

## **FFE Summary**

- **31** total applicants
- **7** Subject Areas: Education (1), Engineering & Applied Sciences (5), Humanities (3), Life Sciences (6), Natural Sciences (6), Social Sciences (6), Visual & Performing Arts (4)
- **8** College, School, or Divisions:
  - School of Education
  - School of Computing and Engineering
  - College of Arts & Sciences
  - School of Pharmacy
  - School of Nursing & Health Studies
  - School of Medicine
  - School of Biological Sciences
  - Conservatory
- **18** Departments:
  - Educational Leadership, Policy and Foundations
  - Computer Science and Electrical Engineering
  - Civil and Mechanical Engineering
  - Art & Art History
  - History
  - English
  - Pharmacology and Toxicology
  - Nursing
  - Basic Medical Sciences
  - Division of Cell Biology and Biophysics
  - Physics & Astronomy
  - Geosciences
  - Latina/Latino Studies
  - Psychology
  - Criminal Justice and Criminology
  - Pharmacy Practice and Administration
  - Instrumental Studies
  - Black Studies

## **FFE Applicants & Descriptions**

### **Carolyn Thompson**

#### **Education**

“African American Faculty Experiences on U.S. College and University Campuses”

This proposal seeks funding to update and expand a study on African American faculty stress to be more inclusive of African American faculty experiences. The original study, *Pushed to the Margins: Sources of Stress for African American College and University Faculty* (Thompson and Dey, 1998), used data “from a national survey of college faculty...administrators conducted by the Higher Education Research Institute (HERI) at UCLA in the fall and winter of 1992 (Dey, Ramirez, Korn, & Astin, 1993). At the time the study was published, marginality was an emerging theme in research about African American faculty and students in college and university environments. In the twenty-plus years since the survey was administered, many colleges and universities have broadened their core values to include racial, ethnic and cultural diversity. Goal 5 of UMKC’s strategic plan, “To celebrate diversity in all aspects of university life, creating inclusive environments, culturally competent citizens, and globally-oriented curricula and programs” is likely representative of how many colleges and universities have changed. Accordingly, the numbers of newer offices in university administration that focus specifically on diversity are another indicator of how higher education has changed.

### **Deb Chatterjee**

#### **Engineering & Applied Science**

“RF Performance Optimization of Miniature, Low-Profile Biomedical Imaging Sensors”

This project aims at developing a design methodology that will accurately characterize a UWB array sensor with a finite size. The sensor can be used for microwave detection of breast cancer. Additionally the method proposed in this project advances the state of art modeling of UWB sensors.

### **ZhiQiang Chen**

#### **Engineering & Applied Science**

“Multi-hazard Fluid-Soil-Structure Modeling of Tsunami-impacted Structures”

The goal of this project is to conduct physics-based computational modeling studies for a fluid-soil-structure model subject to complex tsunami effects. The project aims to provide preliminary data and findings for a NSF project that the PI is working with researchers from other universities. The project also aims to educate and train a doctoral student towards a dissertation study. In the long run, the project aligns well with the PI academic career goal, which is to establish a unique multi-hazard structural engineering program at UMKC.

### **Vijay Kumar**

## **Engineering & Applied Science**

### **“Identification of Security Threats in Distributed Firewalls using Big Data Analytics”**

The current approaches of firewalls deployment and management for securing network have become inadequate and they are not as effective in identifying and mitigating threats (Intrusion detection, injecting Trojans, etc.) to enforce desired level of security. Their effectiveness has affected further with the presence of Big Data in IoT. We claim that an out-of-the box firewall approach that introduces automation in firewall management (policy update, policy compliance, etc.) and statistics generation are needed to achieve the result that we desire. At present any incorporation of a new policy to a firewall or deletion of inactive policy is done mostly manually. We claim that this approach is error-prone and any error, even a minor one, could have serious effect on the security of UMKC. To the best of our knowledge so far automation on firewall management is still on research stage. We demonstrate the effectiveness of work done in this project through a prototype that we develop in this work. Every component of an IoT network generate a large amount of information packets. Any one of this packet coming to any of the components has potential to carry security threats. Firewalls must stop undesirable packets. The first task is to identify the packet type of each packet and its origin. The second task is to compose filter policies followed by firewall updates. The final task is to demonstrate that our system efficiently removes undesirable packets trying to enter to the organization. This is the scope of this project.

## **Mahbube Siddiki**

### **Engineering & Applied Science**

#### **“High Efficiency Organic-Inorganic Hybrid Single and Multijunction Solar Cell Made of Low Cost Nano-Structured Semiconductors”**

A potential solution to the environmental problems caused by fossil fuels is solar energy. Harmful greenhouse gases are released into the atmosphere when fossil fuels are burned to generate electricity. Hence humanity must develop energy utilization strategies that yield abundant energy and do not change the chemical composition of the environment. Solar energy utilization is an attractive option due to the abundance of energy in the form of incident solar radiation on the surface of the earth. Solar cell is a device that converts sunlight directly into electrical energy without harming environment. Hence the device is said to be the cleanest of all energy converter. But the Existing silicon solar cells typically require sophisticated high temperature processing, high quality silicon, and complex engineering therefore being less cost effective as an energy source for most applications. In addition, these cells have very limited mechanical flexibility. Other solar cell technology based on inorganic materials such as CdTe, CIGS which are being used to make thin film PVs, are being explored as cheaper alternatives, but their processing costs remain high. This project focuses on investigating low cost high efficiency solar cell. A very exciting option is making hybrid single and multijunction solar cell made of low cost nano-structured semiconductors. The investigator is very interested to investigate optoelectronic properties of low cost materials like metal oxides, SiC, MoS<sub>2</sub> etc. and their nanostructures to utilize them in making high efficiency hybrid single and multijunction solar cell.

**Sejun Song****Engineering & Applied Science**

“SAFE: A Softwarization Architecture using Fog Environments for Real-Time Smart City Surveillance”

The key objective of this research is to design and develop SAFE, a novel Softwarization Architecture using Fog Environments for dynamic, real-time urban surveillance tasks. Often associated with a disaster scenario, such type of tasks require uninterrupted target tracking and SAW analysis. SAFE will address the essential challenges raised by the gap between the growing size of urban dynamic data and highly heterogeneous yet limited computing resource available at the network edge. It pioneers a Software Defined Mobility (SDM) based on network virtualization, which provides a mobile network (spatial-temporal) virtualization service enabling a meta-controller for dynamic resource provisioning and job migration as well as builds an effective softwarization scheme building homogeneity on top of high mobility and heterogeneity.

**Ricky Allman****Humanities**

“The Rise and Death of the Apocalypse; from the Second to the Fourth Dimension”

I am requesting support in the form of concentrated time, equipment, artistic materials and technical assistance to enable the production of a new body of artwork. This new series of work will consist of a stopmotion animation, three-dimensional sculptures, and acrylic paintings. The animation and sculpture are completely new directions in my work that I have not made or exhibited before. My previous paintings, (funded by internal [FRG and UMRB] and external [Charlotte Street and Studios Inc.] grants) dealt with apocalyptic imagery, abstraction and figuration within the landscape. These paintings were widely exhibited and published in recent years, with solo exhibitions at Marine Contemporary in Los Angeles, Daniela Da Prato Gallery in Paris, FR, Gallery B15 in Copenhagen, DK. Including numerous group exhibitions nationally and internationally. My artwork was featured in such publications as Harper’s Magazine, Harvard Business Review Magazine and the Los Angeles Times.

**Viviana Grieco****Humanities**

“Local Laws and Global Markets. Argentina and the World Supply of Ephedrine”

This project aims at establishing the global commodity chains that facilitated the increase in the legal importation of ephedrine into Argentina and its transfer into illegal markets between 1999 and 2010. In doing so, this project brings together diverse and distant geographies of production and consumption; identifies the dispersed and changing economic structures and financial interests that facilitated the flow of ephedrine worldwide; characterizes the legal and political environments in which licit economic activities merged with illicit ones; discusses the environmental impact of the cultivation of a cash crop (ephedra, also known by its Chinese name, ma-huang) for supplying an increasing world demand of ephedrine; analyzes a variety of lifestyles brought together by the world trade in ephedrine, ranging from aggressive and risk-

taking Argentine pharmaceutical entrepreneurs willing to supply Mexican drug-trafficking organizations to impoverished Asian peasants and workers, urban American and European methamphetamine consumers and athletes using ephedra to set new performance benchmarks; finally, this project assesses the role of regulatory states at a time of porous and blurred national boundaries. By placing the trade in ephedrine in broader historical, legal and socio-economic contexts, this project discusses the characteristics, challenges, and shortcomings of global capitalism.

**Whitney Terrell**

**Humanities**

“The Crossroads”

I am applying for a Funding for Excellence program grant to support two course releases from teaching for Spring 2017 so that I can complete my new novel, *The Crossroads*. This novel extends the conversation about race and class in Kansas City that I began in my first two novels, *The Huntsman* (2001) and *The King of Kings County* (2005). Kansas City has undergone an urban renaissance in the past decade. With this redevelopment, we've seen a rise of a new intellectual and creative class -- artists, restaurateurs, writers, gallery owners, and activists -- who were the original business owners and inhabitants of that space. The novel will follow the lives, thoughts, and political concerns of characters drawn from this diverse group. Like my most recent book, *The Good Lieutenant* (Farrar, Straus & Giroux, 2016), this new novel will be reviewed internationally, nationally, and regionally. I will go on a national speaking tour. I will appear on radio and TV. This gives me a broad platform to celebrate UMKC and, in particular, English and Creative Writing. My editor at Farrar, Straus & Giroux is interested in buying *The Crossroads*. I expect to sign a contract with him as early as this fall. He wants the book finished by December 2017 in order to capitalize on *The Good Lieutenant's* success. I need to write full time to meet this demanding deadline. This grant would allow me to be released from teaching in Spring 2017 so I can achieve this objective.

**Hari Bhat**

**Life Sciences**

“Potential Tumor Suppressor Characteristics of an Antioxidant Gene SOD3 against Breast Cancer”

Breast cancer is the second leading cause of cancer deaths among women in the United States. The molecular mechanisms of breast carcinogenesis are not clear. Our long-term goal is to develop strategies for the prevention/inhibition of breast cancer. We have shown that breast cancer can be inhibited using antioxidants in animal models of breast cancer. Based on our preliminary results, we postulate that superoxide dismutase 3 (SOD3), is one key gene with tumor suppressor characteristics in hormonal breast cancer. We hypothesize that breast carcinogenesis is initiated by down-regulation of the expression of SOD3 via a nuclear factor erythroid 2-related factor 2 (NRF2)-dependent signaling pathway. We further hypothesize that chemopreventive agents will function to inhibit breast cancer development by up-regulation of the expression of SOD3 via this same Nrf2-dependent pathway. Our hypothesis will be tested by two specific aims. In Specific Aim 1, we will determine the contribution of SOD3 to inhibition

of estrogen-induced breast cancer. In Specific Aim 2, we will elucidate the underlying mechanism(s) by which SOD3 expression and function is/are regulated by estrogens and chemopreventive agents. Both in vitro and in vivo approaches will be used that include, relevant normal mammary and breast cancer cell lines, and an orthotopic nude mouse xenograft model of breast. The significance of the proposed study is that elucidation of pathway(s) involving SOD3 in breast cancer will provide an opportunity to develop novel therapeutic molecular interventions to prevent/treat breast cancer and possibly other cancers.

**Margaret Brommelsiek**  
**Life Sciences**

“Lessons from the Bauhaus: A Novel Curricula for Teaching Interprofessional Education to Address the Socio-Humanism within Health and the Illness Experience”

Interprofessional education (IPE) remains a priority in helping to reshape healthcare and for providing future health professionals the skills and knowledge in meeting the Institute for Healthcare Improvement’s Triple Aim: quality, cost, and patient experience, including access to equitable care. As an educational strategy, IPE is designed to increase collaborative healthcare teams and includes workforce competencies focused on interpersonal communication, teamwork, and cultural understanding in order to address both the social determinants impacting health, as well as delivery of population focused care (Earnest & Brandt, 2014). Yet despite nearly forty years of IPE programs worldwide, there remains limited evidence that these efforts have reduced healthcare costs, improved patient access, or impacted the quality of care delivery (Brandt, Lutfiyya, King, & Chioreso, 2014). This suggests that the gap between IPE training and health and system outcomes may not only be a result of how IPE programs have been evaluated (Brahsers, Phillips, Maplass and Owen, 2015), but may be directly linked to the curricula models used in delivering IPE across the health professions. Therefore, in order to provide health professions students with a transformative learning experience (Frenk et al., 2010) that will help them to develop into enlightened change agents will require a rethinking of how health professions students are currently taught IPE.

**Mingui Fu**  
**Life Sciences**

“TRIM65 Acts as an E3 Ligase to Control Vascular Inflammation”

The expression of vascular cell adhesion molecule-1 (VCAM-1) on vascular endothelial cells is early feature in the pathogenesis of vascular inflammatory diseases such as atherosclerosis. It is well known that many stimuli such as oxidative stress, inflammatory cytokines and pathogen-associated molecular patterns can induce VCAM-1 expression in endothelial cells through NF- $\kappa$ B signaling pathway. However, the post-translational regulation of VCAM-1 protein is never reported. Understanding the post-translational regulatory mechanisms of VCAM-1 may provide more insights into the molecular mechanisms that control endothelial inflammation and help to identify novel therapeutic targets for the treatment of vascular inflammatory diseases. In an effort to identify novel regulators of endothelial activation, we have identified for the first time TRIM65 as a putative ubiquitin E3 ligase for VCAM-1. We hypothesize that TRIM65 is essential to the regulation of vascular inflammation by controlling VCAM-1 protein turn over. In this FFE

proposal, we will perform a serial of in vitro and in vivo experiments to determine the role and molecular mechanisms of TRIM65 in the regulation of vascular inflammation. This is a highly innovated project to study a novel and important protein. Completion of the studies will lay the foundation for a significant mechanistic advance regarding the molecular regulation of vascular endothelial inflammation and characterize TRIM65 as a novel determinant of vascular inflammatory diseases. The results from this project will not only lead to new publications but also serve as a foundation for attracting extramural funding from NIH, which will enhance the research stature and scholarly reputation of UMKC.

**Gregory King**

**Life Sciences**

“Using Home-Based and Wearable Technology to Predict Cognitive Frailty and Functional Decline in Aging”

The objective of the proposed work is to establish feasibility for using a combination of in-home and wearable technology to study the relationship between physical and cognitive aspects of cognitive frailty among older adults living in their own homes. We will collect a variety of physical activity, functional performance, and cognitive measurements from older adults living in an existing smart tech senior living facility. These data will be used to confirm significant associations between physical and cognitive aspects of cognitive frailty, and provide preliminary evidence for changes in these associations longitudinally. The latter will be evaluated using a novel and efficient measurement burst design intended to reduce practice effects and provide more reliable evidence of associations between physical and cognitive measures. This work is particularly unique because the technology used enables non-intrusive data capturing in participants' own homes. Completion of this work will establish feasibility for larger-scale, long-term studies to fully study the relationship between physical and cognitive aspects of cognitive frailty.

**Ryan Mohan**

**Life Sciences**

“Circadian Regulation of the SAGA Chromatin Modifying Complex”

We have found the SAGA complex is regulated in a circadian pattern and are seeking funds to do a complete analysis. These experiments will contribute to collaborative work and grant proposals.

**Jianping Wang**

**Life Sciences**

“Chronic Interferon- $\alpha$  Activity and Body Weight Regulation”

Over one-third of adults and approximately 17% of children and adolescents aged 2–19 years in the United States are obese. The estimated annual health care of obesity-related illness costs \$190.2 billion, nearly 21% of annual medical spending in the U.S. in 2005. Effective treatments have been limited, resulting in a critical need to develop new treatments for obesity. Understanding the physiology and pathophysiology of energy homeostasis and regulation

represents the first step in identifying novel therapeutic targets in developing therapies for the treatment of obesity. Produced mainly from adipose tissue, leptin is critical for energy homeostasis. Dysfunction or dysregulation of leptin signaling is directly associated with obesity. Interferon-alpha (IFN- $\alpha$ ) is a key innate immune cytokine which was initially discovered for its antiviral activity. There is evidence that chronic treatment of IFN- $\alpha$  for chronic viral hepatitis lowers leptin concentration. Disruption of IFN- $\alpha$  signaling aggravates diet-induced obesity in mice. These findings suggest a regulatory effect of IFN- $\alpha$  on leptin. However, there is a lack of knowledge about how IFN- $\alpha$  signaling interacts with leptin. Therefore, this project is significant because the proposed research will determine the relationship between IFN- $\alpha$  and leptin and the functional consequences in the regulation of body weight. Our proposed studies will determine and dissect the regulatory activity of IFN- $\alpha$  in leptin expression and/or signaling. More importantly, the expected results would offer new insights into IFN- $\alpha$  in the leptin signaling and body weight regulation for development of therapeutic intervention of obesity in humans.

**Wai-Yim Ching**  
**Natural Sciences**

“Interactions between MS2 Bacteriophage ssRNA and the Capsid Protein: Implication for Packaging Signal Hypothesis”

Identification of molecular mechanisms underlying the packaging signal hypothesis in self-assembly of viruses is a hotly pursued research venue in physical virology. While most of the relevant insight so far was gained from generalizations based on sophisticated experimental protocols, we approach this problem by an altogether different philosophy, using a large-scale quantitative ab initio methodology centered on the wild type and mutated nucleoprotein complexes of the phage MS2. The calculated partial charge distribution of individual protein and RNA residues, as well as the calculated strength of the hydrogen bonding configurations between them will enable us to locate the exact binding sites of both nucleoprotein complexes. In addition, NAMD simulation will provide quantitative information on the strength of electrostatic interactions and the change in free energies between the two types of the capsid protein-RNA complex assembly in MS2 bacteriophage. Investigation will be extended to another important biological interaction, the HIV-1 and the interaction between transactivator of transcription (TAT) and its transactivation response (TAR) RNA. We will start with the bound state TAT-TAR complex and the three binding intermediates: ground state, excited state, and intermediate state. This problem represents a paradigm for understanding molecular mechanisms undergoing biochemical reaction which requires the characterization of binding intermediates. The results will have important implications for the assembly of viruses and exemplify the role that modern computational techniques can play in further advancing the field of physical virology. The data obtained will be used in the proposals to NSF and NIH.

**Daniel McIntosh**  
**Natural Sciences**

“Shedding New Light on Why Galaxies Die with the World's Greatest Radio Observatory”



The fueling of new star production in massive galaxies and the physical processes responsible for shutting off ('quenching') star formation remain in question. New galaxy samples identified at UMKC reveal that there is a critical gap in our knowledge about the external gas supply available to galaxies that reside in environments that theoretically should continue to accrete fresh gas and form stars efficiently (i.e., remain 'alive'). This gap impedes our ability to properly model important quenching physics critical to better understanding galaxy evolution. To make progress, the PI has initiated the ambitious Quenching HI Survey (QHIS), an international collaboration to use the new MeerKAT radio observatory in South Africa to undertake a major census of the cold neutral hydrogen (HI) fueling of carefully selected massive galaxies. The goal of this proposal is to cultivate these ongoing efforts toward the submission of a MeerKAT proposal for QHIS pilot observations (Phase 1) and to support the submission of a major NSF proposal in Nov. 2017. The expected achievements are MeerKAT 21cm data for Phase 1, and NSF funding to support research to carry out the analysis, interpretation and publication of Phase 1 observations in consultation with the collaborative team of experts. This publication will provide new insights and stringent constraints on the fueling of HI gas and its role in quenching SF in massive galaxies, which will be important advances to the current state of the field.

**Tina Niemi**

**Natural Sciences**

“Megathrust Earthquakes on the Himalayan Frontal Fault in North Central India”

The possibility that the Himalayan Frontal Thrust fault (HFT) could rupture in an M9 earthquake remains highly controversial and an important seismic hazard question along the densely populated Gangetic Plain of India. This project seeks funds to strengthen an international collaboration between UMKC and the Disaster Mitigation and Management Centre in the State of Uttarakhand and the Wadi Institute of Himalayan Geology. We plan to travel to India to excavate new trenches across the HFT at the LalDhang paleoseismic site to determine whether a large >10-m-high scarp is the product of one, or more than one earthquake. Our exploratory trench excavation in 2015 suggests one earthquake, but we need additional data to confirm this interpretation. The proposed project will lead to a high impact, high profile publication and improve our NSF Tectonics proposal.

**Paul Rulis**

**Natural Sciences**

“Investing in the Future: A Bottom-up and Human Capital Approach to Higher Education”

The purpose of this project is to establish a new method for funding students that wish to pursue higher education. The project will initially apply only to students entering the physics program, but it has the potential to grow beyond that department if proven successful. The funding method to be established is a derivative of the Human Capital Contract (HCC) approach with the twist being that a faculty member (the PI) will commit to be a mentor with a vested interest in the longterm success of the participating students. In an HCC approach, a student's education is paid for by an external entity with the expectation that upon graduation the

student will deliver a percentage of his/her income back to the entity. This FFE proposal consists of three specific objectives: (1) Establish an External Nonprofit Organization as the entity that manages a Student Investment Fund (SIF). The SIF must initially be seeded with sufficient resources to cover the direct cost of educating a stream of students (~3/year) until the “investment return” from the graduates outweighs the cost of educating more students. The seeding task will be accomplished by using a crowd-funding campaign; (2) Define the commitment between the students, the participating faculty members, and the university along with the rules of governance for the program; and (3) Recruit students to participate. A timeline indicates that these goals will be met within the twelve month period of the FFE.

**Fengpeng Sun**

**Natural Sciences**

“Developing a High-Resolution Downscaling Framework to Project Midcentury Missouri Climate Change”

This project proposes to develop a novel high-resolution regional climate modeling framework for Missouri state and apply it to understand the historical evolution of climate in Missouri and quantify potential future climate change in the state in the mid-21st-century. It will downscale outputs from the observed climate reanalysis data and ensembles of coarse-resolution global climate models to 3-kilometer resolution, which is adequate enough to assess climate variability and change on scales relevant to human activities and ecosystems. This project will integrate two climate downscaling techniques: dynamical downscaling and statistical downscaling. It will produce most likely, ensemble-mean climate change projections for Missouri and characterize the uncertainty represented by differences across the GCMs and arising from various future greenhouse gas emissions scenarios. The high-resolution historical and projected climate projection output can be further exploited by faculties and scholars from natural sciences and social sciences at UMKC to develop multidisciplinary collaborations on climate impacts studies. It will help build UMKC’s scholarly reputation in cutting-edge climate change research, especially in high-resolution climate modeling using high-performance computing. This project will also promote UMKC’s leadership in climate impacts and resilience research in the Kansas City Metropolitan Area, and build the collaboration network between UMKC and local government agencies and non-government organizations, to disseminate climate change and its impacts. Mostly importantly, this pilot study will leverage the PI’s high-resolution climate modeling specialty, help produce cutting-edge research results and build the education capacity necessary for a competitive external funding application, such as NSF CAREER.

**Da-Ming Zhu**

**Natural Sciences**

“Microscopic Study of Ion Adsorption in Graphene-based Materials for Renewable Energy Applications”

The proposed work is to study how to use graphene-based electrode materials to significantly improve the performance of supercapacitors, the most promising energy storage device for

renewable energy applications. One of the unique properties of graphene is its extremely large specific surface area which should dramatically increase the capacitance of a supercapacitor with graphene-based electrodes. However, current state-of-the field has failed to deliver the expected results, and it is not clear why. We will use a combination of advanced and unique instruments including a current-sensing atomic force microscope, an electrochemical voltammeter, and a quartz crystal microbalance (QCM) to perform in situ measurements of ion adsorption in graphene-based materials under a capacitive environment. The results from the study will reveal possible ion adsorption hindrances in graphene-based supercapacitors and provide the guidance for the further development of supercapacitors and other renewable energy devices. A FFE grant will enable us to obtain important results for the project; these results will be critical to the evidence needed for formation of external grant proposals to federal agencies for continuation of renewable energy research at UMKC.

**Matthew Chrisman**

**Social Sciences**

“Effects of Standing Desks in the College Classroom: an Observational Pilot Intervention”

Research indicates that college students may be sedentary for a significant amount of time during the week. The proposed study will examine if the use of standing desks in a college classroom (in 3 separate classes using that room) can reduce the amount of time spent sitting while increasing the amount of time spent standing. Standing desks will replace traditional seated desks in one classroom in the School of Nursing and Health Studies at UMKC, and participants will complete a pre and post survey to examine their use of the standing desks and the challenges that may occur with using them. The investigator will also observe the students in class on 6 separate occasions to make note of who is using the desks and for how long. Instructors will also be asked to complete a brief survey regarding their perception of the burden of using standing desks. Instructors who agree to use their classes for the study will be given a small gift card, and participants who complete both pre and post surveys will be entered into a drawing for a small gift card (one per class). The study will last for one academic semester (16 weeks). Data will be analyzed to examine group differences and predictors of using the standing desks using descriptive statistics, Chi-square analyses, and matched-pair t-tests. Results will be submitted to peer reviewed scholarly journals.

**Clara Irazabal**

**Social Sciences**

“Urban Community Development and Social Service Delivery in Kansas City, Kansas: A Community Capitals Framework Assessment”

This research proposal makes use of the Community Capitals Framework (CCF)—which considers natural, cultural, human, social, political, financial, and built capitals—to study the process of urban community development in Kansas City, Wyandotte County, Kansas adapting the framework to serve as a tool for holistic assessment of social service delivery and its impact on community development. Wyandotte is the fourth-most populous and the poorest county of the state of Kansas. The adverse impact of poverty and unemployment is disproportionately

greater among minorities and immigrants. Fostering sustainable community development and improved social service delivery becomes, then, an imperative necessity in Wyandotte. The not-for-profit organization El Centro has been the largest NGO in KCK committed to the achievement of this objective since 1976. During its 40 years of operation, El Centro has been serving the Latino community and other minorities of Wyandotte County. Based on El Centro service provision, and through a mixed-method triangulation and the Community Capitals Frameworks analytic approach, we would examine and assess the stock and flows of community capitals within the Latino neighborhoods and how the synergic interactions of these capitals are helping, or not, to build community development in Wyandotte County. Based on findings, we will offer recommendations for more efficient service delivery and more equitable and sustainable community development in Wyandotte County. The findings on the effectiveness of service provision and the recommendations to improve it will be of use to NGOs beyond El Centro, including agencies in the metro area and beyond. The methodology developed making the CCF pertinent to an urban focus can also be replicated in other urban assessment case studies.

**Seung Lark Lim**

**Social Sciences**

“Brain Stimulation and Neural Dynamics of Dietary Self-Control for Healthy Eating Decisions”

Obesity is a serious health issue in the United States, as it increases the risks of many health conditions including heart disease, diabetes, certain types of cancer, and psychological problems. Although obesity has been a serious health risk and public interest (including NIH funding agencies such as NIDDK, NCI, NIMH, NICHD) for more effective and efficient obesity prevention is very high, our neuroscientific understanding of obesogenic food choice mechanisms is still in its infancy stage. To maintain a healthy weight, people need to make food choices that accumulate to a healthy energy balance. At the individual level, healthier food choices require effective dietary self-control (i.e., resisting tasty but unhealthy foods), which is executed through complex interactions between brain valuation and control networks. An ultimate goal of our research is to develop novel and effective neurobehavioral intervention strategies that help people make healthier food choices and reduce the risks of obesity. To change an individual’s behavior through a novel neurobehavioral approach, we first need to understand how exactly individuals exert dietary self-control for food choices. This study is carefully designed in order to examine why people fail in their dietary self-control and make obesogenic food choices (i.e., tasty but unhealthy foods) through advanced computational modeling and high-density EEG (electroencephalogram) techniques. Specifically, we will explore the spatial-temporal dynamics in brain valuation and control networks for dietary self-control and test the potential effect of non-invasive brain stimulation (tDCS - transcranial direct current stimulation) on dietary self-control.

**Joan McDowd**

**Social Sciences**

“Aging Well: Achieving Quality of Life as We Age”

With its unique multi-discipline membership and a specific mission of addressing the issues of aging, UMKC's Consortium for Aging in Community is highly qualified to convene a symposium on "Aging Well: Achieving Quality of Life As We Age". This symposium will feature UMKC's leading researchers and educators involved in understanding and improving the lives of our aging population. Unlike other academic symposia, this will be an opportunity for Kansas City citizens to engage with our academic and professional faculty who will offer reasonable and realistic solutions to everyday problems. This all-day event will include 14 presentations by UMKC faculty and a "resource session" at the end of the day where participants can interact with various organizations that offer products and services to the elderly. We believe this symposium will attract individual who are 60 years and older and/or caregivers to aging relatives. The conference constitutes a unique opportunity for UMKC to showcase its experts and grow its reputation as a reliable and trusted resource for issues related to quality of life in aging.

**Jennifer Owens**

**Social Sciences**

"Prescription (Rx) Drug Misuse in a Sample of Incarcerated Men"

This is a follow-up project to an unfunded FFE application (IRB 14-337) in which we conducted 240 surveys and 40 interviews with incarcerated women about their nonmedical prescription drug (Rx) use prior to their incarceration. These data were collected in 2015, producing two manuscripts under review. In this new proposal, we want to do a follow up comparative study in which we survey and interview incarcerated men. We have submitted our new IRB to collect these data. The proposed project collects both quantitative and qualitative data to examine nonmedical Rx drug use in a sample of incarcerated men in Missouri to compared to our collected data on women in Missouri. We will collect 240 surveys and 40 interviews with incarcerated men about their nonmedical prescription drug (Rx) use prior to their incarceration.

**Mark Patterson**

**Social Sciences**

"Trends in Anti-Psychotic Add-On Therapy amongst Patients Hospitalized for Schizophrenia: an Analysis using HealthFacts® Data"

**BACKGROUND:** The prescribing of more than one antipsychotic to patients diagnosed with schizophrenia continues to escalate despite clinical guidelines that discourage this practice. Understanding these trends within a nationally representative inpatient sample will provide insight as to where improvements need to be made. **OBJECTIVES:** To determine add-on therapy rates within patients hospitalized with schizophrenia. 2) To identify subgroups of patients at highest risk of receiving potentially inappropriate add-on antipsychotic therapies during hospitalizations. **METHODS:** Patients will be identified from the Cerner HealthFacts® dataset by including those with 1) either 1 schizophrenia-related inpatient episode, or 2 schizophrenia-related outpatient visits associated with ICD-10 code 295.x. Add-on antipsychotic therapy will be defined as any 2nd antipsychotic added to existing therapy upon admission to the hospital. Trends will be measured across a 5-year period, and bivariate statistics will be used to test for

difference in add-on therapy rates across patient subgroups of interest. EXPECTED RESULTS: We expect to determine the extent to which add-on therapy rates occur within inpatient settings on a national scale, in addition to the patients most impacted by this potentially inappropriate antipsychotic polypharmacy practice. IMPLICATIONS: This evidence can in turn be used to inform improved prescribing practices within inpatient settings, ultimately improving the safety of patients hospitalized with schizophrenia.

**JoDee Davis**

**Visual & Performing Arts**

“Commissioning, Performing, Recording New Music for Trombone and Piano”

This proposal seeks funding in the amount of \$15,000 for a compact disc of new music for trombone and piano, recorded by Dr. JoDee Davis (the applicant) and Patricia Higdon (Associate Teaching Professor, UMKC Conservatory). Included in the project will be the commissioning of three new musical works by composers Paul Rudy, Victoria Bond, and Jennifer Higdon. This project will add music of an exceptional and inspired level to the repertoire for trombone, and fulfill the applicant’s goal of performing new music that is intentionally written in a lyrical, song-like style. It is notable that the commissioned works will be the first solo pieces written specifically for trombone and piano by Rudy, Bond, and Higdon.

**Mara Gibson**

**Visual & Performing Arts**

“Blurring Boundaries - CD project”

Blurring Boundaries, my second CD, will feature new chamber music works selected by PARMA Recordings (letter of invitation, intent and support attached). My first CD Artifacts (released May 2015) represents how important performers are to my creative process. While still true, CD 2: Blurring Boundaries stretches this idea into the domain of expanding existing artworks into a musical realm. In reading Mark Rothko’s recent memoir about the painter, I was struck by the following quote: “I became a painter because I wanted to raise painting to a level of poignancy of music and poetry.” I strongly identify with this sentiment when I write music. I react viscerally to painting in what I assume is much the same way Rothko describes; this is true when I play and compose music. It is physical, emotive and on a new level, spiritual. Like Rothko, I am fascinated with working outside of my medium. It helps me to create a distance that allows me to communicate more directly with my ideas. This type of connection between composition and painting rings strongly for me in my process (see video: <http://portablemacdowell.org/#artists/maragibson>). For me, the essence of an artwork falls somewhere in between the music and the idea. Working with many long time collaborators, as well as new ones, will allow me the ability as a faculty member to incentivize my new creative work directly in a tangible return - PARMA is a well-respected, reviewed and notable recording label. This CD project connects a lot of different streams: between people, ideas and the wonderful and potent intersection(s) in-between.

**Adrienne Walker Hoard**

**Visual & Performing Arts**

“Before They Knew They Were Free: A Celebration of Women's Live in Beads, Brushes and Dung”

*No description included*

**Celeste Johnson**

**Visual & Performing Arts**

“Recording Project”

I am applying for UMKC’s Funding For Excellence program in order to support the costs that will be incurred making a chamber music recording featuring three pieces for oboe, viola and piano. For this project, I will collaborate with Rose Wollman, member of the Larchmere String Quartet, on viola, and Christina D’Ambrosio on piano, who is on faculty at Murray State University in Kentucky.