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FOR IMMEDIATE RELEASE

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Research Corporation Awards $4 Million in Grants for Scientific Research and Education

The noble act of conducting scientific research must often be preceded by the difficult quest for monies to fund it. This spring, Research Corporation awarded 84 grants, totaling almost $4 million, to support the work of scientists conducting research in colleges and universities in the U.S. and Canada.

A foundation for the advancement of science, Research Corporation will be a century old in 2012. It was founded by Frederick Gardner Cottrell, the scientist-philanthropist who invented the electrostatic precipitator, who used the proceeds from its sales to fund serendipitous research in university laboratories. Since its founding in 1912, Research Corporation has awarded $192 million in grants and awards, including funding the early work of noted scientists such as E.O. Lawrence, Charles H. Townes, Richard Smalley, Tom Cech and Carl Wieman. RC is proud, after almost 100 years in the "business," to continue its tradition of funding research at the cutting edge of science.

RC's oldest grants program, the Cottrell College Science Award (CCSA), champions research that promises to affect the advancement of science. The foundation is committed to the scholarly development of both teachers and students; this grant is available to faculty at predominantly undergraduate institutions. Thirty-one men and women have been awarded Cottrell College Science Awards this fall. Some examples of CCSA research awards are noted below:

Jacqueline Roberts of DePauw University, Indiana will use her CCSA to study the Determination of important metal binding residues in an archaeal SmtB/ArsR transcription factor. The project is aimed at gaining a deeper understanding of how living organisms identify, respond to and remove toxic metals.

In another CCSA grant, Jonathan Dattelbaum of the Department of Chemistry at University of Richmond will examine Design of novel fluorescent protein biosensors. The goal is the development of a new, sensitive sensor for glucose or glutamate, but in principle the approach could be applied to monitor a wide range of important biological substrates and should provide new and potentially valuable means of rapid, sensitive assay of a wide range of biological substrates.

The Cottrell Scholar Award (CSA) is granted to beginning faculty at Research I institutions who wish to excel at both research and teaching. Research is judged on the prospect for significant fundamental advances to science and contributions to education, especially at the undergraduate level, is judged relative to the teaching/education plan. Those selected receive $100,000 which can be used at the discretion of the awardee for most direct costs. This highly competitive award is offered once per year. Out of 164 applicants this year, 13 Cottrell Scholar Awards were granted.

In one example of a CSA award, Thorsten Ritz of the Department of Physics and Astronomy at University of California, Irvine, will study Weak magnetic field effects on blue-light signaling in Arabidopsis thaliana: A model system for geomagnetic field detection. One aspect of Professor Ritz's research focuses on magnetosensitive organisms and the ability of birds and other migratory animals to navigate based on the earth's magnetic field and ambient light. The work has the potential to provide a deeper understanding of the remarkable navigational capabilities of animals. Dr. Ritz' teaching program is focused on developing a computational biophysics laboratory course, developing a text on biomolecules and molecular machines and enhancing the 3D presentation capabilities for the representation of complex biomolecular systems.

The Research Opportunity Award is targeted to established scientists at Ph.D.-granting institutions who are interested in exploring a new area of research. Scientists with labs already in place often have trouble receiving funding when changing the course of their research. The Research Opportunity Award encourages scientists to "stretch their wings" in new directions. Three of these awards were made.

Dr. Tara Meyer of the University of Pittsburgh will use her ROA award to examine a little studied class of organic copolymers, viz., Repeating Sequence Copolymers (RSC). She will devise new synthetic methodologies to prepare a variety of these copolymers and then study the relationship between molecular structure and morphology. The materials she hopes to prepare may have potential applications as soluble conducting polymers, biocompatible polymers with controlled hydrolysis rates and stable organic light emitting diodes (OLED)

Research Corporation makes awards twice annually. A list of all spring recipients is attached.

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Spring 2006 Research Corporation Grants

American University
Nathan L. Harshman, Computer Science, Aud. Tech., and Physics: Quantum information theory and particle physics: Entanglement in multiparticle scattering-$22,386

Bloomsburg University of Pennsylvania
Eric J. Hawrelak, Department of Chemistry: Catalytic synthesis of nitrogen-containing heterocyles using organocobalt complexes-$36,500

Brock University
Tomas Hudlicky, Department of Chemistry: Development of new catalysts for asymmetric synthesis: Chemoenzymatic total synthesis of thebaine-$29,500

Brock University
Martin T. Lemaire, Department of Chemistry: Design, synthesis, and study of new oligo- and polymeric valence tautomeric materials-$32,000

Brock University
Georgii Nikonov, Department of Chemistry: New early-late heterobimetallic catalytic systems supported by bridging phosphido ligands-$32,616

Brock University
Melanie Pilkington, Department of Chemistry: The synthesis and characterization of novel spin bearing tetrathiafulvalene ligands-$29,800

Brock University
Hongbin Yan, Department of Chemistry: Solid-phase synthesis of small interference RNA (siRNA) using the Cpep as a novel protecting group for the 2'-hydroxy functions-$42,000

California State University, Long Beach
Jiyeong Gu, Department of Physics and Astronomy: Proximity effect in ferromagnet/superconductor (MgB2) hybrid system-$31,134

Central Michigan University
Bradley D. Fahlman, Department of Chemistry: Mechanistic studies of low-temperature nanostructural carbon growth-$31,218

Central Washington University
Levente Fabry-Asztalos, Department of Chemistry: Novel 1,3-azaborine heterocycles as aspartic protease inhibitors-$38,828

City University of New York, York College
Adam A. Profit, Department of Chemistry: Peptide conjugate inhibitors of protein kinase B-$35,684

Cleveland State University
Ulrich Zurcher, Department of Physics: Mathematical description of surface electromyography time series-$32,220

Colby College
Jeffrey Katz, Department of Chemistry: Heteroatom-bridged aromatic macrocycles: Development of an oxacalixarene-based molecular toolbox-$42,684

Colgate University
Jeffrey T. Buboltz, Department of Physics and Astronomy: Establishing tie line patterns in phase-separated lipid raft mixtures by equilbrium surface pressure analysis-$39,771

College of the Holy Cross
Joshua R. Farrell, Department of Chemistry: Modular design of biomimetic ligands synthesized by Mannich condensations-$35,038

College of the Holy Cross
Richard S. Herrick, Department of Chemistry: Novel group 7 organometallic compounds as diagnostic imaging agents-$37,040

College of the Holy Cross
Paul Oxley, Department of Physics: Charge transfer collisions using coherent elliptical state atoms-$43,997

Colorado College
Gretchen A. Repasky, Department of Chemistry: Biochemical role of the PEDF tumor suppressor in Ras-mediated pancreatic oncogenesis-$42,645

Creighton University
David L. Sidebottom, Department of Physics: Dynamic light scattering investigation of the mixed alkali effect in alkali metaphosphate glasses-$37,200

DePauw University
Jacqueline R. Roberts, Department of Chemistry: Determination of important metal binding residues in an archaeal SmtB/ArsR transcription factor-$39,682

DePaul University
Anuj P. Sarma, Department of Physics: High angular resolution Zeeman effect observations of water masers in star forming regions-$20,656

East Carolina University
Yumin Li, Department of Chemistry: Molecular dynamics studies on S100 proteins and rational drug design-$38,218

Eastern Washington University
Chad A. Kinney, Department of Chemistry and Biochemistry: Earthworms - sentinel indicators of exposure and bioaccumulation of wastewater derived contaminants in biosolid-impacted soils-$44,766

Elon University
Joel M. Karty, Department of Chemistry: Resonance and inductive/field effects in fundamental chemical systems-$30,148

Spring 2006 Research Corporation Grants

Fordham University
Kunal K. Das, Department of Physics: Quantum interference effects in strongly-correlated and spin-entangled states in nanostructures and ultra-cold atomic systems-$41,220

Goucher College
Marin Pichler, Department of Physics: Formation and investigation of ultracold polar KCs molecules-$42,000

Hope College
Jason G. Gillmore, Department of Chemistry: Photochromic photooxidants: Developing a series of electron poor photochromes to gate photoinduced charge transfer-$43,219

Idaho State University
Andrew W. Holland, Department of Chemistry: Chelated amidometal complexes for catalytic C-N bond formation: N-H bond activation and strongly nucleophilic nitrogen centers-$39,204

Illinois State University
Rainer Grobe, Department of Physics: Computational quantum field theory-$35,218

Indiana State University
Richard Wayne Fitch, Department of Chemistry: Enantioselective sulfur-mediated oxidation of alcohols-$38,218

Indiana State University
Eric D. Glendening, Department of Chemistry: Oxidation of organic molecules on metal oxide clusters-$30,218

Ithaca College
Anna Larsen, Department of Chemistry: Non-coordinating carborane counterions for cationic organometallic catalysis-$38,035

James Madison University
Kevin P. Minbiole, Department of Chemistry: Small ring fragmentation strategies for the synthesis of chiral heterocycles-$15,071

Kennesaw State University
Karen M. Duda Rippe, Department of Chemistry and Biochemistry: Effects on HNF4 cofactor binding in response to variation of fatty acid ligand populations-$34,351

Lebanon Valley College
Timothy J. Peelen, Department of Chemistry: Direct synthesis of Fmoc-protected amines via acyl iminium chemistry-$43,758

Luther College
Todd K. Pedlar, Department of Physics: Studies of heavy quarkonium spectroscopy with the CLEO and CLEO-c experiments-$36,076

Macalester College
Tonnis Ter Veldhuis, Department of Physics & Astronomy: The construction of brane world effective field theories-$33,218

Miami University
James P. Clemens, Department of Physics: Many-atom entanglement produced via collective spontaneous emission-$38,236

Northern Arizona University
Gary E. Bowman, Department of Physics and Astronomy: Quantum trajectories and decoherence in an archetypal chaotic system-$23,682

Oberlin College
Rebecca J. Whelan, Department of Chemistry: Development of aptamer-based assays for biomarkers of ovarian cancer-$32,220

Occidental College
Darrell F Schroeter, Department of Physics: Quantum number fractionalization in an exactly solvable model for the chiral spin liquid-$38,398

Pacific Lutheran University
Myriam Cotten, Department of Chemistry: Solid-state NMR investigations of molecular recognition and structure-function relationships in antimicrobial piscidin at water-lipid interfaces-$42,000

Pacific Lutheran University
Paul H. Davis, Department of Chemistry: SERS microscopy using gold nanoparticle aggregates: High sensitivity detection and identification of molecules-$45,610

Pacific University
Stephen C. Hall, Department of Physics: Investigation of possible intermediate phase transition in the crystal growth of highly supecooled fragile glass formers-$43,303

Rutgers University, Camden
Daniel-Dennis McAlevy Bubb, Department of Physics: Resonant infrared matrix assisted pulsed laser deposition of polymers and biomaterials-$35,000

Saint Joseph's University
Brian S. Hammes, Department of Chemistry: Controlling oxygen activation of Fe(II)-polyimidazole complexes via proton-coupled electron transfer-$39,886

San Jose State University
Gilles Muller, Department of Chemistry: The design and photophysics of lanthanide complex-based luminescent probes-$45,000

Seton Hall University
Frank G. Curti, Department of Physics: Electrochemical properties of metallic quantum wells-$28,274

Spring 2006 Research Corporation Grants

Southern Connecticut State University
Matthew Enjalran, Department of Physics: A study of geometric frustration in the two dimensional Hubbard model-$26,684

Southern Illinois University at Edwardsville
Cristina De Meo, Department of Chemistry: Oxazolidinone protected sialosyl donors and acceptors: Effect on the stereoselectivity and reactivity in glycosylation reactions-$39,998

Sweet Briar College
Scott D. Hyman, Department of Physics: A galactic center transient radio source monitoring program-$25,342

Texas State University, San Marcos
Walter Rudzinski, Department of Chemistry: The effects of immobilizing the matrix in laser desorption ionization/mass spectrometry-$33,657

University of Colorado at Denver and Health Science Center
Hai Lin, Department of Chemistry: Reaction mechanism and dynamics of cytochrome P2450 3A4 enzyme by combined quantum mechanical/molecular mechanical computation-$34,950

University of Massachusetts, Boston
Stephen B. Arnason, Department of Physics: Noise spectroscopy of a relaxing electron glass-$33,868

University of Memphis
Mohamed Laradji, Department of Physics: Numerical studies of compositional and morphological inhomogeneities in lipid membranes-$35,264

University of Minnesota, Duluth
Viktor N. Nemykin, Department of Chemistry: Synthesis, characterization, and theoretical modeling of ferrocenyl-substituted tetraazaporphyrins-$35,680

University of Minnesota, Duluth
Jon N. Rumbley, Department of Chemistry and Biochemistry: Complimentarity between transmembrane amino acids of the organic anion transporters and substrates by QSAR and mutational analysis-$35,900

University of North Carolina at Greensboro
Nadja Cech, Department of Chemsitry and Biochemistry: Elucidation of Echinacea's mechanism of action: A proteomic approach-$34,084

University of North Florida
Robert Vergenz, Chemistry and Physics: Role of methyl-donated hydrogen bonds in protein secondary structure and folding-$41,554

University of Northern British Columbia
Stephen Rader, Department of Chemistry: The role of U4 snRNP in spliceosome assembly-$45,050

University of Richmond
Jonathan D. Dattelbaum, Department of Chemistry: Design of novel fluorescent protein biosensors-$33,420

University of South Dakota
P. Stanley May, Department of Chemistry: Potential for metal-surface enhancement of upconversion luminescence from lanthanide-doped nanoparticles-$39,002

University of Wisconsin, Eau Claire
James E. Boulter, Department of Chemistry: Laboratory studies of hydrocarbon uptake on mixed ammonia hydrate and sulfide ices present in the Jovian atmosphere-$43,190

University of Wisconsin, Eau Claire
Jason A. Halfen, Department of Chemistry: Chemistry of high-valent imidoiron complexes-$36,176

Wellesley College
Donald E. Elmore, Department of Chemistry: Dissecting membrane interactions of the antimicrobial peptide Buforin II using computer modeling and experimental biochemistry-$41,561

Wilfrid Laurier University
Vladimir V. Kitaev, Department of Chemistry: Highly-ordered metallodielectric nanocomposites for photonics via self-assembly of monodispersed rationally designed nanoparticles-$35,806

Wilkes University
Henry J. Castejon, Department of Chemistry: Modeling the liquid-gas interface using self-assembled monolayers-$34,362

Youngstown State University
Tom N. Oder, Department of Physics and Astronomy: Growth and delta doping of ZnO epitaxial films by magnetron sputter deposition-$43,470

COTTRELL SCHOLAR AWARDS

George Mason University
Joseph C. Weingartner, Department of Physics and Astronomy: The alignment of grains with the interstellar magnetic field-$100,000

Indiana University at Bloomington
Mu-Hyun Baik, Department of Chemistry: Towards a quantitative understanding of diastereoselective carbocyclizations through quantum chemical modeling-$100,000

Johns Hopkins University
Justine P. Roth, Department of Chemistry: How do intra-protein redox reactions control the activities of enzymes involved in oxidative stress?-$100,000

Spring 2006 Research Corporation Grants

Purdue University
Erica W. Carlson, Department of Physics: Quantum soft matter-$100,000

Texas A&M University
Jairo Sinova, Department of Physics: Spin-Hall effect in semiconductors and related phenomena in nano-spintronics-$100,000

University of California, Irvine
Thorsten Ritz, Department of Physics and Astronomy: Weak magnetic field effects on blue-light signaling in Arabidopsis thaliana: A model system for geomagnetic field detection-$100,000

University of California, Santa Barbara
Jeffrey W. Bode, Department of Chemistry and Biochemistry: New ligation reactions for the synthesis of biomolecules and biomaterials-$100,000

University of Michigan, Ann Arbor
Melanie S. Sanford, Department of Chemistry: Transition metal-catalyzed carbon-fluorine bond-forming reactions-$100,000

University of Notre Dame
Masaru K. Kuno, Department of Chemistry and Biochemistry: Disorder induced optical heterogeneity in solution-based straight/branched semiconductor nanowires-$100,000

University of Oregon
Darren W. Johnson. Department of Chemistry: Supramolecular arsenic coordination chemistry-$100,000

University of Pittsburgh
Adam Leibovich, Department of Physics: Particle physics calculations using effective field theories-$100,000

University of Washington
David S. Ginger, Department of Chemistry: Probing opto-electronic processes in conjugated polymer blends-$100,000

Vanderbilt University
Keivan Guadalupe Stassun, Department of Physics and Astronomy: A systemic approach to problems in star formation and minority representation-$100,000

RESEARCH OPPORTUNITY AWARDS

Southern Illinois University at Carbondale
Naushad Ali, Department of Physics: Investigaton of giant magnetocaloric effects in Ni-Mn-Ga based Heusler alloys-$50,000

University of Kansas
Hume A. Feldman, Department of Physics & Astronomy: Probing particle physics and cosmology with cosmic velocity fields-$50,000

University of Pittsburgh
Tara Meyer, Department of Chemistry: Synthesis of repeating sequence copolymers-$50,000