

D.W. Rowlands

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PO Box 1205
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EDUCATION

- University of Maryland, Baltimore County (UMBC)** **May 2021**
M.S. in Human Geography *Catonsville, MD*
• Research Advisor: Professor Dillon Mahmoudi *GPA: 4.0/4.0*
• Thesis Topic: GIS-based typology of US metro areas and neighborhoods
- Massachusetts Institute of Technology (MIT)** **September 2015**
M.S. in Physical Chemistry *Cambridge, MA*
• Research Advisor: Professor Sylvia Ceyer *GPA: 4.7/5.0*
• Thesis Topic: etching and oxidation of silicon by molecular beams in ultra-high vacuum
- California Institute of Technology (Caltech)** **June 2009**
B.S. with Honors in Chemistry with Minor in History *Pasadena, CA*
• Research Advisor: Professor Daniel Weitekamp *GPA: 3.7/4.0*
• Thesis Topic: NMR hyperpolarization
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WORK EXPERIENCE

- Brookings Institution Metropolitan Policy Program** **June 2020–Present**
Research Intern and Research Assistant *Washington, DC*
• Performed GIS analyses of jobs and economic data for studies of US metro areas.
• Authored reports and blog posts for publication on the Brookings website.
- University of Maryland, Baltimore County (UMBC)** **Aug 2016–Aug 2019**
Visiting Lecturer in Physical and Analytical Chemistry *Catonsville, MD*
• Taught general chemistry lab and lecture with flipped-classroom techniques.
• Taught analytic chemistry lab and lecture for juniors, focusing heavily on error analysis and wetlab technique, and instrumental analysis lab for seniors.
• Taught a two-semester physical chemistry lab course with lecture component for juniors, focused on instrumentation techniques, MATLAB, and formal report-writing.
• Helped organize and mentor students in SCIART undergrad summer research program.
- Anne Arundel Community College** **Sep 2015–May 2016**
Adjunct Professor of Physical Science *Arnold, MD*
• Taught remedial physics, covering algebra, trigonometry, and Newtonian mechanics.
• Taught introductory physical science lab and general chemistry lecture.
- Massachusetts Institute of Technology (MIT)** **Jan 2010–Jan 2015**
Graduate Research Assistant in Chemistry Department, Ceyer Lab *Cambridge, MA*
• Repaired and operated an ultra-high vacuum molecular beam set-up.
• Repaired and maintained electronics and power supplies.
• Rebuilt an Auger electron spectrometer and repaired its control electronics.
• Designed and programmed a classical dynamics simulation in Python.

TECHNICAL PUBLICATIONS

D.W. Rowlands and T.H. Loh (2021). “Reinvesting in Urban Cores Can Revitalize Entire Regions.” Research Report, Brookings Institution Metropolitan Policy Program, Washington, DC.

D.W. Rowlands (2021). *A Nation of Neighborhoods: A Quantitative Understanding of US Neighborhoods and Metropolitan Areas*. MS Thesis, University of Maryland, Baltimore County, Catonsville, MD.

D.W. Rowlands and T.H. Loh (2020). “Retail Revolution: The New Rules of Retail Call for Small Business Empowerment.” Research Report, Brookings Institution Metropolitan Policy Program, Washington, DC.

D.W. Rowlands (2020). “Understanding Walkable Density.” Research Report, City Observatory, Portland, OR.

D.W. Rowlands (2015). *Xenon Difluoride Etching and Molecular Oxygen Oxidation of Silicon by Reactive Scattering*. MS Thesis, Massachusetts Institute of Technology, Cambridge, MA.

D.W. Rowlands (2009). *Producing Safe Spin-Polarized Metabolites for Magnetic Resonance Imaging*. BS Thesis, California Institute of Technology, Pasadena, CA.

NON-ACADEMIC WRITING EXPERIENCE

Greater Greater Washington

Jun 2016–Present

Contributor

Washington, DC

- Five articles on the Prince George’s County library system history, Nov–Dec 2020.
- Three articles on 1940’s subway proposed for the DC region, April–May 2019.
- Seven-article series (w/David Alpert) proposing DC bus improvements, Sep–Oct 2018.
- Nine articles on the history of rail transit in Baltimore and DC, 2016–2018.
- Seven articles on historical and current place names in the DC region, 2017–2018.
- Eight-article series (w/Tracy Hadden-Loh), discussing problems with Prince George’s County’s TheBus bus service, and proposing improvements, April–June 2018.
- All articles online at <https://ggwash.org/contributors/drowlands/>.

DC Policy Center

Jan 2017–Present

Fellow

Washington, DC

- Article on 2020 Census self-response rates in the DC region, May 2020.
- Article on the history of regional transit proposals in the DC region, February 2020.
- Four-article series on the demographic history of the DC area, July 2019–January 2020.
- Seven-article series on circumferential transit in the DC area, discussing possibilities for improved service and capital investment, February–March 2019.
- Five-article series on DC-area transit fares and service cuts, with comparisons to other transit systems nationwide, March–May 2017.
- All articles are online at <https://www.dcpolicycenter.org/people/dw-rowlands/>.

AWARDS AND HONORS

UMBC Grad Student Association Special Award for Outstanding Achievement (2021)

MIT Teaching and Learning Lab Graduate Student Teaching Certificate (2014)

MIT Chemistry Department Outstanding Teaching Award (2012-2013)

MIT Energy Initiative Fellowship (2010-2011)

Dow-Corning Foundation Fellowship (2010)

MIT Presidential Fellowship (2009-2010)

LEADERSHIP AND SERVICE

UMBC All-Gender Restrooms Steering Committee **Feb 2019–Present**
Faculty and then Grad Student Committee Member *Catonsville, MD*

- Participated in planning and implementing a strategy to open an all-gender restroom in every building on campus.

PG County Advocates for Community-Based Transit **Sep 2015–Sep 2017**
Member of the Advisory Board *Hyattsville, MD*

- Work on advertising/awareness building and social media for a transit advocacy group.
- Provided advice and recommendations to the director as member of the advisory board.

MIT Graduate Student Council (GSC) **Oct 2013–Jan 2015**
General Council Representative and Member of the Funding Board *Cambridge, MA*

- Represented the Chemistry Department and served on the GSC Housing and Community Affairs committee and the GSC Transportation subcommittee.
- Represented the GSC on the MIT Campus Activities Complex Advisory Board.
- Served as the General Council's representative on the six-member GSC Funding Board

MIT Science Fiction Society **Jan 2010–Jan 2015**
President, Vice President, and Secretary *Cambridge, MA*

- Co-ordinated a major rearrangement of a 60,000-book library to increase shelf space with fixed floor space and improve the organization and navigability of the collection.
- Arranged author visits and talks and organized the annual post-elections retreat.

MIT Association of Student Activities (ASA) **Oct 2011–Oct 2013**
Treasurer and Student Member at Large *Cambridge, MA*

- Chaired the Large Events Fund and Cultural and Diversity Events Funding Board, and prepared allocations totaling \$175,000 to student-run events over the course of a year.
- Served on all student group funding boards and represented the ASA to administration.
- Organized the reallocation of office space to student groups.
- Chaired the ASA committee in charge of recognizing new student groups.

SKILLS AND TECHNICAL EXPERIENCE

Programming and Computer Proficiency:

- Geographic Information System (GIS) mapping and analysis using QGIS and ArcGIS.
- Geographic Information System (GIS) mapping and analysis using R and R Markdown.
- Data analysis and plotting in Microsoft Excel
- Document production in Microsoft Word
- Document production in LaTeX
- Raster image editing in GIMP

Programming and Computer Experience:

- Data analysis and plotting in IgorPro
- Computer-aided design and drafting in VectorWorks
- Programming in Labview
- Programming in Matlab
- Programming in Python

Ultra-High Vacuum Experience:

- Leak-checking and internal repairs on UHV systems
- Repairing and rebuilding mechanical vacuum pumps
- Repairing and rebuilding ionization vacuum pumps
- Repairing and rebuilding oil diffusion pumps.

Spectrometry Experience:

- Repairing a differentially-pumped, TOF-capable quadrupole mass spectrometer
- Performing time-of-flight and thermal desorption mass spectrometry experiments
- Performing He diffraction experiments with a mass spectrometer
- Repairing and rebuilding an Auger electron spectrometer
- Performing Auger electron spectrometry experiments

General Laboratory Experience

- Working with toxic chemicals, including F₂ and HF gas
- Working with cryogenics, particularly liquid N₂
- Working and performing repairs in confined spaces