

Robert A. Harley, Carl W. Johnson Professor

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Professional Preparation

University of Toronto	Engineering Science	B.A.Sc., 1987
California Institute of Technology	Environmental Engineering Science	M.S., 1988
California Institute of Technology	Environmental Engineering Science	Ph.D., 1993

Appointments

Department Chair, Civil and Environmental Engineering, 2015-18
Carl W. Johnson Endowed Professorship in Civil Engineering, 2014-present
Visiting Scientist, Max Planck Institute for Chemistry, Mainz, Germany, 2011
Professor, Civil and Environmental Engineering, 2002-present
Vice Chair, Civil & Environmental Engineering, 2001-04
Visiting Fellow, NOAA and University of Colorado, Boulder, 1999-2000
Associate Professor, Civil and Environmental Engineering, UC Berkeley, 1998-2002
Assistant Professor, Civil and Environmental Engineering, UC Berkeley, 1992-1998

Selected Research Publications

1. Yu, K.A.; Li, M.; Harkins, C.; He, J.; Zhu, Q.; Verreyken, B.; Schwantes, R.H.; Cohen, R.C.; McDonald, B.C.; Harley, R.A. (2023). Improved Spatial Resolution in Modeling of Nitrogen Oxide Concentrations in the Los Angeles Basin. *Environmental Science & Technology* **57**, 20689-20698, doi: 10.1021/acs.est.3c06158.
2. Wang, Y.; Bastien, L.A.J.; Jin, L.; Harley, R.A. (2023). Location-Specific Control of Precursor Emissions to Mitigate Photochemical Air Pollution. *Environmental Science & Technology* **57**, 9693-9701, doi: 10.1021/acs.est.3c01934.
3. Hamilton, S.D.; Harley, R.A. (2021). High-Resolution Modeling and Apportionment of Diesel-Related Contributions to Black Carbon Concentrations. *Environmental Science & Technology* **55**, 12250-12260, doi: 10.1021/acs.est.1c03913.
4. Preble, C.V.; Harley, R.A.; Kirchstetter, T.W. (2019). Control Technology-Driven Changes to In-Use Heavy-Duty Diesel Truck Emissions of Nitrogenous Species and Related Environmental Impacts. *Environmental Science & Technology* **53**, 14568-14576. **Received American Chemistry Society Editors' Choice Award.**

5. Bastien, L.A.J.; Brown, N.J.; Harley, R.A. (2019). Contributions to Local and Regional-Scale Formaldehyde Concentrations. *Atmospheric Chemistry & Physics* **19**, 8363-8381, doi: 10.5194/acp-19-8363-2019.
6. Preble, C.V.; Cados, T.E.; Harley, R.A.; Kirchstetter, T.W. (2018). In-Use Performance and Durability of Particle Filters on Heavy-Duty Diesel Trucks. *Environmental Science & Technology* **52**, 11913-11921.
7. McDonald, B.C., et al. (2018). Volatile Chemical Products Emerging as Largest Petrochemical Source of Urban Organic Emissions. *Science* **359**, 760-764, doi:10.1126/science.aag0524.
8. Bastien, L.A.J.; McDonald, B.C.; Brown, N.J.; Harley, R.A. (2015). High-Resolution Mapping of Sources Contributing to Urban Air Pollution Using Adjoint Sensitivity Analysis: Benzene and Diesel Black Carbon. *Environmental Science & Technology* **49**, 7276-7284.
9. Dallmann, T.R.; Onasch, T.B.; Kirchstetter, T.W.; Worton, D.R.; Fortner, E.C.; Herndon, S.C.; Wood, E.C.; Franklin, J.P.; Worsnop, D.R.; Goldstein, A.H.; Harley, R.A. (2014). Characterization of Particulate Matter Emissions from On-Road Gasoline and Diesel Vehicles using a Soot Particle Aerosol Mass Spectrometer. *Atmospheric Chemistry and Physics* **14**, 7585-7599, 10.5194/acp-14-7585-2014.
10. Mollner, A.K., et al. (2010). Rate of Gas Phase Association of Hydroxyl Radical and Nitrogen Dioxide. *Science* **330**, 646-649, 10.1126/science.1193030.

Recent Teaching Activities

CEE 11, Engineered Systems and Sustainability

An undergraduate intro class that discusses life-cycle environmental impacts of water, transportation, buildings and electric power systems.

CEE 218A, Air Quality Engineering

A graduate class that discusses meteorology, atmospheric chemistry, sources of air pollution, emission control techniques, and approaches to air quality management.

Synergistic Activities

Peer Reviewer, Air Quality Management Plan for Los Angeles (1997, 2003, 2007)

Member, National Academy Committee on Motor Vehicle Emissions Inspection and Maintenance Programs (2000-2001)

Co-Editor, *Atmospheric Chemistry and Physics* (2009-2019)

Joint Prizes Selection Committee, Natural Sciences and Engineering Research Council of Canada (NSERC; 2018-2020)