Stanford

Eleanor Spielman-Sun

Research Engineer

Earth System Science

Bio

ACADEMIC APPOINTMENTS

- Research Engineer, Earth System Science

PROFESSIONAL EDUCATION

- PhD, Carnegie Mellon University , Civil & Environmental Engineering (2019)
- MS, Carnegie Mellon University , Civil & Environmental Engineering (2016)
- BS, Oberlin College , Chemistry (2014)

LINKS

- ORCID: https://orcid.org/0000-0001-9626-2969
- Google Scholar: https://scholar.google.com/citations?user=11_GWgoAAAAJ&hl=en

Publications

PUBLICATIONS

- **A Critical Look at Colloid Generation, Stability, and Transport in Redox-Dynamic Environments: Challenges and Perspectives** *ACS EARTH AND SPACE CHEMISTRY*
  Spielman-Sun, E., Boye, K., Dwivedi, D., Engel, M., Thompson, A., Kumar, N., Noel, V.
  2024
- **Environmental impact of solution pH on the formation and migration of iron colloids in deep subsurface energy systems.** *The Science of the total environment*
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  2023: 166409
- **Impact of Acid-Base Stimulation Sequence on Mineral Stability forTight/Impermeable Unconventional Carbonate-Rich Rocks: ADelaware Basin Case Study br** *ENERGY & FUELS*
  Spielman-Sun, E., Jew, A. D., Bargar, J. R.
  2022; 36 (9): 4746-4756
- **Geochemical Modeling of Celestite (SrSO4) Precipitation and Reactive Transport in Shales.** *Environmental science & technology*
  Esteves, B. F., Spielman-Sun, E., Li, Q., Jew, A. D., Bargar, J. R., Druhan, J. L.
  2022
- **A Critical Review of the Physicochemical Impacts of Water Chemistry on Shale in Hydraulic Fracturing Systems.** *Environmental science & technology*
  Khan, H. J., Spielman-Sun, E., Jew, A. D., Bargar, J., Kovscek, A., Druhan, J. L.
  2021
- **Protein coating composition targets nanoparticles to leaf stomata and trichomes.** *Nanoscale*
  Spielman-Sun, E., Avellan, A., Bland, G. D., Clement, E. T., Tappero, R. V., Acerbo, A. S., Lowry, G. V.
  2020

- **Differential Reactivity of Copper- and Gold-Based Nanomaterials Controls Their Seasonal Biogeochemical Cycling and Fate in a Freshwater Wetland Mesocosm.** *Environmental science & technology*
  Avellan, A., Simonin, M., Anderson, S. M., Geitner, N. K., Bossa, N., Spielman-Sun, E., Bernhardt, E. S., Castellon, B. T., Colman, B. P., Cooper, J. L., Ho, M., Hochella, M. F., Hsu-Kim, et al
  2020

- **CuO Nanoparticles Alter the Rhizospheric Bacterial Community and Local Nitrogen Cycling for Wheat Grown in a Calcareous Soil.** *Environmental science & technology*
  Guan, X. n., Gao, X. n., Avellan, A. n., Spielman-Sun, E. n., Xu, J. n., Laughton, S. n., Yun, J. n., Zhang, Y. n., Bland, G. D., Zhang, Y. n., Zhang, R. n., Wang, X. n., Casman, et al
  2020

- **Nanoparticle surface charge influences translocation and leaf distribution in vascular plants with contrasting anatomy** *ENVIRONMENTAL SCIENCE-NANO*
  Spielman-Sun, E., Avellan, A., Bland, G. D., Tappero, R., Acerbo, A. S., Unrine, J. M., Giraldo, J., Lowry, G.
  2019; 6 (8): 2508–19

- **Effect of Soil Organic Matter, Soil pH, and Moisture Content on Solubility and Dissolution Rate of CuO NPs in Soil** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Gao, X., Rodrigues, S. M., Spielman-Sun, E., Lopes, S., Rodrigues, S., Zhang, Y., Avellan, A., Duarte, R. O., Duarte, A., Casman, E. A., Lowry, G. V.
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- **Nanoparticle Size and Coating Chemistry Control Foliar Uptake Pathways, Translocation, and Leaf-to-Rhizosphere Transport in Wheat** *ACS NANO*
  Avellan, A., Yun, J., Zhang, Y., Spielman-Sun, E., Unrine, J. M., Thieme, J., Li, J., Lombi, E., Bland, G., Lowry, G. V.
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- **Gold nanoparticle biodissolution by a freshwater macrophyte and its associated microbiome** *NATURE NANOTECHNOLOGY*
  Avellan, A., Simonin, M., McGivney, E., Bossa, N., Spielman-Sun, E., Rocca, J. D., Bernhardt, E. S., Geitner, N. K., Unrine, J. M., Wiesner, M. R., Lowry, G.
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- **Temporal Evolution of Copper Distribution and Speciation in Roots of Triticum aestivum Exposed to CuO, Cu(OH)(2), and CuS Nanoparticles** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Spielman-Sun, E., Lombi, E., Donner, E., Avellan, A., Etschmann, B., Howard, D., Lowry, G. V.
  2018; 52 (17): 9777–84

- **Effect of silver concentration and chemical transformations on release and antibacterial efficacy in silver-containing textiles** *NANOIMPACT*
  Spielman-Sun, E., Zaikova, T., Dankovich, T., Yun, J., Ryan, M., Hutchison, J. E., Lowry, G. V.
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- **Elucidating nanoparticle-plant leaf interactions, uptake, and mobility for designing highly efficient foliar-applied agrochemicals**
  Avellan, A., Yun, J., Spielman-Sun, E., Lowry, G.
  AMER CHEMICAL SOC.2018

- **Toward improving agrochemical efficiency: Impact of Cu-based nanoparticle solubility on metal uptake, speciation, translocation, and distribution in Triticum aestivum (wheat)**
  Spielman-Sun, E., Lombi, E., Donner, E., Etschmann, B., Howard, D., Lowry, G.
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- **Impact of Surface Charge on Cerium Oxide Nanoparticle Uptake and Translocation by Wheat (Triticum aestivum)** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Spielman-Sun, E., Lombi, E., Donner, E., Howard, D., Unrine, J. M., Lowry, G. V.
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- **Tuning NP properties for optimizing plant uptake and translocation**
  Lowry, G., Spielman-Sun, E., Lombi, E., Unrine, J.
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- **Time and Nanoparticle Concentration Affect the Extractability of Cu from CuO NP-Amended Soil** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
  Gao, X., Spielman-Sun, E., Rodrigues, S. M., Casman, E. A., Lowry, G. V.
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- **In Situ Measurement of CuO and Cu(OH)(2) Nanoparticle Dissolution Rates in Quiescent Freshwater Mesocosms** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*
  Vencalek, B. E., Laughton, S. N., Spielman-Sun, E., Rodrigues, S. M., Unrine, J. M., Lowry, G. V., Gregory, K. B.
  2016; 3 (10): 375–80
- **Impact of metal and metal oxide nanoparticle speciation and solubility on their bioavailability to terrestrial and aquatic plants**
  Lowry, G., Stegemeier, J., Gao, X., Spielman-Sun, E., Rodrigues, S.
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- **Thermal decomposition of nano-enabled thermoplastics: Possible environmental health and safety implications** *JOURNAL OF HAZARDOUS MATERIALS*
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- **Toward a mechanistic understanding of the effect of natural organic matter coatings on nanoparticle aggregation**
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- **Correlation of the Physicochemical Properties of Natural Organic Matter Samples from Different Sources to Their Effects on Gold Nanoparticle Aggregation in Monovalent Electrolyte** *ENVIRONMENTAL SCIENCE & TECHNOLOGY*
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