Agendum
Oakland University
Board of Trustees Formal Session
June 28, 2024

ACCEPTANCE OF GRANTS AND CONTRACTS TO OAKLAND UNIVERSITY FOR THE PERIOD OF MARCH 1 – APRIL 30, 2024

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 – April 30, 2024.

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, 2024.

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

Recommended on 6/19, 2024
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

Grants and Contracts Report for Period March 1 - April 30, 2024

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
David Szlag Department of Chemistry	Michigan Department of Health and Human Services	**SEWER Network Project - 2024.** The goal of this research is to continue existing actionable COVID-19 wastewater surveillance program at two universities including residential halls, apartments, and campus surveillance points.	$4,467	$3,323,086
Randal Westrick Department of Biological Sciences	American Heart Association	**AHA-Oakland University Summer Undergraduate Research Program.** This program will support summer undergraduate research experiences in cardiovascular research.	$165,000	$165,000
Ankun Yang Department of Mechanical Engineering	University of Michigan / National Aeronautics and Space Administration	**Rapid Manufacturing of Sodium Metal Anodes.** The research objective of this project is to develop a fundamental understanding of the rheological properties of the molten Na to enable rational control of the thin film properties, including the thickness and quality, uniformity, crystallinity, and mechanical properties.	$5,000	$5,000
Anyi Liu Department of Computer Science and Engineering	University of Michigan / National Aeronautics and Space Administration	**Reinforcing Resource-Constrained UAV with High-performance and Scalable LLM Cohorts.** The goal of this research will be to introduce an innovative framework for augmenting the capabilities of resource-constrained Unmanned Aerial Vehicles through the deployment of a Large Language Model based system for real-time network traffic analysis and operational command.	$5,000	$5,000

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Fabia Battistuzzi **Kristen Henein** Department of Biological Sciences	University of Michigan / National Aeronautics and Space Administration	**Longitudinal Evolution of Excherichia coli in Microgravity.** The constant presence of humans in space has inspired studies that aim at quantifying how species change in this unique environment. Changes in the human microbiome are known to affect human health and, therefore, are of particular interest. The goal of this research is to understand how microgravity affects the genome of Escherichia coli, a common model organism and microbiome component.	$4,000	$4,000
Zacharias Kinney **Evan Sadler** Department of Chemistry	University of Michigan / National Aeronautics and Space Administration	**Finding a Silver Lining: Carbene-Silver-Carbazolide Complexes as Luminescent Materials.** The goal of this project is to establish structure-property relationships in silver-CMA complexes featuring peripherally functionalized carbazole moieties.	$4,000	$4,000
Julian Rrushi **Emily Burley** Department of Computer Science and Engineering	University of Michigan / National Aeronautics and Space Administration	**Advancing Cybercriminal Profiling Using a Physics-Based AI Model of Adversary Cognition.** This research seeks to extend inductive cybercriminal profiling by discovering patterns between the code and traits about the adversary's identity.	$4,000	$4,000
Sarah Beetham **Emily Foster** Department of Mechanical Engineering	University of Michigan / National Aeronautics and Space Administration	**Simulation and Modeling of the Settling Behavior of Polydisperse Gas-Solid Flows with Application to Pyroclastic Density Currents.** The goal of this project is to understand the pyroclastic multiphase flow. The exact nature must be captured and simulated to a high degree of accuracy.	$5,000	$5,000
Laila Guessous Department of Mechanical Engineering	University of Michigan / National Aeronautics and Space Administration	**Michigan Space Grant Consortium Affiliate Operating Award 2024-2025.** The NASA-funded Michigan Space Grant Consortium provides a small annual grant to its institutional affiliate board members to help cover the costs of administering the program.	$1,500	$1,500

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Huirong Fu Department of Computer Science and Engineering	National Science Foundation	**REU Site: Undergraduate Computer Research in Cybersecurity and AI (UnCoRe-CyberAI).** The primary objective of this REU Site is to engage 10 undergraduate students each year, particularly women and Under Represented Minorities (URMs), in 10-week summer research experiences that excite and motivate them to embark upon graduate studies and pursue careers in science and engineering, particularly Cybersecurity and AI. The OU REU team consists of six highly-qualified faculty members who have complementary expertise in the broad area of Cybersecurity and AI and two collaborators of HBCUs.	$450,292	$450,292
Vandre Figueiredo Department of Biological Sciences	National Institutes of Health	**Reverse Engineering Cancer Cachexia: Muscle Ribosome Biogenesis in the Etiology of Cachexia.** The objective of this research project is to investigate the mechanism of muscle wasting via skeletal muscle and to identify the mechanism leading to overall cachectic phenotype.	$429,048	$429,048
Christina Papadimitrou Department of Interdisciplinary Health Sciences	The Board of Trustees of the University of Illinois / National Institute on Disability, Independent Living and Rehabilitation Research	**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.	$13,291	$83,050

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Scott Tiegs Department of Biological Sciences	Huron Mountain Wildlife Foundation	**The Impact of Artificial Light at Night (ALAN) on Emergent Aquatic Insect Communities.** Ecological light pollution is an emerging threat to ecosystems on a global scale, with implications for cross-ecosystem processes such as resource exchange between aquatic and terrestrial environments. This research project studies insects, an important component of this resource transfer, particularly vulnerable to this anthropogenic stressor.	$2,625	$2,625
Alexey Tonyushkin Department of Physics	National Institutes of Health	**A Single-Sided Magnetic Particle Imaging Scanner for In Vivo Breast Cancer Imaging.** This research project focuses on developing an emerging non-invasive tomographic imaging modality; like CT or MRI, that could be applied in clinical and research settings as a safe diagnostic technique, but without ionizing radiation or toxic tracers.	$431,895	$431,895
Doug Wendell Department of Biological Sciences	Great Lakes Commission	**Genetic Identification of Phragmites Subspecies.** This research project will perform genetic analysis of samples submitted by the Great Lakes Commission to determine whether they are the native Phragmites australis americanus or the invasive Phragmites australis australis. This information will be used by the Great Lakes commission to map out areas of the native and invasive subspecies.	$6,456	$6,456
Vijitashwa Pandey Department of Industrial and Systems Engineering	Mitsubishi Electric Automotive America, Inc.	**Using a Driving Simulator to Collect Data on Impaired Driving Performance.** This project will perform a study where participants will be driving on a simulator for a prespecified amount of time initially without the influence of alcohol and then with the influence of alcohol and relevant data will be collected.	$127,187	$127,187

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Wing-Yue Geoffrey Louie Department of Electrical and Computer Engineering	Automotive Research Center / University of Michigan	**Automotive Research Center (ARC) A Center of Excellence in Modeling and Simulation of Ground Vehicles. U.S. Army Ground Vehicle System Center, Detroit Arsenal, Michigan.** Gaming engines are being utilized for virtual prototyping of autonomous vehicles in the field and for testing the efficacy of manned-unmanned teaming strategies. This integration project seeks to leverage connections between the simulation developments as well as human subject studies on human-robot teaming.	$24,593	$60,402
Andrew Goldberg Eye Research Institute	Foundation Fighting Blindness	**Natural History and AAV-Mediated Interventions for Dominant Negative and Haploinsufficient Mouse Models of PRPH2-Associated Disease.** The goal of this project is to understand disease pathogenesis to identify new therapeutic targets, and test a promising untested approach to slowing or halting PRPH2-associated retinal diseases.	$145,665	$433,729
Andrei Slavin Department of Physics	University of Central / Florida Air Force Office of Scientific Research	**Terahertz Spintronics with Antiferromagnetic Insulators.** In this MURI program, there will be a development of new materials and techniques, leveraging the unique properties of antiferromagnets (AFMs), to transform methods of generation, transmission, and processing of THz signals.	$20,000	$887,750
Melisa Jones Department of Human Movement Science	University of Iowa	**Sedentary Behavior, Physical Activity, and 24-hour Behavior in Pregnancy and Offspring Health: the Pregnancy 24/7 Offspring Study.** This research projects focuses on the physical activity in pregnancy offspring health. Protocol development for offspring cardiovascular assessments using the same procedures developed while the team was working together at the University of Iowa.	$30,621	$60,351

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Ryan Monroe Department of Mechanical Engineering	National Science Foundation	**ERI: System Tautochronic Pendulum Vibration Absorbers for Next-Generation Propulsion Systems and Other Machinery.** This research project is aimed at advancing the current state of the art in the tautochronic tuning of a Centrifugal Pendulum Vibration Absorbers (CPVAs) system, which could revolutionize our current understanding of order-tuning in these systems and has the potential to open up a fundamentally new design space benefiting all current CPVA applications as well as the next-generation of propulsion systems and other machinery with electric motors.	$200,000	$200,000
Tony Shaska Department of Mathematics and Statistics	North Atlantic Treaty Organization	**Advance Research Workshop: Isogeny-based Post-Quantum Cryptography.** The goal of this conference is to explore the isogeny based cryptography for Abelian varieties of dimension larger than one.	$59,635	$59,635
Jingshu Chen Department of Computer Science and Engineering	National Science Foundation	**ERI: EMRadar: A Practical Sensing System on the Electromagnetic Side-Channel of IoT.** This project will develop a practical system that can extract weak EM signals from noise and separate the EMR of co-located devices. This project will explore universal representation and classification of EM signals.	$197,463	$197,463
Richard Olawoyin Department of Industrial and Systems Engineering	National Science Foundation	**ADVANCE - BELONG: (Building Equity, Leadership, and Opportunities for a New Generation) Summit.** This project supports a series of online virtual meetings and two in-person summit meetings to foster intersectional gender equity, diverse, and inclusive environments within engineering academic programs.	$150,978	$150,978

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Zhe Wang Department of Chemistry	Auburn University / National Science Foundation	**NSF Convergence Accelerator Track L: An Integrated and Miniaturized Opioid Sensor System: Advancing Evidence-based Strategies for Addressing the Opioid Crisis.** This project goal is to develop a cost-effective, palm-size, non-contact sensor to assist in swiftly identifying opioids in the field, thereby aiding in the fight against drug trafficking.	$219,947	$219,947
Julie Kruse School of Nursing	Blue Cross Blue Shield of Michigan Foundation	**Dali Majeed: Utilizing the Health Belief Model to Explore Factors Influencing Intention to Seek Mental Health Services in Chaldean Adults.** The goal of this project is to create successful programs such as applied research, pilot programs, demonstrations and evaluation projects related to mental health and Chaldean adults.	$2,923	$2,923
		Total Awards	**$2,710,586**	**$7,320,317**