

Postdoctoral Program in Environmental Chemistry

<u>Institution</u>	<u>Awardee</u>	<u>Department</u>	<u>Area of Interest</u>
2008			
California Institute of Technology	Paul O. Wennberg	Divisions of Engineering and Applied Science and Geological and Planetary Sciences	To develop and apply new methods in spectroscopy and mass spectrometry to examine the formation of organic peroxides from the gas-phase recombination of peroxy radicals, an important contributor to the formation of atmospheric aerosol.
Georgia Institute of Technology	Christopher W. Jones	Chemical & Biomolecular Engineering	To develop a new method to capture CO ₂ from power-plant flue gas, combining recently developed organic/inorganic hybrid sorbents in a fundamentally new capture process.
Harvard University	Roy G. Gordon	Chemistry and Chemical Biology	Vapor deposition of tin(II) sulfide films and characterization of their optical, electronic and doping properties to facilitate engineering of inexpensive and widely available thin-film solar cells.
Massachusetts Institute of Technology	Jesse H. Kroll	Civil and Environmental Engineering	Develop and utilize a new technique for measuring the concentrations, properties, and transformations of semivolatile organic compounds to provide new insights into the chemical transformations of organic matter in the environment.
Massachusetts Institute of Technology	Stephen J. Lippard	Chemistry	Polymanganese clusters will be constructed as synthetic models to mimic features of Photosystem II and possibly lead to a new catalyst for conversion of solar energy to chemical energy.
Princeton University	Yueh-Lin Loo	Chemical Engineering	Towards the design of low-cost, stable, and efficient organic solar cells via the development of well-defined chemically-modified organic-organic and organic-metal interfaces.
The University of Wisconsin-Madison	Shannon S. Stahl	Chemistry	Use of molecular oxygen as a stoichiometric oxidant to minimize the formation of chemical byproducts and waste in catalysis.
Yale University	Gary Brudvig	Chemistry	High-valent oxo-Mn species supported on TiO ₂ nanoparticles for water splitting catalysis.

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California Institute of Technology	Nathan S. Lewis	Chemistry	Iron-Based, Earth Abundant, Photoelectrochemical Cells for Solar Energy Capture and Conversion
Harvard University	Theodore A. Betley	Chemistry and Chemical Biology	Designing Polymetallic Reaction Sites: New Strategies for Small Molecule Activation Catalysts as a Means for Chemical Energy Conversion
Massachusetts Institute of Technology	Andrei Tokmakoff	Chemistry	Mechanistic studies of biomimetic proton-coupled electron transfer compounds, using ultrafast two-dimensional infrared spectroscopy, as a key to the development of artificial photo-catalysts for water splitting.
Purdue University	Paul Shepson	Purdue Climate Change Research Center	Computational and Laboratory Studies of Arctic Sea Ice Halogen Chemistr
The Johns Hopkins University	Alan T. Stone	Geography & Environmental Engineering	Towards Predictive Modeling of Electron Transfer at Mineral/Water Interfaces, to Help Understand Environmentally Relevant Metal Oxidation State Changes
The University of Chicago	Chuan He	Chemistry	Engineering Proteins that Selectively Recognize Nuclear Waste
The University of Chicago	Robert J. Keenan	Biochemistry & Molecular Biology	Reprogramming Metabolic Pathways for the Biological Production of High Value Chemicals from Renewable Resources
University of Washington, Seattle	Daniel R. Gamelin	Chemistry	Mesoporous Oxide Tandem Photoelectrochemical Cells for Efficient Water Splitting
2006			
California Institute of Technology	Dianne K. Newman	Biology and Geological and Planetary Science	Mechanism of phototrophic Fe(II)-oxidation as a mechanism for metabolic depositing of ancient iron ores
Harvard University	Scot T. Martin	Division of Engineering and Applied Sciences	Tandem differential mobility measurements of mixed organic-sulfate particles of controlled and variable chemical properties, and their phase transitions
Harvard University	Eric N. Jacobsen	Chemistry and Chemical Biology	Design of greener chemical reactions with small molecules as efficient organocatalysts
Princeton University	Daniel M. Sigman	Geosciences	An isotopic study of denitrifiers and their respiratory nitrate reductases to understand the apparent ocean N imbalance
The University of Chicago	Norbert F. Scherer	Chemistry and the James Franck Institute	Novel noble metal clusters for enhanced light harvesting, photocatalytic activity, and multi-electron chemistry (H ₂ formation)
The University of Chicago	Hisashi Yamamoto	Chemistry	Develop a super Bronsted acid catalyst for a green chemistry alternative to metals in halogenated solvents
The University of Wisconsin-Madison	Frank N. Keutsch	Chemistry	High sensitivity in situ measurements and modeling of formaldehyde and (methyl)glyoxal photochemistry

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University of California, Berkeley	Ronald Cohen	Chemistry	Atmospheric chemistry of reactive nitrogen: ozone aerosols and biosphere-atmosphere exchange
University of California, San Diego	Kimberly A. Prather	Chemistry and Biochemistry and Scripps Institution of Oceanography	Size resolved chemistry of aerosol particles ejected from the ocean and their effects on clouds
University of Washington, Seattle	Joel A. Thornton	Atmospheric Sciences	Elucidating the sources, transformations, and chemical and climate impacts of particulate organic matter using CIMS

2005

Arizona State University	Ariel Anbar	Chemistry & Biochemistry	Isotopic compositions of bioessential and toxic metals in nature
California Institute of Technology	Jonas C. Peters	Chemistry and Chemical Engineering	Synthesis of efficient catalysts for solar water splitting systems
California Institute of Technology	John Eiler	Geological and Planetary Sciences	Fingerprinting of carbon dioxide isotopes and their distribution in nature
Carnegie Mellon University	Neil M. Donahue	Chemistry and Chemical Engineering	Oxidation pathways linking aerosols and their chemical precursors for human health and climate
Massachusetts Institute of Technology	Daniel G. Nocera	Chemistry	The chemistry of energy generation through solar power looking at O-O bond formation by radical coupling mechanisms
Princeton University	Anne M.L. Kraepiel	Chemistry	Molybdenum speciation with bioavailability and its effect on nitrogen fixation
University of California, Berkeley	Kevin R. Wilson	Chemical Sciences	Free radical reactions on catalytic surfaces related to aerosols and climate
University of California, Berkeley	Kristie A. Boering	Chemistry and Earth & Planetary Science	Molecular beam and isotopic studies of chemical mechanisms related to sources and sinks of major greenhouse gases
University of Colorado at Boulder	G. Barney Ellison	Chemistry and Biochemistry	Molecular processes that underlie oxidation of organic aerosols with a novel mass spectrometer
University of Illinois at Chicago	Neil C. Sturchio	Earth and Environmental Sciences	Mapping of historical climate patterns using magneto-optical trap methods on radio Kr isotopes

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California Institute of Technology	Janet G. Hering	Environmental Science & Engineering	Use of Vapor-phase Synthesized Iron(0) Nanoparticles to Examine Nanoscale Reactivity
Indiana University	Philip S. Stevens	School of Public and Environmental Affairs	Influence of Biogenic Emissions on Atmospheric Chemistry: Investigations of Free-Radical Chemistry in Forest Environments
Northwestern University	Franz M. Geiger	Chemistry and Institute for Environmental Catalysis	Chemical Binding and Heterogeneous Reactions of Environmentally Relevant Molecules at Liquid-solid and Gas-solid Interfaces
The Johns Hopkins University	David P. Goldberg	Chemistry	Design, Synthesis and Application of Transition Metal Catalysts for Environmental Dehalogenation Chemistry
The Ohio State University	Heather Allen	Chemistry	Atmospheric Aerosol Chemistry and Liquid Surfaces: Condensed-Phase Organics and Hydroxyl Radical Reactions
The Pennsylvania State University	William H. Brune	Meteorology	Investigating the Sensitivity of Atmospheric Ozone Formation to Nitrogen Oxides and Hydrocarbons
University of California, Irvine	Sergey Nizkorodov	Chemistry	Earth Atmospheric Environment: From Molecular Level Understanding to Global Scale Air Pollution Modeling
University of California, San Diego	Mark H. Thiemens	Chemistry and Biochemistry	New Mass Independent Isotope Effects to Study Global Atmospheric Chemistry, Climate Change, and the Origin of Life and the Solar System
University of Pennsylvania	Marsha I. Lester	Chemistry	Novel Studies of NO _x Chemistry in the Atmosphere and on Catalytic Surfaces