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Allen, Matthew	**323,866**	**649,409**	**1,291,564**
Library Synthesis and Screening of Eu(II)-Based Contrast Agents	**323,866**	**649,409**	**1,291,564**
There is a great need for contrast agents for magnetic resonance imaging (MRI) that respond to changes in redox environment to enable the facile monitoring of responses to new therapies, to guide cancer treatment selection, to image early responses for driving treatment development, and to enable the testing of hypotheses relevant to the collective fundamental understanding between redox environment and human health. The long-term goal of the research project is to develop positive contrast agents for MRI to fill this void in diagnostic medicine by focusing on EuII-containing complexes that are among the most promising areas of study.	323,866	649,409	1,291,564
Ansari, Athar	**269,285**	**269,285**	**269,285**
An Investigation into a Novel Role of Rat1 Termination Factor in Splicing of mRNA	**269,285**	**269,285**	**269,285**
(blank)	269,285	269,285	269,285
Bhagwat, Ashok	**179,527**	**397,932**	**397,932**
Mapping and Visualizing Uracils Created by AID/APOBEC Enzymes using UdgX	**179,527**	**397,932**	**397,932**
Uracil is normally a rare base in DNA, but an enzyme called AID dramatically increases the number of uracils in the genome of B lymphocytes when the human body responds to infections by producing antibodies. In this application, we will map these uracils in B lymphocyte genomes. The results of this study will provide a detailed molecular view of how AID changes the genomes of these cells during their cellular development.	179,527	397,932	397,932
Bray, Tamara	**8,325**	**8,325**	**8,325**
An Archaeological Investigation of Inca Resettlement Policy & Colonial Practice in Southern Ecuador: Exploring Inter-Ethnic Relations through Ceramic Production Technologies	**8,325**	**8,325**	**8,325**

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The research project investigates the local impacts of the Inca state's policies of deportation and resettlement in the southern highlands of Ecuador. The study seeks to identify re-settled producers of imperial Inca pottery and explore relationships between local and non-local craft specialists via an innovative focus on technologies of production.	8,325	8,325	8,325
Brumley, Krista	**15,810**	**15,810**	**15,810**
Doctoral Dissertation Research: Reconnecting Sex to Gender: An Examination of the Medicalization of Transgender Adolescents	**15,810**	**15,810**	**15,810**
Doctoral Dissertation Research: Reconnecting Sex to Gender: An Examination of the Medicalization of Transgender Adolescents	15,810	15,810	15,810
Casey, Rita	**3,000**	**3,000**	**3,000**
Graduate Student Award: Yoga as a Complimentary and Alternative Medicine for Teacher Psychological Distress and Burnout: The Impact of Online Yoga	**3,000**	**3,000**	**3,000**
(blank)	3,000	3,000	3,000
Cha, Jin-Kun	**273,653**	**273,653**	**273,653**
IPA Assignment: Jin Kun Cha	**273,653**	**273,653**	**273,653**
(blank)	273,653	273,653	273,653
Franklin, Marilyn	**76,835**	**76,835**	**76,835**
Integrated Behavioral Health Care for General Pediatrics and Adolescent Medicine	**76,835**	**76,835**	**76,835**
(blank)	76,835	76,835	76,835
Greenberg, Miriam	**372,996**	**372,996**	**1,489,026**
The Role of Cardiolipin in the TCA Cycle: Implications for Barth Syndrome	**372,996**	**372,996**	**1,489,026**

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Cardiolipin deficiency leads to dilated cardiomyopathy and arrhythmia in the genetic disorder Barth syndrome and is also implicated in diabetic cardiomyopathy, heart failure, ischemia/reperfusion injury, and nonalcoholic fatty liver disease. The proposed studies will generate a new model of Barth syndrome pathogenesis by elucidating mechanisms whereby cardiolipin regulates the TCA cycle and intermediary metabolism. The identification of specific metabolites that are limiting as a result of cardiolipin deficiency may be candidates for new treatments for Barth syndrome and other cardiomyopathies.	372,996	372,996	1,489,026
Groysman, Stanislav	**100,000**	**100,000**	**100,000**
Bimetallic Complexes for Selective Binding of Diisocyanides	**100,000**	**100,000**	**100,000**
(blank)	100,000	100,000	100,000
Jorgensen, Kelsey	**19,926**	**19,926**	**19,926**
Documenting Ancient Human Migration through the Co-Evolution of the Andean Potato Weevil	**19,926**	**19,926**	**19,926**
Graduate Student Award: Doctoral dissertation support for Documenting Ancient Human Migration through the Co-Evolution of the Andean Potato Weevil	19,926	19,926	19,926
Kahn, Steven	**860,888**	**3,152,878**	**3,152,878**
Advancing Informal STEM Learning through the Broad Implementation of the Wayne State University Math Corps	**707,932**	**2,999,922**	**2,999,922**
(blank)	707,932	2,999,922	2,999,922
Math Corps - Wayne Metropolitan Community Action Agency	**100,000**	**100,000**	**100,000**
Math Corps - Wayne Metropolitan Community Action Agency	100,000	100,000	100,000
The James and Grace Lee Boggs School	**52,956**	**52,956**	**52,956**
(blank)	52,956	52,956	52,956
Kashian, Donna	**16,000**	**16,000**	**16,000**
The Impact of Invasive Dreissenid Mussel Veligers on Larval Fish Diet and Development in Lake Michigan	**16,000**	**16,000**	**16,000**

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The objectives are to determine the impact of invasive dreissenid mussel veligers on larval yellow perch growth, development and survival after hatching, and to quantify the energetic value of veligers and consumption of veligers by larval fish in nearshore Lake Michigan pelagic environments.	16,000	16,000	16,000
Liang, Zhuqing	**31,016**	**31,016**	**62,032**
Frataxin Deficiency in Cardiolipin-Deficient Cells Leads to Defective Fe-S Biogenesis	**31,016**	**31,016**	**62,032**
Graduate Student Award: Graduate Fellowship supporting Frataxin Deficiency in Cardiolipin-Deficient Cells Leads to Defective Fe-S Biogenesis	31,016	31,016	62,032
Linz, Thomas	**175,404**	**175,404**	**349,440**
Versatile Microfluidic Gel Electrophoresis Platform for Native Protein Analyses	**175,404**	**175,404**	**349,440**
Standard gel electrophoresis methods preclude biophysical characterizations of proteins because samples are denatured prior to analysis. This project seeks to develop a versatile microfluidic gel electrophoresis platform to tune separation resolution of native proteins on-demand integrating numerous characterizations into a single, information-rich analysis to facilitate broad research applications.	175,404	175,404	349,440
Liu, Haiyong	**15,000**	**50,000**	**50,000**
Chiang Ching-Kuo Scholarly Exchange Conference: Space of Two Cities	**15,000**	**50,000**	**50,000**
(blank)	15,000	50,000	50,000
Liu, Zhenfei	**30,000**	**30,000**	**60,000**
Exciton Dissociation in Organic Bulk Heterojunctions from a New First-Principles Many-body Approach	**30,000**	**30,000**	**60,000**
(blank)	30,000	30,000	60,000
Llope, William	**118,276**	**214,114**	**214,114**
sPHENIX TPC detector upgrade at RHIC 2019	**118,276**	**214,114**	**214,114**
sPHENIX TPC detector upgrade at RHIC 2019 experiment intends to use a Time Projection Chamber as the main particle tracking device completing design and fabrication of two fixtures: the "gluing fixture" and the "HV test" fixture. The resulting designs are expected to be useful in othr sPHENIX framing institutes handlin GEM foils.	118,276	214,114	214,114

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Lumley, Mark	**2,500**	**2,500**	**2,500**
What unique mental health challenges do bicultural women-specifically Arab-American women-face when confronted with conflicting sexual norms?	**2,500**	**2,500**	**2,500**
(blank)	2,500	2,500	2,500
Luo, Long	**389,051**	**389,051**	**650,000**
CAREER:Developing Gas Bubbles as a New Tool for Surface-Active Agent Analysis	**389,051**	**389,051**	**650,000**
Surface-active agents or surfactants are ubiquitous in biology, the environment, home and personal care products, and industrial processes. Because of the widespread use and ubiquitous presence of surfactants, surfactant analysis is routinely performed for various applications, including contamination assessment in environmental protection, lipidomics and fatty acid profiling in health care, and quality control in detergent industry. However, current methods for surfactant analysis are still limited by their selectivity and sensitivity. To address this long-standing challenge, we propose to leverage the gas bubble-surfactant interaction to establish a new generation of analytical methods for surfactant analysis. There are three specific objectives in this proposal: (1) To establish a bubble-nucleation-based electrochemical detection (BED) method; (2) To develop a bubble-based preconcentration method that mimics the sea-spray aerosol enrichment in nature, named as the ECAF method; and (3) To combine the BED and ECAF methods in a portable device for on-site detection of a group of low concentration surfactant contaminants, PFAS, in drinking water.	389,051	389,051	650,000
Majumder, Abhijit	**105,782**	**901,000**	**901,000**
Jet Modification in dense matter from first principles	**105,782**	**901,000**	**901,000**
Jet Modification in dense matter from first principles	105,782	901,000	901,000
Meller, Victoria	**316,587**	**1,260,921**	**1,260,921**
Small RNA and Whole Chromosome Recognition	**316,587**	**1,260,921**	**1,260,921**

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This study investigates the idea that small RNA modulates the architecture of the fly X chromosome to facilitate coordinated regulation of the genes on this chromosome. The simularities between analogous processes in flies and mammals suggest similar mechanisms contribute to normal genome regulation.	316,587	1,260,921	1,260,921
Morton, Patricia	**25,000**	**25,000**	**25,000**
Childhood Misfortune and Adult Health	**25,000**	**25,000**	**25,000**
The research aim is identifying mediators connecting childhood exposures to cardiovascular risk for Black, White, and Hispanic Americans.	25,000	25,000	25,000
Newman, Andrew	**18,288**	**18,288**	**18,288**
Empire's Garden: Anthropology and the Racialization of Vision in fin-de-seicle Paris	**18,288**	**18,288**	**18,288**
The study is one of historical anthropology of the present that continues the PI's ethnographic engagement with contemporary politics of belonging in France to reevaluate historically constituted meanings of race and racialization in France.	18,288	18,288	18,288
Nguyen, Hien	**343,035**	**343,035**	**1,372,140**
Strategies for Expedited Synthesis of Sulfated Aminoglycans	**343,035**	**343,035**	**1,372,140**
Heparanase is recognized as a master regulator of the aggressive phenotype of cancer and a prime target for therapy. The research goal is to develop cost-effective strategies to transform aminoglycans that specifically bind to heparanase as an inhibitor. If successful, the strategy will allow access to a wide variety of heparanase inhibitors for functional studies, early clinical development and cancer therapeutic applications.	343,035	343,035	1,372,140
Ntiri, Daphne	**137,000**	**137,000**	**137,000**
Another Chance Adult Literacy program	**137,000**	**137,000**	**137,000**

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WSU/Another Chance offers workplace preparation activities, integrated education and training, in addition to our educational component designed to provide remediation and high school equivalency instruction to our adult learners. Students will receive 382 instructional hours in adult education (ABE/ASE), workplace preparation activities, and integrated education and training. Classes are in session Monday – Thursday, for 26 weeks. We provide experienced teachers and tutors to work with our student population. WSU/Another Chance teachers are part-time faculty hired under the guidelines of the university. All teachers have minimum 3+years teaching experience in working with adult learners in adult education programs or postsecondary education and may have ESL certification, special education certification and/or were K-12 teachers or administrators.	137,000	137,000	137,000
O'Leary, Karen	**12,500**	**12,500**	**12,500**
Improving Access and Education for Communication Disorders.	**12,500**	**12,500**	**12,500**
This funding provides outpatient speech and language therapy for children who do not have insurance coverage for the service. Early intervention for speech-language impairment reduces the impact of these disorders on later academic and social development, supporting more successful long term outcomes.	12,500	12,500	12,500
Papuga, Shirley	**18,228**	**51,481**	**51,481**
Linking Ecosystem Services and Governance of Water Resources in Urbanized Landscapes	**18,228**	**51,481**	**51,481**
(blank)	18,228	51,481	51,481
Petrov, Alexey	**329,000**	**1,030,000**	**1,373,000**
Particle Physics Research Program	**329,000**	**1,030,000**	**1,373,000**
Particle Physics Research Program	329,000	1,030,000	1,373,000
Rury, Aaron	**150,000**	**300,000**	**450,000**
YIP Coherent Vibrational Spectroscopy of Charge Transfer Cavity Polaritions	**150,000**	**300,000**	**450,000**
The research proposes experimental ultrafast Raman scattering spectroscopy studies to map the potential energy surfaces of charge transfer cavity polaritons to develop and apply techniques to understand polariton-driven changes in inter-molecular charge separation.	150,000	300,000	450,000
Sadagurski, Marianna	**149,044**	**424,773**	**562,768**

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Effect of Novel Peptide LCGA-17 on Neuroinflammation in Vitro Using Primary Glial Cells	**8,055**	**8,055**	**8,055**
(blank)	8,055	8,055	8,055
Growth Hormone Receptor Neurons in Glucose Metabolism	**137,989**	**413,718**	**551,713**
We have identified a unique population of LepRb-GHR neurons that are a crucial factor for anti-diabetic actions of GHR-neurocircuitry. Understanding this neurocircuitry will be critical for development of novel therapies targeting obesity and its associated metabolic diseases.	137,989	413,718	551,713
The Role of Hypothalamic GHR-SIRT1 Axis in Energy Homeostasis - Minority Undergraduate Intern Award	**3,000**	**3,000**	**3,000**
Undergraduate Student Award: This funding supports a minority undergraduate's training in research.	3,000	3,000	3,000
Schlegel, Hans	**36,000**	**756,000**	**792,000**
Optimization Methods in Molecular Orbital Theory	**36,000**	**756,000**	**792,000**
(blank)	36,000	756,000	792,000
Shah, Nausheen	**1,000**	**1,000**	**1,000**
SUPER Women in Physics Group Grant	**1,000**	**1,000**	**1,000**
Women in Physics Group related activities support.	1,000	1,000	1,000
Smieliauskas, Fabrice	**68,155**	**68,155**	**328,270**
Alliance NCORP Research Base - NIH NCI CA89823	**39,620**	**39,620**	**237,720**
(blank)	39,620	39,620	237,720
MD Anderson R01CA225647 Targeted Oral Anticancer Agents: Patterns of Indicated and Off-Label Use, the Associated Factors, and Economic Implications	**20,368**	**20,368**	**82,383**

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Dr. Fabrice Smieliauskas will serve as health policy expert on the project. In this role, he will (a) contribute to the study aims related to off-label use, specifically by classifying off-label use into compendia-recommended and non-recommended use, and by tracking measures of state and federal laws regarding off-label use and (b) identifying changes in health policy and industry trends affecting pricing and insurance coverage of targeted oral anticancer medications. He will incorporate this knowledge into the analytic design and into the interpretation and discussion of project results.	20,368	20,368	82,383
NCI Cancer Moonshot Initiative: Administrative Supplements for the P30 Cancer Center Support Grant to develop tobacco cessation treatment	**8,167**	**8,167**	**8,167**
(blank)	8,167	8,167	8,167
Trimpin, Sarah	**44,500**	**14,500**	**44,500**
Specialized Services Agreement for Industry Research and Technology Development	**44,500**	**14,500**	**44,500**
(blank)	44,500	14,500	44,500
Truskinovsky, Yulya	**36,387**	**36,387**	**36,387**
Caregiving and Labor Force Participation: New Evidence from the American Time Use Survey	**36,387**	**36,387**	**36,387**
The proposed study will create a novel dataset to capture detailed employment outcomes in the months before and after caregiving starts and link these short-run changes to medium-run earnings and employment outcomes. This study will highlight a period during which older Americans are at a greater risk for leaving the labor force early, tie this risk directly to the retirement security of caregivers, and provide evidence for how policy can address this risk.	36,387	36,387	36,387
(blank)	-	-	-
Westrick, Judy	**29,998**	**29,998**	**29,998**
RAPID: Targeted Sampling of a Harmful Algal Bloom in Lake Anna, Virginia with Aerial and Aquatic Robots	**29,998**	**29,998**	**29,998**

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An unanticipated harmful algal bloom (HAB) appeared in Lake Anna, Virginia in early August, 2019. Lake Anna is one of the largest freshwater reservoirs in VA. Since the first report of the HAB on Lake Anna, the bloom has reportedly intensified, and the Virginia Department of Health (VDH) has issued multiple advisories. The most recent VDH advisory (issued on Sept 20, 2019) showed the HAB extending down both northern branches of the lake. The VDH advisories are based in part on water quality data from the VA Department of Environmental Quality (DEQ), which collects samples from a series of stations (GPS waypoints where a manned boat is used to collect samples by hand) across the lake. In this RAPID proposal, we propose to work alongside water quality experts (DEQ and VDH) to make targeted collections of the HAB at Lake Anna using aerial robots (a drone equipped with multispectral sensors to image the bloom and a device to sample the water) and aquatic robots (an ROV equipped with underwater GPS, sensors to track the plume in situ, and a device to collect underwater samples).	29,998	29,998	29,998
Winter, Charles	**651,549**	**1,648,137**	**1,818,077**
ASCENT: Applications and Systems driven Center for Energy-Efficient Integrated NanoTechnologies	**145,649**	**714,296**	**714,296**
Successful execution of the research would afford ALD processes for CoTix and other metal alloy films, which could enable manufacturing of new microelectronic device generations. We explore synthesis and growth of new Ti precursors, new Co precursors, adapting ligands developed for Ti and Co metal ALD to develop new precursors and ALD processes for metal films Zr, Hf, Nb, Ta, Mo, W, Ni, and others.	145,649	714,296	714,296
Atomic Layer Deposition of Ruthenium Metal and Other Noble Metal Films Using Benign, Reducing Co-Reagents	**90,000**	**260,001**	**260,001**
The work explores new rhenium, osmium, and iridium precursors and new reductive chemistry for the thermal atomic layer deposition growth or Re, Os, and Ir metal films. The goal is to deposit high purity, low resistivity Re, Os, and IR metal films using non-oxidative co-reactants and to characterize their compositions and properties.	90,000	260,001	260,001

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New Precursors and Processes for the Atomic Layer Deposition of Metal and Metal Nitride Films	**176,000**	**264,000**	**264,000**
As microlectronic device dimensions coninue to shrink, traditional film deposition processes will eventually not be able to provide required level of conformity and thickness control in advanced devices. Atomic layer deposition is capable of providing perfect conformal film coverage, even in nanoscale features, and affords sub-nanometer control over film thicknesses.	176,000	264,000	264,000
Wisconsin Materials Research Science and Engineering Center	**239,900**	**409,840**	**579,780**
The research explores development of low temperature atomic layer disposition (ALD) processes for amorphous metal oxide films leading to advances in selective crystallization of the films which have a range of practical applications.	119,950	289,890	289,890
(blank)	119,950	119,950	289,890
Yin, Gang	**100,000**	**240,000**	**480,000**
New Paradigms of Networked Systems: Stochastic Mean-Field Models, Stochastic Recursive Algorithms with Social Interactions, Hybrid Systems, and Distributed Controls and Games	**100,000**	**240,000**	**480,000**
This research project aims to extract certain commom features of networked systems and develop new mathematics models, tools, and design methodologies for their monitoring, control, diagnosis, coordination, and decision.	100,000	240,000	480,000
Grand Total	**5,853,411**	**13,546,309**	**18,196,650**