

## MRI Outline – Track 1: Instrument Acquisition (up to \$1M)

January 2020

Focus on:

- MULTI-USER/SHARED instrumentation across disciplinary boundaries
- Advance state-of-the-art in science and engineering research and training
- Leverage strengths of private sector partners to build instrument development capacity

Cost Share Notes: The 30% cost-sharing requirement applies to only the portion of the total project cost budgeted to non-exempt organizations, including those participating through subawards. **When required, cost-sharing must be precisely 30%. Cost sharing is required for Ph.D.-granting institutions of higher education and for non-degree-granting organizations.** See section V.B. for specific information on cost-sharing calculations and the solicitation text for definitions of organizational types used for the MRI program.

Instrument Acquisition notes:

The science and engineering research enterprise relies on the availability of modern instrumentation, much of which can be acquired with little or no modification from existing sources, *An MRI acquisition proposal is characterized by a purchase or upgrade of a generally available, yet sophisticated, instrument with little or no modification and risk. MRI does not support the lease/rental of a research instrument, but the purchase of a currently leased instrument at fair market value may be considered.*

Instrumentation for bioengineering research, with diagnosis- or treatment-related goals that applies engineering principles to problems in biology and medicine, while also advancing engineering knowledge, is eligible for support. Instrumentation for research in bioinformatics and biocomputing, or for bioengineering research to aid persons with disabilities, is also eligible.

### Components Checklist

1. Cover sheet with title
2. Project Summary (1 page)
3. Project Description (15 pages)
4. References
5. Biosketches
6. Budget and Justification
7. C&Ps
8. FEOR
9. Supplemental Docs (lists, letters, quotes)
10. DMP
11. PDMP
12. Single Copy Docs (COAs, suggested reviewers encouraged)

## **MRI Acquisition Project Description Outline/Instructions**

- *Is the Project Description 15 pages or less in length, and does it also separately address both Intellectual Merit and Broader Impacts?*
- *Does the research and research training that will be enabled clearly drive the request for the desired instrument?*
- *When appropriate, does the Project Description clearly convey how the proposal is appropriate for consideration as instrument development?*
- *Has the location of the instrument been identified and explained?*
- *Are Results from Prior MRI Support, if applicable, addressed in terms of both Intellectual Merit and Broader Impacts?*
- *Has an adequate Management Plan been included in a separate section?*

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**(title) MRI: Acquisition of .....**

### **A. Info about proposal**

Instrument Location and Type (included at the top of and as part of the overall Project Description page limit)

- Indicate in a single separate line the physical location of the proposed instrument as follows, "Instrument Location: \_\_\_\_\_". Note: Instruments to be deployed in the field may require additional information to assess compliance with any applicable laws such as the National Environmental Policy Act, National Historic Preservation Act, and Endangered Species Act.
- Additionally, to assist the MRI program in tracking and reporting on the most common, broad types of instruments the program funds, on a single separate line please provide a concise description of the instrument being acquired/developed.

### **B. Research activities to be enabled**

- The degree to which the planned uses of the proposed instrumentation constitute exciting, ground-breaking and/or transformative research is a significant factor in the merit review evaluation of MRI proposals. In this section describe the specific research program(s) and research training activities that will be enabled and that drive the request for the desired instrumentation.
- Also describe current and potential funding sources that may support these activities and/or how the instrument will better enable future funding support. (Note: Researchers using MRI instrumentation need not be supported by NSF or the Federal government, but reviewers should understand how users of the instrument will support and disseminate their research.)
- In narrative and/or tabular form describe the personnel by research area, number, and type (e.g., senior personnel, postdoctoral fellows, graduate students, undergraduate students) anticipated to use benefit from the instrument. An in-depth discussion should include only those who will most actively use the instrumentation for research and research training on a

regular basis. Other more minor users of the instrument, when applicable, should be described in a more condensed (e.g., table) format.

- This section must also include "Results from Prior NSF Support" (see required information in the PAPPG) if the PI or any of the co-PIs have participated as PIs or co-PIs in NSF awards with a start date within the past five-year period. Preference should be given to MRI awards. When discussing MRI awards, this section should also include information on the operations and maintenance, downtime and usage history on the previously funded instrument. **If the PI or co-PIs have not participated as PIs or co-PIs in NSF MRI awards with a start dates within the past five-year period, but have received other NSF funding during that period, information on the most relevant funded award(s) is required. In this case, preference should be given to any other non-MRI instrumentation awards if applicable.** Otherwise follow the standard "Results from Prior NSF Support" guidance in the PAPPG.

### **C. Description of the Research Instrument and Needs (up to 2 pages suggested)**

- An acquisition proposal should include a technical description of the requested instrumentation and clearly explain how the planned research drives the instrumentation request. If applicable, the existence and availability of comparable instrumentation (e.g., at organizations in close geographical proximity, or otherwise accessible through collaborations or cyberinfrastructure) should be discussed and justification for the requested instrument should be made clear.
- A proposal integrating components that when combined serve as a single research instrument must justify the request in the context of the MRI goal of providing support for individual research instruments. The MRI Program does not typically fund common, general-purpose ancillary equipment that would normally be found in a laboratory and/or is relatively easily procured by the organization, nor does MRI support requests for multiple instruments that serve to outfit a general purpose laboratory or research environment.
- Proposals involving large formalized collaborations (e.g., through a memorandum of understanding or other legal document) should include a one-page supplemental document from the collaboration describing the role, importance and priority of the requested instrument in the overall efforts being undertaken by the collaboration (see Section 9.b).

### **D. Broader Impacts (including impact on Research and Training Infrastructure)**

- This section should provide a discussion of the broader impacts as a result of the acquisition or development of the instrument, including a description of how the instrument will serve to attract researchers and make a substantial improvement in the institution's capabilities to conduct leading-edge research.
- If appropriate, describe how the instrument will improve the quality of research training. Any proposal requesting direct student support in maintenance or development efforts must justify that involvement in terms of both project needs and the training of the next generation of instrumentalists (reviewers will be asked to evaluate the appropriateness of this type of involvement).
- Proposals should also address whether, and if so, how well, the instrument will broaden the participation in science and engineering research by women, underrepresented minorities and persons with disabilities.

- *Proposals requesting over \$1 million should address the potential impact of the instrument on the research community of interest at the regional or national level. For large multi-user instruments that enable usage beyond a single institution, concrete plans for enabling access by external users (including those from non-Ph.D. and/or minority-serving institutions) through physical or virtual access should be presented, and the uniqueness of the requested instrument should also be described.*

#### **E. Management Plan (up to 2 pages suggested)**

- A description of the space or the facility in which the instrument will be placed.
- A description of how and by whom the requested instrumentation will be operated and maintained over the expected lifetime of the instrument. Inclusion of a letter documenting the performing organization's commitment to ensuring successful operations and maintenance over the expected lifetime of the instrument is required as a supplemental document. If the expertise is not currently available, describe how it will be obtained.
- A description of procedures for allocating the instrument time, if appropriate, and 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 appropriate technical expertise and infrastructure to allow effective usage of the instrument will be available, and whether effective multi-user accessibility will be available.