

Cory A. Rusinek, PhD

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EDUCATION

University of Cincinnati, Cincinnati, Ohio

Doctor of Philosophy (PhD), Analytical Chemistry

Advisor: Prof. William R. Heineman

August 2012-2016

Degree Conferred 2017

Case Western Reserve University, Cleveland, Ohio

Bachelor of Arts (B.A), Chemistry

August 2010 - July 2012

Lake Erie College, Painesville, Ohio

August 2008 - May 2010

RESEARCH EXPERIENCE

Fraunhofer USA, Inc.- Michigan State University

May 2016- Present

Center for Coatings and Diamond Technologies, East Lansing, Michigan

Title: Research Scientist

- Execute research in analytical chemistry, electrochemistry, and bioanalytical chemistry related to thin films based on diamond, diamond-like carbon, metal-oxides, mixed-metal oxides with a primary interest in technology and electrochemical sensor development. Applications towards water and wastewater treatment have also been of significant focus.
 - o As a Co-PI, recently received an R41 grant funded by the National Institute of Environmental Health Sciences (NIEHS) for the development of wearable diamond-based sensors for heavy metal detection in human perspiration. This project began September 2018.
 - o As a Co-PI, recently received a grant from the US Bureau of Reclamation (US BOR) for capacitive desalination of waters using plasma-activated biochar. This project began January 2019.
- Advise a research group consisting of 7 students at Michigan State University (MSU).
 - o Includes 2 PhD students in Chemical Engineering and Materials Science (co-Advisor). I have been integral in the research direction of both students and serve on the graduate committee for each.
 - o Includes 5 undergraduate students, 4 of which have professorial assistantships from the Honor's College at MSU. These include chemistry, chemical engineering, environmental engineering, electrical engineering, and pre-medicine majors.
 - o Students span a wide-range of ethnicities; African American, Asian American, White, German, Puerto Rican, and Ecuadorian students.
 - o Summer research advisor for NSF REU undergraduate chemical engineering student. Recruited U.S-based (Santa Clara University) and international (University of Puerto Rico) students
- Wrote or collaborated on research proposals to NIH, DoD Congressionally Directed Medical Research Program (CDMRP), NSF, US BOR, and the City of Grand Rapids regarding topics in neurochemical analysis, heavy metal sensing, water/wastewater treatment and desalination.

- Co-Investigator on NIH project for the development of diamond-based microfiber electrodes for neurotransmitter sensing in the brain and peripheral nervous system.
- Other research focuses include trace detection of heavy metals (biological and environmental samples) and remediation of per- and polyfluoroalkyl substances (environmental samples).
- Authored and co-authored peer-reviewed manuscripts for several journals (Lab on a Chip, Analytical Chemistry, Electrochemistry Communications, Electroanalysis, and the Journal of the Electrochemical Society).
- Panel reviewer for US Environmental Protection Agency (EPA) 2019 People, Prosperity and the Planet (P3) Student Design Competition.
- Peer reviewer for Diamond and Related Materials, Electroanalysis, Journal of the Electrochemical Society, and the International Society of Electrochemistry.
- Built collaborations with high-level external academic, government, and industry partners for developing proposal teams. These include partners from:
 - CDM Smith, Bioanalytical Systems Inc., Cincinnati Children's Hospital, US Army Corps of Engineers, Condias GmbH, US Army Research Institute of Environmental Medicine, Oregon State University, University of Illinois-Chicago, among others.

University of Cincinnati, Department of Chemistry

January 2013 – January 2017

Advisor: Prof. William R. Heineman

Dissertation Title: New Avenues in Electrochemical Systems and Analysis

- Developed a cloud point extraction method for the determination of trace levels of cadmium and lead in water using anodic stripping voltammetry.
- Designed an undergraduate laboratory for cloud point extraction using atomic absorption spectroscopy and stripping voltammetry as comparable detection methods.
- Developed a novel method for determination of manganese in both environmental and biological samples using cathodic stripping voltammetry, atomic absorption spectroscopy, and inductively coupled plasma- mass spectrometry.
- Established sensing methods with new boron-doped diamond optically transparent electrodes.
- Developed an extraction method from whole blood for point-of-care sensing of heavy metal exposure with microfabricated electrochemical cells.
- Collaborated with and trained seven undergraduate students at Xavier University for their undergraduate bachelor's thesis research. Many students worked on intricate details of cloud point extraction. Two became co-authors on a recent research publication in Electroanalysis.
- Summer advisor for NSF REU student; mentee completed sufficient research for co-authorship of a manuscript published in Analytical Chemistry.

Case Western Reserve University, Department of Chemistry

January 2011 - July 2012

Advisor: Prof. Clemens Burda

- Developed a gold recovery method for recovering gold waste generated during gold nanoparticle synthesis.
- Synthesized gold nanoparticles via various methodologies.
- Designed an undergraduate physical chemistry laboratory for synthesis of gold nanoparticles, recovery of waste, and subsequent analysis of recovered the gold using atomic absorption spectroscopy.

TEACHING EXPERIENCE

MSU-Fraunhofer Center for Coatings and Diamond Technologies

December 2016- Present

As stated above in Research Experience section

- Co-research advisor for 2 MSU PhD students in Chemical Engineering and Materials Science.
- Research advisor for 5 MSU Honor's College Professorial Assistant undergraduate students in Chemical Engineering and Environmental Engineering. Involves teaching students a variety of analytical and electroanalytical techniques, electrochemical theory, research practices, etc.
- Research mentor or co-Research mentor for two NSF REU students from Ecuador and Puerto Rico.
 - o Student from Ecuador completed or participated in the work for two peer-reviewed research publications and returned to MSU for graduate school.

University of Cincinnati, Department of Chemistry

August 2012 - January 2015

Physical Chemistry Laboratory, Teaching Assistant

January 2013 – January 2015

- Instructed experiments in Gaussian, IR spectroscopy, and Raman spectroscopy.
- Graded all laboratory reports for students in class.
- Assisted students with homework, lab reports, or material they found difficult to understand.

Organic Chemistry Laboratory, Teaching Assistant

August 2012 - January 2013

- Instructed 24 students in a variety of organic techniques such as NMR, IR spectroscopy, extraction, and distillation.

General Chemistry Lecture, Teaching Assistant

August 2012 – January 2013

- Instructed a recitation class of 20 students in general chemistry.
- Prepared quiz practice problems each week, graded quizzes, and assisted students with homework problems.

FUNDED PROJECTS

1R41ES029873 NIEHS 09/15/18-09/14/19 \$150,000

PIs: *C.A Rusinek*, J. Hill (Bioanalytical Systems, Inc.)

Title: Development of fully integrated electrochemical device for detecting metals in biological fluids with flexible, wearable boron-doped diamond sensors

R18AC00112 US BOR 01/01/19-05/05/20 \$144,000

PIs: K. Wang (Fraunhofer USA, Inc.), *C.A Rusinek*

Title: Plasma Activated Biochar for High-Efficiency Capacitive Desalination

Private Contract City of Grand Rapids 05/01/19-12/31/20 \$300,000

PI: *C.A Rusinek*

Title: Electrochemical Oxidation of Per- and Polyfluoroalkyl Substances in Landfill Leachates and Complex Industrial Wastewaters

PATENTS

“Highly Sensitive, Flexible Boron-Doped Polycrystalline Diamond Sensor for Biological and Chemical Sensing” W. Li, B. Fan, Y. Zhu, R. Rechenberg, *C.A Rusinek*, M.F Becker, **2017, United States Provisional Patent Filed.**

“Micromachined, Implantable, All Diamond Neural Microelectrodes and Fabrication Method” W. Li, Y. Guo, R. Rechenberg, T. Schuelke, **C.A Rusinek**, M.F. Becker. **2018, United States Provisional Patent Filed.**

“Electrochemical Methods for Sample Pretreatment for Metals Determination and Related Apparatus” **C.A Rusinek**, M.F. Becker, M. Ensich, T. Schuelke. **2018, United States Provisional Patent Filed.**

PEER-REVIEWED PUBLICATIONS

PUBLISHED

“Cloud Point Extraction for Electroanalysis: Anodic Stripping Voltammetry of Cadmium” **C.A Rusinek**, A. Bange, I. Papautsky, and W.R. Heineman. *Analytical Chemistry*, **2015**, *87*, 6133-6140.

“Electrospun Carbon Nanofiber Modified Electrodes for Stripping Voltammetry” D. Zhao, T. Wang, D. Han, **C.A Rusinek**, A.J. Steckl, W.R. Heineman. *Analytical Chemistry*, **2015**, *87*, 9315-9321.

“Bare and Polymer-coated Indium Tin Oxide as Working Electrodes for Manganese Cathodic Stripping Voltammetry” **C.A Rusinek**, M. Warren, W. Kang, A. Bange, I. Papautsky, N. Kaval, and W.R. Heineman. *Analytical Chemistry*, **2016**, *88*, 4221-4228.

“Polymer-coated Boron Doped Diamond Optically Transparent Electrodes for Spectroelectrochemistry” **C.A Rusinek**, M. Becker, R. Rechenberg, D. Zhao, K. Ojo, N. Kaval, and W.R. Heineman. *Electroanalysis*, **2016**, *28*, 2228-2236.

“Fabrication and characterization of boron doped diamond microelectrode arrays of varied geometry” **C.A Rusinek**, M. F. Becker, R. Rechenberg, T. Schuelke, *Electrochemistry Communications*, **2016**, *73*, 10-14.

“Determination of Lead with a Copper-Based Electrochemical Sensor” W. Kang, X. Pei, **C.A Rusinek**, A. Bange, E.N. Haynes, W.R. Heineman, I. Papautsky. *Analytical Chemistry*, **2017**, *89*, 3345-3352.

“Determination of Manganese by Cathodic Stripping Voltammetry on a Microfabricated Platinum Thin-film Electrode” W. Kang, **C.A Rusinek**, A. Bange, E.N. Haynes, W.R. Heineman, I. Papautsky. *Electroanalysis*, **2017**, *29*, 686-695.

“Cathodic Stripping Voltammetric Determination of Cerium Using Indium Tin Oxide (ITO)” K. Ojo, D. Zhao, **C.A Rusinek**, S.K. Pixley, W.R. Heineman, *Electroanalysis*, **2017**, *29*, 1124-1130.

“Determination of Manganese in Whole Blood by Cathodic Stripping Voltammetry with Indium Tin Oxide” **C.A Rusinek**, W. Kang, K. Nahan, M. Hawkins, C. Quartermaine, A. Stastny, A. Bange, I. Papautsky, W.R. Heineman, *Electroanalysis*, **2017**, *29*, 1850-53.

“Large-scale, All Polycrystalline Diamond Structures Transferred on Flexible Parylene-C Films for Neurotransmitter Sensing” B. Fan, Y. Zhu, R. Rechenberg, **C.A Rusinek**, M.F. Becker, W. Li, *Lab-on-a-Chip*, **2017**, *17*, 3159-3167.

“Isatin Detection using an All Boron-doped Diamond 3-in-1 Sensing Platform” M. Ensich, V.Y. Maldonado, G. M. Swain, R. Rechenberg, M.F. Becker, T. Schuelke, **C.A Rusinek**, *Analytical Chemistry*, **2018**, *90*, 1951-1958.

“Analysis of Ag(I) Biocide in Water Samples using Anodic Stripping Voltammetry with a Boron-doped Diamond Disk Electrode” V.Y. Maldonado, P.J. Espinoza, **C.A Rusinek**, G.M. Swain, *Analytical Chemistry*, **2018**, 90 (11), 6477–6485.

“All Diamond Microfiber Electrodes for Neuroelectrochemistry” **C.A Rusinek**, Y. Guo, R. Rechenberg, E. Purcell, C. McKinney, M.F Becker, W. Li, *Journal of the Electrochemical Society*, **2018**, 165 (12), G3087-G3092. *This article is part of the JES Focus Issue on the Brain and Electrochemistry honoring Prof. R. Mark Wightman and Prof. Christian Amatore.

“Indium Tin Oxide Film Characteristics for Cathodic Stripping Voltammetry” M. Ensich, B. Wehring, G.D Landis, M.F Becker, T. Schuelke, **C.A Rusinek**, *ACS Applied Materials and Interfaces*, **2019**

IN PROGRESS (SUBMITTED)

“Techno-economic Analysis of Electrocoagulation on Water Reclamation and Pathogen Reduction of a High-Strength Organic Wastewater” S. Uludag-Demirer, N. Olson, R. Ives, J.P Nshimyimana, **C.A Rusinek**, J. Rose, and W. Liao, Submitted- Journal of Environmental Management, June 2018.

“A Combined Current Density Technique for the Electrochemical Oxidation of Perfluorooctanoic Acid” M. Ensich, M.F Becker, T. Schuelke, and **C.A Rusinek**. Submitted- Chemical Engineering Journal

“The Role of Near Electrode Solution Chemistry on Bacteria Attachment and Inactivation at Low Applied Potentials” M.H Lin, S. Mehraeen, G. Cheng, **C.A Rusinek**, and B.P Chaplin, Submitted- ACS Applied Materials and Interfaces

“Chemical Analysis with Flexible, Wearable Boron-Doped Diamond Sensors” **C.A Rusinek**, J. Gopinath, G. Landis, Y. Guo, M.F Becker, R. Rechenberg, W. Li. Submitted- ACS Sensors

INVITED SEMINAR PRESENTATIONS

“New Avenues in Heavy Metal Electroanalysis: Stripping Voltammetry of Cadmium, Lead and Manganese” **C.A Rusinek**, W.R Heineman *Xavier University Department of Chemistry*, Cincinnati, OH. October 16, 2015.

“PFAS Remediation at MSU-Fraunhofer: Electrochemical Destruction with Boron-doped Diamond Electrodes” **C.A Rusinek**, M. Ensich, M.F Becker, T. Schuelke. *Michigan State University Bioeconomy Institute*, Holland, MI. November 28th, 2018.

“PFAS Remediation at MSU-Fraunhofer: Electrochemical Destruction with Boron-doped Diamond Electrodes” **C.A Rusinek**, M. Ensich, M.F Becker, T. Schuelke. *Michigan State University Department of Chemistry*, East Lansing, MI. January 25th, 2019.

“PFAS Remediation at MSU-Fraunhofer: Electrochemical Destruction with Boron-doped Diamond Electrodes in Complex Samples” **C.A Rusinek**, M. Ensich, V.Y Maldonado, M.F Becker, T. Schuelke. *University of Illinois at Urbana-Champaign, Illinois Sustainable Technology Center, Prairie Research Institute*, Champaign, IL. April 18th, 2019.

“PFAS Remediation at MSU-Fraunhofer: Electrochemical Destruction with Boron-doped Diamond Electrodes in Complex Samples” **C.A Rusinek**, M. Ensich, V.Y Maldonado, M.F Becker, T. Schuelke. *National Environmental Monitoring Conference 2019*, Jacksonville, FL. August 7th, 2019.

ORAL PRESENTATIONS

“Cloud Point Extraction for Electroanalysis: Anodic Stripping Voltammetry of Cadmium” **C.A Rusinek**, A. Bange, I. Papautsky, and W.R Heineman. *Selected Student Speaker, ElectrochemOhio Conference*, Columbus, OH. September 19, 2014.

“Cloud Point Extraction for Electroanalysis: Anodic Stripping Voltammetry of Cadmium” **C.A Rusinek**, A. Bange, I. Papautsky, and W.R Heineman. *Pittcon 2015*, New Orleans, LA. March 12, 2015.

“Cloud Point Extraction for Electroanalysis: Anodic Stripping Voltammetry of Cadmium” **C.A Rusinek**, A. Bange, I. Papautsky, and W.R Heineman. *ACS National Meeting*. Denver, CO. March 25, 2015. (Session Presider for “Advances in Electrochemistry” Session).

“Trace Detection of Manganese using Cathodic Stripping Voltammetry with an Indium Tin Oxide Working Electrode Coated with a Charge Selective Polymer Film” **C.A Rusinek**, A. Bange, M. Warren, W. Kang, K. Nahan, I. Papautsky, W.R Heineman. *ACS National Meeting*. Boston, MA. August 20, 2015.

“Cloud Point Extraction for Electroanalysis: Anodic Stripping Voltammetry of Lead” **C.A Rusinek**, M. Warren, A. Bange, W. Kang, I. Papautsky, and W.R Heineman. *Pittcon 2016*, Atlanta, GA. March 08, 2016.

“Rapid Detection of Toxic Heavy Metals with Boron-doped Diamond Microelectrode Arrays of Varied Geometry” **C.A Rusinek**, M.F Becker, M. Ensich, R. Rechenberg, A. Hardy, B. Wehring, and T. Schuelke. *Pittcon 2017*, Chicago, IL. March 06, 2017.

“Rapid Detection of Toxic Heavy Metals with Boron-doped Diamond Sensors” **C.A Rusinek**, M.F Becker, M. Ensich, R. Rechenberg, A. Hardy, B. Wehring, and T. Schuelke. *MSU-Fraunhofer Diamond Seminar Series*, East Lansing, MI. March 24, 2017.

“Rapid Detection of Toxic Heavy Metals with Boron-doped Diamond Microelectrode Arrays of Varied Geometry” **C.A Rusinek**, M.F Becker, M. Ensich, R. Rechenberg, A. Hardy, B. Wehring, and T. Schuelke. *ACS CERM 2017*, Dearborn, MI. June 09, 2017.

“Determination of Manganese in Whole Blood by Cathodic Stripping Voltammetry with Indium Tin Oxide” **C.A Rusinek**, W. Kang, M. F. Becker, B. Wehring, I. Papautsky, A. Bange, T. Schuelke, and W.R Heineman. *ACS CERM 2017*, Dearborn, MI, June 09, 2017.

“Rapid Detection of Lead with Boron-doped Diamond Sensors” **C.A Rusinek**, M.F Becker, M. Ensich, R. Rechenberg, A. Hardy, B. Wehring, and T. Schuelke. *Invited speaker, Condias GmbH Diamond Workshop*, Itzehoe, Germany. June 21, 2017.

“Determination of Manganese in Whole Blood by Stripping Analysis with Indium Tin Oxide” **C.A Rusinek**, W. Kang, M. F. Becker, B. Wehring, I. Papautsky, A. Bange, T.

Schuelke, and W.R Heineman. *232nd ECS National Meeting*, National Harbor, MD. October 02, 2017.

“Rapid Detection of Toxic Heavy Metals with Boron-doped Diamond Sensors” **C.A Rusinek**, M.F Becker, M. Ensich, R. Rechenberg, A. Hardy, B. Wehring, and T. Schuelke. *232nd ECS National Meeting*, National Harbor, MD. October 03, 2017.

“Flexible Boron-doped Diamond Sensors for Neurotransmitter Detection: Fabrication and Characterization” **C.A Rusinek**, M.F Becker, B. Fan, W. Li, Y. Guo, R. Rechenberg. *232nd ECS National Meeting*, National Harbor, MD. October 03, 2017.

“Diamond and Diamond-Like Electrodes for Water and Wasterwater Treatment” M. Ensich, **C.A Rusinek**, M.F Becker. *MSU-Fraunhofer Diamond Seminar Series*, East Lansing, MI. December 08, 2017.

“Boron-doped Diamond Electrodes for Neurotransmitter Sensing” **C.A Rusinek**, B. Fan, Y. Guo, M.F Becker, R. Rechenberg, W. Li. *MSU-Fraunhofer Boron-Doped Diamond Workshop*, East Lansing, MI. July 10th, 2018.

POSTER PRESENTATIONS

“Anodic Stripping Voltammetry of Cadmium After a Ligandless Cloud Point Extraction” **C.A Rusinek**, A. Bange, I. Papautsky, and W.R Heineman. *Pittcon 2014*, Chicago, IL. March 3, 2014.

“Spectroelectrochemical Sensing with a Boron Doped Diamond Optically Transparent Electrode Coated with a Charge Selective Polymer Film” **C.A. Rusinek**, M. Becker, R. Rechenberg, D. Zhao, K. Ojo, N. Kaval, and W.R. Heineman. *Pittcon 2015*, New Orleans, LA. March 9, 2015.

“Bare and Polymer-Coated Indium Tin Oxide as Working Electrodes for Manganese Cathodic Stripping Voltammetry” **C.A Rusinek**, A. Bange, M. Warren, K. Nahan, W. Kang, I. Papautsky, and W.R Heineman. *ACS Sensors Meeting*, Cincinnati, OH. January, 2016.

“Polymer Coated Boron Doped Diamond Optically Transparent Electrodes for Spectroelectrochemistry” **C.A. Rusinek**, M.F Becker, R. Rechenberg, D. Zhao, K. Ojo, N. Kaval, and W.R. Heineman. *Pittcon 2016*, Atlanta, GA. March 07, 2016.

“Cloud Point Extraction for Electroanalysis: Anodic Stripping Voltammetry of Lead” M. Warren, **C.A Rusinek**, A. Bange, W. Kang, I. Papautsky, and W.R Heineman. *ACS National Meeting*. San Diego, CA. March, 14, 2016.

“Robust Diamond Electrodes for Electrochemical Applications” **C.A Rusinek**, M.F Becker, R. Rechenberg, A. Hardy, M. Ensich, and T. Schuelke. *Pittcon 2017*, Chicago, IL. March 06, 2017.

“Robust Diamond Electrodes for Electrochemical Applications” M. Ensich, **C.A Rusinek**, M.F Becker, R. Rechenberg, A. Hardy, and T. Schuelke. *ACS CERM 2017*, Dearborn, MI, June 09, 2017.

“Robust Diamond Electrodes for Electrochemical Applications” M. Ensich, **C.A Rusinek**, M.F Becker, R. Rechenberg, A. Hardy, and T. Schuelke. *232nd ECS National Meeting*, National Harbor, MD. October 03, 2017.

“Polymer Coated Boron Doped Diamond Optically Transparent Electrodes for Spectroelectrochemistry” **C.A. Rusinek**, M.F Becker, R. Rechenberg, D. Zhao, K. Ojo, N. Kaval, and W.R. Heineman. *232nd ECS National Meeting*, National Harbor, MD. October 04, 2017.

“Degradation of Per- and Polyfluoroalkyl Substances at Differing Current Densities Using a Boron-Doped Diamond Electrode Stack” M. Ensched, **C.A Rusinek**, M.F Becker, and T. Schuelke. *12th New Diamond and Nano Carbons Conference*, Flagstaff, AZ. May 24, 2018.

“Metals Toxicology Assessment with Electrochemical and Electroanalytical Methods: Introductory Studies for Novel Device Development” **C.A Rusinek**, M.F Becker, M. Ensched, and T. Schuelke. *2018 Military Health System Research Symposium*, Orlando, FL. August 21-22, 2018.

“Isatin Detection with a 3-in-1 Boron-doped Diamond Sensing Platform” M. Ensched*, V.Y Maldonado, M.F Becker, R. Rechenberg, G.M Swain, T. Schuelke, and **C.A Rusinek**. *69th Annual Meeting of the International Society of Electrochemistry*, Bologna, Italy. September 2-7, 2018. **Travel grant award received from ISE Division 1**

“Neurochemical Analysis with All-Diamond Microfiber Electrodes” **C.A Rusinek**, M.F Becker, J. Gopinath, M.B Setien, S. Daniels W. Li, Y. Guo, R. Rechenberg, E.K Purcell, W. Li. Neuroscience 2018- Society for Neuroscience, San Diego, CA. November 3-7, 2018.

“The Biocompatibility of Diamond Ultramicroelectrode Materials for Neural Sensing applications” M.B Setien, S. Daniels, **C.A Rusinek**, Y. Guo, R. Rechenberg, M.F Becker, W. Li, E.K Purcell. Neuroscience 2018- Society for Neuroscience, San Diego, CA. November 3-7, 2018.

“Mechanical Characteristics of Microfabricated Diamond Ultramicroelectrode Fibers for Neural Sensing Applications” W. Li, Y. Guo, R. Rechenberg, **C.A Rusinek**, M.B Setien, S. Daniels, M.F Becker, E.K Purcell. Neuroscience 2018- Society for Neuroscience, San Diego, CA. November 3-7, 2018.

ACTIVITIES

Member- American Chemical Society- August 2012- Present. Member- Alpha Chi Sigma (Gamma Chapter)- August 2011- Present. Member- International Society of Electrochemistry- February 2017-Present. Member- Society for Electroanalytical Chemistry March 2016-Present. Member- Society for Neuroscience- February 2018- Present. Captain, Lake Erie College Men’s Lacrosse Team (NCAA D-II)- August 2008- May 2010.

SOCIAL MEDIA

LinkedIn: <https://www.linkedin.com/in/cory-rusinek-1b89ab75/>

Google Scholar: <https://scholar.google.com/citations?user=uZyA2VUAAAAJ&hl=en>

NEWS ARTICLES

“Diamond technology cleans up PFAS contaminated wastewater”

<https://msutoday.msu.edu/news/2018/diamond-technology-cleans-up-pfas-contaminated-wastewater/>

“No one solution to PFAS”

<https://www.grandhaventribune.com/Environment/2018/12/08/Scientist-no-one-solution-to-PFAS>

“Forever chemicals’ no more? These technologies aim to destroy PFAS in water”

<https://cen.acs.org/environment/persistent-pollutants/Forever-chemicals-technologies-aim-destroy/97/i12>

“In quest to destroy PFAS, MSU diamond tech shows promise”

<https://www.mlive.com/news/2019/05/in-quest-to-destroy-pfas-msu-diamond-tech-shows-promise.html>

“Researchers seek PFAS solutions as they try to break down the 'forever chemical'”

<https://www.freep.com/story/news/local/michigan/2019/05/31/pfas-contamination-forever-chemical/3770012002/>