

# ANGELIA L. SEYFFERTH

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## EDUCATION

- 2008 Doctor of Philosophy in Soil and Water Sciences  
University of California – Riverside, Riverside CA
- 2002 Bachelor of Science in Environmental Science-Chemistry, *Summa cum Laude*  
Minor in Chemistry  
Towson University, Towson, MD

## PROFESSIONAL EXPERIENCE

- 9/2018-present Associate Professor, Department of Plant and Soil Sciences, University of Delaware, Newark, DE
- 9/2012-9/2018 Assistant Professor, Department of Plant and Soil Sciences, University of Delaware, Newark, DE
- 9/2017-present Joint Appointment (by courtesy), Department of Geological Sciences, University of Delaware, Newark, DE
- 6/2008-8/2012 Postdoctoral Scholar, Environmental Earth Systems Science, Stanford University, Stanford, CA
- 9/2003-6/2008 Graduate Research Assistant, University of California-Riverside, CA

## PROFESSIONAL AND SCHOLARLY HONORS

- 2014 Faculty Early Career Development (CAREER) Award, National Science Foundation
- 2009 Minority Postdoctoral Fellowship Award in Biology, National Science Foundation
- 2009 Honorable Mention, L'Oreal USA Fellowship for Women in Science
- 2008 Graduate Student Association of UCR Dissertation Research Award
- 2005 U.S. Environmental Protection Agency Science to Achieve Results Graduate Fellowship
- 2003 ACS Award in Analytical Chemistry, Dept. of Chemistry, Towson University

## PUBLICATIONS (2010 – PRESENT)

*Google Scholar Statistics (revised on 8/28/2019)*

*Total citations = 995; h-index = 17; i10 index = 22*

‡Undergraduate student \*Graduate Student; \*\*Postdoc;  
Names in **bold** represent members of the Seyffertth lab

- Seyffertth, A.L., Limmer, M.A.\*\***, Wu, W\*. Si and water management drives changes in Fe and Mn pools that affect As cycling and uptake in rice. *Soil Systems*, **2019**, 3(3), 58.
- Capooci, M.\*, Barba, J., **Seyffertth, A.L.**, Vargas, R. Experimental influence of storm-surge salinity on soil greenhouse gas emissions from a tidal salt marsh. *Science of the Total Environment*, **2019**, 686, 1164-1172.
- Seyffertth, A.L., Amaral, D.C.\***, **Limmer, M.A.\*\***, Guilherme, L. R. Combined impacts of Si-rich rice residues and flooding extent on grain As and Cd in rice. *Environment International*, **2019**, 128, 301-309.

- Limmer, M.A.\*\***, **Wise, P.‡**, **Dykes, G.E.\***, **Seyfferth, A.L.** Silicon decreases dimethylarsinic acid concentration in rice grain and mitigates straighthead disorder. *Environmental Science and Technology*, **2018**, *52*, 4890-4816.
- Warner, D. L., Vargas, R., **Seyfferth, A.L.**, Inamdar, S. Transitional slopes act as hotspots of both soil CO<sub>2</sub> emission and CH<sub>4</sub> uptake in a temperate forest landscape. *Biogeochemistry*, **2018**, *138*, 121-135.
- Northrup, K.\***, Capooci, M., **Seyfferth, A.L.** Effects of extreme events on arsenic cycling in salt marshes. *JGR Biogeosciences*, **2018**, *123*, 1086-1100.
- Seyfferth, A.L.**, **Limmer, M.A.\*\***, **Dykes, G.\*** On the use of silicon as an agronomic mitigation strategy to decrease arsenic uptake by rice. *Advances in Agronomy*, **2018**, *149*, 49-91.
- Limmer, M.A.\*\***, **Mann, J.N.‡**, **Amaral, D.\***, Vargas, R., **Seyfferth, A.L.** Silicon-rich amendments in rice paddies: Effects on arsenic uptake and biogeochemistry. *Science of the Total Environment*, **2018**, *624*, 1360-1368.
- Seyfferth, A.L.**, **Ross, J.**, **Webb, S.M.** Evidence for the root-uptake of arsenite at lateral root junctions and root apices in rice (*Oryza sativa* L.). *Soils*, **2017**, *1*, 3.
- Teasley, W.A.\***, **Limmer, M.A.\*\***, **Seyfferth, A.L.** How rice (*Oryza sativa* L.) responds to elevated As under different Si-rich amendments. *Environmental Science and Technology*, **2017**, *51*, 10335-10343.
- Neumann, R.B., **Seyfferth, A.L.**, Teshera-Levy, J., Ellingson, J. Soil warming increases arsenic availability in the rice rhizosphere. *Agricultural and Environmental Letters* **2017**, *2*, 170006.
- Petrakis, S. \*, **Seyfferth, A.L.**, Kan, J., Inamdar, S., Vargas, R. Influence of experimental extreme water pulses on greenhouse gas emissions from soils. *Biogeochemistry*, **2017**, *133*, 147-164.
- Gutekunst, M.‡**, Vargas, R., **Seyfferth, A.L.** Impacts of soil incorporation of pre-incubated silica-rich rice residue on soil biogeochemistry and greenhouse gas fluxes under flooding and drying. *Science of the Total Environment*, **2017**, *593*, 134-143
- Amaral, D.\***, Lopes, G., Guilherme, L. R., **Seyfferth, A.L.**, A new approach to sampling intact Fe plaque reveals Si-induced changes in Fe mineral composition and shoot As in rice. *Environmental Science and Technology* **2017**, *51*, 38-45.
- Seyfferth, A.L.**, **McClatchy, C.‡**, **Paukett, M.‡** Arsenic, lead, and cadmium in U.S. mushrooms and substrate in relation to dietary exposure. *Environmental Science and Technology* **2016**, *50*, 9661-9670.
- Seyfferth, A.L.**, **Morris, A.H.**, **Gill, R.**, **Kearns, K.A.‡**, **Mann, J.N.‡**, **Paukett, M.‡**, **Leskani, C.‡** Soil incorporation of silica-rich rice husk decreases inorganic arsenic in rice grain. *Journal of Agricultural and Food Chemistry* **2016**, *64*, 3760 - 3766.
- Penido, E.S.‡**, Bennet, A., Hanson, T.E., **Seyfferth, A.L.**, Biogeochemical impacts of high-silicon rice residue incorporation into flooded soil: Implications for rice nutrition and cycling of arsenic. *Plant and Soil* **2016**, *399*, 75 – 87.
- Seyfferth, A.L.**, Abiotic effects of dissolved oxyanions on iron plaque quantity and mineral composition in a simulated rhizosphere. *Plant and Soil* **2015**, *397*, 43 – 61.
- Lakshmanan, V., Shantaraj, D., **Li, G.\*\***, **Seyfferth, A.L.**, Sherrier, D.J., and Bais, H.P. A natural rice rhizospheric bacterium abates arsenic accumulation in rice (*Oryza sativa* L.). *Planta* **2015**, *242*, 1037 – 1050.

- Seyfferth, A.L.**, McCurdy, S.‡, Schaefer, M.V., Fendorf, S. Arsenic concentrations in paddy soil and rice and health implications for major rice growing regions of Cambodia. *Environmental Science and Technology* **2014**, *48*, 4699 - 4706.
- Seyfferth, A.L.**, Kocar, B.D., Lee, J.A., Fendorf, S. Seasonal dynamics of dissolved silicon in a California rice cropping system after straw incorporation, *Geochimica et Cosmochimica Acta* **2013**, *123*, 120 - 133.
- Seyfferth, A.L.**, Fendorf, S. Silicate mineral impacts on the uptake and storage of arsenic and plant nutrients in rice (*Oryza sativa* L.). *Environmental Science and Technology* **2012**, *46*, 13176-13183.
- Seyfferth, A.L.**, Webb, S.M., Andrews, J.C., Fendorf, S. Defining the distribution of arsenic species and plant nutrients in rice (*Oryza sativa* L.) from the root to the grain. *Geochimica et Cosmochimica Acta* **2011**, *75*, 6655 – 6671.
- Zhuang, Y., Ahn, S., **Seyfferth, A.L.**, Masue-Slowey, Y., Fendorf, S., Luthy, R.G. Dehalogenation of polybrominated diphenyl ethers and polychlorinated biphenyl by bimetallic, impregnated, and nanoscale zerovalent iron. *Environmental Science and Technology* **2011**, *45*, 4896 – 4903.
- Kim, E., **Seyfferth, A.L.**, Fendorf, S. Luthy, R.G. Immobilization of Hg(II) in water by polysulfide-rubber (PSR) polymer-coated activated carbon. *Water Research* **2011**, *45*, 453 – 460.
- Seyfferth, A.L.**, Webb, S.M., Andrews, J.C., Fendorf, S. Arsenic localization, speciation, and co-occurrence with iron on rice (*Oryza sativa* L.) roots with variable Fe coatings. *Environmental Science and Technology* **2010**, *44*, 8108 – 8113.

## **FUNDED RESEARCH GRANTS**

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*Total funding = \$4,044,499: Funding as PI = 3,130,611; Funding as Co-PI = \$913,888*

### Recent Examples:

- 2019-2022 Fate of cadmium and arsenic under engineered physico-chemical gradients in the soil-water-rice nexus. **PI-Seyfferth (UDel); Co-PI Limmer (UDel)**. NSF Environmental Engineering.
- 2018-2021 Optimizing rice residue biochar and water management to improve rice yield and decrease uptake of toxic metal(loid)s. **PI-Seyfferth (UDel)**. USDA AFRI Foundational Program 1102.
- 2018-2021 Closing the Si cycle in rice agroecosystems to sustainably control As and Cd uptake by rice grown under alternate wetting and drying (AWD). **PI-Seyfferth (UDel)**, Co-PIs Runkle (UArk), Reid (Cornell U.). USDA AFRI Foundational Program 1401.
- 2018-2020 UD Center for Food Systems and Sustainability: Integrating Research, Education, and Outreach. Unidel Foundation. **PI Seyfferth (UDel)**, Co-PI Shober (UDel)..
- 2014-2019 CAREER: Toward an improved understanding of the impact of silicon on arsenic, iron, and carbon biogeochemical cycling in rice paddy soils. **PI-Seyfferth (UDel)**, National Science Foundation-Geobiology & Low-Temperature Geochemistry