

**Agendum
Oakland University
Board of Trustees Formal Session
June 10, 2019**

**ACCEPTANCE OF GRANTS AND CONTRACTS TO OAKLAND UNIVERSITY
FOR THE PERIOD OF MARCH 1 - APRIL 30, 2019
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.

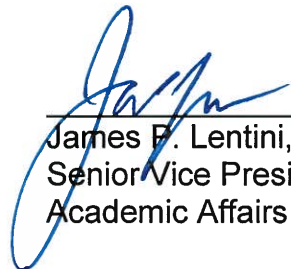
At this time, we request that the Board accept the grants and contracts reported on the attached Grants and Contracts Report, Attachment A, for the period of March 1 – April 30, 2019.

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.

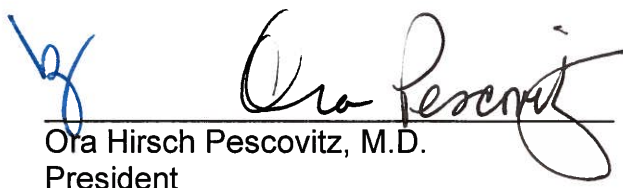
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6. **Personnel Implications:** Grants and contracts awards may provide salary support for faculty, post-doctoral fellows, undergraduate and graduate students, technicians, lab managers, and other personnel, as required by the funded research project 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, 2019.
9. **Attachments:** A. Grants and Contracts Report.

Submitted to the President
on 5/24, 2019 by


James F. Lentini, D.M.A.
Senior Vice President for
Academic Affairs and Provost

Recommended on 5/24, 2019
to the Board for approval by


Ora Hirsch Pescovitz, M.D.
President

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
David Garfinkle Department of Physics	National Science Foundation	Studies of Singularities, Black Holes, and Gravitational Radiation. The objective of this project is to study aspects of gravitational collapse, in particular the approach to the singularity, gravitational wave memory, and critical behavior at the threshold of black hole formation.	\$ 52,419	\$ 153,397
David Stone Research Administration	Michigan Economic Development Corporation	Business Incubator Programs: Incubator Gatekeeper. The goal of this project is to fund a key person to oversee Oakland's incubator-client gatekeeping activities. The Gatekeeper's responsibilities entail client recruiting, fundraising, strategic guidance for clients and supporting local entrepreneurs. The Gatekeeper will create efficiencies by streamlining the organizational structure that will lead to increases in the incubator's performance metrics.	\$ 74,860	\$ 274,485
Thomas Raffel Department of Biological Sciences	Michigan Swimmer's Itch Partnership	Exploring Swimmer's Itch Drivers with a State-Wide Snail Survey and Mesocosm Experiments. The goal of this research is to conduct a large-scale survey of gastropods in lakes throughout Michigan's Lower Peninsula to fill critical knowledge gaps about factors driving the statewide distribution of avian schistosomes and their snail hosts.	\$ 29,558	\$ 29,558

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Andrew Goldberg Eye Research Institute	National Institutes of Health	Investigation of the Molecular Basis of Rod and Cone Photoreceptor Structure. This research will improve the understanding of healthy rod and cone cell structure and the changes that occur during progressive retinal disease, which in return may suggest strategies for preserving sight.	\$ 375,000	\$ 1,577,834
Fabia Battistuzzi Department of Biological Sciences	National Aeronautics and Space Administration	Innovative Molecular Timing Applications to Obtain Accurate Histories of Life. When reconstructing evolutionary histories of life on Earth, primary sources of information are geologic and molecular data. Timelines inferred from these sources are generally in agreement but major challenges for key evolutionary steps remain. This new approach will resolve these differences and obtain an accurate chronology of the evolution of life over the past four billion years.	\$ 100,000	\$ 581,213
Edward Rohn Department of Interdisciplinary Health Sciences	University of Michigan/U.S. Army	Neurogenic Bowel and Bladder Management after Spinal Cord Injury: Examining Factors Involved in Successful Decision Making Processes. This research is designed to explore how people with spinal cord injuries make decisions about their bladder and bowel management, including things they take into consideration in selecting management methods, factors in their lives that might influence their decisions, and the outcomes of those decisions.	\$ 49,281	\$ 49,281

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Geraldine Graham Upward Bound	U.S. Department of Education	Project Upward Bound College Prep Academy. Our mission is to generate skills and motivation in participants necessary to succeed in secondary and post-secondary education, as well as to increase access and success in higher education for low-income and potential first-generation college students.	\$ 686,928	\$ 3,075,840
Geraldine Graham Upward Bound	U.S. Department of Education	Project Upward Bound College Prep Academy. Our mission is to generate skills and motivation in participants necessary to succeed in secondary and post-secondary education, as well as to increase access and success in higher education for low-income and potential first-generation college students.	\$ 26,798	\$ 3,075,840
Geraldine Graham Upward Bound	U.S. Department of Education	Project Upward Bound College Prep Academy. Our mission is to generate skills and motivation in participants necessary to succeed in secondary and post-secondary education, as well as to increase access and success in higher education for low-income and potential first-generation college students. <i>(Supplement received but not recorded in FY18)</i>	\$ 15,379	\$ 3,075,840

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Wei Zhang Department of Physics	U.S. Air Force	THZ Spintronics with Antiferromagnetic Heterostructures. The aim of this research is to experimentally investigate the feasibility of generating and manipulating antiferromagnetic magnons by spin-orbit torques across the interfaces with antiferromagnetic surfaces. We will also study the antiferromagnetic magnon behavior and its role in rectifying, filtering, and transforming THz spin signals, and finally to realize proof-of-concept THz auto-oscillator and rectifier using a broad range of antiferromagnetic materials and structures.	\$ 66,000	\$ 140,000
Vijitashwa Pandey Department of Industrial and Systems Engineering	University of Michigan/ Department of Defense	A Decision-Based Mobility Model for Semi and Fully Autonomous Vehicles. The goal of this research is to use formal decision making theory to make decisions regarding acquisition and operation of autonomous ground vehicles.	\$ 67,462	\$ 67,462
Huirong Fu Department of Computer Science and Engineering	National Security Agency	GenCyber: Cybersecurity Camp for K-12 Teachers. A comprehensive, hands-on, activity-based, learner-centered teacher program will be held at Oakland University to deliver substantive cybersecurity training to 25 K-12 teachers in the Detroit Urban Area with a diversity of socioeconomic status, gender, and ethnicities.	\$ 97,050	\$ 97,050

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Sawyer Hall Wei Zhang, Mentor Department of Physics	Michigan Space Grant Consortium/ University of Michigan	Investigating Modulated Laser Pumping and Heating for Spin-Based Energy Harvesting. The objective of this project is to support an undergraduate student in conducting research on the frequency-dependence of the response function of spintronics materials.	\$ 3,000	\$ 3,000
Alyssa Lalko Osamah Rawashdeh, Mentor Department of Electrical and Computer Engineering	Michigan Space Grant Consortium/ University of Michigan	Propulsion System Optimization for a Gas-Electric Hybrid Drone. This project aims at developing and optimizing a gas-electric hybrid drone. A prototype is developed and used to collect performance data which will be used to determine the optimal fuel capacity and battery size for the longest possible flight time.	\$ 3,000	\$ 3,000
Kaitlin Lowran Colin Wu, Mentor Department of Chemistry	Michigan Space Grant Consortium/ University of Michigan	Evaluating the Delayed Effects of Microgravity on Human Health. This research project will examine whether space travel has a lasting effect on human health by monitoring the viability as well as the extent of DNA damage to human heart muscle, kidney, skin, and ovarian cancer cells after various exposure to microgravity.	\$ 5,000	\$ 5,000
Emily Hunawill David Szlag, Mentor Department of Chemistry	Michigan Space Grant Consortium/ University of Michigan	Detection of Microcystins with Aptamer Based Biolayer Interferometry. The goal of this study is to evaluate aptamers, small pieces of DNA analogous to antibodies, and their biomolecular interactions with the cyanotoxins as a rapid method for quantifying total microcystins.	\$ 5,000	\$ 5,000

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Ilias Cholis Department of Physics	Michigan Space Grant Consortium/ University of Michigan	Modeling Solar Modulation of Cosmic Rays Analytically with Data from 2006 to 2016. Making use of recently released cosmic ray data and publicly available measurements of the solar wind properties, this research will test and develop the analytical modeling of the time-, charge- and energy-dependence of solar modulation.	\$ 5,000	\$ 5,000
Luis Villa-Diaz Department of Biological Sciences	Michigan Space Grant Consortium/ University of Michigan	Use of Simulated Microgravity to Investigate Stem Cell Properties. The goal of this project is to use simulated microgravity to investigate its effect in the basic properties of pluripotent stem cells: the capacity to divide into an identical daughter cell or to differentiate into a specialized cell.	\$ 5,000	\$ 5,000
Charlie Wingate Jingshu Chen, Mentor Department of Computer Science and Engineering	Michigan Space Grant Consortium/ University of Michigan	A User-friendly Fault Injection Framework for Reliable autonomous System Development. This project proposes a user-friendly fault injection framework that allows users, without knowledge of formal description language of fault modeling, to inject faults to the presented autonomous system design.	\$ 3,000	\$ 3,000

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Mouhamad Hammami Wei Zhang, Mentor Department of Physics	Michigan Space Grant Consortium/ University of Michigan	Investigating Layer Stacking Effect and the Lateral and Vertical Temperature Profiles. The objective of this project is to conduct research on the layer-stacking effect and the lateral and vertical temperature profiles in Organic-Inorganic hybrid perovskites.	\$ 3,000	\$ 3,000
Wing-Yue Louie Department of Electrical and Computer Engineering	Michigan Space Grant Consortium/ University of Michigan	Evaluating a Virtual Reality-based Interface for Teaching Humanoids. This research will focus on investigating the ease of use, workload, and usability of a virtual reality-based interface for users with limited robot training to teach a humanoid to autonomously complete physical tasks in space.	\$ 5,000	\$ 5,000
Brooke Shepard Luis Villa-Diaz, Mentor Department of Biological Sciences	Michigan Space Grant Consortium/ University of Michigan	Low-Cost Methods for Simulated Microgravity and Characterization of Integrin-Alpha6 in Space. This research will expand the knowledge of integrin alpha6 in simulated microgravity to further characterize pluripotent stem cells.	\$ 3,000	\$ 3,000
Nasim Nezammoddini Department of Industrial and Systems Engineering	Michigan Space Grant Consortium/ University of Michigan	Designing Self-Adaptive Algorithms for Cognitive Spacecraft. The primary goal of this project is to design new self-adaptive techniques that integrate data analytics and optimization to find robust and resilient solutions for unexpected events.	\$ 5,000	\$ 5,000

Grants and Contracts Report for Period March 1 - April 30, 2019

Principal Investigator	Awarding Agency	Title and Project Abstract	Award Amount	Total Award All Years
Ziming Yang Department of Chemistry	Michigan Space Grant Consortium/ University of Michigan	Investigating Mineral-Promoted Amino Acid Interconversions in Hydrothermal Fluids. With this project, we will study the role of minerals in hydrothermal reactions of amino acids.	\$ 5,000	\$ 5,000
Krzysztof Kobus Department of Mechanical Engineering	Michigan Space Grant Consortium/ University of Michigan	Earth System Science STEM Camps, Outreach and Teacher Training (K-12 Students and Teachers, and the Community). A continuing comprehensive, hands-on, student-centered, activity-based outreach and education program is proposed here to deliver substantive Earth system sciences training to three separate populations: K-12 students, K-12 STEM teachers, and the broader community.	\$ 20,000	\$ 20,000
David Stone Research Office	University of Michigan/MEDC	T3N 3.0. A high-priority goal for Oakland University is to leverage the expertise of faculty and students with success in technology commercialization. This grant will continue support a mentor-in-residence in collaboration with the Michigan T3N fund organization, to help active researchers who are interested in pursuing commercialization and other business paths.	\$ 37,500	\$ 87,500
Total			\$ 1,748,235	\$ 12,355,300