

COLLEGE HAPPENINGS

September 29, 2020

FROM THE DEAN

Contributing to a Collegial and Collaborative Campus Climate (C⁵)

Tonight is the first presidential debate, and heading into a contentious election, many pundits expect the event to be particularly volatile. While the drama may make for entertaining television, the inflammatory statements and lack of collegiality by our politicians can cause many to cringe.

A similar lack of collegiality can sometimes be found, although rarely, in interactions between co-workers in the academy. If one or two faculty or staff members communicate in an arrogant or condescending way, participate in fabrications or gossip, or are known for inflammatory statements or e-mails, the result can be a dramatic sinking of morale—the tone or life in a department or college. The climate that can develop from a lack of collegiality can mean the difference between a good spirited, productive workplace and a dysfunctional one.

What can we do to continue to foster a great culture in the College of Engineering, a place where we are excited to begin work each morning? We all need to be contributing actively and positively to the morale of the college and campus. This grows from collegiality based on positive interaction with others and includes:

- having and assuming positive intent with all comments,
- supporting candid dialogue and disagreeing agreeably,
- being teachable and open to new ideas,
- being optimistic, and complimentary in conversations and correspondence,
- and having a sense of humor and using it respectfully.

Contributing to a collegial and collaborative campus climate, which is all the more important during this time of increased stress from the disruptions caused by COVID-19, is an expectation that we should all have for everyone in the College of Engineering.



IN THE NEWS

[College of Engineering honors scholarship recipients, donors](#)

[Care19 app aims to slow the state's spread of virus](#)

[NDSU researchers awarded grant for Indigenous-based STEM education](#)

[College of Engineering faculty recognized for excellence in teaching](#)

[College of Engineering faculty earn research awards](#)

[Engineering staff receive awards](#)

[Computer science faculty member featured on national NBC News program](#)

[NDSU's Innovation Challenge: Develop a passion to create](#)

CONGRATULATIONS

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

COVID-19 UPDATES

Classroom Equipment Installations

IT staff and contractors are primarily working around class schedules to get into classrooms and continue installing the additional equipment. However, they are reaching out directly to some instructors in certain buildings to see if they can get to some rooms earlier if instructors can conduct their classes remotely for a few days. If you get an email from IT requesting this, please know they will continue to work around class schedules if it does not work for you to move your class remote.

Smart Panel Calibration in Classrooms

IT has heard from some instructors that the smart panels in some rooms aren't correctly calibrated with the stylus/pen. They now have instructions available for you to easily calibrate the Smart Podiums/panels as needed in your classrooms. <https://kb.ndsu.edu/105891>

UPCOMING EVENTS

Wednesday, September 30, **Learning the Language of Diversity and Meaningful Inclusion**. Former Minnesota Supreme Court Justice Alan C. Page will discuss his experiences, especially those related to students of Color and post-secondary education. 12:00 p.m. via Zoom. **Zoom meeting ID:** 986 1545 9587. **Password:** 111243

FACULTY AWARDS

Nominations are invited for faculty awards processed through Faculty Affairs/Office of the Provost. Nominations may be submitted by faculty, staff, students, alumni, and administrators. Self-nominations will be accepted to ensure that there are multiple and inclusive pathways to nomination. Nomination materials should be sent by email to: canan.bilengreen@ndsu.edu.

For more information about the awards and nomination deadlines [click here](#).

NSF FUNDING OPPORTUNITIES IN DIVERSITY, EQUITY, AND INCLUSION

The National Science Foundation (NSF) Directorate for Education and Human Resources ([EHR](#)) is hosting a **free webinar** on **September 30, 2020**, from **1:30-3:30pm**.

NSF Program Officers and Staff will highlight current funding opportunities available in EHR focused on diversifying the STEM workforce, supporting broadening participation in STEM research, and promoting equitable STEM practices and

opportunities. Programs such as: NSF Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES), ADVANCE: Organizational Change for Gender Equity in STEM Academic Professions, Improving Undergraduate STEM Education: Hispanic Serving Institutions, Historically Black Colleges and Universities – Undergraduate Program (HBCU-UP), Tribal Colleges and Universities Programs (TCUP), The Robert Noyce Teacher Scholarship Program, Innovative Technology Experiences for Students and Teachers (ITEST), Graduate Research Fellowship Program (GRFP) and several other programs will be highlighted. NSF representatives from all four divisions in EHR will be represented. In addition, Q & A opportunities with Program Officers will be provided during the webinar.

Principal Investigators, faculty, administrators, researchers, evaluators, and other STEM and education professionals and community-based leaders interested or engaged in research and efforts to broaden participation in STEM are encouraged to attend.

[Register to participate >>](#)

PROPOSAL DEVELOPMENT PROGRAM

NSF EPSCoR RESEARCH INFRASTRUCTURE IMPROVEMENT PROGRAM: TRACK-2 FOCUSED EPSCoR COLLABORATIONS

Wednesday, September 30, 2020 | 12:00 – 1:00 p.m.

The Established Program to Stimulate Competitive Research (EPSCoR) [RII Track-2](#) builds interjurisdictional collaborative teams of EPSCoR investigators in scientific focus areas consistent with NSF priorities. Central to the success of a proposal is the clear demonstration that the collaboration is well-positioned to produce outcomes that cannot be obtained through the efforts of a team in a single jurisdiction working alone. Proposals must clearly identify the roles and contributions of each partner in the project, the anticipated increases in research capacity and competitiveness, the projected workforce development and educational plan and outcomes, and the benefits to the jurisdictions, nation, and society.

This session will include an overview of the program, followed by discussion, tips, and Q&A for developing a Track-2 proposal.

Presenter: Julia Bowsher, Ph.D. Associate Professor, Biological Sciences

[Register for this session >>](#)

Register at the following Link: https://www.ndsu.edu/equity/education_and_training/

FUNDING OPPORTUNITIES

Cyber-Physical Systems

Cyber-physical systems (CPS) are engineered systems that are built from, and depend upon, the seamless integration of computation and physical components. Advances in CPS will enable capability, adaptability, scalability, resiliency, safety, security, and usability that will expand the horizons of these critical systems. While tremendous progress has been made in advancing CPS technologies, the demand for innovation across application domains is driving the need to accelerate fundamental research to keep pace. At the same time, this multi-agency program [\[NSF 20-563\]](#) seeks to open new vistas for the research community to think beyond the usual cyber-physical paradigms and structures and propose creative ideas to address the myriad challenges of today's systems as well as those of the future that have not yet been designed or fielded.

Core research areas of the program include control, data analytics, and machine learning—including real-time learning for

control, autonomy, design, Internet of Things (IoT), mixed initiatives including human-in- or human-on-the-loop, networking, privacy, real-time systems, safety, security, and verification.

Proposals for three classes of research and education projects—differing in scope and goals—are supported through the CPS program:

- Small projects may request a total budget of up to \$500,000 for a period of up to 3 years. They are well suited to emerging new and innovative ideas that may have high impact on the field of CPS. Note that Small projects are not accepted under this solicitation.
- Medium projects may request a total budget ranging from \$500,001 to \$1,200,000 for a period of up to 3 years. They are well suited to multi-disciplinary projects that accomplish clear goals requiring integrated perspectives spanning the disciplines.
- Frontier projects must address clearly identified critical CPS challenges that cannot be achieved by a set of smaller projects. Furthermore, Frontier projects should also look to push the boundaries of CPS well beyond today's systems and capabilities. Funding may be requested for a total of \$1,200,001 to \$7,000,000 for a period of 4 to 5 years.

Deadline varies by track.

EREF: Sustainable Solid Waste Management

The [Environmental Research and Education Foundation \(EREF\)](#) has a long-term strategic plan to address all areas of integrated solid waste management, with a strong focus towards research that increases sustainable solid waste management practices. Pre-proposals must pertain to the following topic areas:

- Waste minimization;
- Recycling;
- Waste conversion to energy, biofuels, chemicals, or other useful products;
- Strategies to promote diversion to higher and better uses;
- Landfilling.

Pre-proposal Deadline: December 1, 2020; May 1, 2021

RECENTLY FUNDED GRANTS

- Yan Zhang (PI). Jugular Venous Blood Stasis in Microgravity: An Integrated Study of Pulsatile Flow-Vein-Valve Interaction. \$39,930 from ND NASA EPSCoR. 10/1/2020 - 9/30/2021.

RECENTLY SUBMITTED PROPOSALS

- Beena D Ajmera (PI), Om Prakash Yadav (CPI). Resilience of Civil Infrastructure Considering Effects of Cyclically Induced Strength Degradations in Fine-Grained Soils. \$388,047 from the National Science Foundation. 04/01/2021 – 03/31/2024.
- Zhili Gao (PI), Ying Huang (CPI), Todd L Sirotiak (CPI). Asphalt versus Concrete – Tool to Guide in Selection of Pavement Type. \$133,415 from the MN Department of Transportation. 07/01/2021 – 06/30/2023.
- Zhili Gao (PI), Mijia Yang (CPI). Quantifying Benefits of Bridge Maintenance. \$108,112 from the MN Department of Transportation. 07/01/2021 – 06/30/2023.
- Achintya Bezbaruah (PI). On-site optical molecularly imprinted polymer (MIP)-based biosensor for selective detection of SARS-COV-2 virus in wastewater. \$491,334.47 from the National Institutes of Health. 01/01/2021 – 12/31/2022.

- Zhibin Lin (PI). Bridge Low Slump Concrete Overlay Mix Design for Mobile Mixers. \$180,831 from the MN Department of Transportation. 07/01/2021 – 06/30/2023.
- Zhibin Lin (PI). Benefits of Preventive Maintenance. \$159,3556 from the MN Department of Transportation. 07/01/2021 – 06/30/2023.
- Eric Asa (PI). Designing and Implementing Maintainable Pedestrian Safety Countermeasures. \$141, 648 from the MN Department of Transportation. 07/01/2021 – 06/30/2023.
- Eric Asa (PI). Using GIS to Highlight Highway Segments Sensitive to Deicing Materials. \$99,732 from the MN Department of Transportation. 02/26/2021 – 01/10/2023.
- Eric Asa (PI), Ying Huang (CPI). Cost Estimate of B vs C Asphalt Binders. \$157,784 from the MN Department of Transportation. 07/01/2021 – 06/23/2023.
- Chad A Ulven (PI). Efficient and Direct Conversion of Lignin into Insulated Foam Panels. \$1,969,213 from the National Science Foundation. 05/01/2021 – 04/30/2025.
- Syeed Md Iskander (PI). ERASE-PFAS: Collaborative Research: Mitigation of Per- and Polyfluoroalkyl Substances in Landfill Leachate Using an Integrated Treatment Approach. \$179,971 from the National Science Foundation. 01/01/2021 – 12/31/2023.
- Juan Li (PI), Zhibin Lin (CPI). Collaborative Research: Improving Disaster Resilience and Time-Critical Risk Communication via a Human-as-a-Sensor (HaaS) paradigm under Resource-Constrained Environment. \$398,877 from the National Science Foundation. 03/01/2021 – 02/29/2024.
- Kalpana Katti (PI), Dinesh R Katti (CPI). Next Generation Solutions for Personalized Care of Breast Cancer Bone Metastasis. \$650,235 from the U.S. Army. 07/21/2021 – 07/20/2024.

RECENT PUBLICATIONS

For 2020, 140 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:

- Abbas, Tauqeer, Tanush Wadhawan, Asad Khan, John McEvoy, and Eakalak Khan. 2020. “Virgin (Fe-0) and Microbially Regenerated (Fe2+) Iron Turning Waste for Treating Chlorinated Pesticides in Water.” *Journal of Hazardous Materials* 398 (November): 122980. <https://doi.org/10.1016/j.jhazmat.2020.122980>.
- Bazrkar, Mohammad Hadi, Jianglong Zhang, and Xuefeng Chu. n.d. “Hydroclimatic Aggregate Drought Index (HADI): A New Approach for Identification and Categorization of Drought in Cold Climate Regions.” *Stochastic Environmental Research and Risk Assessment*. <https://doi.org/10.1007/s00477-020-01870-5>.
- Cui, Leqi, Nonoy Bandillo, Yechun Wang, Jae-Bom Ohm, Bingcan Chen, and Jiajia Rao. 2020. “Functionality and Structure of Yellow Pea Protein Isolate as Affected by Cultivars and Extraction PH.” *Food Hydrocolloids* 108 (November): 106008. <https://doi.org/10.1016/j.foodhyd.2020.106008>.
- Hosseini-Farid, Mohammad, Mohammadreza Ramzanpour, Jayse McLean, Mariusz Ziejewski, and Ghodrati Karami. 2020. “Rate-Dependent Constitutive Modeling of Brain Tissue.” *Biomechanics and Modeling in Mechanobiology* 19 (2): 621–32. <https://doi.org/10.1007/s10237-019-01236-z>.
- Jamei, Mehdi, Iman Ahmadianfar, Xuefeng Chu, and Zaher Mundher Yaseen. 2020. “Prediction of Surface Water Total Dissolved Solids Using Hybridized Wavelet-Multigene Genetic Programming: New Approach.” *Journal of Hydrology* 589 (October): 125335. <https://doi.org/10.1016/j.jhydrol.2020.125335>.
- Narayanan, Lokesh Karthik, and Rohan A. Shirwaiker. 2020. “Experimental Characterization and Finite Element Modeling of the Effects of 3D Bioplotting Process Parameters on Structural and Tensile Properties of Polycaprolactone (PCL) Scaffolds.” *Applied Sciences-Basel* 10 (15): 5289. <https://doi.org/10.3390/app10155289>.
- Rana, Mohit Singh, Shashi Bhushan, and Sanjeev Kumar Prajapati. 2020. “New Insights on Improved Growth and Biogas Production Potential of *Chlorella Pyrenoidosa* through Intermittent Iron Oxide Nanoparticle Supplementation.” *Scientific Reports* 10 (1): 14119. <https://doi.org/10.1038/s41598-020-71141-4>.

- Sun, Yaguang, Hua Yang, Wenjie Xia, and Yafang Guo. 2020. “Molecular Dynamics Simulations of Surface Welding in Crosslinked Networks with Thermally Reversible Linkages.” *Applied Surface Science* 527 (October): 146947. <https://doi.org/10.1016/j.apsusc.2020.146947>.
- Wang, Ning, and Xuefeng Chu. 2020. “Revised Horton Model for Event and Continuous Simulations of Infiltration.” *Journal of Hydrology* 589 (October): 125215. <https://doi.org/10.1016/j.jhydrol.2020.125215>.
- Xie, Bo, Cui Tao, Juan Li, Robin C. Hilsabeck, and Alyssa Aguirre. 2020. “Artificial Intelligence for Caregivers of Persons With Alzheimer’s Disease and Related Dementias: Systematic Literature Review.” *JMIR Medical Informatics* 8 (8): e18189. <https://doi.org/10.2196/18189>.
- Xu, Wen-Sheng, Jack F. Douglas, Wenjie Xia, and Xiaolei Xu. 2020. “Investigation of the Temperature Dependence of Activation Volume in Glass-Forming Polymer Melts under Variable Pressure Conditions.” *Macromolecules* 53 (16): 6828–41. <https://doi.org/10.1021/acs.macromol.0c01268>.
- Zhang, Ruihang, and Yan Zhang. 2020. “Effects of Heart Rate on the Pulsatile Flow Characteristics of a Stenotic Aortic Valve Model: An In Vitro Experimental Study.” *Journal of Fluids Engineering-Transactions of the ASME* 142 (10): 101205. <https://doi.org/10.1115/1.4047410>.

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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