

2007 ACS PRF Grantees

Type AC

Awards for Fundamental Research

Dr. Christer Aakeroy, Kansas State University, Supramolecular Synthesis of Molecular Co-crystals: A Versatile Approach to Modulating Physical Properties of Functional Molecular Solids, \$90,000.

Dr. Kenneth Adams, Desert Research Institute, Quantifying Paleo-Water Depth Estimates from Lacustrine Sedimentary Features, \$124,076.

Dr. Nigel Adams, University of Georgia, Kinetics, Reaction Mechanisms, and Relative Stabilities of Heterocyclic Ring Molecules in Ionized Environments, \$90,000.

Dr. Rigoberto Advincula, University of Houston, Electropolymerizable Dendrons in Reversible Addition Fragmentation Chain-Transfer (RAFT) Polymerizations: Electrochemical Behavior and Macromolecular Assemblies, \$90,000.

Dr. Llobet Antoni, Institute of Chemical Research of Catalonia, New Insights into the Chemistry of the Ru=O Group, \$90,000.

Dr. John Arnold, University of California, Berkeley, Fundamental Chemistry of New Group 5 Metal Imido and Bis-Imido Complexes, \$90,000.

Dr. Alexandru Asandei, University of Connecticut, Early Transition Metal Catalyzed Living Radical and Ring Opening Polymerizations for Complex Copolymer Architectures, \$90,000.

Dr. Zlatko Bacic, New York University, Quantum Dynamics of Hydrogen Molecules Confined Inside Cages of Clathrate Hydrates, \$90,000.

Dr. Steven Baldelli, University of Houston, Sum Frequency Generation Spectroscopic Imaging of Catalytic Surface Reactions, \$90,000.

Dr. Christopher Bardeen, University of California, Riverside, Exciton Fission in Solid Tetracene and Related Materials: A Possible Strategy for High Efficiency Organic Solar Cells, \$90,000.

Dr. Scott Barnett, Northwestern University, Fundamental Studies of Nano-Scale Catalysts In Direct Internal Reforming Solid Oxide Fuel Cells, \$90,000.

Dr. Robert Bartynski, Rutgers, The State University of New Jersey, Molecular Adsorption on Metallic Nanostructures: Tailoring Chemisorption by Quantum Confinement of Electrons, \$90,000.

Dr. Osman Basaran, Purdue University, Steady and Transient Tip Streaming from Pendant Drops, \$90,000.

Dr. Stacey Bent, Stanford University, The Role of Surface Modification on Nanoparticle Formation by Atomic Layer Deposition, \$90,000.

Dr. Jeffrey Bergthorson, McGill University, Biodiesel Ignition Experiments and Chemical-Kinetic Modeling, \$90,000.

Dr. Ivan Biaggio, Lehigh University, Photoexcitation and Free-Carrier Transport Phenomena for Organic Optoelectronics and Photovoltaics, \$90,000.

Dr. Robert Bodnar, Virginia Polytechnic Institute and State University, Analysis of Petroleum Fluid Inclusions by UV-Raman Spectroscopy, \$45,000.

Dr. Squire Booker, The Pennsylvania State University, The Functionalization of Unactivated Alkanes by the Radical SAM Superfamily of Enzymes, \$90,000.

Dr. Babak Borhan, Michigan State University, Short, Tunable Chiral Peptidic Ligands for Osmium Tetroxide-Mediated Chemistry, \$90,000.

Dr. Stefan Bossmann, Kansas State University, Bioinspired Hybrid Systems for the Photoelectrocatalytic Generation of Solar Hydrogen and Fuels, \$90,000.

Dr. Stephen Boyes, Colorado School of Mines, Ordered Hybrid Polymer-Nanorod Composites for Renewable Energy, \$90,000.

Dr. Derek Briggs, Yale University, Structural, Molecular and Isotopic Composition of Organic Fossils and Their Relationship to Modern Counterparts: Role of Lipids in Kerogen Formation, \$134,276.

Dr. Uwe Bunz, Georgia Institute of Technology, 1,3-Dipolar Cycloaddition for the Creation of Conjugated Polymers, \$90,000.

Dr. Sue Carter, University of California, Santa Cruz, Surface Enhanced Fluorescence in Polymer Semiconductors, \$89,811.

Dr. Walter Chapman, Rice University, Development of a Density Functional Theory for Copolymer and Surfactant Interfacial Properties and Microstructure, \$90,000.

Dr. Paul Chirik, Cornell University, Understanding Iron Catalyzed Olefin Polymerization, \$90,000.

Dr. Nicholas Christie-Blick, Columbia University, Mechanisms of Crustal Extension: A Structural and Geochronological Study in the Death Valley Region of Eastern California, \$90,000.

Dr. Kimberly Cobb, Georgia Institute of Technology, Coral Records of Late 20th Century Tropical Pacific Upwelling: Investigating a Potential Climate-Carbon Feedback, \$90,000.

Dr. Itai Cohen, Cornell University, Using Colloidal Suspensions to Model Atomic Scale Lubrication Phenomena, \$90,000.

Dr. Andrew Cohen, University of Arizona, Modern Andean Foreland Basin Lakes: Keys to Deciphering Ancient Foreland Basin Lacustrine Stratigraphy, \$90,000.

Dr. David Corti, Purdue University, A New Picture of Homogeneous Bubble Nucleation in Superheated Liquids, \$90,000.

Dr. Christopher Cummins, Massachusetts Institute of Technology, A Protecting Group Strategy for Inorganic Functional Group Synthesis, \$45,000.

Dr. Juan de la Mora, Yale University, Ion Evaporation from Taylor Cones of High-Conductivity Electrolytes Immersed in Hydrocarbons, \$90,000.

Dr. W. Delgass, Purdue University, Mechanistic Understanding of Au and Au Alloy/TS-1 Propylene Epoxidation Catalysts, \$90,000.

Dr. Jeffrey Derby, University of Minnesota, Modeling the Influence of Flow and Mass Transport during In Situ AFM Measurements of Solution Crystal Growth, \$90,000.

Dr. Haim Diamant, Tel Aviv University, Statistical Thermodynamics of Solutions Enclosed in Fluctuating Semipermeable Capsules, \$88,500.

Dr. John Dorgan, Colorado School of Mines, Non-Equilibrium Nanoblends for Petrochemical Separations, \$135,000.

Dr. Elliot Douglas, University of Florida, Kinetic Control of Epoxy Morphology and Its Effect on Moisture Diffusion, \$90,000.

Dr. Mihai Ducea, University of Arizona, New Analytical Advancements In K-Ca Geochronology and Applications to Sedimentary Dating, \$135,000.

Dr. Jean Duhamel, University of Waterloo, Complete Characterization of Solutions of Associative Thickeners by Using a Combination of Fluorescence and Rheology Experiments, \$87,954.

Dr. Kim Dunbar, Texas A&M University, Systematic and Theoretical Studies of Anion-pi Interactions for the Development of Supermolecules and New Materials, \$90,000.

Dr. Daniel Dyer, Southern Illinois University at Carbondale, Design and Synthesis of Liquid Crystalline Polymer Brush Films, \$90,000.

Dr. John Falconer, University of Colorado, Adsorption-Induced Changes in Zeolite Membrane Structures, \$90,000.

Dr. W. Fawcett, University of California, Davis, Improved Heterogeneous Catalysts for Oxygen Electroreduction, \$90,000.

Dr. Kristen Fichthorn, The Pennsylvania State University, Atomic Scale Simulation of Many Body Forces in Colloidal Nanoparticle Suspensions, \$90,000.

Dr. Abbas Firoozabadi, Yale University, Measurement of Molecular and Thermal Diffusion Coefficients in Model Petroleum Fluids, \$135,000.

Dr. Duncan FitzGerald, Boston University, Strand Plain Geometry, Stratigraphy, and Evolution: Tijucas, Santa Catarina, Brazil, \$90,000.

Dr. David Ford, University of Massachusetts Amherst, Developing Inverse Density Functional Theory as an Analytical Tool for Diffusing Colloidal Probe Microscopy, \$90,000.

Dr. Peter Ford, University of California, Santa Barbara, Dehydrogenation Catalysis Relevant to Biomass Conversion to Chemicals and Fuels, \$90,000.

Dr. Karl Freed, University of Chicago, Modification of the Fragility of Polymer Melts with Structured Solvents, \$90,000.

Dr. Michael Fryzuk, University of British Columbia, New Robust Tridentate N-Heterocyclic Carbene Ligands for C-H Activation, \$90,000.

Dr. Elena Galoppini, Rutgers, The State University of New Jersey, Study of Aggregation of Organic Dyes on Metal Oxide Nanoparticle Surfaces., \$90,000.

Dr. Daniel Gamelin, University of Washington, Spectroscopy of Photovoltaic and Photoconductive Doped-Oxide Electrodes Related to Photocatalysis and Solar Energy Conversion, \$90,000.

Dr. Venkat Ganesan, The University of Texas at Austin, Dynamics of Ternary Polymer Blends, \$90,000.

Dr. John Garver, Union College, Annealing of Fission Tracks in Wide-range, Radiation-damaged Detrital Zircon, \$90,000.

Dr. Bruce Gates, University of California, Davis, Elucidating Catalytic Cycles of Supported Molecular Metal Complexes, \$90,000.

Dr. Edward Gatzke, University of South Carolina, Improved Refining Operation Using Parallel MINLP Methods for Dynamic Modeling and Control of Nonlinear Hybrid Dynamic Systems, \$90,000.

Dr. Jan Genzer, North Carolina State University, How Does Substrate Geometry Affect the Surface-Initiated 'Living' Polymerization?, \$90,000.

Dr. Scott Gilbertson, The University of Texas Medical Branch, A Modular Approach to Chiral NHC Ligands and Their Use in Asymmetric Catalysis, \$90,000.

Dr. Philip Gingerich, University of Michigan, Biotic Change in the Bighorn Basin, Wyoming, Before, During, and After the Paleocene-Eocene Thermal Maximum (PETM): Consistent with Orbital Forcing?, \$90,000.

Dr. Peter Girguis, Harvard University, Characterizing Anaerobic Microbial Oxidation of Hydrocarbons: Tracing the Fate of C3 and C4-derived Carbon in Marine Seeps, \$89,900.

Dr. Daniella Goldfarb, The Weizmann Institute of Science, Structure Directing by Nanoaggregates from the Molecular to the Mesoscopic Scale, \$90,000.

Dr. Alessandro Gomez, Yale University, Experiments on Strained Premixed Flames in the Distributed Reaction Regime, \$135,000.

Dr. Laurel Goodwin, University of Wisconsin-Madison, Petrophysical Controls on Fault Damage Zone Width and Character: As Important as Displacement?, \$90,000.

Dr. Clare Grey, State University of New York at Stony Brook, NMR and Structural Investigations of Novel Oxysulfide Intercalation Materials, \$90,000.

Dr. Kliti Grice, Curtin University of Technology, Stable Carbon and Hydrogen Isotopic Relationships of Individual Saturated and Aromatic Hydrocarbons in Source Rocks and Petroleum, \$90,000.

Dr. Scott Gronert, Virginia Commonwealth University, Gas Phase Studies of Stereoselective Binding to Models of Reactive Intermediates in Metal/Salen Catalyzed Epoxidations, \$90,000.

Dr. T. Gunnoe, North Carolina State University, Development of Catalytic Reactions using Well-Defined Monomeric Cu(I) Complexes with Non-Dative Heteroatomic Ligands: Fundamental Exploration of Scope and Mechanism of C-X (X = N, O or S) Bond Forming Reactions, \$45,000.

Dr. Dennis Harry, Colorado State University, The Nature of the Crust Beneath the Deep Gulf of Mexico and Development of the Syn-Rift and Early Post-Rift Gulf Basin, \$135,000.

Dr. Ulrich Haussermann, Arizona State University, New Materials from High-Pressure, High-Temperature Synthesis, \$88,440.

Dr. Paul Heller, University of Wyoming, Shapes, Scales and Spacing of Channel-belt Sand Bodies in Ancient and Experimental Avulsion-dominated Alluvial Basins, \$99,800.

Dr. Alan Heyduk, University of California, Irvine, Harnessing Metal-Ligand Cooperative Redox Reactivity for Bond Functionalization Strategies, \$90,000.

Dr. Jonathan Higdon, University of Illinois at Urbana-Champaign, Direct Numerical Simulation of Microscale Rheology and Multiphase Flow in Porous Media, \$90,000.

Dr. Sascha Hilgenfeldt, Northwestern University, Void Propagation in Foam Moving in Narrow Channels, \$90,000.

Dr. Paul Houston, Cornell University, Product Imaging of the Dissociation of Combustion Radicals, \$90,000.

Dr. Martin Hubbe, North Carolina State University, Electrokinetic Behavior and Passage of Polyelectrolytes and Surfactants throughout Tortuous Micro/Nanopore Media, \$90,000.

Dr. Scott Husson, Clemson University, Surface Grafted Poly(ionic liquid)s, \$90,000.

Dr. Timothy Jamison, Massachusetts Institute of Technology, Epoxide-Opening Cascades Promoted by Water and by Diols, \$90,000.

Dr. Samuel Johnson, University of Windsor, A Synthetic Investigation into the Scope and Mechanism of Ni(I) Promoted C-H Bond Activation, \$90,000.

Dr. Wayne Jones, State University of New York at Binghamton, Nanofiber Catalyst Supports and Solution-Based Processes for Deposition of Catalytic Metals and Metal Oxides, \$90,000.

Dr. Richard Jones, The University of Texas at Austin, Thin Film Growth of Amorphous Metal-Phosphorus Alloys, \$90,000.

Dr. Piotr Kaszynski, Vanderbilt University, New Multi-Redox Heterocycles for Materials Applications, \$90,000.

Dr. Jason Keith, Michigan Technological University, Modeling and Optimization of Diesel Particulate Trap Ignition Phenomena, \$90,000.

Dr. Thomas Keyes, Boston University, Induction in Chemistry: Introducing Electrostatic Bonds, \$90,000.

Dr. S. Kilbey, Clemson University, Structural and Frictional Interactions between Microphase Segregated, Multi-Component Polymer Brushes, \$90,000.

Dr. Jacob Klein, University of Oxford, Limits of Lubrication by Charged Polymers, \$90,000.

Dr. Holger Kleinke, University of Waterloo, Unusual As-As and Sb-Sb Bonding in Thermoelectric Materials, \$135,000.

Dr. Camelia Knapp, University of South Carolina, Absheron Allochthon: Evidence for South Caspian Seafloor Deformation in Response to Climatically Driven Hydrate Dissociation, \$119,787.

Dr. Barbara Knutson, University of Kentucky, Synthesis, Tuning, and Application of Fluorinated Mixed Cationic/Anionic Surfactant Vesicles, \$90,000.

Dr. Carsten Krebs, The Pennsylvania State University, Oxygen Activation by Isopenicillin N Synthase - The Yin and Yang of C-H Activation, \$90,000.

Dr. James Kubicki, The Pennsylvania State University, Quantum Mechanical Calculation of Hydrogen Isotope Exchange Thermodynamics and Kinetics on Petroleum Model Compounds, \$90,000.

Dr. Ronald Larson, University of Michigan, Novel Brownian Dynamics Simulation Methods for Polymer Solutions, \$90,000.

Dr. L. Leal, University of California, Santa Barbara, Nonlinear Rheology of Branched Polymers, \$90,000.

Dr. Carl Lund, University at Buffalo, State University of New York, Catalyst Modification to Reduce Product Inhibition During High Temperature Water-Gas Shift, \$90,000.

Dr. John Lupton, University of Utah, Breaking the Glass Ceiling of Organic Photovoltaics by Controlling Temporal Fluctuations in Light-Harvesting in Single Macromolecular Complexes, \$90,000.

Dr. Stefan Lutz, Emory University, Hydrolase Engineering by Circular Permutation, \$90,000.

Dr. Jules Magda, University of Utah, Effect of Elevated Pressure on the Rheology, Vitrification, and Aging of Suspensions of Model Colloidal Spheres, \$90,000.

Dr. Paul Maggard, North Carolina State University, Heterometallic Oxides/Organics For Investigations Of Visible-Light Photocatalysis, \$90,000.

Dr. Charles Maldarelli, City University of New York, City College, A Transport Theory, Molecular Dynamics Simulations and Experiments on the Adsorption of Surfactant From Micellar Solutions to an Initially Clean Air/Water Interface, \$90,000.

Dr. Mark Maroncelli, The Pennsylvania State University, Modeling Spectroscopic Measurements of Solvation and Solvent Friction, \$90,000.

Dr. Randall Marrett, University of Texas at Austin, Evaporite Deformation in the Sierra Madre Oriental, Northeastern Mexico: Decollement Kinematics in an Evaporite-Detached Thin-Skinned Fold Belt, \$90,000.

Dr. James Martin, North Carolina State University, Probing the Mechanism of Sorptive Reconstruction Upon Ethylene and CO binding to CuAlCl₄, \$90,000.

Dr. Andrea Mattevi, University of Pavia, The Oxygen Reactivity of Flavoenzymes: A Structural Approach, \$90,000.

Dr. Gary Mavko, Stanford University, Experimental Investigation of the Effect of Pressure and Fluid Saturation on Carbonate Rocks, \$90,000.

Dr. Gerald Meyer, The Johns Hopkins University, Photogeneration of Reduced Catalysts with vibrationally Hot Electrons, \$90,000.

Dr. Benjamin Miller, University of Rochester, The Phenol - Amine Hydrogen Bond as a Director of Molecular Structure, \$89,583.

Dr. David Milstein, The Weizmann Institute of Science, New Homogeneously Catalyzed Dehydrogenation and Hydrogenation of Polar Bonds. Esters and H₂ from Alcohols, Hydrogenation of Esters, and Related Reactions, \$90,000.

Dr. Simon Mochrie, Yale University, Direct Measurement of Casimir Forces in Near-critical Binary Fluids, \$90,000.

Dr. Kishore Mohanty, University of Houston, Mechanistic Understanding of Wettability Alteration in Fractured Carbonate Reservoirs, \$135,000.

Dr. Peter Monson, University of Massachusetts Amherst, Modeling the Phase Behavior of Gas Hydrate Forming Systems, \$90,000.

Dr. Robert Morris, University of Toronto, Polar Bond Hydrogenation Catalyzed by Iron Complexes, \$90,000.

Dr. Georgii Nikonorov, Brock University, New Silanimine and NSi-H-M Agostic Complexes for Coupling with Petroleum Derived Products, \$90,000.

Dr. Steven Nolan, Institute of Chemical Research of Catalonia, A Metal-Mediated Approach to Ring Construction, \$90,000.

Dr. George O'Doherty, West Virginia University, De Novo Synthesis of Rare/Unnatural Sugars from Achiral Materials, \$90,000.

Dr. Robert Pascal, Princeton University, Bond Compression in Triptycene-Containing In-Cyclophanes, \$90,000.

Dr. Grenfell Patey, University of British Columbia, Interactions and Structure in Nematic Colloids, \$90,000.

Dr. Reginald Penner, University of California, Irvine, Fundamental Investigations of Thermal-to-Electrical Power Conversion in Lithographically Patterned Bismuth Telluride (Bi₂Te₃) Nanowire Arrays, \$90,000.

Dr. Lisa Pfefferle, Yale University, Oxygenated Fuels in Flames, \$90,000.

Dr. Karsten Pohl, University of New Hampshire, Identifying the Driving Forces for Alloying in Ultra-Thin Films, \$90,000.

Dr. Jordan Poler, University of North Carolina at Charlotte, Synthesis of Novel Metallocendrimers for Electron Transfer Processes at Nanoscale Interfaces, \$90,000.

Dr. Oleg Prezhdo, University of Washington, Time-domain Ab Initio Studies of Relaxation Dynamics of Photogenerated Carriers in Quantum Dot Solar Cells, \$90,000.

Dr. Lin Pu, University of Virginia, Development of Organocatalysts for the Asymmetric Alkyne Addition to Aldehydes and Applications in Organic Synthesis, \$90,000.

Dr. Christopher Reed, University of California, Riverside, New Catalysts for Phosphazene Ring-Opening Polymerization, \$90,000.

Dr. James Runt, The Pennsylvania State University, Tailoring Ion-Containing Polymers for Energy Storage Devices, \$90,000.

Dr. Julian Sachs, University of Washington, A Paleosalinity Proxy from Lipid D/H Ratios, \$90,000.

Dr. Demian Saffer, The Pennsylvania State University, Fault Zones in Mudstones as Petroleum Seals and Fluid Conduits: A Laboratory Study, \$90,000.

Dr. Richard Saykally, University of California, Berkeley, The Vibrational Spectrum, Structure, and Bonding of Liquid Carbon, \$90,000.

Dr. Jeremy Schofield, University of Toronto, Non-Perturbative Effects of Dynamical Inhomogeneities in Viscous Fluid Mixtures, \$90,000.

Dr. Adrian Schwan, University of Guelph, New Low Valent Sulfur and Selenium Acid Derivatives: Reactivity and Synthetic Applications, \$90,000.

Dr. Benjamin Schwartz, University of California, Los Angeles, Understanding Chemical Bond Dynamics in Solution using Femtosecond Spectroscopy and Nonadiabatic Mixed Quantum/Classical Simulations, \$135,000.

Dr. Sergei Sheiko, University of North Carolina at Chapel Hill, Single Macromolecules as Probes for Pressure and Friction in Fluid Monolayers, \$90,000.

Dr. Moonsu Shim, University of Illinois at Urbana-Champaign, Synthesis of Novel Heterostructured Catalyst Materials with Nanoscale Precision, \$90,000.

Dr. Ken Shimizu, University of South Carolina, New Model Systems to Measure Weak Non-covalent Interactions, \$90,000.

Dr. Kenneth Shull, Northwestern University, Self-Assembly of Block Copolymer Bilayer Membranes at Oil-Water Interfaces, \$90,000.

Dr. Mary Shultz, Tufts University, Interactions Between Small Hydrocarbons and Water: Clathrate Formation and Inhibition, \$90,000.

Dr. Diane Smith, San Diego State University, Electrochemical Studies on the Effect of Hydrogen Bonding and Proton Transfer Reactions of Organic Redox Couples, \$90,000.

Dr. Bradley Smith, University of Notre Dame, Macrocyclic Scavengers of Chloroalkanes, \$90,000.

Dr. Kevin Smith, Boston University, Surface and Bulk Electronic Structure of Transparent Conducting Oxides, \$90,000.

Dr. Luis Smith, Clark University, Determining the Effect of Local Structure on Acidity in High Surface Area Oxides, \$90,000.

Dr. Jorge Sofo, The Pennsylvania State University, Search and Discovery of a New Crystalline Hydrocarbon: Graphane and Derived Compounds, \$90,000.

Dr. Xueyu Song, Iowa State University, Calculations of Interfacial Free Energies Between Water and Ice from Molecular Simulations, \$90,000.

Dr. Timothy Steimle, Arizona State University, Probing the Metal Activation of C-H Bonds Using High-resolution Mid-infrared Laser Spectroscopy, \$90,000.

Dr. Alan Stone, The Johns Hopkins University, Redox Reactions of Iron and Manganese that Chemically Transform Natural Organic Matter Within Sediments, \$89,998.

Dr. Roger Summons, Massachusetts Institute of Technology, Developing a Molecular Proxy for Marine Cyanobacteria, \$90,000.

Dr. Ya-Ping Sun, Clemson University, Investigation on Novel Photoactive Carbon Materials for Their Unique Properties Relevant to Energy Conversion, \$90,000.

Dr. Donald Sundberg, University of New Hampshire, Basic Mechanisms Responsible for Morphology Control within Polymer Nanoparticles, \$90,000.

Dr. Harry Swinney, The University of Texas at Austin, Harmonic Moments of Viscous Fingering Structures in Thin Oil Layers, \$90,000.

Dr. James Takacs, University of Nebraska-Lincoln, Methods for Ligand Scaffold Optimization in Catalysis, \$135,000.

Dr. John Tarduno, University of Rochester, The Paleomagnetism of Mesozoic Dike of Mauritania: Implications for Motion and Stability of Africa, \$90,000.

Dr. Andrei Tokmakoff, Massachusetts Institute of Technology, Femtosecond Infrared Spectroscopy of Proton-Coupled Electron Transfer Dynamics, \$90,000.

Dr. Sarah Tolbert, University of California, Los Angeles, Synthesis, Characterization, and Physical Properties of Periodic Mesoporous Group IV Semiconductors Formed through Zintl Clusters/Surfactant Co-Organization, \$90,000.

Dr. William Tolman, University of Minnesota, Controlled Polymerization of Renewable Cyclic Esters: Catalyst Design and Polymerization Mechanisms, \$90,000.

Dr. Salvatore Torquato, Princeton University, Modeling Random Heterogeneous Materials Via Lower-Order Statistics, \$90,000.

Dr. Michael Treacy, Arizona State University, Zeolite Structure Prediction and the Identification of Useful Synthetic Targets, \$84,812.

Dr. William Trenkle, Brown University, Catalyst Design and Development: Exploration of a New Class of Rhodium (I) Catalysts, \$135,000.

Dr. Michael Tsapatsis, University of Minnesota, Carbon Nanotube Membranes by Templated Growth in Oriented Molecular Sieve Films, \$90,000.

Dr. S. Turner, Virginia Polytechnic Institute and State University, Highly Functionalized Macromolecules Based on Free Radical Copolymerization of Substituted Stilbene Monomers, \$135,000.

Dr. Martin Vala, University of Florida, Spectroscopy of Polycyclic Aromatic Hydrocarbon Cations and Complexes, \$90,000.

Dr. Ben van der Pluijm, University of Michigan, Curvature of Orogenic Fronts: A Study of the US Appalachians, \$87,455.

Dr. Alan Van Orden, Colorado State University, Imaging Single Molecule Catalysis at the Solid-Liquid Interface, \$90,000.

Dr. Dhandapani Venkataraman, University of Massachusetts Amherst, Side Chains With Incompatible Packing: A Strategy to Assemble Organic Semiconductors, \$89,948.

Dr. Sergey Vyazovkin, University of Alabama at Birmingham, Nanostructuring and Thermal Behavior of Polymers: Toward Improving Longevity of Important Petroleum Derived Products, \$45,000.

Dr. Lai-Sheng Wang, Washington State University Tri-Cities, Characterization of Stannaspherene and Endohedral Stannaspherenes, \$90,000.

Dr. Yongmei Wang, The University of Memphis, Computational Investigation of New Separation Schemes for Branched Polymers, \$90,000.

Dr. Feng Wang, Boston University, Molecular Dynamics Study of Stability and Meta-stability of Methane Hydrates, \$90,000.

Dr. J. Weber, University of Colorado, Infrared Spectroscopy of Cluster Anions Containing Aromatic Molecules, \$90,000.

Dr. Paul Weiss, The Pennsylvania State University, Hydrogenation Reactions on Palladium Involving Subsurface Hydride, \$90,000.

Dr. Hanno Weitering, The University of Tennessee, Quantum Mechanical Control of Surface Chemical Reactivity, \$90,000.

Dr. John Welch, State University of New York at Albany, The Preparation of Optically Active Pentafluorosulfanylated Building Blocks: Selectivity and Reactivity in Synthesis, \$90,000.

Dr. Jeffery White, Oklahoma State University, Alkane C-H Bond Activation in Hydrocarbon Catalysis with Solid Acids, \$90,000.

Dr. Timothy White, The Pennsylvania State University, Vitrinite Reflectance, Basin Thermal History, and a Link to Seafloor Methane Seeps, Cretaceous Western Interior Basin, United States, \$90,000.

Dr. Barbara Wyslouzil, Ohio State University, Multicomponent Droplet Growth in Supersonic Natural Gas Separators, \$90,000.

Dr. Fang Xu, University of Central Florida, Development of an Unified Soot Surface Growth Model, \$90,000.

Dr. Arun Yethiraj, University of Wisconsin-Madison, Theoretical Study of the Electro-optic Properties of Branched Polymers, \$90,000.

Dr. Peter Zeitler, Lehigh University, Impacts of Fission-Track Damage on Helium Diffusion Kinetics in Apatite and Zircon, \$89,995.

Dr. Ilya Zharov, University of Utah, Synthesis and Characterization of Novel Hybrid Organic-Inorganic Proton Conducting Membranes, \$90,000.

Type B**Awarded to Faculty in Non-Ph.D.-Granting Departments**

Dr. Cecilia Anaya de Parrodi, Universidad de las Americas, Puebla, Design of Nitrogen, Phosphorus and/or Sulfur-based Catalysts for the Enantioselective Hydrosilylation of Prochiral Ketones., \$45,000.

Dr. Chad Booth, Texas State University-San Marcos, New Membranes for Enhanced Purification of Natural Gas at the Wellhead, \$55,000.

Dr. Brian Buffin, University of Michigan-Flint, Recoverable Environmentally-Benign Oxidation Catalysts, \$55,000.

Dr. Richard Bunt, Middlebury College, Hammett Studies of P,N-Chiral Ligands, \$55,000.

Dr. Daniel Burden, Wheaton College, Dissecting the Dynamics of Surfactant Assemblies with Numerical Fluorescence Correlation Spectroscopy, \$55,000.

Dr. Jeffrey Chiarenzelli, Saint Lawrence University, Textural Controls on the Geochemical Variability of Argillaceous Hydrocarbon Source Rocks and Potential Application to Precambrian Units, \$55,000.

Dr. Edward Crane, Pomona College, Mechanisms of Sulfur Reduction by Sulfur/Polysulfide Reductase, \$55,000.

Dr. Kurstan Cunningham, Saint Norbert College, Homoleptic and Heteroleptic Copper(I) Phenanthrolines: Sterically Enhanced Excited States, \$54,900.

Dr. Benoit Daoust, Universite du Quebec a Trois-Rivieres, Development of Synthetic Tools Using Ynol Ether Ionic Chemistry, \$44,850.

Dr. Roman Dembinski, Oakland University, Efficient Synthesis of Heterocycles with the Aid of Electrophilic Cyclizations and Fluorous Chemistry, \$55,000.

Dr. Vincent DeTuri, Ithaca College, Carbanion Intermediates in Proton-Transfer Reactions Between Carbon Acids and Alkoxides, \$55,000.

Dr. William Feld, Wright State University, The Synthesis of Novel Indenofluorenes, \$50,000.

Dr. Gary Findley, University of Louisiana at Monroe, Structure of Molecular Rydberg States in Supercritical Alkanes, \$55,000.

Dr. Paul Fischer, Macalester College, Studies on Heterobimetallics Containing Phosphinoethyl-, Aminoethyl-, and Diphenylphosphino-functionalized Cyclopentadienyl Group VI Metal Carbonyl Fragments, \$55,000.

Dr. Stephen FitzGerald, Oberlin College, Investigating the Quantum Dynamics of Trapped Hydrogen Using Infrared Spectroscopy, \$55,000.

Dr. Timothy H. Gfroerer, Davidson College, Exploring Defect Level Position and Occupation in Metamorphic Heterostructures for Multi-junction Photovoltaic Converters, \$55,000.

Dr. Jihua Gou, University of South Alabama, Synthesis, Processing, and Characterization of Fire-Retardant Polymeric Nanocomposites, \$55,000.

Dr. Gregory Grant, The University of Tennessee at Chattanooga, Self-Assembly of Molecular Squares from Platinum Group Metal Complexes with Thiacrowns and Related Ligands, \$55,000.

Dr. Michael Hill, Occidental College, Electrochemical Activation of Cytochrome P450, \$55,000.

Dr. Phillip Ihinger, University of Wisconsin-Eau Claire, Evolution of Petroleum-Bearing Fluid Systems: Insights from Growth Dynamics of Quartz Crystals, \$55,000.

Dr. Dale Keefe, Cape Breton University, Investigations of Intermolecular Interactions in Liquid Hydrocarbons, \$55,000.

Dr. Donald Krogstad, Concordia College, Synthesis, Coordination Chemistry, and Catalytic Studies of a Library of Water-Soluble Polydentate Phosphines Derived from 1,3,5-Triaza-7-phosphaadamantane (PTA), \$55,000.

Dr. Evan Lemley, University of Central Oklahoma, Simulation and Experimental Investigation of Energy Losses in Dividing Flow, \$54,868.

Dr. Robert McGaff, University of Wisconsin-La Crosse, The 'Helmet Phthalocyanines': Synthetic and Catalytic Studies on a New Class of Chiral Phthalocyaninato-Metal Complexes, \$55,000.

Dr. Craig McLauchlan, Illinois State University, Vanadium-Scorpionate Coordination Complexes: Syntheses, Characterization, and Reactivities, \$55,000.

Dr. Debra Mohler, James Madison University, Dependence of Rates of Interfacial Electron Transfer on Anchoring Group Structure and Dye MLCT State Energy, \$55,000.

Dr. Kevin Morris, Carthage College, An Investigation of Chiral Recognition in Electrokinetic Chromatography by means of NMR Spectroscopy, \$55,000.

Dr. James Phillips, University of Wisconsin-Eau Claire, Condensed Phase Effects on the Structural Properties of Friedel-Crafts Intermediates: RF-BF3, \$55,000.

Dr. I. Reingold, Juniata College, Ordered Arrays of Polyphenols by Tandem Reactions, \$55,000.

Dr. David Rovnyak, Bucknell University, Examining Hydrodynamic and Solubilization Properties of Micelles Formed by Chiral Amphiphiles with NMR, \$55,000.

Dr. Keith Russell, Northern Kentucky University, Ion Sensitive Push-Pull Pyridoannulenes, \$55,000.

Dr. Paul Strother, Boston College, A Study of the Algal-Plant Transition Based on Organic Remains from Cambrian Strata, \$55,000.

Dr. Kathleen Surpless, Trinity University, Detailed Provenance Analysis of the Hornbrook Formation, Oregon and California: Testing Paleogeographic Models of the Cretaceous Cordillera in the Western United States, \$55,000.

Type G

Starter Grants Awarded to Faculty in Ph.D.-Granting Departments

Dr. Onofrio Annunziata, Texas Christian University, Crosslinked Enzyme Microspheres Prepared Using Liquid-Liquid Phase Separation Can Catalyze Reactions Involving Petroleum Derivatives, \$40,000.

Dr. Jon Antilla, University of South Florida, Brønsted Acid-Catalyzed Asymmetric Additions to Imines, \$40,000.

Dr. Luis Ayala, The Pennsylvania State University, Characterizing Multiphase Transport and Flow Dynamics in Complex Natural Gas Network Topologies, \$40,000.

Dr. Michael Bartl, University of Utah, Utilizing Photonic Band Structure Engineering for Advanced Photon Management in Solar Energy Conversion, \$40,000.

Dr. Matthias Batzill, University of South Florida, Tampa, Surface Science Investigation of MoS₂ Nanoclusters Supported on TiO₂ for a Fundamental Understanding of Hydrodesulfurization Catalysts, \$40,000.

Dr. John Berry, University of Wisconsin-Madison, New Chemistry of Iron in its Highest Oxidation State, \$40,000.

Dr. Ilya Bindeman, University of Oregon, Rare Oxygen and Sulfur Isotopes of Volcanogenic Sulfate Aerosols in Sedimentary Rocks as a Robust Correlation Tool, \$40,000.

Dr. Simon Blakey, Emory University, New Catalysts for Asymmetric Intermolecular C-H Amination, \$40,000.

Dr. Suzanne Blum, University of California, Irvine, Nucleophilic Substitution/Functionalization Reactions of Transition-Metal Complexes at sp³ Carbon, \$40,000.

Dr. Geoffrey Bothun, University of Rhode Island, Liquid Transport Mechanisms and Surface Interactions in Nanoporous Materials, \$40,000.

Dr. Brenda Bowen, Purdue University, Evaluating the History of Eolian and Interdune Fluid-Sediment Interactions and Mass Transfer in an Acid and Redox Influenced Diagenetic System: Mollies Nipple, GSENM, \$40,000.

Dr. Shawn Burdette, University of Connecticut, Investigation of O₂ Activation with Metallocendrimer Models of Copper Monooxygenases, \$40,000.

Dr. Jason Burdick, University of Pennsylvania, Novel Degradable Polymer Synthesis to Investigate Network Formation and Structure, \$40,000.

Dr. Meinhard Cardenas, University of Texas at Austin, Current-Topography Driven Exchange Processes Between Water Columns and Heterogeneous Permeable Sediments, \$40,000.

Dr. Margaret Cheung, University of Houston, Hydrophobic Interaction in Surfactants and Hydrocarbons from the Pore Scale to the Reservoir Scale, \$40,000.

Dr. Mark Clementz, University of Wyoming, Quantification of Cenozoic Marine Primary Productivity through Geochemical Analysis of Marine Mammal Bioapatite, \$40,000.

Dr. Don Coltart, Duke University, The Development of Mild and Operationally Simple Direct Methods for the Synthesis of beta-Dicarbonyl Compounds, \$40,000.

Dr. Brian Connell, Texas A&M University, Asymmetric Hydrovinylation and Related Reactions, \$40,000.

Dr. Stefano Curtarolo, Duke University, Is Superlubrication Possible in Engines? Characterization of the Adsorption of Hydrocarbons on Quasicrystal Surfaces, \$40,000.

Dr. Brenton DeBoef, University of Rhode Island, Synthesis of Bis-arenes via Oxidative Coupling, \$40,000.

Dr. Brian Dian, Purdue University, Characterization of Combustion Product Pathways Using Chirped-pulse Broadband Microwave Spectroscopy, \$40,000.

Dr. James Donahue, Tulane University, An Electrochemically Controlled Separation of Nitrogen and Sulfur Heterocycles from Crude Petroleum by Reversible Binding to Iron Bis(dithiolene) Complexes, \$40,000.

Dr. German Drazer, The Johns Hopkins University, Transport of Colloids in Micromodels: Average Motion and Dispersion Effects, \$40,000.

Dr. Tom Driver, University of Illinois at Chicago, Development of New Methodologies Involving 2H-azirines, \$40,000.

Dr. Traian Dumitrica, University of Minnesota, Molecular Dynamics Simulations of Time-Dependent and Transport Processes, \$40,000.

Dr. Barry Dunietz, University of Michigan, Control of Molecular Organo-metallics Conductance via Changes in the Ligation Scheme, \$40,000.

Dr. Nael El-Farra, University of California, Davis, Diagnosis and Management of Faults in Distributed Chemical Processes, \$40,000.

Dr. Thomas Epps, University of Delaware, Templating Ion-Conducting Network Membranes Using Tapered Block Copolymers, \$40,000.

Dr. Joelle Frechette, The Johns Hopkins University, Application of an Electric Field to Control Wetting of Thin Fluid Films, \$40,000.

Dr. Rafael Garcia, Worcester Polytechnic Institute, Experiments for Improved Understanding of the Wetting of Polar Liquids, \$40,000.

Dr. Ksenija Glusac, Bowling Green State University, Controlled Electron Transfer in Hydrogen Bonded Systems, \$40,000.

Dr. Jonas Goldsmith, Bryn Mawr College, Rational Self Assembly of Macromolecular Arrays for Optimized Light Harvesting and Photocatalytic Hydrogen Production, \$40,000.

Dr. Scott Grayson, Tulane University, Novel Polymeric Amphiphilic for Hydrocarbon Solubilization and Spill Remediation, \$40,000.

Dr. Song-I Han, University of California, Santa Barbara, Studying Flow Dispersion through Porous Media by Novel Molecular Contrast NMR Imaging, \$40,000.

Dr. Eva Harth, Vanderbilt University, Synthesis and Design of Novel Electro-Active, Site-Isolated Nanostructures, \$40,000.

Dr. John Herbert, The Ohio State University, Ab Initio Molecular Dynamics and Ab Initio Quantum Dynamics Investigation of Radical Reactions Involved in Combustion, \$40,000.

Dr. Tessa Hill, University of California, Davis, The Storegga Submarine Landslide: Investigating the Relationship Between Slope Instability, Climate Change, and Gas Hydrates, \$40,000.

Dr. Dean Ho, Northwestern University, Active Orientation and Encapsulation of Bacteriorhodopsin-Driven Photo-Energy Transduction in Copolymer Shells, \$40,000.

Dr. Bradley Holliday, The University of Texas at Austin, Rhodium-containing Conducting Metallopolymers: Utilizing Electronic Changes on the Polymer Backbone to Remotely Attenuate Metal-ligand Interactions, \$40,000.

Dr. Sukwon Hong, University of Florida, Chiral Acyclic Carbene Ligands for the Asymmetric Suzuki Coupling Reaction, \$40,000.

Dr. Louisa Hope-Weeks, Texas Tech University, Catalytically Active Low Density Porous Copper (II) Monoliths, \$40,000.

Dr. Jeremy Hourigan, University of California, Santa Cruz, Quantifying Sediment Dispersal Rates in a Transcontinental Drainage Using Zircon U/Pb: (U-Th/He) Chronometry, Amazon River, \$40,000.

Dr. Heileen Hsu-Kim, Duke University, Stabilization of Metal-Sulfide Nanoparticles by Natural Organic Matter, \$40,000.

Dr. Thomas Ihle, North Dakota State University, Simulating the Spontaneous Emulsification of Oil/Water/Surfactant Mixtures, \$40,000.

Dr. Mohammad Islam, Carnegie Mellon University, Dynamics of Melting within Bulk Colloidal Crystals, \$40,000.

Dr. Takashi Ito, Kansas State University, Surface Chemistry of Diblock-Copolymer-Based Nanoporous Materials, \$40,000.

Dr. Seogjoo Jang, City University of New York, Queens College, Theoretical Investigation of the Two-state Model for the Excess Electron in Saturated Hydrocarbon Liquids Based on Path Integral Simulation, \$40,000.

Dr. Michael Janik, The Pennsylvania State University, Ab Initio Study of the Potential Dependence of the Surface Structure and Reactivity of Doped Ceria Anodes for Use in Direct Hydrocarbon Solid Oxide Fuel Cells, \$40,000.

Dr. Elizabeth Jarvo, University of California, Irvine, Catalytic Enantio- and Diastereoselective Allylations With Nucleophilic pi-Allylpalladium Complexes, \$40,000.

Dr. Xiaomei Jiang, University of South Florida, Tampa, Nanocomposite of Infrared Quantum Dots and Conducting Polymers: Possible Multiple Exciton Dissociation, \$40,000.

Dr. Zuleima Karpyn, The Pennsylvania State University, Estimation of Macroscopic Fracture Transport Properties from Micro-Scale Flow Structures and Fracture Geometry, \$40,000.

Dr. Laura Kaufman, Columbia University, Do Probe Molecules Alter Host Dynamics in Glassy Systems?, \$40,000.

Dr. Jinsang Kim, University of Michigan, Origin of Mechanochromism in Polydiacetylene Compound, \$40,000.

Dr. Jason Kingsbury, Boston College, Catalytic Asymmetric Ketone Homologation. Development of Chiral Aluminum Complexes for the Formal Deoxygenative Insertion of Carbonyl Compounds into Acyclic and Cyclic Ketones., \$40,000.

Dr. Brian Kirby, Cornell University, Solvent Effects on Water Restructuring and Electrokinetics at Water-Hydrocarbon Interfaces, \$40,000.

Dr. Jeremy Kodanko, Wayne State University, Remote Functionalization Reactions Catalyzed by Multinuclear Complexes, \$40,000.

Dr. Tadanori Koga, State University of New York at Stony Brook, Control of Methane Hydrate Formation at the Molecular Level, \$40,000.

Dr. Andrei Kolmakov, Southern Illinois University at Carbondale, Visualizing the Interplay Between Electronic Excitations and Surface Chemistry of the Functioning 1-D Metal-Oxide Nanostructures, \$40,000.

Dr. Milen Kostov, Florida State University, Active Nanostructures for Clean Hydrogen Production, \$40,000.

Dr. Kevin Kubarych, University of Michigan, Probing Photocatalysis Reaction Dynamics and Mechanism Using Non-equilibrium Multidimensional Infrared Spectroscopy, \$40,000.

Dr. Gavin Lawes, Wayne State University, Magnetodielectric Coupling in Oxide Nanocomposites, \$40,000.

Dr. Nicolai Lehnert, University of Michigan, Molecular Mechanism of Hydrogen-formation in Fe-only Hydrogenases, \$40,000.

Dr. Xiaosong Li, University of Washington, Theoretical Studies of Reaction Control with Optical Fields, \$40,000.

Dr. Tianbo Liu, Lehigh University, Study the State of Counter-ions in Polyoxometalate Solutions, \$40,000.

Dr. Rainer Lohmann, University of Rhode Island, Are Natural Chars Important for the Sorption of PAHs? A Field Study With Lake Sediments and Soils in Oriole Lake, \$40,000.

Dr. Christine Luscombe, University of Washington, Surface-Initiated n-Type Semiconducting Polymer Synthesis, \$40,000.

Dr. Louis Madsen, Virginia Polytechnic Institute and State University, Solute Morphology And Transport In Polymeric Fuel Cell Materials, \$40,000.

Dr. Jagannathan Mahadevan, University of Tulsa, Productivity Loss in Unconventional Natural Gas Wells Due to Salt Crystallization, \$40,000.

Dr. Mahesh Mahanthappa, University of Wisconsin-Madison, The Effects of Polydispersity on the Melt Phase and Aqueous Solution Phase Behavior of ABA-Triblock Copolymers, \$40,000.

Dr. Jingdong Mao, Old Dominion University, New Insights into Molecular Structural Changes of Kerogen During Thermal Evolution Investigated by Advanced Solid-State NMR Spectroscopy, \$40,000.

Dr. Aaron Massari, University of Minnesota, Structural Dynamics in Conducting Polymer Systems Probed with In-Situ Electrochemical Two-dimensional Infrared Spectroscopy, \$40,000.

Dr. Steven McIntosh, University of Virginia, The Role of Catalysis in Next Generation Direct Hydrocarbon Solid Oxide Fuel Cell Anodes., \$40,000.

Dr. Randall Meyer, University of Illinois at Chicago, Ab Initio Study of Support Effects in the Direct Oxidation of Propylene to Propylene Oxide, \$40,000.

Dr. Brian Miller, Florida State University, Chemical Mechanism of a Unique, Cofactor-Independent Decarboxylase, \$40,000.

Dr. Michael Moats, University of Utah, The Oxidation of Ethanol and Dimethyl Ether by Binary and Ternary Electrocatalysts for Fuel Cell Applications, \$40,000.

Dr. Oliver Monti, University of Arizona, Interfacial Electron Transfer One Molecule at a Time, \$40,000.

Dr. Beth Mullenbach, Texas A&M University, Fluid Muds on the Bangladesh Shelf Near the Ganges-Brahmaputra River: Implications for Clinoform Development in Monsoon Climates, \$40,000.

Dr. Steven Nielsen, The University of Texas at Dallas, Surfactant adsorption and self-assembly at solid/liquid interfaces, \$40,000.

Dr. Alexei Novikov, University of North Dakota, Development of C-H Insertion on Sulfonyl Compounds, \$40,000.

Dr. Matthew Oehlschlaeger, Rensselaer Polytechnic Institute, Experimental Investigation of the High-Temperature Ultraviolet Absorption and Oxidation Kinetics of the Phenyl Radical, \$40,000.

Dr. Thomas Olszewski, Texas A&M University, Refining Sequence Stratigraphic Interpretations Using Benthic Fossil Communities from the Permian Basin of West Texas, \$40,000.

Dr. Michael Oskin, University of North Carolina at Chapel Hill, Nucleation and Growth of Basement-Cored Uplifts Around Strike-Slip faults: Case Study of the Kungey-Zailiskey Ranges, Tien Shan, Central Asia, \$40,000.

Dr. Eric Potma, University of California, Irvine, Single Molecule Vibrational Coherence on a Carbon Chain, \$40,000.

Dr. Regina Ragan, University of California, Irvine, High Density, Monodisperse Core-Shell Nanoparticle Arrays: A Study of Nanoscale Catalytic Properties, \$40,000.

Dr. Venkatramanan Raman, The University of Texas at Austin, Turbulent Mixing in the Presence of Liquid Droplets with Application to Spray Combustion, \$40,000.

Dr. Pengyu Ren, The University of Texas at Austin, Understanding Molecular Transport in Carbon Nanotubes, \$40,000.

Dr. Rebecca Robinson, University of Rhode Island, Examining the Biogeochemistry Behind the Organic-rich Sediments in Guaymas Basin, Gulf of California, \$40,000.

Dr. Jan-Uwe Rohde, University of Iowa, Transition-Metal-Mediated Activation of Sulfur Toward C–S Bond Formation, \$40,000.

Dr. Diana Roman, University of South Florida, Tampa, Shear-Wave Splitting Analysis of Stress Field Perturbations Around an Active Magmatic Conduit: Soufriere Hills Volcano, Montserrat, \$40,000.

Dr. Slava Rotkin, Lehigh University, Theoretical Investigation of Ionomeric PolyImer-Nanotube Composites as Novel Materials for Solar Energy Applications, \$40,000.

Dr. Chong-Yu Ruan, Michigan State University, Ultrafast Probing of Structures, Functions, and Pathways for Light-Excited Amorphous Silicon in Potential Energy Landscape, \$40,000.

Dr. Javid Rzayev, University at Buffalo, State University of New York, Novel Routes to Well-Defined Conjugated Polymers and Their Block Copolymers, \$40,000.

Dr. Alberto Salleo, Stanford University, Fundamental Investigations of the Microstructure of Semicrystalline Polymers for Alternative Energy Generation, \$40,000.

Dr. Thomas Scharf, University of North Texas, In Situ Chemical Diagnostic Tribology of Dry and Lubricated Thin Film-Based Technologies, \$40,000.

Dr. Sachin Shanbhag, Florida State University, Modeling the Crystallization of Polymers from Solutions and Melts, \$40,000.

Dr. Rhett Smith, Clemson University, Tunable Ligands for Rhodium-Catalyzed Hydroformylation, \$40,000.

Dr. Dong Son, Texas A&M University, Real-Time Investigation of the Dynamic Structural Changes of Metal Oxide Nanocrystals using Time-Resolved X-ray Spectroscopy, \$40,000.

Dr. Glenn Spinelli, New Mexico Institute of Mining and Technology, Sediment Stabilization and Anomalous Porosities Resulting from Minor Opal Cementation, \$40,000.

Dr. Todd Squires, University of California, Santa Barbara, Microrheological Investigation of Particle-Laden Polymer/Polymer Interfaces, \$40,000.

Dr. Lia Stanciu, Purdue University, Spark Plasma Sintering of Ceria Materials for Solid Oxide Fuel Cells Applications, \$40,000.

Dr. Hans Stauffer, Iowa State University, Ultrafast Studies of Solvent and Solute Vibrational Relaxation During Solvation In Room Temperature Ionic Liquids, \$40,000.

Dr. Andre Striegel, Florida State University, Influence of Chain Conformation on the Mechanochemical Degradation of Polymers in Transient Elongational Flows, \$40,000.

Dr. Alberto Striolo, University of Oklahoma, Heat Transfer in Graphene-Oil NanoComposites: A Molecular Understanding to Overcome Practical Barriers, \$40,000.

Dr. Ming Su, University of Central Florida, Structure-Performance Correlations in Nanocolumn-Array Supported Nanoparticle Films for Solar Energy Conversions, \$40,000.

Dr. Andrew Terentis, Florida Atlantic University, Structure-Function Studies of Indoleamine 2,3-Dioxygenase (IDO), \$40,000.

Dr. F. Tezcan, University of California, San Diego, Toward Understanding Biological Nitrogen Fixation: Direct Electrochemical Studies of Nitrogenase, \$40,000.

Dr. Regan Thomson, Northwestern University, N-Allyl- and N-Alkynylhydrazones: Ideal Compounds for Efficient Organic Transformations, \$40,000.

Dr. Geoffrey Tick, University of Alabama, High Resolution Characterization of Crude Oil Distribution at the Pore Scale: Effects on Enhanced Petroleum Recovery, \$40,000.

Dr. John Tovar, The Johns Hopkins University, Unusual Aromaticity and Organic Semiconductor Performance, \$40,000.

Dr. Edward Valeev, Virginia Polytechnic Institute and State University, Explicitly Correlated Electronic Structure Methods for Predictive Energetics and Kinetics of Radical Reactions, \$40,000.

Dr. Anton Van der Ven, University of Michigan, Inorganic Guest Species in Organic Crystals: A First-Principles Investigation, \$40,000.

Dr. Qiang Wang, Colorado State University, Modeling Polyelectrolyte Layer-By-Layer Assembly, \$40,000.

Dr. Rory Waterman, University of Vermont, Tripodal Phosphido Ligands to Support Early Transition-Metal Catalysis, \$40,000.

Dr. Jennifer Wilcox, Worcester Polytechnic Institute, Heterogeneous Reactivity of Trace Elements in Combustion Flue Gases, \$40,000.

Dr. Jeffrey Wilson, University of Michigan, Vertebrate Paleontology of Upper Cretaceous Deposits of Jordan, \$40,000.

Dr. You-Yeon Won, Purdue University, Phase Behavior of Mixed Polymer Brushes Containing Charged and Non-Charged Chains, \$40,000.

Dr. Jonathan Wynn, University of South Florida, Tampa, Stable Isotopic Constraints on Carbon Exchange During Heterotrophic Decomposition of Soil Organic Matter, \$40,000.

Dr. Tao Xu, Northern Illinois University, Porous Nanocomposites for Solar Thermoelectric Energy Conversion, \$40,000.

Dr. Ling Zang, Southern Illinois University at Carbondale, One-Dimensional Exciton Diffusion in Perylene Based Solar Cell Materials, \$40,000.

Dr. Barry Zink, University of Denver, Exploring Improved Petroleum Utilization Via Nanoscale Thermal Engineering of Thermoelectric Materials, \$40,000.

Type GB

Starter Grants Awarded to Faculty in Non-Ph.D.-Granting Departments

Dr. Carolyn Anderson, Calvin College, Chromium Carbene-Accelerated Type II Intramolecular Diels-Alder Reactions as a Gateway to Strained Ring Libraries, \$40,000.

Dr. Krisanu Bandyopadhyay, University of Michigan-Dearborn, Functionalized Surfaces as Templates for In Situ Formation of Gold Nanoparticle Catalyst, \$40,000.

Dr. Cristian Botez, The University of Texas at El Paso, Proton Conduction Mechanisms in Superionic Phases of Phosphate-Based Solid Acids, \$40,000.

Dr. Anthony Chianese, Colgate University, Bowl-shaped Ligands for Secondary-sphere Control of Selectivity in Homogeneous Catalysis, \$40,000.

Dr. Molly Costanza-Robinson, Middlebury College, Microtomographic Imaging of the Air-Water Interface in Unsaturated Porous Media, \$40,000.

Dr. Markus Etzkorn, University of North Carolina at Charlotte, Synthesis and Physicochemical Investigation of Hydrofluorocarbons with Extended pi-Stacked Arene Units, \$40,000.

Dr. Tomoko Fujiwara, The University of Memphis, Design, Synthesis, and Photochromism Studies of Photo-Switchable Bispipyran Polymers, \$40,000.

Dr. Scott Giorgis, State University of New York, College at Geneseo, The Timing of Deformation and Landscape Evolution Along the Central Range Fault System, Trinidad, \$40,000.

Dr. Brian Goess, Furman University, Development of Homologated [2,3] and [3,3] Sigmatropic Rearrangements, \$40,000.

Dr. Kevin Jantzi, Valparaiso University, Pd(0)-Catalyzed [3+2] Cycloadditions Involving Novel Epoxide and Aziridine Containing Trimethylenemethane Precursors, \$40,000.

Dr. Camille Jones, Hamilton College, Expansion and Shrinkage of Water Cages in Structure II Clathrate Hydrates: The Effects of Temperature and Guest, \$40,000.

Dr. Eric Kantorowski, California Polytechnic State University, Influence of Ring Size and Substituents on the Cyclopropylcarbonyl Radical Fragmentation, \$40,000.

Dr. Joseph Keane, Muhlenberg College, Enantioselective Dearomatization Agents Based on Chiral C2-Symmetric Ligands, \$40,000.

Dr. Byung Kim, Boise State University, Chiral Recognition of PVBA on fcc(111) Surfaces in Electrochemical Solutions, \$40,000.

Dr. Janet Kirsch, University of Wisconsin-La Crosse, Bonding and Electronic Structure of Reconstructed Surface Alloys, \$40,000.

Dr. Tomoko Komada, San Francisco State University, The Effect of Substrate 14C-Age on Anaerobic Degradation of Organic Matter in Marine Sediments, \$40,000.

Dr. Jeremy Kua, University of San Diego, Boron-Containing Covalent Organic Frameworks: Simulating Dynamics of Self-Assembly, \$40,000.

Dr. Joshua Lawrence, Centenary College of Louisiana, Scope and Mechanism of Aromatic Perfluoroalkylation by Iron Reagents, \$40,000.

Dr. Chad Leverette, University of South Carolina at Aiken, Influence of Nanostructure Design on the Structure and Spectroscopic Characterization of Self-Assembled Organic Films Deposited onto Novel Metallic Surfaces, \$40,000.

Dr. Michael Lewis, St. Louis University, The Scope and Chemical Relevance of Anion-Pi Interactions Involving Aromatics: Computational and Solid-State Studies., \$40,000.

Dr. Jose Lopez, Saint Peter's College, Fundamental Studies of Plasmas Generated and Maintained in Spatially Confined Geometries: Capillary Plasma Electrode Discharges, \$40,000.

Dr. Frankie McCormick, Northern Michigan University, Synthesis and Characterization of Novel Donor/Acceptor Molecules Based on Propellanes: A Probe of Nonclassical Conjugation, \$40,000.

Dr. Jocelyn Nadeau, Marist College, Probing Through-Space Charge Migration in Segmented Conducting Polymers, \$40,000.

Dr. James Rego, California State Polytechnic University, Pomona, Design and Synthesis of Chiral Nematic Liquid Crystal Twist Agents, \$40,000.

Dr. Philip Resor, Wesleyan University, Three Dimensional Structural and Geomechanical Analysis of Syn-sedimentary Deformation of a Prograding Carbonate Reef Complex, Guadalupe Mountains, New Mexico and Texas, \$40,000.

Dr. Jie Song, University of Michigan-Flint, Theoretical Investigations of Transition Metal Carbides, \$40,000.

Dr. Joseph Tanski, Vassar College, Metal-Organic Network Materials For Asymmetric Catalysis, \$40,000.

Dr. Chad Tatko, Calvin College, Development of Peptide Based Biocatalysts for the Desulfurization of Dibenzothiophene, \$40,000.

Dr. Sarah Titus, Carleton College, Using Paleomagnetism to Investigate Distributed Deformation within the San Andreas Fault System, Central California, \$40,000.

Dr. Matthew Trawick, University of Richmond, Nanometer-Scale Shearing and Curvature-Driven Grain Boundary Migration in Diblock Copolymer Thin Films, \$40,000.

Dr. Sanwu Wang, University of Tulsa, Large-Scale Quantum Mechanical Calculations for the Catalytic Dehydrogenation of Alkanes: Chromium Supported on Transition Aluminas, \$40,000.

Dr. Yixuan Wang, Albany State University, Density Functional Theory and Car-Parrinello Molecular Dynamics Simulations of Ethanol Electro-oxidation Reaction on Bi- and Trimetallic Nanoparticles, \$40,000.

Dr. Anna Wenzel, Claremont McKenna College, Catalytic Asymmetric Methods for the Conversion of Petroleum Products Derived from Ethylene and Propylene into Chiral N-Heterocycles: the Preparation of Chiral Pyrrolidines and 1,2,3,4-Tetrahydroquinolines, \$40,000.

Dr. Hua Zhao, Savannah State University, Effect of Ionic Liquid Properties on the Enzyme Stabilization Under Microwave Radiation, \$40,000.

Dr. Zhengtao Zhu, South Dakota School of Mines and Technology, Charge Transfer and Charge Transport in Nanofibers of Conjugated Polymer and ZnO Nanoparticles, \$40,000.

Type SE
ACS PRF Grants for Scientific Education

Dr. Rigoberto Advincula, ACS Division of Polymer Chemistry, Polymer Surface and Interfaces, at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Rigoberto Advincula, ACS Division of Polymer Chemistry, Pi-Conjugated Polymer Materials and Hybrids: Synthesis, Macromolecular Assemblies, and Nanostructures, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Pal Arjunan, ACS Division of Polymer Chemistry, Advances in Polyolefins 2007, September 2007, Santa Rosa, CA, \$3,600.

Dr. Peter Budzelaar, CIC CSC Division of Inorganic Chemistry, Mechanism and Design in Organometallic Catalysis, at 90th Canadian Society for Chemistry Conference and Exhibition, May 2007, Winnipeg, Manitoba, \$3,600.

Dr. Branton Campbell, American Crystallographic Association, Diffuse Scattering for the Masses: the Characterization of Local Structural Correlations in Molecular, Macromolecular, and Inorganic Crystals, at the Annual Meeting of the American Crystallographic Association, July 2007, Salt Lake City, UT, \$2,400.

Dr. Clive Carter, University of Minnesota, 16th International Symposium on the Reactivity of Solids (ISRS-16), June 2007, Minneapolis, MN, \$3,600.

Dr. David Chandler, University of Minnesota, XXI Dynamics of Molecular Collisions Meeting, July 2007, Santa Fe, NM, \$3,600.

Dr. Shaowei Chen, Federation of Analytical Chemistry and Spectroscopy Societies, Electrochemistry and Functional Nanomaterials, at the 34th Annual Meeting of the Federation of Analytical Chemistry And Spectroscopy Societies (FACSS), October 2007, Memphis, TN, \$3,600.

Dr. Stephen Cheng, ACS Division of Polymeric Materials: Science and Engineering, 50 Years After the Discovery of Polymer Single Crystals - A Look Back, Current Discoveries and Future Opportunities at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Cecilia Clementi, ACS Division of Physical Chemistry, Multiscale Modeling in Biophysics, at the ACS National Meeting, April 2008, New Orleans, LA, \$3,600.

Dr. Joel Collier, ACS Division of Polymeric Materials: Science and Engineering, Designed Macromolecular Assemblies for Biomedical Applications, ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Robert Continetti, University of California, San Diego, 29th International Symposium on Free Radicals, August 2007, Big Sky, MT, \$3,600.

Dr. T. Crawford, ACS Division of Physical Chemistry, Implications and Applications of Chirality in Physical Chemistry, ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Liem Dang, ACS Division of Computers in Chemistry, Recent Advances in Studies of Molecular Processes at Interfaces, at the ACS National Meeting, August 2007, Boston MA, \$3,600.

Dr. Marcetta Dahrensbourg, National Renewable Energy Laboratory, 8th International Conference on Hydrogenases and Hydrogen Production, August 2007, Breckenridge, CO, \$3,600.

Dr. Jeffery Davis, University of Maryland, Calix 2007: The Ninth International Conference on Calixarene Chemistry, \$3,600.

Dr. Michael Dupuis, ACS Division of Physical Chemistry, Computational Electrochemistry for New Energy, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Matthew Elrod, ACS Division of Physical Chemistry, Physical Chemistry of Atmospheric Processes, at the ACS National Meeting, April 2008, New Orleans, LA, \$2,400.

Dr. Deborah Evans, ACS Division of Physical Chemistry, Emergence of Function in Molecular Assemblies, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Steven Fleming, ACS Division of Organic Chemistry, 60 Years of Physical Organic Chemistry, at the ACS National Meeting, August 2007, Boston, MA, \$2,400.

Dr. Jiali Gao, ACS Division of Physical Chemistry, Quantum Mechanics and Statistical Mechanics: Can One Avoid the Other, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Wayne Gladfelter, ACS Division of Inorganic Chemistry, Chemical Vapor and Atomic Layer Deposition at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. David Goodman, ACS Division of Colloid and Surface Chemistry, Foundations of Surface Chemistry, at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Mark Gordon, ACS Division of Computers in Chemistry, Bold Predictions in Theoretical Chemistry: A Symposium in Honor of Bill Goddard, at the ACS National Meeting, August 2007, Boston, MA, \$2,400.

Dr. John Greedan, Canadian Society for Chemistry, Solid State Chemistry of Energy Conversion Materials, at the 90th Canadian Society for Chemistry Conference, May 2007, Winnipeg, Manitoba, \$3,600.

Dr. C. Guymon, Materials Research Society, Advances in Photo-Initiated Polymer Processes and Materials, at the Materials Research Society Meeting, April 2007, San Francisco, CA, \$3,600.

Dr. C. Guymon, ACS Division of Polymer Chemistry, Polymers and Liquid Crystals, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Torsten Hegmann, Chemical Society of Canada, Division of Organic Chemistry, Organic Materials - Self Assembly, at the 90th Canadian Society for Chemistry Conference, 2007, Winnipeg, Manitoba, \$1,200.

Cecilia Hernandez, American Chemical Society, ACS Project SEED Summer Experiences for the Economically Disadvantaged High School Students, \$50,000.

Dr. Steven Holdcroft, ACS Division of Polymeric Materials: Science and Engineering, Proton Conducting Membranes for Fuel Cells, at the IUPAC and ACS Conference on Macromolecules for a Safe, Sustainable and Healthy World, June 2007, Brooklyn, NY, \$3,600.

Robert Hughes, American Chemical Society, ACS Scholars Program, \$100,000.

Dr. Song Jin, ACS Division of Inorganic Chemistry, One-dimensional Inorganic Nanomaterials, ACS National Meeting, March 2007, Chicago, IL, \$1,200.

Dr. Scott Kroeker, CIC CSC Division of Inorganic Chemistry, Solid State NMR of Inorganic Materials, at the 90th Canadian Chemistry Conference and Exhibition, May 2007, Winnipeg, Manitoba, \$3,600.

Dr. Clifford Kubiak, ACS Division of Inorganic Chemistry, Mixed Valency in Chemistry, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Nicola Marzari, ACS Division of Colloid and Surface Chemistry, Electronic Structure Modeling of Heterogeneous Catalysis, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Spiridoula Matsika, ACS Division of Physical Chemistry, Excited Electronic States in Chemistry and Biology: Theory and Experiment, at the ACS National Meeting, August 2007, Boston, MA, \$2,400.

Dr. James McGrath, ACS Division of Polymer Chemistry, Advances in Materials for Proton Exchange Membrane Fuel Cell Systems, ACS Polymer Division Specialized Workshop, February 2007, Asilomar Conference Center, CA, \$3,600.

Dr. Marc Michel, ACS Division of Geochemistry, Complementary Techniques for Resolving the Structure of Environmentally-Significant Poorly Crystalline and Polycrystalline Materials, at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Sylvie Morin, Canadian Society for Chemistry, Post-Modern Electrochemistry, at the 90th Canadian Society for Chemistry Conference, Winnipeg, Manitoba, May 2007, \$1,200.

Dr. Daniel Neumark, ACS Division of Physical Chemistry, Hydration: From Clusters to Aqueous Solution, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. George Newkome, ACS Division of Polymer Chemistry, Metal-containing and Metallo-supramolecular Polymers and Materials, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. S. Oyama, ACS Division of Petroleum Chemistry, Mechanisms of Homogeneous and Heterogeneous Catalytic Epoxidation, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Linda Peteanu, Inter-American Photochemical Society, 18th Inter-American Photochemical Society Winter Conference, January 2008, St. Petersburg, FL, \$2,400.

Dr. Viacheslav Petrov, ACS Division of Fluorine Chemistry, Flourine: Enabling Element of Modern Chemistry, 18th Winter Fluorine Conference, January 2007, St. Petersburg, FL, \$3,600.

Dr. Piotr Piotrowiak, International Society for Optical Engineering (SPIE), Physical Chemistry of Interfaces and Nanomaterials VI, at the 2007 SPIE Meeting, August 2007, San Diego, CA, \$3,600.

Dr. Oleg Prezhdo, ACS Division of Physical Chemistry, Dynamics on the Nanoscale, at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Krishnan Raghavachari, ACS Division of Physical Chemistry, Computational Spectroscopy, at the ACS National Meeting, April 2008, New Orleans, LA, \$3,600.

Dr. Christopher Reed, ACS Division of Inorganic Chemistry, The Proton. New Physical and Structural Aspects of Acidity and H-Bonding, at the National ACS Meeting in Chicago, March 2007, \$3,600.

Dr. Christopher Reed, ACS Division of Inorganic Chemistry, 8th International Conference on Heteroatom Chemistry (ICHAC-8), August 2007, Riverside, CA, \$3,600.

Dr. Hans Reich, ACS Wisconsin Section, 8th International Symposium on Carbanion Chemistry (ISCC8), June 2007, Madison, WI, \$3,600.

Dr. Giuseppe Resnati, ACS Division of Fluorine Chemistry, Nanostructured Fluorocarbons: Smart Modules for Self-Assembly, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Jose Rodriguez, ACS Division of Colloid and Surface Chemistry, Symposium Honoring 2007 ACS Adamson Award Winner Charles T. Campbell, at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Lisa Rosenberg, University of Victoria, The 40th Silicon Symposium, May-June 2007, Victoria, BC, \$3,600.

Dr. Justine Roth, ACS Division of Colloid and Surface Chemistry, Strategies in Enzymatic Oxidation Catalysis, at the ACS National Meeting, August 2007, Boston, MA, \$2,400.

Dr. James Runt, ACS Division of Polymeric Materials: Science and Engineering, Relaxation Behavior of Polymeric Materials, at the ACS National Meeting, August 2007, Boston, MA, \$3,600.

Dr. Kalaichelvi Saravanamuttu, Physical Theoretical and Computational Division of CSC, Photoprocesses in Chemical Systems: New Directions for Photonics Applications, at the 90th Canadian Society for Chemistry Conference, Winnipeg, Manitoba, May 2007, \$1,200.

Dr. Raymond Schaak, ACS Division of Inorganic Chemistry, Nanoscale Inorganic Catalysis, ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. William Schneider, ACS Division of Physical Chemistry, Capturing Complexity in Physical Sciences Simulation, ACS National Meeting, March 2007, Chicago, IL, \$1,010.

Dr. Gary Schrobilgen, ACS Division of Fluorine Chemistry, Novel Bonding and Structural Modalities in Inorganic Fluorine Chemistry; a Symposium Honoring Professor Neil Bartlett, at the ACS National Meeting, August 2007, Boston MA, \$2,400.

Dr. Roseanne Sension, ACS Division of Physical Chemistry, Optical Probes of Dynamics in Complex Environments, at the ACS National Meeting, April 2008, New Orleans, LA, \$1,200.

Dr. Michael Silverstein, ACS Division of Polymeric Materials: Science and Engineering, Nano- and Micro-scale Porous Polymer-Based Systems, at the ACS National Meeting, August 2007, Boston MA, \$3,600.

Dr. Jorge Sofo, The Pennsylvania State University, WIEN2007: Hands-on Workshop on the WIEN2k Package, June 2007, University Park, PA, \$3,600.

Dr. Lothar Stahl, CIC CSC Division of Inorganic Chemistry, Main Group Compounds in Catalysis, Materials Research and Biochemistry, at the 90th Canadian Chemical Conference, May 2007, Winnipeg, Manitoba, \$1,200.

Dr. Peter Stair, ACS Division of Colloid and Surface Chemistry, ACS Symposium Honoring 2007 Somorjai Award Winner Hans Joachim Freund at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. John Straub, ACS Division of Physical Chemistry, Vibrational Spectroscopy as a Probe of Biomolecular Structure and Dynamics: Theory and Experiment, at the ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. T. Tilley, ACS Division of Inorganic Chemistry, Catalysis Relevant to Energy and Sustainability, at the 233rd American Chemical Society National Meeting, March 2007, Chicago IL, \$3,600.

Dr. Robert Walker, ACS Division of Physical Chemistry, Structure and Dynamics at the Liquid-Liquid Interface, ACS National Meeting, March 2007, Chicago, IL, \$3,600.

Dr. Andrew G.H. Wee, Chemical Society of Canada, Division of Organic Chemistry, Metal-Catalyzed Organic Synthesis, at the 90th Canadian Society for Chemistry Conference, May 2007, Winnipeg, Manitoba, \$2,400.

Dr. Vance Williams, Simon Fraser University, 2007 International Symposium On Photochromism, October 2007, Vancouver, BC, \$3,600.

Dr. Haw Yang, ACS Division of Physical Chemistry, Single-molecule imaging, spectroscopy, and manipulation of biomolecular systems, at the 234th ACS National Meeting, August 2007, Boston, MA, \$2,400.

Dr. Peidong Yang, ACS Division of Physical Chemistry, New Strategies for the Synthesis of Mesoporous Materials, at the ACS National Meeting, April 2008, New Orleans, LA, \$3,600.

Dr. Kai Ilijoki, University of Alberta, Banff Symposium on Organic Chemistry, November 2007, Banff, Alberta, Canada, \$1,200.

Dr. Jingsong Zhang, ACS Division of Physical Chemistry, Electronic Structures and Reaction Dynamics of Open-shell Species, at the ACS National Meeting, April 2008, New Orleans, LA , \$3,600.

Dr. Yue Zhao, Canadian Society for Chemistry, Polymers for Nanoscience and Nanotechnology, at the 90th Canadian Society for Chemistry Conference, May 2007, Winnipeg, Manitoba, \$3,600.

Type UFS**Undergraduate Faculty Sabbaticals**

Dr. Sandra Burkett, Amherst College, Multinuclear High-Resolution Solid State NMR Investigations of Polymer Brush-Clay Nanocomposites.

Dr. Markus Hoffmann, State University of New York, College at Brockport, Investigating the Mobility and Thermodynamics of Mixed Ionic Liquid - Water Systems.

Dr. Jeffrey Knott, California State University, Fullerton, Tephrochronology for the 21st Century: Redefining the Bishop Ash Bed.

Dr. Thomas Varberg, Macalester College, Electronic Spectroscopy of Polycyclic Aromatic Hydrocarbons (PAHs) in the Gas Phase.

Type SRF

Summer Research Fellowships

Type AC

Dr. Catalina Achim, Carnegie Mellon University, Investigation of Polynuclear Transition Metal Complexes with Spin Transition, \$8,000.

Dr. Alicia Beatty, Mississippi State University, Intercalative Investigation of Hydrogen-Bonded Clay Mimics, \$8,000.

Dr. Paul Deck, Virginia Polytechnic Institute and State University, Highly Fluorinated Diels-Alder Polyphenylenes, \$8,000.

Dr. R. Daniel Little, University of California, Santa Barbara, Catalytic and Potentially Enantioselective ERC and EHC Reactions, \$8,000.

Dr. Alejandra Lukaszew, University of Toledo, Magnetic Nanostructures, \$8,000.

Dr. John Protasiewicz, Case Western Reserve University, A New Twist on Pincer Complexes for Catalysis, \$8,000.

Dr. Raghunathan Rengaswamy, Clarkson University, Theoretical and Experimental Study of Multivariable Control of PEM Fuel Cells, \$8,000.

Type B

Dr. Jose E. Cortes-Figueroa, University of Puerto Rico at Mayaguez, Electronic Structure, Molecular Structure, and Site of Bond Breaking in Facial-and Meridional-(Dihapto-[60]Fullerene)(Dihapto-Bidentate Ligand)Transition Metal(0) Complexes, \$8,000.

Dr. Saliya de Silva, Montclair State University, The Design and Study of Molecular-Scale Photonic Devices and Green Chemistry Approaches Towards Their Synthesis, \$8,000.

Dr. Abu Hasan, University of Minnesota, Duluth, Modeling Transient Heat Transport in Wells, \$8,000.

Dr. Dennis Hubbard, Oberlin College, Holocene Coral-Reef Development of the SW Dominican Republic: Views Forward and Back in Time, \$8,000.

Dr. J. Rawling, University of Wisconsin-Platteville, Quaternary Eolian Stratigraphy of the Central Plain of Wisconsin, \$8,000.

Dr. Michael Roth, University of Northern Iowa, Better Understanding the Behavior of Hexane Deposited onto Graphite Using Improved Computer Simulations, \$8,000.

Dr. John F. Taylor, Indiana University of Pennsylvania, Biostratigraphy of Lower Paleozoic Strata in the Central Appalachians, \$8,000.

Type G

Dr. Stephen Cooke, University of North Texas, Fourier Transform Microwave Spectroscopy of Gas Phase Metal-Containing Compounds, Complexes, and Clusters, \$8,000.

Dr. Brian Frost, University of Nevada, Reno, Aqueous Phase Organometallic Catalysis: Development and Mechanism, \$8,000.

Dr. Yenwen Lu, Rutgers, The State University of New Jersey, Drag Reduction in Petroleum Pipelines by Nano Ultra-Oleophobic (NUO) Surfaces, \$8,000.

Dr. Angela Lueking, The Pennsylvania State University, Fundamental Investigations of Carbon-Metal Composites for Catalyzed Hydrogen Storage, \$8,000.

Dr. Jianhua Ren, University of the Pacific, Helix Macro-Dipolar Effects on the Acidities of Cysteine-Containing Helical Peptides, \$8,000.

Dr. Linda Shimizu, University of South Carolina, Functional Zippers to Organize Synthetic and Biological Polymers, \$8,000.

Type GB

Dr. Robert Mathers, Pennsylvania State University, New Kensington Campus, Investigation of Renewable Resources for the Synthesis of New Polyolefin Architectures, \$8,000.

Dr. Darlene Taylor, North Carolina Central University, Design and Systhesis of Core-Shell OptoElectronic Nanoparticles Based on Oligo(p-phenylene)s, \$8,000.

Type SUMR

Supplements for Underrepresented Minority Research

Type AC

Dr. Bruce Armitage, Carnegie Mellon University, Fluorescent DNA Nanostructures for Applications in Sensors and Imaging, \$4,500.

Dr. Alicia Beatty, Mississippi State University, Intercalative Investigation of Hydrogen-Bonded Clay Mimics, \$5,000.

Dr. Stephen Bradford, University of Southern California, The Effect of Conformation and Long-Range Structure on the Femtosecond Dynamics of Electronic Excitation Transfer in Well Defined Polymers: DNA as a Case Study, \$5,000.

Dr. James Coe, The Ohio State University, Collision-Induced-Stimulated-Emission using Surface Plasmons on Metal Microarrays: New Gain Medium for IR Lasers, \$5,000.

Dr. Peter Flemings, The Pennsylvania State University, Overpressure and Slope Stability in the Deepwater Gulf of Mexico, \$5,000.

Dr. Joseph Fortunak, Howard University, Green Chemical Manufacturing: New Reagents and Methods for Asymmetric Synthesis, \$5,000.

Dr. Paul Hanson, University of Kansas, New Phosphorus and Sulfur Heterocycles for Synthesis, \$4,244.

Dr. Ulrich Haussermann, Arizona State University, New Materials from High-Pressure, High-Temperature Synthesis, \$4,500.

Dr. David Hill, The Pennsylvania State University, An Integrated Numerical and Experimental Study of Scaling Effects in Stirred Tank Reactors, \$5,000.

Dr. Louis Jacobs, Institute for the Study of Earth and Man, Geology and Paleontology of Coastal Angola, \$5,000.

Dr. Daniel Lacks, Case Western Reserve University, Molecular Simulation Study of Flow-Induced Chain Scission in Polymer Systems, \$5,000.

Dr. William Lanzilotta, University of Georgia, A Novel System for Production of 1,3-Propanediol Renewable Resources: Characterization of a B12-Independent Glycerol Dehydratase System, \$5,000.

Dr. Neocles Leontis, Bowling Green State University, New Architectures for Supramolecular Self-Assembly using RNA, \$5,000.

Dr. Elizabeth Miller, Stanford University, Does the Brooks Range Fold and Thrust Belt of Alaska Continue to Wrangel Island, Arctic Russia?, \$5,000.

Dr. Edmund Nowak, University of Delaware, Noise Spectroscopy of Spin-Based and Semiconductor-Based Magnetoresistive Systems, \$5,000.

Dr. Donald Sundberg, University of New Hampshire, Basic Mechanisms Responsible for Morphology Control within Polymer Nanoparticles, \$5,000.

Dr. Dwight Sweigart, Brown University, Self-Assembly of Metallic Nanoparticles Mediated by Metal-Organic and Metal-Organometallic Coordination Networks, \$5,000.

Dr. Richard Weiss, Georgetown University, Chiral and Prochiral Singlet Biradical Pairs as Probes of Reaction Cages in Polymer Films, \$5,000.

Type B

Dr. Colin Abernethy, Keene State College, Investigation of the Lewis Acidic Properties of N-Heterocyclic Carbene Ligands and Their Implications for Catalysis, \$4,000.

Dr. Joseph Allen, Concord University, Dynamic Development and Reactivation of a Newly Discovered Frictional Plastic Deformation System, \$5,000.

Dr. Steven Mayer, University of Portland, Investigating the Molecular Interactions Between Solute and Cosolvent Molecules in Supercritical CO₂, \$5,000.

Dr. Michael Mosher, University of Nebraska at Kearney, The Palladium-Mediated Cyclization of Beta-Allenyl Oximes, \$5,000.

Dr. Robert Pike, The College of William and Mary, Copper(I) Thioamide Chemistry and Applications to Small Molecule Transfer, \$5,000.

Dr. Bela Torok, University of Massachusetts-Boston, Asymmetric Heterogeneous Catalytic Hydrogenations, \$5,000.

Type G

Dr. Sumit Agarwal, Colorado School of Mines, Fundamental Research in Plasma Enhanced Chemical Vapor Deposition of Amorphous Carbon-Based Films from Hydrocarbon Plasmas, \$5,000.

Dr. Mitchell Anthamatten, University of Rochester, Phase Behavior of Binary (Polymer-Supramolecular Polymer) Blends, \$5,000.

Dr. David Forliti, University at Buffalo, State University of New York, Combustion of Methane in Countercurrent Shear Layers, \$4,000.

Dr. Jayne Garno, Louisiana State University, Conductive-Probe AFM Evaluation of Nanopatterned Metal-Molecule-Metal Junctions Fabricated via Electroless Metal Deposition, \$5,000.

Dr. Ganqing Jiang, University of Nevada, Las Vegas, Integrated Sequence and Chemostratigraphic Study of the Cambrian Succession in the Southern Great Basin, \$5,000.

Dr. Pu-Chun Ke, Clemson University, Diffusion and Adsorption of Single Dendrimers for Gas Hydrate Prevention, \$5,000.

Dr. Dimitrios Kyritsis, University of Illinois at Urbana-Champaign, Experimental Investigation of the Effect of Electrostatic Fields on Electrically Charged Sprays of Liquid Fuels at Elevated Pressure and Temperature, \$5,000.

Dr. Dongil Lee, Western Michigan University, Electron Transfer Dynamics and Photoelectrochemistry of Metal Nanoparticle Monolayers, \$5,000.

Dr. Kathy Lu, Virginia Polytechnic Institute and State University, Multilayer Assembly of Nanoparticles Using Carbon Nanotube as Backbone Phase, \$5,000.

Dr. Jennifer McIntosh, University of Arizona, Hydrogeochemistry of Shallow Gas Accumulations in Fractured Devonian Black Shales in the Appalachian Basin, \$5,000.

Dr. Glenn Micalizio, Yale University, Metal Alkoxide-Mediated Regio- and Stereoselective C-C Bond-Forming Reactions for Complex Molecule Synthesis, \$5,000.

Dr. Jeffrey Pyun, University of Arizona, Synthesis of Metal-Filled Carbon Nanoparticle Chains from Polyacrylonitrile Functional Magnetic Nanoparticles, \$5,000.

Dr. Yuhang Ren, City University of New York, Hunter College, Ultrafast Time-Resolved Optical Studies of Colossal Magneto-Resistance Materials, \$5,000.

Dr. Rhett Smith, Clemson University, Tunable Ligands for Rhodium-Catalyzed Hydroformylation, \$5,000.

Dr. Timothy Snowden, University of Alabama, Investigations into the Reactivity of Vinyl Trichloromethyl Carbinols in the Jocic Reaction, \$5,000.

Dr. Peter Strasser, University of Houston, Synthesis and Kinetic in situ Structural Investigations of Pt Alloy Nanoparticle Catalysts, \$5,000.

Dr. Sergey Vasenkov, University of Florida, Molecular Transport on Various Length Scales in Novel Nanostructured Porous Materials with a Hierarchy of Pore Sizes, \$5,000.

Dr. Keith Weninger, North Carolina State University, Auto-Regulatory Conformational Dynamics in the Syntaxin Family of SNARE Proteins, \$5,000.

Dr. Terry Xu, University of North Carolina at Charlotte, Novel Boron-Based Nanomaterials for Thermoelectric Energy Conversion, \$4,500.

Dr. Armen Zakarian, Florida State University, The Tandem Claisen-Mislow-Evans Rearrangement, \$5,000.

Dr. Y.-H Zhang, Virginia Polytechnic Institute and State University, Investigating the Relationship between Characteristics of Heterogeneous Cellulose and Cellulase Activities, \$5,000.

Type GB

Dr. Cristian Botez, The University of Texas at El Paso, Proton Conduction Mechanisms in Superionic Phases of Phosphate-Based Solid Acids, \$5,000.

Dr. Monte Helm, Fort Lewis College, Synthesis and Metal Coordination Studies of New Triphosphacrowns with Group 10 Metals, \$4,250.

Dr. N. Gary Hemming, City University of New York, Queens College, A Survey of Trace Element Concentrations in Lacustrine Carbonate Precipitates of the Western Great Basin, USA: Potential Proxies for Paleo-Lake Chemistry, \$5,000.

Dr. Nancy Lape, Harvey Mudd College, Tuning Small-Molecule Permeability in Glassy Polymers with Nanoparticles, \$5,000.

Dr. Anna Larsen, Ithaca College, Advancing Organometallic Catalysis via Incorporating Weakly-Coordinating Carborane Anions into Cationic Half-Sandwich Electrophilic Complexes, \$5,000.

Dr. Harriet Lindsay, Eastern Michigan University, Development and Stereochemical Investigation of the First Microwave-Assisted Aza-Cope Rearrangement-Mannich Cyclization, \$5,000.

Dr. Robert Mathers, Pennsylvania State University, New Kensington Campus, Investigation of Renewable Resources for the Synthesis of New Polyolefin Architectures, \$5,000.

Dr. Juan Noveron, The University of Texas at El Paso, Amphiphilic Metal Complexes: A Novel Approach to Aqueous Nanosystems with Catalytic Function, \$4,000.

Dr. Lihung Pu, California State University, Dominguez Hills, New Sterically Hindered Terphenyl Ligands for the Isolation of Nitrile Analogues of Heavier Group 14 Elements and the Investigation of How Ligand Electronics Affect the Bonding of Heavier Group 14 Alkyne Analogues, \$4,500.

Dr. Robert Sammelson, Ball State University, Borohydrides as Reagent and Catalyst in Carbon-Carbon Bond Formation, \$3,730.

Dr. Joseph Tanski, Vassar College, Metal-Organic Network Materials For Asymmetric Catalysis, \$4,000.