

# COLLEGE HAPPENINGS

May 17, 2022

## IN THE NEWS

[NDSU students shine at national cybersecurity competition](#)

[Commencement speaker: Every collegiate journey is special](#)

[Spring 2022 grads share memorable NDSU experiences](#)

[College of Engineering hosts Senior Design Expo](#)

[Faculty member quoted in MoneyGeek article](#)

[NDSU students excel in cybersecurity competition](#)

## CONGRATULATIONS

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

## 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. 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

### Corrosion Control and Innovative Coating Systems and Applications

NDSU faculty and research teams have an opportunity to work on an anticipated NDSU program with the Army's Construction Engineering Research Laboratory (CERL) on R&D related to two BAA areas:

1. Corrosion Control
2. Innovative Coating Systems and Applications

This call for white papers is for potential seed funding to generate research programs relevant to these BAA areas. The long-term goal is to develop productive collaborations to advance research in the identified areas and increase the competitiveness of teams to build research capacity.

It is anticipated that projects will be funded for a 2-year duration. Project funding can be up to \$300,000 total cost (direct and indirect).

Learn more and read the white paper requirements [here](#).

White papers must be submitted to [ndsuhuang@ndsuhuang.edu](mailto:ndsuhuang@ndsuhuang.edu) by June 1, 2022.

### Seed Research Proposals on Artificial Intelligence in Energy and Related Infrastructure

The AI SUSTEIN program funded by NSF Track-2 EPSCoR is calling for seed research proposal for 2022-2023 year.

Eligibility:

1. Tenure-track assistant professor at NDSU in STEM areas. Women, and members of other underrepresented populations are highly encouraged to apply.
2. U.S. citizenship and permanent residency are not required.
3. Research experience in energy related infrastructure and/or artificial intelligence.

Funding Information:

1. \$15,000 (net/not subjected to F&A) for one year.
2. Number of awards: at least 1.
3. Award period: August 15, 2022 to August 14, 2023 and no extension expected.

Application Submission:

Please e-mail a single pdf copy of the application package to Ying Huang at [ying.huang@ndsuhuang.edu](mailto:ying.huang@ndsuhuang.edu) by 5:00 PM on June 15, 2022 (Email Subject: 2022 AI SUSTEIN seed grant application). Incomplete or late applications will be returned without review.

The applicants will be notified of the application outcome via e-mail by July 31, 2022. A brief review will be provided along with the notification.

### Equipment Repair Match Funding

The Research and Creative Activity Office has a small pool of funds available to provide match to researchers for equipment repair that can be completed by June 15, 2022. If interested in accessing these funds, submit a request and please include:

- details of the equipment to be repaired,
- its use (departmental, college, institution-wide), and
- an estimate / quote of the repair cost.

For departmental / unit requests, priority will be given to equipment that is used by multiple researchers and that has a match of at least 33%. For Service / Recharge Centers and Core Facilities, priority will be given to requests that have at least a 50% match. Funds must be spent no later than June 15, 2022.

Please submit your request to Becky Hellman Tangen ([becky.hellman@ndsu.edu](mailto:becky.hellman@ndsu.edu)).

## RECENTLY FUNDED GRANTS

- Long Jiang (PI). Development of smart, self-healing, injectable gels using soy protein isolate for local cancer therapy. \$54,360 from the ND Soybean Council. 7/1/2022 - 6/30/2023.
- Long Jiang (PI) Soy protein isolate based electrolyte gels for anti-freezing flexible zinc-ion batteries. \$49,240 from the ND Soybean Council. 7/1/2022 - 6/30/2023.
- Long Jiang (PI) Further development on Soy Protein-based Soft Gels for Sensors and Soft Robotics. \$30,334 from the ND Soybean Council. 7/1/2022 - 6/30/2023.
- Jordi Estevadeordal (PI). Experimental Investigation of Passive Control of Dynamic Stall Using Micro-Cavity Actuators. \$30,000 from the U.S. Air Force. 3/1/2022 - 9/1/2022.
- Jeremy A Straub (PI). Support for the Development of K-12 School Cybersecurity Education in North Dakota. \$6,516 from the National Security Agency. 1/1/2022 - 12/31/2022.

## RECENTLY SUBMITTED PROPOSALS

- Xiangfa Wu (PI), Oksana Zholobko (CPI). Degradation mechanisms and durability growth of intermediate-temperature polymer-inorganic composite proton exchange membranes. \$531,283 from the National Science Foundation. 9/1/2022 - 8/31/2025.
- Di Wu (PI). Analysis, Prevention, and Detection of Sub-synchronous Oscillation in Power Grids with High Penetration of Renewable Resources. \$749,896 from the Department of Energy. 9/1/2022 - 8/31/2025.
- Mijia Yang (PI). BRITE Synergy: AI based bridge network monitoring and maintenance through coupled dynamics among bridge, vehicle, and environmental factors. \$310,184 from the National Science Foundation. 1/1/2023 - 12/31/2024.
- Dali Sun (PI). pED, novel portable elliptical dichroism device for stereochemical cancer biology. \$651,827 from the National Institutes of Health. 4/1/2023 - 3/31/2026.
- Jeremy A Straub (PI). NDDPI Funding to support Bison Cyber Camp in 2022. \$19,825 from the ND Department of Public Instruction. 5/1/2022 - 9/30/2022.
- Jeremy A Straub (PI) Policy Analysis of Disgorgement as a Penalty for AI Research Violations. \$23,212 from George Mason University. 10/3/2022 - 10/2/2023.
- Shuvashis Dey (PI). Incorporation of Deep Learning with Surface Acoustic Wave (SAW) based Radio Frequency (RF) sensors for wireless monitoring of mining truck tyre structural integrity. \$79,310 from the Australian Research Admin Pty Ltd. 3/1/2023 - 2/28/2025.
- Shuvashis Dey (PI). Radio Frequency (RF) sensor and Deep Learning based wireless monitoring of conveyor belt structural health for open cut coal mines. \$79,310 from the Australian Research Admin Pty Ltd. 3/1/2023 - 2/28/2025.

- Jessica Lynne Lattimer Vold (PI), Ali Amiri (CPI), Yildirim Bora Suzen (CPI). M2M X-Hab Move that Goo. \$49,999 from the National Aeronautics and Space Administration. 8/1/2022 - 5/31/2023.
- Zhibin Lin (PI), Hong Pan (CPI), Xingyu Wang (CPI). Accelerating Transition towards Sustainable, Precise, Reliable Hydrogen Infrastructure (Super-H2): Holistic Risk Assessment, Mitigation Measures, and Decision Support Platforms. \$1,000,000 from the Department of Transportation. 10/1/2022 - 9/30/2025.
- Mijia Yang (PI). CIVIC-PG Track A: Understanding Failure of Metal Roofs for Extreme Loads Induced by Climate Changes. \$50,000 from the National Science Foundation. 11/1/2022 - 4/30/2023.
- Xuefeng Chu (PI). WATER RESOURCES RESEARCH ACT PROGRAM ANNUAL BASE GRANTS FISCAL YEAR 2022 REQUEST FOR APPLICATIONS. \$133,770 from the U.S. Geological Survey. 9/1/2022 - 8/31/2023.
- Omid Beik (PI) RII Track-4: NSF: An MVDC Wind Generation Scheme with a Multilevel Conversion System: A Partnership with PNNL. \$208,750 from the National Science Foundation. 4/17/2023 - 4/16/2025.
- Zhibin Lin (PI), Ying Huang (CPI), Trung Bao Le (CPI), Yan Zhang (CPI). How Safe Is Safe: Risk-Awareness Potential Impact Radius for Safe CO<sub>2</sub> Pipeline Networks. \$500,000 from the Department of Transportation. 10/1/2022 - 9/30/2025.
- Xuefeng Chu (PI). 2022-2023 NDWRRI Graduate Fellowship Matching Funds. \$25,000 from the ND Water Commission. 9/1/2022 - 8/31/2023.
- Dharmakeerthi Nawarathna (PI), Umamaheswara Rao Tida (CPI). FMSG: Integrated RF electric fields and Machine Learning for Biomanufacturing mRNA-based CAR T-cells at point-of-care for personalized therapy. \$500,000 from the National Science Foundation. 8/1/2022 - 7/31/2024.
- Yu Zhang (PI). Distinguishing herbicide resistant (Glufosinate, Glyphosate, PPO inhibitors and Dicamba) kochia in sugar beet field using deep learning algorithm and hyperspectral technology. \$2,918 from the Sugarbeet Res. & Edu. Board of MN & ND. 7/1/2022 - 6/30/2023.
- Joao Paulo Cassol Flores (CPI). SOYGEN3: Building Capacity to Increase Soybean Genetic Gain for Yield and Composition through Combining Genomics-Assisted Breeding with Characterization of Future Environments. \$57,283 from the North Central Soybean Research Program. 10/1/2022 - 9/30/2023.

## RECENT PUBLICATIONS

For 2022, 59 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:

- Afrin, Tanzina, and Nita Yodo. 2022. "A Long Short-Term Memory-Based Correlated Traffic Data Prediction Framework." *Knowledge-Based Systems* 237 (February): 107755. <https://doi.org/10.1016/j.knosys.2021.107755>.
- Alwarappan, Subbiah, Noel Nesakumar, Dali Sun, Tony Y. Hu, and Chen-Zhong Li. 2022. "2D Metal Carbides and Nitrides (MXenes) for Sensors and Biosensors." *Biosensors & Bioelectronics* 205 (June): 113943. <https://doi.org/10.1016/j.bios.2021.113943>.
- Bergstrom, Aaron, John Nowatzki, Trevor Witt, Isaac Barnhart, Jordan Krueger, Mark Askelson, Kurt Barnhart, and Travis Desell. n.d. "Protecting Farm Privacy While Researching Large-Scale Unmanned Aircraft Systems Platforms for Agricultural Applications." *Agronomy Journal*. Accessed May 12, 2022. <https://doi.org/10.1002/agj2.21054>.
- Davila-Frias, Alex, Saeed Salem, and Om Prakash Yadav. 2021. "Deep Neural Networks for All-Terminal Network Reliability Estimation." In *67th Annual Reliability & Maintainability Symposium (RAMS 2021)*. New York: Ieee. <https://doi.org/10.1109/RAMS48097.2021.9605767>.
- Gladen, Adam C., and Dilpreet Bajwa. 2022. "An Improved Thermochemical Energy Storage Material Using Nanocellulose to Stabilize Calcium Chloride Salt." *Journal of Solar Energy Engineering-Transactions of the ASME* 144 (3): 030905. <https://doi.org/10.1115/1.4053904>.
- Ponugoti, Kushal K., Sudarshan K. Srinivasan, and Nimish Mathure. 2021. "Formal Verification Approach to Detect Always-On Denial of Service Trojans in Pipelined Circuits." In *2021 28th IEEE International Conference*

on *Electronics, Circuits, and Systems (IEEE ICECS 2021)*. New York: IEEE.

<https://doi.org/10.1109/ICECS53924.2021.9665617>.

- Regmi, Sagar, Dilpreet Bajwa, C. Igathinathane, and Nurun Nahar. 2022. “High Fiber Fraction DDGS-A Functional Filler for Manufacturing Low-Density Particleboards.” *Industrial Crops and Products* 181 (July): 114793. <https://doi.org/10.1016/j.indcrop.2022.114793>.
- Straub, Jeremy, Matthew Spradling, and Bob Fedor. 2022. “Assessment of Factors Impacting the Perception of Online Content Trustworthiness by Age, Education and Gender.” *Societies* 12 (2): 61. <https://doi.org/10.3390/soc12020061>.
- Zhang, Yan, Ruihang Zhang, Nick Thomas, Al Habib Ullah, Benjamin Eichholz, Jordi Estevadeordal, and Yildirim Bora Suzen. 2022. “Experimental and Computational Study of Pulsatile Flow Characteristics in Romanesque and Gothic Aortic Arch Models.” *Medical Engineering & Physics* 102 (April): 103784. <https://doi.org/10.1016/j.medengphy.2022.103784>.

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](mailto:kyle.bosch@ndsu.edu) to submit items for *College Happenings*.

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