



ANNUAL REPORT OF EXTERNAL FUNDING

MARCH 2014 | MARCH 2015

COLLEGE RELATIONS  
OFFICE OF FOUNDATION, CORPORATE  
& GOVERNMENT RELATIONS

*Proposals and Awards: A Year in Review*

**ON THE COVER:**

(TOP) Scanning Electron Microscopy (SEM) image (colorized) of clay-polymer heterointerfaces in mechanochemical solar nanocomposite. Image courtesy of Peter Schulte '10, Michael Topka '09, Associate Professor of Electrical & Computer Engineering Palmyra Catravas and Professor of Chemistry Michael Hagerman.

(BOTTOM) Using a hand-held 3D scanner, this rendering was made by scanning all the students in the course 3D Computer Modeling (AVA-370) in the fall of 2014. Image courtesy of Associate Professor of Visual Arts Fernando Orellana.

COLLEGE RELATIONS  
OFFICE OF FOUNDATION, CORPORATE  
& GOVERNMENT RELATIONS

*Proposals and Awards: A Year in Review*

TABLE OF CONTENTS

New Awards .....4

Active Grant Projects .....8

Submitted Proposals.....13

Contact Information.....16

Proposal and Grant Summary Data .....17

Notes .....18



## NEW AWARDS

*Alphabetical by project title*

### A Physicochemical Exploration of the Diffusion of Small Molecules in Glassy and Highly-Viscous Materials

THE AMERICAN CHEMICAL SOCIETY – PETROLEUM RESEARCH FUND

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Andrew Huisman** (Chemistry)

---

#### ABSTRACT:

Diffusion is a process fundamental to molecular motion that is of interest when molecules reach an interface (e.g., methanol in a fuel cell) or penetrate a viscous or vitreous material (e.g., aging of polymers by ozone). This study explores the molecular diffusivity of a small tracer molecule in highly viscous systems. A basic relationship between the observed diffusivity and the physicochemical properties of the system is sought. In addition to water, the diffusive behavior of small organics such as methanol and ethanol (used in chemical synthesis and many industrial processes) in viscous and glassy media will be explored. The project will involve several Mechanical Engineering and Chemistry students in the design and fabrication of the temperature and humidity-controlled sample cell for the Raman microscope, construction and improvement of Union's electrodynamic balance (EDB), performing proposed experiments and the acquisition and analysis of data taken on the EDB in consultation with the PI.

### Aquatic Biogeochemistry: Tracking Pollution in Fluvial Systems

THE KECK GEOLOGY CONSORTIUM

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Anouk Verheyden-Gillikin** (Geology)

---

#### ABSTRACT:

This Keck 2014 Sophomore Project is designed for students from groups underrepresented in the Earth Sciences who might be considering majoring in Geology or Environmental Science. Students will be exposed to a challenging topic with wide application potential (isotopes), collecting samples in the field and working with state of the art equipment in the lab, including a stable isotope ratio mass spectrometer (SIRMS). Students will research the distribution of stable carbon and nitrogen isotopic composition of fluvial systems in the Catskill and Schoharie regions of New York and pinpoint polluted areas. In the field, various types of samples will be collected from sites along different streams. Samples will be cleaned and prepared for the students to do the analysis on the SIRMS. Results will be used to develop a distribution map of stable carbon and nitrogen isotopic composition of several streams in the Catskills. The isotope map or 'isoscape' will be used to pinpoint areas of increased waste water discharge.

### Educating Girls for Engineering

GENERAL ELECTRIC

---

#### PROJECT PERSONNEL:

Program Director **Dr. Cherrice Traver** (Electrical & Computer Engineering)

---

#### ABSTRACT:

EdGE is a pre-college educational enrichment program designed to address the serious and continuing under-representation of women in engineering. The program is designed to give participants academic learning experiences not available in the standard high school curriculum, as well as encourage humanistic approaches to group activities. The program's theme of "Toys and Tools for Disabled Children" focuses on developing technologies to enhance the learning activities and communication skills of children with special needs. Through intensive course modules and team projects, the program aims to instill in participants a compassionate, civic-minded approach to addressing societal issues. The EdGE program balances classroom lectures, educational modules, and laboratory experiences with field trips, team projects, and formal presentations. Participants will develop the theoretical and technical knowledge to not only build tools and toys for the disabled, but also to make educated, informed decisions about their career paths.

### Holocene Climatic Change and Active Tectonics in the Peruvian Andes: Impacts on Glaciers and Lakes

THE KECK GEOLOGY CONSORTIUM

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Donald Rodbell** (Geology); co-PI **Dr. David Gillikin** (Geology)

---

#### ABSTRACT:

This Keck 2014-15 project ties to an existing National Science Foundation (NSF) grant designed to generate continuous, centennial to millennial-scale records of mountain glaciation in Peru spanning the Holocene (~12 ka to present) that will enable testing of hypotheses concerning the causes of abrupt climate change in the tropics. For this project, researchers aim to broaden the scope to include biogeochemistry of alpine lakes and active tectonics. This research has three key goals: (1) Produce centennial-scale records of glacial flour flux using geochemical analyses of proglacial lake sediment cores from sites that span the steep precipitation gradient in the central Peruvian Andes; (2) Determine the age of moraines using cosmogenic radionuclide (CRN) dating methods to provide information about both the timing and extent of major Holocene ice advances; (3) Test the scale and climatic forcing of Holocene glacier variability by using inverse modeling of valley-specific paleoglaciers and comparing results from this with available regional paleoclimate proxy data.

## NEW AWARDS

*Continued*

### Hurricane Camille: Race, Rights and Disaster Relief

THE NATIONAL ENDOWMENT FOR THE HUMANITIES

---

#### PROJECT PERSONNEL:

Project Director **Dr. Andrew Morris** (History)

---

#### ABSTRACT:

The NEH Summer Stipend award supports research for the book project, *Hurricane Camille: Race, Rights and Disaster Relief*. Hurricane Camille, which devastated the Mississippi Gulf Coast in 1969, brought the failures of disaster relief in the United States into sharp focus. In his book, Morris illustrates how disasters punctuate American history, and yet we lack a clear history of the shifting assumptions of where responsibility for disaster relief should lie, and the personal and political circumstances that shaped those assumptions. The author argues that Hurricane Camille decisively shifted the locus of responsibility for disaster relief to the national level. The expectations and controversy surrounding the relief effort in Mississippi – though peculiar in some ways to that state's politics and demographics – nonetheless opened up disaster relief to the same forces that had pushed other areas of social policy toward a broader federal role. A substantial portion of the book will be based on oral history interviews that will shed light on the challenges faced by the victims of Hurricane Camille, and how disaster policy expanded to meet these needs.

### IgniteCS

THE TIDES FOUNDATION

---

#### PROJECT PERSONNEL:

Faculty Advisor **Dr. Nicholas Webb** (Computer Science); Student team members from the **Association for Computing Machinery Committee on Women in Computing** (ACM-W)

---

#### ABSTRACT:

Union's ACM-W will advance several key initiatives through the Tides Foundation – Google Education grant, including Google's IgniteCS after-school program for middle school students, offered through Union's Kenney Community Center. ACM-W will also continue the NCWIT Social Robotics Workshop that is already in place between Union College and SUNY Albany. The ACM-W members will teach the students how to build and program a NXT EV3 Lego Robot. These robots have motor control, UV sensors, audio output, and touch sensors. The goal is to have the students develop a personality for their robots over the course of the program, the last step being robot speech. Success will be measured by having a robot challenge during the last session of the program. For example, building a Rube Goldberg machine using their programming skills they have learned, the robots themselves, and Legos from the NXT robot kits.

### Karp Hall

THE GEORGE I. ALDEN TRUST

THE J.M. McDONALD FOUNDATION, INC.

---

#### ABSTRACT:

These grants support the renovation of Karp Hall, a three-story, 21,000 sq. ft. building used by the English and Modern Languages and Literatures Departments. Karp Hall promotes the value of the humanities by offering relevant and innovative teaching and learning opportunities to faculty and students. The collaborative computing classroom, prominently displayed on the first floor near the entryway, is named in honor of the George I. Alden Trust.

### Renewable and Compostable Fungus Based Plastics - Establishing the Structure/Property/Processing Relationships to Facilitate Commercialization

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Ronald Bucinell** (Mechanical Engineering)

---

#### ABSTRACT:

Renewable and biodegradable materials are a key element to a sustainable planet. Ecovative Design, LLC has created new compostable mycelium-based (fungus) bioplastic/biocomposite materials. These new biodegradable and renewable materials are being sold commercially as replacements for expanded polystyrene and polyethylene foams that are petroleum-based and difficult to recycle or reuse. These fungus-based biopolymers have the potential to be used in additional markets such as transportation and recreation that currently use petroleum-based plastics but first the structure/property/processing relationships need to be understood. This award supports fundamental research to provide needed knowledge on how to optimize and tailor the properties of these new materials. The impact of this project, which is a collaboration between Rensselaer Polytechnic Institute, Union College, and Ecovative, will be to expand the range of applications where highly renewable, compostable, and inexpensive materials can replace petroleum-derived products. (NSF Award ID: 1362234)

### Science & Technology Policy Fellowship

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

---

#### PROJECT PERSONNEL:

Fellow **Dr. Ashok Ramasubramanian** (Mechanical Engineering)

---

#### ABSTRACT:

This fellowship provides opportunities for scientists and engineers to learn first-hand about policymaking and implementation while contributing their knowledge and analytical skills in the federal policy realm.

## NEW AWARDS

*Continued*

### STTR Phase I: Development of High Performance Windows using Monolithic Aerogels

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Bahram Keramati** (Sunthru, LLC); co-PI **Dr. Ann Anderson** (Mechanical Engineering and Sunthru, LLC); Senior Personnel **Dr. Mary Carroll** (Chemistry and Sunthru, LLC); Union College subaward Principal Investigator **Dr. Bradford Bruno** (Mechanical Engineering)

---

#### ABSTRACT:

This Small Business Technology Transfer (STTR) grant funds Sunthru's research in aerogel-based window commercialization. The specific market opportunity is in daylighting, where the goal is to provide window systems that allow natural light to be used instead of electric lights. A key challenge in such applications is to also reduce the heating and cooling costs. Union College researchers' rapid supercritical extraction (RSCE) method is employed for fabricating aerogels. During the project, a range of window prototypes based on the RSCE approach and tailored for desirable properties will be produced, and the enhanced performance of these window prototypes demonstrated. The resulting aerogel window products will offer end-use customers a higher value than current daylighting products. (NSF Award ID: 1415359)

### The Schrödinger Sessions: Science for Science Fiction

THE AMERICAN PHYSICAL SOCIETY

---

#### PROJECT PERSONNEL:

Program Director **Dr. Chad Orzel** (Physics & Astronomy)

---

#### ABSTRACT:

Sponsored by the APS Public Outreach and Informing the Public Grant program, "The Schrödinger Sessions: Science for Science Fiction" workshop at the Joint Quantum Institute (a combined initiative of the University of Maryland, College Park and NIST in Gaithersburg) provides a three-day "crash course" in quantum physics for science fiction writers. The aim is to attract science fiction writers, and show them some of the latest and greatest in quantum physics, with the goal of inspiring and informing new stories using quantum ideas and quantum technology. The grant will support participation by a broad range of writers – those who create stories in any medium (e.g., television, movies, video games, online media). With the ultimate goal of public outreach, the workshop organizing committee hopes to invite writers whose work will be able to reach as broad and diverse an audience as possible, including established and up-and-coming writers of varying subgenres, media, etc.

### The Volcanic History and Magmatic Degassing of Dominica: Implications for Future Eruptions

THE NATIONAL GEOGRAPHIC SOCIETY

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Holli Frey** (Geology)

---

#### ABSTRACT:

The NGS Committee on Research and Exploration grant supports field work and lab analyses to examine the volcanic history of Dominica in two different ways on two different time scales: 1) dating zircons from ignimbrites and lava domes and 2) characterizing stream chemistry and stable isotopes from streams and hydrothermal areas. Investigators will test the hypothesis that 1) all of the ignimbrites are young (<50 ka) and emanate from a single magma chamber. If the ignimbrites derive from a single large magma chamber, there is an increased likelihood of a more catastrophic eruption that poses an island wide threat. The PI, along with undergraduate students, will also test whether 2) stream chemistry, particularly carbon isotopes, can be used to infer shallow magma degassing and potentially used for volcano monitoring. This is interesting not only from a scientific point of view, but has implications for hazard assessment and preparedness.

### Union College: Host Institution for Chinese and Russian FLTAs, Academic Year 2014-15

THE INSTITUTE OF INTERNATIONAL EDUCATION

---

#### PROJECT PERSONNEL:

Department Chair **Dr. Christine Henseler** (Modern Languages and Literatures); Primary Supervisors **Dr. Kristin Bidoshi** (Russian) and **Dr. Zhen Zhang** (Chinese); Additional personnel **Dr. Megan Ferry** (Chinese) and **Dr. Audrey Sartiaux** (Language Center)

---

#### ABSTRACT:

The Fulbright Foreign Language Teaching Assistant (FLTA) program provides welcome and exciting resources for Union's Chinese and Russian language programs. The FLTAs assist in teaching first and second year language courses. In conjunction with that work, the FLTAs lead practice or drill sessions, offer guided conversational activity, and provide tutoring as appropriate. The FLTAs attend and actively participate in Language Table and Language Club meetings, while fully engaging in campus life by residing in residences associated with our Language Programs, offering to our students further informal practice in every-day conversational language. The FLTAs are a valuable asset to Union, offering the college community an increased international presence and diversity in language programming.

## NEW AWARDS

Continued

### University Innovation Fellows

THE KERN FAMILY FOUNDATION

---

PROJECT PERSONNEL:

Program Directors **Dr. Ronald Bucinell** (Mechanical Engineering) and **Dr. Harold Fried** (Economics)

---

ABSTRACT:

University Innovation Fellows are part of the Kern Entrepreneurial Engineering Network. The Fellows program supports efforts to train student leaders to expand innovation and entrepreneurship offerings on their campuses.

### Virtue and Vengeance in Aristotle

LOEB CLASSICAL LIBRARY FOUNDATION

---

PROJECT PERSONNEL:

Project Director **Dr. Krisanna Scheiter** (Philosophy)

---

ABSTRACT:

Aristotle claims that the virtuous person will sometimes get angry. He defines anger as a desire for revenge, and so the virtuous person will sometimes desire revenge. Many commentators assume Aristotle is unreflectively adopting ancient Athenian values, in which honor and reputation is most important. In her manuscript, *Virtue and Vengeance in Aristotle*, Dr. Scheiter claims that there is more going on in Aristotle than these commentators think. She argues that for Aristotle revenge is virtuous when it aims at empowering the victim by restoring her dignity and self-respect. She further claims that revenge is not about justice, as some argue, but about maintaining one's sense of self. Additionally, Dr. Scheiter claims that Aristotle's account of revenge can contribute significantly to contemporary debates concerning the ethics of revenge and punishment. Some contemporary philosophers argue that revenge is a brand of retributive punishment, but she contends that revenge does not have the same aim as retributive punishment. Understanding how revenge and punishment differ can go a long way to helping us understand the morality of each. She concludes that Aristotle is right that there is a type of moral revenge, which aims at restoring the self-worth of the individual.

### Waves of Futurity, Monstrous Attachments: American Literary Representations of Affect, Place, and Otherness (1797-1901)

THE THOREAU SOCIETY

---

PROJECT PERSONNEL:

Project Director **Dr. Jillmarie Murphy** (English)

---

ABSTRACT:

This fellowship supports research using the Thoreau Institute collections. In her book *Waves of Futurity, Monstrous Attachments*, Dr. Murphy argues that in the literature under consideration the characters' attachment needs illustrate the important role human-to-human and human-to-place bonding occupies in crafting a national identity. Notions of security and freedom underpin her discussion on how writers in the early American republic help construct modernity as they restructure representations of interpersonal and place attachments, which are subsequently reimagined, reconfigured, and sometimes even rejected by writers in the long nineteenth century. This book promises to attract an unusually broad audience consisting of literary, historical, sociological, and psychoanalytic critics as well as general readers with an interest in the psychosocial elements of American literature. *Waves of Futurity, Monstrous Attachments* gestures toward those future readers who, in a decidedly Thoreauvian fashion, seek to explore new fields and new approaches in order to understand the underlying human motivations that continually inspire the American imagination.



Associate Professor of History Andrew Morris, winner of a prestigious National Endowment for the Humanities (NEH) Summer Stipend award, with Nicholas D'Angelo '14.



ACTIVE GRANT PROJECTS

Alphabetical by project title

Artifact-Free Reconstruction of Medical Imaging Information

THE NATIONAL INSTITUTES OF HEALTH

PROJECT PERSONNEL:

Principal Investigator **Dr. Jue Wang** (Mathematics); Senior Personnel **Dr. Ronald Bucinell** (Mechanical Engineering), **Dr. Shane Cotter** (Electrical & Computer Engineering), **Dr. Scott LaBrake** (Physics & Astronomy)

ABSTRACT:

Prostate cancer is the most common cancer after skin cancer and the second leading cause of cancer death in men in the United States. The options for radiotherapy treatment planning of prostate cancer are limited by CT’s low soft tissue contrast, MRI’s distortion of prostate shape, and ultrasound’s speckle noise and attenuation-induced imaging artifacts. A novel technique for reconstruction of medical imaging information is proposed in this project. This project exploits a greater potential of trans-abdominal ultrasound imaging in prostate cancer treatment planning than is currently being realized in daily verification. If successful, the proposed method will improve attenuation artifact correction, reveal hidden/additional clinic-important information, automatically delineate anatomic structures, increase cancer treatment accuracy, and reduce normal tissue toxicity. (NIH Award ID: 1R15EB012299 - 01A1)

Cognitive Benefits of Interactive Mental and Physical Exercise for MCI

THE NATIONAL INSTITUTES OF HEALTH

PROJECT PERSONNEL:

Principal Investigator **Dr. Cay Anderson-Hanley** (Psychology); Senior Personnel **Dr. Kristina Striegnitz** (Computer Science)

ABSTRACT:

Researchers aim to replicate and extend a randomized clinical trial (RCT) investigating interactive physical and mental exercise, “Cybercycling for Cognitive Health.” Findings showed significant cognitive benefit after three months of simultaneously combined physical and mental exercise (i.e., exergaming), when contrasted with physical exercise alone. Results suggest that for the same effort, interactive physical and mental exercise on a cybercycle can yield greater cognitive benefit than physical exercise alone on a stationary bike. This project extends the research to persons with mild cognitive impairment (MCI), to examine the generalizability of the above finding to those already experiencing cognitive decline, with the hypothesis that cybercycling can slow decline more than either physical or mental exercise alone. (NIH Award ID: R15-AG042109-01A1)

Collaborative Research: Elucidating the Interactive Effects of Sensory Response and Signal Function on the Evolution of Signal Diversity

THE NATIONAL SCIENCE FOUNDATION

PROJECT PERSONNEL:

Principal Investigator **Dr. Leo Fleishman** (Biology)

ABSTRACT:

A fundamental challenge of modern Zoology is to understand why, in some cases, large numbers of similar-appearing animal species have formed, and continue to coexist, in relatively limited geographical areas. This study examines the role of communication in facilitating species boundaries in communities of Anolis lizards, focusing on lizard communities on the islands of Jamaica, Hispaniola and Puerto Rico. This project includes a strong outreach component, involving high school, undergraduate and graduate students with a special effort to include groups underrepresented in sciences. By explaining the role of effective communication in the maintenance of reproductive boundaries between species, the project will provide information that is critical for conservation efforts aimed at preserving biological diversity through habitat preservation and reconstruction. (NSF Award ID: 1051796)

Collaborative Research: Measuring and Modeling Collective Intelligence

THE NATIONAL SCIENCE FOUNDATION

PROJECT PERSONNEL:

Principal Investigator **Dr. Christopher Chabris** (Psychology)

ABSTRACT:

The “holy grail” of artificial intelligence research for decades has been to design computers with robust, integrated, human-like intelligence. This goal has proven elusive, in spite of a massive amount of research. But another goal is just now becoming feasible, and so has been the subject of much less research: using vast computer networks to create new kinds of intelligent entities that combine the best of both human and machine intelligence. One key to designing such human-centered computing systems is better ways of measuring the collective intelligence they exhibit. That is the focus of this research, which represents a collaborative effort among researchers at Massachusetts Institute of Technology (lead institution), Carnegie Mellon University, and Union College. (NSF Award ID: 0963404)



## ACTIVE GRANT PROJECTS

*Continued*

### Collaborative Research: RUI: Deep Drilling of Lake Junin, Peru: Continuous Tropical Records of Glaciation, Climate Change and Magnetic Field Variations Spanning the Late Quaternary

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Donald Rodbell** (Geology)

---

#### ABSTRACT:

Our ability to understand the full complexity of climate change and forecast future regional trends requires that we extend the available instrumental records into the geologic past. Over the past several decades paleoclimatologists have developed myriad proxy indicators of past regional climate that are recorded in natural archives such as ice cores, cave deposits, and lake sediment, among many other archives. Proxy paleoclimate records from the tropics are particularly important because this region is the “heat engine” of Earth. Lake Junin is exceptional in the length of record that it contains, but also in the climate signals that it records. This research will develop these and other proxy climate records for the full length of recovered core; the records generated will comprise one of the longest continuous records of climate and environmental change from the inner tropics. (NSF Award ID: 1402076)

### Collaborative Research: Understanding the Provenance and Thermal Evolution of the Chugach Prince William Terrane in Southern Alaska

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. John Garver** (Geology)

---

#### ABSTRACT:

The Chugach-Prince William terrane is an extensive accretionary complex that formed along the western margin of North America during subduction (under-thrusting) of oceanic lithosphere in the Cretaceous to Eocene. Researchers use geochronology, stratigraphy, petrology, structural geology, and geophysics to unravel the source region of this accretionary complex and subsequent thermal history. This research directly addresses several key problems in North American tectonics related to terrane formation, translation, accretion, and basin formation, and is helping advance geochronologic methods used for tracking the origin and thermal evolution of sedimentary rocks. This project has a strong educational component aimed at increasing the number of students in the geoscience pipeline and ultimately the workforce, and our effort is also focused on recruiting students under-represented in the geosciences. (NSF Award ID: 1116554)

### Grass Roots Activism and the American Wilderness: Pioneers in the Twentieth Century Adirondack Park Conservation Movement

THE COUNCIL ON LIBRARY AND INFORMATION RESOURCES

---

#### PROJECT PERSONNEL:

Project Directors **Annette LeClair** and **India Spartz** (Schaffer Library)

---

#### ABSTRACT:

The CLIR grant supports efforts to archive and showcase the Apperson-Schaefer collection at Union's Kelly Adirondack Center. The project will provide access via a dedicated website to the collections of John S. Apperson and Paul Schaefer, lifelong conservation activists of the Adirondack Park, the largest protected parkland in the contiguous United States. Their papers, dating from 1899 – 1996, collectively cover 20th Century political activism to conserve the Adirondack Forest Preserve and to expand the Adirondack Park. The papers also shed light on the important role Adirondack Park activism played in shaping national conservation and wilderness efforts. Their correspondence with conservationists and developers reflects the tensions between conserving the land as wilderness and the impact of commercial use, an issue we wrestle with today.

### Increasing Collaborative Contacts in the Community of Mathematicians

THE SIMONS FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Christina Tonnesen-Friedman** (Mathematics)

---

#### ABSTRACT:

The Collaboration Grant for Mathematicians supports intensive collaboration and travel to promote collaborative activities. The goal of the program is to support the ‘mathematical marketplace,’ to substantially increase collaborative contacts in the community of mathematicians working in the U.S. by enhancing the research atmosphere within the department. Through the grant, Union has hosted numerous visits to campus, advanced Dr. Tonnesen-Friedman's research, and supported departmental activities, particularly enabling a greater number of participants at the annual mathematics conference held each fall.

## ACTIVE GRANT PROJECTS

*Continued*

### MRI: Acquisition of a Multi-Material 3D Printer to Enable Novel Multi-disciplinary Research and Research Training

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. John Rieffel** (Computer Science); co-PIs **Dr. Ann Anderson** (Mechanical Engineering), **Dr. Steven Rice** (Biology); Senior Personnel **Dr. Takashi Buma** (Electrical & Computer Engineering), **Dr. Michael Hagerman** (Chemistry), **Dr. Robert Olberg** (Biology)

---

#### ABSTRACT:

By harnessing the demand for prototyping technologies, researchers will launch a new era of innovative research, with applications ranging from the neuromechanics of dragonfly capture to the manufacture of novel aerogel coated surfaces to the design of completely soft robots. This 3D printer will be at the center of an inherently cross-disciplinary and highly collaborative research program at Union College. Providing a common space in which community members can design solutions and solve problems together will help foster and spark spontaneous interdisciplinary collaborations. Students using the space will be emboldened as craftspersons and enabled as entrepreneurs. (NSF Award ID: 1337768)

### MRI: Acquisition of a Stable Isotope Ratio Mass Spectrometer for Interdisciplinary Research and Undergraduate Research Training

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. David Gillikin**; co-PI **Dr. Donald Rodbell** (Geology); Senior Personnel **Dr. Jeffrey Corbin**, **Dr. Kathleen LoGiudice** (Biology), **Dr. Anouk Verheyden-Gillikin** (Geology)

---

#### ABSTRACT:

This grant supported the acquisition of a stable isotope ratio mass spectrometer (SIRMS) equipped with multiple collectors, a high temperature pyrolysis system and automated sample introduction system. The instrument enables a range of research and research training in paleoclimatology and paleoceanography that requires analysis of stable isotope ratios recorded in marine and freshwater bivalves and in marine and lacustrine sediments. The instrument will also support isotopic investigations of natural waters, glacial ice and plant materials for paleoenvironmental and paleoecological studies of climate dynamics and the global carbon cycle. The PI plans K-12 outreach activities aimed at at-risk and underrepresented youth for topical regional investigations of immediate societal relevance. (NSF Award ID: 1229258)

### MRI: Acquisition of an Inverted Optical Microscope to Enable Interdisciplinary Research that Unites Five Departments within the Union College Nanoscience Program

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Samuel Amanuel** (Physics & Astronomy); co-PIs **Dr. Palmyra Catravas** (Electrical & Computer Engineering), **Dr. Brian Cohen** (Biology), **Dr. Rebecca Cortez** (Mechanical Engineering), **Dr. Michael Hagerman** (Chemistry); Senior Personnel **Dr. Joanne Kehlbeck** (Chemistry), **Dr. Seyfollah Maleki** (Physics & Astronomy)

---

#### ABSTRACT:

This award supported the acquisition of a new inverted optical microscope instrument, which was integrated with an existing atomic force microscope (AFM) to offer simultaneous collection of fluorescence and morphological data under controlled environmental conditions (temperature and humidity). The newly coupled system supports undergraduate education, enables faculty research across five different departments, and is used in Union College's dynamic nanotechnology outreach programs. (NSF Award ID: 1229142)

### MRI: Development of an Instrument for Testing Catalytic Aerogels

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Bradford Bruno** (Mechanical Engineering); co-PIs **Dr. Ann Anderson** (Mechanical Engineering), **Dr. Mary Carroll** (Chemistry)

---

#### ABSTRACT:

This grant enables an interdisciplinary team of researchers to develop an advanced modular engineering testbed. The Union Catalytic Testbed (UCaT) will provide researchers with the capability to undertake experiments in catalytic aerogel material (CAM) performance that are currently not possible, because there are no commercially available instruments or systems that have the required capabilities for the application and are economically feasible for an undergraduate institution. The unique physical properties of aerogel materials, including high surface area, low density and good thermal stability, offer significant advantages for use as automotive catalysts. The PIs have developed a novel rapid supercritical extraction (RSCE) process for fabricating aerogels. Construction of UCaT will allow the group to significantly extend its research, providing the capability to test the catalytic ability of CAMs under realistic end-use conditions, in order to facilitate the development of CAMs and support parallel fundamental work. (NSF Award ID: 1228851)

## ACTIVE GRANT PROJECTS

*Continued*

### Privacy in Practice: The Role of EHRs in Pediatrician Interactions with Patients

THE NATIONAL INSTITUTES OF HEALTH

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Timothy Stablein** (Sociology)

---

#### ABSTRACT:

The Agency for Healthcare Research and Quality (AHRQ) grant supports a study exploring the ways adolescents and providers think about the privacy and use of health information, and whether they think privacy concerns, and/or the use of electronic health records (EHRs), affect doctor-patient communication or interaction. Researchers will explore how perceptions of privacy and the use of EHRs affect the way pediatricians communicate with other clinicians and patients and how they use health information technology (HIT) to record and disseminate patient information. Working with medical staff at Children's Hospital at Dartmouth (CHaD) Hitchcock Medical Center, this exploratory, qualitative research design offers an opportunity to understand how expectations, perceptions, and interactions occurring among doctors and patients, shape communication and information flows and exchanges. (NIH Award ID: 7R03HS021537-02)

### Reconstructing the Biogeochemistry in Tropical Aquatic Ecosystems Using Elemental and Stable Isotope Tracers in Freshwater Bivalve Shells

THE FLEMISH SCIENCE FOUNDATION, BELGIUM

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. David Gillikin** (Geology)

---

#### ABSTRACT:

Aquatic ecosystems are vulnerable to changes in land use, climate, and nutrient inputs, as the material they transport is directly influenced by a range of catchment characteristics. This is particularly true for tropical systems which are under increasing stress and are sensitive early indicators of catchment modifications. Long-term datasets on aquatic biogeochemistry are virtually non-existent. An elegant method to circumvent this absence is to use well-dated biological archive to reconstruct environmental conditions. Freshwater bivalves have demonstrated the potential to store such information in their shell: the geochemical composition along the growth axis provides a history of aquatic biogeochemical and environmental conditions during the lifetime of the bivalve. The researchers have initiated detailed monitoring of a wide range of parameters on several African rivers at unprecedented temporal resolution. The research will provide excellent case studies of how freshwater bivalves record known (and unknown) changes in climate and/or land-use in understudied tropical catchments.

## RUI: Catalytic Aerogel Materials

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Ann Anderson** (Mechanical Engineering); co-PIs **Dr. Mary Carroll** (Chemistry), **Dr. Bradford Bruno** (Mechanical Engineering)

---

#### ABSTRACT:

Catalytically active aerogels have the potential to transform automotive pollution mitigation technologies by eliminating the use of rare precious metals in internal combustion engine exhaust after-treatment applications. This grant enables the PIs to undertake a systematic and iterative series of experiments to prepare, test and optimize catalytically active aerogel materials for eventual applications in automotive pollution mitigation. This project provides undergraduate students from Union's Mechanical Engineering and Chemistry Departments with exciting and relevant cross-disciplinary research experiences, which encourages them to consider graduate studies and careers in research and, therefore, impacts positively the US scientific infrastructure. (NSF Award ID: 1206631)

### SUCCESS: Stimulating Undergraduates: Creating Contributors in Engineering & Science for Society

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Joanne Kehlbeck** (Chemistry); co-PIs **Dr. Samuel Amanuel** (Physics & Astronomy), **Dr. Palmyra Catravas** (Electrical & Computer Engineering), **Dr. Rebecca Cortez** (Mechanical Engineering), **Dr. Scott Kirkton** (Biology); Senior Personnel **Dr. George Bizer** (Psychology)

---

#### ABSTRACT:

The SUCCESS Scholars program further broadens Union's inclusive recruiting strategy by building relationships with small, rural under-resourced public high schools in order to attract and retain talented students to STEM fields. SUCCESS scholars are selected from all science and engineering disciplines, with four-year scholarship support for two cohorts of ten students. The project is helping participants achieve success by meeting the educational and financial needs unique to their situations and backgrounds. The SUCCESS Scholars program is designed to produce talented, energetic STEM professionals from diverse backgrounds and the approach will be transferable to educational institutions across the country. Guided by talented faculty mentors, the scholars will gain from an early introduction to research opportunities, internships, study abroad, lab and site visits, and leadership training. SUCCESS scholars trained as leaders and capable of propagating transformative mentoring skills will positively impact this nation's workforce. (NSF Award ID: 1356398)

## ACTIVE GRANT PROJECTS

*Continued*

### Supporting Scholars in Science and Engineering

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Bradford Bruno** (Mechanical Engineering); co-PIs **Dr. Joanne Kehlbeck** (Chemistry), **Dr. J. Douglass Klein** (Economics), **Dr. Cherrice Traver** (Electrical & Computer Engineering); Senior Personnel **Dr. Suzanne Benack** (Psychology)

---

#### ABSTRACT:

Integrating engineering and the liberal arts offers unique opportunities for students. The project goals are to: 1) improve recruitment and retention of academically-talented students in STEM fields; 2) increase the number of women in engineering, physics, and computer science, and underrepresented groups in all disciplines; 3) provide students with opportunities to further enhance their education through summer research, internships, study abroad, and leadership training; 4) enable these students to make connections between their major and other disciplines through pursuit of a dual major, minor or interdisciplinary major. The impact of these efforts should result in increased numbers of students with the education and skills necessary to enter the workforce or professional and graduate programs in emerging multidisciplinary fields. (NSF Award ID: 0850242)

### The Undergraduate ALFALFA Team

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Rebecca Koopmann** (Physics & Astronomy)

---

#### ABSTRACT:

The Undergraduate ALFALFA Team (UAT), a consortium of 19 undergraduate-focused institutions from across the United States, is conducting a multi-faceted program of student training, faculty development, and public outreach that is integrated into the Arecibo Legacy Fast ALFA (where ALFA refers to the Arecibo L-band Feed Array detector) collaboration. UAT students and faculty participate through several program components, including workshops and observing sessions, group work, and undergraduate research experiences. The collaborative nature of the program, supported by appropriate computer infrastructure and communication media, enables students and faculty to participate effectively in data analysis and remote observing. The program builds connections between staff at Arecibo Observatory and faculty and students at the participating US institutions. The project develops publicly available materials that enhance the undergraduate astronomy curriculum for both science and non-science majors. (NSF Award ID: 1211005)

## Union College Space Grant 2014-15

NASA - NEW YORK SPACE GRANT (CORNELL UNIVERSITY)

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Rebecca Koopmann** (Physics & Astronomy)

---

#### ABSTRACT:

Union's Space Grant provides opportunities to a diverse group of students, enhancing their skills and knowledge so they can make educated choices regarding their future in STEM disciplines. The project aims to enable students to participate in a research project, increase participation of under-represented groups, support presenting research findings at regional and national forums, provide training in oral and written communication and research ethics, and to provide information relating to career opportunities in STEM fields. Related outreach activities will include the Union College Society of Physics Students, partnering with Union College's Kenney Community Center, and the Union College Physical Constants Workshop, hosted by the Department of Physics and Astronomy, for high school physics teachers and students.

### VOSS: Collaborative Research: Is Larger Smarter? Investigating the Effect of Group Size on Collective Intelligence

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Christopher Chabris** (Psychology)

---

#### ABSTRACT:

From Wikipedia to Linux to scientific and business work-groups all over the world, both online and off-line groups are becoming a pervasive part of modern life. It is becoming increasingly important, therefore, to understand how to improve the performance of these groups. The work proposed here will use a new measure of generalized group effectiveness -- called "collective intelligence" -- to help do this. While there have been decades of research on factors that affect the performance of groups, almost all these studies have each focused on a single task. The work proposed here uses the perspective of collective intelligence to investigate, not just the ability of a group to perform a single task, but the group's general ability to perform a wide range of tasks. Since many real-world groups must cope with a wide range of problems, just such a perspective may be needed to systematically predict their performance. By making an online test of collective intelligence available to other researchers, the project will help advance scientific practice in this area. More generally, by providing a firmer scientific foundation for measuring and improving the performance of groups, the project may help our society address many of its most important problems more effectively. (NSF Award ID: 1322214)



## ACTIVE GRANT PROJECTS

*Continued*

### Wavelength Agile Photoacoustic Microscopy for Video-Rate Functional Imaging

THE NATIONAL SCIENCE FOUNDATION

---

#### PROJECT PERSONNEL:

Principal Investigator **Dr. Takashi Buma** (Electrical & Computer Engineering)

---

#### ABSTRACT:

Photoacoustic microscopy (PAM) is a technique that relies on pulsed optical excitation and ultrasonic detection. Physiological changes can alter the wavelength dependence of optical absorption, making functional PAM (fPAM) possible with optical excitation at multiple wavelengths. Conventional fPAM cannot produce functional images of fast dynamical events (e.g. blood oxygenation in a developing embryonic heart). The slow wavelength tuning of conventional pulsed lasers makes it impossible to obtain video-rate fPAM images. The fundamental hypothesis of this proposal is that wavelength agility can revolutionize the capabilities of fPAM. The researchers involved will develop this compact source to switch wavelengths in less than 1 millisecond, representing a 1000-fold improvement in switching speed over conventional lasers. This wavelength agile source provides the breakthrough necessary to realize video-rate fPAM. Furthermore, they will combine our high speed fPAM system with their existing optical coherence tomography (OCT) system. This combined system will provide high resolution structural and functional images of both microvasculature and surrounding tissue at video frame rates. (NSF Award ID: 1157994)



Undergraduate ALFALFA Team member Michael Warrener '16 during a Kitt Peak observing run in Tucson, AZ with Associate Professor of Physics & Astronomy Rebecca Koopmann.

## SUBMITTED PROPOSALS

*Alphabetical by project title*

### A Digital Portal to the History of Science, Medicine, Technology, and National Socialism

THE NATIONAL ENDOWMENT FOR THE HUMANITIES  
BILATERAL DIGITAL HUMANITIES PROGRAM

Project Director **Dr. Mark Walker** (History)

---

### Aptamer-Enabled Ablation of Gonads through Synthetic Autoimmune Response

THE FOUND ANIMALS FOUNDATION  
MICHELSON GRANT IN REPRODUCTIVE BIOLOGY PROGRAM

Principal Investigator **Dr. Brian Cohen** (Biology)

---

### CAREER: Growing, Evolving, and Printing Soft Robots

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF INFORMATION AND INTELLIGENT SYSTEMS, ROBUST INTELLIGENCE PROGRAM

Principal Investigator **Dr. John Rieffel** (Computer Science)

---

### China and East Asia after the Global Economic Crisis: Production Networks and Transactional Trade Data

THE CHIANG CHING-KUO FOUNDATION  
DATABASE GRANT PROGRAM

Principal Investigator **Dr. Mark Dallas** (Political Science)

---

### Cognitive Benefits of Interactive Mental and Physical Exercise for MCI: Supplement

THE NATIONAL INSTITUTES OF HEALTH  
NATIONAL INSTITUTE ON AGING, ACADEMIC RESEARCH ENHANCEMENT AWARD (AREA) PROGRAM

Principal Investigator **Dr. Cay Anderson-Hanley** (Psychology)

---

### Designing and Equipping the Visual Arts Building

THE DORMITORY AUTHORITY OF THE STATE OF NEW YORK  
HIGHER EDUCATION CAPITAL (HECap) MATCHING GRANT PROGRAM

Faculty Contributor **Dr. David Ogawa** (Visual Arts)

## SUBMITTED PROPOSALS

*Continued*

### Development of Aerogel Window Systems

NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

Principal Investigators **Dr. Bahram Keramati** (Sunthru, LLC), **Dr. Ann Anderson** (Mechanical Engineering and Sunthru, LLC), **Dr. Mary Carroll** (Chemistry and Sunthru, LLC); Union College subaward Principal Investigator **Dr. Bradford Bruno** (Mechanical Engineering)

---

### Dutchmen Designers

VENTUREWELL  
E-TEAM PROGRAM

Faculty Advisor **Dr. Ronald Bucinell** (Mechanical Engineering)

---

### Exhibitions & Installations: Mandeville Gallery, Mot Juste

NEW YORK STATE COUNCIL FOR THE ARTS  
VISUAL ARTS PROGRAM

Curator of Art Collections & Exhibitions **Julie Lohnes** (Schaffer Library)

---

### Fostering an Innovation Ecosystem

THE ARTHUR VINING DAVIS FOUNDATIONS

Program Director **Dr. John Rieffel** (Computer Science)

---

### Functor Calculus via Comonads

THE SIMONS FOUNDATION  
COLLABORATION GRANTS FOR MATHEMATICIANS PROGRAM

Principal Investigator **Dr. Brenda Johnson** (Mathematics)

---

### III:Small:RUI:Collaborative Research: ANTE - A Four-Tier Framework to Boost Visual Literacy for High Dimensional Data

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF INFORMATION AND INTELLIGENT SYSTEMS, CORE PROGRAMS

Principal Investigator **Dr. Kristina Striegnitz** (Computer Science)

---

### Is it glassy yet? A Comparison of Techniques to Measure Diffusivity, Viscosity, and the Glass Transition in Atmospheric Chemistry

RESEARCH CORPORATION FOR SCIENCE ADVANCEMENT  
COTTRELL COLLEGE SCIENCE AWARDS PROGRAM

Principal Investigator **Dr. Andrew Huisman** (Chemistry)

---

### IUSE/PFE:RED: Making U Real – Sustainable Structured Development of Technical Professionals

THE NATIONAL SCIENCE FOUNDATION

IMPROVING UNDERGRADUATE STEM EDUCATION (IUSE)/PROFESSIONAL FORMATION OF ENGINEERS (PFE): REVOLUTIONIZING ENGINEERING DEPARTMENTS (RED) PROGRAM

Principal Investigator **Dr. Wendy Sternberg** (Dean of Academic Departments & Programs); co-PIs **Dr. Ann Anderson** (Mechanical Engineering), **Dr. Chris Fernandes** (Computer Science), **Dr. Cherrice Traver** (Electrical & Computer Engineering); Senior Personnel **Dr. George Bizer** (Psychology), **Dr. Bradford Bruno** (Mechanical Engineering), **Dr. Takashi Buma** (Electrical & Computer Engineering), **Dr. John Rieffel** (Computer Science)

---

### MRI: Acquisition of a High-Resolution Micro-Computed Tomography System for Multidisciplinary STEM Research and Research Training

THE NATIONAL SCIENCE FOUNDATION

DIVISION OF BIOLOGICAL INFRASTRUCTURE, MAJOR RESEARCH INSTRUMENTATION (MRI) PROGRAM

Principal Investigator **Dr. Scott Kirkton** (Biology); co-PIs **Dr. Jennifer Currey** (Bioengineering), **Dr. Leo Fleishman** (Biology), **Dr. Robert Olberg** (Biology), **Dr. John Reiffel** (Computer Science); Senior Personnel **Dr. David Hodgson** (Mechanical Engineering), **Dr. Steven Rice** (Biology), **Dr. Nicole Theodosiou** (Biology)

---

### MRI: Acquisition of a White Laser Scanning Confocal Microscope for Multi-Disciplinary Research and Undergraduate Research Training at Union College

THE NATIONAL SCIENCE FOUNDATION

DIVISION OF BIOLOGICAL INFRASTRUCTURE, MAJOR RESEARCH INSTRUMENTATION (MRI) PROGRAM

Principal Investigator **Dr. Quynh Chu-LaGraff** (Biology); co-PIs **Drs. Brian Cohen**, **Robert Lauzon**, **Robert Olberg** (Biology); Senior Personnel **Dr. Sudhir Khetan** (Bioengineering), **Dr. Nicole Theodosiou** (Biology)

---

### MRI: Development of an Automated Aerogel Fabricator

THE NATIONAL SCIENCE FOUNDATION

DIVISION OF MATERIALS RESEARCH, MAJOR RESEARCH INSTRUMENTATION (MRI) PROGRAM

Principal Investigator **Dr. David Hodgson** (Mechanical Engineering); co-PIs **Dr. Ann Anderson** (Mechanical Engineering), **Dr. Mary Carroll** (Chemistry)

---

### Music: Presenting: France under 40: Young Quartets on the French Aesthetic

THE NATIONAL ENDOWMENT FOR THE ARTS, ARTWORKS PROGRAM

Artistic Director **Derek Delaney** (Union College Concert Series)

## SUBMITTED PROPOSALS

*Continued*

### National and Transnational Contemporary Circus Research

CANADIAN SOCIAL SCIENCES AND HUMANITIES RESEARCH COUNCIL  
PARTNERSHIP DEVELOPMENT GRANT PROGRAM

Project Director **Dr. Charles Batson** (Modern Languages & Literatures)

---

### NRI: RUI: Asking for Help: Selecting, Approaching and Engaging People

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF INFORMATION & INTELLIGENT SYSTEMS, NATIONAL ROBOTICS  
INITIATIVE (NRI) PROGRAM

Principal Investigator **Dr. Nicholas Webb**; co-PIs **Drs. Aaron Cass, Kristina Striegnitz** (Computer Science)

---

### Our Shared Humanities: Integrating the Arts and Humanities Across Academic Disciplines

THE ANDREW W. MELLON FOUNDATION

Principal Investigator **Dr. Wendy Sternberg** (Dean of Academic  
Departments & Programs); **Dr. Christine Henseler** (Modern Languages  
and Literatures)

---

### Preliminary Proposal: RUI: Deciphering the Phenotypic and Genomic Patterns of Divergence Across a Speciation Continuum in a Young *Drosophila* Species Complex

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF ENVIRONMENTAL BIOLOGY, EVOLUTIONARY GENETICS PROGRAM

Principal Investigator **Dr. Roman Yukilevich** (Biology)

---

### RUI: Advancing Cognitive Neuroscience Research Through the Further Development of the EEG Research Core at Union College

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF BEHAVIORAL & COGNITIVE SCIENCES, COGNITIVE NEUROSCIENCE  
(CN) PROGRAM

Principal Investigator **Dr. Stephen Romero**; co-PIs **Drs. Daniel Burns, Christopher Chabris, Erika Wells** (Psychology)

---

### RUI: Mechanical Stimulation of an Open Murine Tibial Fracture using an External Fixator

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF CIVIL, MECHANICAL AND MANUFACTURING INNOVATION,  
BIOMECHANICS AND MECHANOBIOLOGY (BMMB) PROGRAM

Principal Investigator **Dr. Jennifer Currey** (Bioengineering)

---

### RUI: The Chemical Biology of Small Molecule Imidazole, Oxazole or Thiazole Containing Species: N, O or S?

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF CHEMISTRY, CHEMISTRY OF LIFE PROCESSES (CLP) PROGRAM

Principal Investigator **Dr. Laurie Tyler**; co-PI **Dr. Kristin Fox**  
(Chemistry)

---

### RUI: Water-Based Manufacturability of Polymeric Nanocomposites

THE NATIONAL SCIENCE FOUNDATION  
DIVISION OF CIVIL, MECHANICAL AND MANUFACTURING INNOVATION, MATERIALS  
ENGINEERING & PROCESSING (MEP) PROGRAM

Principal Investigator **Dr. Rebecca Cortez** (Mechanical Engineering);  
co-PI **Dr. Michael Hagerman** (Chemistry)

---

### The 2016 Beckman Scholars Program

THE ARNOLD AND MABEL BECKMAN FOUNDATION

Faculty Mentors **Drs. Mary Carroll, Kristin Fox, Michael Hagerman, Andrew Huisman, Joanne Kehlbeck, Laura MacManus-Spencer, Margot Paulick, Laurie Tyler** (Chemistry and Biochemistry), **Drs. Cay Anderson-Hanley, Christopher Chabris, Stephen Romero** (Psychology and Neuroscience)

---

### Union College: Host Institution for Chinese and Russian FLTAs, Academic Year 2015-16

THE INSTITUTE OF INTERNATIONAL EDUCATION  
FULBRIGHT FOREIGN LANGUAGE TEACHING ASSISTANTS (FLTA) PROGRAM

Primary Supervisors **Dr. Kristin Bidoshi** and **Dr. Zhen Zhang**; Senior  
Personnel **Drs. Megan Ferry** and **Audrey Sartiaux** (Modern Languages  
& Literatures)

---

### Virtue and Vengeance in Aristotle

THE AMERICAN ASSOCIATION OF UNIVERSITY WOMEN FELLOWSHIP  
THE CENTER FOR HELLENIC STUDIES FELLOWSHIP  
THE HOWARD FOUNDATION FELLOWSHIP  
THE INTERNATIONAL SOCIETY FOR THE HISTORY OF RHETORIC FELLOWSHIP  
THE LAURANCE S. ROCKEFELLER VISITING FELLOWSHIP  
THE MURPHY INSTITUTE FACULTY FELLOWSHIP

Fellow **Dr. Krisanna Scheiter** (Philosophy)

---

### Waves of Futurity, Monstrous Attachments: American Literary Representations of Affect, Place, and Otherness

THE NATIONAL ENDOWMENT FOR THE HUMANITIES  
DIVISION OF RESEARCH PROGRAMS, SUMMER STIPENDS PROGRAM

Project Director **Dr. Jillmarie Murphy** (English)

---

**COLLEGE RELATIONS**  
OFFICE OF FOUNDATION, CORPORATE  
& GOVERNMENT RELATIONS

*Location*

The Carriage House, 2<sup>nd</sup> Floor  
At the corner of Lenox Road and Union Avenue (next to Abbe Hall)

*Staff*

Blair H. Raymond  
Senior Director of Foundation, Corporate & Government Relations  
e-mail: raymondb@union.edu | tel: 518.388.6011

Nicole E. Marshall  
Director of Sponsored Programs  
e-mail: marshaln@union.edu | tel: 518.388.6169

Lisa E. Mason  
Assistant Director of Foundation, Corporate & Government Relations  
e-mail: masonl@union.edu | tel: 518.388.6984

*Website*

[muse.union.edu/grants/](http://muse.union.edu/grants/)



## PROPOSALS AND AWARDS

### *A Year in Review*

---

#### 17 NEW AWARDS

Involving 22 Union College Faculty  
From 13 Academic Departments and Programs

---

#### 35 PROPOSALS SUBMITTED

Involving 52 Union College Faculty  
From 18 Academic Departments and Programs

---

#### 38 ACTIVE AWARDS

Involving 53 Union College Faculty  
From 18 Academic Departments and Programs  
Totaling \$6,787,288

## NOTES

---



UNION COLLEGE | OFFICE OF COLLEGE RELATIONS | 807 UNION STREET, SCHENECTADY, NY 12308

UNION  
COLLEGE  
FOUNDED 1795