Paul T. Anastas, Ph.D.
Professor of Epidemiology
School of Public Health
Teresa and H. John Heinz Chair in Chemistry for the Environment
School of Forestry and Environmental Studies

Yale University
New Haven, CT 06520
203-436-5127 paul.anastas@yale.edu

EDUCATION

1989 Ph.D. Organic Chemistry, Brandeis University
Dr. Robert Stevenson, research advisor

1987 M. A. Organic Chemistry, Brandeis University

1984 B. S. Chemistry, University of Massachusetts
Dr. Jean-Pierre Anselme, research advisor

ACADEMIC EXPERIENCE – YALE

7/2018 – *current* **Professor of Epidemiology,** Environmental Health Sciences Department, School of Public Health, Yale University

1/2014 – 7/2018 Faculty Director, Masters of Business Administration for Executives – Sustainability, School of Management, Yale University, New Haven, CT

1/2009 - *current* **Inaugural Teresa and H. John Heinz III Chair in Chemistry for the Environment**, School of Forestry and Environmental Studies; Yale University, New Haven, Connecticut

1/2007 - *current* **Director,** Center for Green Chemistry and Green Engineering at Yale, Yale University, New Haven, Connecticut

1/2007 - *current* **Other Appointments at Yale**, Chemistry Department; Department of Chemical and Environmental Engineering, School of Management

1/2007 – 1/2009 Professor in the Practice of Green Chemistry, School of Forestry and Environmental Studies; Yale University, New Haven, Connecticut

ACADEMIC EXPERIENCE – OTHER

9/2005 – 9/2006 Senior Research Fellow, Roy Family Fellow. John F. Kennedy School of Government**.** Harvard University, Cambridge, Massachusetts

1/2005 – 1/2006 Director. Alliance for Global Sustainability, Center for Environment and Energy, Massachusetts Institute of Technology, Cambridge, Massachusetts

9/2002 – 1/2010 Visiting Professor. Institut Universitat de Ciencia i Techologica, Barcelona, Spain

8/1999 – 1/2010 Special Professor. Chemistry Department, Nottingham University, Nottingham, United Kingdom
Provide lectures and seminars at both the graduate and undergraduate level on topics of contemporary interest in the area of sustainable molecular science such as green chemistry and engineering. Consult and collaborate as appropriate on research projects.

1/1998 – 5/1998 Visiting Lecturer. Chemistry Department, Georgetown University, Washington, DC
Lectured and organized semester long team series on 'Green Chemistry and Pollution Prevention' primarily targeted to graduate chemistry and other molecular science students

8/1997 – 5/1998 Visiting Lecturer. Chemistry Department, Howard University, Washington, DC
Lectured and team taught courses on 'Green Chemistry, Recent Developments in Environmental Chemistry in the United States' to undergraduate non-science majors as an introduction to science policy and to exemplify real world applications to everyday life.

11/1990 – 6/1991 Adjunct Professor. Trinity College, Washington, DC
Taught 'Environmental Science and Policy in the United States,' a course designed to introduce undergraduate students with no scientific background to the principles environmental science, risk

assessment, and eco-system protection. Co-designed the undergraduate Environmental Studies curriculum that consisted of an interdisciplinary scientific track and an educational track.

NON-ACADEMIC EXPERIENCE

12/2009 – 2/2012 **Assistant Administrator for Research and Development at the U.S. Environmental Protection Agency** by Presidential appointment and United States Senate confirmation; Science Advisor for the U. S. Environmental Protection Agency. Responsible for all research operations of the US EPA including approximately 2000 employees, 13 national laboratories, the EPA's external research grants program, and internal research activities on a wide range of scientific areas including environmental and human health, air pollution, water quantity and quality, toxic chemicals, ecosystem services, and climate change. Serve as chair of the Science Technology Policy Council and co-chair the National Science and Technology Council's Committee on Environment, Natural Resources, and Sustainability. Provide advice to the US EPA Administrator on all science and technology issues.

6/2004 – 12/2006 **Director, Green Chemistry Institute**, American Chemical Society, Washington D.C. The Green Chemistry Institute is a not-for-profit organization that promotes the design, discovery, development and implementation of material and energy sources that are benign to human health and the environment to advance sustainability through science. Responsibilities include the development of and executive oversight for all areas of strategy and implementation on the research, education, outreach and industrial partnership programs. Oversight of the headquarters staff in Washington as well as the coordination and interface of the GCI Chapters in twenty-five nations globally.

9/1999 – 6/2004 **Assistant Director, Environment (***previously NSTC Rep.***), White House Office of Science and Technology Policy, Executive Office of the President, Washington, DC**. Responsibilities included the development of science policy and budgetary planning in coordination with Congressional interests and Executive branch agencies on the wide range of environmental issues. Specific areas of focus include toxic substances, science for sustainability, green chemistry and engineering, climate change, water resources, and bilateral science and technology relationships between the U.S. and national and multinational governmental institutions. Additional duties include managing governmental and private research/science community relationships to coordinate input on diverse scientific issues of importance to the White House.

1/1995 – 9/1999 **Director of the Green Chemistry Program and Chief of the Industrial Chemistry Branch. United States Environmental Protection Agency, Washington, DC.**
Managed a staff of 25 Ph.D. level scientists who assess the chemistry and biochemistry of new substances in the environment with a focus on the hydrosphere, atmosphere, and biosphere. Direct academic/industrial research collaborative projects on the development of environmentally benign chemical products and processes. Additional responsibilities include conducting the chemical evaluation for regulation of all new and existing chemical substances and developing models for the underlying chemical properties for the flow of substances in aquatic, air, and terrestrial systems.

3/1992 – 1/1995 **New Chemical Section Chief of the Industrial Chemistry Branch. United States Environmental Protection Agency, Washington, DC.**
Managed a staff of 20 to conduct the chemistry review and evaluation of approximately 2500 chemical substances per year and developed basis for interdisciplinary hazard and risk assessments. Developed and implemented review process for synthetic and manufacturing processes for pollution prevention and 'Green Chemistry'.

7/1989 – 3/1992 **Chemist. Industrial Chemistry Branch, United States Environmental Protection Agency, Washington, DC.**
Responsible for the review of a wide variety of chemical classes to assess their hazard to human health and the environment. Also responsible for developing regulations and technical guidance for the basic elements of risk and hazard assessments using interdisciplinary teams.

1/1989 – 7/1989 **Independent Industrial Chemistry Consultant. Boston, MA.**
Worked with a variety of chemical manufacturers in the design of synthetic pathways for chemical products. Developed analytical methodologies and performed instrumental analyses for characterization of organic substances. Substances of pharmaceutical, photographic and material science interest were the focus of the majority of investigations.

BOARDS AND PROFESSIONAL AFFLIATIONS

- Fellow, American Academy of Environmental Engineers and Scientists
- Fellow, Royal Society of Chemistry
- Fellow, American Association for the Advancement of Science
- Fellow, American Chemical Society
- Member, Royal Society of Chemistry's Journal, Green Chemistry, Editorial Board, 2013-present
- Member, Chemical and Engineering News Editorial Advisory Board, 2012-present
- Director, United States Green Building Council Board of Directors, 2016-present.
- Director, Green Electronics Council Board of Directors, 2013-2016
- Chair, Scientific Advisory Board, P2 Science, Inc., 2012-present
- Science Advisor, Elm Street Ventures, 2013-present
- Science Advisor, Pegasus Capital Advisors, 2014-present
- Science Advisor, EES Ventures, 2014-present
- Science Advisor, Sail Capital, 2012-2016
- Member, Journal of Disruptive Technology Editorial Board, 2012-2014.
- Co-Chair, U.S. National Science and Technology Council, Subcommittee on Environment, Natural Resources and Sustainability, 2010-2012
- Member, U.S. Department of Defense Strategic Environmental Research and Development Program Board, 2010-2012
- Chair, Science and Technology Policy Council, US Environmental Protection Agency, 2009-2012
- Member, National Advisory Council for Environmental Policy and Technology, 2007-2009
- Member, Journal of Green Chemistry, Editorial Advisory Board, 2004-2013
- Member, National Academy of Sciences Board on Chemical Sciences and Technology, 2004-2007
- Member, NATO Science Committee – Environmental Security Panel, 2001-2004
- Member, National Research Council's Chemical Sciences Roundtable, 2002-2012
- Member, Department of Defense Strategic Environmental Research and Development Program (SERDP), Science Advisory Board, 2002-2004, 2007-2012
- Member, ACS Green Chemistry Institute Governing Board, 2004-2006
- Member, Mascaro Sustainability Initiative Board, 2004-2012
- Member, Australian Green Chemistry Research Center Advisory Board, 2004-2012
- Member, Environmental Science and Technology Editorial Advisory Board, 2002-2010
- Member, Clean Technologies and Environmental Policy, Editorial Board, 1999-2002
- Member, U.S.-China Center Board, 2002-2010
- Member, American Chemical Society, Committee on Environmental Improvement, 1999-2004
- Founding Chair and Executive Committee Member, Green Chemistry Gordon Conference, 1999-present
- Expert Advisor, NATO Science for Peace, 1999-2003
- Co-Founder and Co-Chair, Green Chemistry and Engineering Conference, 1997-2003
- Member, Joint Association for Advancement of Supercritical Technologies Board, 1996-2000
- Representative, Federal Interagency Chemical Research Committee, 1994-2000
- Member, American Chemical Society; Organic, Environmental Chemistry and Education Division, 1994-present

ACHIEVEMENTS, HONORS, AND AWARDS

- King Carl XVI Gustav Professorship Prize, 2019
- Honorary Doctorate of Science, University of Massachusetts-Boston, USA 2018
- US Environmental Protection Agency R1 Lifetime Achievement Award, 2017
- Italian Chemical Society, Silver Seal Award, 2017
- UK Royal Society of Chemistry, Green Chemistry Award, 2017
- Sigma Xi Distinguished Lecturer, 2017
- Association of Environmental Engineering and Science Professors, Frontiers in Research, 2016
- Royal Society of Chemistry, Green Chemistry Award, 2016
- Honorary Doctorate of Science in Chemistry, McGill University, Montreal, Canada, 2016
- Emmanuel Merck Lecture Prize, 2015.
- Fellow, American Chemical Society, 2014.
- Harmon Award, Western Michigan University, 2014.
- Honorary Professor of Chemistry, Nottingham University, UK 2014.
- Saul G. Cohen Memorial Award, Brandeis University, 2013.

- Wöhler Prize, Gesellschaft Deutscher Chemiker (GDCh), 2012.
- Edward O. Wilson Biodiversity Technology Pioneer Prize, ACM, 2012.
- Rachael Carson Award, Natural Products Association, 2012.
- 2012 Brandeis University Alumni Achievement Award
- Weber Distinguished Lecture in Energy and Environmental Sustainability, U. Michigan, 2011.
- Oppenheim Lecture, University of California at Los Angeles, 2011.
- 5th Annual Borlaug Lecturer, North Carolina State University, Raleigh, NC, 2010.
- Named to the "Nifty 50" Top Scientists by the U.S. Science and Engineering Festival, 2010.
- Council of Scientific Society Presidents, 2008 Leadership in Science Award, 2008.
- John Jeyes Lectureship, UK Royal Society of Chemistry, 2007
- Honorary Doctorate of Science in Chemistry, Queens University, Belfast, Ireland, 2007
- Bayer Distinguished Lectureship, 2007
- The Heinz Award, Environment, 2006
- "Scientific American 50" Award in Science and Technology, 2005
- Inaugural Canadian Green Chemistry Medal, Montreal, Canada, 2004
- Special Professor, Universitat of Vic, Barcelona, Spain, 2002
- Erskine Scholar, University of Canterbury, New Zealand, 2002
- Greek Chemical Society Award for Contributions to Chemistry, 2002
- Honorary Professor, Queens University, Belfast, N. Ireland, 2001
- Vice President's Hammer Award: Acute Exposure Guideline Levels Program, 2000
- Joseph Seifter Award for Scientific Excellence in Risk Assessment, 1999
- Nolan and Gloria Sommer Award - Distinguished Contributions to Chemistry, 1999
- EPA Bronze Medal - Development of Green Chemistry Expert System, 1999
- Vice-President's Hammer Award – Green Chemistry Program, 1998
- EPA Silver Medal - Design and Development EPA's Green Chemistry Program, 1997
- First Annual Office of Pollution Prevention and Toxics Award for Outstanding Branch Chief, 1995
- EPA Bronze Medal for Outstanding Service, 1995
- Two EPA Bronze Medals for Outstanding Service, 1994
- EPA Bronze Medal for Outstanding Service, 1993
- Sustained Superior Performance Award, 1991
- Presidential Point of Light Award, 1991
- EPA Assistant Administrator's Awards, 1991
- Sustained Superior Performance Award, 1990

PAST AND CURRENT RESEARCH GRANTS AND CONTRACTS AT YALE UNIVERSITY[1]

- United Nations Industrial Development Organization: Global Green Chemistry Initiative, PI, total budget $800,000, 2017-2020

- National Science Foundation: Network for Sustainable Molecular Design and Synthesis: Improving Material Safety through the Minimization of Oxidative Stress Potential: A mechanistic understanding of ROS generation in in vitro and in vivo systems supplemental, PI, total budget $199,000, 2015-2016

- National Science Foundation: Network for Sustainable Molecular Design and Synthesis: Improving Material Safety through the Minimization of Oxidative Stress Potential: A mechanistic understanding of ROS generation in in vitro and in vivo systems supplemental, PI, total budget $198,000, 2014-2015

- National Science Foundation: Network for Sustainable Molecular Design and Synthesis: Improving Material Safety through the Minimization of Oxidative Stress Potential: A mechanistic understanding of ROS generation in in vitro and in vivo systems, PI, total budget $4,400,000, 2013-2017

- Serengetti Co., Gift to Support Research at the Green Chemistry and Engineering Center, $250,000, 2014

[1] Dr. Anastas was ineligible from receiving any funding (private or federal) from the time he was nominated to serve as Assistant Administrator at the US EPA (6/2009) until he resigned his position (2/2012)

- National Science Foundation: A Workshop on the Molecular Design of Commercial Chemicals for Minimal Unintended Biological Activity, PI, total budget $90,500, 2012-2014

- United States Department of Agriculture: Transformation of lignin into building blocks for protective coatings, PI, total budget $500,000, 2009-2013

- National Science Foundation: Design of Safer Carbon-Based Nanomaterials: The Impact of Surface Modifications on Toxicity and Environmental Fate and Transport, co-PI, total budget $360,000, 2009-2013

- The Kendeda Fund, Designing Safer Chemicals from First Theoretical Principles: Model compounds and model endpoints, PI, total budget $300,000, 2008-2011

- Organisation for Economic Co-operation and Development, Global Diffusion of Green Chemistry Practices and Technologies, PI, total budget $45,000, 2008-2009

- Sunlanda Plastics Inc., Derivation of alternative plastic additives from renewable feedstocks, PI, total budget $65,000, 2007-2009

- The Kendeda Fund, Rational Molecular Design for Reduced Aquatic Toxicity, PI, total budget $500,000, 2008-2010

- The Kendeda Fund, Research on Green Chemistry and Green Engineering, PI, total budget $375,000, 2007-2009

CURRENT DOCTORAL STUDENTS

- Laurene Petitjean (Forestry and Environmental Studies)
  Research Area: Synthetic and Mechanistic Studies of catalytic transformations of lignin

- Fang Lin, (Chemistry Department)
  Research Area: Earth-Abundant Electro-Catalysts for Biomass Transformation

PAST DOCTORAL STUDENTS (Chair)

- Fjodor Melnikov (Forestry and Environmental Studies)
  Research Area: Computational Models for Molecular Property and Toxicity Prediction (2019)

- Sam Collom (2016; Chemistry)(Co-advised with Crabtree)
  Dissertation Title: Development of Greener Oxidation Methods for Chemical Transformations and Energy Storage

- Patrick Foley (2012; Environmental Engineering)(Co-advised with Zimmerman)
  Dissertation Title: The Derivation and Synthesis of Renewable Surfactants
  Title and Affiliation: Chief Technology Officer, P2 Science

- Aaron Bloomfield (2014; Chemistry) (Co-advised with Crabtree)
  Dissertation Title: Development of Catalytic Methods for the Synthesis of Phosphine Oxides and for the Oxidation of Water
  Title and Affiliation: Post-Doctoral Fellow, Yale University

CURRENT POST-DOCTORAL FELLOWS

- Dr. Tamara deWinter (Ph.D. Queen's University)
  Research Area: Organic synthesis of c-glycosides

- Dr. Hanno Erythopel (Ph.D. McGill University)
  Research Area: Characterization and quantification of emerging contaminants

- Dr. Mahlet Garedew (PhD Michigan State University)
  Research Area: Electro0catalytic Valorization of Biomass

PAST POST-DOCTORAL FELLOW

- Dr. Toby Sommer (2007-2015)
  Research Area: Green organic synthesis methodologies

- Dr. Aaron Bloomfield (2014-2015)
  Research Area: Water Oxidation Catalysis

- Dr. Nicolas Eghbali (2007-2009)
  Title and Affiliation: Senior Chemist, Royal Hoskoning, Netherlands

- Dr. Evan Beach (2007-2010)
  Title and Affiliation: Research Scientist, International Flavors and Fragrances

- Dr. Zheng Cui (2009-2010)
  Title and Affiliation: Scientist, VeruTek Technologies, LLC

- Dr. Kira Matus (2009-2010)
  Title and Affiliation: Assistant Professor, Department of Government, London School of Economics

- Dr. Matthew Eckelman (2009-2011)
  Title and Affiliation: Assistant Professor, Northeastern University

- Dr. Adelina Voutchkova (2009-2011)
  Title and Affiliation: Assistant Professor, George Washington University

- Dr. Katalin Barta (Ph.D., RWTH-Aachen)
  Title and Affiliation: Assistant Professor, University of Gröningen

- Dr. Azadeh Kermanshahipour (Ph.D., McGill University)
  Title Affiliation: Assistant Professor, Dalhousie University

- Dr. Jakub Kostal (Ph.D., Yale University)
  Title Affiliation: Research Scientist – George Washington University

- Dr. Longzhu Shen (Ph.D. Carnegie-Mellon)
  Research Area: Computational Models for Molecular Property and Toxicity Prediction

- Dr. Vincent Escalade (Ph.D. University of Montpelier)
  Research Area: Plant-based catalysis

- Dr. Jason Lam (Ph.D. Michigan State University)
  Research Area: Earth Abundant Catalysis for Oxidation

COURSES TAUGHT AT YALE UNIVERSITY

- Perspectives: Bristol Bay
- Perspectives: The Anthropocene
- Fundamentals of Green Chemistry and Green Engineering (FES770)
- Chemistry for the Environment (ug/grad), CHEM 105, EVST 180
- Introduction to Green Chemistry (ug/grad), CHEM 102b, ENVE 202, FES 872
- Greening Business Operations (ug/grad), ENVE 443, FES 886a, SOM 564
- Green Engineering and Sustainable Product Design (ug/grad), ENVE 360b, ENAS 660b, FES 885b
- Sustainable Innovation and Design (MGT 863)
- Mater of Business Administration for Executives Sustainability Colloquium (MGT 699)
- Science to Solutions: Flint, Michigan (FES 610); Science to Solutions: Toxics (FES 610)

SERVICES ON YALE UNIVERSITY COMMITTEES

- Co-Chair, Yale Sustainability Implementation Committee

- Chair – Yale School of Forestry and Environmental Studies – Sustainability Committee
- Yale School of Public Health Research Advisory Committee
- Yale School of Public Health Thesis Award Committee
- Yale Conflict of Interest Committee (2015-2017)
- On-Line Education Faculty Committee for Yale University (2013-2014)
- Yale Institute for Biospheric Studies Faculty Committee
- Yale Energy Institute Faculty Advisory Committee
- Environmental Studies Program Faculty Committee
- School of Forestry and Environmental Studies – Environmental Stewardship Committee, Chair (2007-2008)

REFEREED JOURNAL PUBLICATIONS, BOOK CHAPTERS and SUBMISSIONS

(h-index = 45 by Google Scholar; total citations = 25,385)

1. Zimmerman,J.B., Anastas, P.T., et. al., Designing Green Chemistry Future, Science, 2020 (in press)

2. Tuba, R., Anastas, P.T, et. al., Towards Sustainable Catalysis - Highly Efficient Olefin Metathesis in Protic Media Using Phase Labelled Cyclic Alkyl Amino Carbene (CAAC) Ruthenium Catalysts, ChemSusChem, DOI: 10.1002/cctc.201902258R1, 2020.

3. Mills, MG,Ramsden, R, Ma, EY, Corrales, J, Kristofco, L, Steele, W, Anastas, P., et, al., CRISPR-generated Nrf2a loss-and gain-of-function mutants facilitate mechanistic analysis of chemical oxidative stress-mediated toxicity in zebrafish, Chemical Research in Toxicology, 2019.

4. Steele, W.; Kristofco, L.; Corrales, J.; Saari, G.; Corcoran, E.; Hill, B.; Mills, M.; Gallagher, E.; Kavanagh, T.; Melnikov, F.; Zimmerman, J.; Voutchkova-Kostal, A.; Anastas, P.; Kostal, J.; Brooks, B. Towards Less Hazardous Industrial Compounds: Coupling Quantum Mechanical Computations, Biomarker Responses and Behavioral Profiles Identify Bioactivity of SN2 Electrophiles in Alternative Vertebrate Models. *Chemical Research in Toxicology* **2019,** in press.

5. Anastas, P.; Zimmerman, J. The Periodic Table of the Elements of Green and Sustainable Chemistry. *Green Chemistry* **2019,** in press.

6. Triana, C.; More, R.; Bloomfield, A.; Petrovic, P.; Goberna Ferron, S.; Stanley, G.; Zaric, S; Fox, T.; Brothers, E.; Sheehan, S.; Anastas, P.; Patzke, G. Soft Templating and Disorder in an Applied 1D Cobalt Coordination Polymer Electrocatalyst. *Matter* **2019,** *1* (5), 1354-1369.

7. Erythropel, H.; Davis, L.; de Winter, T.; Jordt, S.; Anastas, P.; O'Malley, S.; Krishnan-Sarin, S.; Zimmerman, J. Flavorant–Solvent Reaction Products and Menthol in JUUL E-Cigarettes and Aerosol. *American Journal of Preventative Medicine* **2019,** *57* (3), 425-427.

8. Godri Pollitt, K. J.; Kim, J.; Peccia, J.; Elimelech, M.; Zhang, Y.; Charkoftaki, G.; Hodges, B.; Zucker, I.; Huang, H.; Deizel, N. C.; Murphy, K.; Ishii, M.; Johnson, C. H.; Boissevain, A.; O'Keefe, E.; Anastas, P. T.; Orlicky, D.; Thompson, D. C.; Vasiliou, V. 1,4-Dioxane as an Emerging Water Contaminant – State of the Science and Evaluation of Research Needs. *Science of the Total Environment* **2019**, 690, 853-866.

9. Anastas, P. T. Beyond Reductionist Thinking in Chemistry for Sustainability. *Trends in Chemistry* **2019,** *1* (2), 145-148.

10. Parvatker, A.; Tunceroglu, H.; Sherman, J. D.; Coish, P.; Anastas, P. T.; Zimmerman, J. B.; Eckelman, M. J. Cradle-to-gate Greenhouse Gas Emissions for Twenty Anesthetic Active Pharmaceutical Ingredients based on Process Scale-up and Process Design Calculations. *ACS Sustainable Chemistry and Engineering* **2019,** *7* (7), 6580-6591.

11. Lasker, G. A.; Simcox, N. J.; Mellor, K. E.; Mullins, M. L.; Nesmith, S. M.; van Bergen, S.; Anastas, P. T. Introducing Toxicology into the Undergraduate Chemistry Laboratory Using Safety Data Sheets and Sunscreen Activities. *Journal of Chemical Education* **2019,** *96* (4), 720-724.

12. Lam, C. H.; Escande, V.; Mellor, K. E.; Zimmerman, J. B.; Anastas, P. T. Teaching Atom Economy and E-Factor Concepts through a Green Laboratory Experiment: Aerobic Oxidative Cleavage of meso-Hydrobenzoin to Benzaldehyde Using a Heterogeneous Catalyst. *Journal of Chemical Education* **2019,** *96* (4), 761-765.

13. Petitjean, L.; de Winter, T. M.; Petrovic, P. V.; Coish, P. Hitce, J.; Moreau, M.; Bordier, T.; Erythropel, H.C.; Anastas, P. T. Heterogeneous Copper-Catalyzed Direct Reduction of C-glycosidic enones to Saturated Alcohols in Water. *Green Chemistry* **2019,** *21,* 238-244.

14. Melnikov, F.; Botta, C. C.; Schmuck, S. C.; Winfough, M.; Schaupp, C. M.; Gallager, E.; Brooks, B. W.; Williams, E. S.; Coish, P.; Anastas, P. T.; Voutchkova, A.; Kostal, J.; Kavanagh, T. Kinetics of Glutathione Depletion and Antioxidant Gene Expression as Indicators of Chemical Modes of Action Assessed in vitro in Mouse Hepatocytes with Enhanced Glutathione. *Chemical Research in Toxicology* **2019,** *32* (3), 421-436.

15. Turczel, G.; Kovacs, E.; Merza, G.; Coish, P.; Anastas, P.T.; Tuba, R. Synthesis of Semiochemicals via Olefin Metathesis. *ACS Sustainable Chemistry & Engineering* **2019,** *7* (1), 33-48.

16. Erythropel, H. C.; Kong, G.; DeWinter, T. M.; O'Malley, S. S.; Jordt, S. E.; Anastas, P. T.; Zimmerman, J. B. Presence of High-Intensity Sweeteners in Popular Cigarillos of Varying Flavor Profiles. *JAMA* **2018,** *320* (13), 1380-1383.

17. Steele, W. B.; Kristofco, L. A.; Corrales, J.; Saari, G. N.; Haddad, S. P.; Gallagher, E. P.; Kavanagh, T. J.; Kostal, J.; Zimmerman, J. B.; Voutchkova-Kostal, A.; Anastas, P. T.; Brooks, B.W. Comparative Behavioral Toxicology with Two Common Larval Fish Models: Exploring Relationships Among Modes of Action and Locomotor Responses. *Science of the Total Environment* **2018,** *640-641*, 1587-1600.

18. DeWinter, T.; Balland, Y.; Neski, A. E.; Petitjean, L.; Erythropel, H. C.; Moreau, M.; Hitce, J.; Coish, P.; Zimmerman, J. B.; Anastsa, P. T. Exploration of a Novel, Enamine-Solid-Base Catalyzed Aldol Condensation with C-Glycosidic Pyranoses and Furanoses. *ACS Sustainable Chemistry & Engineering* **2018,** *6* (9), 11196-11199.

19. Erythropel, H.; Zimmerman, J. B.; deWinter, T.; Petitjean, L.; Melnikiv, F.; Lam, C.; Lounsbury, A.; Mellor, K.; Jankovica, N.; Tu, Q.; Pincus, L.; Falinski, M.; Shi, W.; Coish, P.; Plata, D.; Anastas, P. T. The Green ChemisTREE: 20 years after taking root with the 12 Principles. *Green Chemistry* **2018,** *20* (9), 1929-1961.

20. Anastas, P. T.; Zimmerman, J. B. The United Nations Sustainability Goals: How Can Sustainable Chemistry Contribute? *Current Opinion in Green and Sustainable Chemistry* **2018,** *13,* 150-153*.*

21. DeWinter, T.; Petitjean, L.; Erythropel, H.; Moreau, M.; Hitce, J.; Coish, P.; Zimmerman, J. B.; Anastas, P. T. A Greener Methodology: An Aldol Condensation of an Unprotected C-Glycoside with Solid Base Catalysts. *ACS Sustainable Chemistry and Engineering* **2018,** *6* (6), 7810-7817.

22. Erythropel, H.; Zimmerman, J. B.; deWinter, T.; Petitjean, L.; Melnikiv, F.; Lam, C.; Lounsbury, A.; Mellor, K.; Jankovica, N.; Tu, Q.; Pincus, L.; Falinski, M.; Shi, W.; Coish, P.; Plata, D.; Anastas, P. T. The Green ChemisTREE: 20 years after taking root with the 12 Principles. *Green Chemistry* **2018,** *20* (9)*,* 1929-1961.

23. Roschangar, F.; Zhou, Y.; Constable, D. J. C.; Colberg, J.; Dickson, D. P.; Dunn, P. J.; Eastgate, M. D.; Gallou, F.; Hayler, J. D.; Koenig, S. G.; Kopach, M. E.; Leahy, D. K.; Mergelsberg, I.; Scholz, U.; Smith, A. G.; Henry, M.; Mulder, J.; Brandenburg, J.; Dehli, J. R.; Fandrick, D. R.; Fandrick, K. R.; Gnad-Badouin, F.; Zerban, G.; Groll, K.; Anastas, P. T.; Sheldon, R. A.; Senanayake, C. H. Inspiring Process Innovation Via an Improved Green Manufacturing Metric: iGAL. *Green Chemistry* **2018,** *20* (10), 2206-2211.

24. Mellor, K. E.; Coish, P.; Brooks, B. W.; Gallagher, E. P.; Mills, M.; Kavanagh, T. J.; Simcox, N.; Lasker, G. A.; Botta, D.; Voutchkova-Kostal, A.; Kostal, J.; Mullins, M. L.; Nesmith, S. M.; Corrales, J.; Kristofco, L.; Saari, G.; Steele, B.; Melnikov, F.; Zimmerman, J. B.; Anastas, P. T. The Safer Chemical Design Game. Gamification of Green Chemistry and Safer Chemical Design Concepts for High School and Undergraduate Students. *Green Chemistry Letters and Reviews* **2018,** *11* (2), 103-110.

25. Melnikov, F.; Hsieh, J. H.; Sipes, N. S.; Anastas, P. T. Channel Interactions and Robust Inference for Ratiometric β-lactamase Assay Data: a Tox21 Library Analysis. *ACS Sustainable Chemistry & Engineering* **2018,** *6* (3), 3233-3241.

26. Anastas, P. T. Origins and Early History of Green Chemistry. *Series on Chemistry, Energy and the Environment* **2018,** *3*, 1-17.

27. Coish, P.; McGovern, E.; Anastas, P. T.; Zimmerman, J. B. The Value-Adding Connections between the Management of Eco-innovation and the Principles of Green Chemistry and Engineering. In *Green Chemistry, An Inclusive Approach* **2018,** 981–998.

28. Coish, P.; Brooks, B. W.; Gallagher, E. P.; Mills, M.; Kavanagh, T. J.; Simcox, N.; Lasker, G. A.; Botta, D.; Schmuck, S. C.; Voutchkova-Kostal, A.; Kostal, J.; Mullins, M. L.; Nesmith, S. M.; Mellor, K. E.; Corrales, J.; Kristofco, L. A.; Saari, G. N.; Steele, W. B.; Shen, L. Q.; Melnikov, F.; Zimmerman, J. B.; Anastas, P. T. The Molecular Design Research Network. *Journal of Toxicological Sciences* **2018,** *161* (2), 241-248.

29. Zuin, V.; Anastas, P. T.; Mammino, L. Integrating Green Chemistry and Socio-Sustainability in Higher Education: Successful Experiences Contributing to Transform Our World. *Chemistry International* **2017,** *39* (2), 21-24.

30. Petitjean, L.; Gagne, R.; Beach, E. S.; An, J.; Anastas, P. T.; Xiao, D. Quantum Chemistry Analysis of Reaction Thermodynamics for Hydrogenation and Hydrogenolysis of Aromatic Biomass Model Compounds. *ACS Sustainable Chemistry & Engineering* **2017,** *5* (11), 10371–10378.

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150. Anastas, P. T.; Breen, J. J. Green Chemistry: Benign By Design. *In Chemistry* **1994,** *4* (4), 5-9.

151. Anastas, P. T. Benign by Design Chemistry. In *Benign By Design*, Farris, C. A.; Anastas, P. T., Eds.; ACS Symposium; American Chemical Society: Washington, DC, **1994**, pp 2-21.

152. Anastas, P. T.; Tobin, P. S. New EPA 'PLUS' software: A Useful Tool for Local Emergency Planners. *HAZMAT World* **1993,** *6*, 44-45.

153. Anastas, P. T.; Stevenson, R. Synthesis of Natural Lignan Arylnaphthalene Lactones, Daurinol and Retrochinensin. *Journal of Natural Products* **1991,** *54* (6), 1687-1691.

154. Anastas, P. T.; Foxman, B. F.; McKittrick, B.; Stevenson, R. Condensation of Ethyl Mandelate with a Cinnamate Ester: Bicyclocarbolactone Formation. *Journal of Chemical Research* **1991,** *22* (27), 54-55.

155. Anastas, P. T.; Warner, J. C.; Anselme, J-P. The Wittig Reaction in the Undergraduate Organic Laboratory. *Journal of Chemical Education* **1985,** *62* (4), 346.

156. Anastas, P. T.; Kano, K.; Anselme, J-P. 4,5-diphenyl-1-methylimidazole: An Undergraduate Laboratory Experiment. *Journal of Chemical Education* **1985,** *62* (6), 515.

PUBLICATIONS: BOOKS

1. Anastas, P.T., and Hammond, D., Chemical Site Security and Green Chemistry, Elsevier, 2015.

2. Anastas, P.T., and Zimmerman, J.B., eds., Innovations in Green Chemistry and Green Engineering, Springer, 2012.

3. Anastas, P.T., series ed., Handbook of Green Chemistry, Volumes 1-10, VCH-Wiley, 2009-2017.

4. Anastas, P.T. and Parent, K., eds., Green Chemistry Education: Changing the Course of Chemistry, American Chemical Society Press, 2008.

5. Anastas, P.T. and Lankey, R., eds., Advancing Sustainability Through Green Chemistry and Engineering, Oxford University Press, 2002.

6. Anastas, P.T., Bickart, P., and Kirchhoff, M., Designing Safer Polymers, John C. Wiley and Sons, 2000.

7. Anastas, P.T., and Tundo, P., eds., Green Chemistry: Challenging Perspectives, Oxford University Press, 2000.

8. Anastas, P.T., and Warner, J.C., Green Chemistry: Theory and Practice, Oxford University Press, 1998.

9. Anastas, P.T., Heine, L., and Williamson, T.C., eds., Green Engineering, American Chemical Society Press, 2000.

10. Anastas, P.T., Heine, L., and Williamson, T.C., eds., Green Chemical Syntheses and Processes, American Chemical Society Press, 2000.

11. Anastas, P.T., and Williamson, T.C., eds., Green Chemistry: Frontiers in Benign Chemical Syntheses and Processes, Oxford University Press, 1998.

12. Anastas, P.T., and Williamson, T.C. eds., Green Chemistry: Environmentally Benign Syntheses and Processes, American Chemical Society Press, 1996.

13. Anastas, P.T., and Williamson, T.C., eds., Green Chemistry: Designing Chemistry for the Environment, American Chemical Society Press, 1996.

14. Anastas, P.T., Farris, C.A., eds., Benign By Design: Alternative Synthetic Design for Pollution Prevention, American Chemical Society Press, 1994.

NOTABLE SPEAKING INVITATIONS

- Keynote Speaker – International Union of Pure and Applied Chemistry – Paris, 2019
- Keynote Speaker – International Symposium on Green Chemistry LaRochelle, France 2019.
- Plenary Speaker – Green China 2019, 1st International Conference on Green and Sustainable Chemistry in China, Beijing, 2019.
- Opening Keynote, Industrial Green Chemistry Conference, Mumbai, India, 2019.
- Opening Keynote, United Nations Green and Sustainable Chemistry Workshop, Geneva, remote, 2019.
- Invited Lecture, Stockholm University, Stockholm Sweden, October, 2019.
- Invited Speaker, 256th ACS National Meeting & Exposition, Boston, MA, 2018
- Invited Speaker, ACS Green Chemistry and Engineering Conference, Portland, OR, 2018
- Invited Speaker, Emerging Frontiers in Chemistry and Chemical Engineering, Doha, Qatar, 2018
- 2018 Distinguished Lecturer, Purdue University, 2018
- Keynote Speaker, EuCheMS 3rd Congress on Green and Sustainable Chemistry, York, UK, 2017
- Royal Society of Chemistry Distinguished Lecturer, Oxford University Chemistry Department, 2017
- Keynote Speaker, Italian Chemical Society Annual Meeting, Paestum, Italy, 2017
- Royal Society of Chemistry Distinguished Lecture, Oxford University Chemistry Department, 2017
- Sigma Xi Distinguished Lecturer, Fairfield University, 2017
- Keynote Speaker, United Nations Industrial Development Organization, Conference on Green Chemistry, Rio De Janeiro, 2017
- Keynote Speaker (remote), United Nations Organization for the Prohibition of Chemical Weapons, Green Chemistry Conference, 2017
- Keynote Speaker, Green and Sustainable Chemistry 8th Conference, Melbourne, Australia, 2017
- Keynote Speaker, Silk Road Forum on Advanced Green Chemistry, Lanzhou, China, 2017
- Keynote Speaker, Green Chemistry in Commerce Council, Grand Rapid, Michigan, 2017
- Keynote Speaker, International Union of Pure and Applied Chemistry, Venice, Italy, 2016
- Keynote Speaker, Gordon Research Conference: Green Chemistry, Stowe, VT, 2016
- Keynote Speaker, Swiss Chemical Society Annual Meeting, Zurich, Switzerland, 2016
- Keynote Speaker, Green and Sustainable Chemistry Conference, Berlin, Germany, 2016
- Keynote Speaker, Health and Environmental Funders Network, Baltimore, MD, 2015
- Keynote Speaker, Sustainable Development Summit, Brussels, Belgium, 2015
- Keynote Speaker, Gordon Research Conference: Environmental Nanotechnology, Mt. Snow, VT, 2015
- Global Plenary, American Chemical Society, San Francisco, CA, 2014
- Keynote Speaker, Ecochem, Basel, Switzerland, 2013
- Keynote Speaker, SETAC North America 24th Annual Meeting, Nashville, TN, 2013
- Keynote Speaker, ScienceWriters2013, Gainesville, FL, 2013
- Keynote Speaker, Industrial Green Chemistry Workshop, Mumbai, India (remote), 2013
- Keynote Speaker, World Bio Markets USA, San Francisco, CA, 2013
- Keynote Speaker, 2013 Cosmetic Science Symposium, Personal Care Products Council, Newark, NJ, 2013
- Keynote Speaker, The Adhesive and Sealant Council 2013 Fall Convention and Expo, Minneapolis, MN, 2013
- Morris Katz Memorial Lecturer in Environmental Research, York University, Toronto, Canada, 2013
- Keynote Speaker, SciX, The Great Scientific Exchange, Milwaukee, WI, 2013
- Keynote Speaker, Sardinian Green Days, Sassari, Italy, 2013
- Keynote Speaker, 3rd Safer Consumer Products Summit, Washington, DC 2013
- Keynote Speaker, TMFB International Workshop of the Cluster of Excellence "Tailor-Made Fuels from Biomass", Aachen. Germany, 2013
- Keynote speaker, 2013 Sustainable Chemistry Summit, Montreal, Canada, 2013
- Plenary Lecturer, 2nd International Symposium on Green Chemistry Renewable carbon and Eco-Efficient Processes, LaRochelle, France, 2013
- Commencement speaker, Virginia Polytechnic Institute and State University, Chemistry Department, Blacksburg, VA, 2013
- Keynote speaker, International Symposium on Sustainable Systems and Technology (ISSST), Cincinnati, OH, 2013
- Guest Lecturer, Green Chemistry Symposium, Merck Sharp & Dohme Corp., Rahway, NJ, 2013
- Guest Lecturer, University of Washington, Seattle, WA, 2013
- Keynote Speaker, “Green Chemistry: The Path Forward,” 245th ACS National Meeting, New Orleans, 2013
- Saul Cohen Memorial Lecturer, Brandeis University, Waltham, MA, 2013
- Peter B. Sherry Lecturer, Georgia Technical University, Atlanta, GA 2013
- Keynote Speaker, Minnesota Green Chemistry 2013: Beakers and Business Plans, Minneapolis, MN, 2013

- Keynote Speaker, Texas A&M University at Qatar, Doha, 2013
- Keynote Speaker, ICGC4 - 4th International IUPAC Conference on Green Chemistry, Foz do Iguacu/PR, Brazil, 2012
- Keynote Speaker, Gordon Conference on Endocrine Disruption, 2012
- Speaker, Science, Innovation, and Partnerships for Sustainability Solutions, A National Academies Symposium, Washington, DC, 2012
- Keynote Speaker, US EPA American Innovation for Sustainability Forum, Washington, DC, 2012
- Keynote Speaker, 10th Annual New York State Green Building Conference, SUNY College of Environmental Science and Forestry, Syracuse, NY, 2012
- Plenary Lecture, 3rd Asia–Oceania Conference on Sustainable Chemistry, 2011
- Keynote Speaker, 21st Annual Meeting of The International Society Exposure Science, Baltimore, MD, 2011
- Keynote Speaker, The Inaugural Henkel Distinguished Lecture Series, University of Arizona Tucson, AZ, 2011
- CEO Forum, Corporate & Product Sustainability: A Conference on Government and Industry Initiatives & Associated Research, Duke University, Durham, NC, 2011
- Keynote Speaker, National Research Council Toxicology and Green Chemistry Workshop Green Chemistry, Washington, DC, 2011
- Keynote Speaker, Institute of Medicine Roundtable on Environmental Health Sciences, Research & Medicine, Overview of Sustainability: Conceptual Issues, Frameworks, and Opportunities for Linkages with Health, Woods Hole, MA, 2011
- Keynote Speaker, 2011 Association of Environmental Engineering & Science Professors Education & Research Conference, “Designing Tomorrow”, Tampa, FL, 2011
- Keynote Speaker, ACS Green Chemistry Institute, 15th Annual Green Chemistry & Green Engineering Conference, Washington, DC, 2011
- United Nations Roundtable: “Developing programmes and a framework to accelerate the shift towards sustainable consumption and production” United Nations Economic and Social Council New York, NY, 2011
- Keynote Speaker, Northeast Water Science Forum, Portland, ME, 2011
- Keynote Speaker, Seminar “Taking Environmental & Human Health Protection to the Next Level”, The George Washington University, Washington, DC, 2011
- Keynote Speaker, Green Chemistry Philomathia Conference University of California Berkeley, CA, 2011
- Keynote Speaker, Albemarle Sustainability Lecture, Louisiana State University Baton Rouge, 2011
- Keynote Speaker, Society of Toxicology 50th Annual Meeting, Washington Convention Center, Washington, DC, 2011
- Keynote Speaker, Joseph Priestley Society, Chemical Heritage Foundation, Philadelphia, PA, 2011
- Keynote Speaker, State of Green Business Forum – Greenbiz, San Francisco, CA, 2011
- Keynote Speaker, Duke Sustainability Conference, Duke University Durham, NC, 2011
- Keynote Speaker, Walter Weber Lecture, Ann Arbor, MI, 2011
- Keynote Speaker, 2nd International Congress on Sustainability Science & Engineering, Tucson, AZ, 2011
- Keynote Speaker, New England Green Chemistry Networking Forum, Cambridge, MA, 2010
- Keynote Speaker, 40th Anniversary of EPA Panel at Harvard, Panel III: From Science to Policy, Cambridge, MA, 2010
- Keynote Speaker, National Academy of Sciences Roundtable on Science & Technology for Sustainability, Incorporating Sustainability in the U.S. Environmental Protection Agency, Washington, DC, 2010
- Keynote Lecture, 1st Pan-African Chemistry Network Conference, Addis Ababa, Ethiopia, 2010
- Keynote Lecture, Strategic Environmental Research and Development Conference, Washington, DC 2010
- Keynote Speaker, Society of Toxicology Meeting, Salt Lake City, UT, 2010. Via videolink
- Keynote Speaker, 5th Borlaug Lecture, North Carolina State University Raleigh, NC, 2010
- Exhibit Host, USA Science & Engineering Festival Press Conference, Washington, DC, 2010
- Keynote Speaker, Summit for America's Healthcare Policy through the Lens of Environmental Health, North Carolina Biotechnology Center, Research Triangle Park, NC, 2010
- Keynote Speaker, National Academy of Sciences Board on Environmental Studies & Toxicology, Woods Hole, MA, 2010
- Invited Lecture, Institute of Medicine’s Roundtable on Environmental Health Sciences, Research, and Medicine, Washington, DC, 2010
- Invited Lecture, Environmental Commissioner of the States (ECOS) Meeting, San Francisco, CA, 2010
- Opening Keynote Speaker, Disproportionate Impacts Symposium, Washington, DC, 2010
- Keynote Speaker, American Chemical Society Meeting, San Francisco, CA, 2010
- Keynote Speaker, 2010 Environmental Protection Agency Decontamination Research and Development Conference, Research Triangle Park, NC, 2010

- Keynote Speaker, 14th Annual Green Chemistry and Green Engineering Conference, Washington, DC, 2010
- Keynote Speaker, Environmental Protection Agency Earth Day Event, Research Triangle Park, NC, 2010
- Keynote Speaker, Government-University-Industry Research Roundtable, Washington, DC, 2010
- Opening Remarks, EPA Board of Science Counselors Executive Council Meeting, Washington, DC, 2010
- Keynote Speaker, National Academy of Sciences Board on Environmental Studies & Toxicology, Washington, DC, 2010
- Plenary Speaker, Toxicology and Risk Assessment Conference, Cincinnati, OH, 2010
- Keynote Speaker, Good Jobs, Green Jobs Conference, Washington, DC, 2010
- Keynote Speaker, International Union of Pure and Applied Chemistry Conference, Ottawa, Canada, 2010
- Keynote Speaker, American Association for the Advancement of Science Fellows Meeting, Washington, DC, 2010
- Keynote Speaker, Summit for America's Healthcare Policy through the Lens of Environmental Health, Research Triangle Park, NC, 2010
- Keynote Speaker, 3rd International Symposium on Green Processing in the Pharmaceutical and Fine Chemical Industries Conference, Boston, MA, 2010
- Keynote Lecture, Oregon Green Chemistry Conference, Portland, OR, 2010
- Keynote Lecture, National Environmental Protection Agency Quality Assurance Conference, Dallas, TX, 2010
- Keynote Speaker, 2nd Annual Michigan Green Chemistry Conference, East Lansing, MI, 2010
- Plenary Lecture, Human Health Risk Assessment Colloquium, Washington, DC, 2010
- Keynote Speaker, Town and Country Club, Hartford, CT, 2009
- Panel Witness, Committee on Science and Technology, U.S. House of Representatives hearing: Electronic Waste: Investing in Research and Innovation to Reuse, Reduce, and Recycle, Washington, DC, 2009
- Keynote Speaker, Association of Yale Alumni, Yale Club of Southwest Florida, Naples, FL, 2009
- Keynote Speaker, 6th Annual Green Chemistry Lecture, Gordon College, Wenham, MA, 2009
- Keynote Speaker, United States Society for Ecological Economics (USSEE) 5th Bi-Annual Conference Science and Policy for a Sustainable Future, American University, Washington, DC, 2009
- Keynote Speaker, Sustainability Symposium hosted by Cognis, Dusseldorf, Germany, 2009
- Plenary Lecture, Joint Conference 4th International Conference on Green and Sustainable Chemistry (GSC-4) & 2nd Asian-Oceanian Conference on Green and Sustainable Chemistry (AOC-2), Beijing, China, 2009
- Keynote Speaker, Keiser Distinguished Lectureship in Life Sciences, Ohio Northern University, Ada, OH, 2009
- Plenary Speaker, Centers for Disease Control and Prevention 2009 National Environmental Public Health Conference, Atlanta, GA, 2009
- Inaugural Presenter, Industrial Green Chemistry Workshop (IGCW) 2009, Mumbai, India, 2009
- Keynote Lecture, Centre in Green Chemistry and Catalysis (CGCC) Annual Meeting, Université de Montréal, Montréal, Canada, 2009
- Master Speaker, GreenBuild, Boston, MA, 2008
- Plenary Speaker, Yale Day, Waseda University, Tokyo, Japan, 2008
- Keynote Speaker, Green Chemistry/Environmental Health Sciences, Irvine, CA, 2008
- Keynote Speaker, Blueprints for Sustainable Infrastructure, Auckland, NZ, 2008
- Opening Keynote, 8th International Symposium on Green Chemistry in China, Beijing, China, 2007
- Opening Keynote, Asian Oceanic Network's Green Chemistry Conference, Tokyo, Japan, 2007
- Keynote Speaker, First Pan-African Green Chemistry Conference, Cape Town, South Africa, 2007
- Keynote Speaker, Case Western Reserve University, "Frontiers in Chemistry", 2006
- Keynote Lecture, Federation European Chemical Societies, Bordeaux, France, 2004
- Inaugural Address, 1st Indian Conference on Green Chemistry, Delhi, India, 2003
- Keynote Lecture, AIST National Symposium on Risk Management of Chemicals, Tokyo, Japan, 2003
- Plenary Lecture, International Conference on Green/Sustainable Chemistry, Tokyo, Japan, 2003
- Prestige Lecturer, University of Canterbury, Christchurch, New Zealand, 2002
- Keynote Address, Federation of European Chemical Societies Conference, "Chemistry for a Sustaining World", Athens, Greece, 2002
- Plenary Lecture, International Conference on Environmental Catalysis, Tokyo, Japan, 2001
- Plenary Lecturer, Chemrawn XIV World Congress on Green Chemistry, 2001
- Honor Speech, Green Chemistry in China, Jinan, China, 2001
- Keynote Lecture, Royal Society of Chemistry Green Chemistry Conference: Sustainable Products and Processes Swansea, Wales, 2001
- Keynote Lecturer, Venice Summer School on Green Chemistry, 2000

- Keynote Address, Chemistry Olympiad – U.S. Team, 2000
- Invited lecture, Italian National Academy of Sciences, 2000
- Keynote Lecture, AAAS National Meeting, Science for Sustainability Symposium, 2002
- Invited Lecturer, Chemical Society of the Czech Republic, Prague, 1999
- Lecture Series, Institute of Science and Technology/ University of Barcelona, 1999
- Nolan Sommer Award Lecture, University of Nebraska, Omaha, Nebraska, 1999
- Lecture Series, Japanese Chemical Society/ Japanese Chemical Innovation Institute, 1999
- Keynote Speaker, AIChE Meeting, Environmental Catalysis Symposium, Miami, FL, 1998
- Distinguished Lecturer Series, New Zealand Institute of Chemistry, New Zealand, 1998
- Plenary Lecture, First Workshop on Green Chemistry in China, National Science and Technology University, Hefei, China, 1998
- Featured Speaker, Royal Australian Chemical Institute Meeting, Sydney, Australia, 1998
- Keynote Address, Oxford University Gordon Conference on Green Chemistry, 1997
- Keynote Address and Co-Chair, Venice University, Green Chemistry: Challenging Perspectives, International Symposium, 1997
- Keynote Address, International Union of Pure and Applied Chemistry Conference, San Francisco, California, 1997
- Keynote Speaker, Florida Environmental Conference, 1996
- Chairman, Gordon Research Conference on Environmentally Benign Organic Synthesis, 1996
- Address to Mediterranean Chem International Conference, Taranto, Italy, 1995
- Keynote Address, Opening Ceremony of the Iowa State University Biotechnology Research Center, Iowa City, Iowa, 1995
- Keynote Address, Ottawa Ministry of the Environment; Energy and Environment Conference, Ottawa, Canada, 1994

INVITED PRESENTATIONS

- Keynote Speaker, Roland Quest Lecture Series, Elmhurst College Elmhurst, IL, 2011
- Keynote Speaker, EPA Region 2 Green Chemistry Conference, New York, NY, 2011
- Keynote Speaker, National Academy of Sciences Board on Environmental Studies & Toxicology, Woods Hole, MA, 2011
- Keynote Speaker, National Research Council Committee on Sustainability Linkages in Federal Government, Washington, DC, 2011
- Keynote Speaker, EPA 2011 STAR Graduate Fellowship Conference, Washington, DC, 2011
- Keynote Speaker, Delaware Sustainable Chemistry Alliance, Green Chemistry and the Green Economy, Wilmington, DE, 2011
- Keynote Speaker, EPA Pilot Workshop, Dallas, TX, 2011
- Keynote Speaker, Frontiers in Chemistry Lecture, University of Toledo, Toledo, OH, 2011
- Keynote Speaker, EPA Regional Science Workshop on Sustainable-Green Chemistry How Does Green Chemistry Support Sustainability, EPA REGION-1, Boston, 2011
- Keynote Speaker, Sustainability Fragrance Workshop, Arlington, VA, 2011
- “Conversation with Ben Franklin”, Earth Day, Philadelphia, PA, 2011
- Keynote Speaker, Thomas Jefferson High School for Science & Technology Lecture Series, Alexandria, VA, 2011
- Panelist, Science Communications Fellows - "Science Meets Policy" panel Washington, DC, 2011
- Keynote Speaker, Sustainability & Innovation at Emerging Leaders Network National Summit, 2011
- Keynote Speaker, Master Class Seminar, University of Cincinnati, 2011
- Keynote Speaker, Human Health Risk Assessment Colloquium, Washington, DC, 2010
- Keynote Speaker, Presidential Green Chemistry Challenge Awards, Washington, DC, 2010
- Keynote Speaker, American Chemical Society, Green Chemistry Institute Roundtable, Washington, DC, 2010
- Keynote Speaker, EPA People, Prosperity & the Planet Award Ceremony, Washington, DC, 2010
- Keynote Speaker, EPA Science Advisory Board Meeting, Washington, DC, 2010
- Invited Speaker, Science Communications Fellows Meeting Board on Environmental Science and Toxicology, National Academy of Science: Sustainability at the Environmental Protection Agency, Washington, DC, 2010
- Opening Keynote Speaker, National Life Cycle Inventory Database Management Workshop, Washington, DC, 2010
- Lecture, Transformational Leadership Conversations, Washington, DC, 2010
- Invited Lecture, Council of Scientific Society Presidents Meeting, Washington, DC, 2010
- Invited Lecture, Congressional Briefing, Air Science at 40, Washington, DC, 2010

- Invited Lecture, National Science Foundation's Dispersants Workshop Meeting, Washington, DC, 2010
- Invited Lecture, Toxics and Health in the Gulf Funder Webinar, 2010
- Invited Speaker, "Nifty Fifty" Student Lecture, Towson, MD, 2010
- Planning Faculty, Global Honors College, Pilot Course Planning Meeting, New York City, NY, 2009
- Invited Speaker, Good Jobs, Green Jobs Conference, Washington, DC, 2009
- Presenter, Colgate-Palmolive, Mini-Symposium on 'Sustainability', Piscataway, NJ, 2009
- Presenter, Advanced Biofuels: Industry Perspectives, Washington, DC, 2009
- Panelist, Yale Alumni Energy Conference, Panel Discussion: Public Policy in Energy, Yale University, New Haven, CT, 2009
- Presenter, Green Chemistry in Education Workshop, University of Oregon, Eugene, OR, 2009
- Invited lecture, University of Connecticut Health Center, Future Chemicals Policy, 2008
- Invited Keynote, "Design of Safer Chemicals", NSF Pan-American Advanced Studies on Sustainability & Green Chemistry, Mexico City, Mexico, 2007
- Invited keynote, "Resiliency and Green Chemistry," Center for Resilient Systems, Ohio State University, Columbus, OH, 2006
- Invited keynote, "Green Chemistry: Current Status and Future Challenges," Royal Society of Chemistry, Cambridge, UK, 2005
- National Academy of Sciences workshop on Green Chemistry Education, 2005
- National Academy of Sciences workshop on Science and Technology for Sustainability, 2005
- Invited Lecture, Beckman Foundation, Irvine, CA, 2004
- Invited Lecture, Heinz Center, Washington, DC, 2004
- Invited Lecture, Sustainable Resources Conference, Boulder, Colorado, 2004
- Invited Presentation, "Defining the Principles of Green Engineering," San Destin, Florida, 2003
- Invited Symposium, McGill School of the Environment, 2001
- International Conference on Green Chemical Technology, Keynote, Barcelona, Spain, 2001
- Massachusetts Green Chemistry Conference, Keynote, "The Potential, Importance and Urgency of Green Chemistry", Boston, MA, 2001
- Sophia University, Tokyo, Japan, Green Chemistry and Sustainability, 2001
- Max Planck Institute, Muelheim, Germany, Recent Advances in Green Chemistry, 2001
- INCA Congress, Santa Margherita Ligure, Italy, Green Chemistry in the USA, 2001
- Brooklyn Polytechic - Herman Mark Symposium, Invited Lecture, 1999
- Chemical Engineering Department, Pollution Prevention Lecture Series, University of Toledo, Toledo, OH, 1999
- North American Chemical Congress, Symposium Chair, "Pollution Prevention Through Green Chemistry in Canada, the United States and Mexico," 1997
- National Pollution Prevention Roundtable, 1996
- Younger Chemists Committee, "Undergraduate and Graduate Opportunities in Environmentally Benign Chemistry," New Orleans, LA, 1996
- University of North Carolina, Frontiers of Environmental Chemistry, 1996
- Council for Chemical Research; Workshop on Environmental Chemistry, 1995
- MediterraneanChem, Environmental Chemistry of the Mediterranean and the Northern Adriatic, Taranto, Italy, 1995
- University of Venice, Italy, Environmental Chemistry for Pollution Prevention, 1995
- "Environmentally Benign Chemical Synthesis," Symposium Co-Chairman, Anaheim, CA, 1995
- Energy and Environment Conference of Ontario, Toronto, Canada, 1994
- Southeast Regional meeting of the American Chemical Society; Birmingham, AL, 1994
- "Pollution Prevention in the Chemistry Curriculum"; Symposium Co-Chairman "Benign By Design Chemistry," Symposium Co-Chairman, Washington, 1994
- ACS Biennial Chemical Education Conference, 1994
- EPA/NSF Workshop on Green Chemistry, Chairman, 1994
- Division of Chemical Education "Curriculum Development for Environmental Chemistry," San Diego, CA 1994
- Advanced Technology Program; Chemical Research Opportunities, 1994
- "Alternative Synthetic Pathways for Pollution Prevention," Symposium Chairman, Chicago, IL, 1993
- National Academy of Sciences Committee on Risk Assessment Methodology; Emergency Chemical Exposure Levels, 1991