2017

Discovery: Research Annual Report 2017

Office of Vice President for Research

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DISCOVERY
WESTERN MICHIGAN UNIVERSITY

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Discovery Driven — that is our foundation that inspires the research and creative scholarship conducted by our faculty, staff and students at Western Michigan University. The breadth of our research and creative scholarship reflects our status as a comprehensive research university that aims to find new solutions to local, regional, national and global problems. WMU’s researchers are engaged in solving some of today’s most complex and pressing challenges and bringing innovation to emerging research themes spanning environmental sciences, medieval studies, behavioral sciences with an emphasis on autism, sustainability, blindness and low vision, mobility, aviation sciences, and improving learning in K-12 systems.

This year has also seen several transitions in the Office of the Vice President for Research. In August 2017, we said goodbye to Dr. Daniel Litynski who had served as the Vice President for Research since 2010. Dr. Litynski is currently a visiting scholar at the University of Central Florida and will return to the faculty at WMU in 2018. His many years of service and dedication will be missed. OVPR welcomed three new and dynamic research officers: Megan Derksen, Kay Mortellaro and Denise Wheatley. The office also underwent staff reorganization, creating a senior research officer position that is held by Sarah Pratt, the addition of Dr. Jennifer Coyle who currently serves as a compliance research officer, and Karen DeVries who serves as the administrative assistant in charge of funding opportunities. Together, we produced a new strategic plan that will enable us to continue to fulfill our primary mission of service to WMU researchers, and furthermore, to launch new initiatives that will help WMU thrive as it builds the research enterprise.

WMU received $27 million in extramural research awards in fiscal year 2016-17, representing a steady increase in research funding over the past five years. One of the largest grants awarded to WMU in the amount of $12.5 million was granted to Dr. Patricia Reeves and Dr. Jianping Chen in the College of Education and Human Development from the U.S. Department of Education. This grant will enable our faculty to make significant strides in improving the quality of education in K-12 systems. Three assistant professors at WMU, Drs. Wendy Beane in biological sciences, Elena Litvonia in physics and Fahad Saeed in electrical, computer engineering and computer science, were among the few honored nationally as winners of the prestigious National Science Foundation CAREER award. The NSF CAREER Program recognizes faculty members who are early in their career and have demonstrated the potential to be academic role models in research and education.

In addition to supporting faculty and staff members with their research endeavors, OVPR has extended its services to all WMU undergraduate students by launching the Undergraduate Research program. The program provides students with access to research opportunities internal and external to WMU. In addition, the program also hosts the Undergraduates Discover Discovery seminar series that helps undergraduates learn various strategies required for research including research compliance, safety, and critical thinking.

As a learner centered, discovery driven and globally engaged University, WMU continues to be a leader in finding solutions that impact the lives of others. Our researchers not only transform the world we live in through research and creative scholarship, but they also engage students in their research. Together they create the world we want to leave for future generations. The passion, creativity, imaginative projects and scholarship of our faculty, research staff and students can be seen in this year’s annual report. We invite you to look inside to see the accomplishments of our faculty, research scholars and students. To learn more about the University and our research endeavors, please visit wmich.edu/research.

Sherine O. Obare, PhD
Interim Vice President for Research
Western Michigan University’s Center for Research on Instructional Change in Postsecondary Education is a University-level research center that conducts and supports interdisciplinary research focused on promoting transformative change in postsecondary education. The center was co-founded by Dr. Andrea Beach, professor in education, leadership and technology, and Dr. Charles Henderson, professor in physics and director of the Mallinson Institute for Science Education.

Interdisciplinary collaborative research is the heartbeat of this center, which builds on WMU research strengths in higher education and STEM education.

In three years the center has expanded to 13 projects totaling $7.1 million dollars in grants, employing three staff members, six post-doctoral research associates, three graduate students and buying out time for four faculty members (this includes the center co-directors). Since its beginning, two projects have been completed, bringing the current project portfolio total to 11.
**JANUARY**
AWARDED THE FACILITATING IMPROVEMENT IN UNDERGRADUATE STEM INSTRUCTION, GRANT THROUGH THE NSF-IUSE PROGRAM
This award is $467,684 over the next two next years
The Center now has eight total grant projects that total $5,106,950

**JULY**
AWARDED THE COMPUTER SCIENCE TEACHING FACULTY WORKSHOPS SUBCONTRACT THROUGH UC SAN DIEGO
This award is $128,609 over the next two years
The Center now has six total grant projects that total $4,410,501

**SEPTEMBER**
AWARDED THE ONLINE TECHNICAL EDUCATION IN ADVANCED TECHNOLOGICAL EDUCATION PROGRAMS GRANT THROUGH THE NSF
This award is $228,765 over the next two years
The center now has seven total grant projects that total $4,639,266

**MARCH**
AWARDED THE ACCELERATING SYSTEMATIC CHANGE GRANT FROM THE HELMSLEY FOUNDATION
The Center now has nine projects totaling $5,397,347

**MAY**
AWARDED A TRAVEL GRANT FROM THE NSF TO HOST THE ACCELERATING SYSTEMIC CHANGE NETWORK INAUGURAL MEETING
The Center now has 10 projects totaling $5,442,864

**SEPTEMBER**
AWARDED EVALUATION SUBCONTRACT THROUGH UNIVERSITY OF COLORADO BOULDER TO EVALUATE THE DEPARTMENTAL ACTION TEAMS
The Center now has 11 projects totaling $5,590,539

**JULY**
AWARDED THE COLLABORATIVE RESEARCH: EVALUATING THE UPTAKE OF RESEARCH-BASED INSTRUCTIONAL STRATEGIES FROM NSF-IUSE
This award is $622,992 over the next three years
This Center will have accumulated a total of 13 total grant projects totaling $7,118,672

**JANUARY**
AWARDED ACCELERATING SYSTEMIC CHANGE NETWORK FROM NSF. THIS AWARD IS $905,141 OVER THE NEXT FIVE YEARS
CRICPE will have accumulated a total of 13 total grant projects totaling $7,118,672

**CURRENT PROJECT PORTFOLIO**

**2015**

**2016**

**2017**

**2018**
The Office of the Vice President initiated a new program—Undergraduates Discover Discovery—designed to support undergraduate research. The program, which was in the planning stages during the last fiscal year, focuses on directing students to find a mentor and to give guidance on ways to get started in research and creative activities.

“Our goal is to be a resource for all undergraduate students in all disciplines at WMU seeking to enrich their undergraduate experience through participation in research and creative scholarship,” says Sarah Pratt, senior research program officer and UDD program coordinator.

Throughout the academic year, more workshops will educate and guide undergraduates as they work to enhance their undergraduate education beyond their coursework. Topics for the workshops range from research compliance and safety to summer research programs and dissemination of findings. Students will be coached on effective ways to market their research and discovery skills. The skills students learn in research transition a student into graduate studies and translate well into the workplace.

“There is obviously a real need for the undergraduate research program based on the reaction we are getting from faculty, staff and students,” says Pratt. “People are excited when we tell them what we are doing. I think the word is already getting out that our office is the central resource for undergraduate research at the University.”

In April students will come together to celebrate their successes during an Undergraduate Research Day.
CAREER Award

The National Science Foundation’s most prestigious awards for junior faculty and these highly selective grants are given to members who are likely to become academic leaders of the future. Awardees have the flexibility to explore unexpected new terrain uncovered in the course of their research.

Fahad Saeed
Assistant Professor
Department of Electrical and Computer Engineering

Elena Litvinova
Assistant Professor
Department of Physics

Wendy Beane
Assistant Professor
Department of Biological Sciences
A computational scientist, Dr. Saeed's research projects are all about big numbers, big data, and big ambitions. His recent $500,000 NSF CAREER award grant builds on some of the biggest breakthroughs in biological sciences. He is a computational scientist, based in WMU’s College of Engineering and Applied Sciences as an assistant professor both in computer science and in the department of electrical and computer engineering, who is making an impact. Saeed's computer algorithms help life sciences researchers tease out important information about genes and proteins that may lead to advances in drug development and individualized medical treatment.

An assistant professor of physics, Elena Litvinova's project, "From fundamental interactions to emergent phenomena: geometrical aspects of nuclear dynamics," explores three major questions. First, how complex many-body dynamics generate nuclear shapes; second, how atomic nuclei behave at high temperatures; and third, in atomic nuclei, what mechanism underlies superfluidity – the property of flowing without friction or viscosity. Her grant is for $475,000 from the NSF as part of her CAREER award.

Beane is gratified her NSF CAREER award’s $800,000 grant will support her study of the extraordinary regenerative abilities of certain organisms. Equally important for the assistant professor of biological sciences are the research opportunities she will offer students. "What this award does is it gives me one large grant that goes on for a long time. I have more security, more time to build my reputation, to build my research, and to get things done. It gives me a leg up in my career, research-wise."

African American and African Studies
Interdisciplinary Majors and Minors
Focus on Social Sciences, Humanities and Arts

Students in Western Michigan University’s African American and African Studies programs have the opportunity to engage in critical study of the black diasporic cultural traditions, conditions, race and ethnic relations in Africa, the Caribbean basin, and especially North America. Studies focus on the essential, organic role black people and their cultures have played in shaping the societies in which they live.

The program offers opportunities for internships, study abroad and independent study of special topics. Students gain critical thinking skills linked to rigorous historical and contemporary knowledge regarding the social, economic and political process that peoples of African descent have faced and continue to face.

Collaboration with the community is a key element of the programs, which also support local events and activities to deepen and enliven knowledge of experiences and cultures of peoples of African descent.
Gorzyca, professor of physics, is a first-rate theoretical atomic physicist with keen physical insight and unquestioned scientific integrity for work in the area of photon and electron initiated collisions. He has theoretical collaborators in Scotland, Northern Ireland and Sweden, and experimental collaborations with scientists from Columbia University and universities in Germany and Greece.

His impressive publication record lists more than 110 peer-reviewed articles in top-rated physics journals, as well as more than 30 invited talks at conferences, institutions and other universities. To support his research, he has had continuous funding for more than 15 years, largely from NASA as the Principal Investigator. He has supervised three postdoctoral research associates, and he continues to supervise graduate students at the Ph.D. and master’s degree levels.

Notably, Gorzyca was elected to Fellowship in the American Physical Society last year, a recognition awarded to less than 1 percent of the active members.

As a fellow scholar puts it, “while it is possible to publish papers where the only new thing done is to change the charge state or the ion used before rerunning codes that have been run multiple times, Tom Gorzyca is not this kind of physicist.” Instead, he develops new methods for or emphasizes improvements to the qualitative understanding of different systems.

Another of his colleagues notes admiringly, “Although a theorist, he is one of the few that engages well with experimentalists, as witnessed by his many joint theory-experiment papers.”
Xiong, professor of history, has done more than perhaps any other scholar to elevate the status of medieval Chinese history in the international community. He has written seven books in English and another five in Chinese, edited 10 journal volumes, contributed 26 articles and chapters, and reviewed 60 books.

He launched the highly regarded journal “Early Medieval China” and he was chosen to review the Metropolitan Museum’s blockbuster exhibition, “China: Dawn of a Golden Age.” His “Historical Dictionary of Medieval China,” reissued in a paperback edition under the title, “A to Z of Medieval China,” is a remarkable encyclopedia for scholars and students. Surprisingly, his new work includes a historical novel, “Heavenly Khan” (2014), which earned 4.5 stars on Amazon and GoodReads.

Fellow scholars admire his work, including one nominator who sees him as master of structural and narrative history, weighing contradictory evidence, extracting the relevant information from sprawling and often obscure texts, and classifying information succinctly and helpfully.

His languages include English, Chinese and Japanese; and he is “a wizard in new-media based pedagogy.” Another scholar quips: “How many of us can single-handedly write an encyclopedia of medieval China? Or encyclopedia of anything?”

He admires Xiong’s scholarly range: “Xiong takes up the entirety of middle-period history, ranging from city planning, institutions, intellectual, social, economic, and cultural histories. Reading Xiong is always a humbling experience.”
FACULTY RECEIVE AWARDS

Distinguished Faculty Scholar Award

Zhang, professor of mathematics, has contributed greatly to the mathematical community. Her research is in combinatorics and primarily in classical and structural graph theory. She has authored or co-authored 270 research articles and five textbooks on graph theory, discrete mathematics and proofs. “The Fascinating World of Graph Theory,” published by Princeton University Press and translated into Chinese and Japanese, was named a 2015 Choice magazine Outstanding Academic Title in Mathematics, one of only nine books selected. Two of her books on graph colorings, published by Springer in 2015 and 2016, have been downloaded more than 4,000 times worldwide. Her co-edited book “Handbook of Graph Theory” (2013) is the most comprehensive single-sourced guide to graph theory and has originated major areas of research.

Her colleagues see themselves as grateful beneficiaries of her work. One nominator stated that over the past 40 years, he has “never known of anyone who has been as active in any one field of study, and brought more recognition to her University.” Another scholar notes Professor Zhang “is an extraordinarily hard-working gifted researcher who has contributed greatly to the continuing growth of graph theory.” While a third educator wrote, “How she has the time to do the multitude of things is a mystery.”

She is often invited to speak at international conferences and to referee articles for journals. As another nominator puts it, “Western Michigan University must be very proud to have someone with her reputation on the faculty.”
Mezei, a faculty member since 2007 as an assistant then associate professor of chemistry, has developed a novel class of compounds called “nanojars,” research that could potentially assist in purifying water.

A recipient of a 2014 National Science Foundation grant for $284,833, Mezei’s team has shown that nanojars can reduce levels of arsenic and chromate from water to those acceptable to the Environmental Protection Agency.

He was published in several peer-reviewed journals and featured on the cover of several prestigious journals.

Mezei has been a mentor and supervisor for numerous graduate and undergraduate students and active with the American Chemical Society’s Project SEED for economically disadvantaged high school students, the Science Olympiad, “Chemistry Day at the Museum” in Kalamazoo, events for WMU student orientation and advising, and the American Chemical Society since 2000.

He has received numerous awards at WMU, including the 2012 Arts and Sciences Teaching and Research Award, 2016 and 2012 Discovery and Dissemination Award, 2017, 2010 and 2008 Faculty Research and Creative Activities Award and 2010 Impacting Communities by Advancing Chemistry Award.

He earned his bachelor’s and master’s degrees in chemistry from Babes-Bolyai University in Romania and a Ph.D. from the University of Puerto Rico.

Mezei’s work was recognized by fellow scientists around the globe who recommended him for the award. His “creative approach to a stunning range of research problems has led to significant advancements in scientific knowledge as well as to practical applications in different fields of chemistry...” said a professor of chemistry at another university and a Nobel Laureate in chemistry.
AN INTERACTIVE PERFORMANCE FEEDBACK SYSTEM FOR EXERCISE EQUIPMENT  
Principal Investigator: Dr. Neil Deochand  
Award amount: $15,556

There are few devices or solutions that offer real-time, instantaneous feedback for exercise equipment users when they are performing at, above or below their baseline exercise performance. The Interactive Performance Feedback System motivates users to achieve their exercise training goals by changing music speed, volume and pitch based on their baseline performance on the exercise machine they are using. Under-performance results in their playlist playing slower, while meeting or exceeding their set exercise goal results in their playlist music being played at a normal speed while they exercise. In addition, the force or resistance in performance of an exercise alters the volume of the music up or down based on the users baseline performance. For exercise machines with visual displays the visibility/blurriness of the readout/picture is also altered based on users’ performance. This device allows users to easily monitor performance while staying “in the zone” while training.

THE WIGGLETRON FOR RAPID MEASUREMENT OF BLOODBORNE MICROFILARIA POPULATIONS IN STANDARD BLOOD COLLECTION MICROCAPILLARY TUBES  
Principal Investigator: Dr. Robert Eversole  
Award amount: $10,000

There are over a billion people in the world who are at risk for filarial disease caused by nematode infections. Mass drug treatment programs to treat filarial diseases exist in almost every endemic area in the world. Program effectiveness is limited by the high cost for clinical monitoring of treatments. Present monitoring, microscopic measurement of late stage, large worms, is inaccurate. An experimental device, called a Wiggletron, converts the motion of early and late stage nematodes into electrical waveforms. The waveforms can provide an accurate estimate of the number of viable parasites present in the sample. This project will automate the output to provide graphical presentation of nematode numbers and to modify the Wiggletron to create a dual sample testing chamber that can hold and analyze standard blood collection tubes that are used everywhere, making field testing of blood and water samples a one step process using the Wiggletron.

3D METAL PRINTING DEVICE AND PROCESS  
Principal Investigator: Dr. Pavel Ikonomov  
Award amount: $20,000

Many 3-D prototyping technologies (additive manufacturing) print thermoplastic parts. The global 3D printing market for metal parts is expected to grow five times by 2020. At present, there are two main 3-D metal printing technologies, which use expensive techniques to print metal parts. In contrast, this new 3D printer utilizes a well-known and deployed technology, Gas Metal Arc Welding (GMAW, also known as Metal Inert Gas MIG), to print metal part layers. It then machines each layer using Computer Numerical Controlled (CNC) Machining to create a reliable metal part quickly and efficiently. The additive welding technology (the build-up of metal layers) is integrated with the subtractive/machining capabilities of CNC machines into the same device. The deposition welding (additive) and machining process (subtractive) is repeated multiple times until the part is produced in a finished form. This cutting-edge technology allows users to eliminate the additional steps and costs of machining parts on separate stations, e.g., machining immediately after each layer of metal is deposited enables the manufacture of 3D printed parts with complex geometries (including overhangs and cavities) without using support structures required for most 3D printing.

AUTOMATED QUANTITY TAKEOFF FROM ARCHITECTURE, ENGINEERING, AND CONSTRUCTION OBJECTS LEVERAGING FUNDAMENTAL CARTESIAN POINTS GEOMETRIC REPRESENTATION  
Principal Investigator: Dr. Jiansong Zhang  
Award amount: $14,444

Cost estimation (quantity takeoff estimations) is an important process for the success of a construction project. Accurate quantity takeoff estimation is a time consuming, manual, error prone activity for many construction contractors. There are a large number of construction cost estimation software programs, but incompatibility with databases require human estimators to invest significant time into the software-based estimation. The new software being funded will use Industry Foundation Classes (IFC), which are a comprehensive standard for construction industry data, to provide data for compilation of quantity takeoff estimations. It will use building plans, created by building design software that can convert designs to IFC, to automate the cost estimation process for construction.
WMU’s Parkview campus has 323,000 square feet of teaching and research space, with 75 undergraduate and graduate labs. It shares space in the Business Technology and Research Park with 44 high-tech companies.

Startup and Patent Data for WMU and WMURF

120 WMU startups; 2014-17

**WMU STARTUPS**

**BUSINESS STARTUPS**

107

**HIGH TECH STARTUPS**

13

**SUPPORT FOR HIGH TECH STARTUPS***

$685,000

*External and internal sources

**DISCLOSURES AND GRANTED PATENTS**

- **Disclosures**
- **Patents granted**

![Bar chart showing disclosures and granted patents from 2014 to 2017.](chart.png)
All Faculty Publications from July 2013 to June 2017 by Academic year and Publication Type

2014-15
7 AWARDS
$310,443 in awards
$374,725 in expenditures

2015-16
18 AWARDS
$3,010,387 in awards
$558,891 in expenditures

2016-17
22 AWARDS
$4,245,145 in awards
$2,320,787 in expenditures

med.wmich.edu/research-activities
UNDERGRADUATE RESEARCH EXCELLENCE AWARD
RECIPIENTS, 2016-17

The Undergraduate Research Excellence Award provides undergraduates with research experience. Selected students receive $500 toward a stipend, travel, or supplies for a mentored research project or creative activity experience with externally funded faculty. Under the program, faculty subsequently may apply for up to $200 for additional supplies to support the student’s work.

Alhouz, Odai
Civil Engineering
Effectiveness of Bicycle Signals for Improving Safety and Multimodal Mobility at Urban Intersections
Faculty Mentor: Dr. Jun-Seok Oh

Anderson, Adam
Aerospace Engineering
Preventing Concussion with Innovative Smart Helmet
Faculty Mentor: Dr. Kristina Ari-Gur

Aurand, Andrew
Mechanical Engineering
3D Printer Plastic Recycler
Faculty Mentor: Dr. Lee Wells

Black, Dustin
Civil Engineering
Developing Policies and Guidelines for Enhancing Non-Motorized Mobility within Construction Zones
Faculty Mentor: Dr. Upul Attanayake

Bliss, Mark
Mechanical Engineering
BCM Espresso Machine
Faculty Mentor: Dr. Richard Meyer

Bollet, Marine
Biomaterial Sciences
A Comparative Analysis of Regeneration Among Various Planarian Species
Faculty Mentor: Dr. Wendy Beane

Bosma, Gregory
Mechanical Engineering
Development of a CubeSat Separation Mechanism
Faculty Mentor: Dr. Kristina Lemmer

Brower, Christian
Mechanical Engineering
Plastic Recycler Project
Faculty Mentor: Dr. Lee Wells

Carlo, Eric
Industrial and Entrepreneurial Engineering
Use of a Magnetotherapeutical Fluid for System Activation
Faculty Mentor: Dr. Claudia Fajardo-Hansford

Caruso, Joseph
Manufacturing Engineering Technology
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Chantrene, Tyler
Mechanical Engineering
CubeSat ADCS Validation and Testing Apparatus
Faculty Mentor: Dr. Jennifer Hudson

Cole, Ian
Mechanical Engineering
Compressor for Portable Biogas Purification System
Faculty Mentor: Dr. Muralidhar Ghantasala

Cook, Eric
Manufacturing Engineering Technology
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Curle, David
Mechanical Engineering
BCM Espresso Machine
Faculty Mentor: Dr. Richard Meyer

Drumm, Robert
Mechanical Engineering
Use of a Magnetotherapeutical Fluid for System Activation
Faculty Mentor: Dr. Claudia Fajardo-Hansford

Drummond, Andrew
Aerospace Engineering
WALI (Western Aerospace Launch Initiative) CubeSat Separation Mechanism
Faculty Mentor: Dr. Kristina Lemmer

Griffith, Matthew
Aerospace Engineering
Separation and Orbital Propagation
Faculty Mentor: Dr. Jennifer Hudson

Hajj, Magreth
Aerospace Engineering
Shape Memory Alloys (Nano-Composite)
Faculty Mentor: Dr. Pinna Ari-Gur

Hartman, Christian
Chemistry
Reactivity and Ligand Exchange of Vanirars
Faculty Mentor: Dr. Gellert Mezei

Henning, Spencer
Physics
Type Ia Supernova Models and Galactic Chemical Evolution
Faculty Mentor: Dr. Michael Farinano

Hiller, Ross
Mechanical Engineering
Design and Kinematic Analysis of a Bicycle Frame Monitoring System
Faculty Mentor: Dr. Upul Attanayake

Holtzer, Samuel
Aerospace Engineering
LAAS Unmanned Aerial System
Faculty Mentor: Dr. William Liu

Hughley, Logan
Chemical Engineering
Periphyton-Fungi Co-Culture Systems for Capturing Non-Point Phosphorus
Faculty Mentor: Dr. Andro Mondala

Izaguirre, Gregory
Aerospace Engineering
Propellant Tank and Feed System
Faculty Mentor: Dr. Kristina Lemmer

Jordan, Cameron
Aerospace Engineering
NEON EAGER Air Microbiome Sampler
Faculty Mentor: Dr. Kristina Lemmer

Kirkendall, Jacob
Chemistry
Synthetic Sprayer Mass Spectrometry to Determine α- and β-Acids in Hops
Faculty Mentor: Dr. Andre Venter

Kurth, Robin
Aerospace Engineering
Compressor for Biogas Purification System
Faculty Mentor: Dr. Muralidhar Ghantasala

Lerner, Kevin
Aerospace Engineering
Magnetoquaror Controller
Faculty Mentor: Dr. Jennifer Hudson

Lloyd, Nathan
Construction Engineering
Design of Computerized Bridge Field Monitoring System
Faculty Mentor: Dr. Upul Attanayake

Malprurs, Jason
Aerospace Engineering
Cooling System Development for an Automotive Application
Faculty Mentor: Dr. Claudia Fajardo-Hansford

McNamara, Dylan
Aerospace Engineering
BCM Espresso Machine
Faculty Mentor: Dr. Richard Meyer

Melton, Andrew
Mechanical Engineering
Fatigue Testing of Materials
Faculty Mentor: Dr. Daniel Kujawski

Miller, Cole
Engineering Management Technology
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Mirshab, Ramin
Aerospace Engineering
Advanced Materials and Manufacturing Techniques for JC Engine Induction Systems
Faculty Mentor: Dr. Claudia Fajardo-Hansford

Mohsini, Ali Akbar
Aerospace Engineering
Magnetoquaror Controller
Faculty Mentor: Dr. Jennifer Hudson

Molina, Roberto
Aerospace Engineering
3-Axis Magnetorqueur for CubeSat
Faculty Mentor: Dr. Jennifer Hudson

Mooney, Margaret
Aerospace Engineering
Airborne Microbiome Project
Faculty Mentor: Dr. Kristina Lemmer

Nimtz, Brandon
Mechanical Engineering
Biogas Separator and Storage Tank
Faculty Mentor: Dr. Muralidhar Ghantasala

Nye, Jacob
Mechanical Engineering
Design of Computerized Surgical Screwdriver
Faculty Mentor: Dr. Peter Gustafson

Ostrow, Greg
Computer Science
Sampling Criteria for Monitoring Influenza Emergencies
Faculty Mentor: Dr. Diana Prieto

Pines, Wilson
Aerospace Engineering
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Pokorzynski, Vincent
Mechanical Engineering
Piezoelectric Energy Harvesting for White Cones
Faculty Mentor: Dr. Pinna Ari-Gur

Pool, Michael
Aerospace Engineering
LAAS Unmanned Aerial System
Faculty Mentor: Dr. William Liu

Preston, Mackenzie
Mechanical Engineering
Plastic Recycler
Faculty Mentor: Dr. Lee Wells

Richardson, Trevor
Mechanical Engineering
Biogas Separator and Storage Tank
Faculty Mentor: Dr. Muralidhar Ghantasala

CONTINUED ON NEXT PAGE
SUPPORT FOR FACULTY SCHOLARS AWARD RECIPIENTS, 2016-17

The Support for Faculty Scholars Award provides up to $2,000 in support of creative activities and research that may not lead to external funding but that enhance and sustain the scholarship of WMU and faculty investigators.

**Ari-Gur, Faculty Mentor: Dr. Pnina**

Energy Harvesting Power for the Aerospace Engineering

**Biggs, Christopher**

School of Music
Letter to the Moon Recording Project for CD Release

**Crotchet, Cat**

Frissic School of Art
Pattern and Dimension

**Durham, Lofton**

Theatre
Demonstration Productions of Middle Dutch Drama

**Garza Mitchell, Regina**

Educational Leadership, Research and Technology
Feminist Critical Discourse Analysis of Presidential Job Postings in the Chronicle of Higher Education

**Gray, Lori**

School of Interdisciplinary Health Programs
Exploring the Impact and Lasing Outcomes of Mindfulness Training for College Student Populations

**Hanson, Nicholas**

Human Performance and Health Education
Effect of Caffeine on 10km Running Performance in the Heat

**Henlich, Andrew**

Frissic School of Art
Visualizing the Camps: Architecture and Migration

**Hillenbrand, James**

Speech, Language and Hearing Sciences
Software Simulation of a New Model of Auditory Frequency Analysis

**Kiddle, James**

Chemistry
Biomimetic Synthesis of 3-Substituted Pyridines

**Krishnamurthy, R.V.**

Geosciences
Are Unusual Isotopic Effects Produced in Precipitation a Byproduct of Unusual Atmospheric Processes?

**Macfarlane, Daniel**

Institute of the Environment and Sustainability
The Power of Niagara Falls: Hydro-Electricity, Beauty, and the Manipulation of a Border Waterscape

**Pattinson, Kelley**

Bronson School of Nursing
Assessing Caregiver Burden in Heart Failure Patients Who Are Caregivers of Family Members

**Pavlik, Carolyn**

Dance
Manson Revealed – A Site Dance Film

**Ro, Kapseong**

Mechanical and Aerospace Engineering
Understanding Structural Property Effect of Aerial Refueling Hose

**Ross, Matthew**

Finance and Commercial Law
BBA Quantitative Skills: Doubling the Data

**Ruelot, Viviane**

World Languages and Literatures
French Stereotypical Accent and Pronunciation Learning

**Simpson, Mary**

Family and Consumer Sciences
The Effect Team Learning has on the Development of Creativity in a College Classroom

**Santiago, Marcos**

Biomedical Sciences/Biochemistry
Preliminary Data Suggest ROS Accumulation for Regenerative Outgrowth
Faculty Mentor: Dr. Wendy Beane

**Sopel, Shane**

Electrical Engineering
6U CubeSat Power System and Cathode Design Prototype for WMU WALL Initiative
Faculty Mentor: Dr. Kristina Lemmer

**Soto, Carlos**

Aerospace Engineering
Propellant Tank and Feed System
Faculty Mentor: Dr. Kristina Lemmer

**Sprangel, Elizabeth**

Mathematics
Regularity Method in Extremal Graph Theory
Faculty Mentor: Dr. Andrzej Dudek

**Spring, Allison**

Biological/Environmental Studies
Atmospheric Microbiome Project
Faculty Mentor: Dr. Kathryn Doherty

**Stevens, Jacob**

Aerospace Engineering
CubeSat ADCS Validation and Testing Apparatus
Faculty Mentor: Dr. Jennifer Hudson

**Theoret, Nicolas**

Mechanical Engineering
CubeSat ADCS Validation and Testing Apparatus
Faculty Mentor: Dr. Jennifer Hudson

**Vargo, Kaleb**

Electrical Engineering
6U CubeSat Power System and Cathode Design Prototype for WMU WALL Initiative
Faculty Mentor: Dr. Kristina Lemmer

**Villalobos, Cole**

Civil Engineering
Michigan Truck Strategic Plan for 2016-2019
Faculty Mentor: Dr. Valerian Kwizigize

**Vogel, Kenton**

Mechanical Engineering
Biogas Separator/Storage Tank
Faculty Mentor: Dr. Muralidhar Ghantasala

**Watson, Gabrielle**

Biomedical Sciences
The Effects of PCP Knockdown on Neural Subtypes in Planarians
Faculty Mentor: Dr. Wendy Beane

**Weese, Evan**

Mechanical Engineering
FSAE Exhaust Header
Faculty Mentor: Dr. Claudia Fajardo-Hansford

**Wyman, Matthew**

Electrical Engineering
6U CubeSat Power System and Cathode Design Prototype for WMU WALL Initiative
Faculty Mentor: Dr. Kristina Lemmer

**Zapata, Morgan**

Civil Engineering
Steel Multi-Grid Bridge Construction Process Documentation
Faculty Mentor: Dr. Upul Attanayake
The Graduate Student Research Fund and Travel Grant, fully funded and administered by the Graduate College, supports graduate students engaged in independent scholarly research, scientific inquiry, inventive technology and original artistic activity. The fund is intended to help students pay extraordinary or unusual costs incurred in research projects. Grants range up to $1,000 and students may apply for up to $600 of additional support to defray the cost of international travel.

*Indicates student received additional funding for international travel.

**GRADUATE STUDENT RESEARCH AND TRAVEL GRANTS**

**RECIPIENTS, 2016-17**

The Graduate Student Research Fund and Travel Grant, fully funded and administered by the Graduate College, supports graduate students engaged in independent scholarly research, scientific inquiry, inventive technology and original artistic activity. The fund is intended to help students pay extraordinary or unusual costs incurred in research projects. Grants range up to $1,000 and students may apply for up to $600 of additional support to defray the cost of international travel.

*Indicates student received additional funding for international travel.

**Aarsdma-Benton, Ruth A.**

History
Research
Punks in the Church: The Relationship between the Punk Subculture and Church in East Germany

**Akram, Ayaz**

Electrical and Computer Engineering
Travel (Sep 16)
X&G Computer Architecture Simulators: A Comparative Study

**Alcantara, Jerico**

Chemical and Paper Engineering
Research
Direct Succinic Acid Production from Lignocellulosic Biomass Using Sequential Solid-State and Slurry Fermentation with Mixed Fungal Cultures

**Aledhari, Mohammed A.**

Computer Science
Research
A New Obstacle Avoidance Algorithm In Support of Visually Impaired Individuals

**Alves, Gabriel**

Biological Sciences
Research
The Effects of Exercise, Aging, and Hypertension on the Expression of Neurotrophic Factors and Innervation Pattern of the Heart

**Al Qaralleh, Mohammad**

Civil and Construction Engineering
Research
Fatigue Behavior of Reinforced Concrete Beams Strengthened with Externally Bonded Carbon Fiber Reinforced Polymers

**Anguinano, Jesse**

Interdisciplinary Studies
Research
Yo Soy Bien Sexy Y’Catalino (I am Very Sexy and Catholic): Tijuana Gay Males Living Between the Margins of Religion and Sexual Identity

**Awan, Muaz Gul**

Computer Science
Research
Accelerating Proteomics Software Pipeline Using Graphical Processing Units for Speeding Up Protein Analysis for Systems Biology Studies

**Bansode, Subodh**

Electrical and Computer Engineering
Travel
Design and Implementation of Regulated Pressure Brace with On-Board Control and Monitoring Abilities for the Treatment of Scoliosis

**Bilal, Ghassan**

Electrical and Computer Engineering
Travel
Network Reduction for Frequency-Domain Transient Analysis of Power Components

**Borchering, Carolyn**

Music
Research
Analysis of the Japanese Koto’s Compositional and Performance Techniques for Musical Integration and Multiculturalism

**Brown, Katherine**

Sociology
Research
A Program Evaluation of Domestic Violence Shelter Programs and Research Best Practices and Policies

**Bulla, Andrew**

Psychology
Travel
Self-Management as a Class-Wide Intervention: An Evaluation of the “Self & Match” System Embedded Within a Dependent Group Contingency

**Butler, Maime**

Counselor Education and Counseling Psychology
Travel
Transgender and Gender Non-Conforming People of Color: A Call for Research and Action

**Carrol-Alfano, Miriam A.**

Interdisciplinary Health Science
Travel
Assessment of Concussion Education and Knowledge of Concussion Symptoms in Student Athletes

**Cheng, Li**

Public Affairs and Administration
Travel
Flint, Michigan: Water Crisis, Intergovernmental Disaster, or Gubernatorial Campaign?

**Chihawi, Amer Abdulmahdi**

Electrical and Computer Engineering
Travel
Novel Screen Printed and Flexible Low Frequency Magneto-Electric Energy Harvester

**Clay, Andrew**

Counselor Education and Counseling Psychology
Research
The Grief Experience of Spousal and Adult Child Caregivers of Individuals Diagnosed with Alzheimer’s Disease or Related Dementias Following Facility Placement

**Cole, Rowan**

Geography
Research
An Analysis of Deforestation along the Amur River, Khabarovsky Krai, Russia

**Conway, Alissa**

Psychology
Travel
Immediate Effects of a One-Day Training on Writing Behavior Support Plans

**Current, Kelley**

Chemistry
Travel
The Influence of Nanoparticles, Antibiotics, and Nutric Acids on Bacterial Growth

**Dawson, James**

Educational Leadership, Research and Technology
Travel
Justice Involved Veterans’ Post Employment Experiences

**Deochand, Neil**

Psychology
Research
Evaluation of Human Performance Using a Punching Bag Feedback Device

**Drager, Elise**

Speech, Language and Hearing Sciences
Research
Effects of Developmental Exposure to E-Cigarette Constituents, Nicotine and Vegetable Glycerin, on Connew 43 Expression in the Frog Hindbrain

**Dupuis, Danielle**

Geosciences
Research
Spatial Analysis of Water Use for the City of Kalamazoo, Michigan

**Emil, Mustafa**

Geosciences
Travel
Nature, Timing, and Origin of Wet Climate Periods in Arabia from Geochemical (Stable Isotopes, Noble Gas Thermometry, Geochemistry) Geomorphological Data

**Feeman, Meghan**

Music Therapy
Research
The Effect of Auditory Stimuli on the Arousal Hypothesis as Measured by EDA Testing Through Verbal Processing

**Ferguson, Alexandra**

Electrical and Computer Engineering
Travel
Using Experimentally-Informed Neuron Models to Find Optimal Neural Stimulation in the Medicinal Leech

**Grabarczyk, Erin E.**

Biological Sciences
Research
The Impact of Anthropogenic Noise on Avian Communication and Reproductive Success

**Groves, Thomas**

Biological Sciences
Travel
Spectral-Spatial Mapping By Primary Photoreceptors Organized In A Somatotopic Array

**Harvey, Eric**

Psychology
Research
The Effects of Adolescent Exposure to Amphetamine or Methylphenidate on Nicotine Reward in Adulthood

**Honorvar, Elahe**

Chemistry
Travel
1. Comparing the Effects of Additives on Protein Analysis between DESI and ESI. 2. Delayed Desorption Improves Protein Analysis By Desorption Electrospray Ionization Mass Spectometry; 3. Amino Acids Desalt Protein Samples during DESI-MS Analysis

**Hurst, Shelby H.**

Geosciences
Research
Stable Isotope Ratios of Thunderstorms: Implications to the Nature of Atmospheric Processes

**Hussain, Mohammed**

Electrical and Computer Engineering
Travel
Equivalent Representation of Machine Winding in a Frequency Domain Model for Fast Transient Studies

**Jenssen, Kayla**

Psychology
Travel
Now Hiring: Practical Tips for Obtaining and Maintaining Paid Employment for Individuals with Developmental Disabilities

**Janrattanasawat, Sarut**

Chemistry
Research
Exploring the Scope of Enantioselective Trifluoromethylation

**Kaur, Jagjit**

Physics
Travel
Near-Threshold Dielectronic Recombination Studies of Silicon-Like Ions

**Kells, Ian**

Music Therapy
Research
The Effect of Auditory Stimuli on Test Performance: Testing the Arousal Hypothesis

Discoveries
Kennedy-Mendez, Angela I.
Biological Sciences
Research: Characterization of Pirlotol Degradation in Sinoarzobium Meliloti

Kirkton, Kate S.
Speech, Language and Hearing Sciences
Travel: It Is Not Just Spellings! Word Level Errors of Students with Language Learning Disabilities When Writing

*Koerber, Alexander
Geosciences
Research: Geochemical and Petrologic Analysis of the Ni-Cu-PGE-Bearing Echo Lake Intrusion in UP Michigan, USA

Kohler, Robert J.
Psychology
Research: Neurochemical Effects of Mephedrone and Cocaine Mixtures in the Rat

Kosna, Anilkumar
Mechanical and Aerospace Engineering
Research: Design of Portable Biogas Separator

Kourtjian, Sarah
Speech, Language and Hearing Sciences
Research: Effects of Developmental Nicotine Exposure on Connexin 43 Expression in the Frog Hindbrain

Kuk, Megan
Industrial and Entrepreneurial Engineering
Travel: Statistical Investigation of Modeling EMS Response Time: Michigan Case Study

*Kumara, Pathiranheilage
Physics
Travel: Radiative Double Electron Capture (RDEC) by Bare Ions Colliding with Gas Targets

*La Mantia, David S.
Physics
Travel (2016): Single and Double Capture Resulting in Target K-Shell Ionization for F3+ + Ar Collisions

Li, Ziqian
Geosciences
Research: Characterizing Groundwater-Surface Water Interaction by Water Sampling and Analysis in the Headwaters of the White River, Manistee National Forest, Michigan

Luck, Alexander
Speech, Language and Hearing Sciences
Research: Development Effects of E-Cigarette Compounds, Nicotine and Propylenglycol on Connexin 43 Expressing Glial Cells in the Frog Hindbrain

Ma, Ruoxi
Chemical and Paper Engineering
Travel: Hemicellulose-Based Barrier Coatings for Packaging

MacDonald, James
Mechanical and Aerospace Engineering
Travel: Two-Point Velocity Correlations in the Near-Wall Region of a Reciprocating Internal Combustion Engine

Marcoux, Patrick
Counselor Education and Counseling Psychology
Travel: Transgender and Gender Non-Conforming People of Color – A Call for Research and Action

Martin, Nicholas W.
Biological Sciences
Research: Do Plants Attract the Right Kind of Predators?

Maser, Tara
Chemistry
Travel: Delayed Desorption Electrospay Ionization Mass Spectrometry to Improve Protein Analysis

McNeal, Peggy M.
Mallinson Institute for Science Education
Research: Spatial Thinking in Meteorology: A Task Analysis of the Forecasting Process (Pilot Phase)

Mohammadi, Mehdi
Computer Science
Travel: Implementing an Internet of Things Infrastructure and Applications

Moenaar, Danielle
Geography
Research: Spatial Analysis of Water Use for the City of Kalamazoo, MI

Olejniczak, Drake
Mathematics
Travel: A New Look at Bipartite Ramsey Numbers in Graphs

*Pankratz, Hannah
Geosciences
Research: Geophysical and Remote Sensing Applications to Better Understand the Distribution and Deformation Associated with Salt Domes Along the Red Sea, Saudi Arabia

*Pokharna, Piyush
Mechanical and Aerospace Engineering
Research: Combustion Engine Study of Biofuctionalized Simulation and Experimental Sensing Applications to Better Understand the Distribution and Deformation Associated with Salt Domes Along the Red Sea, Saudi Arabia

*Pankratz, Hannah
Geosciences
Research: Geophysical and Remote Sensing Applications to Better Understand the Distribution and Deformation Associated with Salt Domes Along the Red Sea, Saudi Arabia

Pozzuto, Joanna
Biological Sciences
Travel: Mitral Cell Dendritic Arbor Recover Morphology after Chronic Differentiation in the Adult Zebrafish Olfactory Bulb

Ratkos, Thomas
Psychology
Research: Frequency and Nature of Elementary School Teacher-Student Interactions

Roodbar, Sam
Geography
Research: Spatial and Temporal Change in Halal Food Sales and Consumption: A Case Study of the City of Dearborn, Michigan

Samarakoon, Jaliya
Chemistry
Research: Conversion of Carbon Dioxide to Formic Acid Mediated By Light Driven Electron Storage Conversion of Carbon Dioxide to Formic Acid Mediated By Light Driven Electron Storage Systems

Schla, Erica
Counselor Education and Counseling Psychology
Travel: Bring Your Dog to Work Day: What Animal Assisted Therapy Is NOT

Schoenborn, Paige
Educational Leadership, Research, and Technology
Travel: Studying Abroad in Malaysia and Singapore: Graduate Student Perspectives

Sprague, Emily
Biological Sciences
Research: The Impact of Road Salt Runoff on the Prokaryotic Communities of Northern Lakes

Sukawat, Somnang
Biological Sciences
Research: Induction of Mononuclear Immune Cell Response by Oncolytic Tumor Viruses Expressing Monocytic Chemoattractant Protein-1 and Interleukin-2 to Suppress Human Breast Tumor Growth in Nude Mice

Suryawanshi, Yogesh
Biological Sciences
Travel: The Gendering of Movement in Anglo-Saxon Literature

*Turkani, Vikram
Psychology
Research: The Night Watchman

*Trude, Brian
English
Research: The Night Watchman

*Turkani, Vikram
Psychology
Research: The Night Watchman

*Wu, Tai-Hsien
General Chemistry Course
Students’ Exam Process in a General Chemistry Course

Williams, Cody T.
Mallinson Institute for Science Education
Travel: How Deep is Your Network? A Social Network Analysis of Collaborations for Faculty Development

Wilson, Angela M.
Mallinson Institute for Science Education
Travel: Understanding College Students’ Exam Process in a General Chemistry Course

Wall, Tyler
Mechanical and Aerospace Engineering
Travel: A Survey of Hybrid Electric Propulsion for Aircraft

Yavuz, Funda
Civil and Construction Engineering
Travel: Economic Impact Analysis of Accelerated Bridge Construction

Zucchi, William
Industrial and Entrepreneurial Engineering
Research: Characterization of Pirlotol Degradation in Sinoarzobium Meliloti

Zhu, Fei
Chemistry
Travel: The Night Watchman
Abdel-Qader, Ikhiis
Electrical and Computer Engineering
City of Kalamazoo
$19,997

Akant, Haluk M.
Civil and Construction Engineering
Attanayake, Upul
Civil and Construction Engineering
Michigan Department of Transportation
$271,682

Al-Fuqaha, Ala I.
Computer Science
University of Nebraska Lincon
$66,354

Ari-Gur, Pnina
Mechanical and Aerospace Engineering
Atashbar, Massood
Electrical and Computer Engineering
Burns, Clement
Physics
Fleming III, Paul D.
Chemical and Paper Engineering
Patten, John A.
Industrial and Entrepreneurial Engineering and Management
National Science Foundation
$452,399

Atashbar, Massood
Electrical and Computer Engineering
Purdue University
$205,888

Atashbar, Massood
Electrical and Computer Engineering
National Science Foundation
$200,000

Atashbar, Massood
Electrical and Computer Engineering
Stethographics, Inc.
$52,226

Atashbar, Massood
Electrical and Computer Engineering
National Science Foundation
$50,000

Bautista, Manuel A.
Physics
National Aeronautics and Space Administration
$21,957

Bautista, Manuel A.
University of West Georgia
$20,139

Bazuin, Bradley J.
Electrical and Computer Engineering
Atashbar, Massood
Electrical and Computer Engineering
SafeSense Technologies, LLC
$8,640

Beach, Andrea L.
Center for Research on Instructional Change in Postsecondary Education
Henderson, Charles R.
Center for Research on Instructional Change in Postsecondary Education
University of California, San Diego
$42,927

Beach, Andrea L.
University of Colorado, Boulder
$35,006

Beane, Wendy Scott
Biological Sciences
National Science Foundation
$160,000

Bennett, David Clark
University of Michigan
$25,000

Bennett, Patrick
Mathematics
Simons Foundation
$35,000

Bensley, Robert J.
School of Interdisciplinary Health Programs
State of Colorado
$21,824

Bensley, Robert J.
School of Interdisciplinary Health Programs
State of Nevada WIC Program
$21,328

Bensley, Robert J.
School of Interdisciplinary Health Programs
Iowa Department of Public Health
$19,200

Bensley, Robert J.
School of Interdisciplinary Health Programs
Seafood Nutrition Partnership
$18,798

Bensley, Robert J.
School of Interdisciplinary Health Programs
State of Oklahoma WIC Services
$18,164

Bensley, Robert J.
School of Interdisciplinary Health Programs
State of South Dakota
$17,360

Bensley, Robert J.
School of Interdisciplinary Health Programs
State of Nebraska
$14,880

Bensley, Robert J.
School of Interdisciplinary Health Programs
Kansas Department of Administration
$14,880

Bensley, Robert J.
School of Interdisciplinary Health Programs
Michigan Department of Health and Human Services
$13,226
<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Title</th>
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<tr>
<td>Blyth, Jane</td>
<td>Hamline Institute for International Studies</td>
<td>Professor of Social Work</td>
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<td>Bush, Jonathan</td>
<td>National Writing Project Corporation</td>
<td>Director</td>
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<td>Butt, Steven E.</td>
<td>Indiana University</td>
<td>Professor</td>
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<td>Fredericks, Tycho K.</td>
<td>Haworth, Inc.</td>
<td>Professor</td>
<td>$35,000</td>
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<td>Carr, Erika Ann</td>
<td>Haworth College of Business</td>
<td>Assistant Professor</td>
<td>$257,500</td>
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<td>Chapleau, Ann</td>
<td>Eastside Youth Strong</td>
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<td>U.S. Department of Education</td>
<td>Professor</td>
<td>$226,600</td>
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<td>Covell, Ying Zeng</td>
<td>Confucius Institute</td>
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<td>Coyle, Jennifer L.</td>
<td>California State University-Northridge</td>
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<td>University of Massachusetts Boston</td>
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<td>Damashek, Amy L.</td>
<td>Western Michigan University</td>
<td>Professor</td>
<td>$8,848</td>
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<td>DeDoncker, Elise</td>
<td>National Science Foundation</td>
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<td>Dennis, Tony O.</td>
<td>Wayne State University</td>
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<td>Wayne State University</td>
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<td>Gauthier, Bethany W.</td>
<td>Miller Auditorium</td>
<td>Director</td>
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<td>Manuel A.</td>
<td>Physics</td>
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<td>Steinke</td>
<td>Joelyn D.</td>
<td>School of Communication</td>
<td>National Science Foundation</td>
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<td>Hahn</td>
<td>Janet S.</td>
<td>Center for Excellence in Gerontology</td>
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<td>Baker</td>
<td>Jonathan</td>
<td>Psychology</td>
<td>Michigan Department of Health and Human Services</td>
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<td>Hansford</td>
<td>Claudia M.</td>
<td>CANOS Center</td>
<td>Various Industries</td>
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<td>Hahn</td>
<td>Janet S.</td>
<td>Center for Excellence in Gerontology</td>
<td>Kalamazoo County</td>
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<td>Janet S.</td>
<td>Center for Excellence in Gerontology</td>
<td>Sixty Plus, Inc. Elder Law Clinic</td>
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<td>Henry</td>
<td>James A.</td>
<td>School of Social Work</td>
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<td>Black-Pond</td>
<td>Connie</td>
<td>School of Social Work</td>
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<td>Richardson</td>
<td>Margaret</td>
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<td>Hernandez</td>
<td>Diana</td>
<td>Division of Multicultural Affairs</td>
<td>U.S. Department of Education</td>
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<td>Division of Multicultural Affairs</td>
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<td>Meyer</td>
<td>Richard T.</td>
<td>Mechanical and Aerospace Engineering</td>
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<td>Harrison III</td>
<td>William B.</td>
<td>Geosciences</td>
<td>Battelle Memorial Institute</td>
</tr>
<tr>
<td>Gottberg</td>
<td>June E.</td>
<td>Vice President for Research</td>
<td>University of Central Florida</td>
</tr>
<tr>
<td>Grunert</td>
<td>Megan Leanne</td>
<td>Chemistry</td>
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<td>Stapleton</td>
<td>Susan R.</td>
<td>The Graduate College</td>
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<td>Steenke</td>
<td>Joelyn D.</td>
<td>School of Communication</td>
<td>National Science Foundation</td>
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<tr>
<td>Gustafson</td>
<td>Peter A.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>Western Michigan University Homer Stryker M.D. School of Medicine</td>
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<td>Hahn</td>
<td>Janet S.</td>
<td>Center for Excellence in Gerontology</td>
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<td>CANOS Center</td>
<td>Various Industries</td>
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<td>Kalamazoo County</td>
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Whitehurst, Geoffrey Richard  
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Rantz, William G.  
College of Aviation  
Risukhin, Vladimir N.  
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Brown, Lori J.  
Purdue University  
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Wiebold, Jennipher  
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Munley, Patrick H.  
Counselor Education and Counseling Psychology  
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Williams, Cody  
SAMPI  
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Williams, Cody  
SAMPI  
Wayne County Regional Educational Services Agency  
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Corporation for Public Broadcasting  
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Wingate, Lori A.  
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Ranto, William  
Counselor Education and Counseling Psychology  
Wayne County Regional Educational Services Agency  
$30,000

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
WMUK Radio  
Corporation for Public Broadcasting  
$107,248

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
Corporation for Public Broadcasting  
$37,820

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
National Science Foundation  
$1,599,872

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
University Of Wisconsin-Madison Institute for Research on Poverty  
$12,768

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
Marin Community Foundation  
$10,000

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
U.S. Geological Survey  
$72,524

Yeboah, Jennifer  
Counselor Education and Counseling Psychology  
Ranto, William  
Counselor Education and Counseling Psychology  
Michigan Department of Environmental Quality  
$22,000

Zhang, Jiansong  
Civil and Construction Engineering  
Western Michigan University  
Research Foundation  
$14,444
The Technology Development Fund is an internal grant program to provide funding to further develop faculty inventions. As such, it represents the significant investment WMU has made to enhance the impact of WMU’s research through commercialization. The WMU Technology and Innovation Advancement Management and Commercialization Faculty Advisory Committee awarded four proposals for 2017.
The purpose of the Faculty Research and Creative Activities Award is to encourage and support faculty in significant research, rigorous scientific inquiry, original artistic activity, and inventive technology. Awards are made for up to $10,000 and require submission of an external funding proposal.

* Recipients were named in Jan. 2017; period of award funding is July 1, 2017 through June 30, 2018.

<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Field</th>
<th>Project Description</th>
<th>Funding</th>
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<tr>
<td>Bade Shrestha, S. O.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>A Portable Biogas Separation and Storage System</td>
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<td>Docherty, Kathryn</td>
<td>Biological Sciences</td>
<td>Strategies for Belowground Soil Restoration</td>
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<td>Durbin, Steven</td>
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<td>Earth-Abundant Element Semiconductor Compounds for Short Wavelength Optoelectronic Applications</td>
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<td>Development of Heat Transfer Correlations for Improved System Design</td>
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<td>Physics</td>
<td>Origins of Amino Acid Chirality in Stellar Environments</td>
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<td>Ghantasala, Muralidhar</td>
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<td>Simulation of Nano-Particle Drug Delivery and Validation Using In vitro Lab on Chip Device</td>
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<td>Gomez, Pablo</td>
<td>Electrical and Computer Engineering</td>
<td>Optimized Design of Distribution Transformers</td>
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<td>Jeng, Cassie; Rowe, Jill; McMorrow, Shannon</td>
<td>School of Interdisciplinary Health Programs</td>
<td>Does the Crystal Clear Mark Quality Recognition Program Advance Health Literate Practices in Physicians' Offices and Pharmacies and Improve Patients' Access, Understanding, and Use of Health Information?</td>
<td>$9,940</td>
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<td>Lemmer, Kristina</td>
<td>Mechanical and Aerospace Engineering</td>
<td>Investigating the Applicability of C12AT Electrode Material for Use in Electric Propulsion Hollow Cathodes</td>
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<td>Mezei, Gellert</td>
<td>Chemistry</td>
<td>Addressing Challenging Areas of Chemical Synthesis and Aion Encapsulation Using Nanoparticles</td>
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<td>Owen, Ginger</td>
<td>Frostic School of Art</td>
<td>Heritage Habitats: A Photographic Installation Project</td>
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<td>Ravotas, Doris</td>
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<td>Investigating Agricultural Permanence in Large Asian Cities: A Case Study of Nanjing, China</td>
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<td>Rossbach, Silvia</td>
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<td>Bacteria to the Rescue: A “Compass” for Cleaning Up Oil Spills?</td>
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<td>Anthropology</td>
<td>Children of Disaster: Drought, Lived Experience, and Health</td>
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<td>Suarez, Michelle</td>
<td>Occupational Therapy</td>
<td>Measuring the Effectiveness of the &quot;Zones of Regulation&quot; Curriculum for Increasing Engagement in Activities of Daily Living</td>
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<td>Veeck, Gregory</td>
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<td>White, Robert</td>
<td>School of Music</td>
<td>The Better Angels of Our Nature – Western Brass Quintet Recording Project</td>
<td>$8,987</td>
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Sherine Obare  
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While every effort has been made for accuracy, there is still the possibility for errors or omissions. We apologize for any that might occur. Please contact us with any corrections for our next issue.

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