



# National Science Foundation Research Infrastructure

- Major Research Instrumentation (MRI)
- Guest Appearance: Mid-scale Research Infrastructure (Mid-scale RI)

## NSF Grants Conference

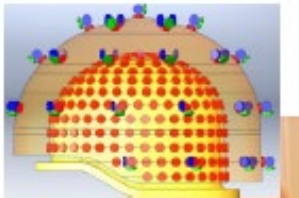
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# *MRI Part I*

## *The Basics*





# **MRI**

## **Strategic Goals**

Supports the **acquisition** or **development** of a *major shared-use research instrument* that is, in general, *too costly or not appropriate for support through other NSF programs*. The instrument is expected to be operational for regular research use by the end of the award period.

**AND**

Enables academic departments, disciplinary & cross-disciplinary units, and multi-organization collaborations to integrate research with **research training**.



# ***MRI: Ongoing discussions***

## ***Submission Window***

*Numerous conversations have occurred regarding a desire to transition the MRI deadline from January to the fall.*

## ***Instrument Development***

*The MRI program continues to seek new ways to encourage proposals for instrument development.*

## ***Broadening the Portfolio***

*The MRI Program continues to encourage proposals from women, underrepresented minorities, persons with disabilities and early-career PIs, as well as proposals that benefit early-career researchers, geographically underserved regions (including EPSCoR jurisdictions) and under-resourced institutions (including Emerging Research Institutions).*



## ***MRI: Instrument Development***

- *NSF seeks to support MRI awards that develop next-generation research instruments that open new frontiers of research.*
- *Up to 1/3 of the MRI awards are expected to support instrument development in any track.*

***Within their submission limit, organizations are strongly encouraged to submit proposals for innovative development projects.***



# ***MRI: Upcoming Competition***

***The new solicitation beginning with the  
FY 2023 MRI Competition  
will have Some Significant Changes wrt  
Previous Years***

- *Proposals will be due no earlier than 90 days after the posting of the solicitation.*
- *MRI proposals will need to be submitted through Research.gov or Grants.gov.*
- *PAPPG: NSF 23-1 applies for proposals submitted or due on or after January 30, 2023.*



# ***MRI: Upcoming Competition***

- ***Details of what is in the solicitation cannot be revealed before it is posted.***
- ***When revising the solicitation, NSF has paid close attention to the recent CHIPS+Science Act of 2022. Especially relevant to MRI are sections***
  - **10318: Microelectronics workforce**
  - **10320: Cost sharing**
  - **10373: Helium conservation**



## ***MRI: Classification of Organizations***

- **Ph.D. granting institutions of higher education** are accredited colleges and universities that have awarded more than 20 Ph.D.s or D.Sci.s in all NSF-supported fields during the combined previous two academic years. Additionally, any organization that awards Ph.D. or D.Sci. in NSF-supported fields is considered to be a Ph.D.-granting institution if the only degrees it awards in NSF-supported fields are post-Bachelor's degrees.
- **Non-Ph.D. granting institutions of higher education** are accredited colleges and universities (including two-year community colleges) that award Associate's degrees, Bachelor's degrees, and/or Master's degrees in NSF-supported fields, but have awarded 20 or fewer Ph.D./D.Sci. degrees in all NSF-supported fields during the combined previous two academic years.
- **Non-degree granting organizations** are those that do not award Associate's degrees, Bachelor's degrees, Master's degrees, and/or Ph.D.s or D.Sci.s. Non-degree-granting organizations also include institutions of higher education that award all of their degrees outside of NSF-supported fields.

***Note: Organizations that are not PhD-granting are not necessarily non-PhD-granting!***





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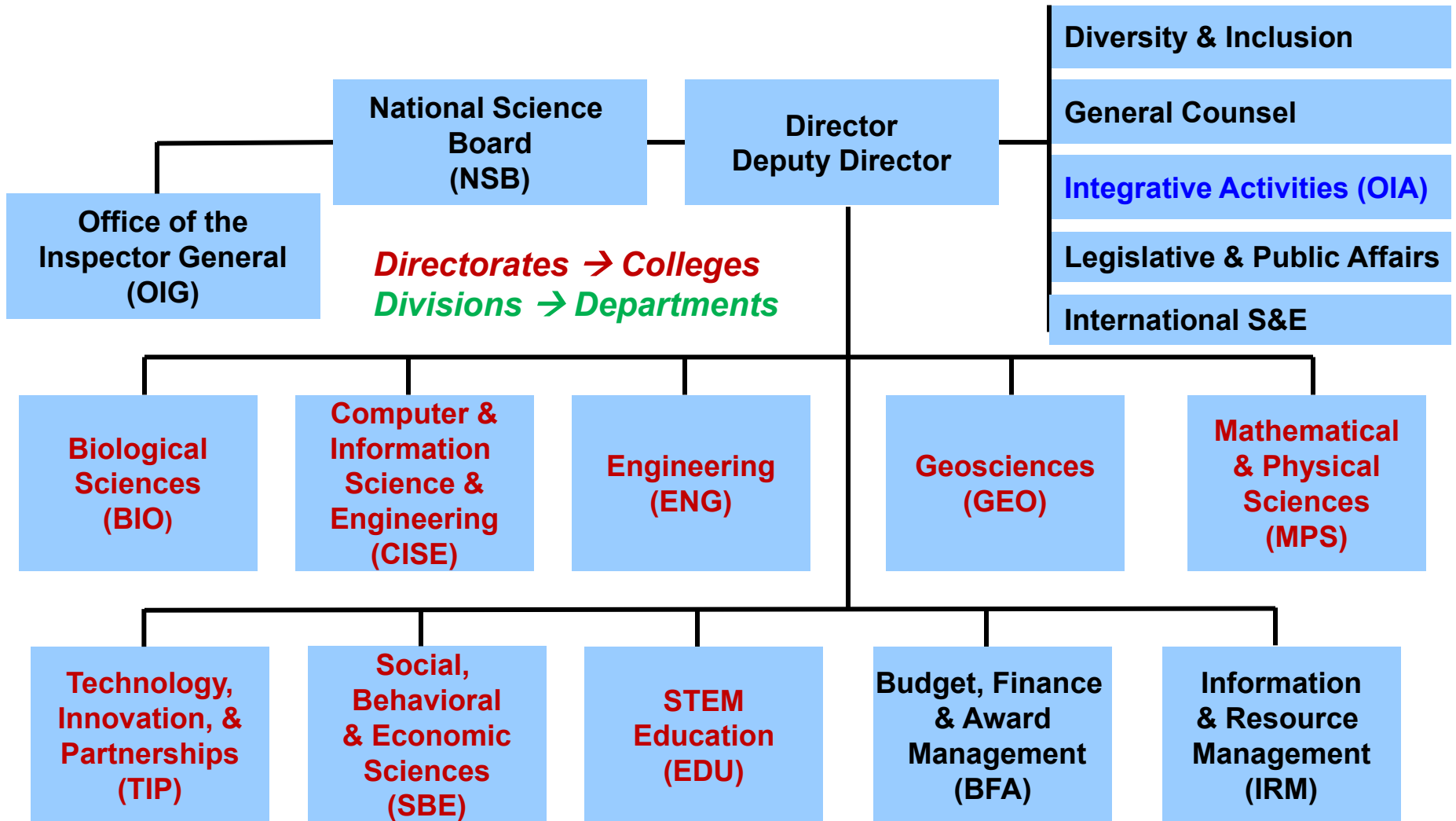
# *MRI Part II*

## *The Review Process*





# Finding a Home at NSF





## ***Proposal Review and Award***

- Proposals submitted to OIA with **\*\*division(s) preference indicated\*\***.  
→ *OIA responsible for compliance and portfolio monitoring*
- Proposals (mostly) reviewed in division(s) selected ) by PI. May be co-reviewed. *NSF reserves the right to place proposals in the proper home!*
- Divisions recommend awards (w/ OIA concurrence) and declines.
- MRI funding: OIA holds the MRI budget provided by Congress.
  - Initial funds allocated to divisions based on proportion of total MRI \$\$ a division is reviewing. → *Comparable success rate by divisions.*
  - Division funds further siloed by percentage of proposals from a) non-PhD/MSIs and b) PhD/non-degree → *Comparable success rate by institution-type.*
- Some funds reserved for “large” meritorious Directorate-level priorities → *All Directorates have opportunity to make large (e.g., Track 2) awards.*
- OIA holds a reserve for portfolio balance; some divisions use their own program funds to support MRI; EPSCoR also contributes \$\$.



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# ***MRI Part III: Proposal “Best” Practices***





## ***Understand NSF before Considering a Proposal!***

- Know the NSF Website ([www.nsf.gov](http://www.nsf.gov))
- Search Recent Awards ([www.nsf.gov/awardsearch](http://www.nsf.gov/awardsearch)). Use Program Element 1189 (for MRI)
- Identify appropriate programs ([www.nsf.gov/funding](http://www.nsf.gov/funding) or links within <https://nsf.gov/staff/orglist.jsp>)
- Talk to Program Officers in Divisions where you fit
- Know the “Proposal and Award Policies and Procedures Guide” ([http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=papp](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=papp))
- Serve as a panelist!
- Talk to successful PIs
- Know NSF’s role compared to other Federal agencies



# ***MRI Proposals***

***So what makes an MRI proposal competitive?***

***Note the term “competitive”, rather than “successful”!***

***Due (in part) to budget limitations, only a limited fraction of submitted proposals are funded***

***Strong proposals may not get funded***



# ***MRI Proposals***

## ***Think like a reviewer!***

- *What “story” would you want to hear?*  
***Science drives the request!***
- *If you wonder if reviewers will have a concern, almost certainly they will!*
- *MRI, like other grants programs, is a competition – what makes your proposal stand out?*



# ***MRI Proposals***

## ***So what makes an MRI proposal competitive?***

### **Build your case on its merits**

What is the intellectual merit of the proposed activity?

What are the broader impacts of the proposed activity?

- Describe (enthusiastically) *compelling* research / research training activities to be undertaken with the instrument. *Buy/Build it and they will come is a lackluster reason...*
- Demonstrate how your activities will make meaningful contributions within and across disciplines in both *research* and *research training*. *We are the ones best able/positioned to do this work!*
- Establishing a *need* is usually not enough. Everyone needs the best instrument. *What makes you unique?*
- Match your proposed effort to the mission of your institution and describe it in that context. *You are competing against your peer institutions, and MRI awards build institutional capacity...*





# ***MRI Proposals***

- Demonstrate appropriate leadership and commitment to make the project a success. *Being a good research scientist is one thing, being a good manager is quite another. My soapbox...*
- How would the project enable the integration of research and education? *MRI is a Research **and** Research Training program. (Education and Outreach are broader impacts.)*
- How would the project enable integrating diversity into NSF programs, projects, and activities? *Saying it will is not enough!*
- Ask for what you need, no more no less. *Expensive bells and whistles are nice, but may be a minor part of the project...*
- Avoiding pitfalls (*i.e.*, “Don’t Do This”) will **not** guarantee a competitive proposal. *So your proposal is technically flawless, but is it compelling?*

***There is a vast range of possible approaches, strategies, and designs for your proposal.***

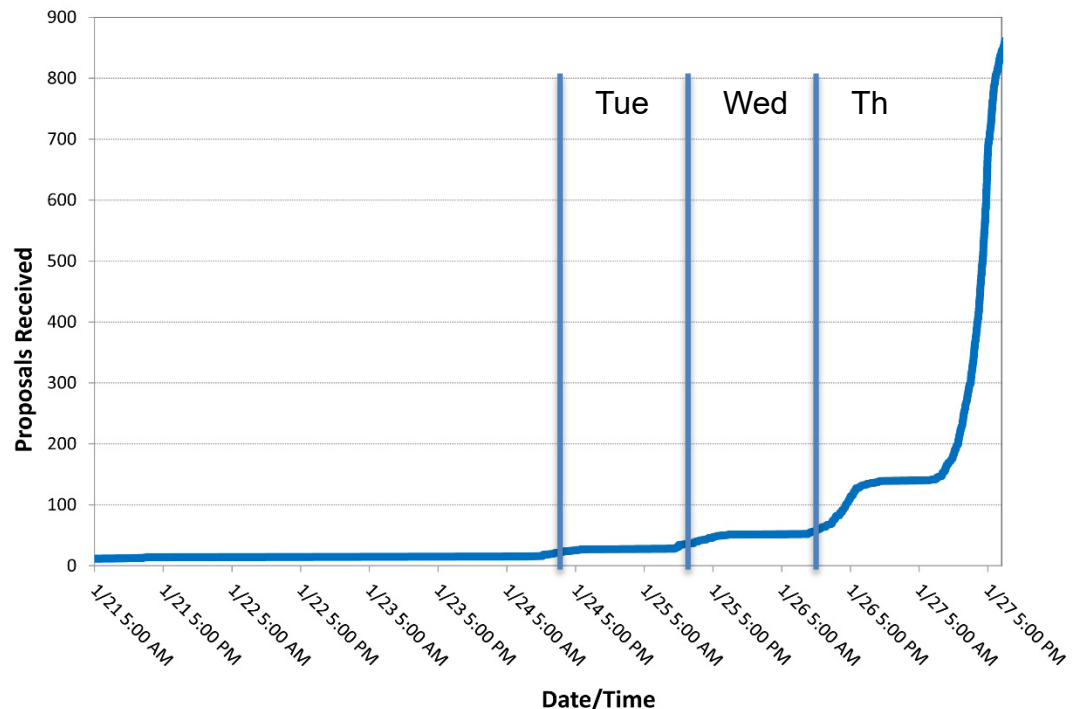


# Important Takeaway

***Soapbox: Submit early and check that what was received at NSF is what you intended to submit!***

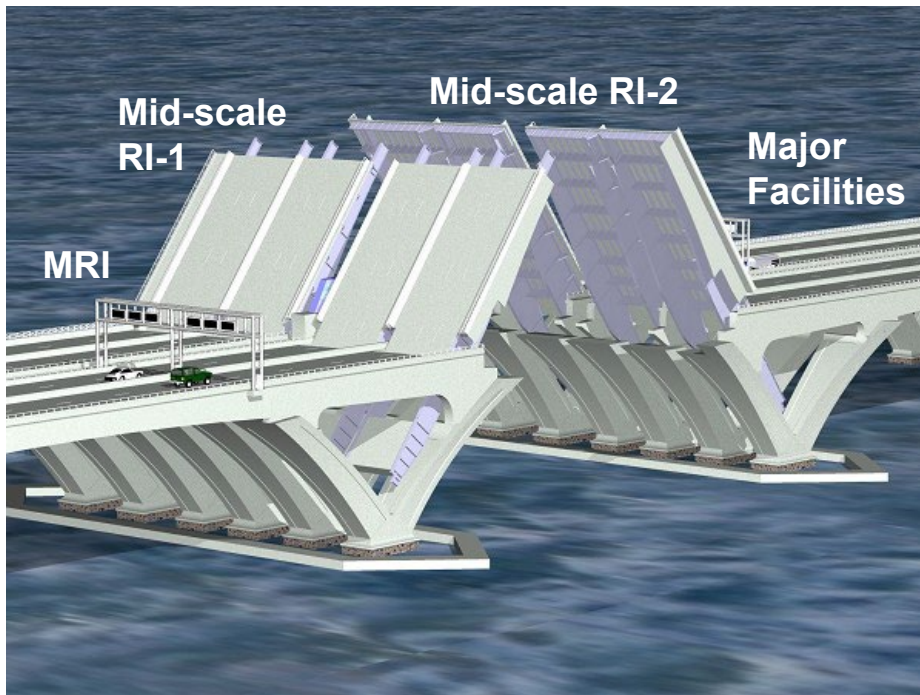
*You can always revise and resubmit proposals prior to the deadline, but not afterwards! 80% of proposals are submitted on the deadline day, 50% within 2 hours of the 5pm deadline!*

**FY2011 MRI Proposal Deadline: 01/27/2011, 5 PM Local Time**





# Mid-scale Research Infrastructure



- Many important potential experiments and facilities fall between the \$100K to \$4M Major Research Instrumentation (MRI) program and the > \$100M Major Multi-user Facilities range.
- This gap results in missed opportunities that may leave essential science undone.
- NSF needed a new agile process for funding experimental research capabilities in the mid-scale range.
  - Mid-scale RI-1: \$4 - <\$20 M
  - Mid-scale RI-2: \$20 - \$100 M

See NSF 22-637



# ***Mid-scale RI-1 (NSF 22-637) due dates***

**Preliminary Proposal  
(Required)**

• *January 05, 2023*

**Full Proposal Deadline  
(By Invitation Only)**

• *May 05, 2023*

• **Mid-scale RI-2: TBD**



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*Thank You!*

