COLLEGE OF ENGINEERING

COLLEGE HAPPENINGS

October 18, 2022

IN THE NEWS

NDSU faculty member to give UAS Expo presentation

Engineering staff members earn awards

College of Engineering honors research excellence

NDSU College of Engineering faculty earn teaching awards

NDSU faculty member to give presentation on electric vehicle charging station cybersecurity

NDSU offers course for drone pilots

NDSU to offer software engineering major

NDSU team finishes second at cybersecurity competition

College of Engineering celebrates scholarship recipients and donors

NDSU receives $14 million grant for Great Plains Innovation Hub

CONGRATULATIONS

Please let *College Happenings* know about honors, awards, new grants and other announcements so we can share them with other faculty and staff.

UPCOMING EVENTS

Thursday, October 20 and Friday, October 21, **Discover NDSU**. Discover NDSU is our largest visit event of the year. There will be hundreds of prospective students and their families on campus, please help them feel welcome and show them a wonderful NDSU Experience!

Wednesday, October 26, **Academic Leaders Series: Working with Distressed Students**. This workshop will identify some of the common concerns our students face and the key resources that are in place to provide assistance, support, and advocacy. 3:00 – 4:00 p.m. on Zoom.

Friday, December 16, **2022 Winter Commencement**. The ceremony for the College of Engineering will be held at 2:00 p.m. at the SHAC. Faculty and staff who wish to participate in the academic processional along with our graduation class will wear caps and gowns. Register here: http://www.ndsu.edu/commencement/facstaff/

NSF VIRTUAL GRANTS CONFERENCE

Join the National Science Foundation for the 2022 NSF Virtual Grants Conference, to be held during the week of November 14-17, 2022.

Registration is Now Open

Just like the in-person grants conferences, the NSF Virtual Grants Conference is a must, especially for new faculty, researchers and administrators.

Highlights include:

- New programs and initiatives
- NSF Directorate sessions
- Future directions and strategies for national science policy
- Proposal preparation and the merit review process
- Award management topics

The conference is designed to give new faculty, researchers, and administrators key insights into a wide range of current issues at NSF. NSF program officers will provide up-to-date information about specific funding opportunities and answer attendee questions.

PRESIDENTIAL PROFESSORSHIP NOMINATIONS

Please submit nominations by October 28, 2022 for the Jordan A. Engberg Presidential Professorship, Dale Hogoboom Presidential Professorship, and Walter F. and Verna Gehrts Presidential Professorship.

Self-nominations will be accepted to ensure that there are multiple and inclusive pathways to nomination.

- **Jordan A. Engberg Presidential Professorship.** Awarded to a faculty at the rank of Professor with at least 8 years of service to NDSU. **Submit:** Nomination letter (one letter, no more than 2 pages long), CV (no more than three pages long).
- **Dale Hogoboom Presidential Professorship.** Awarded to a faculty at the rank of Professor with at least 8 years of service to NDSU. **Submit:** Nomination letter (one letter, no more than 2 pages long), CV (no more than three pages long).
- **Walter F. and Verna Gehrts Presidential Professorship.** Awarded to a faculty at the rank of Associate Professor with at least 5 years of service to NDSU. **Submit:** Nomination letter (one letter, no more than 2 pages long), CV (no more than three pages long).

For information on faculty awards please see below or the awards page at https://www.ndsu.edu/facultyaffairs/awards/

FUNDING OPPORTUNITIES

Naval Research Laboratory: Basic and Applied Research

The Naval Research Laboratory is interested in receiving innovative proposals that offer potential for advancement and improvement in the technical topic areas listed in this Broad Agency Announcement [N00173-23-S-BA01], including:

- information management and decision architectures;
- high assurance engineering and computing;
- optical sciences R&D;
- electromagnetic techniques and technology;
- advanced machine learning methods for the radio frequency spectrum;

- power/energy source materials and systems;
- corrosion processes, control, mitigation, and technology;
- development of microsensors and microsystems for physical, chemical, and biochemical applications;
- materials performance, processing, and modeling; and
- research in bio / molecular science and engineering.

This BAA will be open through September 2023

NSF: Advanced Chip Engineering Design and Fabrication (ACED Fab)

The Directorate for Engineering (ENG), Division of Electrical, Communications and Cyber Systems (ECCS), Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET), Division of Civil, Mechanical and Manufacturing Innovation (CMMI), Division of Engineering Education and Centers (EEC), and The Office of International Science and Engineering (OISE) of the National Science Foundation (NSF) and the Department of Engineering and Technologies (DET) of the Taiwan National Science and Technology Council (NSTC) are pleased to announce and launch an NSF-NSTC semiconductor collaboration program titled "Advanced Chip Engineering Design and Fabrication (ACED Fab)" [NSF 22-636]. This program aims to leverage the complementary academic talent and engineering strengths of semiconductor research in the U.S. and Taiwan to enable chip design and fabrication to advance semiconductor science, engineering, and education.

The ACED Fab supports innovative design and fabrication projects of semiconductor chips utilizing advanced technologies of Taiwan's semiconductor foundries. Proposals are encouraged to target emerging applications (but not limited to): High-performance, low-power circuits and systems; Edge-AI sensing, computing, and communication; Quantum computing and communication chips; and Emerging semiconductor heterogeneous integration.

An ACED Fab proposal must be an integrated collaborative effort between the U.S. and Taiwan researchers. The research project must aim to bring a specific innovation to integrated circuit prototypes that demonstrate advanced functionality and utilize advanced fabrication technology as differentiators. The scope of an ACED Fab proposal must include at least one semiconductor chip design for tape-out utilizing fabrication process technologies of Taiwan's semiconductor foundries via multi-project wafer runs within the duration of the project.

General and specific inquiries regarding this funding opportunity are directed to email: nsf-acedfab@nsf.gov.

Deadline: January 17, 2023

ND NASA EPSCoR: Request for Pre-proposals - FY2023 R3 CAN

In response to the FY 2023 NASA Notice of Funding Opportunity (NOFO) EPSCoR Rapid Response Research (R3) Announcement Number: NNH23ZHA002C, the North Dakota NASA EPSCoR (Established Program to Stimulate Competitive Research) is soliciting pre-proposals from faculty at affiliate institutions specifically designed to promote and expand NASA research in North Dakota.

The full RFP, online submission form, and budget sheet can be found on the ND NASA EPSCoR news page: https://blogs.und.edu/jdosas/2022/09/nd-nasa-epscor-request-for-pre-proposals-fy2023-r3-can/

Proposal Submission Timeline:

- Pre-Proposals due: Noon, Oct. 31, 2022
- Full Proposals due to ND NASA EPSCoR: Dec. 8, 2022
- Full Proposals due to NASA: Dec. 15, 2022

RECENTLY SUBMITTED PROPOSALS

- Surya Sarat Chandra Congress (PI). Best Practices to Monitor Public Facilities and Conduct 360Âº Inspection of Highway Bridges using Un-crewed Aerial Vehicles (UAVs). $121,975 from the Alaska Dept of Trans & Public Facilities. 10/15/2022 - 12/31/2023.
- Xiaoyu Feng (PI). An optimization-based decision support system at the field scale for precision fertilizer application in corn production. $139,908 from the National Institute of Food & Agriculture. 4/1/2023 - 3/31/2025.
- Xin Sun (PI), Sulaymon Eshkabilov (CPI). Soil Health Assessment with Autonomous Unmanned Ground Vehicle System Based on Sensor and Edge-AI Technologies. $649,977 from the National Institute of Food & Agriculture. 7/1/2023 - 6/30/2026.
- Xin Sun (PI), Sulaymon Eshkabilov (CPI). Intelligence on farm weed control solution based on Edge-AI and UGV systems. $648,788 from the National Institute of Food & Agriculture. 1/1/2023 - 12/31/2026.
- Umamaheswara Rao Tida (PI). "Subaward to NDSU: PFI-TT: Point-of-care sensor based on electric fields and machine learning for detection of circulating microRNA to identify early pancreatic cancer". $59,522 from the National Science Foundation. 10/1/2022 - 9/30/2024.
- Shuvashis Dey (PI). Towards a Low-cost, Ubiquitous Wireless Soil Moisture and Salinity Monitoring Technique for Precision Agriculture. $299,985 from the National Institute of Food & Agriculture. 1/1/2023 - 12/31/2024.
- Achintya Nayan Bezbaruah (CPI). Engineering of Advanced Fungicide Delivery Mechanisms from Materials of Agriculture. $592,730 from the National Institute of Food & Agriculture. 5/1/2023 - 4/30/2026.
- Syeed Md Iskander (CPI), Jiale Xu (CPI). Phase 2: Reclamation Resource Development and Utilization. $1,987,724 from Meadowlark. 1/1/2023 - 12/31/2027.

RECENT PUBLICATIONS

For 2022, 109 publications by authors with the College of Engineering affiliation have appeared in various journals, according to the ISI Web of Science and submissions from faculty. Here are some of the most recent publications:

- Croll, Andrew B., Yangchao Liao, Zhaofan Li, Wathsala M. A. Jayawardana, Theresa Elder, and Wenjie Xia. 2022. "Sticky Crumpled Matter." *Matter* 5 (6): 1792–1805. https://doi.org/10.1016/j.matt.2022.04.029.
- Denton, Anne M., Rahul Gomes, David M. Schwartz, and David W. Franzen. 2022. "Large-Window Curvature Computations for High-Resolution Digital Elevation Models." *Ieee Transactions on Geoscience and Remote Sensing* 60: 3000620. https://doi.org/10.1109/TGRS.2022.3200354.
- Straub, Jeremy. 2022. "Automating the Design and Development of Gradient Descent Trained Expert System Networks." *Knowledge-Based Systems* 254 (October): 109465. https://doi.org/10.1016/j.knosys.2022.109465.
- Zhang, Yan, Benjamin Eichholz, and Ruihang Zhang. 2022. "Evolution of Vortex Structures in an Open Deep Cavity under Pulsatile Flow Conditions: An Experimental Study." *Physics of Fluids* 34 (9): 091902. https://doi.org/10.1063/5.0111653.

See your name on this list? Help us get the word out about your amazing work by submitting it as a **Breakthrough Alert**. **This online form** is an easy, step-by-step guide for summarizing published research for the general public.

College Happenings is distributed to the NDSU College of Engineering staff and faculty every other Tuesday.

Read past issues of *College Happenings* here.

Deadline for submissions to *College Happenings* is 12:00 p.m. Fridays.

Contact kyle.bosch@ndsu.edu to submit items for *College Happenings*.

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