Discovery: Research Annual Report 2016

Office of Vice President for Research

Follow this and additional works at: http://scholarworks.wmich.edu/research_reports

Part of the Higher Education Commons

WMU ScholarWorks Citation
http://scholarworks.wmich.edu/research_reports/1

This Annual Report is brought to you for free and open access by the Office of the Vice President for Research at ScholarWorks at WMU. It has been accepted for inclusion in Research Annual Reports by an authorized administrator of ScholarWorks at WMU. For more information, please contact maira.bundza@wmich.edu.
Discovery
Western Michigan University

FOREVER GOLD

RESEARCH
ANNUAL REPORT
2016
KALAMAZOO AUTISM CENTER SERVING THE TREATMENT NEEDS FOR THOSE WITH AUTISM

WMU'S GEOLOGICAL RESOURCES LEVERAGED AS AN ENVIRONMENTAL PROTECTION AND ECONOMIC DEVELOPMENT TOOL

WMU USES GRANTS TO STUDY IMPROVEMENT TO AVIATION SAFETY

FROM INVENTION TO COMMERCIALIZATION

FACULTY SCHOLAR AWARD

UNDERGRADUATE RESEARCH EXCELLENCE AWARD RECIPIENTS

GRADUATE STUDENT RESEARCH AND TRAVEL GRANTS

SUPPORT FOR FACULTY SCHOLARS AWARD

EXTERNAL FUNDING

WMED RESEARCH ACTIVITIES

EXTERNAL AWARDS TO FACULTY AND STAFF

RESEARCH AND CREATIVE ACTIVITIES POSTER DAY GRADUATE STUDENT PARTICIPANT WINNERS

TECHNOLOGY DEVELOPMENT FUND AWARDS

FACULTY RESEARCH AND CREATIVE ACTIVITIES AWARD

WMU CENTERS AND INSTITUTES

John M. Dunn, Ed.D.
President
Western Michigan University is proud of its long research tradition, a tradition rooted in serving the community and the people around us. Hear ‘community’ as an evolving idea that is geographically determined by local, regional, state, national and global coordinates. In other words, as a national research institution of higher learning, we focus on the challenges we all face and offer solutions in ways that impact us all.

This past fiscal year was a great year. We continued to extend our reach, our imagination, our research and our presence in significant ways.

Locally, we made an indelible mark in the autism arena, helping families who need our expertise, help, and diagnostic assistance. Known internationally as a leader in behavior analysis, funded by the State of Michigan, and reaching children and adults affected and impacted by autism – WMU meets each family as a unit. We are making a difference in lives and in families, and that matters. Today we are training tomorrow’s leaders who will continue to stretch the reach of our discovery efforts in the field of autism. Because of this, tomorrow shines brighter with hope for many families, especially when those trained here in southwest Michigan share their skills around the world.

At a state level, WMU is primed to serve Michigan in visible ways with a $500,000 legislative investment in the Michigan Geological Survey which will be used to map the subsurface of Michigan. The MGS conducts its work as part of the Department of Geosciences. The Survey uses the collection of geological samples at the Michigan Geological Repository for Research and Education in its research and outreach. Our work in mapping the State’s minerals, natural gas, and water resources is a vital part of the sustainability and renewal efforts for natural resources.

Nationally and globally, aviation as a discipline is challenged by a shortage of pilots. WMU is committed to training the best pilots and designing some of the most advanced training tools for others to use in training additional pilots. Indeed, this past year the Federal Aviation Administration selected WMU as a core team member in a new FAA Center for Excellence for Technical Training and Human Performance. Funded by the FAA, this center will forge new paths into the future of aviation technical training practices and research ventures.

Distinguished as a learner centered, discovery driven, and globally engaged University, we are making an impact. We invite you to see the ways we are making a difference in people’s lives – spanning from our local into the global arena. Together we continue to make a difference, and we invite you to join us in celebrating. To learn more about the University and our research endeavors, visit wmich.edu/research.

John M. Dunn, Ed.D.
President

Daniel M. Litynski, Ph.D.
Vice President
Office of the Vice President for Research
Kalamazoo Autism Center serving the treatment needs for those with autism

Western Michigan University’s Kalamazoo Autism Center, a treatment center for young people diagnosed on the autism spectrum, was formally opened during a grand opening ceremony this fall.

Part of the WMU Autism Center for Excellence, the Kalamazoo Autism Center has major funding from the Michigan Department of Health and Human Services. WMU’s extensive efforts to offer autism services and train professionals in the field attracted a $4 million award approved by the Michigan Legislature in 2014, and some of that funding supported the renovation of the KAC’s new home, which was purchased by the University a year ago.

Special guests and members of the community had a chance to tour the center’s dramatically expanded space at its new location, 4200 S. Westnedge. The former pediatric medical center is located in a neighborhood setting and has been completely renovated, allowing the KAC to ultimately serve up to 40 young people ages 2 to 21 who have been diagnosed on the autism spectrum. Formerly, the KAC had been operating within the Child Development Center, a well-established child care provider on Cork Street and serving about six clients at any given time. The center also will provide parent support services and be a resource on all aspects of autism assessment and treatment.

The Kalamazoo Autism Center was established in 2008 by Dr. Richard Malott, who has been directing the facility and, in conjunction with WMU’s Department of Psychology, has been providing applied behavior analysis services to southwest Michigan children with autism. The program provides advanced practicum training for psychology students from the University.
According to KAC Clinical Director Dr. Kelly Kohler, herself a product of WMU’s renowned training programs for professionals, the KAC staff works one on one and in small groups with the young people it serves, providing intensive behavioral interventions to help them with the development of pre-academic, communication and daily living skills as well as social, play and vocational skills.

“The research shows that 30 to 40 hours per week of applied behavior analysis is the most effective approach, and the earlier the intervention the better,” Kohler says. “Much of that early intervention work is done one on one. We’ll be offering a blend of the classroom experience that is part of a normal school day with one-on-one work to address individual needs.”

The KAC will be self-sustaining, and the center accepts private pay, Medicaid and private insurance for its services. The staff members expect slow, but steady growth in the number of young people served, predicting a client base of about 20 by the end of the year. Ultimately, as stated earlier, as many as 40 young people and their families will be served.

For more information, contact the center at psy-kac@wmich.edu.
WMU’s Geological resources leveraged as an environmental protection and economic development tool.
Legislature invests $500,000 in Michigan Geological Survey at WMU

Most recently, a $500,000 investment by the state of Michigan in the Michigan Geological Survey is being used to map the subsurface of Michigan in a way that will dramatically enhance economic development and ensure that vital natural resources are analyzed, protected and used widely.

Area legislators and geoscientists gathered recently on the Western Michigan University campus, which has been home to the state survey since 2011, to announce the funding that is part of the 2017 Michigan budget. They outlined the statewide geological mapping that is vital to Michigan’s future and announced one Kalamazoo-area initiative that will benefit from that mapping.

“This funding will allow us to leverage the skills and resources of our geoscientists and better analyze and protect vital state resources in a way that can make an enormous difference in our state’s future,” said WMU President John M. Dunn at the event. “We’re grateful to our local legislators who championed this funding.”

The state money will be used to prioritize Michigan’s needs, begin comprehensive mapping and develop collaborations with industry to assess water, aggregate, gas and oil subsurface storage capacity. The aim of the work is to help Michigan rebuild its infrastructure and maintain a healthy environment.

One example of an effort that will get the immediate attention of WMU geoscientists working through the survey is the mapping of the city of Portage’s subsurface to define several bedrock valleys and coarse-grained aquifers that are capable of supporting high-capacity municipal wells. To date, the only information on these important water resources have come accidentally during single-well drilling.

The four-month survey work in Portage will begin the systematic mapping of 55 square miles of subsurface, using data from 220 stations to produce maps that will both define the size and scope of the valleys and deliver the information needed to protect them.

John Yellich, director of the Michigan Geological Survey, says the state funding will allow the survey to begin to take full advantage of its potential as both an environmental protection and economic development tool. In addition to water, the state’s subsurface natural resources include limestone, minerals, soil, sand, salt, oil, gas and ores. With only 10 percent of the state subsurface mapped to date, Michigan is at an economic disadvantage and has fallen behind neighboring states, he notes.

Michigan has mapped far less than comparable states that have invested enough money to take advantage of opportunities to use federal matching funds. Those federal matching funds for mapping have been available for the past 24 years, but Michigan has used that opportunity at a lower rate than other Midwest states. Ohio, for instance, has used nearly $3 million in federal matching funds to map 80 percent of its priority areas. A recent study shows the data and research that Ohio’s Geological Survey produces has a minimum annual economic impact on that state of $575 million. In Kentucky, state officials say they’ve experienced a $25 to $38 benefit for every dollar spent on geological mapping.
WMU uses grants to study improvement to aviation safety

Western Michigan University received three grants totaling $434,690 from the Federal Aviation Administration NextGen Weather Technology in the Cockpit program to study weather information systems to improve general aviation safety and, ultimately, reduce accident risk.

The grants fund three of four Federal Aviation Administration projects aimed at improving the use of weather information in the cockpit. The goal is to use the latest weather technology research to improve pilot decision-making during adverse weather conditions and enhance crew awareness.

“The bottom line is that aviation overall has increased in safety,” says Lori Brown, WMU associate professor of aviation, who is principal investigator for WMU on two of the research projects. “About two-thirds of all general aviation accidents that occur in instrument meteorological conditions are fatal—a rate much higher than the overall fatality rate for general aviation.”

The grants are part of the FAA’s PEGASAS—program, whose mission is to enhance general aviation safety, accessibility and sustainability by partnering the FAA with a national network of world-class researchers, educators and industry leaders.

In one project, titled “Visual Flight Rules into Instrument Meteorological Conditions Transition” and funded by a $104,226 grant, Brown and WMU are partnering with Purdue University. In the project’s first phase, researchers surveyed more than 600 pilots and conducted focus groups to identify the gaps in weather-related pilot training.

“We wanted to find out how…aviation safety is improving as a whole,” Brown says, “but general aviation weather-related accidents are still occurring. We’ve been looking to find where the gaps are and what we can do to close the gaps.”

**REDUCING FATALITIES**

Reducing general aviation fatalities is a top priority of the FAA and similar to commercial aviation, the FAA is focused on reducing general aviation accidents by using a primarily non-regulatory, proactive, and data-driven strategy to get results.

All four of the projects are through the FAA’s PEGASAS—program, whose mission is to enhance general aviation safety, accessibility and sustainability by partnering the FAA with a national network of world-class researchers, educators and industry leaders.

In one project, titled “Visual Flight Rules into Instrument Meteorological Conditions Transition” and funded by a $104,226 grant, Brown and WMU are partnering with Purdue University. In the project’s first phase, researchers surveyed more than 600 pilots and conducted focus groups to identify the gaps in weather-related pilot training.

“We wanted to find out how…aviation safety is improving as a whole,” Brown says, “but general aviation weather-related accidents are still occurring. We’ve been looking to find where the gaps are and what we can do to close the gaps.”

**INNOVATIVE TRAINING**

Brown and her WMU colleagues Bill Rantz, Geoff Whitehurst, Dennis McFall, Dominic Nicolai, along with Dr. Beth Seiler, are developing innovative training modules to construct interactive, computer-based decision trees that can be used by a broad demographic to improve decision making in unintentional transition into adverse weather conditions. They evaluated pilots in late July using flight simulators at the FAA’s William J. Hughes Technical Center in Atlantic City, N.J.

Not all pilots are trained in a structured academic program like the WMU College of Aviation as part of a New Center of Excellence

While the WMU College of Aviation remains active as an affiliate and core team member in two FAA Centers of Excellence (see Lori Brown et al’s work in related story on weather-related aviation safety training), WMU has been selected as a core team member in a new FAA Center for Excellence for Technical Training and Human Performance. This COE will conduct research and development on technical training for air traffic controllers, aviation safety inspectors, engineers, pilots and technicians.

The FAA’s Center of Excellence program is a partnership between academia, industry and government. Congress authorized these centers under the Federal Aviation Administration Research, Engineering and Development Authorization Act of 1990. (www.faa.gov)
WMU forms alliance with Florida Southwestern State College to expand its reach in Florida

Officials from Western Michigan University and Florida Southwestern State College recently announced an alliance that will allow WMU to offer several high-profile academic programs at FSW's Charlotte County, Florida, campus.

“Florida is home to the highest number of WMU alumni outside of the Midwest and presents great opportunity for new research, development and partnerships,” Dunn says. "Our alumni and University supporters are thrilled that WMU is partnering with FSW to become an economic and cultural force in the area.”

Earlier this year, Florida’s Commission for Independent Education approved two provisional licenses for the University to offer academic programs in Florida. Final approval for WMU program offerings must come from the Higher Learning Commission, which is the University’s accreditation body. Once such approvals are obtained, WMU and FSW will be able to release details regarding various degree programs that will be offered.

WMU, which is known for providing academic programs in aviation, wellness, business and environmental studies, also works with industries and businesses to customize educational offerings and credentialing certifications.

Aviation, Brown adds. “It can be a different experience, based on where you’re getting your training,” she notes. “We’re trying to develop something that could be available through an electronic link—computer-based training to pilots in the entire nation.”

In phase two, researchers are testing pilots who have received enhanced training using events from real accidents, Brown says. Pilots go through training, respond to events, make decisions and then are evaluated and compared with those receiving traditional training.

“In the survey and focus groups we conducted, the pilots themselves, the examiners and the certified flight instructors indicated the gap is the lack of ability of pilots to correlate the weather knowledge that they have,” Brown says. "In other words, they’re learning about weather, they’re learning how to read charts and graphical displays, but it doesn’t really prepare them to have the ability to make sound decisions in-flight, to put decision-making and weather knowledge together.

That’s one of the gaps we’re looking at.”

WEATHER TECHNOLOGY IN THE COCKPIT

Brown’s second research project, titled “General Aviation Weather Alerting,” is funded with a $158,906 FAA grant in partnership with Texas A&M University. It will look closely at weather technology in the cockpit and weather devices and functions.

“Pilots can get all their pre-flight weather information, their weather pre-flight briefing, and plan their flight, make their go or no-go decision and start their flight and then the weather can change somewhere along their flight and they may not have the ability to have that information while they’re en route,” Brown says. “We’re testing out new ways to alert the pilot when weather has changed.”

In particular, Brown’s second project is collaborating with Dr. Thomas Ferris at Texas A&M University and such industry partners as Delorme and Lockheed Martin, to come up with innovative ways to alert pilots. One is to use Delorme’s inReach device, which uses the Iridium Constellation Satellite Network to reach pilots anywhere in the world, including in remote areas where they have lost radar. Using the satellite system, researchers are able to send pilots weather updates through Lockheed Martin’s Adverse Condition Alerting System. Another method is to communicate with pilots using a vibrating wristband to let pilots know there is new weather information available. The new information is displayed to the pilot on the Pebble watch, using the vibration to call attention to the new information. This is the first study of its kind to evaluate weather alerting sent to a wrist device. The evaluations took place in Atlantic City at the FAA’s Hughes Technical Center and in-flight in WMU aircraft piloted by College of Aviation instructors.

The College of Aviation is now drafting a proposal for phase three of their research to look at retention of new training modalities in aviation to reduce accident risk for weather-related accidents in general aviation.

THE LATENCY EFFECT

The third WMU project, titled “General Aviation MET Information Optimization,” is also in partnership with Purdue University and funded with a $171,558 FAA grant. Geoff Whitehurst, associate professor of aviation, is WMU’s principal investigator. Whitehurst is overseeing a research team that is investigating the effect of latency or delay due to data transfer rates of NEXRAD information presented to pilots during bad weather.

Radar images can be from seven to up to 12 minutes old. A pilot using only that radar image might see clear skies ahead, when it was actually clear seven to 12 minutes earlier. That latency period has been absent in flight simulation training.

Whitehurst and his fellow researchers have developed a computer-based training aid which replicates NEXRAD radar imagery that has the delay built into it for flight simulation.

“General aviation pilots often believe that the weather images they receive in the cockpit are a true representation of what is occurring in front of them,” Whitehurst says, “when in fact the information can be up to 30 minutes old. They base their decisions on where the weather, possibly thunderstorms, was and not where it is now. The simulation will allow general aviation pilots to experience this delay and the problems associated with basing decisions on ‘old’ information, while safely on the ground.”
GOAL ATTAINMENT SCALING: A MOBILE APP
Principal Investigator: Dr. Ann Chapleau
Award amount: $10,000
With Pay for Performance, hospitals can no longer use the approved days per diagnosis to provide treatment and then discharge the patient when funding ceases; regardless of whether or not the patient/consumer is ready for discharge, hospitals are now financially responsible when a patient/consumer requires re-admission after discharge. As a result, health care organizations are looking for mechanisms to ensure patient improvement is well-documented and substantiated. The Goal Attainment Scaling (GAS) App allows each user in multiple departments, such as a therapist or dietician, to set goal scales, to re-evaluate, and review statistical reports on their assigned clients. Departmental managers and/or administrative staff can have access to all goal setters under their supervision allowing them to generate program and organization-wide reports reflecting changes in levels of goal attainment over time. School systems can also use the GAS App in a similar manner to document and monitor progress toward Individualized Education Plan (IEP) goals.

THE NEOVENT: DEVELOPMENT OF LOW COST, ALTERNATIVE RESPIRATORY CARE DEVICES
Principal Investigator: Dr. Peter Gustafson
Award amount: $20,000
Presently, a large and ongoing need exists in less affluent regions of the world for respiratory devices that help the breathing of premature babies. If left untreated, premature babies have a high risk of developing Respiratory Disease Syndrome, which can progress to chronic lung disease; or worse, it can be fatal. Continuous Positive Airway Pressure (CPAP) therapy can be used for babies with limited Respiratory Distress. However, babies with moderate to severe respiratory distress require dual level air pressure therapy using a device that is expensive and requires an uninterrupted electrical supply. In contrast, NeoVent provides minimally invasive, dual level, positive airway pressure treatments for premature babies without need for a constant electrical supply and costing a fraction of existing dual level, air pressure devices. NeoVent works by attaching to bubble CPAP devices, providing regions that currently only offer CPAP devices, providing regions that currently only offer CPAP therapy a way to easily expand their services.

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 analysis of nematodes, is expensive and motility 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 modify the Wiggletron to create a 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.

LASER AUGMENTED DIAMOND DRILLING (LADD)
Principal Investigator: Dr. John Patten
Award amount: $20,000
Current materials used in advanced manufacturing need to be lighter and mechanically harder, while being manufactured with high level precision and accuracy. Brittle and hard materials, such as composites, ceramic and semiconductors, are a challenge for drilling without creating fractures, surface damage, cracks and micro-cracks. Use of these materials is limited because of the high cost and low efficiency of current drilling techniques. The Laser Augmented Diamond Drilling (LADD) process utilizes a diamond drill bit tip and laser heating to reduce the hardness and brittleness of the work piece. The laser is focused through the hollow drill bit and diamond tip, increasing the material removal rate, decreasing tool wear, and eliminating surface and sub-surface damage during drilling. This project will create an industrial version of LADD with standard components compatible with industrial drills.
Dr. Jessaca Spybrook is the 2016 recipient of this award. The honor is bestowed on faculty members who are in the first decade of their WMU careers and are among the rising stars in U.S. higher education. It acknowledges the contributions of those who have achieved national recognition and demonstrated outstanding promise to achieve renown in their continuing work.

Spybrook has been a WMU faculty member since 2008. She was chosen from nominees across campus because of her roles as an education researcher, journal editorial board member and reviewer, grant program reviewer, consultant for research projects, and workshop presenter.

She recently received a National Science Foundation grant to head a team of researchers that will mine and analyze a treasure trove of large-scale data sets to come up with ways to inform the design of large evaluations of teacher development initiatives. Spybrook also recently received a fellowship through which she is leading a registry project that will improve the structure and availability of information on impact studies in education.

"Dr. Spybrook is a productive and influential scholar," wrote a fellow WMU education researcher, noting her work has been published in more than 20 scholarly, peer-reviewed journals and she has served as the principal investigator or co-PI for research projects totaling about $3 million. "As a methodologist in statistics, Dr. Spybrook's impact goes beyond the discipline to reach the community and society at large."

Her nomination also was enthusiastically supported from outside WMU, and several nominators stressed that Spybrook has garnered significant international and professional recognition.

"The strength of Jessaca's scholarship, its impact on the fields of both education research and public policy analysis, and the broad recognition of her contributions to the field among the nation's top applied statisticians and intervention researchers make Jessaca highly deserving of such an award," wrote a colleague at the University of Pennsylvania.
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.

**Ajoku, David**
Aerospace Engineering
The Magnetic Ternary Phase Diagram of NiMnGa Alloys
Faculty Mentor: Dr. Pnina Ari-Gur

**Buck, Jared**
Engineering Design Technology
3D Bone Surgery Simulator with Force Feedback Device
Faculty Mentor: Dr. Pavel Ikonomov

**Carson, Cameron**
Mechanical Engineering
Balloon Altitude Control Mechanism
Faculty Mentor: Dr. Kristina Lemmer

**Chang, Jeremiah**
Biomedical Science
Restoring Belowground Soil Microbial Function
Faculty Mentor: Dr. Kathryn Docherty

**Conigliaro, Anthony**
Civil Engineering
Evaluating Operational Status of the Freezer-Thaw Machine
Faculty Mentor: Dr. Upul Attanayake

**Crumm, Ian**
Biochemistry
The Identification of Bacteriophages For Use as Phage Therapy
Faculty Mentor: Dr. Silvia Rossbach

**Curran, Christopher**
Mechanical Engineering
Hydrogen Conversion for Internal Combustion Engines
Faculty Mentor: Dr. Muralidhar Ghantasala

**Dixon, De’Lon**
Behavioral Science and Criminal Justice
Interview-Based Behavioral Assessment of HIV+ Drug Users
Faculty Mentor: Dr. Anthony DeFulio

**Farhad, Muqeeb**
Aerospace Engineering
Balloon Altitude Control Mechanism
Faculty Mentor: Dr. Kristina Lemmer

**Foster, Michael**
Manufacturing Technology
3D Bone Surgery Simulator with Force Feedback Device
Faculty Mentor: Dr. Pavel Ikonomov

**Genovese, Weston**
Mechanical Engineering
Hydrogen Conversion for Internal Combustion Engines
Faculty Mentor: Dr. Muralidhar Ghantasala

**Haji, Magreth**
Aerospace Engineering
Shape-Memory Alloys (Nano-Composite)
Faculty Mentor: Dr. Pnina Ari-Gur

**Harvey, Paul**
Civil Engineering
Infrastructure and Technology for Sustainable Livable Cities
Faculty Mentor: Dr. Upul Attanayake

**Hoin, Spencer**
Engineering Design Technology
3D Bone Surgery Simulator with Force Feedback Device
Faculty Mentor: Dr. Pavel Ikonomov

**Jones, Joshua**
Manufacturing Engineering Technology
Western Michigan University’s Hybrid 3D Metal Printer
Faculty Mentor: Dr. Pavel Ikonomov

**Kawka, Joseph**
Aerospace Engineering
Validation of the MKV Aeroship through Flight Testing
Faculty Mentor: Dr. William Liou

**Kostich, Brent**
Mechanical Engineering
Tandem Rotor Ground-Effect Flight Vehicle
Faculty Mentor: Dr. Jun-Seok Oh

**Lloyd, Nathan**
Construction Engineering
Automation of the Autogenous Shrinkage Test Apparatus
Faculty Mentor: Dr. Upul Attanayake

**Mehdi, Syed**
Aerospace Engineering
Altitude Control Mechanism
Faculty Mentor: Dr. Kristina Lemmer

**Monaco, Michael**
Biomedical Science
Bacteriophage Therapy
Faculty Mentor: Dr. Silvia Rossbach

**Murawski, Anthony**
Aerospace Engineering
CubeSat Ground Station
Faculty Mentor: Dr. Jennifer Hudson

**Pietrowicz, Eric**
Electrical Engineering
Smart Cane
Faculty Mentor: Dr. Pnina Ari-Gur

**Proctor, Christopher**
Aerospace Engineering
Development of an Autonomous Proximity Operations Demonstration System
Faculty Mentor: Dr. Jennifer Hudson

**Rudell, Nicholas**
Biomedical Science
Study of the Unusual Reactivity of 1H-Pyrazole-3-Carbaldehyde with Activated Pyrazoles and Development of Novel Highly Fluorescent Materials
Faculty Mentor: Dr. Gellert Mezei

**Schmidtke, Zachary**
Biomedical Science
Bacteriophage Isolation
Faculty Mentor: Dr. Silvia Rossbach

**Simmons, Nagual**
Mechanical Engineering
Magnetic Lens Configuration and Design
Faculty Mentor: Dr. Kristina Lemmer

**Solterman, Turner**
Civil Engineering
Evolution of Bridge Construction Project Impact on Surrounding Business
Faculty Mentor: Dr. Upul Attanayake

**Taylor, Timothy**
Mechanical Engineering
Balloon Altitude Control Mechanism
Faculty Mentor: Dr. Kristina Lemmer

**Thompson, Joel**
Mechanical Engineering
Physical Modelling for Hall Effect Thruster
Faculty Mentor: Dr. Kristina Lemmer

**Updegraff, Alex**
Manufacturing Engineering Technology
Western Michigan University’s Hybrid 3D Metal Printer
Faculty Mentor: Dr. Pavel Ikonomov

**Vande Streek, Benson**
Manufacturing Engineering Technology
3D Bone Surgery Simulator with Force Feedback Device
Faculty Mentor: Dr. Pavel Ikonomov

CONTINUED ON PAGE 15
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.
Hudson, Jeffrey M.
Geosciences
Travel
Effect of Viscosity on Soil Remediation when Combining Portland Cement and Sodium Persulfate in a Single Application

Hudson, Jeffrey M.
Geosciences
Travel
Bench-Scale Testing of the Use of Cementing Agents to Activate Sodium Persulfate to Combine ISCO & ISS

Jeffers, Lindsay J.
English
Travel
Preparing Teachers in English Language Arts: Mentor Teachers Speak

Joyce, Michael J.
Chemical and Paper Engineering
Travel
The Characterization of Surface Treated Silica-Filled and Non-Filled Polydimethylsiloxane Films

*Karki, Sita
Geosciences
Research
Detection of Debris Flow Using Radar Imagery and Detection of Debris Flow

Lakhanpal, Shilpa
Computer Science
Travel
Discovering Topologies Using Computer Science

*Kaur, Jagjit
Physics
Travel
Near-Threshold Dielectric Recombination Studies of Silicon-Like Ions

Ma, Ruoxi
Chemical and Paper Engineering
Travel
Hemicellulose Based Printable Films

MacNeill, Brian R.
Psychology
Research
Increasing Physical Activity within a Special Needs Young Adult Program

MacQuillian, Elizabeth L.
Interdisciplinary Health Sciences PhD
Travel
(1) Reducing poor birth outcomes among Medicaid-eligible black mothers: Using GIS Mapping to Evaluate and Target Nurse-Family Partnership Intervention. (2) Reduction of Poor Birth Outcomes and Infant Mortality Among Low-income Teen Mothers

Maddipati, Dinesh
Electrical and Computer Engineering
Research
Opto-Electrochemical Based Dual Detection of Glucose on Printed Paper Substrates

Madigamaya, Amila S.B.
Physics
Research
Crystallography and Magnetism of Magnetically Important Ni-Mn Based Heusler Alloys

Maher, Steffany L.
English
Travel
Responsibility, Creativity, and the Arts of Language: A Case Study in Adolescent Girls’ Responses to Young Adult Literature

*Maurer, Thomas J.
History
Research
The Libellus de Etermosyn: Pope Innocent III’s Social and Pastoral Concern for the Poor Muslims in the Early National Period

Mohammadi, Hossein
Mechanical and Aerospace Engineering
Travel
Micro-Laser Assisted Drilling of Single Crystal Silicon In Ductile Regime

Mohney, Gretchen L.
Interdisciplinary Health Sciences, PhD
Research
Synchronized Skating: An Investigation into Injury Incidence during the Training Year for the 2016 U.S. National Championships

Ohman, Abdullah G.S.
Geosciences
Travel
An Integrated Approach for the Assessment of the Natural and Anthropogenic Controls on Land Subsidence in the Kingdom of Saudi Arabia

*Ozeki, Satoshi
Interdisciplinary PhD in Evaluation
Travel
Contemporary Behavior Therapy and Japanese Monta Therapy: Shared Functional Core Features

Pankratz, Hannah G.
Geosciences
Travel
Integrated Approach for the Assessment of Land Deformation in the Jazan City and Surroundings, Saudi Arabia

*Pearce, Douglas S.
Biological Sciences
Travel
The Role of Environmental, Social, and Genetic Factors in Shaping the Microbiome of a Highly Diffluyct Bird

Peck, Kimberly M.
Psychology
Travel
The Effectiveness of Guided Notes on Post-Lecture Quiz Performance in College Students

Richards, Sarah E.
Biological Sciences
Travel
Cytoskeletal Regulation by Racgap1: Required for more than just Cytokinesis

*Rine, Matthew J.
Geosciences
Travel
A Regional Chemo- and Sequence Stratigraphic Study of Niagara-Lower Salina Reef Complexes in Michigan

*Rine, Matthew J.
Geosciences
Research
A regional chemo- and sequence stratigraphic study of Niagara-Lower Salina reef complexes in the Michigan Basin

Schoeder, Rachel L.
Sociology
Travel
On Knowing What is Not Knowable: The Epistemological Turn in Holocaust Studies from Adorno to Agamben

*Shaneberger, Jennifer J.
Political Science
Research
History, Memory, and Conflict Resolution: Through the Lens of Morocco and Western Sahara Conflict

Sheahan, Mackenzie W.
Special Education and Literacy
Research
Socio-linguistic theory and Literacy Practices

Shepherd, Rachel E.
Economics
Travel
The Effects of US Conventional and Unconventional Monetary Policy on Exchange Rate Volatility

Smith, Zachary T.
Comparative Religion
Travel
Sacrifice and Violence in Evangelical Theology and Atheism

Soto Ferrari, Milton R.
Industrial and Manufacturing Engineering
Travel
Data-driven Monitoring for Breast Cancer Treatment

Taylor, Marcia S.
Anthropology
Research
Alaska Native Artifacts: Eskimos and Aleuts of the Bering Sea Rhythm of the Sea Collection

VanDerMeer, Sarah M.
Geosciences
Travel
Surficial Mapping of Pictured Rocks National Lakeshore, Michigan

Wei, Wan
Economics
Travel
The Effects of US Conventional and Unconventional Monetary Policy on Exchange Rate Volatility

*Shipman, Jordan
Savannah
Travel
Womens and Murder

Smith, Jamie D.
Biological Sciences
Research
Does Urbanization Affect the Prevalence and Diversity of Blood Parasites in Birds?
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.
**EXTERNAL FUNDING**

**FISCAL YEAR EXPENDITURE RECIPIENTS**

**JULY 1, 2015 TO JUNE 30, 2016**

- **College of Arts and Sciences**: $7,749,606 (31.51%)
- **College of Aviation**: $235,525 (0.96%)
- **College of Education and Human Development**: $4,215,661 (17.14%)
- **College of Engineering and Applied Sciences**: $3,780,429 (15.37%)
- **College of Fine Arts**: $11,506 (0.05%)
- **College of Health and Human Services**: $3,277,736 (13.33%)
- **Haworth College of Business**: $152,701 (0.62%)
- **Lee Honors College**: $19,231 (0.08%)
- **Provost and Vice President for Academic Affairs**: $1,648,900 (6.71%)
- **The Graduate College**: $330,430 (1.34%)
- **Vice President for Business and Finance**: $344,692 (1.40%)
- **Vice President for Diversity and Inclusion**: $1,217,802 (4.95%)
- **Vice President for Research**: $1,520,092 (6.18%)
- **Vice President for Student Affairs**: $86,895 (0.35%)

**Total (as of June 30, 2016)**: $24,591,206 (100%)

**EXTERNAL FUNDING**

**FISCAL YEAR EXPENDITURE SOURCES**

**JULY 1, 2015 TO JUNE 30, 2016**

- **Federal**: $12,518,430 (50.91%)
- **State**: $2,609,505 (10.61%)
- **Local**: $157,151 (0.64%)
- **International**: $369,917 (1.50%)
- **Industry/Corporation**: $663,868 (2.70%)
- **Educational Institution**: $2,878,192 (11.70%)
- **Foundation**: $937,810 (3.81%)
- **Other**: $4,270,036 (17.36%)
- **WMU**: $186,297 (0.76%)

**Total (as of June 30, 2016)**: $24,591,206 (100%)

**DISTRIBUTION OF FACILITIES AND ADMINISTRATIVE FUNDS RECOVERED**

**JUNE 1, 2015 TO MAY 31, 2016**

- **Total Funds Recovered**: $3,900,770 (100%)
  - **Academic Units Research**: $1,560,308 (40%)
    - **Principal Investigators**: $390,077 (10%)
    - **Departments**: $390,077 (10%)
    - **College and Other Units**: $780,154 (20%)
  - **University Research Support**: $1,560,307 (40%)
    - **OVPR Research Support**: $1,170,231 (30%)
    - **Research Development**: $195,038 (5%)
    - **WMU Research Foundation**: $195,038 (5%)
  - **University Cost Recovery**: $780,154 (20%)
    - **General Fund**: $780,154 (20%)
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

All Faculty Publications from July 2010 to June 2015 by Academic year and Publication Type

July 2010 to June 2011, Total: 195
July 2011 to June 2012, Total: 233
July 2012 to June 2013, Total: 208
July 2013 to June 2014, Total: 218
July 2014 to June 2015, Total: 280
July 2015 to June 2016, Total: 283

med.wmich.edu/research/research-activities/publications
### EXTERNAL AWARDS TO FACULTY AND STAFF
(JULY 1, 2015 THROUGH JUNE 30, 2016)

Funding provided by government, foundations, and industry to support discovery at the University.

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Title</th>
<th>Funding Agency</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abudayyeh, Osama</td>
<td>Civil and Construction Engineering</td>
<td></td>
<td>Michigan Office of Highway Safety Planning</td>
<td>$26,987</td>
</tr>
<tr>
<td>Butt, Steven E.</td>
<td>Industrial and Entrepreneurial Engineering and Management</td>
<td></td>
<td></td>
<td>$1,238</td>
</tr>
<tr>
<td>Fredericks, Tycho K.</td>
<td>Industrial and Entrepreneurial Engineering and Management</td>
<td></td>
<td></td>
<td>$225,694</td>
</tr>
<tr>
<td>Abudayyeh, Osama</td>
<td>Civil and Construction Engineering</td>
<td></td>
<td></td>
<td>$50,000</td>
</tr>
<tr>
<td>Zandi</td>
<td>Electrical and Computer Engineering</td>
<td></td>
<td>National Science Foundation Foundation</td>
<td>$247,684</td>
</tr>
<tr>
<td>Beach, Andrea L.</td>
<td>Center for Research on Instructional Change in Postsecondary Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$11,579</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$20,088</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$18,800</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$16,000</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$15,600</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$15,345</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$13,392</td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td></td>
<td>Michigan Department of Health and Human Services</td>
<td>$11,579</td>
</tr>
</tbody>
</table>

CONTINUED ON PAGE 19
<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Amount</th>
<th>University/Agency</th>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td>$9,300</td>
<td>NORTH DAKOTA DEPARTMENT OF HEALTH</td>
<td></td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td>$8,250</td>
<td>STATE OF SOUTH DAKOTA</td>
<td></td>
</tr>
<tr>
<td>Bensley, Robert J.</td>
<td>Human Performance and Health Education</td>
<td>$3,720</td>
<td>NORTH DAKOTA DEPARTMENT OF HEALTH</td>
<td></td>
</tr>
<tr>
<td>Bush, Jonathan</td>
<td>English</td>
<td>$2,000</td>
<td>MEMORIAL LIBRARY</td>
<td></td>
</tr>
<tr>
<td>Buss, Jonathan</td>
<td>English</td>
<td>$600.00</td>
<td>MEMORIAL LIBRARY</td>
<td></td>
</tr>
<tr>
<td>Butt, Steven E.</td>
<td>Industrial and Entrepreneurial Engineering and Management</td>
<td>$20,000</td>
<td>HAWORTH, INC.</td>
<td></td>
</tr>
<tr>
<td>Frederick, Tycho K.</td>
<td>Industrial and Entrepreneurial Engineering and Management</td>
<td>$52,000</td>
<td>LUXEMBOURG NATIONAL RESEARCH FUND</td>
<td></td>
</tr>
<tr>
<td>Carr, Erika Ann</td>
<td>Enrollment Management</td>
<td>$257,500</td>
<td>STATE OF MICHIGAN WORKFORCE DEVELOPMENT AGENCY</td>
<td></td>
</tr>
<tr>
<td>Carr, Erika Ann</td>
<td>Enrollment Management</td>
<td>$90,030</td>
<td>MICHIGAN NONPROFIT ASSOCIATION</td>
<td></td>
</tr>
<tr>
<td>Carr, Steven</td>
<td>Computer Science</td>
<td>$15,000</td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Carr, Steven</td>
<td>Computer Science</td>
<td>$12,000</td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Carr, Steven</td>
<td>Computer Science</td>
<td>$12,000</td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Black-Pond, Connie</td>
<td>School of Social Work</td>
<td>$2,480</td>
<td>MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td></td>
</tr>
<tr>
<td>Bolar, Gordon M.</td>
<td>WMMK Radio</td>
<td>$139,729</td>
<td>CORPORATION FOR PUBLIC BROADCASTING</td>
<td></td>
</tr>
<tr>
<td>Brandao, Jose Antonio</td>
<td>History</td>
<td>$75,000</td>
<td>FREDERICK S. UPTON FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Bush, Jonathan</td>
<td>English</td>
<td>$2,000</td>
<td>MEMORIAL LIBRARY</td>
<td></td>
</tr>
<tr>
<td>Bush, Jonathan</td>
<td>English</td>
<td>$600.00</td>
<td>MEMORIAL LIBRARY</td>
<td></td>
</tr>
<tr>
<td>Ciccantelli, Laura R.</td>
<td>Academic Advising</td>
<td>$220,000</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td>Peake, Marcy Lynne</td>
<td>Academic Advising</td>
<td>$6,650</td>
<td>GEORGIA STATE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td>Coryn, Chris L.</td>
<td>Interdisciplinary Ph.D. in Evaluation</td>
<td>$121,200</td>
<td>GRAND VALLEY STATE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td>Applegate, Edward Brooks</td>
<td>Educational Leadership, Research and Technology</td>
<td>$14,832</td>
<td>KALAMAZOO PUBLIC LIBRARY</td>
<td></td>
</tr>
<tr>
<td>Schroeder, Daniela</td>
<td>The Evaluation Center</td>
<td>$33,800</td>
<td>INTERNATIONAL LABOR ORGANIZATION</td>
<td></td>
</tr>
<tr>
<td>Curtis, Amy B.</td>
<td>Center for Health Data Research, Analysis and Mapping</td>
<td>$195,121</td>
<td>U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td></td>
</tr>
<tr>
<td>Baker, Kathleen M.</td>
<td>Geography</td>
<td>$87,857</td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Curtis, Amy B.</td>
<td>Center for Health Data Research, Analysis and Mapping</td>
<td>$101,228</td>
<td>THE GRADUATE COLLEGE</td>
<td></td>
</tr>
<tr>
<td>Baker, Kathleen M.</td>
<td>Geography</td>
<td>$29,364</td>
<td>MICHIGAN FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Curtis, Amy B.</td>
<td>Center for Health Data Research, Analysis and Mapping</td>
<td>$101,228</td>
<td>THE GRADUATE COLLEGE</td>
<td></td>
</tr>
<tr>
<td>Baker, Kathleen M.</td>
<td>Geography</td>
<td>$34,948</td>
<td>BATTLE CREEK COMMUNITY FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Curtis, Amy B.</td>
<td>Center for Health Data Research, Analysis and Mapping</td>
<td>$29,364</td>
<td>WAYNE STATE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td>Curtis, Amy B.</td>
<td>Center for Health Data Research, Analysis and Mapping</td>
<td>$10,523</td>
<td>CALHOUN COUNTY PUBLIC HEALTH DEPARTMENT</td>
<td></td>
</tr>
<tr>
<td>Baker, Kathleen M.</td>
<td>Geography</td>
<td>$7,943</td>
<td>MICHIGAN FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Curtis, Amy B.</td>
<td>Center for Health Data Research, Analysis and Mapping</td>
<td>$15,000</td>
<td>KALAMAZOO COMMUNITY MENTAL HEALTH SERVICES</td>
<td></td>
</tr>
<tr>
<td>Dr. Carol Sundberg</td>
<td>Center for Disability Services</td>
<td>$53,700</td>
<td>KALAMAZOO COMMUNITY MENTAL HEALTH SERVICES</td>
<td></td>
</tr>
<tr>
<td>Dr. Carol Sundberg</td>
<td>Center for Disability Services</td>
<td>$563,069</td>
<td>KALAMAZOO COMMUNITY MENTAL HEALTH SERVICES</td>
<td></td>
</tr>
<tr>
<td>Duncan Lane, Crystal L.</td>
<td>Family and Consumer Sciences</td>
<td>$2,096</td>
<td>EASTERN ILLINOIS UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td>Ellis, Todd D.</td>
<td>Mallinson Institute for Science Education</td>
<td>$56,163</td>
<td>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</td>
<td></td>
</tr>
<tr>
<td>Ellis, Todd D.</td>
<td>Mallinson Institute for Science Education</td>
<td>$18,721</td>
<td>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</td>
<td></td>
</tr>
<tr>
<td>Ellis, Todd D.</td>
<td>Mallinson Institute for Science Education</td>
<td>$11,696</td>
<td>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</td>
<td></td>
</tr>
<tr>
<td>Eversole, Robert R.</td>
<td>Biological Sciences</td>
<td>$10,000</td>
<td>WESTERN MICHIGAN UNIVERSITY RESEARCH FOUNDATION</td>
<td></td>
</tr>
<tr>
<td>Farrer, Lori B.</td>
<td>Teaching, Learning and Educational Studies</td>
<td>$53,700</td>
<td>KALAMAZOO COMMUNITY MENTAL HEALTH SERVICES</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Department</td>
<td>Institution</td>
<td>Amount</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------------------</td>
<td>--------------------------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Flanne, Gregory A.</td>
<td>Speech Pathology and Audiology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$424,502</td>
<td></td>
</tr>
<tr>
<td>Tasko, Stephen M.</td>
<td>Speech Pathology and Audiology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$5,088</td>
<td></td>
</tr>
<tr>
<td>Garcia, Lisa R.</td>
<td>Haworth College of Business</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$60,000</td>
<td></td>
</tr>
<tr>
<td>Garcia, Lisa R.</td>
<td>Haworth College of Business</td>
<td>UNIVERSITY OF MICHIGIN</td>
<td>$5,088</td>
<td></td>
</tr>
<tr>
<td>Garza Mitchell, Regina</td>
<td>Speech Pathology and Audiology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$60,000</td>
<td></td>
</tr>
<tr>
<td>Beach, Andrea L.</td>
<td>Speech Pathology and Audiology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$46,186</td>
<td></td>
</tr>
<tr>
<td>Henderson, Charles R.</td>
<td>Psychology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$228,765</td>
<td></td>
</tr>
<tr>
<td>Horvitz, Brian S.</td>
<td>Educational Leadership, Research and Technology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$1,400</td>
<td></td>
</tr>
<tr>
<td>Gustafson, Peter A.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$34,879</td>
<td></td>
</tr>
<tr>
<td>Beach, Andrea L.</td>
<td>Center for Research on Instructional Change in Postsecondary Education</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$102,375</td>
<td></td>
</tr>
<tr>
<td>baked, Jonathan</td>
<td>Psychology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$109,369</td>
<td></td>
</tr>
<tr>
<td>Gustafson, Peter A.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$3,699</td>
<td></td>
</tr>
<tr>
<td>Grant, Janos L.</td>
<td>Electrical and Computer Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$2,8000</td>
<td></td>
</tr>
<tr>
<td>Abdel-Qader, Ikhlas</td>
<td>Electrical and Computer Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$1,400</td>
<td></td>
</tr>
<tr>
<td>Bathin, Bradley J.</td>
<td>Electrical and Computer Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$20,000</td>
<td></td>
</tr>
<tr>
<td>Hansford, Claudia M.</td>
<td>CAVIDS Center</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$102,375</td>
<td></td>
</tr>
<tr>
<td>Gustafson, Peter A.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$34,879</td>
<td></td>
</tr>
<tr>
<td>Hansford, Claudia M.</td>
<td>CAVIDS Center</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$102,375</td>
<td></td>
</tr>
<tr>
<td>ハンツフォード,クライシーティA.</td>
<td>CAVIDS Center</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$34,879</td>
<td></td>
</tr>
<tr>
<td>Hansen, John R.</td>
<td>Chemistry</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$10,262</td>
<td></td>
</tr>
<tr>
<td>Steinke, Jocelyn D.</td>
<td>School of Communication Science</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$28,251</td>
<td></td>
</tr>
<tr>
<td>Steinke, Jocelyn D.</td>
<td>School of Communication Science</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$28,251</td>
<td></td>
</tr>
<tr>
<td>Chung,firm, Peter A.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$27,471</td>
<td></td>
</tr>
<tr>
<td>Gupta, Ajay K.</td>
<td>Computer Science</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$27,471</td>
<td></td>
</tr>
<tr>
<td>Hasson, Wafa N.</td>
<td>World Languages and Literature</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$82,046</td>
<td></td>
</tr>
<tr>
<td>Hasson, Wafa N.</td>
<td>World Languages and Literature</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$3,699</td>
<td></td>
</tr>
<tr>
<td>Kim, Eric S.</td>
<td>Mechanical and Aerospace Engineering</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$20,000</td>
<td></td>
</tr>
<tr>
<td>Henderson, Charles R.</td>
<td>Education, Research and Technology</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$77,121</td>
<td></td>
</tr>
<tr>
<td>Henderson, Charles R.</td>
<td>Center for Research on Instructional Change in Postsecondary Education</td>
<td>UNIVERSITY OF MICHIGAN</td>
<td>$35,862</td>
<td></td>
</tr>
<tr>
<td>Henry, James A.</td>
<td>School of Social Work</td>
<td>UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td>$636,658</td>
<td></td>
</tr>
<tr>
<td>Black-Pond, Connie</td>
<td>United Clinics</td>
<td>UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td>$398,691</td>
<td></td>
</tr>
<tr>
<td>Richardson, Margaret</td>
<td>United Clinics</td>
<td>UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td>$199,369</td>
<td></td>
</tr>
<tr>
<td>Henry, James A.</td>
<td>School of Social Work</td>
<td>UNITED STATES DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td>$418,506</td>
<td></td>
</tr>
<tr>
<td>Hernandez, Diana</td>
<td>Division of Multicultural Affairs</td>
<td>UNITED STATES DEPARTMENT OF EDUCATION</td>
<td>$150,000</td>
<td></td>
</tr>
<tr>
<td>Hernandez, Diana</td>
<td>Division of Multicultural Affairs</td>
<td>UNITED STATES DEPARTMENT OF EDUCATION</td>
<td>$150,000</td>
<td></td>
</tr>
<tr>
<td>Hernandez, Diana</td>
<td>Division of Multicultural Affairs</td>
<td>UNITED STATES DEPARTMENT OF EDUCATION</td>
<td>$150,000</td>
<td></td>
</tr>
<tr>
<td>Hudson, Jennifer</td>
<td>Mechanical and Aerospace Engineering</td>
<td>UNITED STATES DEPARTMENT OF DEFENSE</td>
<td>$218,490</td>
<td></td>
</tr>
</tbody>
</table>
Hudson, Jennifer  
Mechanical and Aerospace Engineering  
U.S. DEPARTMENT OF DEFENSE  
$41,119

Hudson, Jennifer  
Mechanical and Aerospace Engineering  
FORD MOTOR COMPANY  
$40,000

Kayani, Asghar  
Physics  
ARGONNE NATIONAL LABORATORY  
$15,000

Kehew, Alan  
Geosciences  
$104,576

Kehew, Alan  
Geosciences  
$149,584

Kim, Dae Shik  
Blindness and Low Vision Studies  
U.S. DEPARTMENT OF EDUCATION  
$72,499

Kohler, Paula D.  
Vice President for Research  
UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE  
$423,105

Kohler, Paula D.  
Vice President for Research  
CALIFORNIA STATE UNIVERSITY-NORTHRIDGE  
$195,518

Kominz, Michelle  
Geosciences  
COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK  
$68,626

Kominz, Michelle  
Geosciences  
COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK  
$11,831

Koretzky, Carla M.  
Lee Honors College  
Biology  
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
$37,262

Korista, Kirk T.  
Space Telescope Science Institute  
$5,587

Kuersten, Ashlyn K.  
Sociology  
U.S. DEPARTMENT OF JUSTICE  
$418,099

Kwigizile, Valerian  
Civil and Construction Engineering  
Oh, Jun-Seok  
Civil and Construction Engineering  
Sun, Zhanbo  
Civil and Construction Engineering  
OPUS INTERNATIONAL CONSULTANTS INC.  
$56,183

Lee, Helen  
Blindness and Low Vision Studies  
U.S. DEPARTMENT OF EDUCATION  
$139,653

Lee, Tiffany  
Psychologist  
Counselor Education and Counseling Psychology  
BOWEN, DENISE J.  
Psychologist  
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
$185,124

Leja, James A.  
Blindness and Low Vision Studies  
MARQUETTE-ALGER REGIONAL EDUCATIONAL SERVICE AGENCY  
$125,000

Kwigizile, Valerian  
Civil and Construction Engineering  
Oh, Jun-Seok  
Civil and Construction Engineering  
Cho, Hyunkeun  
Statistics  
MICHIGAN DEPARTMENT OF TRANSPORTATION  
$161,802

Kwigizile, Valerian  
Civil and Construction Engineering  
Oh, Jun-Seok  
Civil and Construction Engineering  
Hudson, Jennifer  
Mechanical and Aerospace Engineering  
UTAH STATE UNIVERSITY RESEARCH FOUNDATION  
$55,000

Kwigizile, Valerian  
Civil and Construction Engineering  
Akamu, Abiola A.  
Civil and Construction Engineering  
Oh, Jun-Seok  
Civil and Construction Engineering  
MICHIGAN OFFICE OF HIGHWAY SAFETY PLANNING  
$99,542

Lindsay, Kathryn Gilbert  
Parent and Family Programs  
KALAMAZOO REGIONAL EDUCATIONAL SERVICE AGENCY  
$62,010

Liu, Tianshu  
Mechanical and Aerospace Engineering  
INNOVATIVE SCIENTIFIC SOLUTIONS, INC.  
$43,000

Mallak, Larry A.  
Engineering Design, Manufacturing and Management Systems  
Lyth, David M.  
Engineering Design, Manufacturing and Management Systems  
STRIKER MEDICAL  
$88,475

Malott, Richard W.  
Psychology  
KALAMAZOO REGIONAL EDUCATIONAL SERVICE AGENCY  
$133,294

Manley, Robert Adam  
Family and Consumer Sciences  
Zinser, Richard W.  
Family and Consumer Sciences  
MICHIGAN DEPARTMENT OF EDUCATION  
$10,000

Mansberger, Nancy B.  
Educational Leadership, Research and Technology  
Shen, Jianping  
Educational Leadership, Research and Technology  
Burt, Walter L.  
Educational Leadership, Research and Technology  
U.S. DEPARTMENT OF EDUCATION  
$1,033,974

McGrew, Timothy  
Philosophy  
UNIVERSITY OF OXFORD  
$47,748

Meade, David J.  
Industrial and Entrepreneurial Engineering and Engineering Management  
Patten, John A.  
Industrial and Entrepreneurial Engineering and Engineering Management  
VARIOUS INDUSTRIES  
$25,000

Means, Stephanie N.  
The Evaluation Center  
LITERACY CENTER OF WEST MICHIGAN  
$4,782

Meyer, Donald J.  
Economics  
THE W.E. UPJOHN INSTITUTE FOR EMPLOYMENT RESEARCH  
$6,000

Meyer, Richard T.  
Mechanical and Aerospace Engineering  
DENSO NORTH AMERICA FOUNDATION  
$252,400

Miller, Michael G.  
Human Performance and Health Education  
BRONSON ORTHOPEDIC AND SPORTS MEDICINE  
$4,200

Miller, Michael G.  
Human Performance and Health Education  
ALLEGAN GENERAL HOSPITAL  
$57,000

Miller, Michael G.  
Human Performance and Health Education  
BRONSON ORTHOPEDIC AND SPORTS MEDICINE  
$288,598

Mr. Shawn Mortimore  
Auxiliary Enterprises  
VARIOUS INDUSTRIES  
$307,271

Mr. Shawn Mortimore  
Auxiliary Enterprises  
VARIOUS INDUSTRIES  
$288,598

Mr. Shawn Mortimore  
Auxiliary Enterprises  
VARIOUS INDUSTRIES  
$37,897

Obare, Sherine O.  
Chemistry  
NATIONAL SCIENCE FOUNDATION  
$10,000

CONTINUED ON PAGE 22
<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Title</th>
<th>Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oh, Jun-Seok</td>
<td>Civil and Construction Engineering</td>
<td>$469,600</td>
</tr>
<tr>
<td>Abdudayeh, Osama</td>
<td>Civil and Construction Engineering</td>
<td></td>
</tr>
<tr>
<td>Kwigizile, Valerian</td>
<td>Civil and Construction Engineering</td>
<td></td>
</tr>
<tr>
<td>Kim, Dae Shik</td>
<td>Blindness and Low Vision Studies</td>
<td></td>
</tr>
<tr>
<td>Ofori-Amoah, Benjamin</td>
<td>Geography</td>
<td></td>
</tr>
<tr>
<td>Van Houten, Ron</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.S. DEPARTMENT OF TRANSPORTATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$4,184</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onicescu, Georgiana</td>
<td>Statistics</td>
<td>$17,999</td>
</tr>
<tr>
<td></td>
<td>MEDICAL UNIVERSITY OF SOUTH CAROLINA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parmther, Cecilia</td>
<td>Center for Academic Success Programs</td>
<td>$284,754</td>
</tr>
<tr>
<td></td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patten, John A.</td>
<td>Engineering Design, Manufacturing and Management Systems</td>
<td>$20,000</td>
</tr>
<tr>
<td></td>
<td>WESTERN MICHIGAN UNIVERSITY RESEARCH FOUNDATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patten, John A.</td>
<td>Industrial and Entrepreneurial Engineering and Business Management</td>
<td>$25,000</td>
</tr>
<tr>
<td>Bennett, David Clark</td>
<td>Vice President for Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNIVERSITY OF MICHIGAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patten, John A.</td>
<td>Industrial and Entrepreneurial Engineering and Business Management</td>
<td>$12,000</td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patten, John A.</td>
<td>Industrial and Entrepreneurial Engineering and Business Management</td>
<td>$6,000</td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petcovic, Heather L.</td>
<td>Mallinson Institute for Science Education</td>
<td></td>
</tr>
<tr>
<td>Rudge, David W</td>
<td>Biological Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN TECHNOLOGICAL UNIVERSITY</td>
<td>$39,814</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peterson, Stephanie M.</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td>Fieder, Jessica E.</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td>Fuqua, Wayne R.</td>
<td>Biological Sciences</td>
<td></td>
</tr>
<tr>
<td>Poling, Alan D.</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN DEPARTMENT OF HEALTH AND HUMAN SERVICES</td>
<td>$350,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peterson, Stephanie M.</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KALAMAZOO COMMUNITY MENTAL HEALTH SERVICES</td>
<td>$61,843</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piazza, Susan V.</td>
<td>Special Education and Literacy Studies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pizzi, James</td>
<td>Biology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN DEPARTMENT OF TRANSPORTATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$7,760</td>
</tr>
<tr>
<td>Prieto, Diana M.</td>
<td>Industrial and Entrepreneurial Engineering and Business Management</td>
<td>$76,500</td>
</tr>
<tr>
<td>DeDoncker, Elise</td>
<td>Computer Science</td>
<td></td>
</tr>
<tr>
<td>Paul, Rajib</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td>$199,646</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramrattan, Sam N.</td>
<td>Engineering Design, Manufacturing and Management Systems</td>
<td>$60,000</td>
</tr>
<tr>
<td></td>
<td>SINOTOGOOG, LTD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramrattan, Sam N.</td>
<td>Engineering Design, Manufacturing and Management Systems</td>
<td>$2,000</td>
</tr>
<tr>
<td></td>
<td>SINTOKOGIO, LTD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight, Bilinda</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td>$74,139</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suarez, Michelle A.</td>
<td>Occupational Therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BLUE CROSS BLUE SHIELD OF MICHIGAN FOUNDATION</td>
<td>$56,282</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sultan, Mohamed</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td>Ahmed, Muhammad O.</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAUDI GEOLOGICAL SURVEY (SGS)</td>
<td>$100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sultan, Mohamed</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION</td>
<td>$65,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schloer, Wolfgang F.</td>
<td>Researcher for International Studies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CONFLUENT INSTITUTE HEADQUARTERS</td>
<td>$100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schulman, Jana K.</td>
<td>Medieval Institute</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL ENDOWMENT FOR THE HUMANITIES</td>
<td>$180,420</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spectroscopy, James B.</td>
<td>Chemical Engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td>$799,665</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spybrook, Jessica K.</td>
<td>Educational Leadership, Research and Technology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNIVERSITY OF ARIZONA</td>
<td>$45,672</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spybrook, Jessica K.</td>
<td>Educational Leadership, Research and Technology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SOCIETY FOR RESEARCH ON EDUCATIONAL EFFECTIVENESS</td>
<td>$67,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stapleton, Susan R.</td>
<td>The Graduate College</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td>$93,988</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stapleton, Susan R.</td>
<td>The Graduate College</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td>$2,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sydlik, Mary Anne</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td>Everett, Kristin</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$38,206</td>
</tr>
<tr>
<td>Sydlik, Mary Anne</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td>Ruhf, Robert J.</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$30,563</td>
</tr>
<tr>
<td>Sydlik, Mary Anne</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td>Everett, Kristin</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$30,280</td>
</tr>
<tr>
<td>Sydlik, Mary Anne</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td>Everett, Kristin</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$30,000</td>
</tr>
<tr>
<td>Sydlik, Mary Anne</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td>Everett, Kristin</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$29,556</td>
</tr>
<tr>
<td>Sydlik, Mary Anne</td>
<td>Anthropology</td>
<td></td>
</tr>
<tr>
<td>Everett, Kristin</td>
<td>U.S. DEPARTMENT OF EDUCATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$15,828</td>
</tr>
</tbody>
</table>

CONTINUED ON PAGE 23
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydlik, Maryanne</td>
<td>SAMPI</td>
<td>$9,000</td>
</tr>
<tr>
<td>Ruhf, Robert J.</td>
<td>Mallinson Institute for Science Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN TECHNOLOGICAL UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$9,000</td>
<td></td>
</tr>
<tr>
<td>Sydlik, Maryanne</td>
<td>SAMPI</td>
<td></td>
</tr>
<tr>
<td>Ruhf, Robert J.</td>
<td>SAMPI</td>
<td>$6,074</td>
</tr>
<tr>
<td></td>
<td>MICHIGAN STATE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$6,074</td>
<td></td>
</tr>
<tr>
<td>Tanis, John A.</td>
<td>Physics</td>
<td></td>
</tr>
<tr>
<td>Kayani, Asghar</td>
<td>Physics</td>
<td>$48,304</td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$48,304</td>
<td></td>
</tr>
<tr>
<td>Tenney, Shawn L.</td>
<td>Center for Academic Success Programs</td>
<td></td>
</tr>
<tr>
<td>Gogan, Brian James</td>
<td>English</td>
<td>$4,968</td>
</tr>
<tr>
<td></td>
<td>MICHIGAN CAMPUS COMPACT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$4,968</td>
<td></td>
</tr>
<tr>
<td>Thompson, Raymond</td>
<td>College of Aviation</td>
<td></td>
</tr>
<tr>
<td>Nicolai, Dominic</td>
<td>College of Aviation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GENERAL ELECTRIC COMPANY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GE AVIATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$11,336</td>
<td></td>
</tr>
<tr>
<td>Van Houten, Ron</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN DEPARTMENT OF TRANSPORTATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$24,000</td>
<td></td>
</tr>
<tr>
<td>Van Houten, Ron</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNIVERSITY OF MINNESOTA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$16,740</td>
<td></td>
</tr>
<tr>
<td>VanZoest, Laura R.</td>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KALAMAZOO REGIONAL EDUCATIONAL SERVICE AGENCY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$6,368</td>
<td></td>
</tr>
<tr>
<td>Venter, Andre</td>
<td>Chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NATIONAL SCIENCE FOUNDATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$298,602</td>
<td></td>
</tr>
<tr>
<td>Wall Emerson, Robert</td>
<td>School of Interdisciplinary Health Programs</td>
<td></td>
</tr>
<tr>
<td>Shawn</td>
<td>SCHOOL OF INTERDISCIPLINARY HEALTH PROGRAMS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WAYNE STATE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$208,272</td>
<td></td>
</tr>
<tr>
<td>Wertkin, Robert A.</td>
<td>School of Interdisciplinary Health Programs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WAYNE STATE UNIVERSITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$22,487</td>
<td></td>
</tr>
<tr>
<td>Way, Ineke F.</td>
<td>School of Social Work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RESEARCH FOUNDATION OF THE CITY UNIVERSITY OF NEW YORK</td>
<td>$9,012</td>
</tr>
<tr>
<td>Wingate, Lori A.</td>
<td>The Evaluation Center</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNIVERSITY OF WISCONSIN-MADISON INSTITUTE FOR RESEARCH ON POVERTY</td>
<td>$15,469</td>
</tr>
<tr>
<td>Wingate, Lori A.</td>
<td>The Evaluation Center</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CENTERS FOR DISEASE CONTROL AND PREVENTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$9,291</td>
<td></td>
</tr>
<tr>
<td>Yellich, John</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td>Harrison III, William B.</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$121,800</td>
<td></td>
</tr>
<tr>
<td>Kehe, Alan</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$121,800</td>
<td></td>
</tr>
<tr>
<td>Yellich, John</td>
<td>Geosciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$22,000</td>
<td></td>
</tr>
</tbody>
</table>
Matthew Rine  
Sponsor: Dr. Steven Kaczmarek  
Geosciences  
The Importance of Geologic Study for the Application of Carbon Capture and Storage (CCS) in Otsego County, Michigan

Mark Webster  
Sponsor: Dr. Silvia Rossbach  
Biological Sciences  
Proliferation of Retinal Neurons in a Mammalian Model

Abduljaleel Al-Hasnawi  
Sponsor: Dr. Steven Carr  
Computer Science  
The Level of Polyaromatic Hydrocarbon Contamination on the Kalamazoo River Shoreline Remains High Following the 2010 Enbridge Oil Spill

Ahmed Almulihi  
Sponsor: Dr. Steven Carr  
Computer Science  
High Performance Bayesian Applications in Medical, Economics and Climate Sciences

Amean Shareaf Ghazi Al-Safi  
Sponsor: Dr. Steve Durbin  
Electrical and Computer Engineering  
Implementation of Software Community Radio Using Low Cost Resources

Taylor Birkholz  
Sponsor: Dr. Silvia Rossbach  
Biological Sciences  
Planarian ‘Vision’: A Combination of Ocular and Dermal Phototransduction

Joanna Dickens  
Sponsor: Dr. Silvia Rossbach  
Biological Sciences  
Plasticity of Mitral Cell Dendritic Morphology in the Adult Zebrafish Olfactory Bulb Following Chemical Deafferentation

Abotalib Farag  
Sponsor: Dr. Mohamed Sultan  
Geosciences  
Evidence for Recent Spring Activity on Mars

Janice Marie Fulford  
Sponsor: Dr. David Rudge  
Science Education  
The Impact of a Story-Based Lesson on Student Learning and Attitudes

Joshua Teo Lee Kuok  
Sponsor: Dr. Dan Kujawski  
Mechanical Engineering  
An Interactive Web-based Tool for Fatigue Analysis and Life Prediction

Daniel Abraham Mengistu  
Sponsor: Dr. Susan Pozo  
Economics  
An Improved Technique to Study a Hidden Immigrant Population

Zachariah Oaster  
Sponsor: Dr. Zoann Snyder  
Sociology  
Neoliberal and Neconservatives: A Conservative Coin Standing on Edge over the Same-sex Marriage Question

Pimam Manzi Pidalatan  
Sponsor: Dr. Susan Pozo  
Economics  
Foreign Schooling Experience and Its Impact on Educational Outcomes and Aspirations: The Case of Children of Immigrants

Simon Purdy  
Sponsor: Dr. Zoann Snyder  
Sociology  
Can You Help Me Now? The Effects of Cell Phone Use on Social Capital Formation

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 IP Management and Commercialization Faculty Advisory Committee awarded four proposals for 2016.

Chapleau, Ann  
Occupational Therapy  
Goal Attainment Scaling: A Mobile App  
$10,000

Eversole, Rob  
Biological Sciences  
$10,000

Gustafson, Peter  
Mechanical and Aerospace Engineering  
The NeoVent: Development of Low Cost, Alternative Respiratory Care Devices  
$20,000

Patten, John  
Industrial and Manufacturing Engineering  
Laster Augmented Diamond Drilling (LADD)  
$20,000
**FACULTY RESEARCH AND CREATIVE ACTIVITIES RECIPIENTS, 2015-16***

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. 2016; period of award funding is July 2016 through June 30, 2017.

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Project Description</th>
<th>Award Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adkison-Johnson, Carla</td>
<td>Counselor Education and Counselor Psychology</td>
<td>Parenting Counseling Group: The African American Child Discipline Project</td>
<td>$9,300</td>
</tr>
<tr>
<td>Ari-Gur, Pnina</td>
<td>Mechanical and Aerospace Engineering</td>
<td>Energy Harvesting Power for the Smart White Cane</td>
<td>$9,900</td>
</tr>
<tr>
<td>Bloom, Devin</td>
<td>Biological Science, Environmental and Sustainability Studies</td>
<td>Do habits shift drive rapid evolution in fishes?</td>
<td>$9,985</td>
</tr>
<tr>
<td>Bondarchuk, Karen</td>
<td>Frostic School of Art</td>
<td>Nightingales and Bombers: Reframing the Sacred and Profane</td>
<td>$10,000</td>
</tr>
<tr>
<td>Echeverria, Patricia</td>
<td>Frostic School of Art</td>
<td>Villalobos: Transport, Displacement, and Memory</td>
<td>$9,765</td>
</tr>
<tr>
<td>Ellis, Todd</td>
<td>Mallinson Institute for Science Education and Geography</td>
<td>Using GLOBE to Forge STEM Education Partnerships</td>
<td>$9,369</td>
</tr>
<tr>
<td>Gill, Sharon</td>
<td>Biological Sciences</td>
<td>Exploring and conserving soundscapes at local nature preserves</td>
<td>$9,952</td>
</tr>
<tr>
<td>Keole, Denise</td>
<td>Political Science, Environmental and Sustainability Studies</td>
<td>Climate Change Litigation, Policy, and Governance</td>
<td>$9,974</td>
</tr>
<tr>
<td>Lawoti, Mahendra</td>
<td>Political Science</td>
<td>Diversity, Developing Countries, and Democracy</td>
<td>$9,620</td>
</tr>
<tr>
<td>Levin, Mariana</td>
<td>Mathematics</td>
<td>The Transition to Proof: A National Portrait of Instructional Approaches</td>
<td>$9,850</td>
</tr>
<tr>
<td>Lu, Yan</td>
<td>Biological Sciences</td>
<td>Functions of a Zinc-Finger Protein in High Light Tolerance</td>
<td>$9,762</td>
</tr>
<tr>
<td>Meyer, Rick</td>
<td>Mechanical and Aerospace Engineering</td>
<td>Powered Wheelchair Human Operator Modeling and Tremor Filtering</td>
<td>$10,000</td>
</tr>
<tr>
<td>Mo, Yirong</td>
<td>Chemistry</td>
<td>Intermolecular Energy Analysis</td>
<td>$10,000</td>
</tr>
<tr>
<td>Mondala, Andro</td>
<td>Chemical and Paper Engineering</td>
<td>Fungal Bioextraction of Phosphorus from Runoff Particulates</td>
<td>$9,992</td>
</tr>
<tr>
<td>Paulius, Lisa</td>
<td>Physics</td>
<td>Compound Defects in High Temperature Superconductors</td>
<td>$10,000</td>
</tr>
<tr>
<td>Sawalha, Lina</td>
<td>Electrical and Computer Engineering</td>
<td>High-Performance Energy-Efficient Heterogeneous Processor Architectures</td>
<td>$10,000</td>
</tr>
<tr>
<td>Springstead, James</td>
<td>Chemical and Paper Engineering</td>
<td>Correlation of Lipoprotein Size with Critical Physiological and Transport Properties</td>
<td>$10,000</td>
</tr>
<tr>
<td>Wallace, Luchara</td>
<td>Special Education and Literacy Studies</td>
<td>Developing Suspension Alternatives for At-Risk Middle School Students</td>
<td>$10,000</td>
</tr>
<tr>
<td>Yao, Jian</td>
<td>Biological Sciences</td>
<td>The role of PUB25/26 in regulating the crosstalk between jasmonate and innate immunity signaling pathways</td>
<td>$10,000</td>
</tr>
</tbody>
</table>
WMU
CENTERS AND INSTITUTES*

*Submitting annual reports to the Office of the Vice President for Research.

College of Engineering and Applied Science
Center for Advanced Smart Sensor and Systems
Center for Advanced Vehicle Design and Simulation
Center for Advancement of Printed Electronics
Center for Coating Development Center for Excellence in Engineering Education
Human Performance Institute
Center for Information Technology and Image Analysis
Center for Ink and Printability
Center for Integrated Design
Manufacturing Research Center
Center for Recycling Technology
Transportation Research Center for Livable Communities

College of Arts and Sciences
Center for African Development Policy Research
Rawlinson Center for Anglo-Saxon Studies and Manuscript Research
Biological Imaging Center
Light Center for Chinese Studies
Center for Cistercian and Monastic Studies
Great Lakes Center for Environmental and Molecular Sciences
Center for the Study of Ethics in Society
Upjohn Center for the Study of Geographical Change
University Center for the Humanities
Medieval Institute
Michigan Geological Repository for Research and Education
Science and Mathematics Program Improvement (SAMPI)
Mallinson Institute for Science Studies
Kercher Center for Social Research
Soga Japan Center

Haworth College of Business
Center for Entrepreneurship and Innovation
Global Business Center
Center for Health Information Technology Advancement (with the College of Health and Human Services)
Center for Sustainable Business

College of Education and Human Development
National Research Center for Grandparents Raising Grandchildren

College of Health and Human Services
Center for Disability Services
Center for Gerontology
Center for Health Information Technology Advancement (with the Haworth College of Business)
Center for Health Data Research, Analysis and Mapping
Center for Foster Success Center
University-Community Empowerment Center

Office of the Provost and Vice President for Academic Affairs
Center for Research on Instructional Change in Postsecondary Education
Haenicke Institute for Global Education (includes the Confucius Institute and the Center for English Language and Culture for International Students)
Walker Institute for the Study of Race and Ethnic Relations

Office of the Vice President for Research
Biosciences Research and Commercialization Center
Evaluation Center
National Secondary Transition Technical Assistance Center
To learn more about WMU research or how to expand your participation, visit wmich.edu/research or contact us directly. Or for information on commercialization opportunities, visit wmurf.org.

Daniel M. Litynski  
Vice President for Research  
(269) 387-8294  
dan.litynski@wmich.edu

Sherine Obare  
Associate Vice President for Research  
(269) 387-8283  
sherine.obare@wmich.edu

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.

Editor  
Diana Berkshire Hearit  
diana.hearit@wmich.edu

Editorial intern  
Jill C. Puckett

News source  
University Relations

Designer  
Madeleine Lakatos Fojtik

Photography  
Mike Lanka  
Rhino Media