

# College of Liberal Arts Sciences Sponsored Awards: April - June 2015

College of Liberal Arts and Sciences, Department: Biological Sciences

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**Gu, Haidong**

**NATIONAL INSTITUTE FOR ALLERGY AND INFECTIOUS DISEASES**

**\$1,881,807**

***Dissecting the Functional Domains of Infected Cell Protein 0 of Herpes Simplex Virus 1***

This research is highly relevant to the mission of understanding infectious diseases caused by HSV-1. Understanding how viruses employ multifunctional proteins to target different cell machineries not only provides critical information for novel therapeutic strategies, but also helps to elucidate the biology of host defense mechanisms. ICP0 of HSV-1 is a multifunctional gene activator that orchestrates viral countermeasures to breach the host defense. The outcomes of these proposed studies will greatly advance our knowledge of the initiation of HSV-1 infection, as well as the molecular mechanisms of host defenses. This study is expected to have a significant impact in developing new anti-herpes therapies and in understanding cellular defense mechanisms against DNA viruses.

**Kashian, Donna Rebecca**

**HURON MOUNTAIN WILDLIFE FOUNDATION**

**\$1,750**

***Long-Term Trends in Macroinvertebrate Assemblages and Water Quality in Northern Michigan Streams: Documenting Change Following Construction and Operation of a Mine***

Study to develop a robust, long-term dataset that can be applied to sensitively track the effects of environmental change on stream ecosystems in northern Michigan taking a landscape approach utilizing available Geographic Information System (GIS) databases for two watersheds in Northern Michigan: the Yellow Dog River and Salmon Trout River, to investigate the relationship between invasive species and landuse/landcover, and identify locations which maybe particularly vulnerable to invasion. Watershed health will be assessed using abiotic and biotic measures of habitat quality and the health of the fish community, including a continued assessment of stream health through the development a long-term data set characterizing 26 stream sites in the Cedar Creek, the Yellow Dog, and Salmon Trout River watersheds. Such information is vital towards understanding natural variability in stream ecosystems and the ability to track human impacts.

College of Liberal Arts and Sciences, Department: Center Peace/Conflict

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**Pearson, Frederic S.**

**US-Japan Foundation**

**\$108,269**

***Discovering Japan in the 21st Century: Reconciliation with the Past***

The program is a professional development program for local high school teachers. The teachers will engage in a series of academic lectures/discussions on issues relating to Japan's wartime history and post-war territorial and international conflicts, online discussion with Japanese teachers and students, a 10 day research trip to Japan including homestays with teachers and school visitations.

Kodanko, Jeremy Jacob

AMERICAN HEART ASSOCIATION/NATIONAL CENTER

\$4,000

*Light Activated Ruthenium Compounds as a Tool for Caspase Inhibition*

Undergraduate Research Program supporting student studying light activated caspase inhibitors.

Suits, Arthur G.

U.S. ARMY RESEARCH OFFICE

\$16,000

*25th Dynamics of Molecular Collisions Conference*

The central objective of this project is to explore quantum state-resolved reaction dynamics under highly controlled conditions at low temperature. Detailed dynamics of ion-molecule reactions will be studied with control over reactant internal state and collision energy as well as product quantum state. Reactions of open shell ions and neutral radicals and of state-prepared reactants will be pursued. Central to this effort will be development of high intensity pulsed beams of neutral beams of radicals.

Verani, Claudio Nazari

NATIONAL SCIENCE FOUNDATION

\$449,000

*Redox, Electronic, and Rectifying Response of Five- and Six-coordinate Metallosurfactants in Solution, as Films, and on Electrodes*

Research will investigate in detail the redox and electronic behavior of bioinspired iron(III)/N<sub>2</sub>O<sub>3</sub> complexes and develop metallosurfactants as precursors for LB films, aiming at five-coordinate amphiphilic species as redox switches with potential for molecular electronics. 2013 realized development of alkoxo-containing metallosurfactants pioneering the merge of coordination, electro-, and surface chemistry in the development of redox-active metallosurfactants.

Cacace, Anthony Thomas

VETERANS ADMINISTRATION

\$4,000

*Vestibular Consequences of Blast-related Mild Traumatic Brain Injury.*

Investigation of the spatial heterogeneity and temporal variation of the brain response to trauma using MRI techniques.

Howard, Jeffrey L.

U.S. GEOLOGICAL SURVEY

\$14,724

*Quaternary Geologic Map of the Detroit, Michigan Quadrangle and Surrounding Areas*

Methods for mapping ASDs in urban areas are not well established, hence the purpose of the proposed study is to produce a 1:24,000 scale Quaternary geologic map of the Detroit, Michigan quadrangle while evaluating the use of geophysical methods as tools for urban geologic mapping. The basic approach will be to compare geophysical results with actual ground truth obtained by the traditional soil auger method. Preliminary data suggest that texture, artifacts and compaction contribute to the geophysical signature of ASDs. Hence, this study will test the hypothesis that Quaternary surficial deposits can be remotely sensed and mapped on the basis of magnetic susceptibility, electrical conductivity, electromagnetic induction, and penetrability. Large scale transect mapping will be carried out across terrains of different urban land use type. The results will be used to develop predictive ASD-urban landscape models which will then be applied to small scale mapping. It is expected that low-cost, rapid, non-invasive geophysical methods will be applicable in urban areas worldwide.

Kruman, Marc Wayne

MICHIGAN NONPROFIT ASSOCIATION

\$7,500

*2015 Michigan Civic Health Index*

Development of the 2015 Michigan Civic Health Index drawing on data from the 2013 U.S. Census Volunteer and Civic Engagement supplements, and the 2012 Voting and Voter Registration supplements.

Yin, Gang George

U.S. Army Research Development and Engineering Command Acq. Cntr.

\$99,741

*Networked Systems for Enhanced Adaptability: Frameworks Using Switching Diffusions, Stochastic Functional and Partial Differential Equations, and Quantum Identification and Control*

Research to develop a novel framework on quantum information processing for system identification and control in large-data networked systems where the diffusion-dependent switching resides in a countably infinite set. A multi-time scale approach will be studied for its use in complexity reduction. Switching diffusion processes that capture random perturbation, random switching of network topology, and environmental noise will be studied for key properties of ergodicity, recurrence, and stability.

Yin, Gang George

UNIVERSITY OF CALIFORNIA, SAN DIEGO

\$145,011

*Stochastic Control, Networks, Fundamental Solutions, and Computational Complexity*

Research on stochastic control, networks, fundamental solutions, and computational complexity of unattended ground sensor networks, dynamic random graphs and applications to social network modeling, irregular, random, and controlled sampling for joint state and event estimation, and system identification under irregular and sparse sampling.

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College of Liberal Arts and Sciences, Department: Nutrition & Food Science

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Burghardt, Paul Ryan

NATIONAL INSTITUTE OF DIABETES DIGESTIVE & KIDNEY DIS.

\$364,087

*Neurohormonal and Behavioral Correlates of Obesity and Weight Loss*

Mentored Scientist K Award to study psychobehavioral impulse control and metabolic profiles before and after weight loss using neuroimaging.

Zhang, Yifan

National Institute of Food and Agriculture

\$293,133

*An Integrated Approach to Ensuring Food Safety and Sustainability in Urban Agriculture in the Greater Detroit Area*

The purpose of this project is to investigate the nature and extent of antibiotic resistance reservoir in the urban agricultural environment and train the next generation of food science students in the comprehensive analysis of soil bacteria and soil DNA using traditional microbiology techniques and modern genomics tools. The project will have significant impact on improving our institutional capacity for research and education in food and agricultural sciences.

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College of Liberal Arts and Sciences, Department: Physics

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Cinabro, David Anthony

BROOKHAVEN NATIONAL LABORATORIES

*Support for LSST Science Raft Construction from Wayne State*

**Majumder, Abhijit**

**U.S. DEPARTMENT OF ENERGY**

**\$395,000**

*Jet Modification in dense matter from first principles*

Study of high energy jets produced in heavy-ion collisions through Quark-Gluon-Plasma.

**College of Liberal Arts and Sciences, Department: Political Science**

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**Moldavanova, Alisa V.**

**American Political Science Association**

**\$3,000**

*From Survival to Sustainability: Community-Based Pathways for Urban Arts Institutions*

The research project is an inquiry of survival and sustainability of public and non-profit arts organizations in an urban environment. The study involves qualitative data coding of interviews and social network analysis to explore the symbiotic relationship between arts and the community.

**College of Liberal Arts and Sciences, Department: Psychology**

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**Fisicaro, Sebastiano A.**

**Blue Cross Blue Shield of Michigan**

**\$48,150**

*The Applied Psychology and Organizational Research Group*

Funding to support graduate research assistant in Organizational Psychology working on development of tools to create an empowered environment at Blue Cross and Blue Shield.

**Lumley, Mark A.**

**BLUE CROSS/BLUE SHIELD OF MI FND**

**\$10,000**

*The Effects of Written Emotional Disclosure and Coping Skills Training in Rheumatoid Arthritis: A Randomized Clinical Trial*

Research of the effects of written emotional disclosure and coping skills training in rheumatoid arthritis.