

Leah G. Dodson

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APPOINTMENTS

University of Maryland <i>Assistant Professor, Department of Chemistry & Biochemistry</i>	College Park, MD <i>Aug. 2019–Present</i>
NIST, JILA, and University of Colorado Boulder <i>Postdoctoral Research Associate, NIST NRC Fellow</i> Research Advisor: J. Mathias Weber	Boulder, CO <i>Aug. 2016–Jun. 2019</i>
Sandia National Laboratories <i>Summer Research Intern, Combustion Research Facility</i> Research Advisors: David L. Osborn and Leonid Sheps	Livermore, CA <i>May 2015–Aug. 2015</i>

EDUCATION

California Institute of Technology <i>Ph.D. in Chemistry</i> Dissertation title: “Gas Phase Spectroscopy and Kinetics of Atmospheric Radicals” Committee: Mitchio Okumura (Advisor), Paul O. Wennberg, Brian M. Stoltz, Geoffrey A. Blake (Chair)	Pasadena, CA <i>June 2016</i>
Case Western Reserve University <i>B.S. in Chemistry, with Honors, Minor in Physics</i> Research Advisor: Carlos E. Crespo-Hernández	Cleveland, OH <i>May 2010</i>

AWARDS AND HONORS

UMD College of Computer, Mathematical, and Natural Sciences Board of Visitors <i>Junior Faculty Award winner</i>	2023
Department of Energy <i>Early Career Award winner</i>	2023
UMD Graduate School <i>Faculty Mentor of the Year (nominee)</i>	2022
ACS Petroleum Research Fund <i>Doctoral New Investigator Award winner</i>	2022
ACS Committee on the Petroleum Research Fund <i>Certificate of Recognition for Excellence in Peer Reviewing</i>	2021
Broadening Participation: 2020 MPS Workshop <i>Top Mock Proposal—Panel P01CHE</i>	2020
International Symposium on Molecular Spectroscopy <i>Miller Prize winner</i>	2017
National Institute of Standards and Technology NRC Research Associateship Program <i>Postdoctoral Fellow</i>	2016–2018
Caltech Center for Diversity <i>Dr. Helen McBride Outstanding Mentee Award winner</i>	2015
ACS Physical Chemistry Division <i>Outstanding Student Poster Award winner</i>	2014
Sandia National Laboratories/California Institute of Technology Excellence in Engineering Research Program <i>Campus Executive Fellow</i>	2014–2016

AGU Fall Meeting Outstanding Student Paper Awards winner	2013
NSF Graduate Research Fellowship Program Honorable Mention	2011
Environmental Protection Agency Science to Achieve Results Fellowships for Graduate Environmental Study Award winner	2011–2014
CWRU SOURCE Symposium and Poster Session Natural Sciences Poster Competition 1st Place winner	2010
CWRU Chemistry Department Hypercube Scholar	2010
Support of Undergraduate Research and Creative Endeavors Summer Research Fellowship winner	2009
Support of Undergraduate Research and Creative Endeavors Summer Research Fellowship winner	2008
CWRU Chemistry Department Analytical Chemistry Award winner	2008
National Merit Scholarship Competition Award winner	2006
Case Western Reserve University Presidential Scholarship winner	2006

PUBLICATIONS (most recent first)

- Hockey, E.K., McLane, N., Vlahos, K., McCaslin, L.M., Dodson, L.G., Matrix-Formation Dynamics Dictate Methyl Nitrite Conformer Abundance. ChemRxiv. DOI: 10.26434/chemrxiv-2023-4vtc9.
- Hockey, E.K., Vlahos, K., Howard, T., Palko, J., Dodson, L.G., Weakly Bound Complex Formation Between HCN and CH₃Cl: A Matrix-Isolation and Computational Study. *J. Phys. Chem. A* 126 (2022) 3110–3123. **Featured in the virtual issue Ten Years of the ACS PHYS Astrochemistry Subdivision.**
- Zagorec-Marks, W., Dodson, L.G., Weis, P., Schneider, E., Kappes, M., Weber, J. M., Intrinsic Structure and Electronic Spectrum of Deprotonated Biliverdin – Cryogenic Ion Spectroscopy and Ion Mobility, *J. Am. Chem. Soc.* 143 (2021) 17778–17785.
- Dodson, L.G., Zagorec-Marks, W., Xu, S., Smith, J.E.T., Weber, J.M., Intrinsic Photophysics of Nitrophenolate Ions Studied by Cryogenic Ion Spectroscopy, *Phys. Chem. Chem. Phys.* 20 (2018) 28535–28543. **Part of the 2018 PCCP HOT Articles collection.**
- Dodson, L.G., Thompson, M.C., Weber, J.M., Interactions of Molecular Titanium Oxides TiO_x (x = 1–3) with Carbon Dioxide in Cluster Anions, *J. Phys. Chem. A* 122 (2018) 6909–6917.
- Dodson, L.G., Savee, J.D., Gozem, S., Shen, L., Krylov, A.I., Taatjes, C.A., Osborn, D.L., Okumura, M., Vacuum Ultraviolet Photoionization Cross Section of the Hydroxyl Radical, *J. Chem. Phys.* 148 (2018) 184302.
- Dodson, L.G., Thompson, M.C., Weber, J.M., Titanium Insertion into CO Bonds in Anionic Ti-CO₂ Complexes, *J. Phys. Chem. A* 122 (2018) 2983–2991.
- Dodson, L.G., Thompson, M.C., Weber, J.M., Characterization of Intermediate Oxidation States in CO₂ Activation, *Ann. Rev. Phys. Chem.* 69 (2018) 231–252.
- Wennberg, P.O., Bates, K.H., Crouse, J.D., Dodson, L.G., McVay, R.C., Mertens, L.A., Nguyen, T.B., Praske, E., Schwantes, R.H., Smarte, M.D., St Clair, J.M., Teng, A.P., Zhang, X., Seinfeld, J.H., The Gas-Phase Reactions of Isoprene and Its Major Oxidation Products, *Chem. Rev.* 118 (2018) 3337–3390.
- Thompson, M.C., Dodson, L.G., Weber, J.M., Structural Motifs of [Fe(CO₂)_n][−] Clusters (n = 3–7), *J. Phys. Chem. A* 121 (2017) 4132–4138.
- Dodson, L.G., Shen, L., Savee, J.D., Eddingsaas, N.C., Welz, O., Taatjes, C.A., Osborn, D.L., Sander, S.P., Okumura, M., VUV Photoionization Cross Sections of HO₂, H₂O₂, and H₂CO, *J. Phys. Chem. A* 119 (2015) 1279–1291. **Featured in the virtual issue Probing the Fundamentals of Light-Matter**

Interactions.

12. Dodson, L.G., Vogt, R.A., Marks, J.A., Reichardt, C., Crespo-Hernández, C.E., Photophysical and Photochemical Properties of the Pharmaceutical Compound Salbutamol in Aqueous Solutions, *Chemosphere* 83 (2011) 1513–1523.

FUNDING

- **Department of Energy, Early Career Award**, 2023–2028, \$875,000, “A Captivating New Spin on Energy Storage” (DE-SC0024262).
- **U.S.-Israel Binational Science Foundation, Startup Research Grant**, 2023–2025, \$150,000, co-PI with Yuval Shagam (Dodson’s share: \$75,000), “Organo-Metallic Chiral Molecular Ion Generation for Probing Parity Non-Conservation.”
- **National Aeronautics and Space Administration, MUREP Curriculum Award**, 2023–2026, \$1,194,132, ‘Other Professional’ with Neeharika Thakur (Dodson’s share, \$85,088), “Establishing STEM Majors at Prince George’s Community College” (80NSSC23M0194).
- **National Science Foundation, CHEM (CSDM-A) INTERN Supplement**, 2023, \$49,336 (CHE-2154055).
- **ACS Petroleum Research Fund, Doctoral New Investigator**, 2022–2024, \$110,000, “Matrix-Isolation Studies of Weakly-Bound Complexes” (PRF-65547-DNI6).
- **National Science Foundation, CHEM (CSDM-A)**, 2022–2025, \$445,926 “New Technology for Exploring State-Dependent Reactivity in Radiative Association Reactions” (CHE-2154055).
- **Maryland Catalyst Fund New Directions Fund**, 2022–2023, \$21,069, “A Radical New Origin for Polycyclic Aromatic Hydrocarbons in Space.”
- **University of Maryland Faculty-Student Research Award**, 2021–2022, \$10,000, “A Universal Instrument for Studying Astrochemical Ion/Molecule Reactions.”

AWARDED BEAMTIME ALLOCATIONS

- Principal investigator for 19 shifts (Chemical Dynamics Beamline, Advanced Light Source, Berkeley, CA, USA, 2022–2023)

AWARDED USER ACCESS

- Principal investigator for Molecular Foundry access (Lawrence Berkeley National Laboratory, CA, USA, Spring–Summer 2022)

PAST COMPUTING GRANTS

- Principal investigator for 20,000 CPU hours project (XSEDE, USA, 2021–2022)

INVITED ORAL PRESENTATIONS

(Most recent first)

1. Johns Hopkins University Chemistry Department seminar, February 13, 2024 (forthcoming).
2. William and Mary Chemistry Department seminar, February 2, 2024 (forthcoming).
3. University of Wisconsin-Madison Chemistry Department seminar, October 10, 2023.
4. University of North Carolina Greensboro Chemistry Department seminar, September 8, 2023.
5. Invited talk at the Dynamics of Molecular Collisions Meeting, July 9, 2023.
6. Invited talk at the Atomic Physics Gordon Research Conference, June 14, 2023.
7. University of Maryland CMNS Science on Tap, April 10, 2023.
8. University of Maryland 3rd-Year Seminar, April 7, 2023.
9. Invited talk at the Gaseous Ions Gordon Research Conference, February 23, 2023.
10. ACS PHYS Division (Astrochemistry subdivision) monthly virtual Astrocheminar, February 8, 2023.
11. Lehigh University Chemistry Department seminar, February 7, 2023.
12. Millersville University Chemistry Department seminar, November 21, 2022.
13. Wayne State University Chemistry Department seminar, April 20, 2022.
14. Invited talk at the Chemical Society of Washington monthly meeting, March 29, 2022.
15. Invited talk at the Washington Chromatography Discussion Group, January 19, 2022.
16. Joint Quantum Institute seminar, December 13, 2021.
17. University of Virginia Chemistry Department seminar, November 12, 2021.
18. Rochester Institute of Technology School of Chemistry and Material Science seminar, October 26, 2021.
19. Penn State Behrend Chemistry Department seminar, September 28, 2021.
20. University of Rhode Island Chemistry Department seminar, September 20, 2021.
21. Invited talk at Middle Atlantic Regional Meeting of the American Chemical Society, June 10, 2021.
22. Rutgers University Physical Chemistry seminar, April 30, 2021.
23. Institute of Physical Chemistry Polish Academy of Sciences seminar, Warsaw, Poland, April 14, 2021.
24. Invited talk at 43rd COSPAR Scientific Assembly, Sydney, Australia, February 1, 2021.
25. University of Maryland Geology Department Seminar, December 9, 2020.
26. Invited talk at Astrochemistry Discussions Women in Astrochemistry Meet & Greet, May 20, 2020.
27. Hood College Department seminar, February 27, 2020.
28. George Mason University Chemistry & Biochemistry Department seminar, February 21, 2020.
29. Invited talk at The Molecular Underpinnings of Astrophysics meeting, Telluride, CO, January 8, 2020.
30. St. Mary's College of Maryland Chemical Literature course seminar, November 15, 2019.
31. Howard University Chemistry Department seminar, October 11, 2019.
32. American University Chemistry Department seminar, September 11, 2019.
33. Invited talk at the Young Chemist: Earth & Space Symposium, American Chemical Society Spring Meeting, Orlando, FL, April 3, 2019.
34. Invited talk at Sandia National Laboratories, February 13, 2019.
35. University of Maryland College Park Chemistry Department seminar, January 7, 2019.
36. Emory University Chemistry Department seminar, December 5, 2018.
37. University of Iowa Chemistry Department seminar, November 26, 2018.
38. Amherst College Chemistry Department seminar, October 26, 2018.
39. Miller Prize Talk, 73rd International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, June 21, 2018.
40. University of North Texas Chemistry Department seminar, February 1, 2018.

41. Invited talk at the Gaseous Ions: Structures, Energetics, & Reactions Gordon Research Conference, Ventura, CA, February 13, 2017.
42. Invited talk at the Pacific Conference on Spectroscopy and Dynamics, Asilomar, CA, January 20, 2017.
43. Invited talk at the NASA Jet Propulsion Laboratory, June 24, 2014.

MENTORING ACTIVITIES

Current PhD students:

1. Emily K. Hockey, Chemistry
2. Thomas Howard, Chemistry
3. Darya Kisuryna, Chemical Physics
4. Nathan McLane, Chemical Physics
5. Sanjana Maheshwari, Chemistry

Alumni:

Graduate students:

1. Jessica Palko, MS Chemistry

Undergraduate students:

1. Ece Melisa Kocak, Computer Science
2. Korina Vlahos, Chemistry
3. Trent Khanjar, Computer Engineering
4. Gregory Blake Pierpoint, Physics
5. Kevin Beck, Chemical Engineering
6. Hayden Whitley, Physics

Current undergraduate students:

1. Shannon Ganley, Chemistry
2. Matthew Dietrich, Chemistry
3. LeAnh Duckett, Chemistry
4. Santiago Lorenzi, Mechanical Engineering

Postdoctoral researchers:

1. Julianna Palotás

High school students:

1. Dev Wahi (ACS Project SEED)
2. Claire Deng

- Research mentor, Prince George's Community College (Largo, Maryland), provided honor's thesis and summer internship opportunities for five associate's degree students in collaboration with Prof. Nadene Houser-Archield
- Mentor, Females in Mass Spectrometry
- Mentor and mentee, Chemistry Women Mentorship Network

AWARDS WON BY TRAINEES

- Emily Hockey – UMD Ann G. Wylie Dissertation Fellowship
- Shannon Ganley – College Chemistry Achievement Award from the Chemical Society of Washington
- Shannon Ganley – 2023 Maryland Summer Scholars research award
- Thomas Howard – UMD Graduate School's Outstanding Research Assistant Award for AY 2022–23
- Emily Hockey – UMD Graduate School's Outstanding Research Assistant Award for AY 2021–22
- Korina Vlahos – College Chemistry Achievement Award from the Chemical Society of Washington
- Korina Vlahos – 2022 Maryland Summer Scholars research award

SERVICE AND SYNERGISTIC ACTIVITIES

- Editorial board member, *Journal of Molecular Spectroscopy*, September 2023–present.
- Special symposium organizer for “Inorganic and Organometallic Astrochemistry” symposium; four sessions organized with 36 speakers, American Chemical Society Fall meeting, August 2022.
- Special focus session organizer for “The Chemical Physics of Molecules in Space” symposium; four sessions organized with 35 speakers, American Physical Society March Meeting, March 2021.
- Reviewer for grant proposals from ACS Petroleum Research Fund, National Science Foundation, US Department of Defense, National Aeronautics and Space Administration, Air Force Office of Scientific Research.
- Referee for *Journal of Physical Chemistry*, *Journal of Molecular Spectroscopy*, *International Journal of Mass Spectrometry*, ACS Books, ACS Earth and Space Chemistry.

SERVICE TO THE UNIVERSITY OF MARYLAND

- Curriculum Committee, 2022–present
- Graduate Admissions Committee, 2019–2022
- Faculty Advisory Committee, 2021–2022, 2023–present
- Merit Pay and Awards Committee, 2020–2021
- Tenure-track and professional-track search committee member in Chemistry, 2020–present
- Department Chair search committee member in Chemistry, 2023–present
- Served on 11 PhD defense committees in Chemistry
- Served on 17 candidacy exam committees in Chemistry

TEACHING EXPERIENCE AT THE UNIVERSITY OF MARYLAND

- CHEM690 “Quantum Chemistry I”, 3 credits (Fall 2019, Fall 2020, Fall 2021)
- CHEM271 “General Chemistry and Energetics”, 2 credits (Spring 2021, Spring 2022, Fall 2022)
- CHEM482 “Physical Chemistry II”, 3 credits (Fall 2023)
- CHEM889/CHPH709 “Physical Chemistry Seminar”, 1 credit (Fall 2022, Spring 2023, Fall 2023)

(Last updated: December 14, 2023)