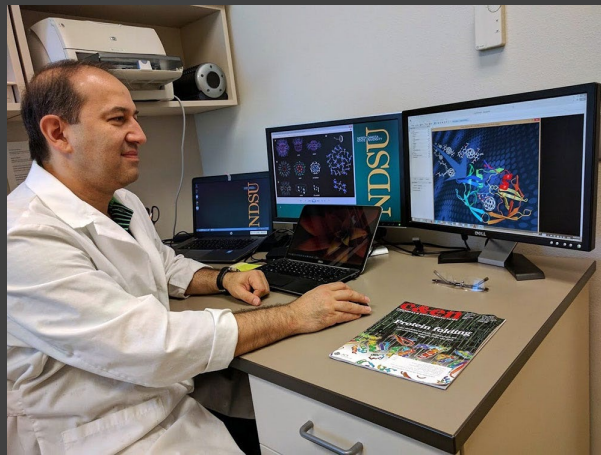


January 23, 2023

## NDSU Researcher Aims to Create New AI Model to Predict Microplastic Toxicity

A new study by Bakhtiyor Rasulev, NDSU associate professor of coatings and polymeric materials, aims to create a new AI model to determine the toxicity of various types of microplastics found in our environment. Rasulev's research is supported by a National Science Foundation (NSF) EPSCoR RII Track-4: EPSCoR Research Fellows award and is entitled "Data-driven Computational and Machine Learning Assessment of Structure-Toxicity Relationship of Micro/NanoPlastics."



The National Science Foundation (NSF) EPSCoR RII Track-4: EPSCoR Research Fellows award supports early-career investigators located in eligible jurisdictions like North Dakota to collaborate with private, government or academic research centers. Rasulev's award will total nearly \$200,000 over two years.

Most microplastics aren't engineered to be the size they are. But because plastics biodegrade only over the course of hundreds and thousands of years, they are the result of larger plastic items being broken down by environmental conditions such as UV light or temperature and by microorganisms in soil and water. According to the National Oceanic and Atmospheric Administration (NOAA), microplastics include all plastic debris measuring less than five millimeters in length, or about the size of a sesame seed.

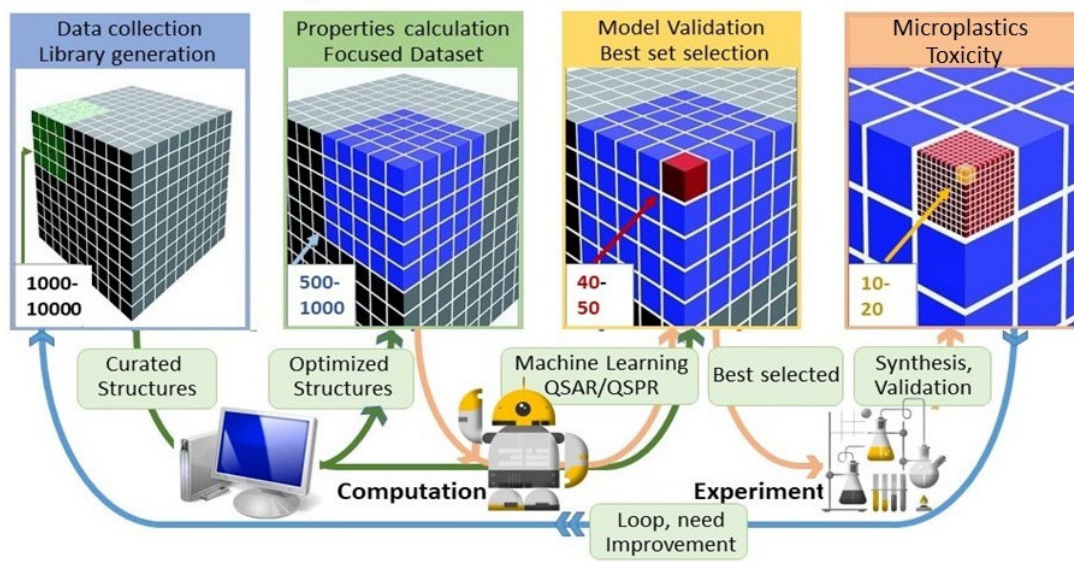


Microplastics come from a variety of sources like tires, roadway markings, plastic bags and containers, and personal care products but more than a third found in the environment are from synthetic textiles that compose a large portion of the fabric content of clothes.

Given their size, microplastics are found across the globe and eventually find their way into our bodies through the food we consume and water. While research on the long-term effects of microplastics on our health is only beginning, given that many chemicals found in plastics are endocrine disruptors that can cause damage to our livers and immune systems, the potential impact on humans is thought to be significant.

“The way that these chemicals interact with living organisms depends much on the structure and shape of the microplastics,” said Rasulev. “A key aspect of their toxicity is that their collective surface area increases as they become smaller. For instance, a one gram cube of material broken down to microparticles would still have the same mass of one gram, but its surface area could grow to as large as a football field.”

## Predicting the Toxicity of Microplastics



He added that the shape of the microparticle determines how apt it is to be retained in a living body, in addition to the chemical structure. “Plastics break down into many shapes. Rounded particles tend to pass through the body easier than those with sharper edges or those with a spear-like shape are more apt to become lodged in tissue and remain in the body longer where they can cause additional damage.”

A complicating factor in his work is the very composition of some plastics is of multiple components. “Their structure is a sort of mesh together that remains so even at the microplastic level,” noted Rasulev. “This means that we have to take into account that some microplastics are composed of multiple chemical entities and that may affect their toxicity.”

Rasulev’s research project will determine the toxicity of the plastics that become microplastics and nanoplastics. His goal is to create an online tool that other researchers can use to predict toxicity levels of various plastic products when they become micro- and nano-plastic size.

[Read more >>](#)

## Spotlight on Research Integrity & Compliance

### Transitioning approved protocols into Novelution – IBC

Interested in moving away from your paper protocol to the new Novelution system? The IBC office is here to help. Transitioning your protocol to Novelution allows for easier amendments including the addition of personnel, lab location changes, or minor procedural changes. These changes can be made by the PI and submitted electronically through the system. Streamlining the process and reducing time for approval.

Please reach out to the IBC office, [amanda.wilkinson@ndsu.edu](mailto:amanda.wilkinson@ndsu.edu) or 701-231-8908 if you would like to begin the process of moving your approved IBC protocol into Novelution.

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## Bringing a New Product Idea to Market

February 8, 2023, 5:00-6:00pm

Do you have ideas for new products and/or processes? This free virtual Rural Innovation Series workshop by presenters Evan and Ganya Anderson is about the topics of Idea Generation, Clarification and Prioritization.



JAMESTOWN  
REGIONAL  
ENTREPRENEUR  
CENTER

### The Process

- Concept & sketch
- Iterative prototyping/testing
- Elements of great design
- Finding the best path to market
- 8 keys for the inventor
- The Reality:

### The Reality

- The good
- The bad
- The ugly

### The Resources

- Where to find help along the way

[Learn more and register >>](#)



[Learn More >>](#)

## SBIR/STTR: Federal Funding for Your Innovative Idea

February 21, 2023, 5:00-6:00pm

Find out how the government's Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs can provide a source of R&D funding between the initial development of your innovative idea and proof that

it has potential in the marketplace. The two programs make over \$4 billion in high-risk, non-dilutive capital available to innovative small companies annually!



This virtual event held by the Jamestown Regional Entrepreneur Center will discuss what it takes to participate and to be competitive in the programs. This training is designed to provide enough information for attendees to determine if they would

like to seriously pursue proposal development and will provide the tools to help begin the process, including:

- Eligibility requirements
- Participating agencies
- The differences between SBIR and STTR
- How SBIR/STTR works with other funding
- Common misconceptions and more!

**Who should attend:**

- Companies from startups up to those with 500 employees who do early-stage technical R&D
- Academics who want to commercialize their technologies
- Companies who are seeking early stage, non-dilutive funding for research work

[Learn more and register >>](#)

## Research Development and Grant Writing News

The Research and Creative Activity office holds a subscription to Research Development and Grant Writing News, a monthly newsletter full of helpful tips and information about funding agencies and writing successful grant proposals. Here are some articles you will find in the January 2023 edition:

- Give a Wide Berth to Potential Plagiarism
- Advice and Resources for Your NSF MRI Proposal
- Seven Newly Posted DOE/SC Workforce FOAs
- The First Response to a BAA Is Often a White Paper
- Too Much “Why” and Not Enough “How”
- Faculty Writing Groups in the Humanities
- Funding Rates: Actual and Real



You can access [these and many more articles](#) on the RCA website (requires NDSU log-in).

SAVE THE DATE - APRIL 18, 2023

# STUDENT RESEARCH DAY

Registration opening in February

NDSU Student Research Day is a collaboration among NDSU EXPLORE, Gamma Sigma Delta, and the Graduate Student Council. Join us for a one-day celebration of undergraduate and graduate student research and creative projects.

Please plan to join us on April 18, 2023, in the Memorial Union



## Changes to NSF Proposal Submissions – January 30, 2023

The National Science Foundation (NSF) has released the updated Proposal and Award Policy and Procedure Guide ([PAPPG 23-1](#)) which will be effective for proposals with deadlines on or after January 30, 2023. There are several major changes introduced with this update:

- **FastLane will be Decommissioned.** NSF is preparing to transition the preparation and submission of all



new proposals from FastLane to Research.gov on January 30, 2023. Previously submitted FastLane proposals and supplemental funding requests will be available for the research community to access until Friday, September 29, 2023.

- **New Certification Requirements for Biographical Sketches and Current and Pending Support.** Senior Personnel will be required to certify that the information provided in their Biographical Sketch and Current and Pending Support documents are accurate, current, and complete. This certification will be included in both SciENcv and the NSF fillable format for proposals submitted or due on or after January 30, 2023.
- **Effective October 2023, SciENcv will be required for preparation of biographical sketches and current and pending support.** Other formats, including the fillable PDF form, will no longer be accepted.

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## RCA Funding Opportunities

**Research Development Travel and Conference Support Awards** help defray expenses for faculty presenting at national conferences (virtual or on-site) or for supporting travel to visit archives or special collections. As this pool of funding is limited, please consider allowing individuals who do not have other sources of travel funding to apply for this opportunity.

**Research Support Services Awards** help defray the costs of support services required for research, creative, or scholarly activity. For example, funds may be used in one of the NDSU Core Facilities, another recharge / service center, or for transcription services.

**Research Development Funding Agency Visit Travel Awards** help defray expenses for faculty traveling to meeting with Program Officers / Program Directors at funding



agencies. This program requires a 1:1 match from the applicant's department and / or college.

More information and application instructions are posted on the [RCA website](#).

## Upcoming Events

- **NIH Virtual Grants Conference**  
February 1-2, 2023 / [Learn more >>](#)
- **Bringing a New Product Idea to Market (Rural Innovation Series)**  
February 8, 2023 / [Learn more >>](#)
- **Save the Date: Virtual Workshop: How to Pursue Funding From Mission Agencies**  
February 15, 2023; Noon-1:30pm | [Learn more >>](#)
- **SBIR/STTR: Federal Funding for Your Innovative Idea (Rural Innovation Series)**  
February 21, 2023 / [Learn more >>](#)
- **NDSU Three Minute Thesis Competition**  
Live Championship Round February 16, 2023 | [Learn more >>](#)
- **Save the Date: Student Research Day**  
April 18, 2023
- **Save the Date: Virtual Workshop: Pursuing Funding for Education Research**  
April 19, 2023; Noon-1:30pm | [Learn more >>](#)

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## FUNDING OPPORTUNITIES

- [Breast Cancer Alliance: Exceptional Project Grants – LIMITED](#)
- [Breast Cancer Alliance: Young Investigator Grants – LIMITED](#)
- [NEH: Cultural and Community Resilience](#)
- [NEH: Digital Humanities Advancement Grants](#)
- [NEH: Fellowships](#)
- [NEH: Humanities Initiatives at Colleges and Universities](#)
- [NEH: NEH-Mellon Fellowships for Digital Publication](#)

- [NIH: Archiving and Documenting Child Health and Human Development Data Sets](#)
- [NIH: Centers of Excellence in Genomic Science](#)
- [NIH: Effectiveness of Implementing Sustainable Evidence-Based Mental Health Practices in Low-Resource Settings to Achieve Mental Health Equity for Traditionally Underserved Populations](#)
- [NIH: Integrative Research to Understand the Impact of Sex Differences on the Molecular Determinants of AD Risk and Responsiveness to Treatment](#)
- [NIH: NIDA Program Project Grant Applications](#)
- [NIH NOSI: Innovative Technologies on Climate Change and Human Health STTR](#)
- [NSF: Division of Environmental Biology](#)
- [NSF: Division of Molecular and Cellular Biosciences Core Programs](#)
- [NSF: Incorporating Human Behavior in Epidemiological Models](#)
- [NSF: Manufacturing Systems Integration](#)
- [NSF: Social Psychology](#)
- [NSF: STEM Ed Postdoc Fellowships](#)
- [NSF: Social Science Research Grants](#)

## Upcoming Limited Submission Program Deadlines

[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. Email notifications of interest to [ndsu.researchdev@ndsu.edu](mailto:ndsu.researchdev@ndsu.edu).

If you identify a limited submission opportunity that is not on the list below, please notify [ndsu.researchdev@ndsu.edu](mailto:ndsu.researchdev@ndsu.edu).

- [NIH: Alzheimer's Disease Research Centers](#)  
Notification: February 14, 5pm
- [Breast Cancer Alliance: Exceptional Projects](#)  
Notification: February 1, 5pm
- [Breast Cancer Alliance: Young Investigator Grants](#)  
Notification: February 1, 5pm

There are a number of limited submission grant programs with upcoming agency deadlines for which we did not receive any notifications of interest. For these

programs, marked "First to Notify," approval to move forward with a full proposal submission to the funder will be given on a first come, first served basis.

- [HRSA: Rural Communities Opioid Response Program-Evaluation](#)  
Deadline: 01/27/2023
- [NIH: Collaborative Program Grant for Multidisciplinary Teams](#)  
Deadline: 01/27/2023
- [DOE: Machine Learning, AI, and Data Resources for Fusion Energy Sciences](#)  
Deadline: 01/31/2023
- [NSF: Cultural Transformation in the Geoscience Community](#)  
Deadline: 02/01/2023
- [Camille Dreyfus Teacher-Scholar Awards Program](#)  
Deadline: 02/01/2023
- [DOE: AMMTO-BTO and OE FY22 Multi-Topic FOA](#)  
Deadline: 02/03/2023
- [NSF: Expanding Capacity in Quantum Information Science and Engineering](#)  
Deadline: 02/03/2023
- [NEA: Grants for Arts Projects](#)  
Deadline: 2/09/2023
- [NIH: Research Evaluation and Commercialization Hubs](#)  
Deadline: 02/09/2023
- [NSF: Major Research Instrumentation](#) – Track 2 – proposals requesting \$1.4M-\$4M  
Deadline: 02/21/2023
- [NSF: Major Research Instrumentation](#) – Track 3 – purchase, installation, operation, and maintenance of equipment and instrumentation to conserve or reduce the consumption of helium.  
Deadline: 02/21/2023
- [NSF: Advanced Computing Systems & Services](#)  
Deadline: 02/23/2023
- [NSF: Strengthening the Cyberinfrastructure Professionals Ecosystem](#)  
Deadline: 02/23/2023
- [DOE: Distributed Resilient Systems](#)  
Deadline: 02/24/2023

- [Graham Foundation: Architecture and the Designed Environment](#)  
Deadline: 02/25/2023
- [NSF: Scholarships in STEM \(S-STEM\) – New Solicitation](#)  
Deadline: 03/02/2023
- [HRSA: Rural Communities Opioid Response Program-Neonatal Abstinence Syndrome](#)  
Deadline: 03/08/2023

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## **Breast Cancer Alliance: Exceptional Project Grants – 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.

**BCA XP : [Notify RCA](#) by February 1, 5pm if you are interested in submitting to this program.**

Breast Cancer Alliance (BCA) invites clinical doctors and research scientists at any stage of their careers, including post docs, whose current research is focused on breast cancer, to apply for an [Exceptional Project Grant](#). This award recognizes creative, unique and innovative research and is open to applicants at institutions throughout the contiguous United States. This is a one year grant for a total of \$100,000.

**LIMITED SUBMISSION:** BCA will accept a maximum of two Exceptional Project Letters of Intent per institution.

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## Breast Cancer Alliance: Young Investigator Grants – 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.

**BCA YIG : Notify RCA by February 1, 5pm if you are interested in submitting to this program.**

To encourage a commitment to breast cancer research, Breast Cancer Alliance (BCA) invites clinical doctors and research scientists who are in the early stages of their careers, including post docs, whose current proposal is focused on breast cancer, to apply for funding for the Young Investigator Grant. This is a two-year grant for a total of \$125,000, with half the grant award being paid out each year.

Applicants for the 2024 award must (i) not have held a tenure track faculty or tenure track research position for more than four years following completion of their training, as of March 1, 2024; (ii) not have been a principal investigator on an NIH R01 or equivalent national/international non-mentored award; and (iii) dedicate at least 50% of their work effort to research. **This grant is intended to help advance the careers of young researchers who do not yet have their own major grant support but who design and conduct their own independent research projects.**

**LIMITED SUBMISSION:** BCA will accept a maximum of two Young Investigator Grants Letters of Intent per institution.



## NEH: Cultural and Community Resilience

The Cultural and Community Resilience program supports community-based efforts to mitigate climate change and COVID-19 pandemic impacts, safeguard cultural resources,

and foster cultural resilience through identifying, documenting, and/or collecting cultural heritage and community experience. The program prioritizes projects from disadvantaged communities in the United States or its jurisdictions, and NEH encourages applications that employ inclusive methodologies.

*Deadline: May 16, 2023*



## **NEH: Digital Humanities Advancement Grants**

The [Digital Humanities Advancement Grants](#) program (DHAG) supports innovative, experimental, and/or computationally challenging digital projects, leading to work that can scale to enhance scholarly research, teaching, and public programming in the humanities.

In support of its efforts to advance national information infrastructures in libraries and archives, and subject to the availability of funds and agency discretion, the Institute of Museum and Library Services (IMLS) anticipates providing funding through this program. These funds may support DHAG projects that further the IMLS mission to advance, support, and empower America's libraries, archives, museums, and related organizations. IMLS funding supports innovative collaborations between library and archives professionals, humanities professionals, information scientists, and relevant public communities that advance the preservation of, access to, and public engagement with, digital collections and services. IMLS encourages DHAG applicants to work in collaboration, and employ the expertise of, library and archives staff at your institution or across the country to strengthen knowledge networks, empower community learning, foster civic cohesion, advance research, and support the traditionally underserved.

*Deadline: June 15, 2023*



## **NEH: Fellowships**

NEH [Fellowships](#) are competitive awards granted to individual scholars pursuing projects that embody exceptional research, rigorous analysis, and clear writing. Applications must clearly articulate a project's value to humanities scholars, general audiences, or both.

Fellowships provide recipients time to conduct research or to produce books, monographs, peer-reviewed articles, e-books, digital materials, translations with annotations or a critical apparatus, or critical editions resulting from previous research. Projects may be at any stage of development.

NEH invites research applications from scholars in all disciplines, and it encourages submissions from independent scholars and junior scholars.

Applicants interested in research projects that are either born digital or require mainly digital expression and digital publication are encouraged to apply instead for NEH-Mellon Fellowships for Digital Publication.

*Deadline: April 12, 2023*



## **NEH: Humanities Initiatives at Colleges and Universities**

[Humanities Initiatives](#) strengthen the teaching and study of the humanities at institutions of higher education by developing new or enhancing existing programs, resources (including those in digital format), or courses that explore, interpret, and preserve the diversity of human cultures, ideas, and practices, past and present.

Projects must address a core topic or set of themes drawn from humanities areas such as history, philosophy, religion, literature, or humanities-informed composition and writing skills.

NEH welcomes applications for projects that are modest in scope, duration, and budget, as well as applications for expansive, long-term projects.

Note: Narrative attachments may not exceed 8 single-spaced pages.

A recorded webinar will be posted here by February 16, 2023.  
There will be a live Q&A on March 8, 2023, 2:00 p.m. Eastern Time.

*Deadline: May 9, 2023*



## NEH: NEH-Mellon Fellowships for Digital Publication

Through [NEH-Mellon Fellowships for Digital Publication](#), the National Endowment for the Humanities and the Mellon Foundation jointly support individual scholars pursuing interpretive research projects that require digital expression and digital publication. To be considered under this opportunity, an applicant's plans for digital publication must be integral to the project's research goals. That is, the project must be conceived as digital because the research topics being addressed and methods applied demand presentation beyond traditional print publication. Competitive submissions embody exceptional research, rigorous analysis, and clearly articulate a project's value to humanities scholars, general audiences, or both.

All projects must be interpretive. That is, projects must advance a scholarly argument through digital means and tools. Stand-alone databases, documentary films, podcasts, and other projects that lack an explicit interpretive argument are not eligible. Applicants interested in conducting research and writing leading to traditional print or e-book publications should apply to the NEH Fellowships program (Above).

*Deadline: April 19, 2023*

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## NIH: Archiving and Documenting Child Health and Human Development Data Sets

The purpose of this funding opportunity announcement (FOA) [PAR-22-261](#) is to support the archiving and documentation of existing data sets within the scientific mission of the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) in order to enable secondary analysis of these data by the scientific community. The highest priority is to archive original data collected with NICHD funding.

Examples of activities encouraged by this FOA include, but are not limited to:

- Archiving data from completed clinical trials, including NICHD clinical networks
- Archiving and developing population health, socio-behavioral, and/or demographic data that conform to international standards for data documentation, including adequate descriptions of metadata and searchable instruments for public use
- Cleaning and archiving existing clinical data
- Harmonizing data and measures across multiple data sets



- Enhancement of existing data resources to facilitate use
- Creating data sets that can be made available to the general scientific community from restricted access data that cannot be made publicly accessible because they include identifying or sensitive information. Examples include creating synthetic data and/or constructing de-identified non-sensitive versions of variables
- Data/results of preliminary/exploratory studies that have not previously been made available publicly available
- Archiving data from awards active in FY22 or earlier that plan to submit competing continuations

*Upcoming Deadlines: February 16, June 16, October 16*

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## **NIH: Centers of Excellence in Genomic Science**

The Centers of Excellence in Genomic Science (CEGS) program [PAR-22-107](#) establishes academic Centers for advanced genome research. Each CEGS award supports a multi-investigator, interdisciplinary team to develop integrated, transformative genomic approaches to address a biomedical problem. A CEGS project will address a critical issue in genomic science, genomic medicine, or computational genomics, proposing a highly innovative solution that would be a major advance.

The research will entail substantial risk, balanced by outstanding scientific and management plans and very high potential payoff. A CEGS will focus on the development of novel technological or computational methods for the production or analysis of comprehensive data sets, on a genome-scale biomedical problem, or on other ways to develop and use genomic approaches for understanding biological systems or furthering the application of genomic knowledge, data, and methods towards clinical applications. Each CEGS will nurture genomics by facilitating the interaction of investigators from several disciplines. Along with its scientific goals, CEGS will also expand the pool of genomic scientists and engineers that can use and apply the novel methods, concepts, and knowledge developed by the CEGS by providing education and outreach experiences to scientists at all career levels.

*Deadline: June 22, 2023*

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## **NIH: Effectiveness of Implementing Sustainable Evidence-Based Mental Health Practices in Low-Resource Settings to Achieve Mental Health Equity for Traditionally Underserved Populations**

This Funding Opportunity Announcement (FOA) [PAR-23-092](#) encourages studies that develop and test the effectiveness of strategies for implementation and sustainable delivery of evidence-based mental health treatments and services to improve mental health outcomes for underserved populations in low-resourced settings in the United States. Studies should identify and use innovative approaches to remediate barriers to provision, receipt, and/or benefit from evidence-based practices (EBPs) and generate new information about factors integral to achieving equity in mental health outcomes for underserved populations. Research generating new information about factors causing/reducing disparities are strongly encouraged, including due consideration of the needs of individuals across the life span.

This FOA is published in parallel to a companion R34, [PAR-21-283](#), that supports pilot studies in preparation for the larger-scale studies described here.

*Upcoming Deadlines: February 5, June 5, October 5*

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## **NIH: Integrative Research to Understand the Impact of Sex Differences on the Molecular Determinants of AD Risk and Responsiveness to Treatment**

This Funding Opportunity Announcement (FOA) [PAR-23-082](#) invites applications that apply a cross-disciplinary and team science approach to gain a comprehensive mechanistic understanding of the impact of sex differences on the molecular trajectories of brain aging on the phenotypes of risk and resilience to Alzheimer's disease (AD) and AD-related dementias (ADRD), and on the molecular determinants underlying responsiveness to pharmacologic and non-pharmacologic interventions.

This FOA encourages research focused on, but not limited to, the following areas:

- The impact of sex differences on the molecular trajectories of brain aging and on the molecular determinants of AD risk and progression across groups of varied racial, ethnic, and socioeconomic backgrounds.
- Molecular mechanisms underlying sex differences in brain bioenergetics, blood-brain barrier (BBB) and neurovascular unit function, myelin integrity, synaptic

plasticity, and neural circuits integrity as they relate to the transition from healthy to pathologic brain aging/neurodegeneration.

- Molecular mechanisms by which sex differences influence differential vulnerability to metabolic, vascular, and inflammatory risk factors.
- Molecular mechanisms by which hormonal transition states (i.e., perimenopause, menopause, and andropause) influence the heterogeneity of AD risk and AD progression.
- Understanding how sex interacts with different ApoE genotypes to influence the molecular mechanisms of brain aging, AD risk phenotypes, and responsiveness to treatment.
- Molecular determinants of sex differences in responsiveness to pharmacologic and non-pharmacologic treatment of AD/ADRD.

A cross-disciplinary team-science approach that brings together experts in neuroscience, physiology, computational biology and data science, and translational and clinical research is strongly encouraged, as is the integrative use of human data and biosamples with cell-based and animal models.

*Upcoming Deadlines: February 21, October 25*

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## **NIH: NIDA Program Project Grant Applications**

The National Institute on Drug Abuse (NIDA) [PAR-22-201](#) seeks collaborative research by multi-disciplinary teams to address critical issues of neuroscience, genetics, behavior, prevention, treatment, epidemiology, etiology, medications development, health services, HIV/AIDS and co-occurring opportunistic infections (e.g., viral hepatitis C, tuberculosis, sexually transmitted infections) and associated consequences in people who use or misuse substances or have a substance use disorder, or other research areas relevant to substance use, misuse, or use disorders.

Applications are expected to incorporate diverse perspectives from investigators that conduct the research, people who participate in the research as part of the study population, and the places where the research is done. Including and empowering investigators from a variety of backgrounds, scientific disciplines, career stages, and institutions can foster innovation, enhance global competitiveness, contribute to robust learning environments, improve the quality of the research, advance the likelihood that underserved or health disparity populations participate in and benefit from health research, and enhance public trust (see the Notice of NIH's Interest in Diversity, [NOT-OD-](#)

[20-031](#))

*Upcoming Deadlines: April 23, May 25, September 25*

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## **NIH: Notice of Special Interest (NOSI): Innovative Technologies for Research on Climate Change and Human Health Small Business Technology Transfer**

Various NIH organizations are leading an NIH-wide [Climate Change and Health Initiative \(CCHI\)](#) with the goals of: reducing the health threats posed by climate change across the lifespan, improving the health of people who are disproportionately affected by climate change impacts; and building health resilience among individuals, communities, and nations around the world. [NOT-ES-22-009](#)

As a part of this CCHI, this NOSI encourages Phase I (R41), and Direct to Phase II (R42) STTR grant applications from SBCs to develop commercializable tools, resources, and approaches to capture the effects of climate change and the associated impacts of extreme weather events on human health and to support adaptation or mitigation strategies to minimize health hazards and impacts from climate change. Technologies may include new approaches for detecting climate change-associated exposures, including temperature and air quality, training tools on climate change and mitigation strategies for patients with underlying health conditions, intervention approaches for reducing contaminants water or in indoor air, modeling and prediction tools for climate-change-related weather events and related health effects, and technologies for delivery of health care, including mental health services to communities during extreme weather events.

*Deadline: April 6, 2023*

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## **NSF: Division of Environmental Biology**

The Division of Environmental Biology (DEB) [NSF 23-549](#) supports research and training on evolutionary and ecological processes acting at the level of populations, species, communities, and ecosystems. DEB encourages research that elucidates fundamental principles that identify and explain the unity and diversity of life and its interactions with the environment over space and time. Research may incorporate field, laboratory, or

collection-based approaches; observational or manipulative studies; synthesis activities; phylogenetic discovery projects; or theoretical approaches involving analytical, statistical, or computational modeling. Proposals should be submitted to the core clusters (Ecosystem Science, Evolutionary Processes, Population and Community Ecology, and Systematics and Biodiversity Science).

DEB also encourages interdisciplinary proposals that cross conceptual boundaries and integrate over levels of biological organization or across multiple spatial and temporal scales. Research addressing ecology and ecosystem science in the marine biome should be directed to the Biological Oceanography Program in the Division of Ocean Sciences; research addressing evolution and systematics in the marine biome should be directed to the Evolutionary Processes or Systematics and Biodiversity Science programs in DEB.

*Deadline: Proposal accepted ANYTIME*

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## **NSF: Division of Molecular and Cellular Biosciences Core Programs**

MCB [NSF 23-548](#) supports research that promises to uncover the fundamental properties of living systems across atomic, molecular, subcellular, and cellular scales. The program gives high priority to projects that advance mechanistic understanding of the structure, function, and evolution of molecular, subcellular, and cellular systems, especially research that aims at quantitative and predictive knowledge of complex behavior and emergent properties.

MCB encourages research exploring new concepts in molecular and cellular biology, while incorporating insights and approaches from other scientific disciplines, such as chemistry, computer science, engineering, mathematics, and physics, to illuminate principles that govern life at the molecular and cellular level. MCB also encourages research that exploits experimental and theoretical approaches and utilizes a diverse spectrum of model and non-model animals, plants, and microbes across the tree of life. Proposals that pursue potentially transformative ideas are welcome, even if these entail higher risk.

*Deadline: Proposal accepted ANYTIME*

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## **NSF: Incorporating Human Behavior in Epidemiological Models**

The Incorporating Human Behavior in Epidemiological Models (IHBEM) Program [NSF 23-546](#) supports research that incorporates research on social and behavioral processes in mathematical epidemiological models. The program provides support for projects that involve balanced participation from the mathematical sciences and from the social, behavioral, and economic sciences.

*Deadline: April 14, 2023*

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## **NSF: Manufacturing Systems Integration**

The Manufacturing Systems Integration (MSI) Program [NSF PD-23-299Y](#) supports fundamental research addressing the opportunities and challenges that digital technologies present for the next industrial revolution, with particular emphasis on the digital integration of design and manufacturing within the larger life cycle ecosystem. MSI proposals should address underlying principles and advances that are generalizable for globally competitive and world leading industries. Connectivity, automation, and secure collaboration are examples of areas that are integral to digital environments capable of supporting the innovation, realization and sustainment of manufactured products and systems in the value creation process.

Fundamental generalizable research for manufacturing systems integration might include, for example:

- Digital representation, protocols, and/or processes for integration and collaboration in manufacturing systems (machines and/or humans)
- Intelligent self-organizing production systems
- Ease of use, interoperability and seamless integration of technologies, machines, and humans
- Service-oriented architectures and systems
- Data sets that are compatible and usable across platforms
- Reliable and secure communications within and across the manufacturing value chain
- Integration of distributed manufacturing systems across time and space, including incorporating both legacy and leading-edge equipment and technologies

- Methods for assessing the impact and value of externalities throughout the life cycle within the digital environment

Interdisciplinary, convergent proposals that bring diverse perspectives, populations, disciplines, and capabilities together are welcome. It is strongly encouraged and expected that investigators discuss their ideas with a MSI program director well in advance of proposal submission.

*Deadline: Proposals accepted ANYTIME*

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## **NSF: Social Psychology**

The Social Psychology Program [PD 22-1332](#) at NSF supports research and research infrastructure to advance basic knowledge in social psychology. Projects funded by the Social Psychology Program support the NSF mission to promote the progress of science; to advance the national health, prosperity and welfare; and to secure the national defense. Proposals considered by the Social Psychology Program must communicate both the intellectual merit of the science and its broader societal impacts.

[Interdisciplinary, multidisciplinary and convergent research](#) approaches are encouraged. Proposals involving non-human animals are considered only if the research offers clear and direct contributions to understanding human social behavior.

In assessing [broader impacts](#), the Social Psychology Program places highest priority on proposals that offer strong potential to benefit society, strengthen our national security interests, improve the quality of life, broaden participation in science, enhance infrastructure for research and education, and include a plan for sharing the results with a wide variety of audiences.

*Deadline: July 17, 2023*

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## **NSF: STEM Ed Individual Postdoctoral Research Fellowships**

STEM Ed IPRF awards [NSF 23-544](#) provide direct support to Fellows to enable them to engage in ongoing research, to develop independent research, and to implement an independent professional development plan under the guidance of a sponsoring

researcher. Fellows must affiliate with an appropriate host organization and are expected to devote themselves full time to the fellowship activities for the duration of the fellowship.

The STEM Ed PRF Program as a whole seeks to broaden the pool of researchers who can advance knowledge regarding STEM learning and learning environments, broadening participation in STEM fields, and STEM workforce development. The Program is designed to support postdoctoral fellows engaged in experiences that will advance their career goals by developing their expertise, skills, and competencies to conduct fundamental STEM education research.

*Deadline: April 11, 2023*



## **RSF: Research Grants in the Social Sciences**

RSF will accept letters of inquiry (LOIs) under all of its core programs and special initiatives: [Behavioral Science and Decision Making in Context](#); [Future of Work](#); [Immigration and Immigrant Integration](#); [Race, Ethnicity and Immigration](#); [Social, Political, and Economic Inequality](#). In addition, RSF will also accept LOIs relevant to any of its core programs that address the effects of social movements, such as drives for unionization and mass social protests, and the effects of racial/ethnic/gender bias and discrimination on a range of outcomes related to social and living conditions in the United States.

*Deadline: May 3, 2023*



### **Looking for more funding opportunities?**



RCA subscribes to SPIN by InfoEd Global, a database of more than 40,000 funding opportunities. Through this subscription, SPIN is free for current NDSU faculty, staff, and students.

For more information and to access this database, visit the [SPIN page](#) on the RCA website. If you have questions, please contact [ndsuhresearchdev@ndsuh.edu](mailto:ndsuhresearchdev@ndsuh.edu).



Have questions, ideas, or suggestions for the RCA Update?

[Contact Us](#)



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*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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*We collectively acknowledge that we gather at NDSU, a land grant institution, on the traditional lands of the Oceti Sakowin (Dakota, Lakota, Nakoda) and Anishinaabe Peoples in addition to many diverse Indigenous Peoples still connected to these lands. We honor with gratitude Mother Earth and the Indigenous Peoples who have walked with her throughout generations. We will continue to learn how to live in unity with Mother Earth and build strong, mutually beneficial, trusting relationships with Indigenous Peoples of our region.*