Agendum
Oakland University
Board of Trustees Formal Session
June 26, 2023

ACCEPTANCE OF GRANTS AND CONTRACTS TO OAKLAND UNIVERSITY FOR THE PERIOD OF MARCH 1 - APRIL 30, 2023

A Recommendation

1. **Division and Department:** Academic Affairs, Research Office

2. **Introduction:** Oakland University contributes to our national agenda as a contributor to the nation's scientific and technological progress, both through the generation of new knowledge and ideas and the education and training of its students. Grants and contracts awarded to Oakland University play a critical role in the advancement of new research findings, and current research trends gives emphasis to inter-disciplinary, technology-driven, and product-oriented team efforts.

The Board of Trustees (Board) has authorized the President, or his or her designee, to receive and acknowledge grants and contracts to the University, but such grants and contracts must be reported to the Board not less often than quarterly for acceptance on behalf of the University.

At this time, we request that the Board accept the grants and contracts reported on the attached Grants and Contracts Report, Attachment A, for the period of March 1 through April 30, 2023.

3. **Previous Board Action:** The Board accepts grants and contracts to Oakland University on a regular basis at its Formal Sessions.

4. **Budget Implications:** Grants and contracts contribute to the University through the recovery of direct and indirect expense incurred in support of research projects.

5. **Educational Implications:** Grants and contracts enhance the training and education of students.

6. **Personnel Implications:** Grants and contracts awards may provide salary support for faculty, post-doctoral fellows, undergraduate and graduate students, technicians, lab managers, and other personnel, as required by the funded research project or program.

7. **University Reviews/Approvals:** All grants and contracts are reviewed by the Research Office prior to submission to the Board to ensure compliance with federal and state laws and regulations and University policies and procedures, when applicable, and with assistance from the Office of Legal Affairs when requested.

8. **Recommendation:** RESOLVED, that the Board of Trustees accept grants and contracts to Oakland University identified in the attached Grants and Contracts Report, Attachment A, for the period of March 1 – April 30, 2023.

9. **Attachments:** A. Grants and Contracts Report.

Submitted to the President
on 06/22, 2023 by

Britt Rios-Ellis, M.S., Ph.D.
Executive Vice President for
Academic Affairs and Provost

Recommended on 6/22, 2023
to the Board for Approval by

Ora Hirsch Pescovitz, M.D.
President

Reviewed by

Joshua D. Merchant, Ph.D.
Chief of Staff and
Secretary to the Board of Trustees

Attachment A

Grants and Contracts Report for period March 1 - April 30, 2023

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Amber Bismack Teacher Development and Educational Studies	Spencer Foundation	**Justice-Oriented Teaching for Scientific Sensemaking in Elementary Teacher Education.** Recent pandemics highlight the need for high quality science education that supports all students, particularly those from marginalized groups. This research will investigate practice-based teacher education that emphasizes equity and justice and how it compares to traditional teacher education.	$ 49,941	$ 49,941
Christina Papadimitriou Interdisciplinary Health Sciences	University of Illinois, Chicago / NIDILRR	**Enhancing Community Living and Increasing Participation through Self Efficacy (ECLIPSE).** This project will provide remote peer navigation services to help ease inpatients with disabilities transition to community living, by helping people address community living goals with support and guidance from well-trained disabled peers who have had to deal with many of these challenges themselves.	$ 19,501	$ 83,050
Jonathan Maisonneuve Mechanical Engineering	National Science Foundation	**ERI: Fertilizer-Based Liquid Desiccants: New Possibilities for Energy Efficient Dehumidification and Water Recycling.** One promising solution for sustainable food production in indoor plant environments is the novel concept of using fertilizer as a dehumidification agent for climate control. This project will support the development of sustainability hubs in Detroit and Pontiac through collaboration with student, community, and industry partners on a series of outreach and education initiatives.	$200,000	$ 200,000
Andrei Slavin Physics	University of Central Florida / AFOSR	**Terahertz Spintronics with Antiferromagnetic Insulators.** The goal of this research is to develop new materials and techniques, leveraging the unique properties of antiferromagnets to transform methods of generation, transmission, and processing of THz signals.	$180,000	$ 887,849
Luis Villa Diaz Biological Sciences	National Science Foundation	**PFI-TT: Development of Artificial Substrates for Growth of Human Stem Cells Suitable for Clinical Applications.** This PFI-TT project addresses the important opportunity that our society has to develop personalized regenerative medicine to tackle devastating diseases such as Parkinson's and Alzheimer's, diabetes, anemias, cardiomyopathies, and blindness, among many others.	$250,000	$ 250,000
Krzysztof Kobus Mechanical Engineering	University of Michigan / NASA	**Earth System Science STEM Camps, Outreach and Teacher Training.** A continuing comprehensive, hands-on, student-centered, activity-based outreach and education program to bring substantive Space and Earth system sciences training to three separate populations.	$ 20,000	$ 20,000

Grants and Contracts Report for period March 1 - April 30, 2023

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Louis Villa Diaz (Ellana Collins-Edward) Biological Sciences	University of Michigan / NASA	**Investigating the Effects of Stimulated Microgravity on HeLa Cells.** Our study will examine simulated microgravity effects on the virology of Human Papilloma Virus (HPV) and how that relates to HPV-induced tumorigenesis using HeLa cells. Our purpose is to create a cost-effective and reliable model using ground-based systems to simulate microgravity to further our understanding of HPV and what risks it could pose for those exploring the last frontier long term.	$ 5,000	$ 5,000
Zhe Wang (Erin Witherspoon) Chemistry	University of Michigan / NASA	**Electrochemical Synthesis of Urea Derivatives on Carbon Nanomaterials under Extreme Atmospheric Conditions.** This research aims to provide a comprehensive understanding of the overall reaction mechanism for future optimization of the urea generator for use on Mars.	$ 5,000	$ 5,000
Roman Dembinski (Bassma Al-Allaf) Chemistry	University of Michigan / NASA	**Designing Metallodrugs: 1,5-Benzodiazepines Ruthenium Complexes.** In this research we will be pursuing synthesis of novel 1,5-benzodiazepines that would serve as coordination ligands for the transition metals such as ruthenium, copper, zinc and many more, to produce new compounds with potential medicinal applications – metallo drugs.	$ 4,000	$ 4,000
Zhe Wang (Christopher Alexopoulos) Chemistry	University of Michigan / NASA	**Electrochemical Sensor for Monitoring Immunological Function During Space Travel.** The goal of this research is a sensor design that is capable of point of care testing to monitor key biomarkers in immunological functioning to measure not only the effect of space travel on the immune system, but also enable real time decision-making for astronauts during spaceflight explanation of the involved physical chemistry for future optimization.	$ 4,000	$ 4,000
Zacharias Kinney (Calvin Goldsmith) Chemistry	University of Michigan / NASA	**Self-Assembly of Pyridyl-Coinage Metallomacrocycle: New Directions in Molecular Electronics.** Thiophenes are intrinsically weak light emitters, in part due to the heavy-atom effect, induced by the sulfur atom. This results in non-radiative processes such that the energy gained by excitation is released as heat rather than light. This research project will address this problem.	$ 4,000	$ 4,000
Jingshu Chen Computer Science and Engineering	University of Michigan / NASA	**Scalable Space System Fuzzing Using Explainable AI.** To address the urgent need for ensuring safety of space systems against cyber attack, the objective of this research is a learning-assisted cyber range for assuring safety and security of spacecraft systems.	$ 5,000	$ 5,000
Vandre Figueiredo Biological Sciences	University of Michigan / NASA	**The Effect of Microgravity on Skeletal Muscle Ribosome Biogenesis.** This research will investigate whether simulated microgravity using a Clinostat reduces ribosome biogenesis in skeletal muscle cells.	$ 5,000	$ 5,000

Grants and Contracts Report for period March 1 - April 30, 2023

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Alycen Wiacek Electrical and Computer Engineering	University of Michigan / NASA	**Quantitative Ultrasound and Photoacoustic Imaging of Thrombosis.** Given the potential of quantitative ultrasound and photoacoustic imaging, this research will focus on the development of a novel, simulated model of thrombosis, providing a foundation for future innovations in quantitative methods to characterize blood clots.	$ 5,000	$ 5,000
Lanyu Xu Computer Science and Engineering	University of Michigan / NASA	**An Autonomous, Responsive, and Reliable Robotics System for Space Access.** This project goal is to train multiple autopilot tasks together to build an efficient and effective autonomous piloting system. By observing the environment as a whole, spacecraft can perceive the situation promptly and adjust themselves to make appropriate decisions to achieve space missions. The proposed system enables high-level autonomous capabilities for important space missions.	$ 5,000	$ 5,000
Laila Guessous Mechanical Engineering	University of Michigan / NASA	**Michigan Space Grant Consortium Affiliate Operating Award 2023-2024.** The NASA-funded Michigan Space Grant Consortium (MSGC) provides a small annual grant to its institutional affiliate board members to help cover the costs of administering the program.	$ 1,500	$ 1,500
Amany Tawfik Biomedical Science-ERI	National Institutes of Health	**Homocysteine's Role in Age-Related Macular Degeneration.** Age-related macular degeneration (AMD) is the leading cause of vision loss among elderly populations. The goal of this research is to conduct in vitro experiments. Our specific aims include testing the hypothesis that (1) HHcy induces the metabolic switch from mitochondrial respiration to glycolysis via activation of GLUT1 in RPE cells; (2) that inhibition of NMDAr preserves RPE function and reduces the development of CNV under HHcy; and (3) that elimination of excess Hcy by dietary supplementation or genetic/ pharmacological modifications prevents the progression of AMD	$362,363	$ 1,086,646
Tianle Ma Computer Science and Engineering	National Science Foundation	**CRII: III: Self-Supervised Graph Neural Network Meta-Learning for Cancer Multi-Omics and Driver Discovery.** This project will advance cancer driver discovery by applying state-of-the-art deep learning techniques to integrating multi-omics data with biological domain knowledge.	$156,911	$ 156,911
Marouane Kessentini Computer Science and Engineering	National Science Foundation	**IUCRC Phase I Oakland University: Center for Pervasive Personalized Intelligence (PPI).** The PPI Center will maintain a publicly accessible project repository that will store open-source code, publicly available datasets, papers and other research outputs that can be disseminated to the general public.	$ 75,000	$ 375,000

Grants and Contracts Report for period March 1 - April 30, 2023

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Lanyu Xu Computer Science and Engineering	National Science Foundation	**CRII: CNS: OCEAN: A Once-for-All Edge Collaboration System for Medical Imaging.** The goal of this project is to innovatively train multiple medical imaging tasks together with a cache mechanism to build an efficient and effective multi-institutional collaborative system. This will serve as the basis for future research on edge intelligent systems and building optimized and practical systems for edge application scenarios.	$175,000	$ 175,000
Lanyu Xu Computer Science and Engineering	National Science Foundation	**Travel: NSF Student Travel Grant for 2023 ACM/IEEE Symposium on Edge Computing.** This travel grant will support up to 20 undergraduate and graduate students to attend the 7th ACM/IEEE Symposium on Edge Computing in Wilmington, Delaware in December of 2023.	$ 20,000	$ 20,000
Rasul Chaudhry Biological Sciences	National Institutes of Health	**Efficacy of Neural Stem Cells Derived from Human Primitive Mesenchymal Stem Cells in an EAE mouse model of MS.** The long-term goal of this research is to develop cell therapies for multiple sclerosis (MS) and other neurodegenerative diseases. The main objective of this study is to use a multifaceted approach that simultaneously provides anti-inflammatory and neuroprotective response as well as promotes endogenous neural repair.	$150,000	$ 600,000
Elaine Carey College of Arts and Sciences	Easterseals	**Easterseals Master of Social Work Program.** The goals of this funding is to increase (i) the number of students in the University's Master of Social Work and Master of Arts in Counseling degree in Clinical Mental Health Counseling programs; and (ii) the social workers and mental health counselors working at Easterseals in SE Michigan.	$199,500	$1,048,425
Randal Westrick Biological Sciences	American Heart Association	**Investigating the Functional Roles of Arl6ip5 in Suppressing Thrombosis.** The objective of this research is to investigate the potential of Arl6ip5- to interact with other thrombosis suppressing genes, to shed significant light on the thrombosuppressive mechanisms of Arl6ip5-.	$154,000	$ 154,000
Stephen Kent OU Incubator	Grand Valley State University / MEDC	**Accelerator Development Funds-Discretionary.** The objective for this project is to make accelerator services available statewide, make services available to high priority companies in regions, share accelerator best practices statewide, build lasting collaborations, and create jobs to catalyze multiplier effect.	$ 30,000	$ 30,000
		Total Awards	**$ 2,085,716**	**$ 5,180,322**