Dear NDSU Research Community:

Welcome to summertime!

As many of you know our Research Faculty Fellow Rajesh Kavasseri from the Department of Electrical and Computer Engineering has accepted the position as the Associate Dean of Research at South Dakota State University this fall. Working directly with the RCA Research Development team, Rajesh has focused his fellowship on developing interdisciplinary collaborations among NDSU researchers. If you’ve had the pleasure of working with Rajesh, you’ll agree that he will be missed here at NDSU.

Throughout his 18 years at NDSU, Rajesh has worked with many researchers outside of his expertise area of electrical power systems. He has a wonderful ability to see an opportunity from all sides and incorporate true big picture thinking in a way that I really appreciate.

Sheri Anderson leads the RCA Research Development team and has worked directly with Rajesh on training and research opportunities. She commented, “The RCA team has enjoyed working with Rajesh over the last few months. We have appreciated Rajesh’s ideas and development of activities to explore interdisciplinary collaboration opportunities. He brought a lot of insight and experience to the group that will help guide future RCA programming for NDSU’s
Rajesh’s perspectives have given us all a lot to consider. As he continues his career at SDSU, we wish him the very best and hope that his ability to build collaborations will continue on an inter-institutional scale. As Rajesh will be working with my friend VP Daniel Scholl, I look forward to what the Dakotas could do together!

As we enter what for many of us is the most productive time of our research year, I’d like to reiterate that the RCA Team is ready and willing to help with things related to your research activities. Whether you have continued to work onsite, are thinking about getting ‘back in the saddle’, or are hesitant in getting back to normal anytime soon, I want you to know that we’re thinking about the best ways for NDSU to move forward. Our goal is to permit an increase in on-site research activities over the next few months while supporting an environment of safety for our faculty, staff, and students. We are working with campus groups to have a cohesive plan that works across all of campus. We will continue to communicate best practices and policies as they are developed.

Kind regards,

Jane Schuh
Vice President
Research and Creative Activity

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**NDSU Researchers Synthesize Silicon-based Quantum Dots**
NDSU researchers recently developed a new method of creating quantum dots out of silicon, one of the most utilized semiconductors in the world. Quantum dots, or nanocrystals, are tiny nanometer scale pieces of pure semiconductor that emit light when their electrons are exposed to UV light. The most common application of quantum dots is in QLED displays. Through their use, digital displays have become brighter and much thinner, resulting in improvements to television and, potentially, cell-phone technology.

Silicon is abundant and nontoxic and silicon quantum dots have their own unique appeal. While traditional methods of creating silicon quantum dots require dangerous materials such as silicon tetrahydride (silane) gas or hydrofluoric acid, the new approach developed at NDSU uses a liquid form of silicon to make the tiny particles, all at room temperature using relatively benign components. The team, led by Erik Hobbie, Professor of Physics, Coatings & Polymeric Materials, and Director of the Graduate Program in Materials and Nanotechnology at NDSU, relied on the discoveries of NDSU Distinguished Professor of Chemistry Philip Boudjouk, who developed the liquid precursor (cyclohexasilane or Si6H12). NDSU alumnus Todd Pringle was the lead researcher on the project. Pringle is the president of Lumacept Inc., a company that produces the only available coating designed to reflect germ-killing ultraviolet light, called UV-C. Lumacept is currently helping health care providers decontaminate and re-use their personal protective equipment.

These materials are already being used for solar energy applications, where they are blended into traditional windows to create solar panels that remain transparent while serving as active collectors of photovoltaic energy. Hobbie notes that silicon quantum dot technology could also be used in medicine by coating the tiny particles with organic molecules to create nontoxic fluorescent biomarkers.

“This approach has the potential to take the production of these materials to a new level of quality and scale,” Hobbie says. “I believe this is the best work I’ve been involved with in my career and I’m very proud that it was done at
The work was supported by the National Science Foundation.

The team includes researchers from North Dakota State University, the University of Minnesota, Northwestern University, the National Institute of Standards and Technology, and Argonne National Laboratory. Their research paper “Bright Silicon Nanocrystals from a Liquid Precursor: Quasi-Direct Recombination with High Quantum Yield” was published by the American Chemical Society in the April 2020 journal ACS Nano: https://pubs.acs.org/doi/full/10.1021/acsnano.9b09614.

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**Novelution: No More Proposal Transmittal Forms after July 1**

NDSU's process for preparing and routing proposals will be completely online starting July 1, 2020 with the rollout of the Novelution System. With the Novelution System, you will no longer need to prepare Proposal Transmittal Forms or manually route paper forms and you will be able to request no-cost extensions, changes to budgets, and PI changes online.

The Novelution Research Management System is a major upgrade to our processes and we are glad to offer it to our faculty and staff. Thank you to those who have been piloting the system and to all who have participated in training over the last month. If you have not yet had the opportunity to learn about or utilize Novelution, we are happy to help you. Please contact us at ndsu.novhelp@ndsu.edu.

Information on Novelution, including log-in and a brief User Guide, can be found on the [RCA website](https://rca.ndsu.edu).

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**Research Integrity and Compliance Meeting Submission Deadlines Update**
The meeting submission deadlines for the Institutional Animal Care and Use Committee (IACUC), Institutional Biosafety Committee (IBC), and Institutional Review Board (IRB) are changing. Submission deadlines for all committees will be the 15th of the month prior to review. For example, the submission deadline for the July meeting is June 15th.

If you have any questions, please contact Kristy Shirley (Kristy.shirley@ndsu.edu), Julie Sherwood (j.sherwood@ndsu.edu) or Josie Hayden (josie.hayden@ndsu.edu).

Changes to Human Subjects Training Requirements
Beginning July 1, 2020, human subjects training must be completed through the Collaborative Institutional Training Initiative (CITI) online training program. Training will be verified upon submission of new and requests for continuing review (or recertification of exemption). In-person training will no longer be accepted. More information on the CITI training program can be found on the IRB website. In-person sessions to supplement the online training are still available upon request.

Congratulations to all award recipients from April 2020!
View the complete list online: PDF | Excel
The awards listed are externally funded projects. Each month one of the RCA Updates will include prior month awards.
See Award Reports from previous months >>

Department of Energy Summer Webinar Series
This webinar series will connect early- and growth-stage companies, accelerators and incubators, and university entrepreneurial scientists and engineers to the Department of Energy’s latest program initiatives and
partnering opportunities. It will provide attendees with an opportunity to hear from DOE's senior leaders and program managers, those who are the administrators and decision-makers for current and upcoming funding and partnering opportunities. All webinars are scheduled for 12pm (Noon) CT. Learn more and register >>

- **June 11**: DOE's Lab-Embedded Entrepreneurship Programs
- **June 25**: The Lab Innovation Networking Center
- **July 9**: America's Seed Fund Powered by DOE's SBIR / STTR Programs
- **July 23**: See the Light - The National Syncrotron Light Source and Other Tools of Discovery
- **August 6**: Energy I-Corp for DOE’s SBIR / STTR Programs
- **August 13**: The DOE Technology Commercialization Fund
- **August 20**: DOE and the Federal Lab Consortium - What’s in it for you?
- **September 4**: DOE's Prize Competitions and Challenges
- **September 11**: The Laboratory Partnership Service
- **September 18**: Wells Fargo Innovation Incubator (IN2) and the NREL Industry Growth Forum

COVID-19 Guidance for researchers is available on the [RCA Website](#), including NDSU guidance for PIs, Federal Agency guidance, and Funding Opportunities. As this situation is rapidly changing, please refer to the [NDSU COVID-19 Preparedness and Response page](#) for additional information.

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• DEPSCoR DoD Day at the University of South Dakota

For more funding opportunities related to COVID-19, visit the RCA COVID-19 Funding Opportunities page.
Defense Established Program to Stimulate Competitive Research

The Department of Defense (DoD) announces the fiscal year 2020 (FY20) Defense Established Program to Stimulate Competitive Research (DEPSCoR). The aim of DEPSCoR is to improve the research capabilities at institutions of higher education (IHE) in eligible States/Territories to perform competitive basic research in science and engineering that is relevant to the DoD mission and reflect national security priorities. The Basic Research Office anticipates approximately $7.2 million in total funding will be made available for this program to fund approximately twelve (12) awards up to $600,000 (total cost) each. Each award will be funded up to $200,000 (total cost) per year for three (3) years in the form of a grant.

The FY20 DEPSCoR competition seeks proposals addressing multiple topic areas, including:

1. Cognitive and Computational Neurosciences
2. Materials with Extreme Properties
3. Computational Architectures and Visualization
4. Probability and Statistics
5. Molecular Structure and Dynamics
6. Social and Behavioral Science
7. Biotronics
8. Machine Learning, Reasoning, and Intelligence
9. Power Electronics & Electromagnetism, Adaptive & Machinery Controls and Advanced Machinery Systems

This funding opportunity aims to create basic research collaborations between a pair of researchers, namely 1) Applicant/Principal Investigator (PI), a full-time faculty member who has never served as a PI on a prior DoD-funded award and 2) Collaborator/co-Principal Investigator (co-PI) who will provide mentorship to the Applicant and has served as a PI on a DoD-funded research award actively.
between 1 October 2013 and 30 September 2020. Both investigators must be in a tenure-track or tenured position at an IHE in an eligible State/Territory.

**Whitepaper Deadline: September 21, 2020**

The University of South Dakota is hosting a DoD DEPSCoR Day in September.  
*Learn more >*

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**DOE: Enhance Manufacturing Competitiveness Through Innovation**

The U.S. Department of Energy’s (DOE’s) Office of Energy Efficiency and Renewable Energy (EERE) announced a [funding opportunity](#) to stimulate technology innovation, improve the energy productivity of American manufacturing, and enable the manufacturing of cutting-edge products in the United States.

Projects selected under this funding opportunity announcement (FOA) will aim to improve energy efficiency in energy-intensive processes and facilitate the transition to emerging, cost-competitive energy technologies in domestic production. EERE’s Advanced Manufacturing Office (AMO) supports the development of technologies that improve energy efficiency in U.S. manufacturing as well as foundational, cross-cutting manufacturing processes, information, and materials technologies critical to efficient and competitive domestic manufacturing. This FOA focuses on three main areas:

1. Next-generation manufacturing processes that improve energy efficiency in energy-intensive and energy-dependent industries, including steel manufacturing;
2. Modular, hybrid, or catalytic processes to improve energy efficiency in chemical manufacturing; and
3. Connected, flexible, and efficient manufacturing facilities, products, and energy systems, including the integration of direct air capture at industrial facilities.

**Industry partners must provide at least 20% of the funding for new research and development projects.**

*Concept Paper Deadline: June 25, 2020*
ED: FY2021 Education Funding Opportunities

The Department of Education Institute of Education Sciences has posted a number of Requests for Applications (RFAs) for their Fiscal Year 2021 funding opportunities. Opportunities Include:

- Education Research;
- Research Grants Focused on Systematic Replication;
- Research Training in the Education Sciences; and
- Special Education Research.

View all opportunities on the [IES website](https://ies.ed.gov).

NARA: Access to Historical Records – Archival Projects

The National Archives and Records Administration (NARA) seeks projects that will significantly improve online public discovery and use of historical records collections. The Administration encourages projects centered on collections of America's early legal records, such as the records of colonial, territorial, county, and early statehood and tribal proceedings that document the evolution of the nation's legal history. There is a particular interest in projects to commemorate the 250th anniversary of the Declaration of Independence. Projects that engage the public, expand civic education, and promote understanding of the nation's history, democracy, and culture from the founding era to the present day are welcome.

Projects may preserve and process historical records to:

- Convert existing description for online access;
- Create new online finding aids to collections; and / or
- Digitize historical records collections and make them freely available online.

All types of historical records are eligible, including documents, photographs, born-digital records, and analog audio and moving images. The successful application will demonstrate the value of the contents of the collections, will outline a project that addresses best practices for the work and that is appropriately staffed, will propose a budget that accomplishes the project in a cost-effective manner, and will outline activities that bring researchers to the collections included in the project as well as the rest of the repository’s holdings.

For a comprehensive list of Commission limitations on funding, please see: "[What we do and do not fund](https://www.archives.gov/research/laws-and-regulations/funding-limitations)."
Cost sharing is required; this program provides no more than 75% of total project costs.

Optional draft deadline: August 10, 2020
Full proposal deadline: October 8, 2020

**NEA: Our Town – Limited Submission Program**

Limited submission grant programs are those that indicate a limit on the number of proposals that may be submitted by an institution for a particular deadline. A selection process becomes necessary if more applicants express interest in applying than NDSU is allowed to submit to the grant program.

**NEA Our Town** : Notify RCA by 6/5/2020, 4:00 p.m. if you are interested in submitting to this program.

Our Town is the National Endowment for the Arts (NEA) creative placemaking grants program. Through project-based funding, NEA supports projects that integrate arts, culture, and design activities into efforts that strengthen communities by advancing local economic, physical, and/or social outcomes. Successful Our Town projects ultimately lay the groundwork for systemic changes that sustain the integration of arts, culture, and design into local strategies for strengthening communities. These projects require a partnership between a local government entity and nonprofit organization, one of which must be a cultural organization; and should engage in partnership with other sectors (such as agriculture and food, economic development, education and youth, environment and energy, health, housing, public safety, transportation, and workforce development). Cost share/matching grants range from $25,000 to $150,000, with a minimum cost share/match equal to the grant amount.

**NIH: Transformative Research Awards (R01 Clinical Trial Optional)**

The NIH Director’s Transformative Research Award Program supports individual scientists or groups of scientists proposing groundbreaking, exceptionally
innovative, original, and/or unconventional research with the potential to create new scientific paradigms, establish entirely new and improved clinical approaches, or develop transformative technologies. For the program to support the best possible researchers and research, applications are sought which reflect the full diversity of the nation’s research workforce. Individuals from diverse backgrounds and from the full spectrum of eligible institutions in all geographic locations are strongly encouraged to apply to this Funding Opportunity Announcement [RFA-RM-20-013]. In addition, applications are welcome in all topics relevant to the broad mission of NIH, including, but not limited to, topics in the behavioral, social, biomedical, applied, and formal sciences and topics that may involve basic, translational, or clinical research. No preliminary data are required. Projects must clearly demonstrate, based on the strength of the logic, a compelling potential to produce a major impact in a broad area of relevance to the NIH. The NIH Director’s Transformative Research Award is a component of the High-Risk, High-Reward Research (HRHR) Program of the NIH Common Fund.

Those wishing to apply for the NIH Director’s Emergency Transformative Research Award for SARS-CoV-2-related research must apply in response to RFA-RM-20-020.

Application deadline: September 30, 2020

**NSF / NIH: Research at the Interface of Biological and Mathematical Sciences (DMS / NIGMS)**

The Division of Mathematical Sciences (DMS) in the Directorate for Mathematical and Physical Sciences (MPS) at the National Science Foundation (NSF) and the National Institute of General Medical Sciences (NIGMS) at the National Institutes of Health (NIH) plan to support fundamental research in mathematics and statistics necessary to answer questions in the biological and biomedical sciences. Both agencies recognize the need to promote research at the interface between mathematical and life sciences. This program (NSF 20-575) is designed to encourage new collaborations, as well as to support innovative activities by existing teams. The joint DMS/NIGMS initiative offers two submission tracks:
• Track 1 is for projects of high-risk, high-reward exploratory projects, or projects from new teams of collaborators. The total budget can be up to $600,000 and the award duration is 3 years.
• Track 2 is for projects of large scope from well-established teams. The total budget can be up to $1,200,000 and the award duration is 3-4 years.

Submission Window: September 1-18, 2020

NSF: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (INCLUDES) – Limited Submission Program

Limited submission grant programs are those that indicate a limit on the number of proposals that may be submitted by an institution for a particular deadline. A selection process becomes necessary if more applicants express interest in applying than NDSU is allowed to submit to the grant program.

NSF INCLUDES: Notify RCA by 6/22/2020, 4:00 p.m. if you are interested in submitting to this program.

The NSF INCLUDES Big Idea is a comprehensive national initiative to enhance U.S. leadership in science, technology, engineering, and mathematics (STEM) discoveries and innovations focused on NSF’s commitment to diversity, inclusion, and broadening participation in these fields. The vision of NSF INCLUDES is to catalyze the STEM enterprise to work collaboratively for inclusive change, resulting in a STEM workforce that reflects the population of the Nation. More specifically, NSF INCLUDES seeks to improve collaborative efforts aimed at enhancing the preparation, increasing the participation, and ensuring the contributions of individuals from groups that have been historically underrepresented and underserved in the STEM enterprise.
NSF DCL: Pilot Projects to Integrate Existing Data and
Data-Focused Cyberinfrastructure to Enable
Community-level Discovery Pathways

Through this Dear Colleague Letter (DCL), NSF encourages proposals to the Cyberinfrastructure for Emerging Science and Engineering Research (CESER) program within the Office of Advanced Cyberinfrastructure for pilot projects that bring together researchers and CI experts to develop the means of combining existing community data resources and shared data-focused CI into new integrative and highly performing data-intensive discovery workflows that empower new scientific pathways. Aims of such pilot projects can include, but are not limited to:

- improving the end-to-end process of accessing, integrating and transforming research and education data to knowledge and discovery for one or more communities;
- creating new workflows and new usage modes to address multi-disciplinary and cross-domain scientific objectives;
- addressing emerging community-scale scientific data challenges such as real-time, streaming and on-demand data access; data discovery through knowledge networks and intelligent data delivery; enabling access to data with privacy concerns; and data fusion, integration and interoperability;
- enhancing the performance and robustness of community-scale data integration and discovery workflows such as through automated curation, end-to-end performance monitoring, provenance tracking, and means of assuring data trustworthiness; and
- federating learner data to empower innovative assessment tools for large-scale modeling of learning gains.

NSF welcomes submissions that address these project goals in all areas of science and engineering (S&E) research and education supported by NSF in all directorates. Some directorates have selected special areas of interest for proposals; see the full DCL for more information.

Proposals responsive to this DCL and received on or before July 1, 2020 will be considered for FY 2020 funding. Proposals responsive to this DCL and received after July 1, 2020 will be considered for potential funding in a future fiscal year, pending availability of funds.
NSF / USDA: Plant Biotic Interactions

The Plant Biotic Interactions (PBI) program (NSF 20-576) supports research on the processes that mediate beneficial and antagonistic interactions between plants and their viral, bacterial, oomycete, fungal, plant, and invertebrate symbionts, pathogens and pests. This joint National Science Foundation / USDA National Institute of Food and Agriculture (NSF/NIFA) program supports projects focused on current and emerging model and non-model systems, and agriculturally relevant plants. The program’s scope extends from fundamental mechanisms to translational efforts, with the latter seeking to put into agricultural practice insights gained from basic research on the mechanisms that govern plant biotic interactions. Projects must be strongly justified in terms of fundamental biological processes and/or relevance to agriculture and may be purely fundamental or applied or include aspects of both perspectives. All types of symbiosis are appropriate, including commensalism, mutualism, parasitism, and host-pathogen interactions. Research may focus on the biology of the plant host, its pathogens, pests or symbionts, interactions among these, or on the function of plant-associated microbiomes. The program welcomes proposals on the dynamics of initiation, transmission, maintenance and outcome of these complex associations, including studies of metabolic interactions, immune recognition and signaling, host-symbiont regulation, reciprocal responses among interacting species and mechanisms associated with self/non-self recognition such as those in pollen-pistil interactions. Explanatory frameworks should include molecular, genomic, metabolic, cellular, network and organismal processes, with projects guided by hypothesis and/or discovery driven experimental approaches. Strictly ecological projects that do not address underlying mechanisms are not appropriate for this program. Quantitative modeling in concert with experimental work is encouraged. Overall, the program seeks to support research that will deepen our understanding of the fundamental processes that mediate interactions between plants and the organisms with which they intimately associate and advance the application of that knowledge to benefit agriculture.

Proposals accepted anytime.

USDA-NIFA: Rural Health and Safety Education

The Rural Health and Safety Education (RHSE) program proposals are expected to be community-based outreach education programs, such as those conducted
through Human Science extension outreach that provide individuals and families with:

- information as to the value of good health at any age;
- information to increase individual or family’s motivation to take more responsibility for their own health;
- information regarding rural environmental health issues that directly impact human health;
- information about and access to health promotion and educational activities; and
- training for volunteers and health services providers concerning health promotion and health care services for individuals and families in cooperation with state, local, and community partners.

Application deadline: July 1, 2020

Meet Georgia-Pacific and Reimagine the Dixie Cup
In this webinar, Georgia-Pacific, one of the world's largest private companies and maker of billion-dollar brands like AngelSoft®, Brawny® and Dixie®, will be discussing their latest collaboration opportunity on Halo seeking low-cost, compostable materials for its iconic Dixie® line of cups and plates. Following the discussion, Georgia-Pacific will be available to answer questions directly from researchers. You can review the RFP in advance here.
The webinar will be held Thursday, June 4, at 11pm CST.
Topics include:
- How scientists and startups can partner with Georgia-Pacific to bring next-gen sustainable materials to consumers across the world.
- Examples of how Georgia-Pacific develops new products through partnerships, including joint development, licensing, acquisition and sponsored research.
- What Georgia-Pacific is looking for and how to make your proposal stand out.

Register to attend >>

Discover DSO Day
The Defense Advanced Research Projects Agency (DARPA) Defense Sciences Office (DSO) is sponsoring the Discover DSO Day (D3) event to provide information to potential proposers on the objectives of the DSO Office-wide Broad Agency Announcement (BAA). The event will be held on **Tuesday and Wednesday, June 24-25, 2020**, via webinar. Advance registration is required for all individuals intending to view the webinar alone or as part of a group. Note, all times listed on the [registration website](#) are Eastern Time.

The goals of this event are to:

1. familiarize participants with DSO’s mission;
2. promote understanding of the anticipated Office-wide BAA; and
3. facilitate discussions with potential performers.

[More information about Webinar and BAA >>](#)

Please send any questions to:

- Administrative Questions: Email to [DiscoverDSODay@sainc.com](mailto:DiscoverDSODay@sainc.com)
- Technical Questions: Email to [DiscoverDSODay2020@darpa.mil](mailto:DiscoverDSODay2020@darpa.mil)

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**DEPSCoR DoD Day at the University of South Dakota**

On September 10, 2020, the University of South Dakota will host [DEPSCoR DoD Day](#), presented by the Department of Defense. Breakfast, lunch and refreshments will be provided. Program officers from the Army, Navy, Air Force and other DoD representatives will participate in the meeting, which will cover the following topics:

- How to work with the DoD, especially ARO, ONR, AFOSR;
- How to make connections with DoD program officers;
- How to pursue funding opportunities specific to DEPSCoR;
- How to pursue other programs within the Basic Research Office.

There is also a Speed Networking Opportunity with DoD Program Officers.
Have questions, ideas, or suggestions for the RCA Update?

Contact Us

The Office of Research and Creative Activity (RCA) sends weekly emails to NDSU faculty and staff to provide current information on various topics including funding opportunities, grant program changes, research resources, deadlines, notices, and training. You are receiving this notification through the NDSU official employee listserv or sub-list. The official listserv refreshes after each pay period.

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