

Henry Dreyfus Teacher-Scholar Awards Program

<u>Institution</u>	<u>Awardee</u>	<u>Department</u>	<u>Area of Interest</u>
2010			
Amherst College	Anthony Bishop	Chemistry	Target-Specific Control of Protein Tyrosine Phosphatase (PTP) Activity: Chemical-Genetic Tools for the Study of PTP-Mediated Cell Signaling
Chapman University	Christopher Kim	Chemistry	Nanoscale Environmental Chemistry: Studies of Metal Adsorption / Desorption Interactions with Iron Oxyhydroxide Nanoparticle Aggregates
Colby College	Jeffrey Katz	Chemistry	The Development and Quantitative Measurement of Acetylene-Activated SNAr Reactions and their Application for Complex Macrocycle Synthesis
Haverford College	Alexander Norquist	Chemistry	Organically Template Vanadium Tellurites: A New Target for Novel Microporous Materials
The College of William and Mary	Elizabeth Harbron	Chemistry	New Stimulus-Responsive Fluorescent Systems: Rhodamine Spirolactam Sensors for Mercury and pH
University of Richmond	Michael Leopold	Chemistry	Nanoparticle Film Assemblies as Interfaces for Protein Adsorption and Electrochemistry – Amperometric Sensing Materials for Biomedical Applications
2009			
Bucknell University	Eric Tillman	Chemistry	Direct synthesis of cyclic polymers using nitrones
California State University, Northridge	Jussi Eloranta	Chemistry and Biochemistry	Spectroscopy in condensed phases
College of the Holy Cross	Kenneth Mills	Chemistry	The mechanism of protein splicing: non-canonical inteins
Eastern Illinois University	Sean Peebles	Chemistry	Microwave spectroscopic studies of transition metal complexes prepared by laser ablation
Oberlin College	Manish Mehta	Chemistry and Biochemistry	Ab initio, diffraction, and NMR studies of solvation and hydrogen bonding in small peptides in condensed phases
Smith College	Kate Queeney	Chemistry	Nanoscale topography in a beaker: characterization and development of patterned Si surfaces
Trinity University	Adam Urbach	Chemistry	Rigid receptors for multivalent peptide recognition

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2008			
California State University Long Beach	Xianhui Bu	Chemistry and Biochemistry	Chirality in Metal-Organic Framework Materials
San Jose State University	Gilles Muller	Chemistry	Development of Circularly Polarized Luminescence as an Attractive Complementary Method to the Presently Available Techniques for Probing Specific Chiral Structural Changes
Smith College	Shizuka Hsieh	Chemistry	Photochemistry and Overtone-Initiated Chemistry of Atmospheric Hydroperoxides
University of Puerto Rico Mayaguez Campus	Belinda Pastrana-Rios	Chemistry	An Interdisciplinary Approach Towards the Study of Proteins and Protein-Protein Interactions: From Bioinformatics to Molecular Biophysics
Williams College	Thomas E. Smith	Chemistry	Asymmetric Methods for the Synthesis of Pyran-Based Anticancer Natural Products
2007			
California State University, Northridge	Thomas G. Minehan	Chemistry and Biochemistry	Development of Green Methodology for the Synthesis of 2-deoxy- β -C-Aryl Glycosides and Application to the Preparation of Natural Products and Nucleoside Analogs.
College of Charleston	Pamela J. Riggs-Gelasco	Chemistry and Biochemistry	Oxygen Activation by Metalloenzymes: The case of Ribonucleotide Reductase from <i>Corynebacterium ammoniagenes</i> and its facultative metal cofactor.
Kenyon College	Mo Hunsen	Chemistry	Green Chemistry: Chemical, Enzymatic, and Enzychemical Catalysis for the Synthesis of Novel Glycosidase Inhibitors and Biodegradable Polymers.
Mount Holyoke College	Maria Gomez	Chemistry	The Elusive Proton: Finding Conduction Pathways in Solid and Liquid Phases.
Trinity University	Bert D. Chandler	Chemistry	Functional Bimetallic Model Catalysts: Nanoparticle Chemistry and Reaction Kinetics for Characterizing, Evaluating, and Understanding the Active Sites in Heterogeneous Catalysts.
University of Richmond	Michelle L. Hamm	Chemistry	Studies into the base pairing, repair and replication of the prominent promutagen 8-oxo-2'-deoxyguanosine using modified nucleotides.
Wellesley College	Nolan T. Flynn	Chemistry	Development of an electrochemical method for triggering the assembly of metal nanoparticles in aqueous solution.

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2006			
College of the Holy Cross	Kimberley A. Frederick	Chemistry	Studies of flow processes in microfluidic systems involving polyelectrolyte multilayers, thermoresponsive polymers and guanosine gels
Macalester College	Keith T. Kuwata	Chemistry	Computational studies of oxidation intermediates that serve as aerosol precursors and free radical sources in the troposphere
Mount Holyoke College	Wei Chen	Chemistry	Probing the Fundamentals of Wetting and Biocompatibility for the Design of New Materials
The College of William and Mary	John C. Poutsma	Chemistry	Investigation the consequences of non-protein amino acid substitution on the thermochemistry and fragmentation patterns of small peptides
The University of Wisconsin, Eau Claire	Stephen Drucker	Chemistry	We will use jet-cooled cavity ringdown spectroscopy to characterize a series of cyclic enones in their triplet excited states.
University of North Carolina at Wilmington	Michael Messina	Chemistry and Biochemistry	Viewing enzyme active sites as "quantum controllers" of proton transfer, we propose a quantum control study of the quantum dynamics of proton transfer and tunneling in enzyme active sites.
University of South Alabama	David C. Forbes	Chemistry	Thermally induced decarboxylation of carboxymethylsulfonium betaines results in formation of the corresponding sulfur ylides in situ.
2005			
Barnard College	Linda H. Doerrer	Department of Chemistry	Transition metal complexes with fluorinated aryloxy ligands are investigated for reactivity with strongly oxidating reagents and potential organic substrate oxidation.
Furman University	Jeffrey T. Petty	Department of Chemistry	Small silver and platinum nanoclusters will be investigated for their potential use as fluorescent biological labels and as chiral catalysts.
Mount Holyoke College	Darren G. Hamilton	Chemistry	Design, synthesis, and characterization of self-organizing molecular systems expressing useful emergent properties.
New Mexico Institute of Mining and Technology	Donald H. Weinkauff	Department of Chemical Engineering	Conformal plasma polymer coatings for the surface modification of micron and nanoscale particles: reactor design and coating characterization
State University of New York at Geneseo	Wendy K. Pogozelski	Chemistry	We will measure deletion events in mitochondrial DNA as a function of gamma ray dose and investigate the effect on NADH:Q oxidoreductase.

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Swarthmore College	Kathleen P. Howard	Department of Chemistry and Biochemistry	Development and application of spectroscopic methods (NMR and EPR) to the conformational analysis of membrane-bound viral proteins
University of Richmond	Carol A. Parish	Department of Chemistry	Computational investigations of biologically important systems: Determining the conformational flexibility of HIV protease inhibitors and the cyclization barriers in enediyne warhead drugs.

2004

Amherst College	Sandra L. Burkett	Chemistry	Polymerization from inorganic lamellae: nanocomposites of polymer brushes and organically functionalized synthetic clays.
Bates College	Rachel N. Austin	Chemistry	The reaction mechanisms and active site structures of diiron monooxygenases.
California State University, Los Angeles	Matthias Selke	Chemistry & Biochemistry	The reactivity, kinetics, and mechanisms of singlet oxygen reactions with metal-bound amino acids and heteroatoms.
Colby College	Julie T. Millard	Chemistry	Small molecule-DNA interactions with an emphasis on the mechanism of anti-cancer activity.
Concordia College	Darin J. Ulness	Chemistry	An investigation of the fundamental behavior of light-matter interaction in liquids using noisy light spectroscopy.
Santa Clara University	Michael R. Carrasco	Chemistry	Site-specific attachment of small organic molecules to peptides and proteins; structure and function of peptides and proteins altered by attached molecules.
The University of Wisconsin, Eau Claire	James A. Phillips	Chemistry	Matrix-isolation FTIR-spectroscopic, computational, and crystallographic studies of condensed phase effects on structure in nitrile donor-acceptor complexes.
University of the Sciences in Philadelphia	Guillermo Moyna	Chemistry & Biochemistry	Use of theoretical ¹³ C chemical shift surfaces and experimental NMR data in the study of the conformation and dynamics of histo-blood group antigen oligosaccharides.
Wheaton College	Daniel L. Burden	Chemistry	The use of single-molecule techniques for the study of ion-channel dynamics and the optical manipulation of DNA.

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Furman University	Paul S. Wagenknecht	Chemistry	Exploitation of metal complexes of new constrained macrocyclic ligands in electronic energy transfer studies and catalysis
James Madison University	Gina M. MacDonald	Chemistry	An infrared investigation of substrate binding, salt effects and domain movement in yeast phosphoglycerate kinase
Mount Holyoke College	Sean M. Decatur	Chemistry	Studies of protein folding and misfolding in vitro: isotope-edited infrared spectroscopy of protein aggregates
Oberlin College	Matthew J. Elrod	Chemistry	Overall rate constant and branching ratio kinetics measurements of the reaction of alkene-derived peroxy radicals with nitric oxide
Occidental College	Eileen M. Spain	Chemistry	Interfacial chemistry of microbial processes relevant to biofilms and nanotechnology
Swarthmore College	Paul R. Rablen	Chemistry and Biochemistry	A Computational Investigation of the Mechanism of Addition of Carbenes to Bicyclobutanes and Cyclopropenes
Wabash College	Scott E. Feller	Chemistry	Computational studies of lipid-protein interactions
2002			
Haverford College	Karin S. Akerfeldt	Chemistry	Synthetic peptides: applications to Ca ²⁺ -binding proteins of the EF-hand type, voltage-gated ion channels and novel biomaterials
Southwest Missouri State University	Mark M. Richter	Chemistry	Electrochemiluminescence of ruthenium(II) polyazine complexes containing crown-ether moieties in the presence of metal ions
The College of William and Mary	Robert J. Hinkle	Chemistry	Rearrangements and substitution reactions in beta,beta-disubstituted alkenyl(aryl)iodonium salts: exploiting the extremely labile arylodonio moiety
The University of North Carolina at Charlotte	Daniel Rabinovich	Chemistry	An investigation of the syntheses and structures of nickel compounds in a sulfur-rich environment that mimics hydrogenase enzymes
Trinity University	Christopher Pursell	Chemistry	Heterogeneous chemistry on solid films of nitric acid, ammonia, and hydrogen sulfide
Western Washington University	James R. Vyvyan	Chemistry	Computational investigation of phenol epoxide cyclizations

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California State University, Los Angeles	Feimeng Zhou	Chemistry and Biochemistry	DNA sensing and protein metal-electron transfer at the metal-solution interface
Illinois Wesleyan University	Ram S. Mohan	Chemistry	Environmentally friendly organic synthesis using bismuth compounds
Occidental College	Michael G. Hill	Chemistry	In Vitro selection of redox-active ribozymes featuring transition-metal cofactors
The University of Wisconsin, Eau Claire	Jason A. Halfen	Chemistry	Analysis of the molecular architecture of copper catalysts for olefin aziridination
Western Washington University	David L. Patrick	Chemistry	Liquid crystal solvents for engineered growth of molecular electronics materials
2000			
California State University, Fullerton	Fu-Ming Tao	Chemistry and Biochemistry	Computational investigation of atmospheric oxidation chemistry of volatile organic compounds
Carnegie Mellon University	David J. Yaron	Chemistry	Development of semiempirical quantum chemistry models for the photophysical and electronic properties of conjugated polymers and other organic semiconductors
Furman University	John F. Wheeler	Chemistry	Preparation and characterization of DNA-binding and potential photonuclease activity of several chiral transition metal complexes
Swarthmore College	Robert S. Paley	Chemistry	The chemistry of enantiopure 1-sulfinyl diene iron(0) tricarbonyl complexes
University of North Carolina at Greensboro	Alice E. Haddy	Chemistry and Biochemistry	Enzymatic and electron paramagnetic resonance characterization of anion inhibitors of chloride-activated oxygen evolution