

Prof. David M. Singer

Department of Geology, Kent State University

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Education and Degrees

- 2008 **Ph.D., Geological and Environmental Sciences, Stanford University**
“Uranium and strontium (bio)geochemistry: Limits on uranium and strontium mobility in the environment”
- 2002 **B.S., Geological Sciences, University of Michigan**
“Highly oxidized rocks from the San Geronio Pass, California; Petrology and thermodynamic calculations” Magna cum laude with distinction

Experience

- 2012-present **Assistant Professor**, Department of Geology, Kent State University
- 2008-2012 **Post-doctoral Scholar**, Earth Sciences Division, Lawrence Berkeley National Laboratory, and the Department of Earth and Planetary Science, University of California, Berkeley
- 2005-2008 **Graduate Research Assistant**, Department of Geological and Environmental Sciences, Stanford University
- 2007 **Consultant**, Liner Yankelevitz Sunshine & Regenstreif LLP
- 2002-2005 **Graduate Teaching Assistant**, Department of Geological and Environmental Sciences, Stanford University
- 2001-2002 **Undergraduate Research Assistant**, Department of Geological Sciences, University of Michigan
- 2000 & 2002 **Undergraduate Research Assistant**, Environmental Sciences Division, Brookhaven National Laboratory

Publications (Google Scholar h-index: 10)

Reprints of all publications are available at:

<https://drive.google.com/drive/folders/1wcTQ0PD3ZEwVnt65ysSMRX9dgn2ckWQo?usp=sharing>

Journal Articles (* = graduate student advisee co-author; ** = undergraduate advisee co-author)

20. **Singer, D.M. (accepted)** The effects of natural mineral coatings on metal transport in contaminated aquifers. *Encyclopedia of Water: Science, Technology, and Society*. Ed. P. Maurice.
19. **Singer, D.M.**, Jefferson, A.J., *Traub, E.L. and Perdrial, N. (2018) Mineralogical and geochemical variation in stream sediments impacted by acid mine drainage is related to hydro-geomorphic setting. *Elementa* 6, 16. (not yet cited)
18. Herndon, E.M., Havig, J.R., **Singer, D.M.**, McCormick, M.L. and Kump, L.R. (2018) Manganese and iron geochemistry in sediments underlying the redox-stratified Fayetteville Green Lake. *Geochim. Cosmochim. Acta* 231, 50-63. (not yet cited)
17. Schindler, M., **Singer, D.M.** (2017) Mineral Surface Coatings: Environmental Records at the Nanoscale. *Elements* 13, 159-164. (Google Scholar cited: 6)
16. Herndon, E., **AlBashaireh A., **Singer, D.M.**, Chowdhury, T.R., Gu, B., and Graham D. (2017) Influence of iron redox cycling on organo-mineral associations in Arctic tundra soil. *Geochem. Cosmochim. Acta*. 207, 210-231. (Google Scholar cited: 5)
15. **Singer, D.M.**, Griffith, E.M., Senko, J.M., **Fitzgibbon, K., and *Widanagamage, I.H. (2016) Celestine in a sulphidic spring barite deposit - a potential biomarker? *Chem. Geol.* 440: 15-25. (Google Scholar cited: 1)
14. *Widanagamage, I.H., Griffith, E.M., **Singer, D.M.**, Scher, H.D., Buckley, W.P., and Senko, J.M. (2015) Controls on stable Sr-isotope fractionation in continental barite. *Chem. Geol.* 411, 215-227. (Google Scholar cited: 8)
13. *Reilly, D., **Singer, D.M.**, Jefferson, A., and Eckstein, Y. (2015) Identification of local groundwater pollution in northeastern Pennsylvania: Marcellus flowback or not? *Environmental Earth Sciences*, 1-13. (Google Scholar cited: 6)
12. **Singer, D.M.**, Guo, H., and Davis, J.A. (2014) U(VI) and Sr(II) batch sorption and diffusion kinetics into mesoporous silica (MCM-41). *Chem. Geol.* 390, 152-163. (Google Scholar cited: 15)
11. **Singer, D.M.**, Fox, P.M., Guo, H., Marcus, M.A., and Davis, J.A. (2013) Sorption and Redox Reactions of As(III) and As(V) within Secondary Mineral Coatings on Aquifer Sediment Grains. *Environ. Sci. & Technol.* 47, 11569-11576. (Google Scholar cited: 16)

10. Fox, P.M., Davis, J.A., Kukkadapu, R., **Singer, D.M.**, Bargar, J., and Williams, K.H. (2013) Abiotic U(VI) reduction by sorbed Fe(II) on natural sediments. *Geochim. Cosmochim. Acta* 117, 266-282. (Google Scholar cited: 22)
9. Stoliker, D. L., Campbell, K. M., Fox, P. M., **Singer, D. M.**, Kaviani, N., Carey, M., Peck, N. E., Bargar, J. R., Kent, D. B., and Davis, J. A. (2013) Evaluating Chemical Extraction Techniques for the Determination of Uranium Oxidation State in Reduced Aquifer Sediments. *Environ. Sci. Technol.*, 47, (16), 9225-9232. (Google Scholar cited: 13)
8. **Singer, D.M.**, Chatman, S.M., Ilton, E.S., Rosso, K.M., Banfield, J.F., and Waychunas, G.A., (2012) Identification of Simultaneous U(VI) Sorption Complexes and U(IV) Nanoprecipitates on the Magnetite (111) Surface. *Environ. Sci. Technol.* 46, 3811-3820. (Google Scholar cited: 84)
7. **Singer, D.M.**, Chatman, S.M., Ilton, E.S., Rosso, K.M., Banfield, J.F., and Waychunas, G.A. (2012) U(VI) Sorption and Reduction Kinetics on the Magnetite (111) Surface. *Environ. Sci. Technol.* 46, 3821-3830. (Google Scholar cited: 84)
6. **Singer, D.M.**, Farges, F., and Brown Jr, G.E. (2009) Biogenic nanoparticulate UO₂: Synthesis, characterization, and factors affecting surface reactivity. *Geochim. Cosmochim. Acta* 73, 3593-3611. (Google Scholar cited: 60)
5. **Singer, D.M.**, Maher, K., and Brown Jr, G.E. (2009) Uranyl-chlorite sorption/desorption: Evaluation of different U(VI) sequestration processes. *Geochim. Cosmochim. Acta* 73, 5989-6007. (Google Scholar cited: 68)
4. **Singer, D.M.**, Zachara, J.M., and Brown Jr, G.E. (2009) Uranium speciation as a function of depth in contaminated Hanford sediments - A micro-XRF, micro-XRD, and micro- and bulk-XAFS Study. *Environ. Sci. Technol.* 43, 630-636. (Google Scholar cited: 81)
3. Kelsey, K.E., Stebbins, J.F., **Singer, D.M.**, Brown Jr, G.E., Mosenfelder, J.L., and Asimow, P.D. (2009) Cation field strength effects on high pressure aluminosilicate glass structure: Multinuclear NMR and La XAFS results. *Geochim. Cosmochim. Acta* 73, 3914-3933. (Google Scholar cited: 60)
2. **Singer, D.M.**, Johnson, S.B., Catalano, J.G., Farges, F., and Brown, Jr., G.E. (2008) Sequestration of Sr(II) by calcium oxalate--A batch uptake study and EXAFS analysis of model compounds and reaction products. *Geochim. Cosmochim. Acta* 72, 5055-5069. (Google Scholar cited: 9)
1. **Singer, D.M.**, Farges, F., and Brown Jr., G.E. (2007) Biogenic UO₂ - characterization and surface reactivity. *Am. Inst. Phys. Conf. Proc., 13th Int. XAFS Conf.* 882, 277-279. (Google Scholar cited: 13)

Peer Reviewed Technical Reports

2. Fuller, C.C., Johnson, K.J., Akstin, K.C., **Singer, D.M.**, Yabusaki, S.B., Fang, Y., and Fuhrmann, M. (2014) Uranium Sequestration During Biostimulated Reduction and In Response to the Return of Oxic Conditions In Shallow Aquifers, NUREG/CR-7178. Office of Nuclear Regulatory Research, United States Nuclear Regulatory Commission.
1. Brown, Jr. G.E., Catalano, J.G., **Singer, D.M.**, and Zachara, J.M. (2007) DOE/E/63495 Final Report. Characterization of U(VI) Sorption-Desorption Processes and Model Upscaling. United States Department of Energy, Richland Operations, Richland, WA 99352.

Research Funding

Active External Awards

2017-2018 Acquisition of analytical equipment for environmental mineralogy and geochemistry

PI: **D.M. Singer**
Co-PIs: E. Herndon, J. Williams (KSU)
Funding Agency: National Science Foundation Earth Sciences:
 Instrumentation and Facilities
Amount: \$126,459

2016-2018 Application of carbide lime to abandoned coal mine spoil for a novel and inexpensive treatment of acid mine drainage

PI: **D.M. Singer**
Funding Agency: Ohio Coal Research Consortium
Amount: \$200,485

Completed External Awards

2015-2016 Soil Development on Coal Mine Tailings: Impact of Trace Metal Sources and Mobility to Acid Mine Drainage

PI: **D.M. Singer**
Funding Agency: Ohio Water Research Center
Amount: \$40,143

Pending External Awards

- 2018-2021 Apatite dissolution at the nanoscale: Effects of crystal chemistry, surface altered layers, and macroscale implications
PI: N. Perdrial (U. Vermont)
Co-PIs: **D.M. Singer**
Funding Agency: National Science Foundation Low-Temperature Geochemistry Geobiology
Amount: \$120,349 to KSU
- 2018-2020 The effects of volcanic ash on preservation of marine invertebrates: field, geochemical, and taphonomic approaches
PI: R. Feldman (KSU)
Co-PIs: C. Schweitzer
D.M. Singer
Funding Agency: National Science Foundation Sedimentary/Paleontology
Amount: \$182,000
- 2018-2021 Generation and transport of colloids and associated trace metals in an acid mine drainage-impacted area
PI: **D.M. Singer**
Co-PIs: E. Herndon (KSU)
Funding Agency: US Geological Survey
Amount: \$425,450

Internal Awards

- 2016-2017 Mineralogical and geochemical transformations of iron (oxy)hydroxides during exposure to heat
PI: **D.M. Singer**
Funding Agency: Kent State University Research Council
Amount: \$3,500
- 2014-2015 Sr speciation and distribution in laboratory precipitated and natural continental barite
PI: **D.M. Singer**
Funding Agency: Kent State University Research Council
Amount: \$3,500
- 2013-2016 The impact of trace element incorporation during iron sulfide precipitation on gas extraction potential and flow-back water quality from shale deposits
PI: **D.M. Singer**
Funding Agency: Kent State University Farris Family Foundation Innovation Award
Amount: \$24,000

In-kind Funding: Synchrotron Beamtime Proposals and Awarded Time, since 2012

These competitive research awards from the Advanced Photon Source (APS) are not monetary awards, but provide in kind access to the research facilities at no charge to the user. The APS at Argonne National Laboratory has an annual operating budget of \$650 million dollars, a nominal daily operating cost of ~ \$2.6 million dollars, and supports approximately 200 projects per year. According to the 2014 APS report, the average success rate for projects submitted from 2009-2012 ranged from ~55% for General User Proposals (GUPS). A shift is 8 hours.

- 2014-2016 Iron (oxy)hydroxide sediments derived from acid mine drainage: transformation and metal retention as mediated by hydrologic processes
PI: **D.M. Singer**
Co-PIs: A. Jefferson, C. Rowan, E. Traub
Shifts Awarded 21
Participating students: S. Morrison, L. Zemanek, A. AlBashaireh, J. Bower
- 2014-2015 Sorption of alkali earth metal ions (Sr, Ba) by mesoporous silica
PI: **D.M. Singer**
Shifts Awarded 6
Participating students: O. Jensen
- 2013-2014 Sr speciation and distribution in laboratory precipitated and natural continental barite
PI: H. Widanagamage
Co-PIs: **D.M. Singer**, E. Griffith (UT-Arlington)
Shifts Awarded 15
Participating students: H. Widanagamage, K. Fitzgibbon
- 2013-2014 Sr speciation and distribution in laboratory precipitated and natural continental barite
PI: **D.M. Singer**
Co-PIs: J. Ortiz
Shifts Awarded 18
Participating students: M. Cahill, S. Morrison

Unfunded Proposals

- 2017 CAREER: Lead bioavailability in urban soils (submitted July, 2017)
Investigator(s) **D.M. Singer**
Funding Agency: National Science Foundation Low-Temperature Geochemistry Geobiology
Amount: \$506,513
- Pyrite coated with secondary minerals: potential time-release capsules of acid mine drainage (submitted October, 2017)
Investigator(s) **D.M. Singer**
Funding Agency: Ohio Water Resources Center
Amount: \$46,462

Treatment of manganese in acid mine drainage by sulfide-modified nano zerovalent iron (submitted May, 2017)

Investigator(s) **D.M. Singer**
Funding Agency: Ohio Water Development Authority
Amount: \$163,172

2016

Collaborative Research: SUSChem: Multiscale impacts of soil microenvironments distribution and density on metal sorption as a tool for sustainable remediation (submitted October, 2016)

Investigator(s) N. Perdrial (U. Vermont), **D.M. Singer**, A. Thompson (U. Georgia)
Funding Agency: NSF Sustainable Chemistry
Amount: \$51,895 to KSU

CAREER: Lead bioavailability in urban soils and risk assessment for gardening activities (submitted July, 2016)

Investigator(s) **D.M. Singer**
Funding Agency: National Science Foundation Low-Temperature Geochemistry Geobiology
Amount: \$542,307

Hands-On Environmental Soil Science for CMSD High School Students (submitted May, 2016)

Investigator(s) **D.M. Singer**
Funding Agency: Abington Foundation
Amount: \$39,246

Collaborative Research: Manganese biogeochemistry in abandoned mine lands: Investigating long-term impacts of resource development on carbon cycling and trace metal mobility (submitted March, 2016)

Investigator(s) **D.M. Singer**, E. Herndon, J. Senko (U. Akron)
Funding Agency: National Science Foundation Low-Temperature Geochemistry and Geobiology
Amount: \$369,364 to KSU

NRT-INFEWS: Kent State University Interdisciplinary Graduate Traineeships along Pathways to Resiliency at the Nexus of Food, Energy, Water and Society (submitted February, 2016)

Investigator(s) J. Ortiz et al. (**D.M. Singer** as senior personnel)
Funding Agency: National Science Foundation Research Traineeship Program
Amount: \$3,000,000 to KSU

Manganese biogeochemistry in abandoned mine lands: Investigating long-term impacts of resource development on carbon cycling and trace metal mobility (submitted January, 2016)

Investigator(s) **D.M. Singer**, E. Herndon, J. Senko (U. Akron)

Funding Agency: National Science Foundation Low-Temperature
Geochemistry and Geobiology

Amount: \$387,000 to KSU

2015

Collaborative Research: SUSChem: Multiscale impacts of soil microenvironments distribution and density on metal sorption as a tool for sustainable remediation (submitted October, 2015)

Investigator(s) N. Perdrial (U. Vermont), **D.M. Singer**, A. Thompson (U. Georgia)

Funding Agency: NSF Sustainable Chemistry

Amount: \$51,327 to KSU

Biogeochemical drivers of mineral weathering and solute fluxes in coal mine refuse (submitted September, 2015)

Investigator(s) E. Herndon, **D.M. Singer**, J. Senko (U. Akron)

Funding Agency: National Science Foundation Low-Temperature
Geochemistry and Geobiology

Amount: \$319,836

CAREER: The impact of soil amendments on toxic element mobility and crop fertility in urban gardens (submitted July, 2015)

Investigator(s) **D.M. Singer**

Funding Agency: National Science Foundation Low-Temperature
Geochemistry Geobiology

Amount: \$486,680

Acquisition of analytical equipment for environmental mineralogy and geochemistry (submitted June, 2015)

Investigator(s) **D.M. Singer**, E. Herndon

Funding Agency: National Science Foundation Earth Sciences:
Instrumentation and Facilities

Amount: \$231,695

Biogeochemical drivers of mineral weathering and solute fluxes in coal mine refuse: evaluating long-term impacts on water resources (submitted May, 2015)

Investigator(s) E. Herndon, **D.M. Singer**, R. Cravotta (USGS)

Funding Agency: United States Geological Survey

Amount: \$464,710

GP-EXTRA: Pathways to Environmental Awareness at Kent State University
(submitted March, 2015)

Investigator(s) J. Ortiz et al. (**D.M. Singer** as co-PI)
Funding Agency: National Science Foundation Integrative and Collaborative
Education and Research
Amount: \$499,251

Determining the potential for long-term acid mine drainage leaching from coal
mine tailings (submitted January, 2015)

Investigator(s) **D.M. Singer**
Funding Agency: Ohio Coal Research Consortium
Amount: \$189,031

2014

Manganese biogeochemical cycling in coal mining impacted areas; linking trace
metal and carbon cycling (submitted November, 2014)

Investigator(s) **D.M. Singer**, E. Herndon, J. Senko (U. Akron)
Funding Agency: US Department of Energy - Basic Energy Sciences
Amount: \$557,424

Linking fine-scale heterogeneity of mineralogical, trace element, and organic
matter distribution, abundance, and composition to productivity in the Marcellus
shale (submitted October, 2014)

Investigator(s) **D.M. Singer**
Funding Agency: American Chemical Society Petroleum Research Fund
Amount: \$110,000

Collaborative Research: Testing calcium isotopic fractionation
mechanisms in marine barite - implications for its use as a passive
recorder of seawater chemistry (submitted August, 2014)

Investigator(s) E. Griffith (UT-Arlington), **D.M. Singer**, M. Fantle (Penn
St)
Funding Agency: National Science Foundation Marine Geochemistry
Geophysics
Amount: \$117,230 (to KSU)

Iron (oxy)hydroxide sediments derived from acid mine drainage: transformation
and metal retention as mediated by hydrologic processes (submitted July, 2014)

Investigator(s) **D.M. Singer**, A. Jefferson, C. Rowan
Funding Agency: National Science Foundation Low-Temperature
Geochemistry Geobiology
Amount: \$406,501

- 2013 Trace element incorporation during iron sulfide nucleation and growth and the impact on the formation of shale-gas deposits (submitted October, 2013)
Investigator(s) **D.M. Singer**
Funding Agency: American Chemical Society Petroleum Research Fund
Amount: \$110,000
- Collaborative Research: Testing calcium isotopic fractionation mechanisms in marine barite - implications for its use as a passive recorder of seawater chemistry (submitted August, 2013)
Investigator(s) E. Griffith (UT-Arlington), **D.M. Singer**, M. Fantle (Penn St)
Funding Agency: National Science Foundation Marine Geochemistry Geophysics
Amount: \$111,289 (to KSU)
- The impact of disconnecting (bio)geochemical gradients in the hyporheic zone through accumulation of iron (oxy)hydroxide sediments derived from acid mine drainage (submitted August, 2013)
Investigator(s) **D.M. Singer**, A. Jefferson
Funding Agency: The Camille and Henry Dreyfus Foundation Postdoctoral Program in Environmental Chemistry
Amount: \$100,678
- 2012 Trace element incorporation during iron sulfide nucleation and growth and the impact on the formation of shale-gas deposits (submitted October, 2012)
Investigator(s) **D.M. Singer**
Funding Agency: American Chemical Society Petroleum Research Fund
Amount: \$100,000

Conference Presentations (* = invited)

- 2018 “The relationship between hydro-geomorphic setting and geochemical gradients along flowpaths in stream sediments impacted by acid mine drainage”, *255th American Chemical Society National Meeting, New Orleans, LA.*
- 2017 **“Metal(loid) uptake by mineral surface coatings”, 253rd American Chemical Society National Meeting in San Francisco, CA.*
- 2016 **“The Effects of Mineralogical Transformations on the Mobility of Trace Metals in an Area Affected By Acid Mine Drainage, Huff Run, Ohio”, 251st American Chemical Society National Meeting in San Diego, CA.*

- 2015 **“Fate and transport of trace metals and salts during shale-gas production”, Ohio Environmental Health Association (OEHA) Annual Education Conference, Columbus, OH.*
- **“U(VI) and Sr(II) sequestration in mesoporous materials: The importance of confined pore spaces”, 250th American Chemical Society National Meeting in Boston, MA.*
- 2013 **“Contaminant sequestration in mesoporous materials and secondary mineral coatings: The importance of confined pore spaces. American Chemical Society Annual Meeting, Indianapolis, IN.*
- “Geological impacts of hydraulic fracturing”, Northern Ohio Chapter Air & Waste Management Association Spring 2013 Technical Conference on “Environmental Issues Facing Oil & Gas Well Developers”, Kent, OH.*
- 2010 **“Identification of reduced-U nanoprecipitates on the magnetite (111) surface”, Geological Society of America Annual Meeting, Denver, CO.*
- 2008 **“Uranium speciation as a function of depth in contaminated Hanford Sediments – A micro-XRF, micro-XAFS, and micro-XRD study”, Advanced Photon Source Annual Cross-cut Review*
- 2006 **“ Biogenic UO₂ - characterization and surface reactivity”, 33rd Annual SSRL Users' Meeting, Menlo Park, CA.*
- **“ Biogenic UO₂ - characterization and surface reactivity”, Annual Meeting of the Environmental Molecular Science Institute, Stanford, CA.*

Invited Seminar Presentations

- 2018 “Whither pyrite? From coal shale to mine spoil and soil development, and metal release along the way”, *University of Saskatchewan and The Canadian Light Source*
- 2017 “Metal transport and mineralogical transformations: From coal shale to mine spoil to soils”, *Miami University, Department of Geology and Environmental Earth Science*
- “A mineralogical-hydro-geochemical view of acid mine drainage: from the molecular- to field-scale” The Ohio State University, School of Earth Sciences*
- 2014 “Contaminant sequestration in mesoporous materials and secondary mineral coatings: The importance of confined pore spaces”, *University of Vermont, Department of Geology*

“Contaminant sequestration in mesoporous materials and secondary mineral coatings: The importance of confined pore spaces”, *University of Akron, Department of Geosciences*

“Contaminant sequestration in mesoporous materials and secondary mineral coatings: The importance of confined pore spaces”, *University of Notre Dame, Department of Civil & Environmental Engineering & Earth Sciences*

“Contaminant sequestration in mesoporous materials and secondary mineral coatings: The importance of confined pore spaces”, *The University of Texas, Arlington, Department of Earth and Environmental Sciences*

2013 “Contaminant sequestration in mesoporous materials and secondary mineral coatings: The importance of confined pore spaces”, *The Virginia Polytechnic Institute and State University, Department of Geosciences*

2006 “Biogenic nanoparticulate UO₂: Synthesis, characterization, and factors affecting surface reactivity”, *Advanced Materials Research Center (CIMAV), Chihuahua, Mexico.*

Student Advisee Conference Presentations (*italics* denotes student co-author)

2017 *Wood, D., Singer, D.M., Herndon, E., Koval, J., and Tucker, A.* “Carbide Lime Treatment of Acid Mine Drainage Impacted Soils in The Huff Run Watershed of Northeast Ohio” *Geological Society of America Annual Meeting, Seattle, WA.*

Morrison, S., Herndon, E., and Singer, D.M. “A Micron Scale Study of the Distribution of Metal(loid)s in a Soil Formed on Coal Mine Spoil” *253rd American Chemical Society National Meeting San Francisco, CA.*

2015 *Zemanek, L., Herndon, E., and Singer, D.M.* “A Geochemical and Mineralogical Comparison of Soil Formation on Mine Tailings and a Shale Hill and their Contribution to Stream Chemistry, Huff Run Watershed, Ohio”. *250th American Chemical Society National Meeting, Boston, MA.*

2014 *Traub, E.L., Jefferson, A., and Singer, D.M.* “The Effects of Biogeochemical Sinks on the Mobility of Trace Metals in an Area Affected By Acid Mine Drainage, Huff Run, Ohio. *Geological Society of America, Vancouver, Canada.*

Cahill, M., and Singer, D.M. “Speciation and Distribution of Trace Metals in Iron Sulfide-Bearing Shales”. *Synchrotron Environmental Science VI, Argonne National Laboratory, Darien, Illinois.*

Teaching

Courses Taught at Kent State University

Ph.D./M.S. level

Graduate Student Orientation (1 credit) F2013; F2014; F2015; F2016

M.S./Advanced Undergraduate level

Environmental Mineralogy (3 credits) F2012; S2014; F2015; S2018

Environmental Geochemistry (3 credits) S2013; S2015; S2017

Undergraduate Required Classes

Earth Materials I (4 credits) F2016; F2017

Core Introductory Classes

Environmental Earth Sciences (3 credits) F2013; S2014; F2014; F2015; S2017; F2018

Graduate Student Theses and Dissertations

Daniel Wood M.S. Geology, Kent State University, 2018
“Carbide Lime Treatment of Acid Mine Drainage Impacted Soils in The Huff Run Watershed of Northeast Ohio”

Eric Traub M.S. Geology, Kent State University, 2016
“The Effects of Biogeochemical Sinks on the Mobility of Contaminants in an Area Affected by Acid Mine Drainage, Huff Run, Ohio”
**1 co-authored publications (Singer et al., 2018)

Inoka H. Widanagamage Ph.D. Geology, Kent State University, 2015
“Stable Strontium Isotope Fractionation In Biotic And Microbially Mediated Barite In Modern Continental Settings”
**2 co-authored publications (Widanagamage et al., 2015; Singer et al., 2016)

Darren Reilly M.S. Geology, Kent State University, 2014
“Identification of Local Ground Water Pollution in Northeastern Pennsylvania: Marcellus Flow-back or Not?”
**1 co-authored publications (Reilly et al., 2015)

Graduate Students In Progress

Raihan Chowdhury	Ph.D. Geology, Kent State University, 2017 - present “The role of mineral surface coatings on colloids in controlling metal transport in rural and urban environments”
Sarah Morrison	M.S. Geology, Kent State University, 2015 - present “A Micron Scale Study of the Distribution of Metal(loid)s in a Soil Formed on Coal Mine Spoil”
Laura Zemanek	M.S. Geology, Kent State University, 2014 - present “A Geochemical and Mineralogical Comparison of Soil Formation on Mine Tailings and undisturbed Shale and their Contributions to Stream Chemistry, Huff Run Watershed, Ohio”
Michael Cahill	M.S. Geology, Kent State University, 2013 - present “Speciation and Distribution of Trace Metals in Iron Sulfide-Bearing Shales”

Graduate Committee Membership

Kimm Jarden, M.S. Applied Geology, Kent State University, 2015
Mashur Zaman, Ph.D., Geology, University of Calgary, 2015
Meaghan Shaw, M.S. Applied Geology, Kent State University, 2018

Graduate Committee Membership In Progress

Stuart Baker, M.S. Applied Geology, Kent State University
Raissa Mendoca, Ph.D. Biology, Kent State University
Brienne Yarger, M.S. Applied Geology, Kent State University
Kiersten Duroe, M.S. Applied Geology, Kent State University
Lyndsey Yazbek, M.S. Applied Geology, Kent State University
Bryan Ice, M.S. Applied Geology, Kent State University
Sydney Laubscher, M.S. Applied Geology, Kent State University
Max Barczok, Ph.D. Applied Geology, Kent State University
Shagun Sharma, Ph.D. Biology, University of Akron

Undergraduate Honors Thesis Committees

Hannah Frederick, Biology, Kent State University
Jennie Brancho, Biology, Kent State University
Samantha Kirgesner, Archeology, Kent State University
Tyler Sanda, Geology, University of Akron

Undergraduate Student Research Projects Supervised

Michael Burkey	KSU Geology, Honors Thesis, (2016 - 2018 “A review of iron sulfides and oxides in coal mine waste, Huff Run Watershed, Ohio”
Amineh AlBashaireh	KSU Geology, College of Wooster, Kent State University Research Experiences for Undergraduates (REU) (2015), “Geochemical Analysis of Iron and Phosphorous in Arctic Tundra Soils”, co-advised <ul style="list-style-type: none">• Co-author on Herndon et al. (2017)
Jonathan Mills	KSU Geology (2015) “Soil and water collection and analyses from an AMD-impacted watershed”
Mikala Coury	KSU Geology (2015) “Soil and water collection and analyses from an AMD-impacted watershed”
Kaci Fitzgibbon	KSU Geology (2014 - 2015) “X-ray microprobe data processing and analyses to determine Sr speciation and distribution in barite” <ul style="list-style-type: none">• Poster presented at 2015 KSU Undergraduate Research Symposium: “Determining the Sr-bearing host phase in terrestrial and synthetic barite by synchrotron x-ray microprobe analysis”• Co-author on Singer et al. (2016)
Yuchen Shen	KSU Geology (2014) “Soil and water collection and analyses from an AMD-impacted watershed”
Owen Jensen	KSU Geology (2014 - 2015) “Sr and Ba uptake by mesoporous silica (MCM-41)”
Kristen Davis	KSU Geology (2014 - 2015) “Soil collection and analyses from AMD-impacted soils and Pb-contaminated urban soils”
Sarah Morisson	KSU Geology (2013 - 2015) “Soil and water collection and analyses from an AMD-impacted watershed” [independent investigation] <ul style="list-style-type: none">• 2014 KSU Undergraduate Research Council Award: “Mineralogical Study of Acid Mine Drainage Sediment”

Undergraduate Student Research Projects In Progress

Nicholas Manning	KSU of Geology, SU Summer Undergraduate Research Experience (SURE) Fellowship (2018) “Formation of iron (oxy)hydroxide coatings on pyrite colloids”
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Amber Tucker	KSU Geology (2017 - current) “Chemical analyses of soil pore water from an area impacted by acid mine drainage”
Joseph Koval	KSU Geology (2017 - current) “Synchrotron X-ray diffraction analysis and sequential extraction of metals from soils from an area impacted by acid mine drainage”
Kortney Cole	KSU Geology (2017 - current) “Scanning electron microscope analyses of soils and rocks from an area impacted by acid mine drainage” <ul style="list-style-type: none"> • 1st place for poster presentation at 2018 KSU Undergraduate Research Symposium

Professional Service

Editing and Reviewing

Associate Editor: American Mineralogist (2015 - present)

Ad-hoc Grant Proposal Reviews: Department of Energy – Nuclear Energy (2014 - present), Sylvia Fedoruk Canadian Centre for Nuclear Innovation (2013); National Science Foundation (Low T Geochemistry/Geobiology) (2017 - present); National Science Foundation (Instrumentation/Facilities) (2017 - present);

Journal Peer Reviewer (2009 – present): American Mineralogist, Applied Clay Sciences, Applied Radiation & Isotopes, Chemical Geology, Chemical Reviews, Environmental and Engineering Geoscience, Environmental Science - NANO, Environmental Science & Technology, Geochimica et Cosmochimica Acta, Journal of Hazardous Materials, Journal of Radioanalytical and Nuclear Chemistry, PLOS ONE, Science of the Total Environment

Peer Review Committee: Canadian Lightsource (2012 - present); committee chair (2017 - present)

Executive Committee Member: Stanford Synchrotron Radiation Lightsource Users’ Organization (2010-2012)

Synchrotron Beamtime Proposal Reviewer (2009-present): Stanford Synchrotron Radiation Lightsource, Canadian Light Source

Conference Session co-convenor

“Chemical and Biological Processes at Mineral Surfaces: Influence on Contaminant Dynamics”, 2010 Goldschmidt Conference, Knoxville, TN

“Energy Resources: From Production to Environmental Impact”, 2014 Goldschmidt Conference, Sacramento, CA

“Environmental consequences of resource development”, 2016 251st American Chemical Society National Meeting, San Diego, CA

Service to the Kent State University, Department of Geology

Faculty Advisory Committee (AY 14-15 and 15-16)

Curriculum Committee (AY 14-15, 15-16, 16-17; 17-18)

Graduate Studies Committee (AY 12-13, 13-14 and Spring 2015)

Ad Hoc Chair Review Committee (Spring 2015)

Undergraduate Adviser (AY 12-13)

Colloquium Coordinator (AY 17-18)

Service to Kent State University

Reviewer for the 2017-2018 KSU Fellowships and Awards

Outreach and Community Service

Judge at the Mandel Jewish Day School (Beachwood, OH) middle school science fair (2015 - present)

Fellowships and Awards

KSU Department of Geology, Glen W Frank Outstanding Teaching Award (2018)

Kent State University, University Research Council - Academic Research Appointment (2016)

Kent State University, University Teaching Council - Teaching Development Grant (2014)

Summer Teaching Development Grant - Kent State University (2013)

Centennial Teaching Assistant Award - Stanford University (AY 2004-2005)

McGee Grant - Stanford University (2006 and 2007)

Winner of Graduate Student Poster Competition - LCLS/SSRL Users' Meeting (2007)