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OFFICE OF VICE PRESIDENT FOR RESEARCH

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OVPR VISION AND MISSION

VISION: TO BE A LEADER AND CATALYST FOR SCHOLARSHIP EXCELLENCE

MISSION: THE OFFICE OF THE VICE PRESIDENT FOR RESEARCH ADVANCES THE OVERALL SCHOLARSHIP AGENDA OF THE UNIVERSITY; SUPPORTS THE SCHOLARSHIP INITIATIVES OF WMU FACULTY, STUDENTS AND STAFF; AND ASSURES COMPLIANCE WITH ALL APPROPRIATE FEDERAL AND STATE REGULATIONS.

WWW.WMICH.EDU/RESEARCH

UPDATES

Associate Vice President for Research: It is a season of thanksgiving, and we are thankful that Dr. Sherine O. Obare, professor of chemistry & interim associate dean of Western's College of Arts and Sciences, has agreed to join OVPR as the WMU associate vice president for research effective Dec. 1. Dr. Obare is the perfect fit for this leadership role. She is a seasoned and extraordinarily successful researcher with a strong administrative background who loves to mentor students and others.

Dr. Obare has been extremely successful obtaining external funding and collaborating internationally in research. She received more than $4.5 million in external funding for her work on developing materials for the detection and remediation of biological and chemical pollutants and understanding the environmental and health hazards of emerging materials. She has also focused on improving education in the chemical sciences.

Sherine has served as acting director of the Africana Studies Program and associate chair and graduate advisor for the Department of Chemistry. She was instrumental in developing WMU's Gateway to Completion Program that was designed to improve student retention, especially in the STEM disciplines. She served as co-director of a three-year Bridges to Baccalaureate program sponsored by the National Institutes of Health and aimed at recruiting and training underrepresented students from community colleges to study in the biomedical and behavioral sciences.

Her awards include a 2006 NSF CAREER award, the 2009 George Washington Carver Teaching Excellence Award, the 2009 International Union of Pure and Applied Chemistry Young Observer Award, the 2010 American Competiveness and Innovation Award from the NSF's Division of Materials Research, and the 2010 Lloyd Ferguson Young Investigator Award. In 2013, she was named one of the top 25 women professors in the state by Online Schools Michigan.

We look forward to working with Sherine; her innovation and dedication will produce great things.

The world is discovering you through WMU Discovery Experts: WMU Discovery Experts is now powered by Pure, Scopus, & the Elsevier Fingerprint Engine. It is a searchable database of faculty expertise that links through a central portal to the other Michigan Research Universities. Discover WMU's capacity and expertise by searching for specific individuals or by topic. Access to this information also enables you to identify other experts for collaboration. The database can include your publications, creative activities, products, teaching experience, externally funded projects, service areas, and other forms of scholarship. Many are loaded automatically. It will also push funding opportunities to you based on your fingerprint and can provide templates for CV's and resumes in different formats. Go the OVPR homepage, or login: https://wmich.pure.elsevier.com/. Discover Western Michigan University!

Spring Convocation 2017: Save the Date for Spring Convocation Feb 17. Enjoy *Share the Story: Scholar Talks* and additional talks by this year's Distinguished Scholars; congratulate the top recipients of external funding for the past five years; and then celebrate awards recognizing discovery, diversity, and global engagement.

Annual Research Report 2016, delivered in mid December, honors all those whose scholarly work was recognized by others to receive awards and external funding.

January 2017 Internal Funding deadlines: Jan. 20, FRACAA (contact John Risley); Jan. 31, SFSA & URE (contact Melanie Greer).

~Dan Litynski, Vice President for Research

GRANT PUTS RARE LATIN MANUSCRIPT INTO SPECIAL COLLECTIONS AND RARE BOOK DEPARTMENT

A rare 12th-century manuscript that is a copy of a work first produced some 300 years earlier is now at home in Western Michigan University's Special Collections and Rare Book Department, thanks to a grant from the New York City-based B.H. Breslauer Foundation.

Written in northern France between 831 and 833, the original text was the work of Paschasius Radbertus, a Benedictine abbot later made a saint by Pope Gregory VII. It is an Instructional text about the Eucharist for Benedictine monks.

The manuscript's Latin title is "De Corpore et Sanguine Domini," which means "On the Body and Blood of the Lord." The influential writing was widely disseminated during the Middle Ages and was considered groundbreaking and controversial in its argument for the Eucharist transforming into the body and blood of Christ.

Teaching and research significance

Purchased using both endowed funds for the rare book collection and a $70,000 grant from the Breslauer Foundation, the small 12th-century manuscript is expected to play a major role in graduate and undergraduate teaching and research at WMU. The University is home to an internationally known Medieval Institute as well as two renowned research centers—the Richard Rawlinson Center for Anglo-Saxon Studies and Manuscript Research and the Center for Cistercian and Monastic Studies.

The manuscript arrived on campus Oct. 20 and is now at home in WMU's Waldo Library, says Dr. Susan Steuer, head of the Special Collections and Rare Book Department. It will be exhibited only occasionally, she says, because of the toll exhibition can take on these artifacts.

"The manuscript will be used primarily for research and teaching," Steuer says, noting that library staff will digitize the work to extend access to the manuscript even more widely. "There are still things you need to see in their original physical form to fully understand. We're grateful to the Breslauer Foundation for helping us add this important piece to our collection and expanding our ability to serve the communities interested in this significant work."

Steuer says the new manuscript will become a pillar of the medieval manuscript collection, and it is of interest because it represents some typical features of manuscripts of its date, but also because it has a number of unusual characteristics, such as its small size—about 3 by 4.5 inches—and the author's citation of sources. The small size, Steuer says, reflects the fact it was meant as a tool for individual study, rather than the kind of group use that was the purpose of some larger medieval manuscripts.

campus as a tool for a graduate seminar in medieval studies she teaches. That seminar includes master's students in medieval studies as well as master's and doctoral students in history, English and other disciplines. They will be able to compare the WMU manuscript with others from the era that are available online, giving the WMU students a meaningful experience in working with a text that provided a foundation for medieval studies scholarship.

Both Steuer and Teviotdale expect the newly acquired manuscript to draw attention at WMU's annual International Congress on Medieval Studies, the world's largest gathering of medieval scholars, which is held each May at WMU. For the May 2017 congress, the manuscript will be on display in Waldo Library's Meader Rare Book Room. The text may become the focus of future congress sessions.

"This is now our earliest complete text, and it is transformational for our collection," Teviotdale says. "It is an acquisition that will be of interest far beyond our walls."

B.H. Breslauer Foundation

The Breslauer Foundation, which made the WMU acquisition possible, focuses on giving grants to libraries and not-for-profit institutions that collect rare books and manuscripts that will be housed in the United States. They also make grants to U.S. affiliates of foreign institutions.

Special Collections and Rare Book Department

Located on the third floor of Dwight B. Waldo Library, Special Collections is one of the repositories of primary resources and research materials in the WMU Libraries. It has more than 41,000 books. There are about 40 medieval manuscripts, modern and early modern printed editions, archives of modern writers, and fine press edition books. The holdings are organized into different research collections, emphasizing Cistercian and monastic studies, medieval studies, American women's poetry, historical children's books, pop-up and movable books, 19th- and 20th-century literature, fine printing and artists' books.
For more information on WMU's Special Collections, visit wmich.edu/library/collections/waldo/special.

Source: University News

RESEARCHER EARNS NASA FELLOWSHIP

Figuring out how the weather on Earth works is difficult enough. Now try deciphering atmospheric processes hundreds of millions of miles away on Jupiter, Saturn, Uranus and Neptune—the solar system's giant gas planets.

Shawn R. Brueshaber, a doctoral candidate at Western Michigan University, is trying to do just that, and his efforts earned him a NASA Earth and Space Science Fellowship. Brueshaber is one of only 28 applicants to be awarded a $30,000 award for 2016-17 from the fellowship's planetary science research division.

He's investigating polar vortices, large patches of air circulating near the pole. These circulations are sometimes bounded by a jet stream and tend to change shape over time, just as the Earth's polar vortex did in January 2014 when it plunged a broad area of Canada and the United States into a bitter deep freeze.

Profs provide extra support

Receiving the fellowship is a coup for the veteran engineer, who's taught thermodynamics, materials science and graduate -level fluid mechanics at WMU and earned a bachelor's degree in aerospace engineering from Embry-Riddle Aeronautical University and a master's degree in mechanical engineering from WMU.

During the past two decades, he's worked for several Michigan companies in a variety of roles—none of them related to weather or astronomy. But he's been fascinated by these subjects since childhood, and while gaining professional expertise in fluid mechanics, computational software and other traditional aspects of engineering, he kept studying and reading about them.

"I decided that after I finished the coursework for my Doctor of Philosophy in mechanical engineering, I wanted to study something of serious interest to me," he says. "My engineering background and self-study of weather and astronomy were good fits for a research topic using computational methods."

So, for his doctoral dissertation titled "Accumulation of Polar Vorticity in a Forced-Turbulence 3D Model," Brueshaber chose to investigate polar vortices on the solar system's gas planets. But it took extra support from his dissertation committee members to make such a project viable.

When he began work on his dissertation, WMU didn't have an academic department or program that focused on weather, climate or planetary studies. It also didn't have a related research lab or team that he could join. Undaunted, his doctoral committee chair, Dr. William Liou, worked with Brueshaber to meld his engineering skills with his personal interests.

Liou and fellow committee member Dr. Tianshu Liu, both professors of mechanical and aerospace engineering at WMU, also happened to know working planetary science and atmosphere researchers at other universities. In fact, Liu introduced Brueshaber to Dr. Kunio Sayanagi, assistant professor of atmospheric and planetary sciences at Hampton University, who's now on his doctoral committee and works closely with him on his research.

"The motion of fluids ranging from the very small to the very large—like an atmosphere—is governed by physical laws and fairly well understood. But the turbulent nature of fluids is the last remaining branch of classical physics that still defies a complete understanding," Brueshaber says. "WMU's mechanical and aerospace department understood that there was a nice connection between computational methods and weather if we could find the right folks to help out, and we did. I give a lot of credit to Drs. Liou and Liu for being willing to help in this endeavor, and to Dr. Sayanagi."

Enigmas still stymie scientists

Armed with his NASA fellowship funding, Brueshaber is continuing to delve into what influences a polar vortex. He notes that the research fits with NASA's interest in expanding both basic and applied science about atmospheric phenomena on Earth and all other planets.

Brueshaber says polar vortices are seen on Earth, Mars and Venus, our terrestrial worlds, as well as Saturn's moon Titan, which is the only moon in the solar system with a thick atmosphere. Except for Venus, they're seasonal features that come in the fall and winter and disappear in the spring. Polar vortices are harder to understand on Jupiter, Saturn, Uranus and Neptune, which he says are really just big balls of fluids.

"Turbulence is one of those problems in physics, engineering and meteorology that doesn't have a comprehensive theory yet. We can make some remarkable and accurate predictions of atmospheric motion and fluid motion in engineering devices such as pumps, airplane wings and heat exchangers, but we're still a bit in the dark on a comprehensive understanding," Brueshaber says. "Turbulence plays very much into the mechanisms behind the formation of vortices, storms and jet streams. By studying the giant planets, we learn about weather and climate without a lot of complicating factors. There are no mountains, no oceans, no land or ice caps. In some ways, they're simpler than our world."

Still, Brueshaber says, that doesn't mean gas planets are well understood. For instance, scientists learned this past summer that Jupiter doesn't have a polar vortex at all. Saturn, on the other hand, has a vortex at both the north and south poles but unlike any others known to date, these vortices remain even when the seasons change. Meanwhile, Neptune has a vortex at its south pole, but it changes shape for unknown reasons.

Source: University News

DISCOVER DISCOVERY WORKSHOPS

OVPR, partnering with the Office of Faculty Development, will continue its year-long series of workshops designed to orient faculty to the research enterprise. The series spans fall and spring semesters; new faculty as well as veteran faculty are invited to attend these workshops. Registration is required so lunch can be provided.

Held bi-weekly at the Fetzer Center, 12:30-1:45 p.m., the research series highlight the discovery activities and external funding by which to support those efforts.

Registration is available at wmich.edu/research. Here's a look ahead to the offerings for next semester.

Spring 2017 workshops:

- *Students in research — at a university?? You don't say . . .* — January 24
- *Yes, they are talking about you behind your back. What do grant proposal reviewers really think?* — February 7
- *Project evaluation — sponsors want bang for their buck!* — February 21
- *International research and contracts and IP, oh my!* — March 21
- *That's a wrap!* — April 4

SPRING CONVOCATION—FEB. 17, 2017

FACITITIES & ADMINISTRATIVE COST RATES (F&A)

The work of WMU faculty, staff, and students on externally-funded projects includes direct and indirect costs. Direct project costs are usually straightforward and easily attributed to a specific project. Indirect costs, termed Facilities and Administrative Costs (F&A), are also real costs that are essential for a project's implementation, but would take much time by faculty and staff to attribute and track in relation to specific projects.

F&A costs include such expenses as research space and equipment, utilities, custodial services, security, payroll, purchasing, fiscal management and tracking, and department administration. To relieve the burden on researchers, F&A costs are agreed upon through formal negotiations every four years with our cognizant agency, the U.S. Department of Health and Human Services. They are based upon data presented by the University via a cost analysis and are expressed as a percentage of total direct costs minus exclusions.

Having such a rate helps the university reduce the costs of having to determine how much of these resources each individual project uses or consumes. The current rate is 51% of modified direct costs.

Project budgets are required to include full recovery of F&A costs at the appropriate negotiated rate. More information about specific rates and F&A policies are available on the OVPR website (www.wmich.edu/research/policies/proposalsubmit).

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A complete list of constituency areas is posted at wmich.edu/research

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