

Camille Dreyfus Teacher-Scholar Awards Program

<u>Institution</u>	<u>Awardee</u>	<u>Department</u>	<u>Area of Interest</u>
2009			
California Institute of Technology	Shu-ou Shan	Chemistry	Towards a new paradigm for GTPase regulation of intracellular protein targeting.
Columbia University in the City of New York	Laura J. Kaufman	Chemistry	The Effects of Crowding on Dynamics Across Length Scales and Across Disciplines
Cornell University	Abraham Stroock	Chemical and Biomolecular Engineering	Science and engineering of metastable liquid water in synthetic trees.
Duke University	Katherine J. Franz	Chemistry	Chemical Tools to Manipulate Metal-Catalyzed Oxidative Stress
Harvard University	Alán Aspuru-Guzik	Chemistry and Chemical Biology	Quantum Computation and Quantum Information for Chemistry
New Mexico State University	Jeremy M. Smith	Chemistry and Biochemistry	Research on "nitrogen atom transfer" by three-fold symmetric iron nitrido complexes and description of the electronic structures of thermally stable iron(IV) complexes.
University of California, Berkeley	Richmond Sarpong	Chemistry	New strategies and methods for the total synthesis of natural and unnatural compounds using metal-catalyzed reactions.
University of California, Davis	Xi Chen	Chemistry	Chemoenzymatic Approaches for Chemical Glycobiology
University of California, Irvine	Alan F. Heyduk	Chemistry	Redox-Active Ligands as a New Paradigm for Multi-Electron Small-Molecule Reactions Relevant to Energy Efficiency
University of California, Santa Barbara	Todd M. Squires	Chemical Engineering	Dynamic effects at physico-chemical interfaces
University of Florida	So Hirata	Chemistry	The developments and applications of predictive electronic and vibrational many-body methods for molecules and macromolecules.

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University of Michigan	Suljo Linic	Chemical Engineering	Heterogeneous catalysis in 21st Century: well defined, high uniform, targeted nano-structures as highly selective heterogeneous catalysts, photo-catalysts, and characterization tools
University of Minnesota	Christy L. Haynes	Chemistry	Electroanalytical Eavesdropping on Cellular Communications
University of South Carolina	Paul Ryan Thompson	Chemistry and Biochemistry	Chemical Biology of Eukaryotic Gene Regulation

2008

Cornell University	Garnet K. Chan	Chemistry and Chemical Biology	Building New Paradigms in Quantum Chemistry from Quantum Renormalisation Groups to Quantum Tensor Networks
Massachusetts Institute of Technology	Mohammad Movassaghi	Chemistry	Syntheses of Biologically Interesting Alkaloids and the Development of New and General Routes to Nitrogen-containing Heterocycles
Northwestern University	Lincoln J. Lauhon	Materials Science and Engineering	Development of Quantitative Synthesis-Structure-Property Relationships for Nanostructured Materials
Texas A&M University	Victor M. Ugaz	Chemical Engineering	Directed Assembly of Ultra-concentrated Mesophases: a New Way to Detect and Characterize Biomolecules
The Johns Hopkins University	Justine P. Roth	Chemistry	Fundamental Principles of Oxidation Chemistry Relevant to Biology and Medicine
The Ohio State University	Dongping Zhong	Physics and Chemistry	Ultrafast Functional Dynamics of Biomolecules
The University of North Carolina	Garegin Papoian	Chemistry	Multi-Scale Modeling of Biophysical Processes in the Cell
The University of Texas at Austin	Christopher W. Bielawski	Chemistry and Biochemistry	Reversible Polymers Based on Biscarbenes: Creating New Opportunities in Self-Healing Electronics, Catalysis, and Emissive Materials

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University of California, Berkeley	Haw Yang	Chemistry	Single-Molecule Approaches Towards Understanding Chemical Reactivity in Complex Systems
University of California, Los Angeles	Yi Tang	Chemical and Biomolecular Engineering	Natural Product Biosynthetic Pathways for Novel Enzymes and Useful Biocatalysts
University of California, Santa Barbara	Thuc-Quyen T. Nguyen	Chemistry and Biochemistry	Understanding Charge Transport and Electronic Properties of Small Conjugated Molecules and Conjugated Polyelectrolytes for Applications in Optoelectronic Devices
University of Houston	Olafs Daugulis	Chemistry	New Synthetic Organic Chemistry Reactions Involving Transition-Metal Mediated Electrophilic C-H Bond-Activation
University of Illinois at Urbana-Champaign	M. Christina White	Chemistry	Aliphatic and Allylic C-H Oxidations Methods for Streamlining Complex Molecule Synthesis
University of South Carolina	Qian Wang	Chemistry and Biochemistry	Hierarchical Micro-Nano Assemblies for Probing Cell-Matrix Interactions
Virginia Polytechnic Institute and State University	Theresa M. Reineke	Chemistry	Carbohydrate-Based Polymers for Cardiovascular Nucleic Acid Delivery and MR

2007

Brandeis University	Oleg V. Ozerov	Chemistry	Recyclable catalysts and structural discovery through ligand design
Emory University	Justin P. Gallivan	Chemistry	Reprogramming Bacteria with Small Molecules and RNA
Harvard University	Gavin MacBeath	Chemistry and Chemical Biology	Receptor Tyrosine Kinase Promiscuity and Cancer

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Massachusetts Institute of Technology	Michael S. Strano	Chemical Engineering	Conduction channel spectroscopy: a new tool to study the chemistry of 1-D systems
Northwestern University	Bartosz A. Grzybowski	Chemical Engineering and Chemistry	Electrostatic Self-assembly of Static and Dynamic Nanostructures and Nanostructured Materials.
Rice University	Jeffrey D. Hartgerink	Chemistry and Bioengineering	Self-assembly of nanostructured organic materials for biomedical applications and multi-disciplinary education
The Pennsylvania State University	Raymond E. Schaak	Chemistry	Chemical Strategies for the Synthesis of Multi-Metal Nanomaterials: Exploring Uncharted Territory in the Synthesis of Metallurgical Solids
The University of Chicago	David A. Mazziotti	Chemistry	Blueprints of Atoms and Molecules: Two-particle Density-Matrix Representations of Electronic and Nuclear Motion
The University of Wisconsin-Madison	Helen E. Blackwell	Chemistry	Expanding the Language of Bacterial Communication Using Synthetic Ligands
University of California, Irvine	Sergey Nizkorodov	Chemistry	Laboratory studies of chemical processes taking place in atmospheric aerosol particles
University of California, Santa Barbara	Frank L. H. Brown	Chemistry and Biochemistry	Theoretical studies of biomembrane dynamics and structure, single molecule spectroscopy, and stochastic processes in chemistry and biophysics
University of Massachusetts, Amherst	Jeffrey M. Davis	Chemical Engineering	Understanding the Dynamics of Microscale Flows Over Heterogeneous Surfaces
University of Minnesota	Efrosini Kokkoli	Chemical Engineering and Materials Science	Biomimetic approaches for the design of materials and therapeutics
University of Pennsylvania	Ivan J. Dmochowski	Chemistry	Chemical tools for elucidating complex biological processes such as brain development, limb regeneration, and tumorigenesis

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University of Washington, Seattle	David S. Ginger	Chemistry	Probing Optoelectronic Processes in Nanostructured Organic Solar Cells
2006			
Arizona State University	Dong-Kyun Seo	Chemistry and Biochemistry	Theoretical and Experimental Studies on Itinerant Electron Magnetism in Intermetallics
Cornell University	Paul J. Chirik	Chemistry and Chemical Biology	New Transition Metal Reagents for Energy-Efficient, Environmentally Benign Chemical Synthesis
Emory University	James T. Kindt	Chemistry	Simulation and statistical theory of self-assembled systems: Molecular and mesoscale modeling of mixed membranes and more
Massachusetts Institute of Technology	Alice Y. Ting	Chemistry	New chemical methodologies for cellular imaging
North Carolina State University	Orlin D. Velev	Chemical and Biomolecular Engineering	Colloidal and Biocolloidal Engineering on Electrically Controlled Microchips: New Principles for Making Bionanomaterials, Microbioassys and Microrobots
The Johns Hopkins University	David H. Gracias	Chemical and Biomolecular Engineering	A Research and Education Program in Nano and Microscale Self Assembly: Integrated circuits, chemical sensors and remote controlled chemistry
The Ohio State University	Heather C. Allen	Chemistry	Atmospheric Aerosol Chemistry: Understanding How Liquid and Solid Surfaces Mediate Aerosol Chemistry
The Pennsylvania State University	Carsten Krebs	Biochemistry and Molecular Biology	Mechanisms of Iron-containing Enzymes: Characterization of reaction intermediates by a combination of rapid kinetic and spectroscopic methods
The University of Chicago	Chuan He	Chemistry	Developing Chemical Probes to Study DNA Repair and DNA Methylation/Demethylation

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The University of North Carolina at Chapel Hill	Jeffrey S. Johnson	Chemistry	The Application of Polarity Reversal Concepts in the Discovery of New Catalysts and Chemical Reactivity
University of California, Santa Barbara	Patrick S. Daugherty	Chemical Engineering	Molecular Specificity Evolution: Enabling Technology for Therapeutic Engineering and Diagnostic Proteome Fingerprinting
University of Illinois at Chicago	Yoshitaka Ishii	Chemistry	Expanding Boundaries of Structural Analysis by Solid-State NMR: From Paramagnetic Complexes to Misfolding of Amyloid Proteins
University of Illinois at Urbana-Champaign	Paul J. Hergenrother	Chemistry	Targeting mRNA for the Treatment of Neurodegenerative Disorders
University of Michigan	John P. Wolfe	Chemistry	New Reactions for the Construction of Biologically Active Molecules and Intermediates of Synthetic Importance
University of Pennsylvania	Eric Meggers	Chemistry	Chemical Biology with Organo-Metallic Compounds

2005

Boston College	Shana O. Kelley	Chemistry	Cellular and Molecular Probes of Oxidative Biomolecular Damage
California Institute of Technology	Brian M. Stoltz	Chemistry and Chemical Engineering	Complex Natural Products as a Driving Force for Discovery in Organic Chemistry
Columbia University	Brian R. Gibney	Chemistry	Design of Synthetic Metalloproteins Using Nonnatural Amino Acid Ligands
Georgia Institute of Technology	Marcus Weck	Chemistry and Biochemistry	Densely Multifunctional Copolymers: Nature-Inspired Use of Multi-Recognition Site Self-Assembly Onto Polymer Backbones for Materials Applications
Harvard University	Xiaowei Zhuang	Chemistry and Chemical Biology	Exploring RNA-protein interactions and virus infections by ultra-sensitive fluorescence imaging and single-molecule spectroscopy

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Indiana University	Daniel J. Mindiola	Chemistry	New Paradigms in Early Transition Metal Complexes Containing Reactive Metal-Ligand Multiple Bonds
North Carolina State University	Jason M. Haugh	Chemical Engineering	Seminal and integrative advances in cell signaling from molecular structure and function to pathways, cell function, and tissue response
The Pennsylvania State University	Christine D. Keating	Chemistry	Chemical approaches to the materials/biology interface: nanobiosensors and synthetic cells
The University of Chicago	Rustem F. Ismagilov	Chemistry	Supporting Undergraduate Research to Understand Complex Chemical and Biochemical Reaction Networks Top-Down and Bottom-Up Using Microfluids
University of California, Berkeley	Kristie A. Boering	Chemistry and Earth & Planetary Science	Atmospheric Chemistry and Climate on Earth and Other Exotic Planets: From the Molecular to the Global Scale
University of California, Irvine	Zhibin Guan	Chemistry	Programing Non-Covalent Interactions into Polymers for High-Order Structures and Advanced Properties.
University of California, Los Angeles	Yung-Ya Lin	Chemistry and Biochemistry	Seeing the Seeds of Cancer: Contrast and Sensitivity Enhancement for Early MRI Tumor Detection by the Butterfly Effect and Chaos Control
University of Rochester	Todd D. Krauss	Chemistry	Investigations of fundamental properties of nanometer scale materials, and the development of nanomaterials for novel applications in photonics and biology.
University of Utah	Janis Louie	Chemistry	The Development of Transition Metal Catalysts for New Cycloaddition Reactions.
University of Washington	Daniel Gamelin	Chemistry	High-Tc Ferromagnetic Semiconductors for Spintronics Applications: Development, Physical Characterization, and Chemical Manipulation
Yale University	Victor Batista	Chemistry	Development of Semiclassical and Quantum Dynamical Methods for Quantum Reaction Dynamics Simulations