UNIVERSITY OF NOTRE DAME | RESEARCH

Limited Submissions Application for Internal Competition

NSF Major Research Instrumentation (MRI) Program

Combine entire submission into one PDF document named PIname_MRI_October_ 2020.pdf and upload to Google here:

https://forms.gle/hathAVxY2TZc9hSv7

Applications that do not conform to these directions may be returned without review.

Grant Competition Information: https://www.nsf.gov/pubs/2018/nsf18513/nsf18513.htm

Dr. Richard Billo invites interested internal applicants to meet with him to discuss their ideas prior to the internal competition deadline of October 15, 2020. It is recommended that you seek a meeting prior to October 12, 2020. Dr. Billo can be contacted at rbillo@nd.edu.

The Major Research Instrumentation Program (MRI) serves to increase access to shared scientific and engineering instruments for research and research training in our Nation's institutions of higher education, and not-for-profit museums, science centers and scientific/engineering research organizations. This program especially seeks to improve the quality and expand the scope of research and research training in science and engineering, by supporting proposals for shared instrumentation that fosters the integration of research and education in research-intensive learning environments.

The number of MRI proposal submissions allowed per institution continues to be a maximum of three, but is now based on the dollar value of the amount requested from NSF; no more than two submissions are permitted in a newly-defined Track 1 (Track 1 proposals are those requesting from NSF $100,000 to less than $1 million) and no more than one submission is permitted in a newly defined Track 2 (Track 2 proposals are those requesting from NSF $1 million up to and including $4 million) for shared inter- and/or intra-organizational use; Development efforts that leverage the strengths of private sector partners to build instrument development capacity at MRI submission-eligible organizations are encouraged.

Internal Competition Pre-proposal Elements:

1) CoverPage (1 page maximum)
   Proposal Title: MRI: Acquisition of OR MRI: Development of
   Investigators: (*include PI and co-PI name(s), rank(s), and departmental/center affiliations(s)*)
   Submitting Unit: (*Department, School, College, or Center)*

2) Project Summary - (1 page maximum)

   Provide background about the problem to be solved, the existing need, and any relevant material that the review panel should know in order to appreciate the importance of this proposal for this grant competition. Explicitly address the Intellectual Merit and Broader Impacts of the proposed work. Include instrument location and type. Explicitly state the science that will be enabled by this equipment. Include any preliminary results. Instrument acquisition proposals must include a comment regarding whether or not preliminary results have been obtained on the desired instrument through the vendor or collaboration.

3) Budget and Budget Justification – (1/2 page maximum)

   Provide a conceptual budget for the anticipated total project cost (NSF request plus match), indicating how the funds will be dispersed for capital equipment, salary support, etc. Please see solicitation for eligible projects costs for acquisition or development proposals. Cost-sharing at the level of 30% of the total project cost is required.

4) Additional Review Criteria – (2 pages maximum for one of the following – Acquisition or Development)

   Instrument Acquisition Proposals.
   Given the relatively high operations and maintenance costs of major research instrumentation, investigators seeking support for such instrumentation must provide detailed business and management plans with information on space, technical staffing for operations and maintenance, training of users, access for external users, and the sources of funding and plans for long-term operations and maintenance, including:

   Describe the facility in which the instrument will be placed.

   Specify how and by whom the requested instrumentation will be operated and maintained (both during the award period and longer-term).

   Describe the anticipated costs and the technical expertise needed to maintain and operate the instrument. If the expertise is not currently available, describe how it will be obtained.

Describe procedures for allocating the instrument time, if appropriate, and describe plans for attracting and supporting new users. Include information on anticipated usage and downtime.

Sufficient detail should be given to enable reviewers to evaluate whether the project includes appropriate technical expertise and infrastructure to allow effective usage of the instrument by the end of the award period, as well as facilitate multi-user accessibility.

Instrument Development Proposals.
Given the often complex nature of instrument development efforts, investigators seeking support for such an instrument must provide detailed management plans for the design, construction and commissioning phases of the project, including discussion of required personnel and anticipated costs in each phase of the project, risk mitigation, and knowledge transfer upon completion, including:

Describe the design, construction and commissioning phases of the project, including the work breakdown structure of the project activities (i.e., activities broken into tasks).

Include a description of parts and materials, the estimated deliverables, associated timelines and the anticipated cost of each activity. Emphasize why this equipment must be developed and what makes it unique.

Describe the technical expertise that is needed, and that will be available, to execute each activity.

Describe the organization of the project staff and methods of assessing performance.

For each member of the team, include a description of the responsibilities and explain why a given position is necessary for the completion of the design and construction of the new instrument.

Assess the risks associated with each activity and describe potential methods for mitigating the risks, and for re-analyzing and modifying the project plan to keep it within scope, schedule and budget.

Include plans for making the instrument design readily available to other researchers, for example by means of publications, by transferring the technology to other U.S. academic, industrial, or government laboratories, and/or by commercializing the instrument. Clearly describe intended broader impacts.

Include plans for the long-term operations and maintenance of the instrument, including procedures for allocating time on the instrument if appropriate. Describe plans for attracting and supporting new users and information on anticipated usage and downtime if appropriate.

5) Attach a 2 page (maximum), current NSF biosketch for each PI and co-PI. Each biosketch should include contact information, professional preparation, appointments, products and synergistic activities.

6) Include a list of all current **NSF awards** from all ND faculty that will be supported by the equipment proposed here, should NSF fund the MRI proposal. (5 pages maximum)

   Include 2-3 sentences that specifically state how the equipment will support progress on these current awards.

   Include in this document instrumentation awards from any external sponsor – federal or private.

   As NSF has primary interest in usage of MRI funds to support NSF research, citing research from other agencies is not relevant.

   Last, include in this document any internally-funded instrumentation awards at the college, center or university level, including instrumentation purchased from start-up packages.

7) If this is a resubmission, include NSF reviews of the previous submission.

Internal Competition Selection Criteria

- Innovation of Instrument
- Single well-integrated Instrument
- Shared Instrument
- Listing/Description of NSF Research to be Supported
- NSF Program Manager Communication
- Proposal Quality and Fit for the MRI program