

COLLEGE HAPPENINGS

February 2, 2021

FROM THE DEAN

Public Policy Colloquium and Research Proposals

Each February, I look forward to attending, with engineering deans from around the country, the Public Policy Colloquium of the ASEE Engineering Deans Council. In typical years, that meeting is held in Washington, D.C., but the conference I'm attending this week is being held virtually because of the COVID-19 pandemic. The colloquium's two goals are (1) strengthening the discussion of engineering education and research issues between deans of engineering and key public policymakers and (2) enabling engineering deans to refine their public policy agenda.

At this week's meeting, we are hearing from some excellent speakers, including the director of the National Science Foundation, the President of the National Academy of Engineering, and the deputy director of DARPA. Sessions have focused on the changing landscape for funding of research and education, higher education and STEM policy, immigration issues, racial equity, and how engineering can contribute to national resilience to significant threats.

The next year looks positive on the research funding front, with likely modest increases in funding for basic research and new opportunities in energy innovation, pandemic responses/resilience, AI, quantum computing, data science, microelectronics, and biotech. With these opportunities, it will be critical for our researchers to submit competitive research proposals. With that goal, I want to remind you about the college's support to work with Dr. Christine Strohm as a grant consultant to provide grant writing support to our faculty. I hope you will take advantage of this opportunity to improve the competitiveness of your proposals. As a reminder, if you would like to work with Christine, I encourage you to **reach out to her early in the proposal planning** (requests for grant support submitted too close to the proposal deadline will be denied). The process is relatively simple. The first step is to contact Christine (her email address is christine.strohm@ndsu.edu) to describe the proposal and funding opportunity and ask her for a quote. That quote will then be sent to the department chair of the PI and then the Dean's office for approval and prioritization. Priority will be given to larger multi-investigator proposals led by the College of Engineering and proposals for young investigators. Still, all proposals will be considered for support as time and resources allow. If the college supports the proposal and the grant is ultimately funded, then the college will hold back half of the indirect cost return that is typically returned to the departments to sustain and grow the college's grant writing support into the future.



IN THE NEWS

[Contests tap student ideas for mental health, heart care](#)

[Using artificial intelligence for the automation of agricultural processes](#)

[Making The Grade: James Kaczor](#)

[NDSU researchers refine accuracy of using sensors to detect railroad track problems](#)

CONGRATULATIONS

Mike Johnson, a Ph. D. student in the **Department of Electrical and Computer Engineering**, is a finalist in the NDSU 3 Minute Thesis Competition. The Virtual Awards Ceremony is set for February 3 at 2:00 p.m.

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

Monday, February 8, **Plenary on the Curricular Approach Beyond the Classroom**. You are invited to learn about a new approach unfolding on NDSU's campus to engage students in learning in all areas of campus. [9:00 – 10:30 a.m. on Zoom](#).

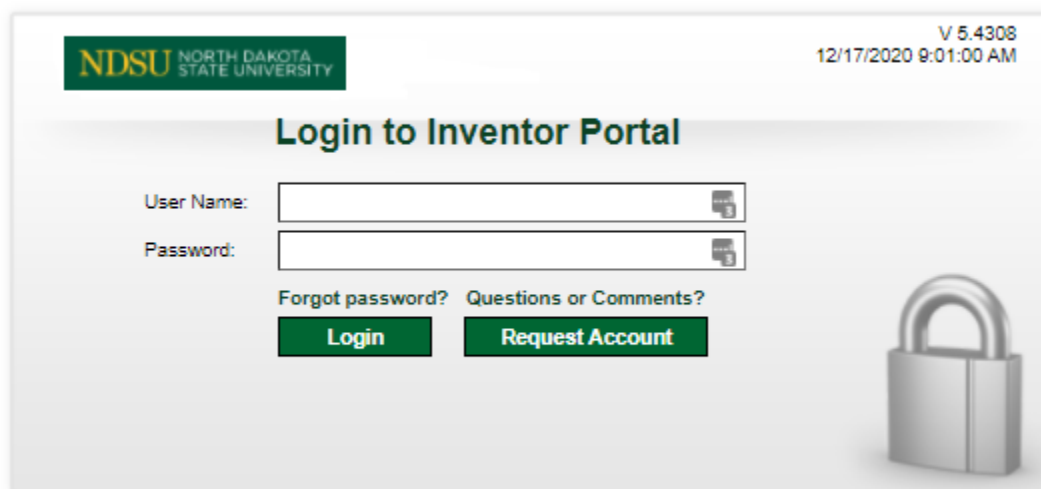
Wednesday, February 17, **3rd Annual Student Success Summit: “Supporting Student Growth through Grit and Gratitude”**. Presentations will be held virtually from 8:30 a.m. to Noon. See the schedule and presentation descriptions here: <https://career-advising.ndsu.edu/student-success-summit/>

Wednesday, February 17, **Faculty Council Meeting**. 3:00 – 4:00 p.m. on Zoom.

Thursday, February 25, **Research Series on Engaged Citizenship and Inclusion: Life and Politics on the US-Mexico Border**. This second virtual faculty research talk features Heath Wing, Assistant Professor of Spanish in the Department of Modern Languages. 3:00 p.m. via Zoom.

NDSU INVENTOR PORTAL

The [NDSU Inventor Portal](#) is a new, secure, web-based system for the development and submission of disclosures for new technologies and plant / horticultural varieties.



Additional information about invention disclosures and how to register to use the NDSU Inventor Portal is available on the [RCA Website](#).

If you have questions, contact the [Industry Engagement and Intellectual Property team](#).

MASKS FOR SCHOLARSHIPS

In 2020, an ad hoc committee was formed to organize a celebration of 30 years of the NDSU Staff Senate. Because of the COVID-19 pandemic, the committee has decided to sell masks with a special logo created for the 30th anniversary of the NDSU Staff Senate. Proceeds from the masks will benefit the Staff Senate Scholarship for broadbanded staff and dependents of broadbanded staff (https://www.ndsu.edu/staff_senate/scholarships/).

The masks are 100% cotton, fitted, 2-layers with a pocket that could be used for a filter, metal nose piece, and adjustable ear pieces. You can purchase masks [here](#) at \$5/mask.

STAFF RECOGNITION AWARD

The NDSU Staff Senate, in partnership with the Office of Human Resources, invites you to recognize current broadbanded staff members for hard work and ingenuity in making NDSU a better place. The awards are given to acknowledge outstanding achievement on the job; exceptional contributions toward effectiveness and efficiency of operations; outstanding service to other employees, students, or visitors; and distinguished efforts in staff development.

Staff eligible for nomination are those who serve within the five broadbanded categories at NDSU: Administrative/Professional, Technical/Paraprofessional, Office Support, Crafts/Trades, and Services. Nominations will be accepted in two categories: Individual Awards and Team Awards. Award recipients will be announced at the June 2021 Staff Senate Meeting.

For more information and to complete the online nomination form please go to: http://www.ndsu.edu/staff_senate/staff_recognition_award/. The deadline is March 15, 2021.

PROPOSAL DEVELOPMENT PROGRAM

The Proposal Development Program provides professional development opportunities for faculty, staff, and graduate students who are new to proposal writing or are seeking a refresher about proposal writing skills and funding agency opportunities. Sessions will be held virtually on Zoom.

Collaborative Proposals: Best Practices in Organizing a Submission

Wednesday, February 17, 2021 | 12-1pm

Presenter: Christine Strohm, Ph.D., Grant Writing Consultant

Meeting Expectations of Funding Agencies: USDA

Wednesday, March 24, 2020 | 12-1pm

Presenter: Christine Strohm, Ph.D., Grant Writing Consultant

[Register for these sessions >>](#)

Zoom access information will be shared with registrants.

FUNDING OPPORTUNITIES

NIST: Measurement Science and Engineering Research

The National Institute of Standards and Technology (NIST) is [soliciting applications](#) in a number of grant programs:

- the Associate Director for Innovation and Industry Services (ADIIS);
- the Associate Director for Laboratory Programs (ADLP);
- the Communications Technology Laboratory (CTL);
- the Engineering Laboratory (EL);

- Fire Research (FR);
- the Information Technology Laboratory (ITL);
- the International and Academic Affairs Office (IAAO);
- the Material Measurement Laboratory (MML);
- the NIST Center for Neutron Research (NCNR);
- the Physical Measurement Laboratory (PML);
- the Special Programs Office (SPO); and
- the Standards Coordination Office (SCO).

Applications will be accepted and considered on a rolling basis. For consideration in FY21, applications must be received by May 31, 2021.

NSF: Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support – Limited Submission Program

The national research cyberinfrastructure (CI) ecosystem is essential to computational- and data-intensive research across all of 21st-century science and engineering (S&E), driven by rapid advances in a wide range of technologies; increasing volumes of highly heterogeneous data; and escalating demand by the research community. Research CI is a key catalyst for discovery and innovation and plays a critical role in ensuring US leadership in S&E, economic competitiveness, and national security, consistent with NSF's mission. NSF, through the Office of Advanced Cyberinfrastructure (OAC), has published a [vision](#) that calls for the broad availability and innovative use of an agile, integrated, robust, trustworthy and sustainable CI ecosystem that can drive new thinking and transformative discoveries in all areas of S&E research and education.

In support of this vision, NSF is releasing two solicitations in parallel:

Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS) [NSF 21-555] aims to establish a suite of CI coordination services - meant to support a broad and diverse set of requirements, users, and usage modes from all areas of S&E research and education - and calls for proposals for five independently-managed yet tightly-cooperative service tracks

Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support - Coordination Office (ACCESS-ACO) [NSF 21-556] focuses on the creation of a coordination office to support the collective and coordinated operation of the ACCESS service tracks.

LIMITED SUBMISSION:

[Notify RCA](#) by 03/11/2021, 5:00 p.m. if you are interested in submitting to either of these programs.

RECENTLY FUNDED GRANTS

- Ademola Monsur Hammed (PI), Nurun Nahar (CPI). Isolation and characterization of hyper-ammonia-producing bacteria for organic ammonia production from Soybean crop and byproducts. \$4,996 from the ND Soybean Council. 01/01/2021 – 04/30/2021.
- Qifeng Zhang (PI). Planning on the creation of a virtual Electrical Engineering Lab for NDSU, College of Engineering students. \$5,000 from the Department of Treasury. 11/16/2020 – 06/30/2022.
- Jun Kong (PI). Dakota Digital Academy (DDA) funding for development of a course - CSCI 488 Human Computer Interaction. \$5,000 from the Department of Treasury. 11/16/2020 – 06/30/2021.
- Ravi Kiran Yellavajjala (PI). Hyflex delivery of K-12 AI. \$1,500 from the Department of Treasury. 12/07/2020 – 06/30/2021.

- Ravi Kiran Yellavajjala (PI). Hyflex delivery of Machine Learning for Engineers. \$5,000 from the Department of Treasury. 11/16/2020 – 06/30/2021.
- Umamaheswara Rao Tida (PI). Course Development Activities for ECE 423 - VLSI Design. \$5,000 from the Department of Treasury. 11/16/2020 – 06/30/2021.

RECENTLY SUBMITTED PROPOSALS

- Mijia Yang (PI). Improving Bridge Concrete Overlay Performance. \$57,319 from the Wisconsin Department of Transportation. 10/01/2021 – 09/30/2023.
- Xinhua Jia (PI), Thomas Scherer (CPI). Automated irrigation for commercial production of watermelon, squash, and muskmelon cultivars in Oakes. \$107,649 from the Agriculture Marketing Service. 10/01/2021 – 09/30/2023.
- Xinhua Jia (PI). Utilizing remote-controlled irrigation for high tunnel tomato and pepper productions in ND. \$122,808 from the ND Department of Agriculture. 10/01/2021 – 09/30/2023.
- Ewumbua Monono (PI). Bio-based polymer degradation and impact on human health. \$76,878 from the National Institute of Food & Agriculture. 10/01/2021 – 09/30/2024.
- Mijia Yang (PI). MCA: AI based bridge network monitoring and maintenance through coupled dynamics among bridge, vehicle, and environmental factors. \$331,026 from the National Science Foundation. 05/01/2021 – 04/30/2024.
- Jordi Estevadeordal (PI), Yechun Wang (CPI), Yildirim B Suzen (CPI), Yan Zhang (CPI). High-Speed Volumetric Measurement System for Spatially and Temporally Resolved Flow Diagnostics. \$417,175 from the National Science Foundation. 08/01/2021 – 07/31/2024.
- Adam Curtis Gladen (PI), Yao Yu (CPI). Development of a thermochemical, nanocellulose-based material for thermal energy storage. \$1,306,747 from the Department of Energy. 01/01/2022 – 12/31/2024.
- Om Prakash Yadav (PI). Trung Quoc Le (CPI). RII Track-2 FEC: Artificial Intelligence on Sustainable Energy Infrastructure Network (AI SUSTEIN) and Beyond towards Industries of the Future. \$5,977,484 from the National Science Foundation. 09/01/2021 – 08/31/2025.
- Roger A Green (CPI). NSF INCLUDES Alliance: Inclusion, Diversity, Equity and Access in STEM, (IDEAS Alliance) PARTNERSHIP. \$200,001 from the National Science Foundation. 07/01/2021 – 06/30/2026.
- Wenjie Xia (PI). Collaborative Research: Data-Enabled Materials by Design for High Performance Organic Electronic Materials. \$512,640 from the National Science Foundation. 09/01/2021 – 08/31/2025.
- Kelly Ann Rusch (PI). NSF INCLUDES Alliance: Cultivating Indigenous Research Communities for Leadership and Education in STEM (CIRCLES). \$2,083,286 from the National Science Foundation. 07/01/2021 – 06/30/2026.
- Dali Sun (PI), Ivan T Lima Jr. (CPI). pED, novel portable elliptical dichroism device for noninvasive detection of pancreatic cancer. \$398,705 from the National Institutes of Health. 10/01/2021 – 09/30/2024.
- Achintya Bezbaruah (CPI). Development of RNA Fungicides for Management of Sclerotinia Sclerotiorum on Canola. \$84,124 from the Agricultural Research Service. 07/01/2021 – 09/30/2022.
- Muhammad Z Malik (CPI). DMREF: Data-driven multi-scale computational approach to design polymeric micellar self-assemblies for enhancing bioavailability of poorly water-soluble substances. \$1,427,134 from the National Science Foundation. 10/01/2021 – 09/30/2025.
- Dharmakeerthi Nawarathna (PI). Cytotoxic effects of chimeric antigen receptor T-cells manufactured by radio-frequency electric fields. \$74,994 from the National Institutes of Health. 09/01/2021 – 09/01/2021.

RECENT PUBLICATIONS

For 2021, 24 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:

- Bazrkar, Mohammad Hadi, and Xuefeng Chu. 2020. "New Standardized Base Flow Index for Identification of Hydrologic Drought in the Red River of the North Basin." *Natural Hazards Review* 21 (4): 05020011. [https://doi.org/10.1061/\(ASCE\)NH.1527-6996.0000414](https://doi.org/10.1061/(ASCE)NH.1527-6996.0000414).
- Fallah-Mehdipour, Elahe, Omid Bozorg-Haddad, and Xuefeng Chu. n.d. "Environmental Demand Effects on the Energy Generation of Karkheh Reservoir: Base and Climate Change Conditions." *Environment Development and Sustainability*. <https://doi.org/10.1007/s10668-020-01204-z>.
- Hamidi, S. Babak, and Debasis Dawn. n.d. "Fully Integrated CMOS Tunable Power Amplifier Using Reconfigurable Input/Interstage/Output Matching Networks." *Analog Integrated Circuits and Signal Processing*. <https://doi.org/10.1007/s10470-020-01777-9>.
- Subhashree, Srinivasagan N., C. Igathinathane, M. Liebig, J. Halvorson, D. Archer, J. Hendrickson, and S. Kronberg. 2021. "Biomass Bales Infield Aggregation Logistics Energy for Tractors and Automatic Bale Pickers - A Simulation Study." *Biomass & Bioenergy* 144 (January): 105915. <https://doi.org/10.1016/j.biombioe.2020.105915>.
- Zhou, Zhengping, Oksana Zholobko, Xiang-Fa Wu, Ted Aulich, Jivan Thakare, and John Hurley. 2021. "Polybenzimidazole-Based Polymer Electrolyte Membranes for High-Temperature Fuel Cells: Current Status and Prospects." *Energies* 14 (1): 135. <https://doi.org/10.3390/en14010135>.

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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