**Caitlyn M. Montross**

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**Education:**

University at Buffalo, The State University of New York, Buffalo, NY

Ph.D. Medicinal Chemistry December 2016

University at Buffalo, The State University of New York, Buffalo, NY

B.S./M.S. Medicinal Chemistry May 2013

**Research:**

Synthesis and characterization of xerogel materials for use as foul-release and anti-fouling coatings.

* Utilized spin coating, dip coating, or brush coating to apply xerogel films onto a variety of substrates.
* Employed Nuclear Magnetic Resonance Spectroscopy and Liquid Chromatography Mass Spectrometry to characterize synthesized silanes and organic molecules.
* Operated Contact Angle Goniometer to obtain contact angles and surface energies for surface characterization.
* Used X-ray Photoelectron Spectroscopy to identify the chemical composition of the surface.
* Utilized profilometry and ellipsometry to identify the thickness of the coatings.

Halogenation Catalysis

* Designed and synthesized organochalcogen catalysts as well as transition metal catalysts that were sequestered in xerogels for the production of positively charged halide species to act as a negative settlement cue towards fouling organisms.
* Evaluated catalysts through rate of positive halide production, longevity, and effectiveness towards deterring fouling organisms from settling on a surface.

 Materials Approach to Dissecting Surface Responses During Attachment of Biofouling Organisms

* Designed and synthesized xerogel materials spanning a wide range of surface properties.
* Evaluated these coatings through settlement assays utilizing *Amphibalanus amphitrite*, *Amphibalanus improvisus*, *Bugula neritina*, *Ulva linza* and *Navicula incerta*.
* Interpreted multivariate analyses of the biological and surface characterization results utilizing Principal Coordinate Analysis and Canonical Analysis of Principal Coordinates.

**Peer-Reviewed Publications:**

Gatley-Montross, Caitlyn M.; Finlay, John A.; Aldred, Nick; Destino, Joel F.; Orihuela, Beatriz; Hickner, Michael A.; Clare, Anthony S.; Rittschof, Daniel; Holm, Eric R.; Detty, Michael R. Multivariate analysis of attachment of biofouling organisms in response to material surface characteristics. *Biointerphases*, **2017**, 12, 051003.

Destino, Joel F.; Jones, Zachary R.; Gatley, Caitlyn M.; Zhang, Yi; Craft, Andrew K.; Detty, Michael R.; Bright, Frank V., [Hybrid Sol-​gel Derived Films That Spontaneously Form Complex Surfaces Topographies](https://scifinder-cas-org.gate.lib.buffalo.edu/scifinder/references/answers/2F636E3CX86F350B0X74BD1FB02E51872075%3A2F642E25X86F350B0X22F6371917BC8A4F7C/1.html?nav=eNpb85aBtYSBMbGEQcXIzczEyNXINMLCzM3Y1MDJIMIIKGRsbmhpaO7kbOFo4mbuDFSaVFzEIJiVWJaol5OYl67nmVeSmp5aJPRowZLvje0WTAyMngysZYk5pakVRQwCCHV-pblJqUVta6bKck950M3EwFBRwMDAwAw0MKOEQdoxNMTDPyje0y_M1S8EyPDzj3cP8g8N8PRzL2HgzMwtyC8qAZpQXMhQx8AM1McAFM3OLQhKLUQRBQA0bTtH&key=caplus_2016:1482168&title=SHlicmlkIFNvbC1nZWwgRGVyaXZlZCBGaWxtcyBUaGF0IFNwb250YW5lb3VzbHkgRm9ybSBDb21wbGV4IFN1cmZhY2VzIFRvcG9ncmFwaGllcw&launchSrc=reflist&pageNum=1&sortKey=ACCESSION_NUMBER&sortOrder=DESCENDING). *Langmuir*, **2016**, *32* (39), 10113–10119.

Damon, C. A.; Gatley, C. M.; Beres, J. J.; Finlay, J. A.; Franco, S. C.; Clare, A. S.; Detty, M. R., The performance of hybrid titania/silica-derived xerogels as active antifouling/fouling-release surfaces against the marine alga Ulva linza: in situ generation of hypohalous acids. *Biofouling*, **2016**, 32(8), 883-896.

Gatley, C. M.; Muller, L. M.; Lang, M. A.; Alberto, E. E.; Detty, M. R., Xerogel-Sequestered Silanated Organochalcogenide Catalysts for Bromination with Hydrogen Peroxide and Sodium Bromide. *Molecules*, **2015**, 20(6), 9616-9639.

Destino, Joel F.; Gatley, Caitlyn M.; Craft, Andrew K.; Detty, Michael R.; Bright, Frank V., Probing Nanoscale Chemical Segregation and Surface Properties of Antifouling Hybrid Xerogel Films. *Langmuir*, **2015**, 31(11), 3510-3517.

Evariste, E.; Gatley, C. M.; Detty, M. R.; Callow, M. E.; Callow, J. A., The performance of aminoalkyl/fluorocarbon/hydrocarbon-modified xerogel coatings against the marine alga *Ectocarpus crouaniorum*: relative roles of surface energy and charge. *Biofouling,* **2013,** *29*(2), 171-84.

**Research Presentations:**

Oral Presentations

Office of Naval Research Review Meeting, Arlington, VA December 2016

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Navy Undersea Research Program Review, Seattle, WA June 2016

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Graduate Student Symposium, Buffalo, NY May 2016

Developing a Sensory Architecture for Response of Larval Barnacles *Amphibalanus amphitrite* to Surface Properties

Navy Undersea Research Program Review, Arlington, VA June 2015

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Office of Naval Research Review Meeting, Arlington, VA June 2015

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Graduate Student Symposium, Buffalo, NY May 2015

Multivariate Analysis of Attachment of Biofouling Larvae in Response to Material Surface Characteristics – Field Assay

ONR University Laboratory Initiative Program Review, Newport, RI June 2014

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Office of Naval Research Review Meeting, Charleston, SC June 2014

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Graduate Student Symposium, Buffalo, NY May 2014

Multivariate Analysis of Attachment of Biofouling Larvae in Response to Material Surface Characteristics

Graduate Student Symposium, Buffalo, NY May 2013

Evaluation of Xerogel Sequestered Selenoxides and Seleninic Acids for Catalytic Brominations with Hydrogen Peroxide and Sodium Bromide

ONR University Laboratory Initiative Program Review, Washington D.C. June 2013

Materials Approach to Dissecting Surface Responses in the Attachment Stages of Biofouling Organisms

Graduate Student Symposium, Buffalo, NY May 2012

The Effect of Charged Xerogel Side Chains on the Adhesion Strength of the Brown Alga, *Ectocarpus crouaniorum*

Poster Presentations

14th Pacific Polymer Pacific Conference, Poipu, HI December 2015

Multivariate Analysis of Attachment of Biofouling Larvae in Response to Material Surface Characteristics

Society for Integrative and Comparative Biology , West Palm Beach, FL January 2015

Multivariate Analysis of Attachment of Biofouling Larvae in Response to Material Surface Characteristics

Master’s Student Symposium, Brockport, NY April 2012

The Effect of Positively Charged and Non-positively Xerogel Side Chains on the Adhesion Strength of the Brown Alga, *Ectocarpus crouaniorum*

16th International Congress on Marine Corrosion and Fouling, Seattle, WA June 2012

The Effect of Charged Xerogel Side Chains on the Adhesion Strength of the Brown Alga, *Ectocarpus crouaniorum*

Office of Naval Research Workshop, Las Vegas, NV December 2011

The Effect of Charged and Uncharged Xerogel Surfaces on the Adhesion Strength of the Brown Alga, *Ectocarpus crouaniorum*

**Teaching Experience:**

Visiting Assistant Professor of Chemistry, Daemen College 2017 – present

* General Chemistry
* Organic Chemistry
* Bioorganic Chemistry
* Biomaterials

Visiting Assistant Professor of Chemistry, Daemen College 2016 - 2017

* Organic Chemistry
* Bioorganic Chemistry

Temporary lecturer, University at Buffalo, The State University of New York July 2016

* General Chemistry; lectured chemical kinetics and equilibrium

Teaching Assistant, University at Buffalo, The State University of New York 2012-2013

* Organic Chemistry

**Professional Organizations:**

American Chemical Society (member since 2015)

American Vacuum Society (member since 2017)

**Awards:**

* University Laboratory Initiative (Navy Undersea Research Program) Fellowship 2013-2015
* Naval Research Enterprise Internship Program 2013-2015

**Service:**

Natural Science Department Marketing Committee 2017-present

Committee for Academic Standards-Undergraduate 2018-present