

## JEFFRESS RESEARCH GRANT AWARDS

The Allocations Committee of the Thomas F. and Kate Miller Jeffress Memorial Trust has announced the award of Jeffress Research Grants to the institutions listed below to support the research of the investigator whose name is given. The Jeffress Trust, established in 1981 under the will of Robert M. Jeffress, a business executive and philanthropist of Richmond, supports research in chemical, medical and other natural sciences through grants to non-profit research and educational institutions in the Commonwealth of Virginia. The Jeffress Research Grants being announced here have been awarded in 2006.

The Jeffress Memorial Trust is administered by Bank of America. Additional information about the program of the Trust may be obtained by writing to: Richard B. Brandt, Ph.D., Advisor, Thomas F. and Kate Miller Jeffress Memorial Trust, Bank of America, Mail Code VA2-300-12-99, P. O. Box 26688, Richmond, VA 23261-6688. An unofficial website is listed under Grants and Awards, [www.vacadsci.org](http://www.vacadsci.org).

Julio C. Alvarez. Virginia Commonwealth University. Development of Electrochemical Biosensors in Plastic Microfluidic Chips. \$10,000. (one year renewal).

Rebecca Ambers. Sweet Briar College. The Influence of Clay Mineralogy and Mineral Cements on Stream Channel Erodability. \$10,000. (one year renewal).

Joseph D. Ametepe. Hollins University. Studying and Using Discharges from a Novel High-Energy Ultraviolet Light Source for Destroying Viruses and Bacteria in Drinking Water. \$10,000. (one year renewal).

Carey K. Bagdassarian, College of William and Mary. Genetic-Algorithm Evolution of Large Food Webs and the Stability-Complexity Debate. \$10,000. (one year renewal).

Stephen F. Baron, Bridgewater College. Regulation of Extracellular Polyhydroxyalkanoate Depolymerase Synthesis in *Streptomyces* spp.5A. \$10,000. (one year renewal).

Craig Bayse, Old Dominion University. Understanding the Role of Selenoproteins and their Mimics: A Theoretical Study. \$10,000. (one year renewal).

Jill C. Bettinger, Virginia Commonwealth University. Role of Altering Synaptic Transmission in the Development of Acute Tolerance to Ethanol. \$20,000. (one year).

Barney M. Bishop, George Mason University. Folding of  $\beta$ -Defensins and Precursors of Peptides. \$10,000. (one year renewal).

George M. Brooke, IV, Virginia Military Institute. Real-Time In-Situ Characterization of Trace Compounds and Aerosols using Cavity Ring-Down

Spectroscopy. \$10,000. (one year renewal).

Everett E. Carpenter, Virginia Commonwealth University. Ferrite Development for Image Enhanced Magnetodynamic Therapy. \$20,000. (one year).

Jan Chaloupka. The College of William and Mary. The Effect of the Longitudinal Electrical Field in an Intense Laser Pulse on the Double Ionization of Atoms. \$10,000. (one year renewal).

Jason J. Chruma, University of Virginia. Employing Solvophobic Effects Toward the Synthesis of Bioactive Biaryl and Diarylether Macrocycles. \$25,000. (one year).

Daniela Cimini, Virginia Polytechnic Institute and State University. Live Cell Analysis of Chromosome Instability in Colorectal Cancer Cells. \$25,000. (one year).

Mark A. Cline, Radford University. Effects of Amylin on Ingestion and Ingestive-Related Process in Two-Lines of Chickens: One Containing Anorexic and the Other Obese Individuals. \$25,000. (one year).

Randolph A. Coleman, College of William and Mary. Biochemical Studies of G-Protein Coupled Receptors via Stimulation and Modeling. \$10,000. (one year renewal).

Charles D. Cook, Virginia Commonwealth University. Sex Differences in Chronic Pain and Opioid Antinociception: Role of the Serotonin System. \$10,000. (one year renewal).

Roland Cooper, Old Dominion University. Alkylation of Proteins by the Antimalarial Drug Artemisinin. \$10,000. (one year renewal).

David M. Coppola, Randolph-Macon College. Compensatory Responses of the Olfactory System to Sensory Deprivation. \$20,000. (one year).

Jonathan Dattelbaum. University of Richmond. Genetically Engineered Protein Biosensors for Glutamate: An Important Human Neurotransmitter. \$10,000. (one year renewal).

Michael R. Deschenes, The College of William and Mary. Effects of Senescence on Neuromuscular Adaptations to Disease. \$10,000. (one year renewal).

C. Wade Downey, University of Richmond. The Development of New Stereo-Selective Intra Molecular Pericyclic Reactions. \$20,000. (one year).

Malgorzata Dukat, Virginia Commonwealth University. Novel Approaches to Pain Management. \$10,000. (one year renewal).

Jeffrey L. Dupree, Virginia Commonwealth University. The Role of Sulfatide in Regulating Oligodendrocyte Population and Maturation. \$25,000. (one year).

Loren D. Erickson, University of Virginia Health System. The Role of Plasma Cell Precursors in Systemic Autoimmunity. \$25,000. (one year).

Alev Erisir, University of Virginia. Afferent-target Relations in Developing Visual Cortex: Recovery from Deprivation. \$10,000. (one year renewal).

Joshua Erlich, College of William and Mary. Hadrons, Strings, and Cosmology. \$10,000. (one year renewal).

Paul M. Fawcett, Virginia Commonwealth University Medical Center. Stimulation of IFN-Beta Gene Transcription in Response to Engagement of the Toll-Like Receptor 2. \$20,000. (one year).

Mirela S. Fetea, University of Richmond. Dynamic Symmetries in Nuclei. \$21,550. (one Year).

Carla Finkielstein, Virginia Polytechnic Institute and State University. Controlling Cell Cycle Progression through the Cyclin/Cdk-dependent Phosphorylation Site in p27Xicl. \$10,000. (one year renewal).

Phillip M. Gerk, Virginia Commonwealth University School of Pharmacy. Acute Effects of Oxidative Stress on Placental ABC Transporters. \$24,000. (one year).

Siddhartha S. Ghosh, Virginia Commonwealth University Medical Center. Regulation of Renalase, the Enzyme Modulating Hypertension and Renal Disease. \$20,000. (one year).

Katrina Gobetz, James Madison University. Laboratory Investigations of Functional Morphology, Burrowing Ability, and Ecology in Virginia Mammals and Turtles. \$24,000. (one year).

Emma Goldman, University of Richmond. Synthesis and Characterization of a Series of Dicopper Compounds for Use as Electro catalysts in the Reduction of Carbon Dioxide. \$10,000. (one year renewal).

Daniel Gottlieb, Sweet Briar College. The Role of a Number of Trials in the Acquisition of Conditional Responding. \$25,000. (one year).

Lisa Horth, Old Dominion University. Linking Behavior to Genetics: Is Pheromone Receptor Molecular Genetic Variation Associated with Differences in Male Mating Behavior in Two Live-Bearing Fish Species? \$10,000. (one year renewal).

Robert Humston, Virginia Military institute. Reconstructing Movement Patterns of Smallmouth Bass (*Micropterus dolomieu*) from Elemental Chemistry of Otoliths. \$10,000. (One year renewal).

Jeffrey E. Janovetz, Sweet Briar College. The Functional Morphology of Feeding in Piranhas and Related Fishes. \$10,000. (one year renewal).

Honglin Jiang, Virginia Polytechnic Institute and State University. Role of miRNAs in Obesity. \$20,000. (one year).

Kenneth W. Kambis, College of William and Mary. The Effects of Carbohydrate Ingestion Mood State During Endurance Work Performance at Moderate and High Altitude. \$10,000. (one year renewal).

Giti Khodaparast, Virginia Polytechnic Institute and State University. Tetrahertz Emission from Parabolic Semiconductor 1-eterostructures. \$10,000. (one year renewal).

Michael Klemba, Virginia Polytechnic Institute and State University. Roles of Aminopeptidase P in Peptide Catabolism in the Human Malaria Parasite *Plasmodium falciparum*. \$30,000. (one year).

Scott W. Knight, University of Richmond. The Role of Zinc-Finger Protein in RNA Interference. \$10,000. (one year renewal).

Eugene B. Kolomeisky, University of Virginia. Theoretical Aspects of Ground-State Manipulation of Individual Particles. \$21,400. (one year).

Keith G. Kozminski, University of Virginia. Regulation of Polarized Morphogenesis Functional Analysis of Zds2p in *S. cerevisiae*. \$10,000. (one year renewal).

Joel P. Kuehner, Washington and Lee University. Investigation of Nonresonant Laser-Induced Electrostrictive Gratings for Temperature Measurements in Air at Subatmospheric Pressure. \$10,000. (one year renewal).

Rahul Kulkarni, Virginia Polytechnic Institute and State University. Computational Analysis of Bacterial Quorum-Sensing Networks. \$10,000. (one year renewal).

Frederick LaRiviere, Washington and Lee University. Investigating Non-Functional Ribosomal RNA Decay and Ribosomal Assembly in *Saccharomyces cerevisiae*. \$22,000. (one year).

Gyorgy Lonart, Eastern Virginia Medical School. Interaction of Phospho-RIM1a with the Release Machinery. \$10,000. (one year renewal).

Ulrike Lorenz, University of Virginia Health System. A Novel Lipid Raft Targeting Motif and TCR Signaling. \$22,000. (one year).

Elizabeth G. Malcolm, Virginia Wesleyan College. Experimental Investigation of the Scavenging of Gaseous Mercury by Sea Salt Aerosols. \$10,000. (one year renewal).

Jingdong Mao, Old Dominion University. Influence of Tillage, Crop Residue, and Nitrogen Management on the Molecular Structures of Soil Organic Matter and Organic Nitrogen Forms Investigated by Advanced Solid-State Nuclear Magnetic

Resonance Spectroscopy. \$20,000. (one year).

April Marchetti, Randolph-Macon College. Synthesis of Polyolefins Tethered to Inorganic Surfaces via Insertion Mechanisms. \$10,000. (one year renewal).

Irma Mazilu, Washington and Lee University. A Study of Some Non-Equilibrium Driven Models and Their Contribution to the Understanding of Molecular Motors. \$10,000. (one year renewal).

Daniel F. McCain, Virginia Military Institute. The Metal Specificities of the PPM Phosphatases: Mechanistic Studies of Yeast Ptc3. \$10,000. (one year renewal).

Nathan Menke, Virginia Commonwealth University. Modulation of the Deleterious Effects of Glucocorticoids on Wound Healing by Immune-Regulating Hormones. \$20,000. (one year).

Rebecca R. Michelsen, Randolph-Macon College. Infrared Spectroscopy of Ice Films: Bulk and Surface Acidity. \$19,660. (one year).

Jeffrey K. Nelson, The College of William and Mary. Studies of the Charge Asymmetry in Cosmic Ray Muons and Atmospheric Neutrino Interactions. \$10,000. (one year renewal).

Anthony V. Nicola, Virginia Commonwealth University. Cellular Function Required for an Early Stage of Herpesvirus Entry into Host Cells. \$25,000. (one year).

Irma Novikova, College of William and Mary. Investigation of All-Optical Resonances for Compact Atomic Clocks using VCSEL-based Laser System. \$24,000. (one year).

Konstantinos Orginos, College of William and Mary. Hadron Physics with Lattice QCD. \$25,000. (one year).

Kyungwha Park, Virginia Polytechnic Institute and State University. Computational Study of Magnetic Properties of Molecular Nanomagnets Tethered to Gold Surfaces. \$10,000. (one year renewal).

Carol Parish, University of Richmond. Potential Anti-Cancer Warhead Drugs: A Theoretical Investigation of the Electronic Nature of Eneidyne Cyclization. \$10,000. (one year renewal).

Kent Paschke, University of Virginia. Reduction of Helicity-Correlated Beam Asymmetries in the Jefferson Lab Polarized Electron Source. \$25,000. (one year).

Gregory M. Plunkett, Virginia Commonwealth University. Evolutionary Patterns in Plerandra Group of *Schefflera* (Araliaceae). \$10,000. (one year renewal).

Raj R. Rao, Virginia Commonwealth University. Chromosome-Specific Genes as Indicators of Genomic Instability in Human Embryonic Stem Cell Cultures. \$25,000. (one year).

Hans Robinson, Virginia Polytechnic Institute and State University. Optically Controlled Spin Transport in Semiconductor Nanostructures. \$25,000. (one year).

Laura Runyon-Janecky, University of Richmond. Characterization of Intracellular Adaptation Genes in the Tsetse Fly Secondary Endosymbiont *Sodalis glossinidius*. \$30,000. (one year).

John Ryan, Virginia Commonwealth University. Control of the Mast Cell Response by Regulatory T Cells. \$25,000. (one year).

Harry D. Schreiber, Virginia Military Institute. Coloring Mechanism in Hydrangea Sepals and Related Flowers. \$20,000. (one year).

Diane C. Shakes, College of William and Mary. Coordinating the Development and Cell Cycle Programs of Spermatogenesis. \$20,000. (one year).

Vladimir Siderov, Virginia Commonwealth University Health System. Active Delivery of Substrates by Ditopic Receptors. \$10,000. (one year renewal).

Ronald B. Smeltz, Virginia Commonwealth University. Synergy of Inflammation and Interleukin-15 in Development of Effector Cytotoxic T Cells. \$20,000. (one year).

Michael Stacey, Old Dominion University Research Foundation. Chondrocyte Differentiation in the Pathophysiology of Chest Wall Deformities. \$24,600. (one year).

Janet Steven, Sweet Briar College. The Evolution of Hermaphroditic and Unisexual Flowers in *Thalictrum macrosylum*: A Test of Multiple Causal Hypotheses. \$10,000. (one year renewal).

Traci Stevens, Randolph-Macon College. Analysis of the Effects of Bcr-Abl Expression in *Drosophila melanogaster*. \$25,500. (one year).

Jennifer Stewart, Virginia Commonwealth University. Biological Activity of CisTerpenones. \$20,000. (one year).

Dorothea Tholl, Virginia Polytechnic Institute and State University. Terpene Volatile Messengers in Plant Roots. \$20,000. (one year).

Amy Treonis, University of Richmond. Nematode Community Structure and Trophic Interactions in Agricultural Soil Amended with Cover Crops. \$26,500. (one year).

John M. Warrick, University of Richmond. CREB-Binding Protein Modulation in a *Drosophila* Model of MJD and the Role of Chaperones. \$10,000. (one year renewal).

Andrea Weeks, George Mason University. Evolutionary Ecological Basis of Species Diversification in the Cashew (*Anacardiaceae*) and Frankincense and Myrrh (*Burseraceae*) Families. \$20,000. (one year).

James F. Westwood, Virginia Polytechnic Institute and State University. A Parasitic Plant as a Novel Tool for Studying Mobile mRNA. \$10,000. (one year renewal).

Sungsool Wi, Virginia Polytechnic Institute and State University. Membrane-Induced Conformation and Dynamics Study of Antimicrobial Peptide. \$22,300. (one year).

Bettina Winckler, University of Virginia. Neurofascin as an Immune Target for Peripheral Neuropathy. \$19,983. (one year).

Mary Kate Worden, University of Virginia Medical School. Compensating for Environmental Change in the Neural Coding of Behavior. \$26,950. (one year).

Roshna Wunderlich, James Madison University. Biomechanics of Bipedal Locomotion in *Propithecus verreauxi*. \$10,000. (one year renewal).

Ping Xu, Virginia Commonwealth University. Comparative Genome of Virulence Related Genes in *Streptococcus*. \$10,000. (one year renewal).

Zhongming Zhao, Virginia Commonwealth University. Analysis of Genetic Variation in Human CpG Islands. \$10,000. (one year renewal).

Xiaochao Zheng, University of Virginia. Precision Measurement of the Parity-Violating  $e^2H$  DIS Symmetry. \$25,000. (one year).

Patty Zwollo, College of William and Mary. Developing Molecular Tools for the Analysis of Trout Humoral Immunity: Isolation of Gene Encoding Transcription Factors PAX-5 and Blimp-1 Monoclonal Antibody Production. \$10,000. (one year renewal).