

COLLEGE HAPPENINGS

December 11, 2018

FROM THE DEAN

Happy Holidays

On Thursday at 5:30pm in the Memorial Union Century Theater we will be celebrating with our fall graduates and their families as the graduates will be inducted into the Order of the Engineer and pledge to “uphold the standards and dignity of the engineering profession.” The ceremony will be followed by the College of Engineering Graduation Reception in the Memorial Union Ballroom. I invite you to come and celebrate the accomplishment of our students with fellow faculty and staff from the College.

With the end of final exams and the close of the fall semester, I'd also like to take this time during the holiday season to offer my sincerest gratitude to all of our faculty and staff for your tremendous dedication to our mission of preparing innovative problem solvers by offering a premier undergraduate and graduate experience while also creating new knowledge by conducting world-class research to improve lives. As you enjoy a pause from the classes and meetings of the busy semester over the next few weeks, I hope that you will take time to reflect on the important work you do for our students and remember the lives you have positively impacted through our work. Your dedicated efforts reaffirm my belief that the College of Engineering's best days are ahead. In my next dean's message, I'll reflect on the past year, and look forward to the new one. Until then, I hope you have a most joyous holiday season.



IN THE NEWS

[Engineering professor presents research at international conference](#)

[Alumnus to receive honorary doctorate](#)

[College of Engineering recognized for commitment to diversity and inclusion](#)

[Engineering student named to football academic All-America team](#)

CONGRATULATIONS

Dong Cao from the **Department of Electrical and Computer Engineering** has been appointed as the associate editor for the **IEEE Journal of Emerging and Selected Topics in Power Electronics**.

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

Wednesday, December 12th, NDSU College of Engineering Seminar. Northwestern University mechanical engineering professor **Yonggang Huang** will present “**Mechanics-Guided Deterministic 3D Assembly**” at 1:30 p.m. in the Memorial Union Hidatsa room.

Thursday, December 13th, **Order of the Engineer Ceremony and College Graduation Celebration**. The Order of the Engineer Ceremony is at **5:30 p.m. in the Memorial Union Century Theater**. The Graduation Celebration follows in the Memorial Union Ballroom.

Friday, December 14, **2018 Winter Commencement ceremony**, 2:00 p.m. at the SHAC. NDSU Engineering alumnus **Spencer Duin** will receive an honorary doctorate during the ceremony.

Thursday, January 10, 2019, **NDSU Day of Honor memorial service**. 3:00 p.m. Memorial Union Plains Room. If you know of a member of our campus community who has passed away in 2018, please visit the [Day of Honor webpage](#) to complete a submission form. **Submission forms will be accepted through Friday, January 4, 2019.**

PELTIER AWARD FOR INNOVATION IN TEACHING

The [Peltier Award for Teaching Innovation](#) was established with the NDSU Development Foundation by Joseph and Norma Peltier to recognize outstanding innovation in teaching. The ideal candidate for the award is an outstanding educator whose innovative teaching techniques have contributed to enhancing the educational experience of students at North Dakota State University. Winners of 2017-2018 award were Drs. Kelli Sassi and Jennifer Momsen.

To nominate a faculty member for this award, submit a nomination letter (of no more than two pages) addressing the criteria and three-page CV to ndsu.provost@ndsu.edu by December 21. Award winners receive a cash prize of \$2,500.

FUNDING OPPORTUNITIES

NSF: Designing Materials to Revolutionize and Engineer our Future (DMREF)

Designing Materials to Revolutionize and Engineer our Future ([DMREF / NSF 19-516](#)) is the primary program by which the National Science Foundation (NSF) participates in the [Materials Genome Initiative \(MGI\) for Global Competitiveness](#). MGI recognizes the importance of materials science and engineering to the well-being and advancement of society and aims to "deploy advanced materials at least twice as fast as possible today, at a fraction of the cost." MGI integrates materials discovery, development, property optimization, and systems design with a shared computational framework. This framework facilitates collaboration and coordination of research activities, analytical tools, experimental results, and critical evaluation in pursuit of the MGI goals. Consistent with the [MGI Strategic Plan](#), DMREF highlights four sets of goals:

1. Leading a culture shift in materials science and engineering research to encourage and facilitate an integrated team approach;
2. Integrating experimentation, computation, and theory and equipping the materials science and engineering communities with advanced tools and techniques;
3. Making digital data accessible, findable, and useful to the community; and
4. Creating a world-class materials science and engineering workforce that is trained for careers in academia or industry.

All awards will be four years in duration. Awards are expected to range from \$1,000,000 to \$1,750,000.

Application window: January 28-February 4, 2019

Sanford Health - NDSU Collaborative Research Seed Grant Program

The fifth Sanford Health - NDSU Collaborative Research Seed Grant program's Request for Applications (RFA) has been released. Proposals are to be submitted electronically to NDSU.BusinessDev@ndsu.edu by 5:00 PM on March 19, 2018. The full RFA and Application form can be downloaded from the [program's webpage](#).

To better facilitate collaboration between NDSU and Sanford Health collaborators, proposers are requested to submit a short description of a possible proposal by January 29th. Additional information about the Collaboration Request can be found in the RFA or at the link above.

Questions regarding suitability of topic areas, collaborating with Sanford, or other program-related questions can be addressed by Business Development (231-6660 or NDSU.businessdev@ndsu.edu).

RECENTLY FUNDED GRANTS

- Shafiqur Rahman (PI). Microbial Fuel Cell (MFC) for Bioelectricity Generation and Pollutants Removal from Wastewater (SBPW). \$5,998 from the Bangladesh Agricultural Research Council. 11/30/2018 – 12/01/2019.

RECENTLY SUBMITTED PROPOSALS

- Ravi Kiran Yellavajjala (PI). EXTEND UTC: Extending the Life of Transportation Infrastructure through Innovations in Materials, Measurement, Modeling, Monitoring and Management (M5). \$150,000 from the Department of Transportation. 03/01/2019 – 09/30/2019.
- Beena D Ajmera (PI). Shear Strength of Fine-Grained Soils Mixed with Recycled Crumb Rubber. \$218,750 from the Environmental Research & Education Fdn. 08/01/2019 – 07/31/2022.
- Yao Yu (PI). An Innovative Hybrid Heat Pump System Design for High Efficiency and Low Cost. \$56,000 from the National Science Foundation. 06/01/2019 – 05/31/2020.
- Dong Cao (PI). MRI: Acquisition of HARd Real-time VERSatile Simulation Testbed for Future Smart Infrastructure Research and Student Training (HARVEST-FIRST). \$173,170 from the National Science Foundation. 08/16/2019 – 08/15/2022.
- Dong Cao (PI). 100 kW High Density SiC Automotive Switched-Tank Converter. \$168,717 from the Department of Energy. 07/01/2019 – 06/30/2020.
- Dharmakeerthi Nawarathna (PI). Miniaturized Biomanufacturing Platform for Engineering Non-Viral Based CAR-T Cells at Point-of-Care Cancer Immunotherapy. \$299,861 from the National Science Foundation. 04/01/2019 – 03/31/2022.
- Ivan T Lima Jr. (PI). Label-Free Biosensor for the Detection of the Molecular Biomarkers of Pancreatic Cancer. \$24,998 from the National Institutes of Health. 01/01/2019 – 08/31/2019.
- Yan Zhang (PI). Diversion Control of Pulsatile Flow Over Cavities Using Super Hydrophobic Mesh. \$317,366 from the National Science Foundation. 08/01/2019 – 07/31/2022.
- Yildirim B Suzen (PI). Variable Speed Power Turbine for Vertical Lift Tilt Rotor and Hybrid Electric Air Vehicles: Experimental Investigation and Computational Analysis. \$370,126 from the University of North Dakota. 10/01/2019 – 09/30/2022.

RECENT PUBLICATIONS

For 2018, 113 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:

- Hsu, Paul S., Anil K. Patnaik, Adam J. Stolt, Jordi Esteveordal, Sukesh Roy, and James R. Gord. 2018. "Femtosecond-Laser-Induced Plasma Spectroscopy for High-Pressure Gas Sensing: Enhanced Stability of Spectroscopic Signal." *Applied Physics Letters* 113 (21): 214103. <https://doi.org/10.1063/1.5054805>.
- Liu, Xiaoyan, Qifeng Zhang, Jiangyu Li, Nagarajan Valanoor, Xiao Tang, and Guozhong Cao. 2018. "Increase of Power Conversion Efficiency in Dye-Sensitized Solar Cells through Ferroelectric Substrate Induced Charge Transport Enhancement." *Scientific Reports* 8 (November): 17389. <https://doi.org/10.1038/s41598-018-35764-y>.
- Velmanickam, Logeeshan, Manpreet Bains, Michael Fondakowski, Glenn Paul Dorsam, and Dharmakeerthi Nawarathna. 2019. "ILLuminate-MiRNA: Paradigm for High-Throughput, Low-Cost, and Sensitive MiRNA Detection in Serum Samples at Point-of-Care." *Journal of Physics D-Applied Physics* 52 (5): 055401. <https://doi.org/10.1088/1361-6463/aaed97>.
- Yin, Guanyi, Zhulu Lin, Xilong Jiang, Hongwen Yan, and Xiaoming Wang. 2019. "Spatiotemporal Differentiations of Arable Land Use Intensity - A Comparative Study of Two Typical Grain Producing Regions in Northern and Southern China." *Journal of Cleaner Production* 208 (January): 1159–70. <https://doi.org/10.1016/j.jclepro.2018.10.143>.

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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