# Verónica L. Morales

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Education			
Jan, 2011	PhD in Biological & Environmental Engineering, Cornell University		
Dec, 2007	MSc in Earth & Atmospheric Sciences, Cornell University		
Dec, 2004	BSc in Environmental Science and BA in Spanish, University of California, Santa Barbara		

## **Professional experience**

2017 - present	Assistant-Associate Professor, Dept. Civil & Environ. Eng., University of California, Davis
2014 - 2016	AXA Research Fund Postdoctoral Fellow, ETH Zürich
2011 - 2014	Marie Curie-International Incoming Postdoctoral Fellow, SIMBIOS Centre and ETH Zürich

### Research grant support

2023	(Co-PI) Tillage-Induced Soil Structure and Water Saturation Impact on Porewater Oxygen and Redox Conditions: Controls for Nutrient Availability and Water Quality. BARD (submitted)
2023	(Co-PI) Investigating Hyporheic Zone Reaction Enhancement by Bioclogging Across Scales. National Science Foundation - Hydrologic Sciences (688,000 USD, 3 years)
2023	(Co-PI) Real-Time Detection of Biogeochemical Hotspots Within Saturated Sediments. EMSL PNNL Large-Scale Proposal (1200 resource hours, 3 years)
2023	(Co-PI) Managed Groundwater Recharge (MAR) in a Year of Exceptional Precipitation: Eval- uating Drywell vs Ag-MAR on Water Quality. NSF-RAPID (50,000 USD, 12 months)
2022	(PI) Nonequilibrium Processes Influencing Contaminant Fate During Managed Aquifer Recharge. USDA-Agricultural Research Service (150,000 USD, 2 years)
2021	(Co-PI) Advancing Micromodel and Imaging Capability to Detect Hotspots in the Hyporheic Zone Y1-2. EMSL PNNL Large-Scale Proposal (1200 resource hours, 3 years)
2020	(Co-PI) Enabling In Situ Manganese Biomineralization in Granular Media. NSF-CBBG Proposal Y6-7 (185,768 USD, 2 years)
2019	(PI) CAREER: Fundamental Controls of Transport Attributes from Porous Media Microstruc- ture. NSF (552,804 USD, 5 years)
2018	(PI) Predicting Degree of Preferential Flow in Porous Media From Pore-Network Properties. ACS Petroleum Research Fund (110,000 USD, 2 years)
2014	(PI) Dynamics of Particle Re-mobilization in Porous Media by Chemical and Physical Perturbations. AXA Research Fund (120,000 EUR, 2 years)
2012	(PI) Soil Architecture Effect on Transport and Retention of Nano-Silver. Marie Curie- International Incoming Fellowships (200,371 EUR, 2 years)
2005	Graduate student fellowship. Cornell-Sloan Fellowship (135,700 USD, 3 years)
2012-2023	(PI) Awards worth \$2-40k: CAMPOS Jump Start; UC COVID-Impacted Research; Taiwanese Ministry of Science & Technology; UNIL Academic Visitor Program; Hellman Fellowship; Sloan Scholars Mentoring Network; UC Davis New Research Initiative; Spanish Ministry of Education, Culture and Sport; Graduate Women in Science; Royal Society of Edinburgh

## **Research summary**

Total publications: 34 peer-reviewed articles (7 first-author publications), 2 technical reports, 1 book chapter

Total citations: 1709 (ResearcherID/Publons), 2431 (Google scholar). h-index: 25

More than 40 talks given; 27 invited seminars; 13 conference talks; 11 poster contributions

## **Teaching experience**

Mentoring	3 postdocs, 9 PhD, 12 Masters, 15 undergraduate assistants, 2 high-schoolers
2017 - present	$\mathit{UCD}:$ Groundwater Systems; Transport Through Porous Media; Colloids in Soil and Water; Senior Design
2012	Universidad de Vigo, Department of Plant Biology & Soil Science: Colloid Fate and Transport
2010	Cornell Prison Education Program, Auburn New York Correctional Facility: Intro to Chemistry

## Honors & awards

2024 Orlob Endowed Chair2010 Dissertation Award-Heinz Foundation2020 AGU Hydrology Early Career Award2008 NG Kaul Memorial Water Research Scholarship2019 Univeristy of California Hellman Fellow2005 Cornell-Sloan Graduate Student Fellowship2012 Royal Society of Edinburgh-International Visits2010 Dissertation Award-Heinz Foundation

#### **Professional activities**

Professional memberships	American Geophysical Union; InterPore
Journal review	Phys. Rev. Fluid; Nat. Commun.; Adv. Water Resour.; J. Geophys. Res.; Water Res.; Chemosphere; SSSAJ; Crit. Rev. Env. Sci. Tec.; Environ. Sci. Technol.; J. Hydrol.; Vadose Zone J.; Geofluids; Water Resour. Res.; Colloid Surface A; J. Colloid Interface Sci.
Grant review	Israel Science Foundation; U.S. Army Research Office; NSF; ACS; SERDP; ETH Zürich Research Commission; UC MEXUS-CONACYT; University of Nebraska Collaboration Initiative; Ohio University Research Committee
Technical committee	AGU Hydrology Section, Unsaturated Zone Technical Committee (chair 2022-2024; vice chair 2021-2023); AGU Hydrology Section Awards Committee (2022-2024)
Editorial board member	InterPore Journal; Critical Reviews in Environmental Science and Technology (Young Editorial Board Member); Water (guest editor)
Conferences convened	<i>InterPore 2025</i> InterPore Program Committee; <i>InterPore 2023</i> Biochemical Processes and Biofilms in Porous Media; <i>AGU 2020-2023</i> , Environmental Vadose Zone Hydrology; <i>AGU 2022</i> Pore-Scale Physics: Recent Advances in Experimental and Computational Methods; <i>CMWR 2022</i> , Transport and Reaction Across Scales in Hydrological Systems; <i>AGU 2020</i> , Effective Fluxes in the Unsaturated Zone; <i>EUROSOIL 2012</i> , Soil Micro-Heterogeneity
Outreach activities	MESA highschool summer program: groundwater basics; Teaching web-tool for groundwater contamination; Research Opportunity for High School Students; Environmental Engineering Tours for Ghidotti Early College High School Students; MESA National STEM Day; Northern California Community College STEM Transfer Day Lab Tours; Roundtable discussion on "Science In the Post-Truth Era"; Dundee STEM Ambassador; Cornell Prison Education Program Instructor; Expand Your Horizons Mentor; University-Community Partnership Team Leader

### Advisee awards

2023 (EF) Salisbury Award 2021 (ZK) NSF INTERN 2023 (LR) Undergraduate Citation 2021 (ZK) ARCS Scholarship 2022 (JW) 1st place AGU-H3S Abstract Contest 2021 (FM) Swiss NSF Post-Doc Mobility Fellowship 2020 (ZK) Dennis L. & Patricia K. Salisbury Award 2022 (BK&EN) US Stockholm Junior Water Prize 2022 (BK&EN) Alameda County Water Research Award 2018-2020 (JP) PEO International Graduate Fellowship 2022 (BK&EN) 1st place Alameda County Science Fair 2018 (ZA) UCD Grad Summer Research Award 2022 (ZK) AGU Frontiers in Hydrology Travel Grant 2018 (JP&ZA) NSF International Conference Support 2022 (ZK) AGU Cohort of Local Science Partners 2017 (MC) Swiss NSF Mobility Grant 2021 (JP) Velez Graduate Fellowship for Latin Students 2021 (JP) UC Davis Continuing Student Fellowship

## Publications

<u>Underline</u> denotes advisee.



Pore-scale hydrodynamics Geophys Res Lett (2017) Water Resour Res (2018) Water Res (2018)







Flow heterogeneity Transp Porous Media (2021) In prep (2023)

- 36. <u>Z Kanavas</u>, J Jimenez-Martinez, <u>J Weldon</u>, JR Nimmo, **VL Morales**. Flow Heterogeneity Controls Dissolution Reaction Behavior in Geologic Porous Media. (*Under review*)
- 35. <u>JE Patiño</u>, <u>F Miele</u>, <u>AJ Perez</u>, <u>Z Kanavas</u>, <u>ML Dughi</u>, **VL Morales**. Replication of Soil Analogues at the Original Scale by 3D Printing: Quantitative Assessment of Accuracy and Repeatability of the Pore Structural Heterogeneity. (*Under review*)
- I Markale, <u>M Carrel</u>, DL Kurz, VL Morales, M Holzner, J Jiménez-Martínez. Internal Biofilm Heterogeneities Enhance Solute Mixing and Chemical Reactions in Porous Media. *Environ. Sci. Technol.* 57, 21, 80658074 (2023)
- JE Patiño, WP Johnson, VL Morales. Reconciling Mechanisms of Retention with Fate of Silver Colloids in Saturated Granular Media in the Presence of Chemical Heterogeneity. J. Colloid Interface Sci. 641, 666-674 (2023)
- 32. <u>JE Patiño</u>, FJ Pérez-Reche, **VL Morales**. Retention Site Contribution Toward Silver Particle Immobilization in Porous Media. *Water Resour. Res.*, e2021WR031807 (2022)
- <u>Z Kanavas</u>, FJ Pérez-Reche, <u>F Arns</u>, **VL Morales**. Flow Path Resistance in Heterogeneous Porous Media Recast Into a Graph-Theory Problem. *Transp. Porous Media*, 1-16 (2021)
- JE Patiño, T Kuhl, VL Morales. Direct Measurements of the Forces Between Silver and Mica in Humic Substance-Rich Solutions *Environ. Sci. Technol.* 54, 23, 15076-15085 (2020)
- AJ, Perez, JE Patiño, M Soos, VL Morales. Morphology of Shear-Induced Colloidal Aggregates in Porous Media: Consequences for Transport, Deposition and Reentrainment. *Environ. Sci. Technol.* 54, 9, 5813-5821 (2020) \* *Featured on the cover of the May, 2020 issue.*
- D Bolster, K Roche VL Morales. Recent Advances in Anomalous Transport Models for Predicting Contaminants in Natural Groundwater Systems. *Curr. Opin. Chem. Eng.* 26, 72-80 (2019)
- M Carrel, VL Morales, M Dentz, N Derlon, E Morgenroth, M Holzner. Pore-Scale Hydrodynamics in a Progressively Bioclogged Three-Dimensional Porous Medium: 3-D Particle Tracking Experiments and Stochastic Transport Modeling. *Water Resour. Res.* 54, WR021726 (2018)
- M Carrel, VL Morales, MA Beltran, N Derlon, R Kaufmann, E Morgenroth, M Holzner. Biofilms in 3D Porous Media: Influence of the Pore Network Geometry, Flow and Mass Transfer on Biofilm Development. Water Res. 134, 280-291 (2018)
- 25. VL Morales, M Dentz, M Willmann, M Holzner. Stochastic Dynamics of Intermittent Pore-Scale Particle Motion in Three-Dimensional Porous Media. *Geophys. Res. Lett.* 44, 9361-9371 (2017)
- 24. <u>M Carrel</u>, MA Beltran, **VL Morales**, N Derlon, E Morgenroth, R Kaufmann, M Holzner. Biofilm Imaging in Porous Media by X-ray Tomography. *PLoS ONE* 12, 7 (2017)
- CR Stoof, AI Gevaert, C Baver, B Hasanpour, VL Morales, W Zhang, D Martin, SK Giri, TS Steenhuis. Can Pore-Clogging by Ash Explain Post-Fire Runoff? Int. J. Wildland Fire 25, 294-305 (2016)

- 22. M Holzner, VL Morales, M Willmann, M Dentz. Intermittent Lagrangian Velocity and Acceleration in a Three-Dimensional Porous Medium Flow. *Phys. Rev. E* 92, 013015 (2015) \**PRE Spotlight*.
- VL Morales, FJ Pérez-Reche, SM Hapca, KL Hanley, JC Lehmann, W Zhang. Reverse Engineering of Biochar. Bioresour. Technol. 183, 163-174 (2015)
- Z Ding, X Hu, VL Morales, B Gao. Filtration and Transport of Heavy Metals in Graphene Oxide Enabled Sand Columns. *Chem. Eng. J.* 257, 248-252 (2014)
- W Sang, CR Stoof, W Zhang, VL Morales, B Gao, RW Kay, L Liu, Y Zhang, TS Steenhuis. Effect of Hydrofracking Fluid on Colloid Transport in the Unsaturated Zone. *Environ. Sci. Technol.* 48, 14, 8266-8274 (2014) \*ACS Editors' Choice Article. \*\* Featured in 'ACS News PressPac'
- W Sang, VL Morales, W Zhang, CR Stoof, B Gao, TS Steenhuis. Quantification of Colloid Retention and Release by Straining and Energy Minima in Porous Media. *Environ. Sci. Technol.* 47, 15, 8256-8264 (2013)
- L Liu, B Gao, L Wu, VL Morales, Z Zhou, H Wang. Deposition and Transport of Graphene Oxide in Unsaturated Porous Media. *Chem. Eng. J.* 229, 444-449 (2013)
- Y Tian, B Gao, VL Morales, H Chen, Y Wang, H Li. Removal of Sulfamethoxazole and Sulfapyridine Antibiotics by Carbon Nanotubes in Fixed-Bed Columns. *Chemosphere* 90, 10, 2597-2605 (2013)
- SA Bradford, VL Morales, W Zhang, RW Harvey, AI Packman, A Mohanram, C Welty. Transport and Fate of Microbial Pathogens in Agricultural Settings. Crit. Rev. Environ. Sci. Technol. 43, 8, 7750-893 (2013)
- VL Morales, J-Y Parlange, M Wu, FJ Pérez-Reche, W Zhang, W Sang, TS Steenhuis. Surfactant-Mediated Control of Colloid Patterns and Attachment Strength in Evaporating Droplets. Langmuir 29, 6, 1831-1840 (2013)
- 13. Y Tian, B Gao, VL Morales, L Wu, Y Wang, R Muñoz–Carpena, C Cao, Q Huang, L Yang. Methods of Using Carbon Nanotubes as Filter Media to Remove Aqueous Heavy Metals. *Chem. Eng. J.* 210, 557-563 (2012)
- 12. Y Tian, B Gao, VL Morales, Y Wang, L Wu. Effect of Surface Modifications on Single-Walled Carbon Nanotube Retention and Transport in Granular Porous Media. J. Hazard. Mater. 239, 240, 333-339 (2012)
- Y Wang, B Gao, VL Morales, Y Tian, L Wu, J Gao, W Bai, L Yang. Transport of Titanium Dioxide Nanoparticles in Saturated Porous Media Under Variable Solution Chemistry. J. Nanopart. Res. 14, 1095 (2012)
- Y Tian, B Gao, Y Wang, VL Morales, R Muñoz-Carpena, Q Huang, L Yang. Deposition and Transport of Functionalized Carbon Nanotubes in Water-Saturated Sand Columns. J. Hazard. Mater. 213-214, 265-272 (2012)
- Y Zevi, B Gao, W Zhang, VL Morales, ME Çakmak, EA Medrano, W Sang, TS Steenhuis. Colloid Retention at the Meniscus-Wall Contact Line in an Open Microchannel. Water Res. 46, 2, 295-306 (2012)
- VL Morales, W Sang, LW Lion, DR Fuka, B Gao, TS Steenhuis. Correlation Equation for Predicting Attachment Coefficient (α) of Organic Matter-Colloid Complexes in Unsaturated Porous Media. *Environ. Sci. Technol.* 45, 23, 10096-10101 (2011)
- VL Morales, W Zhang, B Gao, LW Lion, JJ Bisogni, <u>BA McDonough</u>, TS Steenhuis. Impact of Dissolved Organic Matter on Colloid Transport in the Vadose Zone: Deterministic Approximation of Transport Deposition Coefficients from Polymer Coating Characteristics. *Water Res.* 45, 4, 1691-1701 (2010)
- W Zhang, J Niu, VL Morales, X Chen, AG Hay, J Lehmann, TS Steenhuis. Transport and Retention of Biochar Particles in Porous Media: Effect of pH, Ionic Strength, & Size. *Ecohydrol.* 3, 497-508 (2010)
- W Zhang, VL Morales, ME Çakmak, AE Salvucci, LD Geohring, AG Hay, J-Y Parlange, TS Steenhuis. Colloid Transport and Retention in Unsaturated Porous Media: Effect of Colloid Input Concentration. *Environ. Sci. Technol.* 44, 13, 4965-4972 (2010)

- 4. VL Morales, J-Y Parlange, TS Steenhuis. Are Preferential Flow Paths Perpetuated by Microbial Activity in the Soil Matrix? J. Hydrol. 393, 1-2, 29-36 (2010)
- AE Salvucci, W Zhang, VL Morales, ME Çakmak, AG Hay, TS Steenhuis. The Impact of Biofilm-Forming Potential and Tafi Production on Transport of Environmental Salmonella Through Unsaturated Porous Media. *Biologia* 64, 3, 460-464 (2009)
- VL Morales, B Gao, TS Steenhuis. Grain Surface-Roughness Effects on Colloidal Retention in the Vadose Zone. Vadose Zone J. 8, 1, 11-20 (2009)
- 1. B Gao, TS Steenhuis, Y Zevi, VL Morales, JL Nieber, BK Richards, JF McCarthy, J-Y Parlange. Capillary Retention of Colloids in Unsaturated Porous Media. *Water Resour. Res.* 44, W04504 (2008)

#### **Invited** talks

University of California at Davis, Dept. Earth and Planetary Sciences, May 2023: *Flow and Transport Below the Earth's Surface.* 

California Institute of Technology, Dept. Mechanical and Civil Engineering, Apr 2023: Porous Media Flow and Reactive Transport Phenomena: Accounting for Structural Heterogeneity

University of Manchester, Colloquium Series of Porous Media, Apr 2023: Porous Media Flow and Reactive Transport Phenomena: Accounting for Structural Heterogeneity

Cornell University, Dept Biological and Environmental Engineering, Feb 2023: *Particle Transport in Heterogeneous Porous Media* 

Eco-Environment & Health Journal Seminar Series, Aug 2022: Groundwater Flow and Mass Transport in Structurally Complex Porous Media

2021- 22 UC Davis CAMPOS Research Colloquia, May 2022: Groundwater Flow and Mass Transport in Structurally Complex Porous Media

Colorado School of Mines, Mines Hydrologic Science and Engineering Distinguished Lecture Series, Apr 2022: *Transport Phenomena Under Structural Heterogeneity* 

Université de Lausanne, ISTE + IDYST Autumn Seminar Series, Oct 2021: *Transport Phenomena in Structurally Complex Porous Media* 

China Agricultural University, Advances in Soil Science Lecture Series, June 2021: Groundwater Flow and Contaminant Transport in Structurally Complex Soils

University of Wisconsin-Madison, Dept. Geology, Apr 2021: Anomalous transport of colloids and nanoparticles in porous media

Saint Anthony Falls Laboratory-University of Minnesota, Apr 2021: Anomalous transport of colloids and nanoparticles in porous media

University of Massachusetts-Amherst, Dept. Civil & Environmental Engineering, Feb 2021: Filtration of Colloidal Suspensions: Connecting Microscopic Processes to Macroscopic Behavior

University of California, Santa Barbara, Dept. Geology, Jan 2021: Transport Phenomena Under Spatial Heterogeneity: Bridging Pore and Darcy Scales

National Academy of Engineering, Annual Meeting, Nov 2020: Controls for Flow and Transport in Heterogeneous Porous Media

Université de Lausanne, Dept. Earth Sciences, Aug 2019: *Colloid fate and transport in the subsurface: Tethering molecular, pore and continuum scales*  Stanford University, Dept. Civil & Environmental Engineering, Feb 2018: Colloid fate and transport in the subsurface: Tethering molecular, pore and continuum scales

Duke University, Dept. Civil & Environmental Engineering, Apr 2016: Physico-Chemical Processes That Affect Transport and Filtration of Contaminants in Groundwater

University of California, Davis, Dept. Civil & Environmental Engineering, Mar 2016: *Physico-Chemical Processes That Affect Transport and Filtration of Contaminants in Groundwater* 

AXA Group, Paris Headquarters, Nov 2015: Mobilization of Nanoparticles in Contaminated Soils: Where, What and How Fast?

University of Stavanger, International Research Institute of Stavanger, Mar 2014: Pore-scale Visualization of Particle Transport and Retention in Unsaturated Porous Media

ETH Zürich, Institute of Environmental Engineering, June 2013: Polymer Properties and Pore-Scale Interfaces That Affect Colloid Transport in Groundwater

University of Aberdeen, School of Geosciences, Mar 2013: Soil Chemistry and Architecture Effect on Colloid Transport

Cornell University, School of Civil & Environmental Engineering, Oct 2012: *Colloids and Nanoparticles in Soils and Aquatic Environments* 

James Hutton Institute, Aug 2012: *Reverse Engineering of Biochar* 

Cornell University, School of Civil & Environmental Engineering, May 2012: Emerging Transport Trends and Applications of Colloids and Nanoparticles in Soils and Aquatic Environments

Scottish Crop Research Institute, Mar 2012: Effect of Lime-Treated Manure on Colloidal Transport Through Soils

Michigan State University, Dept. Crop & Soil Science, Apr 2011: Impact of Dissolved Organic Matter on Colloid Transport Through the Vadose Zone

## **Conference contributions**

List includes only first-author contributions.

Talk, Gordon Research Conference on "Flow & Transport in Permeable Media", Newry, July 2024: *Reactive Transport in Structurally Dynamic Porous Media: From Dissolution to Bioclogging* 

Poster, Fall Meeting of the American Geophysical Union, San Francisco, Dec 2023: Anomalous Transport of Nanoparticles in Structurally Heterogeneous Soils: Coupling Experiments and Stochastic Models

Talk, InterPore, Edinburgh, May 2023: Intermittent Shifting of Preferential Flow Paths in Bioclogged Porous Media Enhances Mixing-Driven Reactions

Poster, InterPore, Abu Dhabi, May 2022: Solute Transport in Agricultural Soils Shaped by Different Land Management Practices

Talk, Fall Meeting of the American Geophysical Union, New Orleans, Dec 2021: Lagrangian Intermittency in Colloid Transport Through Porous Media

Talk, InterPore, online, June 2021: Lagrangian Intermittency in Colloid Transport Through Porous Media Invited Talk, AGU Hydrology Section - Early Career Award Webinar Series, online, Nov 2020: *Frontiers in Subsurface Transport* 

Talk, Lorentz Center - Mixing in Porous Media, Leiden, Feb 2020: Stochastic Dynamics of Particle Motion in Porous Media: Colloid Filtration and Anomalous Transport

Talk, Fall Meeting of the American Geophysical Union, San Francisco, Dec 2019: Pore-Scale Colloid Retention Processes in the Vadose Zone: A Statistical Analysis

Poster, Fall Meeting of the American Geophysical Union, Washington D.C., Dec 2018: Predicting the Probability and Degree of Preferential Flow in Porous Media from Pore-Network Properties

Poster, Gordon Research Conference on "Flow & Transport in Permeable Media", Newry, July 2018: *Bioclogging in Porous Media: Preferential Flow Paths and Anomalous Transport* 

Invited talk, Gordon Research Seminar on "Flow & Transport in Permeable Media", Newry, July 2018: Stochastic Dynamics of Intermittent Pore-Scale Particle Motion in Porous Media

Talk, Fall Meeting of the American Geophysical Union, New Orleans, Dec 2017: *Intermittent Particle Motion in Porous Media* 

Talk, InterPore, Cincinnati, May 2016: Statistical Description of Anomalous Transport from Geometric and Topologic Characteristics of the Pore Space

Talk, European Geophysical Union General Assembly, Vienna, April 2016: Evaluation of Colloid Retention Site Dominance in Variably Saturated Porous Media

Poster, American Geophysical Union Chapman Conference, Valencia, Oct 2015: Topology and Channel Properties of Porous Media Underpin Anomalous Transport Intensity

Poster, International Workshop on Nanoparticles in Soils and Waters, Landau, Mar 2014: Discrimination and Evaluation of Colloid Retention Sites in Soils: An All Pores-Scale Analysis

Talk, Fall Meeting of the American Geophysical Union, San Francisco, Dec 2013: 3D Distribution of Retained Colloids in Unsaturated Porous Media

Poster, 26<sup>th</sup> Conference of the European Colloid and Interface Society, Malmö, Sept 2012: Controlled Pattern Assembly and Attachment Strength of Colloids in Evaporating Droplets

Talk, Micro Soil, Dundee, June 2011: Correlation for Attachment Coefficient ( $\alpha$ ) of Organic Matter-Colloid Complexes in Unsaturated Porous Media

Talk, Fall Meeting of the American Geophysical Union, San Francisco, Dec 2010: Deterministic Approximation of Transport Deposition Coefficients from Polymeric Coating Characteristics

Poster, 1<sup>st</sup> International Conference on Soil Architecture & Physico-Chemical Functions, Aarhus, Dec 2010: Impact of Dissolved Organic Matter on Colloid Transport

Poster, Colloidal, Macromolecular & Polyelectrolyte Solutions-Gordon Conference, Ventura, Feb 2010: Alternating Marangoni Flow and Evaporation-Divergent Flow Operate in an Evaporating Sessile Droplet

Poster, Joint Assembly of the American Geophysical Union, Fort Lauderdale, May 2008: Impact of Dissolved Organic Matter on Colloid Transport in the Vadose Zone

Talk, American Chemical Society 81<sup>st</sup> Colloid & Surface Sci. Symposium, Newark, May 2008: Grain Surface-Roughness Effects on Colloidal Retention in the Vadose Zone

Poster, Fall Meeting of the Americal Geophysical Union, San Francisco, Dec 2006: Dependence of Colloid Retention in Unsaturated Porous Media on Capillary and Friction Force Perturbations

#### Media coverage

Radio, Let's Get Civil! ASCE UCD podcast, Water Depth Episode, Mar 2024. (*https://open.spotify.com/show*)

Print, AGU Newsletter-Hydrology Section, Hydrologic Sciences Early Career Award, Dec 2020. (https://connect.agu.org/hydrology/newsletter)

Video, The AXA Research Fund Supports Researchers Who Explore New Risks in Nature and Modern Society Worldwide, NZZ, Oct 2015. (https://www.axa-research.org)

Print, Another Concern Arises Over Groundwater Contamination From Fracking Accidents, ACS News Service Weekly PressPac, June 2014. (https://www.acs.org/content/acs/en/pressroom/presspacs)

Print, Fracking Flowback Could Pollute Groundwater With Heavy Metals, Cornell Media Relations Office, June 2014. (http://news.cornell.edu/stories)

Print, Destacados Expertos Analizaron no Campus os Últimos Avances en Recuperación de Solos, Diario da Universidad de Vigo, Mar 2012. (https://www.uvigo.gal)

Print, Campus: Videoconferencia Sobre Arquitectura del Suelo, La Voz de Galicia, Mar 2012.

Video, Science of Small - Following the Flow, USDA: National Institute of Food and Agriculture Newsroom, Mar 2009. (https://archive.org/details/gov.usda.crees.partners.21)

Radio, Helping Ithaca Neighbors Understand TCE Contamination, 92 WICB-Ithaca College Radio, Aug 2007.

Print, In Their Back Yards: Students Help a Neighborhood Understand TCE Pollution, Cornell Engineering Magazine, Jan 2007. (https://www.engineering.cornell.edu)