NDSU OFFICE OF RESEARCH AND CREATIVE ACTIVITY

RCA UPDATE

December 7, 2020

Dmitri Kilin Receives NSF CAREER Award

Dmitri Kilin, an assistant professor in the Chemistry and Biochemistry Department, College of Science and Mathematics at North Dakota State University, was recently awarded a National Science Foundation (NSF) CAREER Award. Kilin's work is focused on understanding and predicting the control of photoreactions (chemical reactions driven by light) that utilize specialized lasers. His NSF CAREER Award will offer an environment for others to create new computational tools that will give researchers the ability to work towards higher efficiency solar cells.

Throughout the last decade, Kilin has researched and published extensively about photovoltaics and photoreactions. Photovoltaic effects occur when light is absorbed by a material and causes its electrons to be excited and moved to a higher-energy state while still contained in the material. The relationship between the structure of active materials and efficiency of the photo-induced charge transfer across the interface is an on-going quest in the community.

Kilin defines his work within a discipline comprised of a large group of researchers working to solve the world's energy problems by providing free and clean solar power. "Think about a small area of a desert, perhaps 100 miles square, that is populated by

100% efficient solar cells," he says. "While the solar power collected by these cells would amount to a very small fraction of the entire solar energy received by the Earth, it could theoretically provide all the energy needed for the globe and replace all fossil fuel and nuclear power. Only solar power."

Kilin notes the main underlying problem is how to make solar power more efficient given that today's panels operate at only 10% efficiency with a current physical limit of about 33% single-cell efficiency. His research funded by the NSF CAREER award will involve creating software to allow other researchers to study photoreactions in a computational environment that is free from restraints of the physical world.

As a complement to his work on photovoltaic and photocatalytic solar energy conversion, Kilin has also studied the photoinduced processes at the interfaces of metal and semiconductor nanomaterials. His research has focused on theory and computational modeling of photo-induced dynamic processes of charge transfer, non-radiative charge carrier relaxation, and surface reactions at catalytic sites, as well as photo-degradation and photo-polymerization reactions. The last two problems and his novel methods to model them were highlighted by the NSF in the CAREER Award as filling the gap in both applied and methodology directions.

Read more about Dr. Kilin's research >>

Congratulations to all award recipients from October 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 >>

Jill Mackenzie Leaving NDSU

Jill Mackenzie, Award and Program Officer in Sponsored Programs Administration (SPA), has resigned her position effective December 15, 2020, but will continue in the role half-time through January 8, 2021. Jill has been with NDSU in a variety of roles since 2011, starting as an Administrative Coordinator in the Center for Protease Research, then moving to Grant and Contract Accounting as a Grant and Contract Officer before landing in SPA in February of 2014. Prior to her time at NDSU, she spent 9+ years at UND's Energy & Environmental Research Center (EERC). Val Kettner, Associate Vice President of SPA, said "Jill brought a very broad and unique skill set to SPA. She had experience in almost the entire range of research and research administration, from the project budget and proposal approval level to the award finance and post-award close-out level. She even worked with and presented research data at the project level when she was at the EERC. It is very rare that you are fortunate enough to add someone to your team that has worked through the entire life cycle of a project. SPA will miss her, but we wish her nothing but continued success in her next chapter!"

SPA is currently advertising for a Proposal & Award Officer to fill the void left by Jill's departure. This position will still be involved in both proposal review and approval, as well as award negotiation. Sponsored programs administration experience is preferred but is not required. If you are interested in this position, or know someone that could add to the SPA team, please see this link: Proposal & Award Officer.

How to complete the Sponsor and Submission Information in Novelution

In Novelution, the Direct Sponsor is defined as the entity that the application will be sent to and who will be funding the project; it is the organization from which NDSU will ***directly*** receive the funds. The Prime Funding Agency is defined as the original source of the funding. So, if there is flow-through funding from the Prime Funding Agency to the Direct Sponsor, the PI should answer "no" to the question "Is NDSU the lead institution? (If NDSU is receiving flow through or pass through funding from another sponsor or institution, choose no.)" A

new box will then appear which requests the identity of the Prime Funding Agency.

For more information about using Novelution, visit the RCA website.
Contact ndsu.novhelp@ndsu.edu with questions.

Novelution IRB Module Now Available

Use will be required starting January 4, 2021

The Novelution Institutional Review Board (IRB) protocol submission module is now available. Protocols may be submitted via the system now. Use of the system will be **required** starting **January 4, 2021**.

- Click here for more information about the Novelution platform or to view recorded demonstrations of the software.
- Click here to log in to Novelution.

Quick Tips:

- Novelution automatically integrates with the CITI program to verify completion of human subjects training. To ensure accurate reporting of your completed training, update the CITI program with your NDSU email as your primary email account OR, in Novelution, add your CITI email address by clicking 'Edit User Profile' under Profile and Settings.
- Wondering about the status of your IRB submission? Check the Requirements panel within the Protocol application to check on the current status of the protocol submission.

For questions about Novelution, contact ndsu.novhelp@ndsu.edu. For questions related to your IRB protocols or training, contact ndsu.irb@ndsu.edu.

USDA Launches AskUSDA Contact Center

The U.S. Department of Agriculture (USDA) has launched the AskUSDA Contact Center, which will serve as a single destination for phone, chat, and web inquires. AskUSDA is set up to handle common questions across programs that

service a variety of audiences, and also hosts over five thousand articles for a self-service option to help with more common questions. AskUSDA can be reached by phone at (833) ONE-USDA with representatives available 8:00am-4:30pm weekdays. The website (https://ask.usda.gov/) is available 24/7 and includes live chat agents available 9:00am-5:00pm on weekdays. Inquiries can also be sent via email at any time to askusda@usda.gov.

COVID-19 Guidance for researchers is available on the RCA Website, including NDSU guidance for PIs, Federal Agency guidance, and Funding Opportunities. Please refer to the NDSU COVID-19 Preparedness and Response page for additional information.

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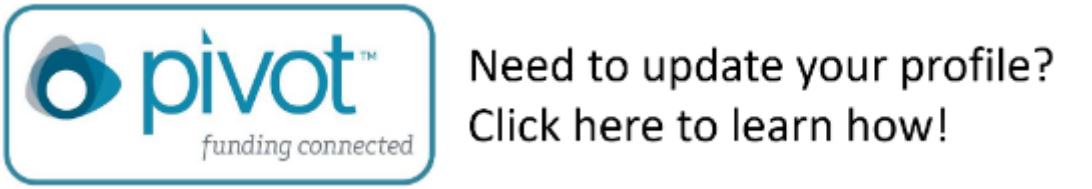

Limited Submission Programs with No Notifications of Interest

There are a number of limited submission grant programs with upcoming agency deadlines for which we did not receive any notifications of interest. For those interested in applying to the programs listed below, approval to move forward with a full proposal submission to the funder will be given on a first come, first served basis. Email notifications of interest to ndsu.researchdev@ndsu.edu.

- NSF: Partnerships for Innovation
  Agency deadline: January 13, 2021

- NSF: Major Research Instrumentation **Track 2 [$1M-$4M] Only**
  Agency deadline: January 19, 2021
- NEH: Preservation Assistance Grants for Smaller Institutions
  Agency deadline: January 14, 2021
- USDA-NIFA: Women and Minorities in STEM Fields
  Agency deadline: January 21, 2021
- NSF: Ethical and Responsible Research
  Agency deadline: February 22, 2021
- NSF: Scholarships in STEM
  Agency deadline: March 31, 2021

IES: Transformative Research in the Education Sciences

Through the Transformative Research in the Education Sciences grant program, the Institute for Education Sciences (IES) National Center for Education Research (NCER) intends to support innovative or unconventional research that has the potential to lead to new scientific paradigms, new and more effective approaches to education practice or policy, or transformative technologies that substantially increase learner outcomes.

Deadline: February 25, 2021

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ND NASA EPSCoR Pre-Proposals

North Dakota NASA EPSCoR (Established Program to Stimulate Competitive Research) is soliciting research **pre-proposals** from faculty at affiliate institutions (including NDSU). These pre-proposals are in response to the recent NASA R3 CAN (Cooperative Agreement Notice), Announcement Number: NNH21ZHA002C.

Eligibility:

- Faculty PI must be from an ND NASA EPSCoR affiliate institution.
- Research must be in STEM (science, technology, engineering, or mathematics) and demonstrate alignment with NASA priorities and one or more NASA Mission Directorates.

- Research must meet all eligibility requirements defined in the NASA EPSCoR R3 CAN Solicitation.

Proposal Submission Timeline:

- Pre-proposals due via online submission form to ND NASA EPSCoR: **Noon, 01/04/2021.**
- Pre-proposals will be evaluated in a down-select. Only one full proposal may move forward for consideration by NASA under each appendix. Only meritorious proposals will move forward.
- Successful pre-proposal team notified: 01/11/2021.
- Full proposal due in NSPIRES: 02/05/2021.

Research RFP
Budget Sheet
Online Submission Form

Finance questions may be directed to Laurie Baumgartner: laurie.baumgartner@und.edu. **General** questions may be directed to Caitlin Nolby: cnolby@space.edu or Marissa Saad: msaad@space.edu.

All of this information can be found on the ND NASA EPSCoR Announcement Page.

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NIH: Biospecimen Science Technologies

The National Institutes of Health (NIH) National Cancer Institute (NCI) is interested in grant applications proposing research projects focused on innovative technologies that improve the quality of the samples used for cancer research or clinical care.

The **Innovative** program funding opportunity [R21 / RFA-CA-21-005] solicits grant applications proposing exploratory research projects focused on the early-stage development of highly innovative technologies that improve the quality of the samples used for cancer research or clinical care. This includes new capabilities to address issues related to pre-analytical degradation of targeted analytes during the collection, processing, handling, and / or storage of cancer-relevant biospecimens. The overall goal is to support the development of highly innovative technologies capable of maximizing or otherwise interrogating the quality and utility of biological samples used for downstream

analyses.

The **Advanced Development and Validation** funding opportunity [R33 / RFA-CA-21-006] solicits grant applications proposing exploratory research projects focused on further development and validation of emerging technologies that improve the quality of the samples used for cancer research or clinical care. This includes new capabilities to address issues related to pre-analytical degradation of targeted analytes during the collection, processing, handling, and / or storage of cancer-relevant biospecimens. This FOA solicits R33 applications where major feasibility gaps for the technology or methodology have been overcome, as demonstrated with supportive preliminary data, but still require further development and rigorous validation to encourage adoption by the research community. The overall goal is to support the development of highly innovative technologies capable of maximizing or otherwise interrogating the quality and utility of biological samples used for downstream analyses.

These opportunities will support the development of tools, devices, instrumentation, and associated methods to preserve or protect sample integrity, or establish verification criteria for quality assessment / quality control and handling under diverse conditions. These technologies are expected to accelerate and / or enhance research in cancer biology, early detection and screening, clinical diagnosis, treatment, epidemiology, or address issues associated with cancer health disparities, by reducing pre-analytical variations that affect biospecimen sample quality. Projects proposing to use existing technologies where the novelty resides in the application of the technology or the biological or clinical question being pursued, and not the technical capabilities being developed, are not appropriate for this program and will not be reviewed.

These funding opportunities are part of a broader NCI-sponsored Innovative Molecular Analysis Technologies (IMAT) Program.

Deadline: February 22, 2021

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NIH: Outstanding New Environmental Scientist (ONES) Award (R01 Clinical Trial Optional)

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.

NIH ONES: Notify RCA **by 12/08/2020, 5:00 p.m. if you are interested in submitting to this program.**

The ONES program [RFA-ES-18-001] is designed to identify outstanding scientists at the formative stages of their career and assist them in launching an innovative research program with a defined impact in the environmental health sciences. These R01 research grants are targeted for researchers who are defined by the NIH as Early Stage Investigators.

The ONES program is designed to be highly competitive, and only a limited number are awarded per year.

Research programs supported by this announcement seek to promote career advancement of the most highly creative and promising new scientists who intend to make a long-term career commitment to research in the mainstream of the environmental health sciences, and bring innovative, ground-breaking research initiatives and thinking to bear on the problems of how environmental exposures affect human health.

LIMITED SUBMISSION: Only one application per school or college within a university will be accepted.

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NSF: Campus Cyberinfrastructure

The Campus Cyberinfrastructure [NSF 21-528] program invests in coordinated campus-level networking and cyberinfrastructure improvements, innovation, integration, and engineering for science applications and distributed research projects. Learning and workforce development in cyberinfrastructure is explicitly addressed in the program. Science-driven requirements are the primary motivation for any proposed activity.

Deadlines: March 1, 2021; October 11, 2021

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NSF: EPSCoR Track 4 Research Fellows – 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 RII Track-4: Notify RCA **by 01/13/2020, 5:00 p.m. if you are interested in submitting to this program.**

The Established Program to Stimulate Competitive Research (EPSCoR) is designed to fulfill the mandate of the National Science Foundation (NSF) to promote scientific progress nationwide. EPSCoR jurisdictions that are eligible for RII competitions are listed in the RII Eligibility table, which can be found here. Through this program, NSF establishes partnerships with government, higher education, and industry that are designed to effect sustainable improvements in a jurisdiction's research infrastructure, Research and Development (R&D) capacity, and hence, its R&D competitiveness. One of the strategic goals of the EPSCoR program is to establish sustainable Science, Technology, Engineering, and Mathematics (STEM) professional development pathways that advance STEM workforce development.

The EPSCoR Research Infrastructure Improvement Track 4: EPSCoR Research Fellows (RII Track-4) Program [NSF 20-543] provides awards to build research capacity in institutions and transform the career trajectories of non-tenured investigators and to further develop their individual research potential through extended collaborative visits to the nation’s premier private, governmental, or academic research centers. Through collaborative research visits at the host site, fellowship awardees will be able to learn new techniques, develop new collaborations or advance existing partnerships, benefit from access to unique equipment and

facilities, and / or shift their research toward potentially transformative new directions. The experiences gained through the fellowships are intended to have lasting impacts that will enhance the Fellows' research trajectories well beyond the award period. These benefits to the Fellows are also expected to in turn improve the research capacity of their institutions and jurisdictions more broadly. Those submitting proposals must either hold a non-tenured faculty appointment at an institution of higher education or an early-career career-track appointment at an eligible non-degree-granting institution.

LIMITED SUBMISSION: Only three RII Track-4 proposals may be submitted in response to this solicitation by any single organization in a RII-eligible jurisdiction.

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NSF: Mid-Scale Research Infrastructure-2

The National Science Foundation (NSF) defines Research Infrastructure (RI) as any combination of facilities, equipment, instrumentation, or computational hardware or software, and the necessary human capital in support of the same. Major facilities and mid-scale projects are subsets of research infrastructure. The NSF Mid-scale Research Infrastructure-2 Program (Mid-scale RI-2) [NSF 21-537] supports the implementation of unique and compelling RI projects. Mid-scale RI-2 projects may include any combination of equipment, instrumentation, cyberinfrastructure, broadly used large-scale data sets, and the commissioning and / or personnel needed to successfully complete the project. Mid-scale RI-2 projects should fill a research community-defined scientific need, or address an identified national research priority, that enables current and next-generation U.S. researchers and a diverse STEM workforce to remain competitive in a global research environment. The total cost for Mid-scale RI-2 projects ranges from $20 million to below the threshold for a Major Facilities Project, currently $100 million. Mid-scale RI-2 projects will directly enable advances in any of the research domains supported by NSF, including STEM education research. Projects may also include upgrades to existing research infrastructure.

Letter of Intent deadline: February 3, 2021

Note: Research infrastructure and instrumentation in the range just above the current

Major Research Instrumentation Program threshold and below the Mid-scale RI-2 threshold is the subject of the Mid-scale Research Infrastructure-1 solicitation [NSF 21-505].

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NSF: Plant Genome Research Program

The Plant Genome Research Program (PGRP) [NSF 21-507] supports genome-scale research that addresses challenging questions of biological, societal and economic importance. PGRP encourages the development of innovative tools, technologies and resources that empower a broad plant research community to answer scientific questions on a genome-wide scale. Emphasis is placed on the scale and depth of the question being addressed and the creativity of the approach. Data produced by plant genomics should be usable, accessible, integrated across scales, and of high impact across biology. Training, broadening participation, and career development are essential to scientific progress and should be integrated in all PGRP-funded projects.

Two funding tracks are currently available:

1. **RESEARCH-PGR TRACK**: Genome-scale plant research to address fundamental questions in biology, including processes of economic and / or societal importance.
2. **TRTech-PGR TRACK**: Tools, resources and technology breakthroughs that further enable functional plant genomics.

Proposals are accepted at anytime.

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USDA-NIFA: Farm Business Management and Benchmarking

The Farm Business Management and Benchmarking (FBMB) Competitive Grants Program provides funds for improving the farm management knowledge and skills of agricultural producers by maintaining and expanding a national, publicly available farm financial management database to support improved farm management.

Applications should address one or both of the following objectives:

1. Maintain and expand the already established national, publicly available farm financial management database to support improved farm management knowledge and skills for producers of a variety of crops and livestock throughout multiple regions of the United States.
2. Establish or expand collaborative farm management educational programs and association partnerships that will contribute data to the existing national farm financial management and benchmarking database to improve the farm management knowledge and skills of agricultural producers.

In addition to addressing one or both of the objectives above, the FBMB program anticipates funding projects that demonstrate one or more of the following measures:

1. advancing data gathering and conducting research on cost of production, farm profitability factors, and farm policy;
2. developing or expanding cooperation and data sharing among existing farm management associations and business management education programs across the nation to convert their financial analysis activities to a uniform system;
3. providing training, assistance, and software to states with farm management associations to facilitate uniform financial procedures and software;
4. improving the profitability and competitiveness of small and medium-sized farms and ranches by providing access to high quality, uniform farm business management benchmarking information; or
5. improving producers' abilities to successfully manage their agricultural operations through periods of high risk, volatility, and financial stress.

Deadline: April 8, 2021

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Wisconsin Highway Research Program

The Wisconsin Highway Research Program (WHRP) has issued the following requests for proposals (RFPs) to be funded in federal fiscal year 2022:

- Improving Bridge Concrete Overlay Performance
- Field Investigation of Dowel and Tie Bar Placement
- Timely and Uniform Application of Curing Materials
- Balanced Mixture Design Pilot and Field Test Sections

- Weight-Volume Relationships and Conversions Factors for Soils and Aggregates of Wisconsin
- Wind-Loaded Structures

WisDOT accepts proposals from out of state.

Timeline:

- November 30, 2020 - Requests for Proposals issued
- January 4, 2021 - Deadline for submission of clarifying questions (4:30 p.m. CT)
- January 15, 2021 - Responses to clarifying question posted
- February 5, 2021 - Deadline for submissions of final proposals (4:30 p.m. CT)
- April 30, 2021 - Expected notification of proposal decisions

Please visit http://wisconsindot.gov/Pages/about-wisdot/research/researchers.aspx for proposal guidelines and more information.

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NIH R01 Grantwriting Bootcamp

Through NDSU's subscription to NIH grantwriting resources from Meg Bouvier Medical Writing, NDSU faculty, staff, and students have access to a FREE half-day virtual grantwriting bootcamp for NIH R01 proposals.

Virtual R01 Grantwriting Bootcamp
Friday, December 11, 2021
11:00am-3:30pm
Register to Participate >>

NDSU also continues to offer free registration to resources for writing NIH R-series grant proposals - you can learn more here.

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Office of Industry Engagement and Intellectual Property Virtual Office Hours

Do you think that your research has resulted in something that is patentable or has commercial potential? Interested in learning more about disclosing an invention or the patenting process? Every Thursday during the Fall semester, the Office of Industry Engagement and Intellectual Property is hosting a Zoom meeting between 2:00 PM and 4:00 PM to discuss research discoveries and answer general questions about intellectual property. If you can't join us on Thursday afternoons, reach out and we'll be happy to schedule a time to meet that works with your schedule.

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NSF Virtual Grants Conference

The National Science Foundation (NSF) Fall 2020 Grants Conference was offered virtually this year. While the conference has ended, you are able to access session recordings here.

Examples of topics covered at this virtual conference include:

- best practices and tips for grants and grantwriting for NSF;
- merit review;
- new programs and initiatives;
- crosscutting programs like the NSF CAREER award and Research Experiences for Undergraduates;
- incorporating international components into NSF proposals;
- interdisciplinarity and convergence; and
- NSF's new proposal submission system, Research.gov.

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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.