J., 2007. Effect of a fullerene water suspension on bacterial phospholipids and membrane phase behavior. *Environmental Science and Technology* **41**, 2636-2642.
- Fang, J., Arakawa, S., Kato, C., and Schouten, S., 2006. Microbial diversity of cold-seep sediments in Sagami Bay, Japan determined by 16S rDNA and lipid analyses. *FEMS Microbiology Ecology* **57**, 429-441.
- Fang, J., Uhle, M., Billmark, K., Bartlett, D. H., and Kato, C., 2006. Fractionation of carbon isotopes in biosynthesis of fatty acids by a piezophilic bacterium *Moritella japonica* DSK1. *Geochimica et Cosmochimica Acta* **70**, 1753-1760.
- Fang, J., Chan, C., Joeckel, R. M., Huang, Y., Wang, Y., Bazylinski, D. A., and Moorman, T. B., 2006. Biomarker analysis of microbial diversity in sediments of a saline groundwater seep of Salt Basin, Nebraska. *Organic Geochemistry* **37**, 912-931.
- Fang, J., Lovanh, N., and Alvarez, P. J., 2004. The use of isotopic and lipid analysis techniques linking toluene degradation to specific microorganisms: applications and limitations. *Water Research* **38**, 2529-2536.
- Fang, J., Kato, C., Sato, T., Chan, O., Agarkar, N., and McKay, D. S., 2004. Polyunsaturated fatty acids in piezophilic bacteria: biosynthesis or dietary uptake? *Comparative Biochemistry and Physiology B* **137**, 455-461.
- Fang, J., Chan, O., Kato, C., Sato, T., Peeples, T., and Niggemeyer, K., 2003. Phospholipid fatty acid profiles of piezophilic bacteria from the deep sea. *Lipids* **38**, 885-887.
- Namocatcat, J. A., Fang, J., and Barcelona, M. J., 2003. Biogeochemical evidence of intrinsic bioremediation in a shallow sand aquifer contaminated with jet fuel hydrocarbons. *Journal of Contaminant Hydrology* **67**, 177-194.
- Zhang, C. L., Li, Y., Ye, E., Fong, J., Peacock, A., Fang, J., Lovley, D., and White, D.C., 2003. Carbon isotopic signatures of fatty acids in *Geobacter metallireducens* and *Shewanella putrefaciens*. *Chemical Geology* **195**, 17-28.

- Fang, J., and Barcelona, M. J., 2003. Coupled oxidation of aromatic hydrocarbons by horseradish peroxidase and hydrogen peroxide. *Chemosphere* **50**, 105-109.
- Fang, J., Kawamura, K., Ishimura, Y., and Matsumoto, K., 2002. Carbon isotopic composition of fatty acids in the marine aerosols from the western North Pacific: Implication for the source and atmospheric transport. *Environmental Science and Technology* **36**, 2598-2604.
- Fang, J., Barcelona, M. J., Abrajano, T. A., Kato, C., and Nogi, Y., 2002. Isotopic composition of fatty acids isolated from the extremely piezophilic bacteria from the Mariana Trench at 11,000 meters. *Marine Chemistry* **80**, 1-9.
- Fang, J., and Kato, C., 2002. Piezophilic bacteria: taxonomy, diversity, adaptation, and potential biotechnological applications, pp. 47-80. In: *Recent Advances in Marine Biotechnology* (M. Fingerman, ed.), vol. 8, Science Publishers, Inc. Enfield.
- Zhang, C. L., Ye, Q., Anna-Louise Reysenbach, Götz, D., Peacock, A. White, D. C., Horita, J., Cole, D. R., Fong, J., Pratt, L., Fang, J., and Huang, Y., 2002. Carbon isotopic fractionations associated with thermophilic bacteria *Thermotoga maritima* and *Persephonella marina*. *Environmental Microbiology* **4**, 58-64.
- Fang, J., Barcelona, M. J., and Alvarez, P. J., 2000. Phospholipid patterns of five pseudomonad archetypes for different aerobic toluene degradation pathways. *Bioremediation Journal* **4**, 181-185.
- Fang, J., Barcelona, M. J., and Semrau, J., 2000. Characterization of methanotrophic bacteria on the basis of intact phospholipid profiles. *FEMS Microbiology Letters* **189**, 67-72.
- Fang, J., Barcelona, M. J., and Alvarez, P. J., 2000. A direct comparison between fatty acid analysis and intact phospholipid profiling for microbial identification. *Organic Geochemistry* **31**, 881-887.
- Fang, J., Barcelona, M. J., and Alvarez, P. J., 2000. Phospholipid compositional changes of five pseudomonad archetypes grown with and without toluene. *Applied Microbiology and Biotechnology* **54**, 382-389.
- Fang, J., Barcelona, M. J., Krishnamurthy, R. V., and Atekwana, E. A., 2000. Stable carbon isotope biogeochemistry of an aquifer contaminated with fuel hydrocarbons. *Applied Geochemistry* **15**, 157-169.
- Fang, J., Barcelona, M. J., Kato, C., and Nogi, Y., 2000. Biochemical function and geochemical significance of novel phospholipids isolated from extremely barophilic bacteria from the Mariana Trench at a depth of 11,000 meters. *Deep-Sea Research I* **47**, 1173-1182.
- Fang, J., and Barcelona, M. J., 1999. Determination of organic acids in ground water by liquid chromatography/ atmospheric pressure chemical ionization/mass spectrometry. *Analytical Letters* **32**, 1459-1473.
- Fang, J., and Barcelona, M. J., 1998. Biogeochemical evidence for community changes associated with hydrocarbon contamination in a sand aquifer. *Organic Geochemistry* **29**, 899-907.
- Fang, J., and Barcelona, M. J., 1998. Structural determination and quantitative analysis of bacterial phospholipids using liquid chromatography/electrospray ionization/mass spectrometry. *Journal of Microbiological Methods* **33**, 23-35.
- Xie, G., Barcelona, M. J., and Fang, J., 1998. Measurement and quantification of TPH by a GC/MS method and comparison with EPA 418.1 and PetroFlag® based on sediment samples from a contaminated site. *Analytical Chemistry* **71**, 1899-1904.
- Fang, J., Barcelona, M. J., and West, C., 1997. The use of aromatic acids and phospholipid ester-linked fatty acids for delineation of processes affecting an aquifer contaminated with JP-4

- fuel, pp. 65-76. In: *Molecular Markers in Environmental Geochemistry* (R P. Eganhouse, ed.). American Chemical Society, Washington, D.C.
- Mayer, L. M., Chen, Z., Findlay, R. H., Fang, J., Sampson, S., Self, R. F., Jumars, P. A., Quetel, C., and Donard, O. F., 1996. Bioavailability of sedimentary contaminants subject to deposit-feeder digestion. *Environmental Science and Technology* **30**, 2641-2645.
- Fang, J., and Findlay, R. H., 1996. The use of a classic lipid extraction method for simultaneous recovery of organic pollutants and phospholipids. *Journal of Microbiological Methods* **27**, 63-71.
- Yu, Y., Wade, T. L., Fang, J., Brooks, J. M., and McDonald, S., 1995. Production of PAH metabolites in Antarctic fish (*Notothenia gibberifrons*) dosed with diesel fuel Arctic and its implications to environmental pollution monitoring. *Archive of Environmental Contamination and Toxicology* **29**, 241-246.
- Abrajano, T. A., Murphy, D., Fang, J., and Comet, P. A., 1994. $^{13}\text{C}/^{12}\text{C}$ ratios in individual fatty acids of marine mytilids with and without bacterial symbionts. *Organic Geochemistry* **21**, 611-618.
- Fang, J., Abrajano, T. A., Comet, P. A., Brooks, J. M., and Sassen, R., 1993. Gulf of Mexico hydrocarbon seep communities: IX. Isotope fractionation during fatty acid biosynthesis of seep mytilids and vestimentiferans: implications for symbiotic processes. *Chemistry Geology* **109**, 271-279.
- Fang, J., Comet, P. A., Wade, T. L., and Brooks, J. M., 1993. Non-methylene-interrupted fatty acids in the Gulf of Mexico hydrocarbon seep mytilids: occurrence and significance. *Comparative Biochemistry and Physiology B* **104**, 287-291.
- Fang, J., Comet, P. A., Wade, T. L., and Brooks, J. M., 1992. Gulf of Mexico hydrocarbon seep communities: IX. Sterol biosynthesis of seep mussels and its implications for host-symbiont association. *Organic Geochemistry* **18**, 861-868.
- Fang, J., Comet, P. A., Brooks, J. M., and Sassen, R., 1992. Stable carbon isotopic composition of lipids of hydrocarbon seep mussels and whitefish, carbon flow implications. *Transaction, Gulf Coast Association of Geological Societies* **41**, 467-472.
- Fang, J., 1991. Isotopic evidence for petroleum-derived carbonates in the Gulf of Mexico. *Transaction, Gulf Coast Association of Geological Societies* **40**, 276-282.
- Fang, J., Sassen, R., Nunn, J., and Roberts., H. H., 1990. Organic geochemistry of sediments of the deep-water Gulf of Mexico. *Organic Geochemistry* **14**, 679.
- Lin, J. and Fang, J., 1985. Relationship of the characteristics of oilfield brines and distribution of oil and gas fields in eastern China. *Minerals and Rocks* **23**, 65-76. (in Chinese).