

## *Curriculum Vitae*

### **Dr. Peng Lin**

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Assistant Research Scientist

Department of Marine Sciences, Texas A&M University Galveston Campus

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#### **Research and Professional Experience**

2017-present, **Assistant Research Scientist**, Department of Marine Sciences, Texas A&M University Galveston Campus, USA

2016-2017, **Postdoctoral Associate**, Department of Marine Sciences, Texas A&M University Galveston Campus, USA

2012-2016, **Postdoctoral/Research Associate**, School of Freshwater Sciences, University of Wisconsin-Milwaukee, USA

2012, **Research Assistant**, College of Ocean and Earth Sciences, Xiamen University, China

2009-2010, **Visiting Ph.D. student**, Department of Marine Science, University of Southern Mississippi, USA

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#### **Education**

2012, **Ph.D. in Marine Chemistry**, College of Ocean and Earth Sciences, Xiamen University, China.

*Thesis Title: The partitioning of P, Th and Pa in marine environments and their controlling factors.*

2007, **B.S. in Applied Chemistry**, Beijing Institute of Petrochemical Technology, China.

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#### **Research Interests**

Fate and transport of radionuclides and trace elements in aquatic and soil environments

Biogeochemistry of carbon, phosphorus and trace elements in natural environments

Application of stable isotopes and radionuclides

Biogeochemical processes at soil-water, river-lake, particle-water, and land-ocean interfaces

Biogeochemical consequences of climate and environmental change

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**Publications (<https://scholar.google.com/citations?user=g8q3ihMAAAAJ&hl=en>)**Peer-reviewed Manuscripts in International Journals

1. **Lin, P.**, Xu, C., Xing, W., Sun, L., Schwehr, K. A., Quigg, A., Santschi, P. H., 2020. Partitioning of iron and plutonium in exopolymeric substances and intracellular biopolymers: a comparison study between the coccolithophore *Emiliania huxleyi* and the diatom *Skeletonema costatum*. *Marine Chemistry* 218, 103735.
2. **Lin, P.**, Xu, C., Kaplan, D. I., Chen, H., Yeager, C. M., Xing, W., Sun, L., Schwehr, K. A., Yamazaki, H., Saito-Kobubu, Y., Hatcher, P. G., Santschi, P. H., 2019. Nagasaki sediments reveal that long-term fate of plutonium is controlled by select organic matter moieties. *Science of the Total Environment*, 678, 409-418.
3. Li, D., Kaplan, D. I., Price, K. A., Seaman, J. C., Roberts, K., Xu, C., **Lin, P.**, Xing, W., Schwehr, K. A., Santschi, P. H., 2019. Iodine immobilization by silver-impregnated granular activated carbon in cementitious systems. *Journal of Environmental Radioactivity*, 208-209, 106017.
4. Kaplan, D. I., Price, K. A., Xu, C., Li, D., **Lin, P.**, Xing, W., Nichols, R., Schwehr, K. A., Seaman, J. C., Ohnuki, T., Chen, N., Santschi, P. H., 2019. Iodine speciation in a silver-amended cementitious system. *Environment International* 126, 576-584.
5. Kaplan, D. I., Xu, C., Li, D., **Lin, P.**, Xing, W., Nichols, R., Schwehr, K., Santschi, P. H., 2019. Iodine speciation in cementitious environments. *Applied Geochemistry* 103, 15-22.
6. Xu, C., **Lin, P.**, Zhang, S., Sun, L., Xing, W., Schwehr, K. A., Chin, W.-C., Wade, T., Knap, A. H., Hatcher, P.G., Yard, A., Jiang, C., Quigg, A., Santschi, P. H., 2019. The interplay of extracellular polymeric substances and oil/Corexit to affect the petroleum incorporation into sinking marine oil snow in four mesocosms. *Science of the Total Environment*, 693, 133626.
7. Xu, C., Chin, W. -C., **Lin, P.**, Chen, H., Chiu, M. -H., Waggoner, D. C., Xing, W., Sun, L., Schwehr, K. A., Hatcher, P. G., Quigg, A., Santschi, P. H., 2019. Comparison of marine gels, extracellular polymeric substances (EPS) and transparent exopolymeric particle (TEP) determined in seawater with and without oil. *Marine Chemistry* 215, 103667.
8. Sun, L., Chin, W.-C., Chiu, M.-H., Xu, C., **Lin, P.**, Schwehr, K. A., Quigg, A., Santschi, P. H., 2019. Sunlight induced aggregation of dissolved organic matter in seawater: Role of proteins in linking organic carbon and nitrogen cycling in seawater. *Science of the Total Environment* 654, 872-877.

9. **Lin, P.**, Xu, C., Xing, W., Sun, L., Kaplan, D. I., Fujitake, N., Yeager, C. M., Schwehr, K. A., Santschi, P. H., 2018. Radionuclide uptake by colloidal and particulate humic acids obtained from 14 soils collected worldwide. *Scientific Reports* 8, 4795.
10. **Lin, P.**, Klump, J. V., Guo, L., 2018. Variations in chemical speciation and reactivity of phosphorus between suspended-particles and surface sediment in seasonal hypoxia-influenced Green Bay. *Journal of Great Lakes Research* 44(5), 864-864. doi:10.1016/j.jglr.2017.05.022.
11. Xu, C., Zhang, S., Beaver, M., **Lin, P.**, Sun, L., Doyle, S., Sylvan, J. B., Wozniak, A., Hatcher, P. G., Kaiser, K., Yan, G., Schwehr, K. A., Lin, Y., Wade, T. L., Chin, W.-C., Chiu, M.-H., Quigg, A., Santschi, P. H., 2018. The role of microbially-mediated exopolymeric substances (EPS) in regulating Macondo oil transport in a mesocosm experiment. *Marine Chemistry* 206, 52-61. doi:10.1016/j.marchem.2018.09.005.
12. Xu, C., Zhang, S., Beaver, M., Wozniak, A., Obeid, W., Lin, Y., Wade, T. L., Schwehr, K. A., **Lin, P.**, Sun, L., Hatcher, P. G., Chin, W.-C., Chiu, M.-H., Knap, A. H., Dean, L., Quigg, A., Santschi, P. H., 2018. Decreased sedimentation efficiency of petro- and non-petro-carbon caused by a dispersant for Macondo surrogate oil in a mesocosm simulating a coastal microbial community. *Marine Chemistry* 206, 34-43. doi:10.1016/j.marchem.2018.09.002.
13. Schwehr, K. A., Xu, C., Chiu, M.-H., Zhang, S., Sun, L., **Lin, P.**, Beaver, M., Jackson, C., Agueda, O., Bergen, C., Chin, W.-C., Quigg, A., Santschi, P. H., 2018. Protein:Polysaccharide ratio in exopolymeric substances controlling the surface tension of seawater in the presence or absence of surrogate Macondo oil with and without Corexit. *Marine Chemistry* 206, 84-92. doi:10.1016/j.marchem.2018.09.003.
14. Sun, L., Chiu, M.-H., Xu, C., **Lin, P.**, Schwehr, K. A., Bacosa, H., Kamalanathan, M., Quigg, A., Chin, W.-C., Santschi, P. H., 2018. The effects of sunlight on the composition of exopolymeric substances and subsequent aggregate formation during oil spills. *Marine Chemistry* 203, 49-54, doi:10.1016/j.marchem.2018.04.006.
15. Yang, Z., Chen, J., Chen, M., Ran, L., Li, H., **Lin, P.**, Zhu, Y., Wang, C., Ji, Z., Zhang, J., 2018. Sources and transformation of nitrogen in the South China Sea: insights from nitrogen isotopes. *Journal of Oceanography* 74, 101-113.
16. **Lin, P.**, Xu, C., Zhang, S., Fujitake, N., Kaplan, D. I., Yeager, C. M., Sugiyama, Y., Schwehr, K. A., Santschi, P. H., 2017. Plutonium partitioning behavior to humic acids from widely varying soils is related to carboxyl-containing organic compounds. *Environmental Science &*

*Technology* 51(20), 11742-11751.

17. **Lin, P.**, Xu, C., Zhang, S., Sun, L., Schwehr, K. A., Bretherton, L., Quigg, A., Santschi, P. H., 2017. Importance of coccolithophore-associated organic biopolymers for fractionating particle-reactive radionuclides ( $^{234}\text{Th}$ ,  $^{233}\text{Pa}$ ,  $^{210}\text{Pb}$ ,  $^{210}\text{Po}$  and  $^7\text{Be}$ ) in the ocean. *Journal of Geophysical Research: Biogeoscience* 122(8), 2033-2045.
18. Sun, L., Xu, C., Zhang, S., **Lin, P.**, Schwehr, K. A., Quigg, A., Chiu, M. -H., Chin, W. -C., Santschi, P. H., 2017. Light-induced aggregation of microbial exopolymeric substances. *Chemosphere* 181, 675-681.
19. Santschi, P. H., Xu, C., Zhang, S., Schwehr, K. A., **Lin, P.**, Yeager, C. M., Kaplan, D. I., 2017. Recent advances in the detection of specific natural organic compounds as carriers for radionuclides in soil and water environments, with examples of radioiodine and plutonium. *Journal of Environmental Radioactivity* 171, 226-233.
20. **Lin P.**, Guo L., 2016. Do invasive quagga mussels alter  $\text{CO}_2$  dynamics in the Laurentian Great Lakes?. *Scientific Reports* 6, 39078, doi:10.1038/srep39078.
21. **Lin P.**, Guo L., 2016. Dynamic changes in abundance and chemical speciation of dissolved and particulate phosphorus in southwest Lake Michigan. *Limnology and Oceanography* 61(2), 771-789.
22. **Lin P.**, Klump J. V., Guo L., 2016. Dynamics of dissolved and particulate phosphorus influenced by seasonal hypoxia in Green Bay, Lake Michigan. *Science of the Total Environment* 541, 1070-1082.
23. **Lin P.**, Guo L., 2015. Spatial and vertical variations of dissolved carbohydrates in the northern Gulf of Mexico: influence of oil spill. *Marine Chemistry* 174, 13-25.
24. **Lin P.**, Guo L., Chen M., 2015. Effect of natural organic matter on the adsorption and fractionation of thorium and protactinium on nanoparticles in seawater. *Marine Chemistry* 173, 291-301.
25. Ni, J., **Lin, P.**, Zhen, Y., Yao, X., Guo, L., 2015. Distribution, sources and chemical speciation of phosphorus in surface sediments of the central Pacific Ocean. *Deep-Sea Research Part I: Oceanographic Research Papers* 105, 74-82.
26. Zhang L., Yang W., Chen M, Wang Z., **Lin P.**, Fang Z., Qiu Y., Zheng M., 2015. Atmospheric deposition of  $^7\text{Be}$  in the southeast of China: a case study in Xiamen. *Aerosol and Air Quality Research* 16, 105-113.

27. **Lin P.**, Guo, L., Chen M., 2014. Adsorption and fractionation of thorium and protactinium on nanoparticles in seawater. *Marine Chemistry* 162, 50-59.
28. Wang Z., Yang W., Chen M., **Lin P.**, Qiu Y., 2014. Intra-annual deposition of atmospheric  $^{210}\text{Pb}$ ,  $^{210}\text{Po}$  and the residence times of aerosol in Xiamen, China. *Aerosol and Air Quality Research* 14, 1402-1410.
29. **Lin P.**, Guo L., Chen M., Cai Y., 2013. Distribution, partitioning and mixing behavior of phosphorus species in the Jiulong River estuary. *Marine Chemistry* 157, 93-105.
30. **Lin P.**, Cai Y., Liu Y., Xing N., 2013. Separation of highly-purified  $^{233}\text{Pa}$  from  $^{237}\text{Np}$  with silica gel column (in Chinese). *Journal of Xiamen University (Natural Science)* 52(6), 819-823.
31. **Lin P.**, Chen M., Guo L., 2012. Speciation and transformation of phosphorus and its behavior in the Bay of St. Louis estuary in the northern Gulf of Mexico. *Geochimica et Cosmochimica Acta* 87, 283-298.
32. **Lin P.**, Guo L., Chen M., Tong J., Lin F., 2012. The distribution and chemical speciation of dissolved and particulate phosphorus in the Bering Sea and the Chukchi-Beaufort seas. *Deep-Sea Research II: Topical Studies in Oceanography* 81-84, 79-94.

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### Research Specialty

Alpha, Gamma spectroscopy, Liquid Scintillation and Beta Counting (radionuclides)

GC-MS (iodide, iodate and organic iodine analysis)

ICP-MS (radionuclides and trace metal analysis)

ESI-FTICR-MS (molecular-level identification of organic matter)

Shimadzu TOC/TN analyzer (dissolved organic carbon (DOC), dissolved inorganic carbon (DIC) and total dissolved nitrogen (TDN))

Cross flow ultrafiltration (pre-concentration and purification of natural colloids and nanoparticles)

EA-IRMS (isotopic composition of particulate organic carbon and nitrogen)

UV-Vis spectroscopy (CDOM, nutrients, carbohydrates and protein)

EEM fluorescence

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### Cumulative Research Support

2019 Collaborative Research: Natural organic matter and microbial controls on mobilization/immobilization of I and Pu in soils and waters affected by radionuclides releases

- in USA and Japan: A supplemental application; **Co-PI**, Subsurface Biogeochemical Research (SBR), Department of Energy (DOE), \$80,000.
- 2019 Marine Hydroxamate Siderophores in particles: How do they get in there? **Co-PI**, NSF (pending).
- 2019 Organic matter properties in critical zones of wetlands and their influence on uranium mobility under dynamic hydraulic conditions; **Co-PI**, Subsurface Biogeochemical Research (SBR), Department of Energy (DOE) (pending).
- 2019 Radon induced mucus aggregation and viscosity change; **Co-PI**, Alpha Foundation (pending).
- 2019 Photo-oxidation facilitating the preservation of dissolved organic nitrogen in the ocean; **Co-PI**, NSF (pending).

## Teaching & Supervisory Experience

### Teaching

- 2017-2018, **Guest Lecturer** of “*Seminar in Oceanography/Marine Science*”, Department of Marine Sciences, Texas A&M University Galveston Campus.
- 2016-2017, **Guest Lecturer** of “*Dynamics of Colloids in the Environment*”, Department of Marine Sciences, Texas A&M University Galveston Campus.
- 2016-2017, **Guest Lecturer** of “*Chemistry of Environmental Pollution*”, Department of Marine Sciences, Texas A&M University Galveston Campus.
- 2014-2015, **Guest Lecturer** of “*Isotope Biogeochemistry*”, School of Freshwater Sciences, University of Wisconsin-Milwaukee.
- 2008-2009, **Teaching Assistant** of “*Marine Chemistry*”, College of Ocean and Earth Sciences, Xiamen University, China.
- 2008-2009, **Teaching Assistant** of “*Inorganic Chemistry*”, College of Ocean and Earth Sciences, Xiamen University, China.

### Co-Mentoring

#### Ph.D. Graduate Student

Christena Hoelscher (2019-present), Texas A&M University Galveston Campus

Josh Alarcon (2019-present), Texas A&M University Galveston Campus

#### Master Graduate Student

Tarek Taber (2014-2016), University of Wisconsin-Milwaukee

#### Undergraduate Student

Christian Taylor (2017-2018), Texas A&M University Galveston Campus

Allison Fabino (2013), University of Wisconsin-Milwaukee

Aja Gaeth (2012-2014), University of Wisconsin-Milwaukee

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## **Professional Services**

### Contribution to writing of proposals

GoMRI: Extension of “Role of microbial exopolymers in aggregation and degradation of oil and dispersants”, funded at 2017.

DOE-SBR: Collaborative Research: Natural organic matter and microbial controls on mobilization/immobilization of I and Pu in soils and waters affected by radionuclides releases in USA and Japan: A supplemental application, funded at 2018.

NSF: Incorporation of hydroxamate siderophores moieties into marine particles and the role of this process in scavenging Fe and particle-reactive radionuclides (Th, Pa and Po).

### Journal Editor

Review Editor, *Frontiers in Environmental Science*, 2018-present

### Journal Peer-Reviewer

*Geochimica et Cosmochimica Acta*

*Environmental Science & Technology*

*Water Research*

*Marine Chemistry*

*Science of the Total Environment*

*Deep-Sea Research Part I: Oceanographic Research Papers*

*Journal of Environmental Radioactivity*

*Journal of Geophysical Research: Biogeoscience*

*Journal of Geophysical Research: Ocean*

*Chemosphere*

*Acta Oceanologica Sinica*

*Scientific Reports*

*G-Cubed*

*Applied Geochemistry*

*Applied Radiation and Isotopes*

*Journal of Radioanalytical and Nuclear Chemistry*

BMC Ecology

Continental Shelf Research

Marine Pollution Bulletin

NANOIMPACT

Journal of Coastal Conservation

Journal of Glaciology

Water

Water Management

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### **Participation in Topic Projects**

Gulf of Mexico Research Initiative (GoMRI), “Role of microbial exopolymers in aggregation and degradation of oil and dispersants”, 2016-present

National Science Foundation-Chemical Oceanography, “Biopolymers produced by diatoms and coccolithophores as carriers for selected natural radionuclides (of Th, Pa, Pb, Po, Be) in the ocean”, 2016-present.

DOE, Office of Science, SBR, “Collaborative Research: The importance of organo-Iodine and iodate in Iodine-127, 129 speciation, mobility and microbial activity in groundwater at DOE Sites”, 2016-present.

DOE, Office of Science, SBR, “Collaborative Research: Natural organic matter and microbial controls on mobilization/immobilization of I and Pu in soils in USA and Japan”, 2016-present.

DOE, NEUP, Office of Nuclear Energy, “Using radioiodine speciation to address environmental remediation and waste stream sequestration problems at the Fukushima Daiichi Nuclear Power Plant and a DOE site”, 2016-present.

National Oceanic and Atmospheric Administration-Sea Grant, “Role of invasive quagga mussels in regulating carbon dynamics in Lake Michigan”, 2014-2016.

National Science Foundation, “Collaborative Research: Examining the binding of radionuclides with marine biopolymers, A comparative study on Th, Pa, Be, Po and Pb isotopes”, 2009-2013.

National Science Foundation, “Effect of oil spill on organic carbon partitioning and transformation in the water column in the northern Gulf”, 2010-2013.

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### **Invited Oral Presentations**



**Seminar at Woods Hole Oceanographic Institute (WHOI)**, Woods Hole, MA. *The partitioning of phosphorus, thorium and protactinium in marine environments and their controlling factors*, Dec 2nd 2014.

**Invited speaker** at Special Session “*Dynamics of carbon, nutrients, and trace elements in river, lake and other freshwater systems*”, **Society for Freshwater Science 2015 Annual Meeting**, Milwaukee, WI, May 2015.

### Conference Abstracts and Presentations

**Lin, P.**, Xu, C., Chin, W.-C., Chiu, M.-H., Chen, H., Waggoner, D. C., Xing, W., Sun, L., Schwehr, K. A., Hatcher, P. G., Quigg, A., Santschi, P. H. Comparison of exopolymeric substances (EPS), transparent exopolymeric particles (TEP) and microgels in mesocosms and batch experiments with Macondo oil water accommodated fraction. **2019 Oil Spill and Ecosystem Science Conference**, Feb 2-7, New Orleans, LA (Poster presentation).

**Lin, P.**, Xu, C., Chen, H., Kaplan, D. I., Xing, W., Yeager, C. M., Schwehr, K. A., Hatcher, P. G., Santschi, P. H. *Molecular characterization of organic compounds binding  $^{239,240}\text{Pu}$  in Nagasaki soils*. **2018 Goldschmidt Conference**, Aug 12-17, Boston, MA (Oral presentation).

**Lin, P.**, Xu, C., Xing, W., Sun, L., Schwehr, K. A., Yard, A., Jiang, C., Wade, T. L., Knap, A. H., Hatcher, P. G., Quigg, A., Santschi, P. H. Production of exopolymeric substances and the roles in oil transport in water-accommodated fraction of oil and Corexit/oil amended mesocosms. **2018 Oil Spill and Ecosystem Science Conference**, Feb 6-10, New Orleans, LA (Poster presentation).

**Lin, P.**, Xu, C., Zhang, S., Beaver, M., Sun, L., Doyle, S., Schwehr, K. A., Sylvan, J. B., Wade, T. L., Quigg, A., Passow, U., Chin, W. -C., Hatcher, P. G., Knap, A. H., Santschi, P. H. *Microbially-mediated exopolymeric substances (EPS) production, composition and regulation of Macondo oil transport in two contrasting environments*. **2017 Oil Spill and Ecosystem Science Conference**, Feb 6-10, New Orleans, LA (Oral presentation).

Santschi, P. H., Xu, C., Zhang, S., Beaver, M., **Lin, P.**, Sun, L., Doyle, S., Schwehr, K. A., Sylvan, J. B., Wade, T. L., Kopp, K., Quigg, A., Passow, U., Chin, W. -C., Hatcher, P. G., Knap, A. H. *Effects of water-accommodated fraction of Macondo oil and Corexit on sinking marine snow formation and oil transport in three Mesocosm experiments*. **2017 Oil Spill and Ecosystem Science Conference**, Feb 6-10, New Orleans, LA (Oral presentation).

**Lin P.**, Xu, C., Zhang, S., Sun, L., Schwehr, K. A., Bretherton, L., Quigg, A., Santschi, P. H. *Partitioning of natural radionuclide analogues for particle cycling in the ocean ( $^{234}\text{Th}$ ,  $^{233}\text{Pa}$ ,*

*<sup>210</sup>Pb, <sup>210</sup>Po and <sup>7</sup>Be) with biopolymers associated with coccolithophores, one of the dominant phytoplankton species in the Gulf of Mexico: a case study with *Emiliana huxleyi*. 2016*

**Southwest Regional Meeting**, Nov 11-13, Galveston, TX (Oral presentation).

**Lin P.**, Santschi, P. H., Xu, C., Zhang, S., Schwehr, K. A., Yeager, C. M., Kaplan, D. J. *Detection and assessment of specific natural organic compounds as carriers for radioiodine and plutonium in soil and water environments at ambient concentrations. 7<sup>th</sup> International Conference on Radionuclide Metrology Low-Level Radioactivity Measurement Techniques*, Sep 26-30, 2016, Seattle, WA (Oral presentation).

**Lin P.**, Klump, J. V., Guo L., 2016. *Air-water CO<sub>2</sub> fluxes in seasonal hypoxia-influenced Green Bay, Lake Michigan. Ocean Science Meeting*, Feb 21-26, 2016, New Orleans, LA (Poster presentation).

**Lin P.**, Guo L., 2014. *Speciation and transformation of carbohydrates across the river-lake interface in southwest Lake Michigan. Goldschmidt*, June 8-13, 2014, Sacramento, CA (Poster presentation).

**Lin P.**, Guo L., 2013. *Spatial variations in chemical speciation of phosphorus across the river-lake interface in southwest Lake Michigan. Lake Michigan: State of the Lake, Great Lakes Beach Association Conference*, October 15-17, 2013, Sheboygan, WI (Poster presentation).

Guo L., **Lin P.**, 2010. Partitioning and transformation of phosphorus between dissolved, colloidal and particulate phases in the Bay of Saint Louis. *Geochimica et Cosmochimica Acta*, 74(12), A365-A365 (Oral presentation).

**Lin P.**, 2010. *Dynamics of phosphorus in the Bay of Saint Louis Estuary* (Best Poster Award).

**Mississippi Academy of Sciences Annual Meeting**, February 10-12, 2010, Hattiesburg, MS (Poster presentation).

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### Research Cruise Experience

2013-2016, **Time-series sampling from the Milwaukee River to Lake Michigan.**

2008-2009, **Environmental Assessment of Guangxi Nuclear Power Station, China.**

2007, **China 973 Exploration Fall Voyage, One Month.**