

COLLEGE HAPPENINGS

May 3, 2022

FROM THE DEAN

Support Our Students at Thursday's Senior Design Expo

Thursday afternoon will be a signature event for the College of Engineering, as our seniors showcase their capstone designs at the 2022 Senior Design Expo. While we have had multiple departments participate in design expos in previous years, we are upping our game this year, with every department in the College of Engineering participating. Design teams have worked hard on projects designed and built during their capstone design courses. Combining elements they've learned in their curriculum, experience, and ingenuity, they have solved challenging, real-world design problems, typically from industry clients.

We've invited our campus community, alumni, local legislators, and some local area middle and high school students to attend. I hope you will plan to show your support for our students by stopping by the Oceti Sakowin Ballroom on the 3rd Floor of the Memorial Union between noon and 4:00 p.m. on Thursday. Also, faculty, please encourage your undergraduate students to attend as well. The expo is an excellent opportunity for our freshman, sophomore, and junior students to see what they have to look forward to in their senior year.



IN THE NEWS

[Peltier Award recipients announced](#)

[2022 STEM Kids Camp registration open](#)

[‘Make the change I want to see’](#)

CONGRATULATIONS

Achintya Bezbaruah, from the **Department of Civil, Construction and Environmental Engineering**, was awarded a \$725,925 grant from the USDA to establish the Center for Nanoscale Phosphorus Research and Development (CENAPHORD).

Kambiz Farahmand, from the **Department of Industrial and Manufacturing Engineering**, has been selected as the recipient of the Chamber of Commerce NDSU Distinguished Faculty Service Award.

Trung "Tim" Le, from the **Department of Industrial and Manufacturing Engineering**, is one of four outstanding faculty members selected to receive NDSU's Peltier Award for Teaching Innovation.

Abdul-Aziz Banawi, from the **Department of Civil, Construction and Environmental Engineering**, was named a finalist for the Peltier Award for Teaching Innovation.

Two students from the **Department of Civil, Construction and Environmental Engineering**, **Ryan Anderson** and **Himani Yadav**, won awards at the 2022 NDSU Research Day event.

FACULTY PROMOTIONS

Promoted to Full Professor

- **Jordi Estevadeordal**, Mechanical Engineering
- **Roger Green**, Electrical and Computer Engineering
- **Long Jiang**, Mechanical Engineering

Promoted to Associate Professor and Awarded Tenure

- **Ravi Yellavajjala**, Civil, Construction, and Environmental Engineering
- **Qifeng Zhang**, Electrical and Computer Engineering
- **Yan Zhang**, Mechanical Engineering

Emeritus Appointments

- **Thomas Bon**, Agricultural and Biosystems Engineering

Please let [College Happenings](#) know about honors, awards, new grants and other announcements so we can share them with other faculty and staff.

NEW HIRES

Chelsie Bormann joined the **Department of Agricultural and Biosystems Engineering** as an Administrative Assistant.

UPCOMING EVENTS

Thursday, May 5, **Senior Design Expo**. The Spring Senior Design Expo will showcase capstone projects from all departments in the College of Engineering. Noon – 4:00 p.m. in the NDSU Oceti Sakowin Ballroom.

Tuesday, May 10, **Celebration of Excellence**. Faculty and staff award and promotion recipients will be honored by President Dean Bresciani and Provost Margaret Fitzgerald. 3:00 – 4:30 p.m. in the Memorial Union Ballroom.

Friday, May 13, **College of Engineering Ring and Pin Ceremony**. This ceremony is a blending of two significant and celebratory events, the Order of the Engineer and the Pledge of the Computing Professional. 3:00 p.m. in AG Hill 112.

Saturday, May 14, **NDSU 2022 Spring Commencement**. 10:00 a.m. in the Fargodome. Faculty and staff who wish to participate in the academic processional along with our graduation class will wear caps and gowns. [Register here](#).

Saturday, May 14, **Engineering Graduation Reception**. Spring 2022 graduates and their guests are invited to celebrate with fellow students, faculty and staff in the College of Engineering. Rooms 201-202 in the Fargodome, immediately following Commencement.

VIDEO RECORDING PURGE

Due to increasing storage costs and FERPA-protected data risks, NDSU IT will be implementing a video recording file purge schedule, where files will be automatically deleted after a specified amount of time. Please see this article to read the schedule and details at: <https://kb.ndsu.edu/118153>.

If you want to keep files longer than the schedule allows, you will need to download them and save them in one of the long-term storage options at <https://kb.ndsu.edu/102743>.

Purges coming in June

To address immediate storage costs and FERPA compliance, all **YuJa proctored exam recordings** that were created prior to May 14, 2022 will be deleted starting on June 20, 2022.

Rolling purges starting in September

The purge schedule that begins at the end of September will include these high-level purges. See the full schedule/details at: <https://kb.ndsu.edu/118153>

- Zoom recordings will be deleted 9 months from creation on a rolling basis.
- YuJa Proctored Exam Recordings will be purged 6 months from creation on rolling basis.
- All other YuJa recordings that have not been viewed for one year will be purged on a rolling basis.
- Blackboard Collaborate recordings will be purged July 1 two years from year created. Example: July 1, 2023 recordings created July 1, 2020 – June 30, 2021 will be deleted.

NSF VIRTUAL GRANTS CONFERENCE

Join the National Science Foundation for the Spring 2022 NSF Virtual Grants Conference, to be held during the week of June 6-10, 2022.

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.

Registration will be free of charge and opens on Wednesday, May 11, 2022 at 11am. [Sign up here](#) to be notified of conference registration details. For those who cannot attend the live conference, all conference sessions will be available on-demand shortly after the event.

WRITE WINNING GRANT PROPOSALS VIRTUAL WORKSHOP

June 1-2, 2022 | 8:30 a.m. – 12:00 p.m.

Grant Writers Seminars and Workshops ([GWSW](#)), will present a virtual seminar titled "Write Winning Grant Proposals." This workshop, presented over two half-days by [John Robertson](#), PhD, comprehensively addresses the practical, conceptual, and rhetorical aspects of writing competitive grant proposals, including:

- critical steps for organizing and planning your proposal,
- understanding the role (and mindset) of your reviewers,
- strategy for writing a compelling specific aims (NIH), overview and objectives (NSF), or equivalent section, and
- specific strategies and tips for each major section of a grant proposal.

[Register to participate >>](#)

FUNDING OPPORTUNITIES

NSF DCL: Quantum Manufacturing

With this Dear Colleague Letter ([DCL](#)), the National Science Foundation's (NSF) Directorate for Engineering (ENG) invites the submission of EARly-concept Grants for Exploratory Research (EAGER) proposals or standard research proposals which focus on new manufacturing innovations enabling and accelerating the manufacturing of quantum devices with emphases spanning from device fabrication to potential modes of system integration.

Research addressing scalable processes and process control of interest could address, among other topics:

- The controlled introduction in all three dimensions of specific defects in diamond and other materials, aligned with their targeted function performance;
- Deposition of defect-free dielectric and superconducting films with low loss at cryogenic temperatures;
- Sources of decoherence in spin qubits originating from process-related sources.
- New methods of large area, high-throughput characterization of quantum-based materials and devices;
- The exploration of new materials platforms and their fabrication through techniques, such as epitaxial growth enabling pathways to protect and use quantum coherence in solid-state environments;
- Key processes enabling 3D integration of quantum and traditional electronic, such as high aspect ratio vias and flip chip bump bonding processes;
- Hybrid integration of quantum devices with photonics for the distribution of quantum information;
- New approaches to packaging that integrates quantum, photonic, and electronic functions in a vacuum environment; or
- Approaches towards the automated scalable manufacturing of devices applicable to quantum computers, sensors, and systems.

NSF: Improving Undergraduate STEM Education – Computing in Undergraduate Education

The Improving Undergraduate STEM Education: Computing in Undergraduate Education (IUSE: CUE) program [[NSF 22-588](#)] aims to better prepare a wider, more diverse range of students to collaboratively use computation across a range of contexts and challenging problems. With this solicitation, the National Science Foundation focuses on re-envisioning how to teach computing effectively to a broad group of students, in a scalable manner, with an emphasis on broadening participation of groups who are underrepresented and underserved by traditional computing courses and careers.

Deadline: August 18, 2022

RECENTLY FUNDED GRANTS

- Achintya Nayan Bezbaruah (PI). Nanotechnology for Agriculture and Food Systems PARTNERSHIP: Nano-enabled hybrid phosphorus platforms for increasing phosphorus use efficiency. \$725,925 from the National Institute of Food & Agriculture. 5/15/2022 - 5/14/2025.
- Dali Sun (PI) Exosomal Contents Guided Amino Acids Treatment for Pancreatic Cancer. \$169,469 from the National Institutes of Health. 2/2/2022 - 1/31/2024.
- Xin Sun (PI). Improving the Economic and Ecological Sustainability of US Crop Production through On-Farm Precision Experimentation. \$7,500 from the Natural Resources Conservation Service. 1/1/2022 - 3/31/2023.
- Pratap Kotala (PI). Developing Course Material for Teaching CSCI 160 - Computer Science - I as an Online Course. \$5,000 from the Department of Treasury. 4/4/2022 - 8/14/2023.
- Omid Beik (PI). Multiphase MW Generator for Improved Power Density and Increased Reliability by Reduced DC Capacitive Filtering. \$15,000 from the National Aeronautics and Space Administration. 1/1/2022 - 5/5/2022.

RECENTLY SUBMITTED PROPOSALS

- Long Jiang (PI), Adam Curtis Gladen (CPI), Zhibin Lin (CPI). ADAPTIVE, ENERGY-HARVESTING INSULATION MATERIAL DERIVED FROM BIOMASS. \$1,257,174 from the Department of Energy. 7/1/2022 - 6/30/2025.
- Jeremy A Straub (PI). EPSCoR BEC - AI and ML Opportunities for Students from Underrepresented Groups. \$100,978 from the National Science Foundation. 7/1/2022 - 6/30/2023.
- Jeremy A Straub (PI). Support for Cybersecurity Outreach Center for Native American Community. \$298,134 from the National Security Agency. 1/1/2023 - 12/31/2024.
- Jeremy A Straub (PI). Scholarship (Assistantship) Support for Graduate Students. \$4,944 from the NDSU Foundation & Alumni Association. 6/1/2022 - 5/31/2023.
- Dharmakeerthi Nawarathna (CPI). Effects of blood flow restriction therapy combined with astronaut-related activities of daily living on cardioprotective biomarkers and occupational task performance. \$957,833 from NASA. 1/1/2023 - 12/31/2025.
- Danling Wang (PI), Qifeng Zhang (CPI). EAGER: Novel MXene nanocomposites based 3D printed flexible sensors for breath analysis. \$83,590 from the National Science Foundation. 7/16/2022 - 7/15/2023.
- Danling Wang (PI). High-performance 3D printed nutrient stress sensors for plant health monitoring. \$16,000 from the NDSU Foundation & Alumni Association. 6/16/2022 - 12/31/2023.
- Xinhua Jia (CPI) Radio Frequency (RF) sensor based wireless soil moisture and salinity monitoring system for sustainable pulse crop production. \$354,089 from the Agricultural Research Service. 8/1/2022 - 7/31/2026.
- David Grewell (PI). internship: Collaborative Research: Center for Bioplastics and Biocomposites. \$22,910 from the National Science Foundation. 5/18/2022 - 8/18/2022.
- Shuvashis Dey (PI), Md Mirazur Rahman (CPI), Md Ashif Islam Oni (CPI). Towards a Low-cost, Pervasive Wireless Soil Salinity and Moisture Sensing System for Precision Agriculture. \$5,000 from IEEE. 6/1/2022 - 11/30/2022.
- Shuvashis Dey (PI). Enabling Outdoor Measurement and Field Analysis of RF Antennas and Sensors for Internet of Things (IoT) Applications. \$1,000 from the NDSU Foundation & Alumni Association. 6/1/2022 - 11/30/2023.
- Shuvashis Dey (PI). Towards an Inexpensive, Ubiquitous Wireless Soil Salinity and Nutrient Sensing System for Precision Agriculture. \$16,000 from the NDSU Foundation & Alumni Association. 6/1/2022 - 11/30/2023.
- Shuvashis Dey (PI). Development of Low-Cost, Printable Chipless Radio Frequency Identification (RFID) based Sensors for Leaf Wetness Detection. \$4,400 from the NDSU Foundation & Alumni Association. 6/1/2022 - 11/30/2023.
- Shuvashis Dey (PI). Non-Invasive Monitoring of Arterial Waveform to Determine Biophysiological Parameters using Radio Frequency Identification (RFID) Based Sensing Technique. \$5,000 from the NDSU Foundation & Alumni Association. 6/1/2022 - 11/30/2023.
- Ivan T Lima, Jr. (PI). Proof of Principle of Electronic Dielectrophoresis Biosensor for the Detection of Disease Biomarkers. \$2,600 from the NDSU Foundation & Alumni Association. 6/1/2022 - 5/31/2023.
- Sulaymon Eshkabilov (PI). MEMS for Ag & Biosystems Engineering students. \$7,800 from the NDSU Foundation & Alumni Association. 6/1/2022 - 5/31/2023.
- Mijia Yang (PI). Entering or Not Entering a Building - Post Assessment of Buildings after Fire. \$5,000 from the NDSU Foundation & Alumni Association . 6/1/2022 - 12/31/2023.
- Xinhua Jia (PI). Controlled Environment Agriculture (CEA) for Food Security. \$8,218 from the NDSU Foundation & Alumni Association. 5/15/2022 - 5/14/2023.
- Di Wu (PI). Assessing grid-accommodable capacity with oscillation stability constraints in power systems with high penetration of renewable resources. \$1,000 from the NDSU Foundation & Alumni Association. 6/1/2022 - 5/31/2023.
- Ademola Monsur Hammed (PI), Niloy Chandra Sarker (CPI). Development of microbial starter culture for biotransformation of air nitrogen to organic ammonia. \$5,000 from the NDSU Foundation & Alumni Association. 6/1/2022 - 5/31/2023.

- Xiangfa Wu (PI), Oksana Zholobko (CPI). Direct generation of electricity from agricultural residues-Biomass flow fuel cells. \$5,000 from the NDSU Foundation & Alumni Association. 7/1/2022 - 6/30/2023.
- Sulaymon Eshkabilov (PI). IoT for Ag & Biosystems Engineering Education. \$5,000 from the NDSU Foundation & Alumni Association. 6/1/2022 - 5/31/2023.
- Wenjie Xia (PI). Machine Learning Enabled Materials-by-Design for Multifunctional Biopolymer Thin Films. \$5,000 from the NDSU Foundation & Alumni Association. 5/16/2022 - 10/31/2023.

RECENT PUBLICATIONS

For 2022, 50 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:

- Ara, Ismat, Sulaymon Eshkabilov, Fardad Azarmi, Igor Sevostianov, and Xiangqing W. Tangpong. n.d. "Investigation on Elastic Properties and Unconventional Plasticity of 316L Stainless Steel Processed by Selective Laser Melting Technology." *Progress in Additive Manufacturing*. Accessed April 25, 2022. <https://doi.org/10.1007/s40964-022-00291-w>.
- Arumugam, Dharanidharan, Dayakar L. Naik, Hizb Ullah Sajid, and Ravi Kiran. 2022. "Relationship between Nano and Macroscale Properties of Postfire ASTM A36 Steels." *Journal of Materials in Civil Engineering* 34 (6): 04022100. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0004218](https://doi.org/10.1061/(ASCE)MT.1943-5533.0004218).
- Bozorg-Haddad, Omid, Paniz Dehghan, Babak Zolghadr-Asli, Vijay P. Singh, Xuefeng Chu, and Hugo A. Loaiciga. 2022. "System Dynamics Modeling of Lake Water Management under Climate Change." *Scientific Reports* 12 (1): 5828. <https://doi.org/10.1038/s41598-022-09212-x>.
- Brooke, Matthew J., John Stenger, Andrej W. Svyantek, Collin Auwarter, and Harlene Hatterman-Valenti. n.d. "'Atlantic' and 'Dakota Pearl' Chipping Potato Responses to Glyphosate and Dicamba Simulated Drift." *Weed Technology*. Accessed April 27, 2022. <https://doi.org/10.1017/wet.2021.83>.
- Huang, Zheng, Yi-Na Li, and Jun Kong. n.d. "Investigating the Multimedia Pointing Techniques in the Tabletop-Centric Cross-Device Interaction." *Multimedia Tools and Applications*. Accessed April 29, 2022. <https://doi.org/10.1007/s11042-022-12975-0>.
- Yaghoubzadeh-Bavandpour, Arya, Omid Bozorg-Haddad, Mohammadreza Rajabi, Babak Zolghadr-Asli, and Xuefeng Chu. n.d. "Application of Swarm Intelligence and Evolutionary Computation Algorithms for Optimal Reservoir Operation." *Water Resources Management*. Accessed April 29, 2022. <https://doi.org/10.1007/s11269-022-03141-0>.
- Zhang, Zhao, Paulo Flores, Andrew Friskop, Zhaohui Liu, C. Igathinathane, X. Han, H. J. Kim, N. Jahan, J. Mathew, and S. Shreya. 2022. "Enhancing Wheat Disease Diagnosis in a Greenhouse Using Image Deep Features and Parallel Feature Fusion." *Frontiers in Plant Science* 13 (March): 834447. <https://doi.org/10.3389/fpls.2022.834447>.

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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