



Office of Integrative Activities National Science Foundation

Major Research Instrumentation (MRI)¹

Providence Rhode Island Regional Grants Conference

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<http://www.nsf.gov/od/oia/programs/mri/>

(1) with brief comments on the Science and Technology Center (STC) program

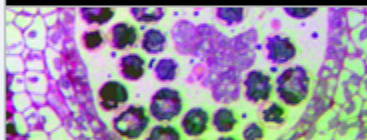


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Major Research Instrumentation Program C N

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PROGRAM GUIDELINES AND FAQs

[08-503](#) Solicitation

[Frequently Asked Questions \(FAQs\)](#)

DUE DATES

Full Proposal: **January 24, 2008**

Fourth Thursday of January annually thereafter.

AWARDS LIST

[2007](#) - [2006](#) - [2005](#) - [2004](#) - [2003](#) - [2002](#) - [2001](#) - [2000](#) - [1999](#) - [1998](#) - [1997](#)



Goals

- **The MRI program is designed to increase access to scientific and engineering equipment for *research* and *research training* in U.S. academic institutions, independent research museums and non-profit research organizations.**
- **The MRI program seeks to improve the quality and expand the scope of *research* and *research training* in science and engineering, and to foster the *integration of research and education* by providing instrumentation for *research-intensive learning environments*.**
- **The MRI program encourages the development and acquisition of *research instrumentation* for shared use across academic departments, among research institutions, and in concert with private sector partners.**



Caveats

- **The MRI program will *NOT* support the acquisition of instrumentation used primarily for standard science and engineering courses, or general purpose laboratory equipment that does not have a common or specific research focus.**
- **The MRI program will *NOT* provide support for the acquisition of instrumentation to be used in medical research and medical education, or that supports research with disease-related goals.**
- **Instrumentation related to animal models of disease-related conditions or the development or testing of drugs or other procedures for their treatment also is *NOT* eligible for support.**
- ***However*, bioengineering instrumentation that advances engineering research and knowledge, applies engineering principles to problems in biology and medicine, aids persons with disabilities, and that may also have clinical uses or diagnosis- or treatment-related goals *is* eligible for support.**



Eligible Institutions

- **Ph.D. granting organizations**
 - academic organizations that have produced more than 20 Ph.D.s or D. Sci's in all NSF supported fields during the previous two academic years
- **Non-Ph.D. granting organizations**
 - two and four year colleges and universities that have produced 20 or fewer Ph.D.s or D.Sci's in all NSF supported fields during the previous two academic years
- **Non-degree granting organizations**
 - independent non-profit research organizations, research museums, and consortia of eligible institutions



MRI Proposals

- **MRI solicitation: NSF 08-503**
 - Revised solicitation to be posted later this year.
- **Full Proposal Deadline: Fourth Thursday in January**
- **Other MRI resources available:**
 - FAQ's
 - lists of MRI awards (1997-2007)
 - MRI presentations
- **Proposals are required to be submitted electronically using the NSF FastLane system.**
- **Adherence to proposal margin, spacing and font size limitations, consistent with the NSF Grant Proposal Guide is strictly required and enforced.**
- **At the time of submission, PI's are asked to identify an NSF division to review proposal.**



NSF 08-503: FY 2008 MRI Solicitation

- **Significant changes effective FY 2008:**
 - *The America COMPETES Act of 2007 directs NSF to require cost-sharing in the MRI Program. Effective FY 2008, the MRI program requires 30% cost-sharing on all proposals from PhD granting and non-degree granting institutions (independent research museums, independent nonprofit organization and consortia). Non-PhD granting institutions are not required to provide cost-sharing.*
 - *The upper limit on the budget for acquisition proposals has been raised to \$4 million, pending availability of funds. Requests over \$2 million require a letter of intent and must be for the acquisition of a single instrument only. The upper limit on the budget for development proposals remains at \$2 million.*
 - *Operation and maintenance are eligible expenses on acquisition proposals*



MRI Program Overview

- **Proposals can be for Instrument Acquisition (3 years) or Instrument Development (5 years)**
- **Institutions may submit two proposals for acquisition or development; a third for development - an institution may be a partner/subawardee as part of this submission limit**
- **Number of Anticipated awards, pending availability of funds:**
 - ~225, including up to 6-7 mid-range (\$2-4 million) awards¹
- **Anticipated award size:**
 - \$100,000 to \$2 million for development proposals
 - \$100,000 to \$4 million for acquisition proposals²
 - (no minimum for non-Ph.D. granting institutions and for mathematical and social, behavioral and economic sciences)

¹ Information based on the FY 2008 plan

² Requests over \$2 million require a letter of intent and must be for the acquisition of a single instrument only.



Evaluation Criteria

- **Intellectual merit**
- **Broader impacts of the proposed activity**
- **Additional Review Criteria:**
 - **Plans for using the new or enhanced research capability in teaching, training or learning.**
 - **Management Plan.**
 - **For instrument development proposals: Rationale for development of a new instrument.**
 - **For instrument acquisition proposals over \$2 million: Impact at the state or national level; plans for post-award funding of operation & maintenance**



Evaluation Criteria

- Effective October 1, 2007, the *Grant Proposal Guide*, as well as new funding opportunities issued after that date, incorporate revised Intellectual Merit criterion:

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative, original, **or potentially transformative** concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

- Changes have been made to NSF reviewer systems to incorporate the revised language. All proposals received after January 5, 2008, will be reviewed against the newly revised criteria.



Actual Review Template

- **What is the intellectual merit of the proposed activity?**
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?
 - Strengths
 - Weaknesses
- **What are the broader impacts of the proposed activity?**
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?
 - Strengths
 - Weaknesses
- **Is management plan appropriate?**
- **For instrument acquisition proposals:** Evaluate whether the plan: 1) includes sufficient infrastructure and technical expertise to allow effective usage of the instrument; and 2) provides organizational commitments for operations and maintenance.
- **For instrument development proposals:** Evaluate whether the plan has a realistic schedule and mechanisms to deal with potential risks. In addition, evaluate the availability of appropriate technical expertise to design and construct the instrument and the cost of the new technology.
 - Strengths
 - Weaknesses
- **Rationale for rating**



2007 Proposal and Award Snapshot

- **Number of Proposals Reviewed: 774**
- **Dollars Requested: \$478,314,717**
- **Number of Awards: 222**
- **MRI Dollars Awarded: \$89,361,469**
- **NSF Dollars Awarded: \$96,817,329**
- **Success Rate: 28.7%**
- **Average MRI Award: \$402,529**
- **Average NSF Award: \$436,114**
- **Number of Institutions that Participated: 430**
- **Number of Institutions Awarded: 190**



Proposal and Award Information 1998-2007¹

Fiscal Year	# Proposals	\$ Requested	# Awards	Total NSF Funding*
1998	479	\$248,512,726	165	\$56,363,744
1999	472	\$261,520,174	166	\$56,772,169
2000	475	\$251,953,775	163	\$54,707,637
2001	741	\$305,490,586	311	\$78,715,649
2002	691	\$296,273,914	279	\$81,318,743
2003	757	\$351,192,737	280	\$91,040,768
2004	838	\$421,372,027	327	\$112,854,311
2005 [^]	784	\$473,034,186	256	\$95,572,528
2006	769	\$437,403,458	233	\$96,962,197
2007 ^{**}	774	\$478,314,717	222	\$96,817,329
TOTAL:	6,780	\$3,525,068,300	2,402	\$821,125,075

[^]first year cost-sharing was removed

*includes MRI Congressional appropriations and directorate/office contributions

**pending proposals were assumed to be non-awards

¹ includes only awards submitted directly to MRI program and reviewed

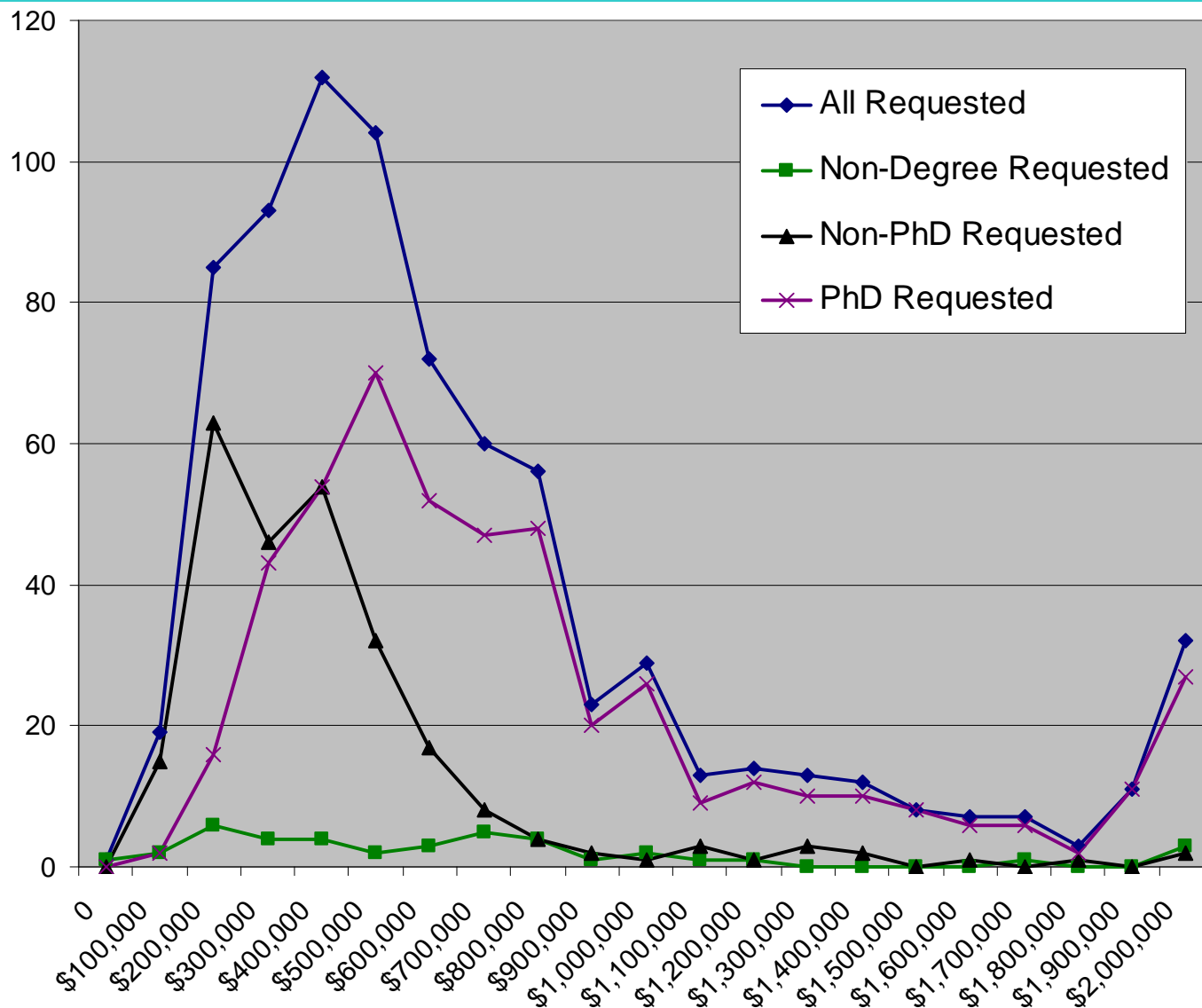


2007 Non-Ph.D. Granting Institutions

- **Number of Proposals Reviewed: 255**
- **Dollars Requested: \$ 93,067,830**
- **Number of Awards: 87**
- **MRI Dollars Awarded: \$21,101,761**
- **NSF Dollars Awarded: \$21,736,867**
- **Success Rate: 34.1%**
- **MRI Average Award: \$242,549**
- **NSF Average Award: \$249,849**
- **Number of States Represented: 46**
- **Number of Institutions Represented: 193**



2007 Proposals by Dollars Requested



Means

All: \$617,978

Non-Degree: \$616,649

Non-Ph.D.: \$346,972

Ph.D.: \$752,779

Medians

All: \$486,004

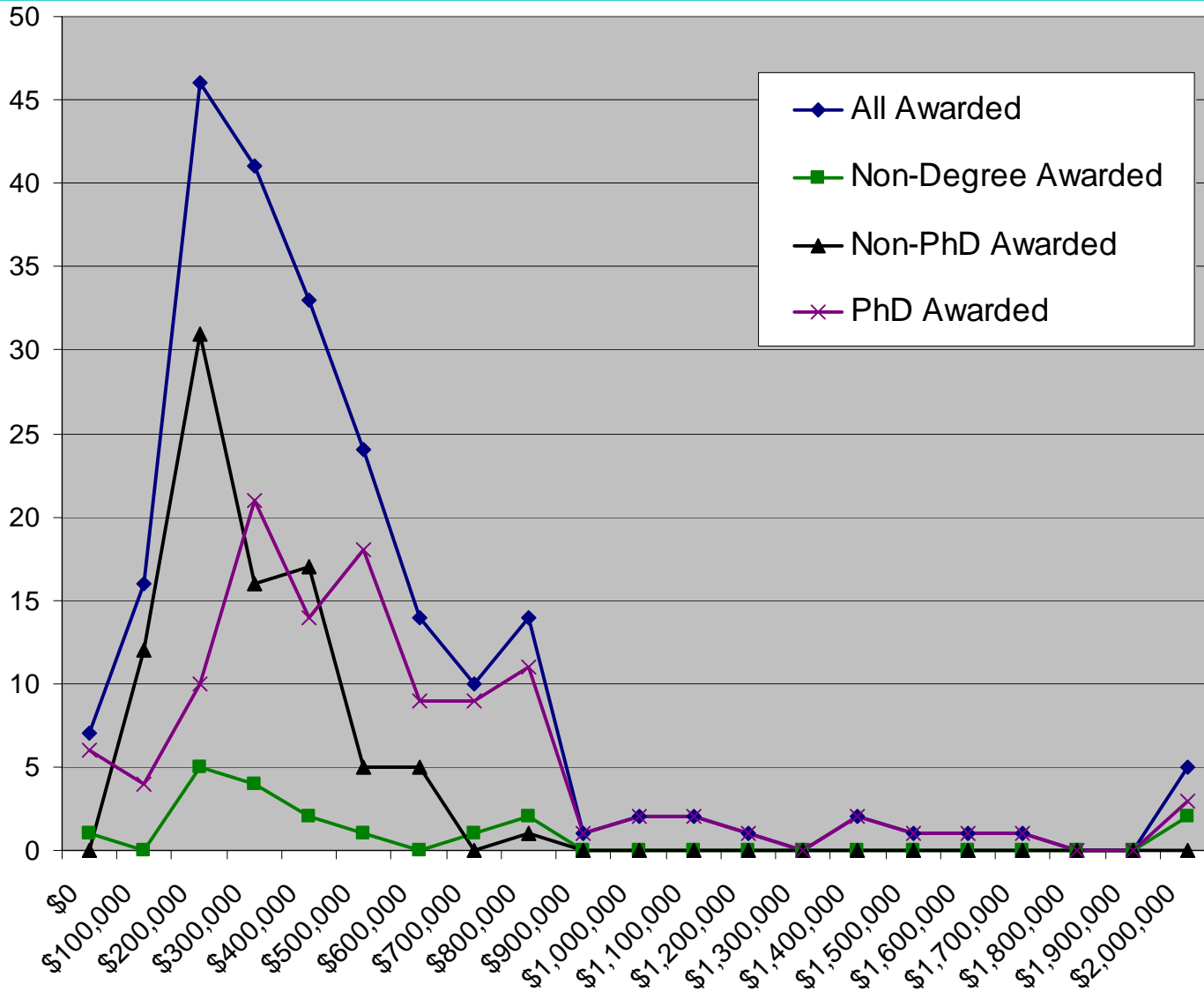
Non-Degree: \$532,840

Non-Ph.D.: \$307,330

Ph.D.: \$604,860



2007 Awards by Dollar Amount



Means

All: \$402,529

Non-Degree: \$499,354

Non-Ph.D.: \$242,549

Ph.D.: \$506,593

Medians

All: \$301,900

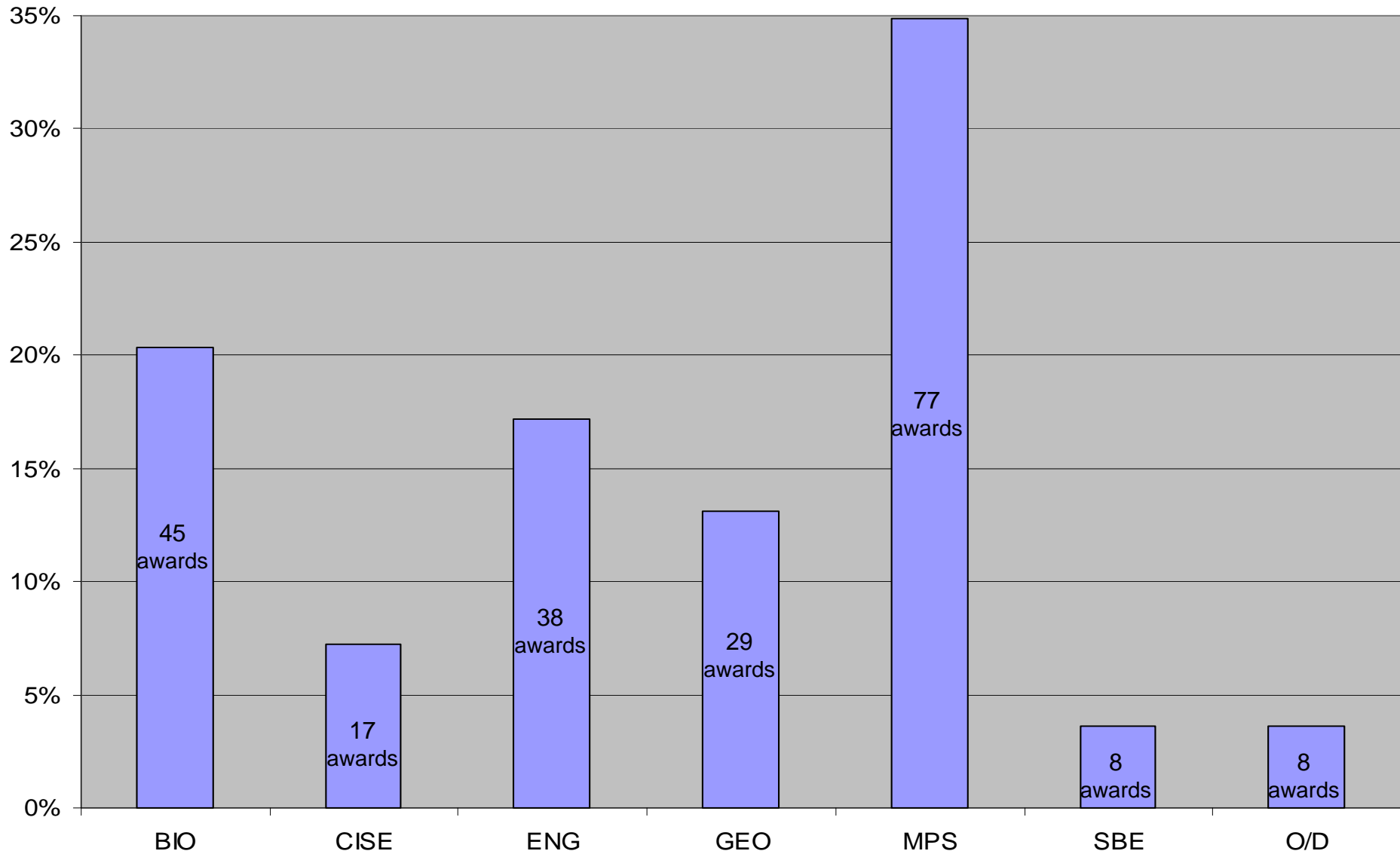
Non-Degree: \$266,600

Non-Ph.D.: \$205,808

Ph.D.: \$425,000

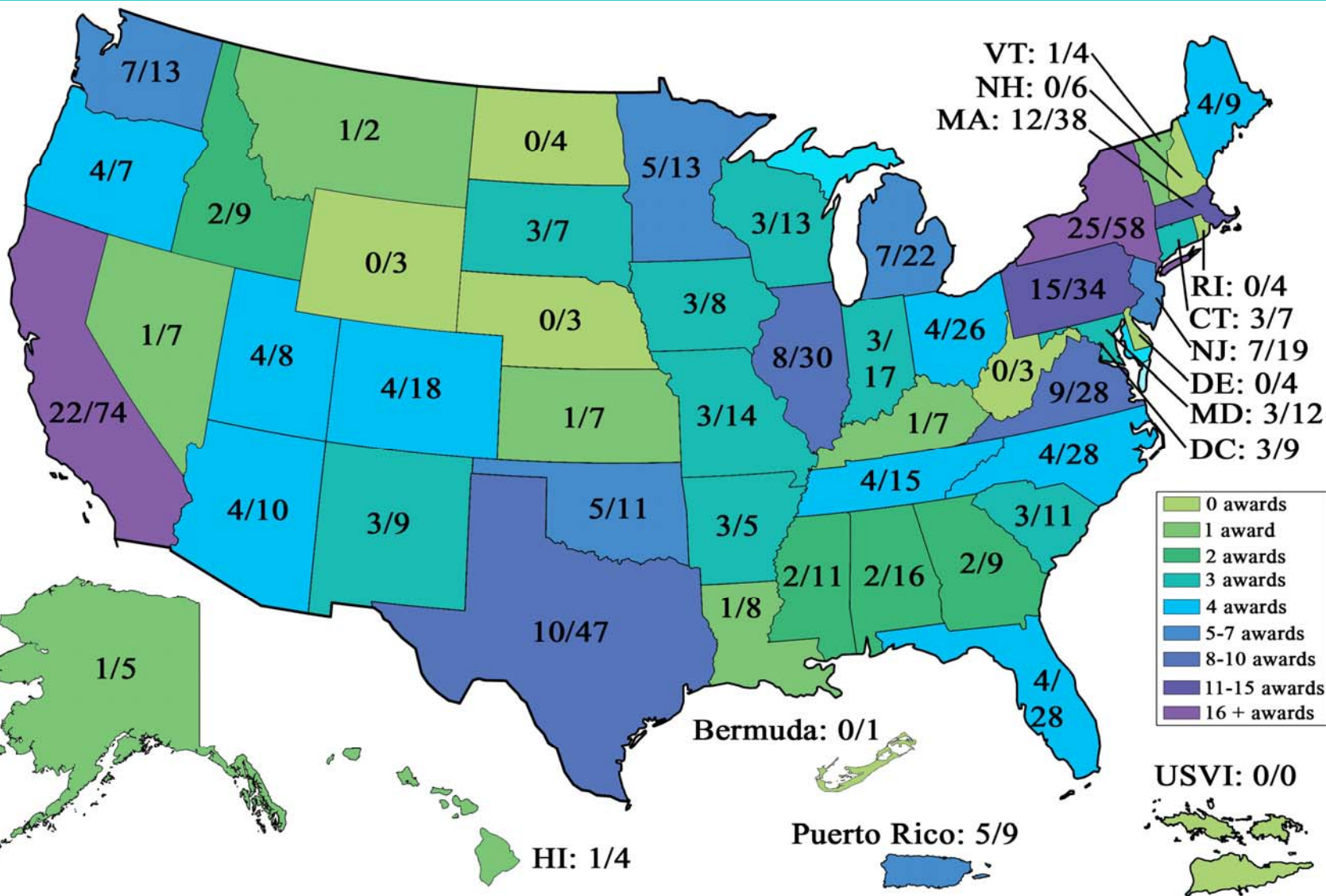


2007 Awards by Directorate





2007 Number of Awards/Proposals by State





2005 Committee of Visitors (COV)

- **In September 2005, a panel of 10 external experts assessed both the process and the results of the MRI program for years 2000 – 2004**
- **Major findings of the COV:**
 - MRI awards are consistently of high quality
 - Increased attention is given to “broader impacts” by proposers, reviewers, and NSF program officers
 - MRI portfolio is balanced among high-risk, multidisciplinary, and innovative projects
 - MRI program meets all of the “ideas, tools and people” goals of the NSF’s Strategic Plan
- **Major recommendations of the COV:**
 - Encourage the establishment of a common review process among disciplines
 - Encourage the requirement of an explicit management plan for each instrument acquisition proposal
 - Improve transparency and documentation of the rationale for funding decisions
 - Better documentation of the impact of awards on science and society for NSF reporting and programming purposes



Non-Ph.D. Granting Institutions

• **FY 2006**

- **Number of Proposals Submitted: 270**
- **Dollars Requested: \$94,409,449**
- **Number of Awards: 92**
- **MRI Dollars Awarded: \$19,478,024**
- **NSF Dollars Awarded: \$20,669,110**
- **Success Rate: 34.1%**
- **Average MRI Award: \$211,718**
- **Average NSF Award: \$224,664**
- **Number of States Represented: 39***
- **Number of Institutions Represented: 192**

*includes Puerto Rico

• **FY 2007**

- **Number of Proposals Submitted: 255**
- **Dollars Requested: \$93,067,830**
- **Number of Awards: 87**
- **MRI Dollars Awarded: \$21,101,761**
- **NSF Dollars Awarded: \$21,736,867**
- **Success Rate: 34.1%**
- **Average MRI Award: \$224,549**
- **Average NSF Award: \$249,849**
- **Number of States Represented: 46^**
- **Number of Institutions Represented: 193**

^ includes Washington, D.C. and Puerto Rico



Minority Serving Institution Definition

- **Per U.S. Code 20, §1067k(3), “The term ‘minority institution’ means an institution of higher education whose enrollment of a single minority or a combination of minorities...exceeds 50 percent of the total enrollment”**
- **Per U.S. Code 20, §1101a(5B), “The term ‘Hispanic-serving institution’ means an institution of higher education that...at the time of application, has an enrollment of undergraduate full-time equivalent students that is at least 25 percent Hispanic students”**



Minority Serving Institutions

• **FY 2006**

- **Number of Proposals Submitted: 66**
- **Dollars Requested: \$23,211,136**
- **Number of Awards: 24**
- **MRI Dollars Awarded: \$4,823,738**
- **NSF Dollars Awarded: \$ 5,564,581**
- **Success Rate: 36.4%**
- **Average MRI Award: \$ 200,989**
- **Average NSF Award: \$ 231,858**
- **Number of States Represented: 15[^]**
- **Number of Institutions Represented: 41**

[^] includes Washington, D.C., Puerto Rico and U.S. Virgin Islands (USVI)

• **FY 2007**

- **Number of Proposals Submitted: 111**
- **Dollars Requested: \$58,827,822**
- **Number of Awards: 32**
- **MRI Dollars Awarded: \$11,661,651**
- **NSF Dollars Awarded: \$11,914,978**
- **Success Rate: 32.4%**
- **Average MRI Award: \$323,935**
- **Average NSF Award: \$330,972**
- **Number of States Represented: 30^{*}**
- **Number of Institutions Represented: 69**

^{*} includes Washington, D.C. and Puerto Rico



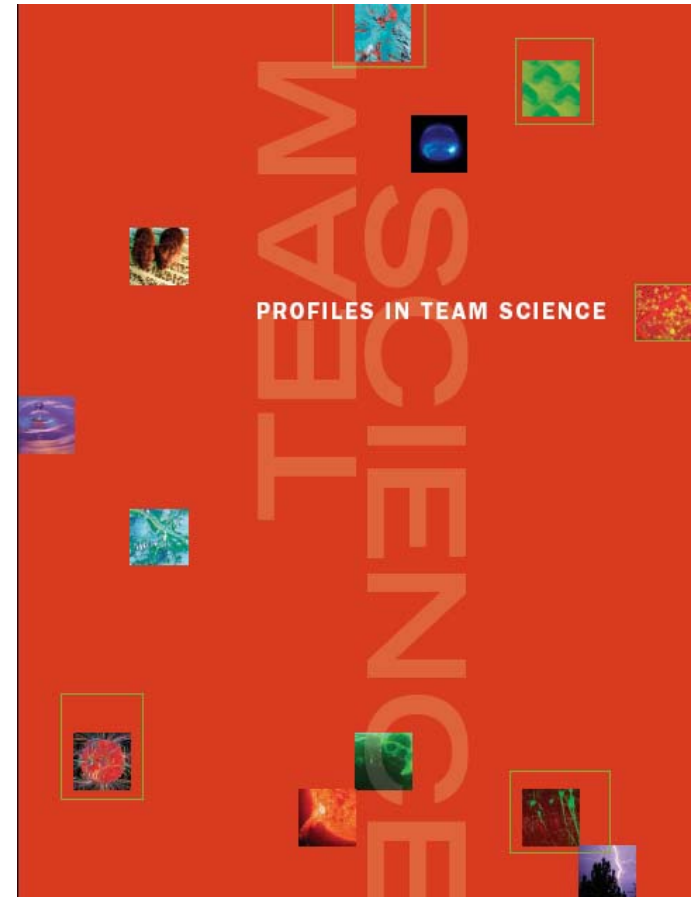
Science and Technology Centers: Integrative Partnerships

- **Support research and education of the highest quality;**
- **Exploit opportunities in science, engineering and technology where the complexity of the research agenda requires the advantages of scope, scale, change, duration, equipment and facilities that a Center can provide;**
- **Support innovative frontier investigations at the interfaces of disciplines, and/or fresh approaches within disciplines;**
- **Engage the Nation's intellectual talent, robustly drawn from its full human diversity, in the conduct of research and education activities;**
- **Promote organizational connections and linkages within and between campuses, schools and/or the world beyond (state, local, federal agencies, national labs, industry, international collaborations);**
- **Focus on integrative learning and discovery and the preparation of U.S. students for a broad set of career paths; and**
- **Foster science and engineering in service to society especially with respect to new research areas, promising new instrumentation and potential new technologies.**



Science and Technology Centers: Integrative Partnerships

- Profiles in Team Science:
<http://depts.washington.edu/teamsci/welcome.html>





Science and Technology Centers: Integrative Partnerships

- **The first STC Competition was held in 1987.**
- **Currently, 17 STCs are operational.**
- **Evaluation of Program yielded STC: Integrative Partnerships.**
- **NSB approved STC Program for competitions every 2 to 3 years.**
- **Plans for the next competition are underway, with a solicitation expected in May or June 2008. Please contact Joan M. Frye (jfrye@nsf.gov) and monitor <http://www.nsf.gov/od/oia/programs/stc/index.jsp> for updates.**