David Gohlke, Ph.D.

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Professional Appointments

4/25–present	Senior Principal Energy and Economic Analyst; Argonne National Laboratory, Transportation and Power Systems Division
4/22–3/25	Principal Energy and Environmental Analyst; Argonne National Laboratory, Energy Systems and Infrastructure Assessment Division
10/18–3/22	Energy and Environmental Analyst; Argonne National Laboratory, Energy Systems and Infrastructure Assessment Division
9/17–9/18	Associate Environmental Lifecycle Analyst; Argonne National Laboratory, Energy Systems Division
9/15–8/17	AAAS Science & Technology Policy Fellow; U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy, Vehicle Technologies Office
1/13–3/15	Postdoctoral scientist; Universität Regensburg, Fakultät für Physik

Education

12/2012	Ph.D. in Physics, The Ohio State University (OSU): "Tuning the Properties and Interactions of Manganese Acceptors in Gallium Arsenide with STM"
6/2009	M.S. in Physics, The Ohio State University
5/2006	B.S. in Physics and Mathematics, *magna cum laude*, Youngstown State University (YSU)

Publications

"Geospatial Analysis of Built Infrastructure and Modeled Household Driving Patterns," Michael Sansone, Milo Watson, David Gohlke, and Yan Zhou. Argonne National Laboratory Technical Report ANL-22/72 (2026).

"Fleet-Level Energy and Emissions Analysis of the US Off-Road Sector with VISION: Off-Road," Shashwat Tripathi, Christopher Kolodziej, David Gohlke, Andrew Burnham, Yan Zhou, and Douglas Longman. SAE Technical Paper 2025-01-8594, March (2025). doi:10.4271/2025-01-8594.

"Potential Adoption and Benefits of Co-Optimized Multimode Engines and Fuels for U.S. Light-Duty Vehicles," Doris Oke, Lauren Sittler, Troy R. Hawkins, George G. Zaimes, Hao Cai, Aaron Brooker, Douglas Longman, Ram Vijayagopal, David Gohlke, Emily Newes, Avantika Singh, Jennifer Dunn, and Daniel J. Gaspar. Energy & Fuels, November 5 (2024). doi:10.1021/acs.energyfuels.4c02837.

"Quantification of Commercially Planned Battery Component Supply in North America through 2035," David Gohlke, Rakesh Krishnamoorthy Iyer, Jarod Kelly, Astrid Pene Njine Monthe, Xinyi Wu, Tsisilile A. Barlock, and Charbel Mansour. Argonne National Laboratory Technical Report ANL-24/14 (2024).

"Securing Critical Materials for the U.S. Electric Vehicle Industry: A Landscape Assessment of Domestic and International Supply Chains for Five Key EV Battery Minerals," Tsisilile A. Barlock, Charbel Mansour, Matthew Riddle, Noel Crisostomo, Gavriella Keyles, Gravriella, David Gohlke, Yan Zhou, Bryant Polzin, and Dustin Weigl. Argonne National Laboratory Technical Report ANL-24/06 (2024).

"Refueling Infrastructure Deployment in Low-Income and Non-Urban Communities," David Gohlke, Yan Zhou, and Xinyi Wu. Argonne National Laboratory Technical Report ANL-24/15 (2024).

"Adoption of Plug-in Electric Vehicles: Local Fuel Use and Greenhouse Gas Emissions Reductions Across the U.S.," Xinyi Wu, Yan Zhou, and David Gohlke. Argonne National Laboratory Technical Report ANL/ESIA-24/1 (2024).

"Incorporating Social Vulnerability Variables in Measures to Quantify Access to Opportunities," Michael Sansone, David Gohlke, and Yan Zhou. Transportation Research Record, May (2023). doi:10.1177/03611981231168861.

"Mitigation of Emissions and Energy Consumption due to Light-duty Vehicle Size Increases," David Gohlke, Jarod Kelly, Thomas Stephens, Xinyi Wu, and Yan Zhou. Transportation Research. Part D, January (2023). doi:10.1016/j.trd.2022.103543.

"Assessment of Light-Duty Plug-In Electric Vehicles in the United States, 2010–2021," David Gohlke, Yan Zhou, Xinyi Wu, and Calista Courtney. Argonne National Laboratory Technical Report ANL-22/71 (2022).

"Regional Variation in Light-Duty Plug-in Electric Vehicle Emissions," David Gohlke, Xinyi Wu, Jarod Kelly, Logan Hennes, and Yan Zhou. Argonne National Laboratory Technical Report ANL-22/34 (2022).

"Using Mapping Tools to Prioritize Electric Vehicle Charger Benefits to Underserved Communities," Yan Zhou, David Gohlke, Michael Sansone, Jim Kuiper, and Margaret P. Smith. Argonne National Laboratory Technical Report ANL/ESD-22/10 (2022).

"Vehicle Residual Value Analysis by Powertrain Type and Impacts on Total Cost of Ownership," Luke Rush, Yan Zhou, and David Gohlke. Argonne National Laboratory Technical Report ANL/ESD-22/2 (2022).

"Shared Mobility Data Availability and Usage Trends," Luke Rush, Matthews Cribioli, David Gohlke, Yan Zhou, Jarod Kelly, and Xinyi Wu. Argonne National Laboratory Technical Report ANL/ESD-22/9 (2022).

"Domestic Sales Mix of Plug-In Electric Vehicles by Trim Variant and Vehicle Characteristics," Rebecca H. Schwartz, Matthews Cribioli, and David Gohlke. Argonne National Laboratory Technical Report ANL/ESD-21/5 (2021).

"Household Transportation Energy Affordability by Region and Socioeconomic Factors," Yan Zhou, Spencer Aeschliman, and David Gohlke. Transportation Research Record, July (2021). doi:10.1177/03611981211010186.

"Assessment of Light-Duty Plug-In Electric Vehicles in the United States, 2010–2020," David Gohlke and Yan Zhou. Argonne National Laboratory Technical Report ANL/ESD-21/2 (2021).

"Comprehensive Total Cost of Ownership Quantification for Vehicles with Different Size Classes and Powertrains," Andrew Burnham, David Gohlke, Luke Rush, Thomas Stephens, Yan Zhou, Mark A. Delucchi, Alicia Birky, Chad Hunter, Zhenhong Lin, Shiqi Ou, Fei Xie, Camron Proctor, Steven Wiryadinata, Nawei Liu, and Madhur Boloor. Argonne National Laboratory Technical Report ANL/ESD-21/4 (2021).

"Lithium-Ion Battery Supply Chain for E-Drive Vehicles in the United States: 2010–2020," Yan Zhou, David Gohlke, Luke Rush, Jarod Kelly, and Qiang Dai. Argonne National Laboratory Technical Report ANL/ESD-21/3 (2021).

"Affordability of Household Transportation Fuel Costs by Region and Socioeconomic Factors," Yan Zhou, Spencer Aeschliman, and David Gohlke. Argonne National Laboratory Technical Report ANL/ESD-20/11 (2020).

"Assessment of Light-Duty Plug-In Electric Vehicles in the United States, 2010–2019," David Gohlke and Yan Zhou. Argonne National Laboratory Technical Report ANL/ESD-20/4 (2020).

"Quantifying the impacts of micro- and mild- hybrid vehicle technologies on fleetwide fuel economy and electrification," Shiqi Ou, David Gohlke, and Zhenhong Lin. eTransportation, Volume 4, May 2020, 100058 (2020). doi:10.1016/j.etran.2020.100058

"Proposed Methodology for Assessing the Quantity of Available Lithium-ion Batteries for Recycling in the United States," Jarod C. Kelly, David Gohlke, Linda Gaines, Michael Wang. Systems Assessment Center, Argonne National Laboratory (2019).

"Assessment of Light-Duty Plug-In Electric Vehicles in the United States, 2010–2018," David Gohlke and Yan Zhou. Argonne National Laboratory Technical Report ANL/ESD-19/2 (2019).

"Assessing Energy Impacts of Connected and Automated Vehicles at the U.S. National Level—Preliminary Bounds and Proposed Methods," Thomas S. Stephens, Josh Auld, Yuche Chen, Jeffrey Gonder, Eleftheria Kontou, Zhenhong Lin, Fei Xie, Abolfazl (Kouros) Mohammadian, Ramin Shabanpour, and David Gohlke. In: Gereon Meyer and Sven Beiker (eds), Road Vehicle Automation 5. Lecture Notes in Mobility (2018).

"Impacts of Electrification of Light-Duty Vehicles in the United States, 2010 – 2017," David Gohlke and Yan Zhou. Argonne National Laboratory Technical Report ANL/ESD-18/1 (2018).

"Current and Future US Light-Duty Vehicle Pathways: Cradle-to-Grave Lifecycle Greenhouse Gas Emissions and Economic Assessment," Amgad Elgowainy, Jeongwoo Han, Jacob Ward, Fred Joseck, David Gohlke, Alicia Lindauer, Todd Ramsden, Mary J. Biddy, Mark Alexander, Steven Barnhart, Ian Sutherland, Laura Verduzco, and Timothy J. Wallington. Environ. Sci. Technol. 52 (4), 2392–2399 (2018).

"Vehicle Technologies and Fuel Cell Technologies Office Research and Development Programs: Prospective Benefits Assessment Report for Fiscal Year 2018," T.S. Stephens, A. Birky, and D. Gohlke. Argonne National Laboratory Technical Report ANL/ESD-17/22 (2017).

"Historical Review of the Transportation Analysis Fact of the Week, 1996–2017," David Gohlke and Stacy Davis. Oak Ridge National Laboratory Technical Report ORNL/TM-2017/695 (2017).

"The Importance of Powertrain Downsizing in a Benefit–Cost Analysis of Vehicle Lightweighting," J. Ward, D. Gohlke, and R. Nealer. JOM, 69, 6, 1065-1070 (2017). doi:10.1007/s11837-017-2330-x

"Estimated Bounds and Important Factors for Fuel Use and Consumer Costs of Connected and Automated Vehicles," T.S. Stephens, J. Gonder, Y. Chen, Z. Lin, C. Liu, and D. Gohlke. National Renewable Energy Lab Technical Report NREL/TP-5400-67216 (2016).

"Revolution Now: The Future Arrives for Five Clean Energy Technologies – 2016 update," Paul Donohoo-Vallett, Patrick Gilman, David Feldman, James Brodrick, David Gohlke, Roland Gravel, Amy Jiron, Carol Schutte, Sunita Satyapal, Tien Nguyen, Paul Scheihing, Blake Marshall, and Sarah Harman. U.S. Department of Energy Report DOE/EE-1478 (2016).

"Cradle-to-Grave Lifecycle Analysis of U.S. Light-Duty Vehicle-Fuel Pathways: A Greenhouse Gas Emissions and Economic Assessment of Current (2015) and Future (2025–2030) Technologies," A. Elgowainy, J. Han, J. Ward, F. Joseck, D. Gohlke, A. Lindauer, T. Ramsden, M. Biddy, M. Alexander, S. Barnhart, I. Sutherland, L. Verduzco, and T.J. Wallington. Argonne Lab Report ANL/ESD-16/7 (2016).

"Influence of the local environment on Mn acceptors in GaAs," Donghun Lee, David Gohlke, Anne Benjamin, and Jay Gupta. J. Phys.: Cond. Matter 27, 154202 (2015).

"Atomic-scale engineering of the electrostatic landscape of semiconductor surfaces," David Gohlke, Rohan Mishra, Oscar D. Restrepo, Donghun Lee, Wolfgang Windl, and Jay Gupta. Nano Letters, 13, 6, 2418 (2013).

"Emergence of surface states in nanoscale Cu2N islands," C.D. Ruggiero, M. Badal, T. Choi, D. Gohlke, D. Stroud and J.A. Gupta. Phys. Rev. B, 83, 245430, (2011).

"Coulomb excitation of a 242Am isomer target: E2, E3 strengths, rotational alignment and collective enhancement," A.B. Hayes, D. Cline, K.J. Moody, I. Ragnarsson, C.Y. Wu, J.A. Becker, M.P. Carpenter, J.J. Carroll, D. Gohlke, J.P. Greene, A.A. Hecht, R.V.F. Janssens, S.A. Karamian, T. Lauritsen, C.J. Lister, R.A. Macri, R. Propri, D. Seweryniak, X. Wang, R. Wheeler and S. Zhu. Phys. Rev. C, 82, 044319, (2010).

"Search for low-energy induced depletion of 178m2Hf at the SPring-8 synchrotron," J.J. Carroll, S.A. Karamian, R. Propri, D. Gohlke, N. Caldwell, P. Ugorowski, T. Drummond, J. Lazich, H. Roberts, M. Helba, Z. Zhong, M.-T. Tang, J.-J. Lee and K. Liang. Phys. Lett. B, 679, 3, 203-208, (2009).

"Coulomb excitation of the 242mAm isomer," A.B. Hayes, D. Cline, K.J. Moody, C.Y. Wu, J.A. Becker, M.P. Carpenter, J.J. Carroll, D. Gohlke, J.P. Greene, A.A. Hecht, R.V.F. Janssens, S.A. Karamian, T. Lauritsen, C.J. Lister, R.A. Macri, R. Propri, D. Seweryniak, X. Wang, R. Wheeler and S. Zhu. Laser Phys., 17, 5, 745-750, (2007).

"Design and characterization of a compact multi-detector array for studies of induced gamma emission: spontaneous decay of 178m2Hf as a test case," P. Ugorowski, R. Propri, S.A. Karamian, D. Gohlke, J. Lazich, N. Caldwell, R. S. Chakrawarthy, M. Helba, H. Roberts and J.J. Carroll. Nucl. Instrum. Meth. A, 565, 657 (2006).

"K-pi = 0+ 2.29 s isomer in neutron-rich 174Tm," R.S. Chakrawarthy, P.M. Walker, J.J. Ressler, E.F. Zganjar, G.C. Ball, M.B. Smith, A.N. Andreyev, S. Ashley, R.A.E. Austin, D. Bandyopadhyay, J.A. Becker, J.J. Carroll, D.S. Cross, D. Gohlke, J.J. Daoud, P.E. Garrett, G. Grinyer, G. Hackman, G.A. Jones, R. Kanungo, W.D. Kulp, Y. Litvinov, A.C. Morton, W.J.M. Mills, C.J. Pearson, R. Propri, C.E. Svensson, R. Wheeler, and S.J. Williams. Phys. Rev. C 73, 024306 (2006).

Invited Presentations

5/24 Invited speaker and co-organizer at the Argonne Supply Chain Rodeo; Lemont, IL

5/24 "Alternative Fuels Insights"; Panel presentation, Center for Automotive Research Affordability Roundtable; Livonia, MI

3/24 "Analytical Perspectives on Affordability" panel presentation; Invited panelist at the Fuels Institute Annual Meeting; Denver, CO

1/23 "Analytical Perspectives on Affordability"; Panel presentation, Federal Reserve Board Automotive Insights Symposium; Detroit, MI

4/22 "Decarbonization Pathways in Transportation"; Keynote speaker at American Physical Society, Eastern Great Lakes Section Meeting; Youngstown, OH

5/19 "Technological Energy Levers for Connected and Automated Vehicles" panel presentation; ACEEE Forum on Connected and Automated Vehicles: Energy Impacts; Washington, DC

4/19 "Energy Consumption by Autonomous Vehicles" panel presentation; Society for Automotive Engineers Government-Industry Meeting; Washington, DC

5/17 "Market Dynamics of the Autonomous Vehicle" panel presentation; Fuels Institute Annual Meeting; Denver, CO

1/17 "Energy impacts of connected and automated vehicles;" Invited panelist at the Society for Automotive Engineers Government-Industry Meeting; Washington, DC

9/16 "Artificial intelligence in mobility"; Panel presentation, American Council for Technology-Industry Advisory Council (ACT-IAC), Community of Interest Cognitive Computing, AI, & Machine Learning Workgroup Symposium; Washington, DC

4/15 "Measuring and Manipulating Electron Energies with Scanning Tunneling Microscopy"; California State University, Bakersfield; Bakersfield, CA

10/12 "Probing interactions on semiconductor surfaces using scanning tunneling microscopy"; Youngstown State University; Youngstown, OH

5/12 "Tuning Magnetic Interactions in Semiconductors by STM"; Presented at:

- Institut für Festkörper- und Werkstoffforschung, Dresden, Germany;
- Institute of Applied Physics and Microstructure Research Center, Hamburg, Germany;
- Centre for Free-Electron Laser Science, Hamburg, Germany;
- Universität Regensburg, Regensburg, Germany

Awards

11/23 Assistant Secretary Award, U.S. Department of Energy, EERE
"For outstanding technical analysis and support for the implementation of tax provisions in the Inflation Reduction Act"

2021–25 Multiple Impact Argonne Awards
1x: Extraordinary Effort
2x: Enhancement of Argonne's Reputation
2x: Extraordinary Impact

1/18 DOE Vehicle Technologies Office "Gorilla Award"
Peer-recognition award inside of DOE's Vehicle Technologies Office

6/17 DOE Vehicle Technologies Office Team Award
"For enhancing our understanding of the energy implications of CAVs and their applicability to EEMS and our SMART Mobility laboratory consortium"

6/16 Joint DOE Hydrogen and Fuel Cells Program and Vehicle Technologies Office Special Recognition Award
"For outstanding technical contributions and collaborative efforts to the U.S. DRIVE Cradle-to-Grave lifecycle greenhouse gas emissions, cost, and technology readiness analyses of current and advanced vehicle-fuel pathways"

3/16 EERE Rock Star Award
"For outstanding technical contributions and extraordinary editorial efforts to the final reporting of the Cradle-to-Grave lifecycle greenhouse gas emissions, costs, and technology readiness analyses of current and advanced vehicle-fuel pathways"

5/12 David DeMartini Scholarship, Ohio State University Department of Physics
"In recognition of outstanding graduate student research and to support future professional development"

3/12 Career Development Grant, awarded by OSU Council of Graduate Students
Grant awarded to defray costs of career development activities.

9/06–9/07 University Fellowship, awarded by OSU Graduate School
One-year, full tuition and stipend.

8/02–5/06 Leslie H. Cochran University Scholarship, awarded by YSU
Four-year, full tuition, room and board.

Professional Service

2023–25 Member of Transportation Research Board Standing Committee on Transportation Energy (AMS30)

2018 Reviewer for Vehicle Technologies Office, Annual Merit Review

2018 Reviewer for National Science Foundation panel

2014–present Reviewer for multiple journals and conferences, including Transportation Research Record; Communications Sustainability; Energies; Nature; International Journal of Sustainable Transportation; Journal of Modern Power Systems and Clean Energy; Journal of Metals; Transportation Research Board Annual Meeting; Physical Review Letters