

Postdoctoral Program in Environmental Chemistry

<u>Institution</u>	<u>Awardee</u>	<u>Department</u>	<u>Area of Interest</u>
2009			
California Institute of Technology	Robert Grubbs	Chemistry and Chemical Engineering	Develop catalysts for the anti-Markovnikov addition of water to unactivated olefins, using water directly as a 'green' feed-stock, and a mixed-valence bimetallic complex as catalyst, representing a green technology for a highly important process.
California Institute of Technology	Alex Sessions	Geological and Planetary Sciences	Develop and employ a novel ICP-MS system to measure the $^{34}\text{S}/^{32}\text{S}$ ratios of dissolved inorganic sulfur species with picomole sensitivity to understand S-isotopic fractionations of bacterial sulfate reduction, one of the key redox reactions in the global sulfur cycle.
Massachusetts Institute of Technology	Daniel Nocera	Chemistry	Water splitting into dioxygen and dihydrogen, catalyzed by transition metal complexes, provides the most efficient way to store solar energy. We are seeking molecular species of the right electronic structure that target coupling of two oxos.
Northwestern University	Emily Weiss	Chemistry	Identify and characterize non-radiative pathways for dissipation of energy within photoexcited semiconductor quantum dots (QDs), as a function of the chemical structure of the organic surfactant on the surface of the QD, using transient absorption and transient four-wave mixing spectroscopies.
Rice University	Robert Griffin	Civil and Environmental Engineering	Multi-disciplinary (laboratory-, field-, and computationally based) studies of important heterogeneous reactions of atmospheric importance, e.g., reactions that convert nitric to nitrous acid, and generation of radicals that participate in ozone formation.
University of California, Berkeley	Jean Frechet	Department of Chemistry	Dye-sensitized solar cells with tandem energy relay systems, a novel design concept for enhancing photovoltaic performance.
University of California, Berkeley	Jeffrey Long	Chemistry	Metal-organic frameworks with high surface areas will be investigated for capture by selective binding of CO_2 over N_2 and H_2O from power plant flue streams.
University of California, Los Angeles	James Bowie	Chemistry and Biochemistry	To develop a sustainable alternative fuel by creating a direct, one-step biochemical pathway to biodiesel production in microorganisms.