

COLLEGE HAPPENINGS

October 1, 2019

FROM THE DEAN

Budget Efficiencies

This afternoon, I, and several members of the College Leadership Team, will be driving to Minneapolis to attend the 2019 Minnesota National College Fair. With representatives from over 300 different colleges and universities, this is one of the largest college fairs in the country. We'll be spending Wednesday and Thursday morning at the NDSU exhibit talking with prospective students about all of the opportunities the College of Engineering at NDSU has to offer. NDSU always has a large presence at this event, and having faculty, department chairs, associate deans, and deans at the fair sends a strong message to the prospective students about the student focused nature of NDSU. With the university's enrollments dropping in recent years, these types of recruiting activities are all the more important.

One impact of falling enrollments is the strain it puts on the university's budget. Perhaps for that reason each college was recently asked by the Office of the Provost to participate in a budgeting exercise where we will submit a significantly reduced budget. This is only an exercise, and does not suggest that the reduced budgets would be accepted. However, it may be useful in identifying some opportunities to be better stewards of the resources in the college. If you have any thoughts or suggestions regarding improving efficiencies, eliminating waste, university priorities, programs, realignments, etc. please let me know either in person or by email. If you would like to submit your ideas anonymously, you can send them through campus mail.



IN THE NEWS

[NDSU engineering event to host moms, daughters](#)

[NDSU faculty among group honored by governor](#)

[NDSU research center turning ag waste into bioplastics](#)

[Bioplastics research at NDSU \(Podcast\)](#)

CONGRATULATIONS

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

CONSTRUCTION MANAGEMENT AND ENGINEERING CHAIR CANDIDATE SEMINARS

Each of the four finalists will be giving a presentation on their research and teaching accomplishments and interaction with industry and students. The seminars are open to all members of the College of Engineering.

Hazem Elzarka, University of Cincinnati

- Monday, October 7 from 12:00 – 1:30p.m. in the Family Life Center Room 124

Zhigang Shen, University of Nebraska-Lincoln

- Thursday, October 10 from 3:30 – 5:00 p.m. in Loftsgard Auditorium (Room 114)

COE FACULTY COUNCIL

Please mark your calendars for the CoE Faculty Council Meetings for the 2019-2020 academic year.

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|---|----------|------------------------|-----------------|-----------------------------------|
| • | October | 16 th (Wed) | 3:00 – 4:00 PM | QBB 104 (auditorium) |
| • | November | 13 th (Wed) | 3:00 – 4:00 PM | QBB 104 (auditorium) |
| • | December | 10 th (Tue) | 12:30 – 1:30 PM | Prairie Rose Room, Memorial Union |
| • | January | 29 th (Wed) | 3:00 – 4:00 PM | QBB 104 or CME Auditorium |
| • | February | 18 th (Tue) | 12:30 – 1:30 PM | Prairie Rose Room, Memorial Union |
| • | March | 11 th (Wed) | 3:00 – 4:00 PM | QBB 104 or CME Auditorium |
| • | April | 14 th (Tue) | 12:30 – 1:30 PM | Prairie Rose Room, Memorial Union |
| • | May | 6 th (Wed) | 3:00 – 4:00 PM | QBB 104 or CME Auditorium |

UPCOMING EVENTS

Friday, October 5, **Introduction to the North Dakota Corn Council**. This ABEN Seminar features Jean Henning, Executive Director of the North Dakota Corn Utilization Council. 3:00 p.m. ABEN 201

Thursday, October 10, **In Our Hands: The Campaign for North Dakota State University**. Join the campus community for the public launch of the largest capital campaign in the history of NDSU. 4:15 p.m. at the Sanford Health Athletic Complex.

Friday, October 11, **College of Engineering Homecoming Showcase**. 11:00 a.m. – 1:00 p.m. in the Memorial Union Great Plains Room. [Register Here](#).

Thursday and Friday, October 17 and 18, **Discover NDSU**. The largest event of the year for high school juniors and seniors.

Thursday, October 17, **Tools and Weapons: The Promise and Peril of the Digital Age presented by Microsoft President Brad Smith**. 3:00 – 4:00 p.m. at the McGovern Alumni Center. [Click this link to register](#) *Space is limited.*

Thursday, October 24, **Red River Valley ASABE Sectional meeting**. The registration deadline is 11:59 p.m. on Tuesday, October 22, 2019. [Register Here](#).

Friday October 25, **Development of Novel Shear Thickening Fluid Impregnated Biocomposite Body Armor**. This Mechanical Engineering Seminar is presented by M.S. candidate Joseph Fehenbach. 12:00 – 12:50 p.m. in Dolve 118.

FUNDING OPPORTUNITIES

NSF: Smart and Connected Health

The goal of the interagency Smart and Connected Health (SCH): Connecting Data, People and Systems program [[NSF 18-541](#)] is to accelerate the development and integration of innovative computer and information science and engineering approaches to support the transformation of health and medicine. Approaches that partner technology-based solutions with biomedical and biobehavioral research are supported by multiple agencies of the federal government including the National Science Foundation (NSF) and the National Institutes of Health (NIH). The purpose of this program is to develop next-generation multidisciplinary science that encourages existing and new research communities to focus on breakthrough ideas in a variety of areas of value to health, such as networking, pervasive computing, advanced analytics, sensor integration, privacy and security, modeling of socio-behavioral and cognitive processes and system and process modeling. Effective solutions must satisfy a multitude of constraints arising from clinical/medical needs, barriers to change, heterogeneity of data, semantic mismatch and limitations of current cyberphysical systems and an aging population. Such solutions demand multidisciplinary teams ready to address issues ranging from fundamental science and engineering to medical and public health practice.

Application Deadline: December 11, 2019

ARPA-E: Performance-based Energy Resource Feedback, Optimization, and Risk Management (PERFORM)

The Advanced Research Projects Agency–Energy (ARPA-E) announced a new [Funding Opportunity](#) to quantify and manage risk on the grid. The Performance-based Energy Resource Feedback, Optimization, and Risk Management (PERFORM) projects will develop a transformative and disruptive risk-driven grid management paradigm that optimally utilizes all assets to reduce costs and improve reliability.

For more information on ARPA-E's PERFORM program, click [here](#). Additional information, including the full FOA and how to find project teaming partners, is available on ARPA-E's online application portal, [ARPA-E eXCHANGE](#).

Concept Paper Deadline: October 28, 2019, 8:30AM CST

RECENTLY FUNDED GRANTS

- Jordi Estevadeordal (PI), Yildirim B Suzen (CPI). Advanced Optical Diagnostics for Supersonic/Hypersonic Wind Tunnel Research at NASA. \$25,000 from the National Aeronautics and Space Administration. 08/16/2019 – 08/15/2020.
- Benjamin Davis Braaten (PI). Chip-Based ADS-B for High Density, Low Altitude UAV Operations. \$12,097 from the National Aeronautics and Space Administration. 08/15/2019 – 12/31/2019.
- Ravi Kiran Yellavajjala (PI). Polyol soy-protein based coating for protection against chloride-ion attack. \$32,000 from the MN Soybean Research and Promotion Council. 01/01/2020 – 12/31/2020.
- Alan R Kallmeyer (PI), Chad A Ulven (CPI). Design and Development of Durable Adhesive Joints. \$150,000 from PPG Industries. 09/01/2019 – 09/30/2020.
- Beena Ajmera (PI). NDSU EPSCoR Internal Funding – Equipment Award. \$35,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Jordi Estevadeordal (PI). NDSU EPSCoR Internal Funding – Equipment Award. \$35,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Alan Kallmeyer (PI). NDSU EPSCoR Internal Funding – Equipment Award. \$29,267 from ND EPSCoR. 09/26/2019 – 05/31/2020.

- Dinesh Katti (PI). NDSU EPSCoR Internal Funding – Equipment Award. \$6,595 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Xiangfa Wu (PI). NDSU EPSCoR Internal Funding – Equipment Award. \$35,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Xuefeng Chu (PI). NDSU EPSCoR Internal Funding – Student Travel Award. \$2,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Zhibin Lin (PI). NDSU EPSCoR Internal Funding – Student Travel Award. \$1,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Mijia Yang (PI). NDSU EPSCoR Internal Funding – Undergraduate Research Award. \$5,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Dharmakeerthi Nawarathna (PI). NDSU EPSCoR Internal Funding – External Proposal Review Award. \$5,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Yao Yu (PI), Quifeng Zhang (CPI), Zhibin Lin (CPI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Nita Yodo (PI), Zhibin Lin (CPI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Ravi Kiran Yellavajjala (PI), Chad Ulven (CPI), Yao Yu (CPI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Wenjie Xia (PI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Di Wu (PI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Danling Wang (PI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Annie Tangpong (PI). Fardad Azarmi (CPI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Dali Sun (PI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Shafiqur Rahman (PI). NDSU EPSCoR Internal Funding – Seed Award. \$9,706 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Ivan Lima (PI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Kalpana Katti (PI), Dinesh Katti (CPI). NDSU EPSCoR Internal Funding – Seed Award. \$10,000 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- Abdul-Aziz Banawi (PI), Jerry Gao (CPI). NDSU EPSCoR Internal Funding – Seed Award. \$9,888 from ND EPSCoR. 09/26/2019 – 05/31/2020.
- M. Zubair Malik (PI). NDSU EPSCoR Internal Funding – Seed Award. \$9,999 from ND EPSCoR. 09/26/2019 – 05/31/2020.

RECENTLY SUBMITTED PROPOSALS

- Amiy Varma (PI). The Impact of Deferred Maintenance in Minnesota. \$90,000 from the MN Department of Transportation. 07/01/2020 – 06/30/2022.
- Amiy Varma (PI). Pedestrian User Experience at Roundabouts. \$120,000 from the MN Department of Transportation. 07/01/2020 – 06/30/2022.
- Amiy Varma (PI). Balancing Roundabout Design and ADA Accessibility. \$105,000 from the MN Department of Transportation. 07/01/2020 – 06/30/2022.
- Long Jiang (PI). 3D Printing of Biobased High-Performance Thermosetting Composites with Continuous Cotton Yarn as Reinforcement. \$43,414 from Cotton Incorporated. 01/01/2020 – 12/31/2021.

- Danling Wang (PI), Qifeng Zhang (CPI). A novel, non-invasive, portable breath sensor based on 2D Ti3C2 MXene and KxWO nanocomposite for early stage diabetes diagnosis, monitoring, and prevention. \$99,595 from Sony. 01/01/2020 – 12/31/2020.
- Kalpana Katti (PI), Dinesh R Katti (CPI). Design of Humanoid Testbeds of Breast Cancer Bone Metastasis. \$75,000 from the National Institutes of Health. 11/01/2019 – 08/31/2020.
- Trung Bao Le (PI). Dynamics of Particle-Laden Water Droplets in Water-In-Oil Emulsion. \$110,000 from the American Chemical Society. 09/01/2020 – 08/31/2022.
- Dharmakeerthi Nawarathna (PI). Point-of-care Device for Micro-RNA Biomarker Testing to Improve the Efficacy of Early Detection of Colorectal Cancer. \$528,902 from the National Institutes of Health. 04/01/2020 – 03/31/2023.
- Benjamin Davis Braaten (PI). Development of a RF Sensing Platform for Grain Detection – Phase. \$14,733 from John Deere & Company. 10/01/2019 – 10/31/2019.
- Jeremy A Straub (PI). North Dakota Residential GenCyber Program 1. \$145,000 from the National Security Agency. 03/01/2020 – 02/28/2021.
- Jeremy A Straub (PI). North Dakota Residential GenCyber Program 2. \$145,000 from the National Security Agency. 03/01/2020 – 02/28/2021.

RECENT PUBLICATIONS

For 2019, 101 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:

- Bajwa, Dilpreet S., Chad Rehovsky, Jamileh Shojaeiarani, Nicole Stark, Sreekala Bajwa, and Mark A. Dietenberger. 2019. "Functionalized Cellulose Nanocrystals: A Potential Fire Retardant for Polymer Composites." *Polymers* 11 (8): 1361. <https://doi.org/10.3390/polym11081361>.
- Eslaminejad, Ashkan, Mariusz Ziejewski, and Ghodrath Karami. 2019. "Vibrational Properties of a Hemispherical Shell With Its Inner Fluid Pressure: An Inverse Method for Noninvasive Intracranial Pressure Monitoring." *Journal of Vibration and Acoustics-Transactions of the ASME* 141 (4): 041002. <https://doi.org/10.1115/1.4042928>.
- Johnson, Michael, Qifeng Zhang, and Danling Wang. n.d. "Room-Temperature Ferroelectric K2W7O22 (KWO) Nanorods as a Sensor Material for the Detection of Acetone." *MEDICAL DEVICES & SENSORS* 0 (0): e10044. <https://doi.org/10.1002/mds3.10044>.
- Liaw, Joshua D., Dilpreet S. Bajwa, Jamileh Shojaeiarani, and Sreekala G. Bajwa. 2019. "Corn Distiller's Dried Grains with Solubles (DDGS) - A Value Added Functional Material for Wood Composites." *Industrial Crops and Products* 139 (November): UNSP 111525. <https://doi.org/10.1016/j.indcrop.2019.111525>.
- Lyu, Xiaofeng, Na Ren, and Dong Cao. 2019. "Instantaneous Pulse Power Compensator for High-Density Single-Phase Inverters." *IEEE Transactions on Power Electronics* 34 (11): 10776–85. <https://doi.org/10.1109/TPEL.2019.2898680>.
- Pandiselvam, R., M. R. Manikantan, N. Subhashree, A. C. Mathew, D. Balasubramanian, P. P. Shameena Beegunn, S. Ramesh, V. Niral, T. N. Ranjini, and K. B. Hebbar. n.d. "Correlation and Principal Component Analysis of Physical Properties of Tender Coconut (Cocos Nucifera L.) in Relation to the Development of Trimming Machine." *Journal of Food Process Engineering*, e13217. <https://doi.org/10.1111/jfpe.13217>.
- Yavari, Mohammadreza, Majid Bazargan, Nasim Kazemi, Elaheh Bagherizadeh, and Jordi Estevadeordal. 2019. "Front Dynamics in Exchange Flow of Two Immiscible Iso-Viscous Fluids in Two-Dimensional Straight and Curved Plane Channels." *Physics of Fluids* 31 (9): 092105. <https://doi.org/10.1063/1.5108748>.
- Zolghadr-Asli, Babak, Omid Bozorg-Haddad, Parisa Sarzaeim, and Xuefeng Chu. 2019. "Investigating the Variability of GCMs' Simulations Using Time Series Analysis." *Journal of Water and Climate Change* 10 (3): 449–63. <https://doi.org/10.2166/wcc.2018.099>.

- Zolghadr-Asti, Babak, Omid Bozorg-Haddad, and Xuefeng Chu. 2019. “Effects of the Uncertainties of Climate Change on the Performance of Hydropower Systems.” *Journal of Water and Climate Change* 10 (3): 591–609. <https://doi.org/10.2166/wcc.2018.120>.

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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