NDSU | COLLEGE OF ENGINEERING

COLLEGE HAPPENINGS

November 28, 2023

FROM THE INTERIM DEAN

Finishing Strong

It seems like only yesterday we were cheering on new students walking through the gates and yet here we are at the end of November and finals week is less than two weeks away.

The end of a semester is often one of the most stressful times of year for faculty, staff and students. Remember that a smile and a kind word of encouragement can go a long way in helping everyone get to the finish line.

I also want to remind you that the College is hosting several events to celebrate and honor our soon to be graduates. College graduation is one of the most significant achievements of a person's life and something they'll remember for the rest of their lives.

The Winter Senior Design Expo will be held Wednesday, December 6 from 11 a.m. – 2 p.m. in the NDSU Oceti Sakowin Ballroom. I encourage everyone to stop by and interact with our amazing students and learn more about their projects.

We're also hosting the biannual Ring and Pin Ceremony on Thursday, December 14. This blending of two significant and celebratory events, the Order of the Engineer and the Pledge of the Computing Professional begins at 5:30 p.m. in the Memorial Union – Anishinaabe Theater.

Winter Commencement will be held the next day, Friday, December 15 at 5:00 p.m. in the SHAC. We are excited to announce that Simon Kroll, a senior graduating in computer engineering, will be delivering the commencement address this year.

Taking the time to attend one or all of these events is a great way to show our appreciation for our students' accomplishments and develop lasting connections with our new alumni.

Thank you for all you have done and all that you will do over the next few weeks to make this another successful semester.

Alan R. Kallmeyer, Ph.D.
Interim Dean | College of Engineering

IN THE NEWS

NDSU faculty member named the KFI Engineers Professor of Energy Stewardship

NDSU engineering students adapt toys for local kids with disabilities

NDSU Engineering students adapt toys for local kids with disabilities (VNL)

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

Tuesday, November 28, **NDSU Giving Day 2023**. NDSU Giving Day is a chance to give back to the areas of the college and campus you are most passionate about. Watch for more information about the College of Engineering's exciting plans for NDSU Giving Day 2023.

Monday, December 4, **Up and Downscaling Revisited: A Fresh Look at Multiscale Solid Mechanics**. This Distinguished Lecture featuring world-renowned engineer and scientist Dr. Christian Hellmich starts at 3:30 in the Memorial Union Prairie Rose room.

Wednesday, December 6, **Winter Senior Design Expo**. 11:00 a.m. – 2:00 p.m. in the Memorial Union Oċeti Śakōwiŋ Ballroom.

Thursday, December 14, **Ring and Pin Ceremony**. The biannual Ring and Pin Ceremony is a blending of two significant and celebratory events, the **Order of the Engineer** and the **Pledge of the Computing Professional**. The ceremony begins at 5:30 PM in the Memorial Union – Anishinaabe Theater.

Friday, December 15, **2023 Winter Commencement**. You are encouraged to participate in the 2023 Winter Commencement ceremonies which will be held on Friday, December 15th in the SHAC at 5:00 p.m. Register Here.

FIRST ROBOTICS COMPETITION VOLUNTEERS

Robotics competition season is fast approaching and NDSU College of Engineering hosts 2 FIRST Regional Qualifiers.

- FIRST Tech Challenge (FTC) competition for students in grades 7-12 is Saturday, January 20 from 8:00AM – 5:00PM
- FIRST LEGO League (FLL) tournament for students in grades 4-8 is Saturday, January 27 from 8:00AM – 5:00PM

In order to make these tournaments a rewarding experience for the students, we need 20-30 volunteers at each event. Volunteers can participate at many different levels from being a Judge of team presentations to Refereeing robotic matches to Hospitality such as Team Check-in or Field Reset. The depth of your involvement is up to you.

Please use this Google form 2024 NDSU FIRST Robotics Volunteer Form (google.com) to indicate which competition and position you are interested in. From your response, I will send out more detailed information about your position and the events.

If you have any questions about these FIRST events, feel free to contact College of Engineering Outreach Coordinator Angela Gross. Thank you for your willingness to inspire young people to be STEM leaders and innovators!

NDSU DAY OF HONOR

NDSU Day of Honor commemorates the lives of NDSU students, faculty, and staff who have passed away during the 2023 calendar year. The annual ceremony, first held in 2013, offers attendees closure, reverence, and a sense of community in remembering those no longer with us.

The NDSU Day of Honor memorial service will be held on Tuesday, February 13, 2024, at 2:00 p.m. in the Oceti Sakowin Ballroom. The service will be streamed via Zoom for those who wish to join virtually. All NDSU students and employees, as well as family and friends of the honorees, are invited.

If you know of a member of our campus community who passed away in 2023, please visit the **NDSU Day of Honor webpage** to complete a submission form. Submission forms will be accepted through Friday, January 26th.

FUNDING OPPORTUNITIES

DARPA: Young Faculty Award

The Defense Advanced Research Projects Agency (DARPA) Young Faculty Award (YFA) program aims to identify and engage rising stars in junior research positions in academia and equivalent positions at non-profit research institutions, particularly those without prior DARPA funding, to expose them to Department of Defense (DoD) needs and DARPA's mission to create and prevent technological surprise. The YFA program will provide high-impact funding to elite researchers early in their careers to develop innovative new research that enables transformative DoD capabilities. Ultimately, the YFA program is developing the next generations of researchers focused on national security issues.

Executive Summary Deadline: December 13, 2023; 3pm

DoD: Defense University Research Instrumentation Program

The Department of Defense (DoD) announces the Fiscal Year 2025 Defense University Research Instrumentation Program (DURIP). DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation.

Deadline: February 16, 2024

NSF: Cybersecurity Innovation for Cyberinfrastructure (CICI)

The objective of the Cybersecurity Innovation for Cyberinfrastructure (CICI) program [NSF 23-517] is to advance scientific discovery and innovation by enhancing the security and privacy of cyberinfrastructure. CICI supports efforts to develop, deploy and integrate cybersecurity that will benefit the broader scientific community by securing science data, computation, collaborations workflows, and infrastructure. CICI recognizes the unique nature of modern, complex, data-driven, distributed, rapid, and collaborative science and the breadth of infrastructure and requirements across scientific disciplines, practitioners, researchers, and projects. CICI seeks proposals in three program areas:

- Usable and Collaborative Security for Science
- Reference Scientific Security Datasets
- Transition to Cyberinfrastructure Resilience

Deadline: February 1, 2024

RECENTLY AWARDED GRANTS

- Clairmont Clementson (Principal Investigator). Expanding students' understanding of how to measure moisture content using official air oven method and determining test weights. $1,131.87 from the ND Grain Dealers Educational Foundation. 10/1/2023 - 9/30/2024.
- Chad A Ulven (Principal Investigator). Manufacturing and Integration of Lightweight Composite Structures Phase II. $805,193.15 from the Department of Defense. 10/17/2023 - 7/16/2025.

RECENTLY SUBMITTED PROPOSALS

- Zhongyu Yang (Principal Investigator), Kalpana Katti (Co-PI), Dinesh R Katti (Co-PI), Erik Klyver Hobbie (Co-PI), Andriy Voronov (Co-PI). MRI: Track 1: Acquisition of a Multi-functional X-ray Powder Diffractometer to Advance Multidisciplinary Research and Education at North Dakota State University. $653,236 from the National Science Foundation. 8/1/2024 - 7/31/2027.
- Joao Paulo Cassol Flores (Principal Investigator), Jose Castro Chacon (Co-PI). Soil Carbon Mapping in the Red River Valley, ND: An AI-Based Approach for Climate Risk Analysis. $71,728 from Amazon. 4/1/2024 - 3/31/2025.
- Jiale Xu (Principal Investigator). Novel corn stover materials for electrochemical sorption and oxidation of PFAS in contaminated groundwater. $42,136 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Yan Zhang (Principal Investigator), Jordi Estevadeordal (Co-PI), Yildirim Bora Suzen (Co-PI), Yechun Wang (Co-PI). MRI: Acquisition of A Research Ultrasound System for Multidisciplinary Flow and Fluid-Structure Interaction Studies. $236,193 from the National Science Foundation. 5/1/2024 - 4/30/2027.
- Jiale Xu (Principal Investigator), Thomas M DeSutter (Co-PI). Electrochemically reuse produced wastewater to overcome soil acidification to enhance the corn industry. $48,136 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Chau Le (Principal Investigator), Mijia Yang, (Co-PI), Laura Jayne Parson (Co-PI). Research Initiation: Constructing the Future: The Interplay of Technical and Ethical Choices in the Professional Formation of Engineers. $199,990 from the National Science Foundation. 7/1/2024 - 6/30/2026.
- Long Jiang (Principal Investigator), Raj Shankar Hazra (Co-PI). Starch-based, long-lasting bactericide for crop disease management. $45,120 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Long Jiang (Principal Investigator). Corn-based wound dressing and medical adhesive materials. $59,520 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Jiale Xu (Principal Investigator). Hybrid Novel Electro-and-Far-UVC Systems for Low-Cost and Efficient Treatment of Air and Water for Confined Animal Feeding Operations. $41,780 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Jiale Xu (Principal Investigator). Extra Benefit of Herbicide Safeners in Controlling Carryover to Protect Corn. $44,136 from the ND Corn Utilization Council. 7/1/2024 - 6/30/2025.
- Jiale Xu (Principal Investigator). Hybrid Novel Electro-and-Far-UVC Systems for Low-Cost and Efficient Manure Treatment to Prevent Harmful Algal Blooms. $144,281 from the Ohio Department of Higher Education. 3/1/2024 - 2/28/2026.
- Sulaymon Eshkabilov (Principal Investigator), Joao Paulo Cassol Flores (Co-PI), Rob Proulx (Co-PI). Developing a smart soil cultivator for in-season weed control in sugar beet - Engineering aspects and lab scaleprototype. $92,154 from the Sugarbeet Res. & Edu. Board of MN & ND. 4/1/2024 - 3/31/2026.
- Lindsay Malone (Principal Investigator), Joao Paulo Cassol Flores (Co-PI). Quantifying in-field variability to support sustainable sugarbeet production. $15,709 from the Sugarbeet Res. & Edu. Board of MN & ND. 4/1/2024 - 3/31/2025.

RECENT PUBLICATIONS

For 2023, 216 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:

- Cui, Hao, Fujian Tang, Bo Li, and Zhibin Lin. 2023. “Microstructure and Corrosion Resistance of Quartz Sand-Modified Enamel-Coated Steel Plates.” *COATINGS* 13 (10): 1704. https://doi.org/10.3390/coatings13101704.
- Kuang, Yihang, Fujian Tang, Gang Li, Weiwei Lin, and Zhibin Lin. 2023. “Bond Characteristics of Quartz Sand Modified Enamel Coated Steel Bars with Concrete.” *CONSTRUCTION AND BUILDING MATERIALS* 408 (December): 133699. https://doi.org/10.1016/j.conbuildmat.2023.133699.
- Tang, Caiming, Ruifen Zheng, Yizhe Zhu, Yutao Liang, Yiyang Liang, Shangtao Liang, Jiale Xu, et al. 2023. “Nontarget Analysis and Comprehensive Characterization of Iodinated Polyfluoroalkyl Acids in Wastewater and

River Water by LC-HRMS with Cascade Precursor-Ion Exclusions and Algorithmic Approach." *ENVIRONMENTAL SCIENCE & TECHNOLOGY*, October. https://doi.org/10.1021/acs.est.3c04239.

- Yang, Ning, Muhammad Akbar, Qing Wu, Zahoor Hussain, and Wajahat Sammer Ansari. 2023. "Microstructural Analysis of Corrosion Products of Steel Rebar in Coral Aggregate Seawater Concrete." *JOURNAL OF MATERIALS IN CIVIL ENGINEERING* 35 (12): 04023470. https://doi.org/10.1061/JMCEE7.MTENG-16193.

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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