

Rixiang Huang

Department of Environmental and Sustainable Engineering, University at Albany, SUNY
1400 Washington Ave., Albany, NY 12222
Phone: 518-437-4977
Email: rhuang6@albany.edu

PROFESSIONAL APPOINTMENTS

Assistant Professor	University at Albany, SUNY	09/2018 - now
Research Scientist	Georgia Institute of Technology	02/2016-08/2018
Postdoctoral Fellow	Georgia Institute of Technology	05/2014-01/2016
Postdoctoral Fellow	Baylor University	01/2014-04/2014

EDUCATIONS

Baylor University, TX, USA	2009-2013
PhD in Geology	
Chinese Academy of Sciences (RCEES), China	2006-2009
MS in Environmental Sciences	
Harbin Institute of Technology, China	2002-2006
BE in Environmental Engineering	
Minor in Biological Engineering	

RESEARCH INTERESTS

1. Sustainable biowastes management via technology, process, and system innovation
2. Interfacial processes governing elemental and contaminant transport and transformation
3. Applications of spectroscopy and calorimetry in environmental and geochemical research

TECHNICAL EXPERTISTS

1. Synchrotron-based techniques: X-ray absorption spectroscopy and spectromicroscopy
2. Nuclear magnetic resonance spectroscopy (NMR)
3. Calorimetry for thermodynamic analysis
4. Thermal analysis of material properties and thermal reactions
5. Quartz crystal microbalance, X-ray photoelectron spectroscopy, electron microscopy

JOURNAL PUBLICATIONS

Biowaste treatment and resource recovery

1. **Huang, R.;** Zhang B.; Tang Y., Transformations of phosphorus speciation during (hydro)thermal treatments of animal manures. *Environ Sci Technol* **2018**, 52(5), 3016-3026
2. **Huang, R.;** Zhang B.; Saad E.; Ingall E.; Tang Y., Speciation evolution of zinc and copper during pyrolysis and hydrothermal carbonization treatments of sewage sludges. *Water Research* **2018**, 132, 260-269
3. **Huang, R.;** Fang, C.; Lu, X.; Jiang, R.; Tang, Y., Transformation of phosphorus during (hydro)thermal treatments of solid biowastes: reaction mechanisms and implications for P reclamation and recycling. *Environ Sci Technol* **2017**, 51(18), 10284-10298
4. **Huang, R.;** Tang, Y., Evolution of phosphorus complexation and mineralogy during (hydro)thermal treatments of activated and anaerobically digested sludge: Insights from sequential extraction and P K-edge XANES. *Water Research* **2016**, 100, 439-447.

5. **Huang, R.**; Tang, Y., Speciation dynamics of phosphorus during (hydro) thermal treatments of sewage sludge. *Environ Sci Technol* **2015**, *49*, (24), 14466–14474.

Environmental nanoscience

1. Zeng L.; Wan B.; **Huang, R.**; Yan Y.; Wang X.; Liu F.; Feng X., Catalytic Oxidation of Arsenite and Reaction Pathways on the Surface of CuO Nanoparticles at a Wide Range of pHs. *Geochemical Transactions*, 2018, *19*, (1), 12
2. **Huang, R.**; Yi, P.; Tang, Y., Probing the interactions of organic molecules, nanomaterials, and microbes with solid surfaces using quartz crystal microbalances: methodology, advantages, and limitations. *Environ Sci Process Impacts* **2017**, *19*, (6), 793-811.
3. **Huang, R.**; Lau, B., Biomolecule-nanoparticle interactions: Elucidation of the thermodynamics by isothermal titration calorimetry. *Biochim Biophys Acta - General Subjects* **2016**, *1860*, (5), 945–956.
4. **Huang, R.**; Carney, R. P.; Ikuma, K.; Stellacci, F.; Lau, B. L., Effects of Surface Compositional and Structural Heterogeneity on Nanoparticle-Protein Interactions: Different Protein Configurations. *ACS nano* **2014**, *8*, (6), 5402–5412.
5. **Huang, R.**; Carney, R. P.; Stellacci, F.; Lau, B. L., Protein–nanoparticle interactions: the effects of surface compositional and structural heterogeneity are scale dependent. *Nanoscale* **2013**, *5*, (15), 6928-6935.
6. **Huang, R.**; Carney, R. P.; Stellacci, F.; Lau, B. L. T., Colloidal Stability of Self-assembled Monolayer Coated Gold Nanoparticles: the Effects of Surface Compositional and Structural Heterogeneity. *Langmuir* **2013**, *29*, (37), 11560–11566.
7. Lau, B. L.; **Huang, R.**; Madden, A. S., Electrostatic adsorption of hematite nanoparticles on self-assembled monolayer surfaces. *J Nanoparticle Res* **2013**, *15*, (8), 1-10.
8. Lin, S.[#]; **Huang, R.**[#]; Cheng, Y.; Liu, J.; Lau, B. L.; Wiesner, M. R., Silver nanoparticle-alginate composite beads for point-of-use drinking water disinfection. *Water research* **2013**, *47*, (12), 3959-3965.
9. Li Q.; Su R.; **Huang R.**; Zhao L.; Yue Q; Gao B.; Chen Y., Biomass based soft hydrogel for triple use: adsorbent for metal removal, template for metal nanoparticle synthesis, and a reactor for nitrophenol and methylene blue reduction. *Journal of the Taiwan Institute of Chemical Engineers, Accepted*

Cycling of critical elements and contaminants

1. Zhao S.; Sun J.; Wang Q.; **Huang, R.**; Fields B.; Borkiewicz O.; Zhu M.; Chen S.; Tang Y., Effect of Zn(II) presence during mineral formation on the structure of layered Mn oxides. *Chemical Geology*, 2018, *493*, 234-245
2. Zhao, S.; Li, C.; Liu, P.; **Huang, R.**; Saad, E.; and Tang Y.; Zinc Presence during Mineral Formation Affects the Sorptive Reactivity of Manganese Oxide, *Soil System* 2018, *2*(2), 19
3. **Huang, R.**; Wan, B.; Diaz, J.; and Tang, Y., Phosphatase mediated hydrolysis of linear polyphosphates, *Environ Sci Technol* **2018**, *52*, (3), 1183-1190
4. Luo, L.; Lv, J.; Chen Z.; **Huang, R.**; Zhang S., Insights into the attenuated sorption of organic compounds on black carbon aged in soil. *Environmental Pollution* 2017, *231*, 1469-1476
5. Adhikari, D.; Zhao, Q.; Das, K.; Mejia, J.; **Huang, R.**; Wang, X.; Poulson, S. R.; Tang, Y.; Roden, E. E.; Yang, Y., Dynamics of ferrihydrite-bound organic carbon during microbial Fe reduction. *Geochim. Cosmochim. Acta* **2017**, *212*, 221-233.
6. Zhao, Q.; Adhikari, D.; **Huang, R.**; Patel, A.; Wang, X.; Tang, Y.; Obrist, D.; Roden, E. E.; Yang, Y., Coupled dynamics of iron and iron-bound organic carbon in forest soils during anaerobic reduction. *Chemical Geology* **2017**, *464*, 118-126.
7. Xu, S.; Adhikari, D.; **Huang, R.**; Zhang, H.; Tang, Y.; Roden, E.; Yang, Y., Biochar-Facilitated Microbial Reduction of Hematite. *Environ Sci Technol* **2016**, *50*, (5), 2389-2395.

8. Saad, E. M.; Longo, A. F.; Chambers, L. R.; **Huang, R.**; Benitez-Nelson, C.; Dyhrman, S. T.; Diaz, J. M.; Tang, Y.; Ingall, E. D., Understanding marine dissolved organic matter production: Compositional insights from axenic cultures of *Thalassiosira pseudonana*. *Limnol Oceanogr* **2016**, *61*, (6), 2222-2233.
9. Fang, J.; Shan, X.-q.; Wen, B.; **Huang, R.**, Mobility of TX100 suspended multiwalled carbon nanotubes (MWCNTs) and the facilitated transport of phenanthrene in real soil columns. *Geoderma* **2013**, *207*, 1-7.
10. Wen, B.; **Huang, R.**; Wang, P.; Zhou, Y.; Shan, X.-q.; Zhang, S., Effect of complexation on the accumulation and elimination kinetics of cadmium and ciprofloxacin in the earthworm *Eisenia fetida*. *Environ Sci Technol* **2011**, *45*, (10), 4339-4345.
11. **Huang, R.**; Wen, B.; Pei, Z.; Shan, X.-Q.; Zhang, S.; Williams, P. N., Accumulation, subcellular distribution and toxicity of copper in earthworm (*Eisenia fetida*) in the presence of ciprofloxacin. *Environ Sci Technol* **2009**, *43*, (10), 3688-3693.
12. Wen, B.; **Huang, R.**; Li, R.-j.; Gong, P.; Zhang, S.; Pei, Z.-g.; Fang, J.; Shan, X.-q.; Khan, S. U., Effects of humic acid and lipid on the sorption of phenanthrene on char. *Geoderma* **2009**, *150*, (1), 202-208.

SYNERGISTIC ACTIVITIES

Journal Reviewer: *Journal of Agriculture and Food Chemistry, Industrial & Engineering Chemistry Research, Environmental Science & Technology, Water Research, Geochimica et Cosmochimica Acta, Environmental Pollution, PLOS one, Journal of Environmental Quality, Environmental science letter, RSC advance, Pedosphere, Langmuir, Diamond & Related Materials.*

Proposal Review Panelist:

*National science foundation - Small Business Innovation Research Program
Stanford Synchrotron Radiation Lightsource*

Conference Session Organizer:

1. ACS 256th National Meeting – Biomass to Energy, Chemicals, and Functional Materials
2. GSA 2015 Annual Meeting - Mechanistic Insights into the Biogeochemical Processes Controlling Phosphorus Transport and Cycling

Educational Outreach:

1. *Judging for Southeastern Biogeochemistry Symposium (2017);*
2. *Judging for Graduate Research Symposium (School of EAS, Georgia Tech, 2014, 2018);*
3. *Judging for 1th Career, Research, and Innovation Development Conference (Georgia Tech, 2014);*
4. *Earthquake and Natural Disasters for K-12 students (Baylor University, 2013).*