National Science Foundation Major Research Instrumentation (MRI) Virtual Town Hall

https://bit.ly/NSF-MRIProgram

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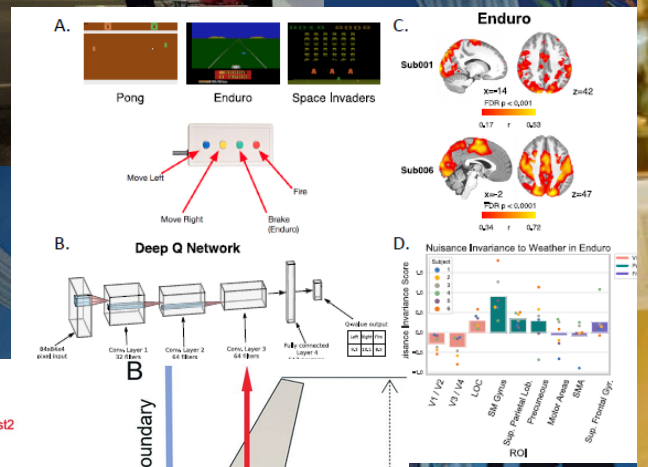
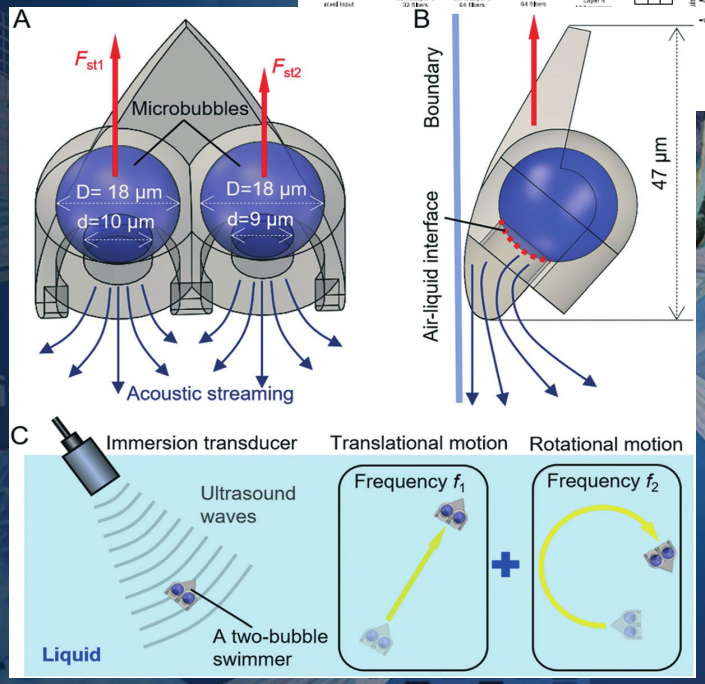
Office of Integrative Activities

October 3 & 4, 2024





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***.

The FY 2025 MRI Competition (NSF 23-519)

- **Proposals will be due by 5:00 p.m. submitting organizations' local time November 15, 2024.**
- **PAPPG: NSF 24-1 applies for proposals submitted to this competition.**
- **And …**

Submission Window Planning

- **FY25: October 15, 2024 - November 15, 2024**
  FY26: October 15, 2025 - November 14, 2025
  FY27: October 15, 2026 - November 16, 2026

Note the submission windows (deadlines) for upcoming MRI competitions!

MRI Part II
Programmatic, Submission & Review

MRI continues to be guided by the CHIPS and Science Act of 2022

The "Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act of 2022", waives cost-sharing requirements for the MRI Program for a period of 5 years. NSF implemented the waiver for new submissions beginning with the FY 2023 MRI competition. This is the third of those five years.

The maximum MRI request from NSF remains $4 million. Since voluntary cost sharing is not permitted, the maximum total project cost of proposed projects is $4 million.

Helium Conservation and Microelectronics

Consistent with the guidance of the "CHIPS and Science Act of 2022" :

1. A track was added ("Track 3") to incorporate opportunities for proposal requests that include the acquisition, development, installation, and the operation, and maintenance during the award period of equipment to reduce consumption of helium.*

2. MRI encourages instrument proposals that facilitate U.S. leadership in microelectronics research and training.

* For details, see the MRI Program Page for a link to the FAQ on Track 3.

*MRI Track 3**
Helium Conservation & Recovery

- From the MRI Solicitation under Section II: Program Description:
  "MRI will accept requests that include the purchase, installation, operation, and maintenance of equipment and instrumentation to reduce consumption of helium. Support for such requests will be limited to equipment and instrumentation that serve shared-use research instrumentation. *A request may be part of a Track 1 or Track 2 proposal (within the budgetary limits that apply to those tracks) or be requested separately as a "Track 3" proposal*.
  Proposals in Track 1 and Track 2 that request support for instrumentation that requires the use of helium must describe plans for the conservation and/or recovery and reuse of helium; plans to submit a separate Track 3 proposal are not sufficient to constitute such plans."
- Questions about the scientific justifications for a Track 3 proposal should be addressed to a cognizant Program Officer.

* For details, see the MRI Program Page for a link to the FAQ on Track 3.

MRI : Tracks and Institution Submission Limits

- **Track 1:** MRI proposals that request funds from NSF greater than $100,000[1] and less than $1,400,000.
- **Track 2:** MRI proposals that request funds from NSF greater than or equal to $1,400,000 up to and including $4,000,000.
- **Track 3:** MRI proposals that request funds from NSF greater than or equal to $100,000[1] and less than or equal to $4,000,000 for the acquisition or development, purchase, installation, operation & maintenance of equipment to conserve or reduce consumption of helium.

[1] Track 1 proposals requesting funds from NSF less than $100,000 will be accepted only from: a) eligible performing organizations requesting instrumentation supporting research in the disciplines of mathematics or social, behavioral and economic sciences; or b) non-Ph.D.-granting institutions of higher education requesting instrumentation supporting research in any NSF-supported disciplines.

MRI: Tracks and Institution Submission Limits

Each performing organization may submit in *revised* "Tracks", with

- *No more than two (2) submissions in Track 1;*
- *No more than one (1) submission in Track 2;*
- *No more than one (1) submission in Track 3.*

As a result, it is now possible for an institution to submit up to four MRI proposals within the Track limits as described above.

MRI: Classification of Organizations[2]

- **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!

[2]See NSF 23-519 Section V.A.6.a for required institutional certification statement.

Instrument Development

- *NSF seeks to support MRI awards that develop next-generation research instruments that open new frontiers of research.*
- *Up to one-third of the MRI awards are expected to support instrument development in either of Tracks 1 or 2, and even Track 3.*

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

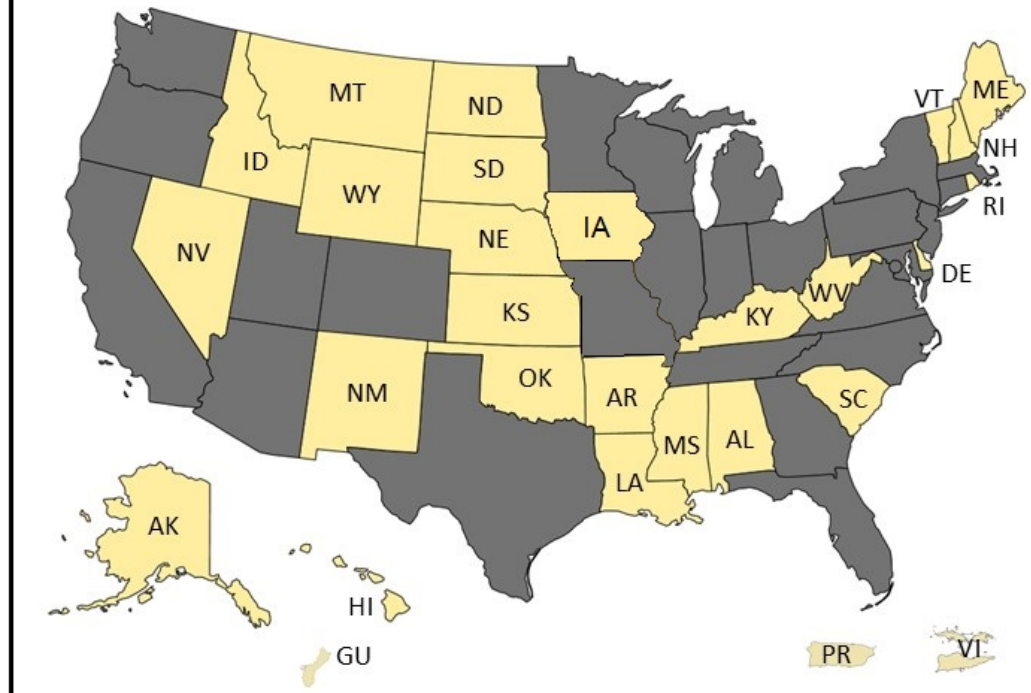
Established Program to Stimulate Competitive Research (EPSCoR)

https://www.nsf.gov/od/oia/programs/epscor/index.jsp

MRI proposals led by organizations located in eligible EPSCoR jurisdictions are highly encouraged.

Look for us at the EPSCoR National Conference in Omaha on Tuesday, October 15.

NSF EPSCoR FY25 Eligibility



States

AL Alabama
AK Alaska
AR Arkansas
DE Delaware
HI Hawaii
IA Iowa
ID Idaho
KS Kansas
KY Kentucky
LA Louisiana
ME Maine
MS Mississippi
MT Montana
NE Nebraska
NH New Hampshire
NM New Mexico
ND North Dakota
NV Nevada
OK Oklahoma
RI Rhode Island
SC South Carolina
SD South Dakota
VT Vermont
WV West Virginia
WY Wyoming

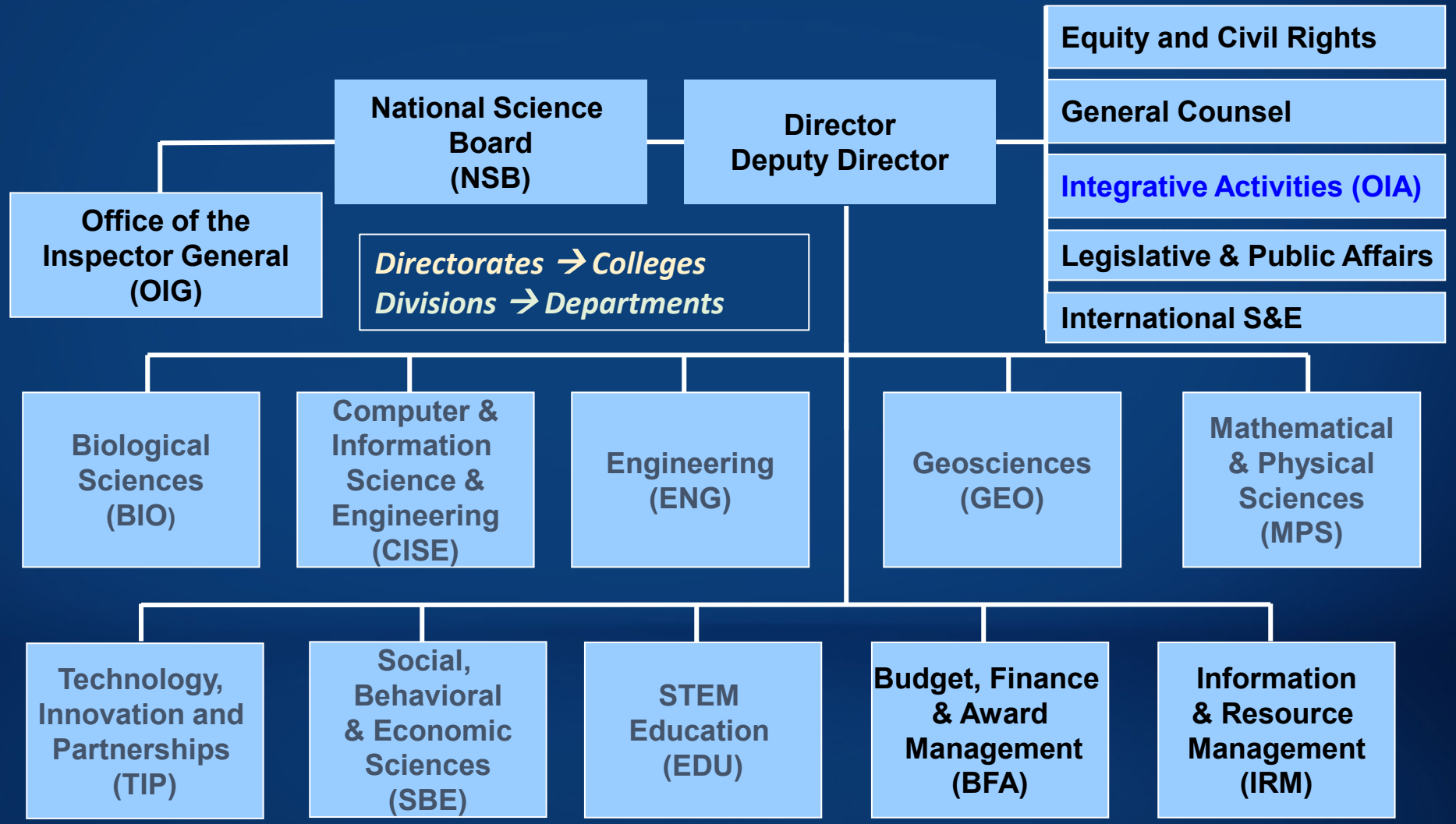
Other

GU Guam
PR Puerto Rico
VI U.S. Virgin Islands

- FY25 jurisdictions are *eligible* for EPSCoR co-funding if their most recent 5-year level of total NSF funding is equal to or less than 0.75% of the total NSF budget.
- Eligibility table through FY27 is publicly available at: https://www.nsf.gov/od/oia/programs/epscor/nsf_oiia_epscor_eligible.jsp

MRI Part III: Proposal "Best" Practices

Finding a Home at NSF



Proposal Review and Award (1/2 - Review)

- Proposals submitted to OIA with ****Division(s) preference indicated**.**
  - *OIA responsible for compliance, funds 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.

OIA is not to be selected as a reviewing Division!

Proposal Review and Award (2/2 - Award)

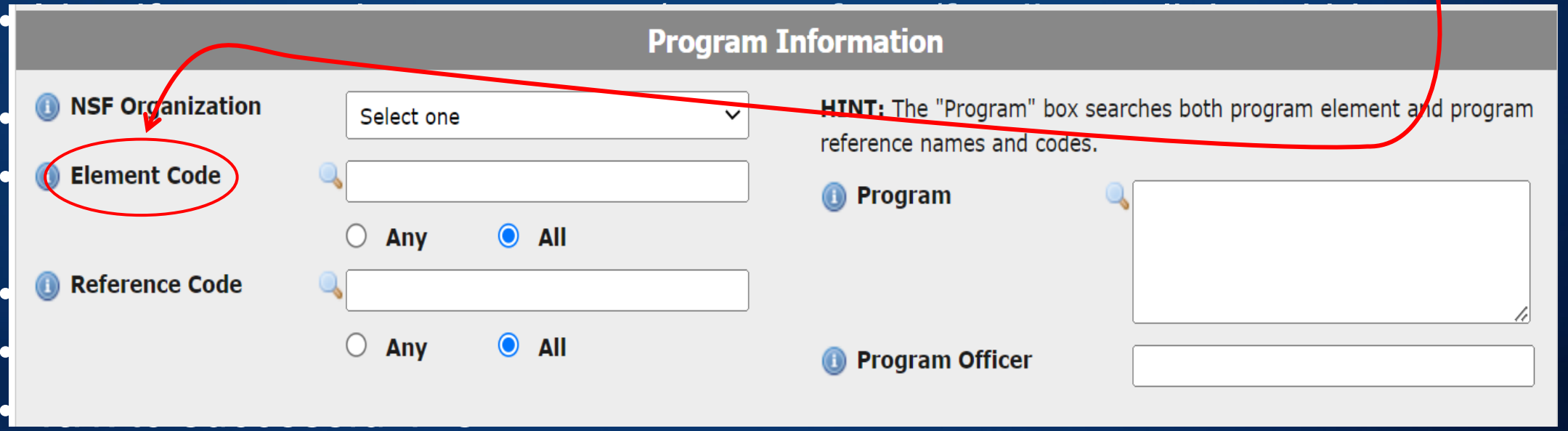
- MRI funding: OIA holds the MRI budget provided by Congress.
  - Initial funds allocated to Divisions based on proportion of total MRI $$ a Division is reviewing.
    → *Comparable success rate by divisions.*
  - Division funds further siloed by percentage of proposals from e.g., a) non-PhD/MSIs/ERIs and b) PhD/non-degree
    → *Comparable success rate by institution-type.*
  - Some funds reserved for >$1.4 million meritorious Directorate-level priorities
    → *All Directorates have opportunity to make large (Track 2) awards.*
  - Other:
    → OIA holds a reserve for portfolio balance;
    → Some Divisions use their own program funds to support MRI;
    → EPSCoR may also contributes $$ for awards to organizations in its jurisdictions.

Understand NSF before Considering a Proposal!

- Know the NSF Website (new.nsf.gov)
- Search what MRI has funded through www.nsf.gov/awardsearch/advancedSearch.jsp. (*Element Code 118900*)
- Identify appropriate programs (www.nsf.gov/funding or links within https://new.nsf.gov/about/directorates-offices)
- 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)
- Read and understand the Program solicitation (MRI is NSF 23-519)
- Serve as a panelist!
- Talk to successful PIs
- Know NSF's role compared to other Federal agencies

Understand NSF before Considering a Proposal! –
searching for prior MRI awards

- Know the NSF Website (new.nsf.gov)
- Search what MRI has funded through www.nsf.gov/awardsearch/advancedSearch.jsp. (*Element Code 118900*)



- 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.

Not all strong proposals 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 <u>your</u> proposal stand out?*

MRI Proposals
So what makes and 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 rarely a compelling 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 often 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

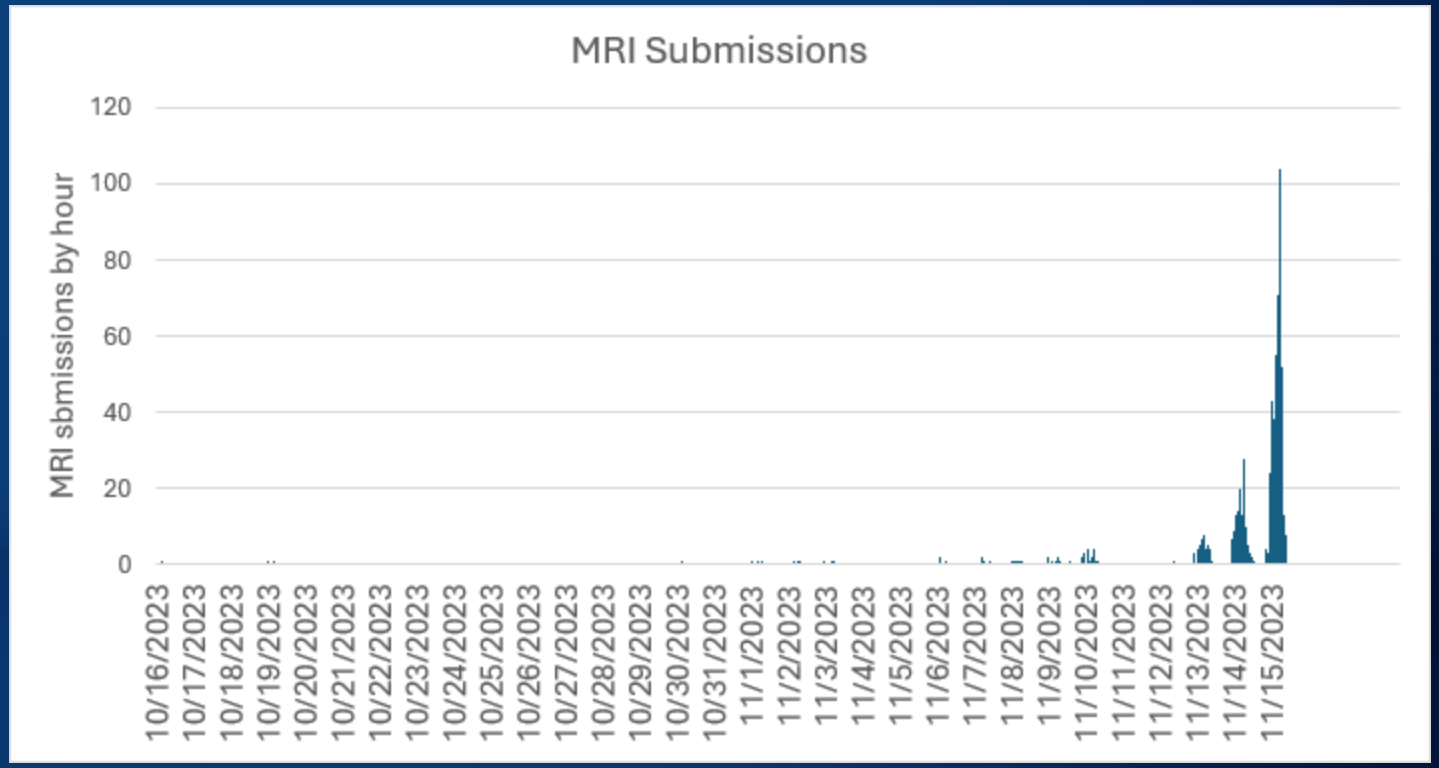
- Demonstrate appropriate leadership and commitment to make the project a success. *Being a good research scientist is one thing, being a good manager is quite another. Randy's soapbox...*
- How would the project enable the integration of research and education? *MRI is a Research **and** Research Training program. (Education and Outreach are broader impacts.)*
- ***How*** would the project promote inclusiveness in all its forms? *Saying it will is not enough!*
- Ask for what you need, no more no less. *Bells and whistles are nice, but may be a minor part of the overall 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

Randy's Soapbox: Submit early and check that what was <u>received</u> 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!



Thank You!