



Denise M. Mitrano, Ph. D.

Eawag, Swiss Federal Institute of Aquatic Science and Technology
Process Engineering
Überlandstrasse 133 • 8600 Dübendorf, Switzerland
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Education

- Dec. 2012 Ph. D. Geochemistry, Colorado School of Mines
Golden, CO USA
Principal Advisor: James F. Ranville
“Development of ICP-MS Based Nanometrology Techniques for Characterization of Nanoparticles in Environmental Systems”
- May 2008 B.S., Chemistry, *Cum Laude*, Salve Regina University
Newport, RI USA

Research Interests

Nano- and microplastic particle and fiber analysis, fate and transport, nanometrology, trace metals analysis in aquatic environments, analysis of emerging environmental contaminants, implementation of nano in advanced materials, evaluating new technologies in a broader context of life cycle thinking, water quality analysis, interfacing science with public policy

Research Experience

Eawag, Swiss Federal Institute of Aquatic Science and Technology Dübendorf, Switzerland

Jan. 2017 –
Present

Group Leader (SNSF Ambizione Fellow), Process Engineering Department

- Fund and lead own research team on life cycle thinking of plastic production, use and environmental distribution. Lead communication of results in top-tier scientific journals, conference presentations, and public media outlets.
- Fabrication of polymer particles and fibers with chemically entrapped metallic tracers
- Evaluate the fate and transport of particulate plastic in technical and environmental systems, including pilot scale wastewater and drinking water treatment plants, biological uptake, transport in aqueous and terrestrial environments
- Release and characterization of nano- and microplastic fibers from synthetic textiles

April 2013–
Dec. 2016

Empa, Swiss Federal Laboratories for Materials Science and Technology St. Gallen, Switzerland

Postdoctoral Researcher, Environmental Risk Assessment and Management Group
Advisor: Bernd Nowack

- Planning and execution of laboratory experiments for products containing nanomaterials. Evaluate nanoparticle release, transformation(s), environmental effects and risk assessment.
- Investigate nanoparticle dissolution, aggregation and surface transformations related to product incorporation and aging (e.g. light exposure, washing, landfill, etc.) and fate and transport in aqueous systems
- Fabrication of nano-enhanced textiles
- Chair of workgroup for nanoparticle transformations in NANOMILE European project

(coordinated biannual meetings, presentations and reports from 5 partner institutions)

- Evaluating nanotechnology market acceptance: technical and economic criteria for life cycle assessment
- Independent supervision of Masters and Ph D students

Colorado School of Mines

Golden, CO USA

Department of Chemistry and Geochemistry

- Build knowledge and experience using a suite of analytical techniques capable of characterizing nanomaterials and/or other trace metals
- Specialize in nanometrology, developing novel analytical methods for the detection and characterization of nanomaterials using ICP-MS; single particle (sp)ICP-MS and asymmetrical flow field flow fractionation (AF4)-ICP-MS
- Analysis of both environmental and biological samples
- Determine effect of various water chemistries on Ag nanoparticle behavior in laboratory, natural, and processed waters

August 2008-

Dec. 2012

Water Desalination and Reuse Center

King Abdullah University of Science and Technology (KAUST)

Thuwal, Saudi Arabia

- Investigate complexation/heteroaggregation of natural organic matter with nanomaterials

February -

April 2012

Salve Regina University

Newport, RI USA

Jointly: Department of Chemistry and Biology Department

- Development of atomic absorption methodology for low-level mercury detection in biological samples (birds' blood and feathers) collected in the field

2005-2008

Rocky Mountain Biological Laboratory

Gothic, CO USA

- Assess effects of water chemistry variations on blooms of invasive algae species

May - September

2007

Professional Experience

Southern Nevada Water Authority

Las Vegas, NV USA

Consultant, Determine presence of nanomaterials in raw and finished wastewaters

January – April 2013

United States Geological Survey

Lakewood, CO USA

Intern, Uranium resource data system compilation, build interactive database on ArcGIS

May - September 2009

Publications

Number of Peer Reviewed Articles: 25

h-index: 15

Total Citations: 1475, Google Scholar as of December 2018

Online profiles for publication resources: https://www.researchgate.net/profile/Denise_Mitrano

(see complete list later in CV)

Research Funding Procurement

Funding sources include Swiss National Science Foundation (SNF), Swiss Federal Agencies (BAFU) and competitive grant programs at Eawag.

Year	Funding	Title	PI, CoIs	Duration	CHF
2019	Eawag	Retention of nanoplastics by conventional drinking water treatment and membrane filtration	Kägi, Mitrano, Von Gunten	01.19-06.20	158,375
2017	SNF	The path of microplastics to the environment: fate and transport in wastewater treatment systems	Mitrano	01.17-12.19	510,617
2014	BAFU	Nanomaterials in landfills: Occurrence and landfill leachates	Nowack et al.	01.14-06.16	199,000

Supervised Students and Theses

Masters Students where I was the leading PI/responsible person.

Name	Year	Title of thesis	Location	Degree Institution
Andreas Keller	10.18-present		Eawag	ETH Zurich
Manuel Holzer	18.18-present		Eawag	ETH Zurich
Stefan Frehland	03.18-present		Eawag	Uni Basel
Michael Schmiedgruber	11.17-07.18	Assessing Particulate Plastic Removal in Wastewater Treatment Plants: Use of Metal-Containing Microplastic Fibers for Quantitative Analysis	Eawag	TU Berlin
Felix Schmidt	10.17-03.18	Assessing Particulate Plastic Removal in Wastewater Treatment Plants: Use of Metal-Containing Nanoplastics for Quantitative Analysis	Eawag	ETH Zurich
Edgar Hernandez	08.15-08.16	Microplastic fiber release from textiles	Empa	ETH Zurich
Kamyar Mehrabi Kockebyoki	08.14-12.14	Nanomaterial release from landfills	Empa	EPFL
Elisa Rimmele	2013	Behavior of Ag and Ag-composite materials for the textile industry: Release in the eco- and technosphere	Empa	Hochschule Niederrhein

External Examiner or co-chair of Ph D thesis

2. Anna Beltzung, ETH Zürich, “Synthesis of polyacrylonitrile-based functional materials for adsorption, catalysis and traceable nanoplastics”. December 20, 2017.

1. Laura Roverskov Heggelund, Denmark Technical University, “Characterization of waste from nano-enabled products: Occurrence, distribution, fate and nanoparticle release”. September 7, 2017.

Teaching Experience

Nanomaterials in the Environment

2015 - present

ETH Zürich masters and PH D Course; Co-lecturing with Bernd Nowack and Thomas Bucheli

Geochemistry of metals in the environment

Co-field session organizer and instructor, Colorado School of Mines

2011

- Developed curriculum including both lab and field experiments

Quantitative Chemical Measurements

Teaching Assistant, Colorado School of Mines

2009

- Provided introductory lectures and laboratory instruction

General Chemistry

Teaching Assistant, Colorado School of Mines

2008

Provided introductory lectures and laboratory instruction

Organic Chemistry 2005-2006

Teaching Assistant, Salve Regina University

General Chemistry 2005-2008

Teaching Assistant, Colorado School of Mines

- Gave introductory lectures and provided laboratory instruction
- Co-developed laboratory instruction manual and video for GLX interface

Workshops:

Advanced course: Nanomaterial Characterization. IMBG 7th biannual International Meeting. Metallic nanoparticles: health, environment, applications and safer by design

Conference Organization

1. Nano and microplastics in technical and freshwater systems. October 28 – 31 2018, Monte Verita, Ascona, Switzerland. Co-organizers: Bernhard Wehrli, Ralf Kaegi, and Thilo Hofmann

Chair Conference Sessions

4. Nano- and microplastics in the environment: from source to environmental consequences. Society for Environmental Chemistry and Toxicology (SETAC), Daegu, South Korea, September 16, 2018
3. New Horizons in Particulate Polymer Analysis: Micro- and Nanoplastics and Tire Rubber Detection, Characterization and Impacts in the Environment. Society for Environmental Chemistry and Toxicology (SETAC), Rome, Italy, May 2018
2. From Nano to Global; Gordon Research Conference on Environmental Nanotechnology; Vermont, USA June 2017.
1. Characterization of nanomaterials in complex systems; ICEENN (International Conference on the Environmental Effects of Nanoparticles and Nanomaterials), Golden CO, USA August 2016

Scientific Journal Editorial Board Appointments

Nature Applied Sciences (Editorial Board Member)

Environmental Pollution (Editorial Board Member)

Acting Reviewer for Peer Reviewed Journals (selection)

Nature Nanotechnology, Environmental Science: Nano, Environmental Science and Technology (ES&T), Analytical Chemistry, Water Research, Journal of Atomic Absorption Spectroscopy (JAAS), Environmental Chemistry and Toxicology, Environmental Pollution, NanoImpact

See Publons profile for additional reviewer statistics (complete starting in 2016):

<https://publons.com/author/1270563/denise-mitrano#profile>

Affiliations/Memberships

- Society of Environmental Toxicology and Chemistry (SETAC) 2008-Present
- American Chemical Society 2007-Present

- National SETAC Rocky Mountain Student Representative (NASAC) 2011-2012
- Colorado School of Mines Graduate Student Association, Executive Council 2010-2012

Honors and Awards

- “Top 5 exceptional paper, 2014” from Environmental Toxicology and Chemistry (Notter, Mitrano and Nowack, 2014) 2015
- 2012 U.S. Fulbright Competition, Selected Candidate to the Netherlands 2012
- Best Poster Presentation, 15th International Symposium of Field and Flow Based Separations, San Francisco, CA, USA 2011
- GAANN (Graduate Assistance in Areas of National Need) Fellowship 2009-2011
- USGS Fellowship, Edna Bailey Sussman Award 2009
- American Chemical Society Award, Best Student, Rhode Island Chapter 2008
- Chemistry Departmental Award, Salve Regina University 2008
- New Hampshire Charitable Foundation Fellowship Scholarship (4 years) 2004-2008
- Salve Regina University Trustees Scholarship (4 individual years) 2004-2008
- Dean’s List Salve Regina University (8 semesters) 2004-2008

Publications

Number of Peer Reviewed Articles: 25

h-index: 15

Total Citations: 1475, Google Scholar as of December 2018

Online profiles for publication resources: https://www.researchgate.net/profile/Denise_Mitrano

Bold: Self

Underlined: Corresponding Author

• Papers Submitted and in Review

1. Mechanical phase inversion of Pickering emulsions via metastable wetting of rough colloids. Michele Zanini, Alberto Cingolani, Chiao-Peng Hsu, Anna Beltzung, Stefano Caimi, Miguel Angel Fernandex Rodriguez, **Denise M. Mitrano**, Guiseppa Storti, Lucio Isa. Submitted to Nature Communications September 2018
2. Mechanistic understanding of microplastic fiber fate and sampling strategies: Synthesis and utility of metal doped polyester fibers. Michael Schmiedgruber, Rudolf Hufenus, **Denise M. Mitrano** Submitted to Water Research October 2018

• Papers in Peer-Reviewed Journals, Published and in Press

25. Synthesis of metal-doped nanoplastics and their utility to investigate fate and behavior in complex environmental systems. **Denise M. Mitrano**, Anna Beltzung, Stefan Frehland, Michael Schmiedgruber, Alberto Cingolani, Felix Schmidt. Accepted, Nature Nanotechnology
24. Review of the fate and engineered nanomaterials in municipal solid waste streams. Florian Part, Nicole Berge, Pawel Baran, Anne Stringfellow, Wenjie Sun, Shannon Bartelt-Hunt, **Denise Mitrano**, Liang Li, Pierre Hennebert, Prof. Quicker, and Marion Huber-Humer. Waste Management 2018, (75) 427 - 449
23. Bernd Nowack and **Denise M. Mitrano**. Procedures for the production and use of synthetically aged and product released nanomaterials for further environmental and ecotoxicity testing. NanoIMPACT. 2018, 10, 70 – 80.

22. Edgar Hernandez, Bernd Nowack and **Denise M. Mitrano**. Synthetic Textiles as a Source of Microplastics from Households: A Mechanistic Study to Understand Microfiber Release During Washing. *Environmental Science and Technology*. 2017, 51 (12) 7036-7046
21. Kamyar Mehrabi, Bernd Nowack, Yadira Arroyo Rojas Dasilva, **Denise M. Mitrano**. Improvements in Nanoparticle Tracking Analysis to Measure Particle Aggregation and Mass Distribution: A Case Study on Engineered Nanomaterial Stability in Incineration Landfill Leachates. *Environmental Science and Technology*. 2017, 51 (10) 5611 - 5621
20. Tian Yin Sun, **Denise M. Mitrano**, Nikolaus A. Bornhöft, Martin Scheringer, Konrad Hungerbühler and **Bernd Nowack**. Envisioning nano release dynamics in a changing world: using dynamic probabilistic modeling to assess future environmental emissions of engineered nanoparticles. *Environmental Science and Technology* 2017, 51 (5), 2854-2863
19. Xu He, **Denise M. Mitrano**, Bernd Nowack, Yeon Kyoung Bahk, Claudia Schreiner, Melanie Bürki, Renato Figi, **Jing Wang**. Agglomeration Potential of TiO₂ in synthetic landfill leachates made from the fly ash of different incinerated wastes. *Environmental Pollution* 2017, 223, 616-623
18. **Denise M. Mitrano**, Kamyar Mehrabi, Yadira Arroyo Rojas Dasilva and Bernd Nowack. Mobility of metallic (nano)particles in leachates from landfills containing waste incineration residues. *Environmental Science: Nano* 2017, 4, 480-492
17. **Denise M. Mitrano** and Bernd Nowack. The need for a life-cycle based aging paradigm for nanomaterials: Importance of real-world test systems to identify realistic particle transformations. *Nanotechnology*. 2017 28 (7) 072001
16. **Denise M. Mitrano**, Enzo Lombi, Yadira Arroyo Rojas Dasilva, and Bernd Nowack. Unraveling the Complexity in the Aging of Nanoenhanced Textiles: A Comprehensive Sequential Study on the Effects of Sunlight and Washing on Silver Nanoparticles. *Environmental Science & Technology*. 2016, 50 (11) 5790-5799
15. **Denise M. Mitrano**, Pawena Limpiteeprakan, Sandhya Babel and Bernd Nowack. Durability of nano-enhanced textiles through the life cycle: releases from landfilling after washing. *Environmental Science: Nano* 2016, 3(2) 375-387
14. **Sandra Wagener**, Nils Dommershausen, Harald Jungnickel, Peter Laux, **Denise M. Mitrano**, Bernd Nowack, Gregor Schneider, Andreas Luch. Textile functionalization and its effects on the release of silver nanoparticles into artificial sweat. *Environmental Science & Technology*, 2016, 50 (11) 5927-5934
13. **Denise M. Mitrano**, Yadira Arroyo, Bernd Nowack. Effect of variations of washing solution chemistry on chemical changes in the laundry cycle. *Environmental Science & Technology*. 2015, 49 (16) 9665-9673
12. **Bernd Nowack**, Mohamed Baalousha, Nikolaus Bornhoft, Qasim Chaudhry, Geert Cornelis, Jane Cotterill, Martin Hasselov, Jamie Lead, **Denise M. Mitrano**, Frank von der Kammer, Tim Wontner-Smith. Progress towards the validation of modeled environmental concentrations of engineered nanomaterials by analytical measurements. *Environmental Science: Nano*. 2015, 2, 421-428
11. F. Piccinno, R. Hischer, **D. M. Mitrano**, S. Andrew, S. Seeger, **C. Som**. Multi-perspective Application Selection: A method to identify sustainable applications for new materials using the example of cellulose nanofiber reinforced composites. *Journal of Cleaner Production*. 2016, 112, 1199-1210
10. **Denise M. Mitrano**, Sylvie Motellier, Simon Clavaguera, Bernd Nowack. Using a life cycle approach to understand nanomaterial aging and transformations during use of nano-enhanced products. *Environment International*. 77 (2015) 132-147 *(Noted as a highly cited paper in Web*

of Science)

9. Dominic Notter, **Denise M. Mitrano**, Bernd Nowack. Are nanosized or dissolved metals more toxic? A meta-analysis. Environmental Toxicology and Chemistry. 2014. 33, 2733-2739 (***Selected one of the top 5 exceptional papers in 2014 submitted to ET&C***)
8. **D.M. Mitrano**, E. Rimmele, A. Wichser, R. Erni, M. Height, B. Nowack. Presence of Nanoparticles in Wash Water from Conventional Silver and Nano-Silver Textiles. ACS-Nano. 2014. 8 (7), 7208-7219.
7. Lindsay M. Furtado, Md Ehsanul Hoque, **Denise M. Mitrano**, James F. Ranville, Beth Cheever, Paul C. Frost, Marguerite A. Xenopoulos, Holger Hintelmann, Chris D. Metcalfe. Transformations of Silver Nanoparticles in Lake Littoral Mesocosms. Environmental Chemistry. 2014, 11, 419-430
6. **D.M. Mitrano**, J.F. Ranville, A. Bednar, K.Kazor, A.S. Hering, and C.P. Higgins. Tracking dissolution of silver nanoparticles at environmentally relevant concentrations in laboratory, natural and processed waters using single particle ICP-MS (spICP-MS). Environmental Science: Nano. 2014, 1 (3), 248-259 (***Noted as a highly cited paper in Web of Science***)
5. A.J. Bednar, A.R. Poda, **D.M.Mitrano**, A.J. Kennedy, E.P. Gray, J.F. Ranville, C.A. Hayes, F.H. Crocker, J.A. Steeverns. Comparison of on-line detectors for field flow fractionation analysis of nanomaterials. Talanta. 2012. 104, 140-148
4. **Mitrano D.M.**, Ranville JF., Neubauer K., Thomas R., Field-Flow Fractionation Coupled with ICP-MS for the Analysis of Engineered Nanoparticles in Environmental Samples. Spectroscopy. 2012. 27 (9), 2-8
3. **Mitrano D.M.**, Barber A., Bednar A., Westerhoff P., Higgins C.P., Ranville J.F. Silver nanoparticle characterization using Single Particle ICP-MS (SP-ICP-MS) and Asymmetrical Flow Field Flow Fractionation ICP-MS (AF4-ICP-MS). JAAS. 2012, 27, 1131-1142 (***Noted as a highly cited paper in Web of Science***)
2. **Mitrano, D.**, Leshner, E., Bednar, A., Monserud, J., Higgins, C., Ranville, J. Detection of nano-Ag using single particle inductively coupled plasma mass spectrometry. ET&C. 2012, 31, 115-121 (***Noted as a highly cited paper in Web of Science***)
1. Poda A.R., Bednar A.J, Kennedy A.J., Harmon A., Hull M., **Mitrano D.M.**, Ranville J.F., Stevens J. Characterization of silver nanoparticles using flow-field flow fractionation interfaced to inductively coupled plasma mass spectrometry. Journal of Chromatography A. 2011, 1218, 4219-4425 (***Noted as a highly cited paper in Web of Science***)

Reports and Contributions

4. NanoMILE Deliverable D3.1: Report on environmental transformation reactions. Using a life cycle approach to understand manufactured nanomaterial aging and transformations during use of nano-enhanced products. **D. M. Mitrano**, B. Nowack, S. Motellier, S. Clavageura. 2014.
3. Application Note, Quantitative Evaluation of Nanoparticle Dissolution Kinetics using Single Particle ICP-MS: A Case Study with Silver Nanoparticles. **Mitrano, D.M.**, Ranville JF, Stephan, Chady. Perkin Elmer, Inc. 2014.
2. Application Note, Coupling Flow Field Flow Fractionation to ICP-MS for the Detection and Characterization of Silver Nanoparticles. **Mitrano D.M.**, Ranville JF, Neubauer. Perkin Elmer, Inc. 2012.
1. Application Note, An Introduction to Flow Field Flow Fractionation and Coupling to ICP-MS. **Mitrano D.M.**, Ranville JF, Neubauer. Perkin Elmer, Inc. 2011.

Invited Key-Note International Conference Presentations

5. Nano- and Microplastics in Freshwater Systems. October 29, 2018. Ascona, Switzerland. Nanoplastic and microplastic fiber analysis in wastewater and activated sludge: Synthesis and utility of metal doped plastics.
4. AI-Vets 29th Annual European Conference. October, 19 2018. Luzern, Switzerland (Micro)plastics: from products to environmental distribution.
3. Joint Research Council (JRC) workshop, Microplastics – policy context and scientific gaps on possible health effects. Geel, Belgium, January 26, 2018. The path of (micro)plastics to the environment: particulate plastic sources, fate and transport.
2. 7th International Meeting of the Institute of Metals; Metallic nanoparticles: health, environment, applications and safer-by-design. Villard-de-Lans, France. September 13, 2017. Applicability of comparing pristine and transformed particles to understand nanoparticle behavior and eco(toxicity).
1. Gordon Research Conference, Environmental Nanotechnology. West Dover, VT, USA. June 24, 2015. Using a life cycle approach to understand nanomaterial aging, transformation and release during use of nano-enabled products.

Invited Presentations at Government, Policy-Making and Public Events

3. (Micro)plastics: From consumer Materials to the Environment. Public evening at Nano- and Microplastic in the Freshwater Systems Conference. Ascona, Switzerland. October 31, 2018.
2. Environmental fate of (micro)plastic: elucidating processes in water-treatment facilities and agricultural soils. ETH Alumni Event, Zurich, Switzerland, September 28, 2018
1. (Micro)plastics: From Consumer Materials to the Oceans. UK Parliament – All Party Parliamentary Group for the Polar Regions, London, United Kingdom, May 23, 2018.

Invited Seminars at Universities and Research Institutes

15. IBP Seminar Series, ETH Zurich. Host: Kris McNeil. November 2, 2018. (Micro)plastics: understanding fate and distribution from consumer products to the environment.
14. BASF, Ludwigshafen, Germany. Host: Wendel Wohlleben June 5, 2018. The path of nano- and microplastics to the environment: from sources to environmental consequences.
13. 33rd Meeting of the DECHEMA-VCI Working Party on the Responsible Production and Use of Nanomaterials. DECHEMA-Haus, Frankfurt am Main, Germany. Host: Andreas Förster October 27, 2017. Importance of life-cycle based aging paradigms for nano-enhanced products: real-world test systems to identify realistic particle transformations
12. ETH Zurich, Host: Ruben Kretzchmar. Zurich, Switzerland. March 11, 2016. Methods to characterize nanoparticle transformations: a look at the life cycle of silver-enhanced textiles.
11. NanoLytics at Wageningen University, Wageningen, the Netherlands. Host: Chady Stephan (Perkin Elmer). June 8, 2015. Single particle ICP-MS: a nanometrology technique to characterize nanoparticle release from products and transformations in the environment.
10. University of South Australia; 2nd Annual Nanosafety Workshop. Host: Enzo Lombi. April 28, 2015. Tracking nanomaterials through the laundry wash cycle: release, dissolution and complexation.
9. ETH-Zurich; Zurich, Switzerland. Host: Dr. Detlef Gunther. February 11, 2014. Aging and Transformations of Nanoparticles Relevant to Product Use.

8. University of Vienna; Vienna, Austria. Host: Dr. Frank von der Kammer. October 14, 2013. Nanometrology Techniques for the Characterization of Nanomaterials in Complex Systems.
7. University of Gothenburg; Gothenburg, Sweden. Host: Dr. Geert Cornelis. June 26, 2013. Tracking ENP Transformations using spICP-MS.
6. University Lorraine; Metz, France. Host: Dr. Davide Vignati. June 21, 2013. Tracking ENP Transformations using spICP-MS.
5. Eawag, Swiss Aquatic Research; Dübendorf, Switzerland. Host: Dr. Carl Isaacson. May 3, 2013. Tracking ENP Transformations Using spICP-MS.
4. University of Birmingham; Birmingham, UK. Host: Dr. Eva Valsami-Jones. June 1, 2012. Tracking transformation of silver nanoparticles using single particle (sp)-ICP-MS and flow field flow fractionation (AF4)-ICP-MS.
3. RIKILT, Institute of Food Safety; Wageningen, The Netherlands. Host: Dr. Ruud Peters. May 29, 2012. Tracking transformation of silver nanoparticles using single particle (sp)-ICP-MS and flow field flow fractionation (AF4)-ICP-MS.
2. Water Desalination and Reuse Center, King Abdullah University of Science and Technology (KAUST), Thuwall, Saudi Arabia. May 2, 2012. Host: Dr. Jean Phillippe Croue. Use of single particle (sp)-ICP-MS and flow field flow fractionation (AF4)-ICP-MS in the study of nanomaterials in aqueous samples.
1. Salve Regina University; Newport, Rhode Island, USA. Host: Dr. Sandor Kadar. April 18, 2011. Detection of nanomaterials in the environment.

International Conference Presentations

(in every instance, presenting author) * Invited

32. MICRO2018: Fate and Impacts of Microplastics: Knowledge, Actions and Solutions. Trace nanoplastic and microplastic fiber analysis in wastewaters and activated sludge: Synthesis and utility of metal-doped plastics. Denise M. Mitrano, Anna Belzung, Stefan Frehland, Michael Schmiedgruber, Alberto Cingolani, Felix Schmidt. Lanzarote, Spain. November 20, 2018. (*platform presentation*)
- *31. Society for Environmental Toxicology and Chemistry (SETAC): Europe 28th Annual Meeting; Trace particulate plastic analysis in wastewater: Synthesis and utility of metal doped plastics. Michael Schmiedgruber, Anna Beltzung, Felix Schmidt, Stefan Frehland, Alberto Cingolani, Denise M. Mitrano. Rome, Italy, 14 May 2018 (*platform presentation*)
30. Gordon Research Conference; Environmental Sciences: Water. Trace nanoplastic and microplastic fiber analysis in wastewaters and activated sludge: synthesis and utility of metal doped plastics. Denise M. Mitrano, Anna Belzung, Stefan Frehland, Michael Schmiedgruber, Alberto Cingolani, Felix Schmidt. Holderness, N.H. USA 24-29 June 2018 (*poster presentation*)
29. Gordon Research Conference; Environmental Nanotechnology. Mobility of metallic (nano)particles in leachates from landfills containing waste incineration residues. Denise M. Mitrano, K. Mehrabi, Y.A.R. Dasilva and B. Nowack. Vermont, USA 18 -23 June 2017 (*poster presentation*)
28. Society for Environmental Toxicology and Chemistry (SETAC): Europe 27th Annual Meeting; Synthetic textiles as a source of microplastics from households. Denise M. Mitrano, Edgar Hernandez and Bernd Nowack Brussels, Belgium 7 – 11 May 2017 (*poster highlight presentation*)
27. Society for Environmental Toxicology and Chemistry (SETAC): Europe 27th Annual Meeting; Mobility of metallic (nano)particles in leachates from landfills containing waste incineration residues. Denise M. Mitrano, K. Mehrabi, Y.A.R. Dasilva and B. Nowack. Brussels, Belgium 7 – 11 May 2017 (*poster highlight presentation*)
- * 26. NanoIMPACT; Mobility of metallic (nano)particles in leachates from landfills containing waste

- incineration residues. Denise M. Mitrano, K. Mehrabi, Y.A.R. Dasilva and B. Nowack. Monte Verita, Switzerland, 12 - 17 March 2017 (*platform presentation*)
25. NanoIMPACT; Unraveling the complexity in the aging of nanoenhanced textiles: a comprehensive sequential study on the effects of sunlight, washing and landfilling. Denise M. Mitrano, E. Lombi, Y.A.R. Dasilva and B. Nowack. Monte Verita, Switzerland 12 – 17 March, 2017 (*poster presentation*)
- * 24. NMSA (New Tools and Approaches for Nanomaterial Safety Assessment) Conference; Life-cycle inspired protocols for aging engineered nanomaterials: Applicability of comparing pristine and transformed particles to understand nanoparticle behavior and (eco)toxicity. Denise M. Mitrano, Olena Oriekhova, Sophie Marie Briffa, Isabella Römer, Sylvie Motellier, Serge Stoll, Eugenia Valsami-Jones and Bernd Nowack. 6 – 9 February 2017, Malaga, Spain (*invited platform presentation*)
- *23. NanoSAFE; Unraveling the Complexity in the Aging of Nano-Enhanced Textiles: a Comprehensive Sequential Study on the Effects of Sunlight, Washing and Landfilling. Denise M. Mitrano, Enzo Lombi, Yadria Arroyo and Bernd Nowack Grenoble, France. November 8, 2016 (*invited platform presentation*)
22. 7th Late Summer Workshop of the German Water Chemistry Society; Synthetic Textiles as a source of microplastics from households. Denise M. Mitrano and Bernd Nowack. Haltern am See, Germany September 25, 2016 (*extended platform presentation*)
- *21. 11th ICEENN (International Conference on the Environmental Effects of Nanoparticles and Nanomaterials); Unraveling the Complexity in the Aging of Nano-Enhanced Textiles: a Comprehensive Sequential Study on the Effects of Sunlight, Washing and Landfilling. Denise M. Mitrano, Enzo Lombi, Yadria Arroyo and Bernd Nowack. Golden, CO, USA August 16, 2016 (*platform presentation*)
20. Society for Environmental Chemistry and Toxicology (SETAC): Europe 26th Annual Meeting. Unraveling the Complexity in the Aging of Nano-Enhanced Textiles: a Comprehensive Sequential Study on the Effects of Sunlight, Washing and Landfilling. Denise M. Mitrano, Enzo Lombi, Yadria Arroyo and Bernd Nowack. Nantes, France May 25, 2016 (*platform presentation*)
19. Society for Environmental Toxicology and Chemistry (SETAC): Europe 25th Annual Meeting; Tracking nanomaterials through the laundry wash cycle: release, dissolution and complexation. D.M. Mitrano and B Nowack. Barcelona, Spain May 5, 2015 (*platform presentation*)
18. American Chemical Society (ACS) National Meeting. Tracking nanomaterials through the laundry wash cycle: release, dissolution and complexation. D.M. Mitrano and B Nowack. Denver, CO, USA. March 24, 2015. (*platform presentation*)
17. 4th Annual NanoSAFE Conference. Tracking nanomaterials through the laundry wash cycle: release, dissolution and complexation. D.M. Mitrano, E Rimmele, B Nowack. Grenoble, France. November 19, 2014. (*platform presentation*)
16. American Chemical Society (ACS) National Meeting. Transformations of silver nanoparticles relevant to product use. D.M. Mitrano, E Rimmele, B Nowack. San Francisco, CA, USA. August 10, 2014. (*platform presentation*)
15. Gordon Research Conference; Environmental Science – Water. Transformations of silver nanoparticles relevant to product use: washing textiles. DM Mitrano, E Rimmele, B Nowack. Holderness, NH, USA. June 22, 2014. (*poster presentation*)
14. Society for Environmental Toxicology and Chemistry (SETAC): Europe 24th Annual Meeting; Transformations of Silver Nanomaterials relevant to product use: Exposure to disinfectants and washing. D.M. Mitrano, E Rimmele, B Nowack. Basel, Switzerland. May 12, 2014 (*platform presentation*)
13. Joint US-EU nanoEHS Conference. Aging and Transformations of Nanoparticles Relevant to Product Use. D.M. Mitrano. Washington DC, USA. December 2, 2013. (*platform presentation*)

12. Society for Environmental Toxicology and Chemistry (SETAC); Europe 23rd Annual Meeting. Tracking transformations of silver nanoparticles using single particle (sp)-ICP-MS. D.M. Mitrano, J.F. Ranville, A.J. Bednar, C.P. Higgins. Glasgow, Scotland. May 2013. (*poster presentation*)
11. 7th International Conference on Environmental Effects of Nanoparticles and Nanomaterials (ICEENN). Tracking transformations of silver nanoparticles using single particle (sp)-ICP-MS. D.M. Mitrano, C. Higgins, A. Bednar, J.F. Ranville. Banff, Alberta, Canada. September 2012. (*Extended Platform Presentation and Poster Presentation*)
10. American Chemical Society, 236th National Meeting. Use of Single Particle ICP-MS for analysis of engineered nanoparticle stability in varied media. D.M. Mitrano, R.Reed, E.Gray, C.Higgins, JF Ranville. Philadelphia, PA, USA. August 2012. (*Platform Presentation*)
9. Society for Environmental Toxicology and Chemistry (SETAC); Europe 22nd Annual Meeting/6th World Congress. Tracking transformations of silver nanoparticles using single particle (sp)-ICP-MS. D.M. Mitrano, C.P. Higgins, A.J. Bednar, J.F. Ranville. Berlin, Germany. May 2012. (*Poster Presentation and Poster Spotlight Platform Presentation*)
8. Rocky Mountain Division: Society for Environmental Toxicology and Chemistry (RMSETAC). Use of single particle (sp)-ICP-MS in tracking nanomaterial transformations D. Mitrano, C.P. Higgins, A. Bednar, J. F. Ranville. Fort Collins, CO, USA. April 2012. (*Poster Presentation*)
7. Conference on Earth and Energy Research. Tracking transformations of silver nanoparticles using single particle (sp)-ICP-MS. D.M. Mitrano, C.P. Higgins, A.J. Bednar, J.F. Ranville. Golden, CO, USA. March, 2012. (*Poster Presentation*)
6. National Meeting; Nano-Go. Capabilities and method improvements of Single Particle (SP)-ICP-MS for the detection of inorganic engineered nanoparticles. D. Mitrano, R.Reed, H.Pace, C.P. Higgins, P. Westerhoff, A. Bednar, J.F. Ranville. Research Triangle, NC, USA. 2012. (*Poster Presentation*)
5. National Meeting; Society for Environmental Toxicology and Chemistry (SETAC). “Capabilities and method improvements of Single Particle (SP)-ICP-MS for detection of silver nanoparticles. D. Mitrano, H. Pace, A. Barber, C.P. Higgins, A. Bednar, J. Ranville. Boston, MA, USA. November 2011. (*Platform Presentation and Poster Presentation*)
4. 15th International Symposium of Field and Flow Based Separations. Single Particle (SP) ICP-MS and FFF-ICP-MS as powerful analytical techniques to separate silver nanoparticles D. Mitrano, C.P. Higgins, A. Bednar, J. Ranville. San Francisco, CA, USA May 2011. (*Poster Presentation*)
3. Rocky Mountain Division: Society for Environmental Toxicology and Chemistry (RMSETAC). SP-ICP-MS and FFF-ICP-MS as powerful analytical techniques to characterize Ag nanoparticles D. Mitrano, C.P. Higgins, A. Bednar, J. F. Ranville. Denver, CO, USA. May 2011. (*Poster Presentation*)
2. National Meeting; Society for Environmental Toxicology and Chemistry (SETAC). “SP-ICP-MS and FFF-ICP-MS as powerful analytical techniques to characterize silver nanoparticles in complex media. D. Mitrano, E. Leshner, C.P. Higgins, A. Bednar, J. Ranville. Portland, OR, USA. November, 2010. (*Platform Presentation*)
1. American Chemical Society National Meeting. Analysis of nanomaterials using field flow fractionation interfaced to inductively coupled plasma mass spectrometry. A Bednar, R. Kigan, W. Jones, A. Kennedy, J. Steevens, D. Mitrano, J. Ranville. May, 2010. (*Platform Presentation*)

Public Engagement/Outreach

- Einstein TV program “Nanotechnologie: Was bringt sie uns?” for SRF1;
highlighted in segment: “Wie viel, wo, wann, wohin?”

Jan. 2016

- Interview/podcast with KSL Broadcasting in Salt Lake City Utah, USA March 2015
- “Suds turn silver nanoparticles into duds”, published in Science News by Beth Mole, March 27 March 2015