

NITMB Webinar

NSF-Simons Collaboration on a National Institute for Theory and Mathematics in Biology (NITMB)

NATIONAL SCIENCE FOUNDATION

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INTRODUCTIONS & WELCOME

NSF and Simons Foundation Senior Managers:

- **Theresa Good**, Division Director, Division of Molecular & Cellular Biosciences, BIO/NSF
- **Tie Luo**, Deputy Assistant Director, Directorate for Mathematical & Physical Sciences, NSF
- **Juan Meza**, Division Director, Division of Mathematical Sciences, MPS/NSF
- **Yuri Tschinkel**, Director, Mathematics and the Physical Sciences Division, Simons Foundation
- **Junping Wang**, Deputy Division Director, Division of Mathematical Sciences, MPS/NSF

QUESTIONS

- **Submit your questions using the Q&A module**
 - Will answer questions live (time permitting)
 - **Program-wide** questions are encouraged
- If your question is not answered due to time limitation, feel free to email programmatic or theme related questions to NITMB@nsf.gov
- Webinar materials (slides and audio recording) will be posted on the program/webinar web page

NITMB PROGRAM OFFICERS

- **Zhilan Feng**, Division of Mathematical Sciences, MPS/NSF
- **Jaroslav Majewski**, Division of Molecular and Cellular Biosciences, BIO/NSF
- **Sridhar Raghavachari**, Division of Integrative Organismal Systems, BIO/NSF
- **Elizabeth Roy**, Simons Foundation, Division of Mathematics and Physical Sciences
- **Samuel Scheiner**, Division of Environmental Biology, BIO/NSF

SYNOPSIS OF PROGRAM

The purpose of NITMB is to support a National resource of excellence to enable innovative research at the **intersection of mathematical and biological sciences** to facilitate **new developments** of biology-inspired mathematical theories, methodologies, and innovative modeling approaches to advance the understanding of challenging biological problems.

- Funded through a Cooperative Agreement for **5yrs @ \$50M** with a possibility of **renewal** for an additional 5 years.

POSSIBILITIES FOR RESEARCH TOPICS INCLUDE:

- **While not exhaustive or limiting, new developments in biology in these areas can spur new advances in mathematics**
 1. Genome sciences
 2. Infectious pathogens: immunology and transmission
 3. Neuroscience
 4. Evolution of shape and form
 5. Biological systems on a changing planet

GOALS OF NITMB

- The institute will serve as a **national resource** that aims to advance research in the mathematical and biological sciences.
- The institute is also expected to **conduct convening activities**, including short-term and/or long-term visitor programs, workshops, and/or outreach activities
- The institute should promote **interdisciplinary education** and workforce training between these two disciplines.
- **Diversity, equity, inclusion**, and accessibility are expected to be core values of the institute.

PROGRAM TIMELINE

Milestone	Program-wide timeline
Preliminary proposals due	Dec 1, 2021
Results of preliminary proposal review	Mid-Feb 2022
Full proposals (by invitation only)	July 18, 2022 (target date)
Site Visits	Anticipated in early 2023
Anticipated start date of awards	Jul 1, 2023

ELIGIBILITY

- Institutions who may apply.
 - Institutions of Higher Education (IHEs)
 - Non-profit, non-academic organizations
 - Other organization types (such as FFRDCS) **may only** be included as subawardees.
 - FFRDCs and federal agency scientists cannot serve as lead PI.
- Limit on Number of Proposals per Organization: **None**
 - **Collaborative proposals are not allowed**
- Limit on Number of Proposals for Senior Personnel: 2
 - Senior personnel defined in PAPPG, includes but not limited to PI/co-PI
 - PI/co-PI are subset of “senior personnel”

PRELIMINARY PROPOSALS: 12/01/2021

■ Required

- 15-page project description: Should include the intellectual focus of the institute, schedule of scientific activities – plans for Year 1 and provisional schedule for Years 2-3; training, outreach and dissemination plans

Supplementary documents:

- List of Institute personnel
- Governance and Management
- Institutional capabilities
- Collaborators and Other Affiliations (for PI, co-PI and senior personnel)
as a single copy document

Not required:

- Budget
- Prior NSF support
- Current and Pending support
- Data management plan
- Postdoctoral mentoring plan

FULL PROPOSALS: 07/18/2022

- **By invitation only (submit through FastLane)**
- 30-page Project Description should include
 - Intellectual focus of the institute with mission and goals
 - Description of the Research Plan of the Institute
 - Tentative schedule of scientific activities
 - Broader Impacts
 - Education and Workforce Development
 - Plans for scientific community involvement and outreach
- Follow all PAPPG guidance for items not specified in the instructions
- Other required and optional supplementary docs and single-copy docs (continued....)

FULL PROPOSAL: 07/18/2022

Supplementary documents

- List of senior personnel
 - Personnel changes are allowed
 - Notify SF and NSF regarding any changes
- Simons Foundation budget – 50% of total request.
 - Follow SF guidance at <http://www.simonsfoundation.org>
 - Note – **indirect cost rate is different**
- External advisory board – desiderata and roles (3 pgs max)
- Institutional capabilities – of lead and other participating organizations (5 pages max)
 - Current capabilities and resources of the participating organizations will facilitate the proposed Institute activities

FULL PROPOSAL: 07/18/2022

Supplementary documents (continued)

- Management and Governance (5 pgs max)
 - Describe key leadership positions, reporting lines, means of communication among members
 - Mechanisms of communicating with the scientific community and general public
 - Accountability and oversight mechanisms
 - Mechanisms for recruitment, selection, and appointment involved in research group leaders and institute leadership succession and other leadership changes

FULL PROPOSAL: 07/18/2022

Supplementary documents (continued)

- Broadening participation (5 pages max)
 - Diversity, equity and inclusion in all activities and personnel selection
 - Plans for encouraging involvement of under-represented groups
 - Plans and strategies for implementation and measurement of outcomes

CHARACTERISTICS OF COMPETITIVE PROPOSALS

- Well-articulated plans to create a critical mass of strong research groups with long-term appointments for group leaders at hosting institution
- Demonstrate strong cohesion among research programs
- Present evidence of **disciplinary balance**
- Clearly demonstrate how the Institute setting allows the Institute to transcend a set of loosely connected projects
- Description of activities to facilitate sustained, productive **cross-disciplinary collaborations** to achieve the goals

CHARACTERISTICS OF COMPETITIVE PROPOSALS

- Convincing plans for significant effort in **capacity building**
 - Cross-disciplinary training of the next generation of scientists at this interface
 - Convening activities to broaden the reach and impact of the center's science

REVIEW CRITERIA

- **In addition to the Intellectual Merit and Broader Impacts, the Institute proposals will be assessed on:**
 - Scope and significance of **mission** and **goals**, and likely effectiveness in meeting them
 - Quality and mutual cohesiveness of core research groups of the Institute
 - Impact of proposed scientific areas on the mathematics and biology communities

REVIEW CRITERIA

- **In addition to the Intellectual Merit and Broader Impacts, the Institute proposals will be assessed on:**
 - Extent of demonstrated institutional commitments
 - Capabilities of Institute leadership in organization and management
 - Design, structure and management plans for the operation of the Institute
 - Quality of plans for recruitment of project leads, program organizers and participants

REVIEW CRITERIA

- **In addition to the Intellectual Merit and Broader Impacts, the Institute proposals will be assessed on:**
 - Quality of training activities and effectiveness in recruiting a diverse group of trainees
 - Commitment to promoting diversity, equity, inclusion, and accessibility
 - Effectiveness of plans for dissemination of outcomes

QUESTIONS?

Please use the Q&A module for your questions

COMMON INQUIRIES

- Does NSF have preference for single- or multi-universities in the same geographical area?
 - A proposal submitted to the NITMB competition may include two or more universities in the same geographical area. The program has no preferences.
- Are there any restrictions on geographical areas for a proposal with multiple institution?
 - The program is meant to support an Institute at a single physical location and not a distributed Institute. Collaborations and the institutional composition should reflect this ethos.

COMMON INQUIRIES

- Because collaborative proposals will not be allowed as indicated in the call, the partner organization through subaward seems to be the only option. Do we need to detail the size of a subaward and its financial scope beyond the proposed collaborative activities since no budget is needed in the preproposal?”
- No details about the size of subawards are required, but a detailed subaward budget for each participating institution is required for full proposals. See solicitation for details.

COMMON INQUIRIES

- Can we upload an institutional letter from the university administrator for space and other commitments?
 - Institutional letters are not required for preliminary proposals, but a discussion on the institutional support (such as space and other commitments) is acceptable.
- What is the maximal number of other senior personnel allowed for the pre-proposal? If external collaborations are involved, do we need to provide biosketches of the collaborators?
 - There is no specified maximum number of other senior personnel. Regarding biosketches, the solicitation states the following:

Biographical Sketches: For all key personnel (PI, Co-PIs, senior personnel etc.), provide a brief biographical sketch, using the format specified in the NSF PAPPG.

COMMON INQUIRIES

- What could have strengthened our original proposal? What is your current model for what an ideal proposal would look like this round? Which of the previous awardees are good models for what you are trying to achieve?
 - We do not give guidance on these issues. We note that prospective applicants should propose creative institute structures with high quality, mutually cohesive core research programs and strong convening activities and training and dissemination efforts.
- Clearly, theory/math/statistics/computer science drive the institute, but would experimental/clinical work also be allowed?
 - There will be limited support for experimental work. Biomedical or clinical focused research areas are of low priority to NSF/BIO.

COMMON INQUIRIES

- What can be included in the file "List of All Institute Personnel"? In addition to listing the name, email address and affiliations of all personnel, is it okay to describe their expertise and roles in the proposed NITMB? If not, which file is the best place for such information as there is very limited space in the 15-page project description for describing roles of a long list of researchers.
- The supplementary document with the list of personnel should only contain their names, emails and institutional affiliation. Please make sure to follow the page limits of all sections.

COMMON INQUIRIES

- Are there limits on the number of proposals that may be submitted per PI or Co-PI?
 - Yes. An individual may appear as PI, Co-PI or other senior personnel on no more than two proposals submitted in response to this solicitation. Other senior personnel include leads on sub-awards, and named postdoctoral research associates. There is no limitation on paid consultants.
- Can faculty from other universities be included in the application from a submitting institution?
 - Yes, faculty from other universities can be involved in the application, as appropriate and in following the eligibility outlined in the solicitation.
- Are foreign institutions eligible as leaders or partners in the call?
 - No

COMMON INQUIRIES

- How do you envision the NITMB different than the MathBioSys centers? What is the relation between the proposed new institute and the other previously funded NSF-Simons math bio centers?
 - The proposed new institute do not need to have any relation with the previously funded NSF-Simons MathBioSys centers.
- How important are Institutional Capabilities? Are the current NSF-Simons Bio centers at an advantage as proposers?
 - Institutional capabilities are important for demonstrating the quality and extent of resources available to the team at the lead and participating institutions to carry out the research, community engagement and outreach activities. All proposals will be judged equally based on their content. The existence of another Simon center on campus will be treated no differently than any other campus resource.

COMMON INQUIRIES

- Would NITMB consider proposals with collaboration with foreign investigators?
 - NITMB proposals may involve collaborations with foreign investigators as described in the program solicitation NSF 21-607:

"While institute programs will often naturally involve foreign participants, the bulk of NSF funding for participants in institute programs is expected to support U.S.-based participants, reflecting the investment of U.S. federal funds in the National Institute for Theory and Mathematics in Biology."

COMMON INQUIRIES

- What is the balance expected between mathematical scientists and biologists on NITMB proposals?
- The Working Group recognizes that the most productive collaborations across these two disciplines will be developed over sustained periods, and will involve **biologists challenging mathematical scientists, and mathematical scientists challenging biologists** to be able to advance the science at this interface. PIs should develop goals for the proposed center activity consistent with the NITMB Program goals, and describe balanced collaborative teams of biologists and mathematical scientists to achieve those goals through these kinds of sustained and productive collaborations.

**Thank you for attending the
NITMB Webinar**

**We look forward to receiving
proposals from you!**