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GRANTS CONFERENCE

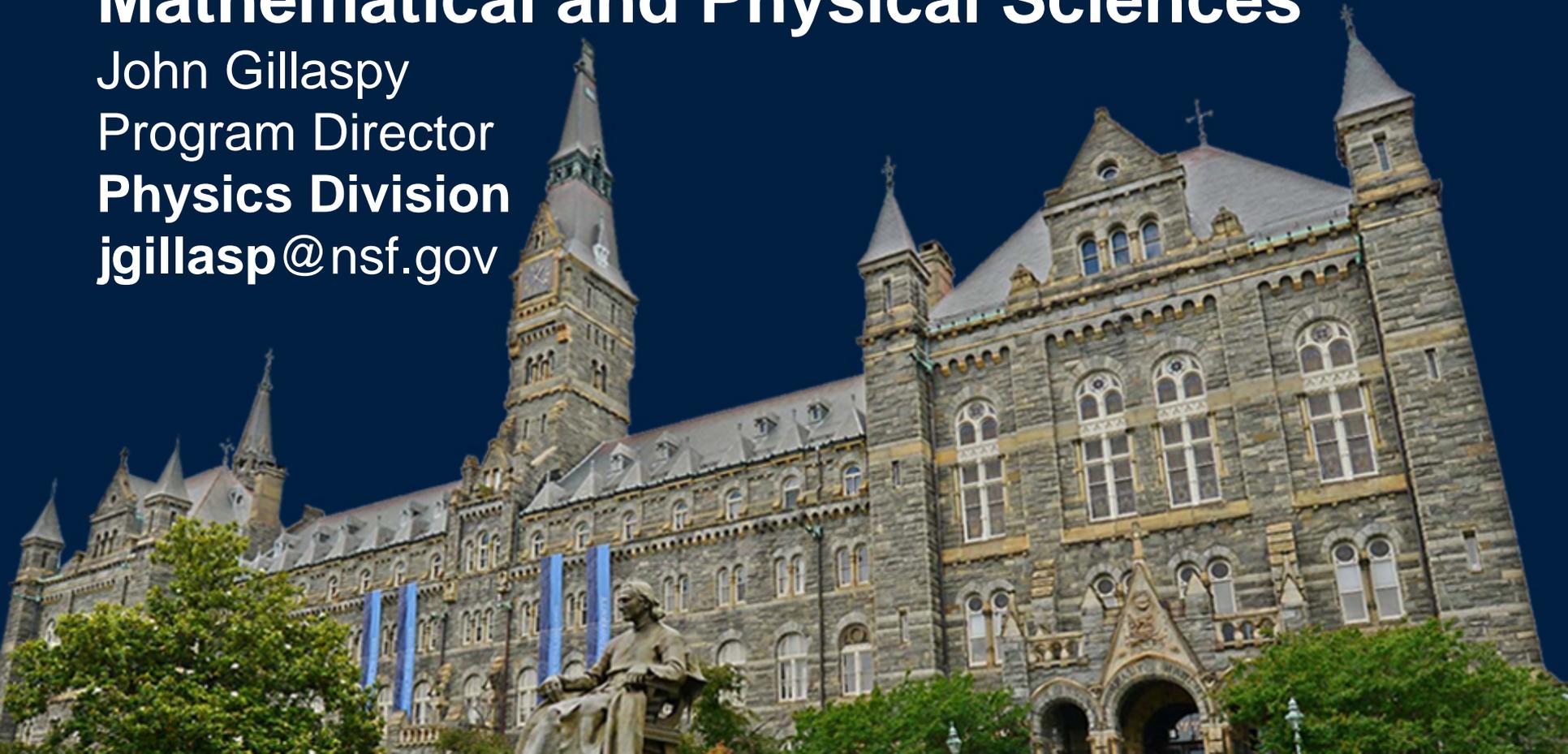
Arlington, VA ♦ November 2-3, 2015
Hosted by Georgetown University



GEORGETOWN UNIVERSITY

Grants from the Directorate of Mathematical and Physical Sciences

John Gillaspay
Program Director
Physics Division
jgillasp@nsf.gov





Our Mission is Very General

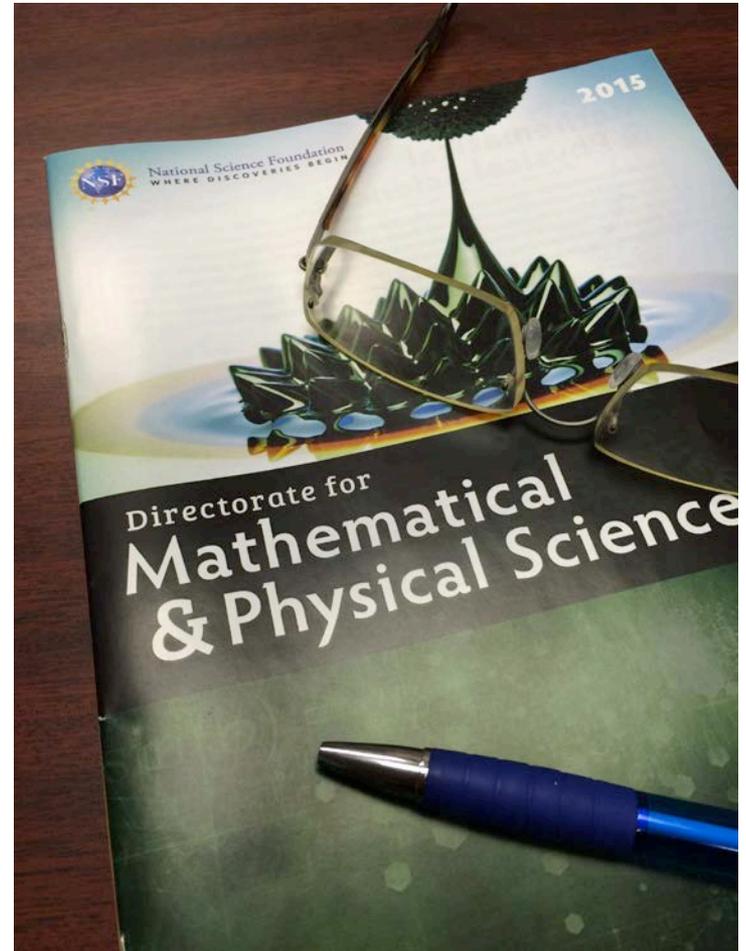
- *“To promote the progress of science. . .”*
 - » The National Science Foundation Act of 1950 (Public Law 81-507)
- *We seek to fund the best fundamental science*
- *So put forth your best ideas, rather than ask us “what do you want to see?”*



2015 Directorate Brochure

(NSF 15-038)

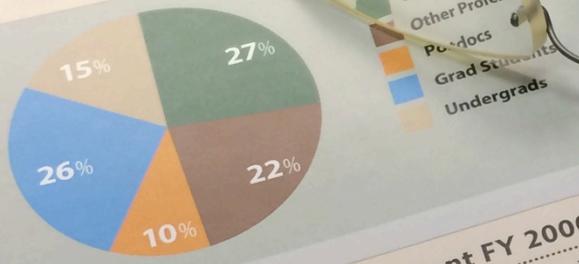
- Statistics, mission statements, initiatives, etc.
- Material also contained on the NSF website



Division of Physics (PHY)

Grant Personnel FY 2014

Distribution of people supported by PHY.



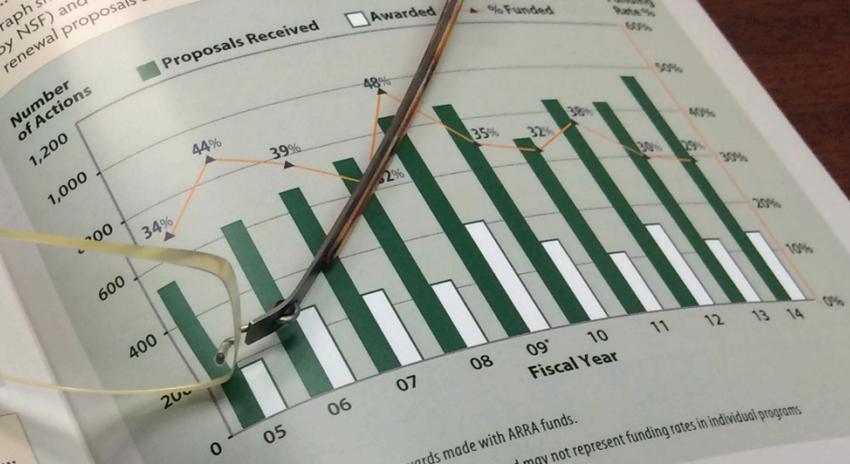
Budget in Actual Dollars and Constant FY 2000 Dollars

Constant dollars show the purchasing power of the PHY budget.



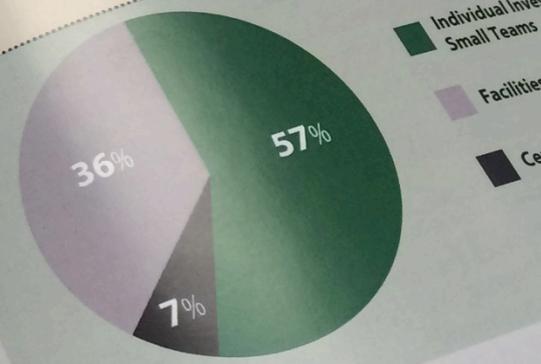
Emergency and Reinvestment Act of FY 2009. CP = Current Plan, Rqst. = Request.
 www.nsf.gov/about/budget

Graph shows number of proposals by NSF and resultant funding rates. Funding rate is defined as the percentage of renewal proposals awarded funding.



* FY 2009 funding rate includes awards made with ARRA funds.
 Note: The funding rate reflects the average for PHY and may not represent funding rates in individual programs.

Modes of Support FY 2014





Focus of this Presentation

Practical Advice
About Getting A Grant
(from MPS)

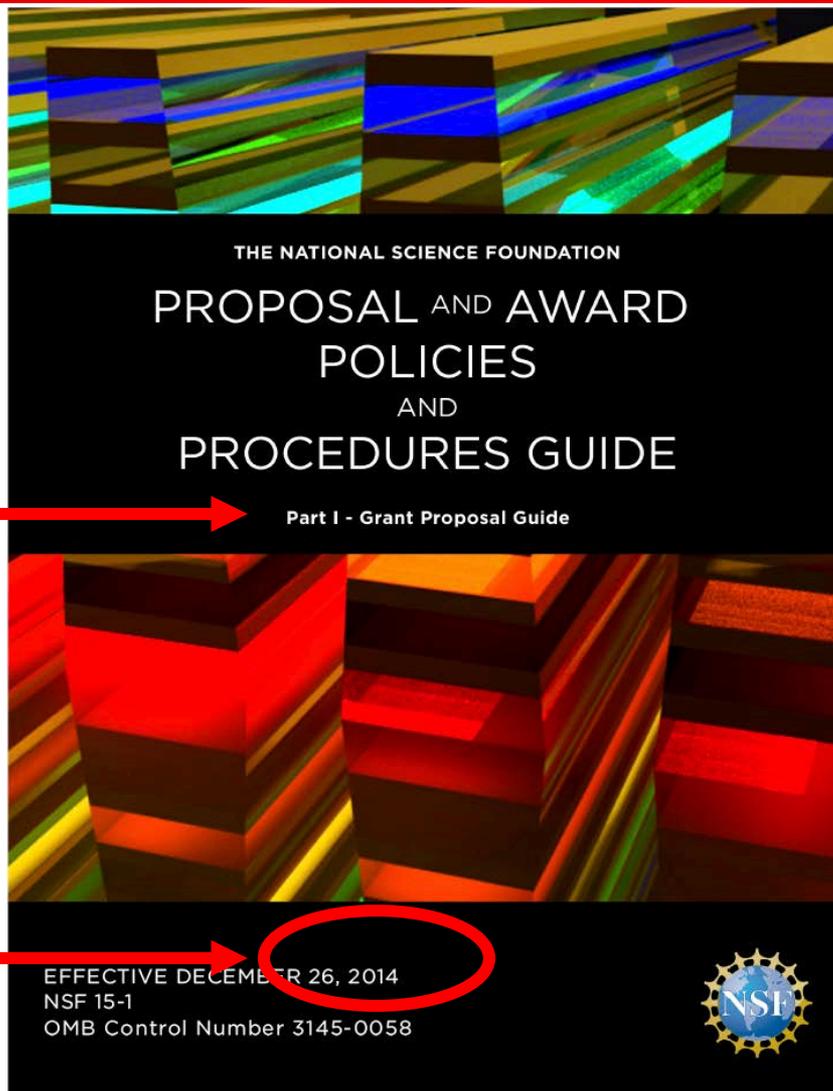


Disclaimer

- My words/slides are not policy. These are my experiences, offered to help you be successful in navigating the NSF sea.



Official Policy: PAPPG



GPG is inside



Part I - Grant Proposal Guide

2014 version



EFFECTIVE DECEMBER 26, 2014
NSF 15-1
OMB Control Number 3145-0058





More Policy (possibly)

Solicitation

**Division of Physics: Investigator-Initiated Research
Projects (PHY)**

PROGRAM SOLICITATION
NSF 15-579

REPLACES DOCUMENT(S):
NSF 14-576



National Science Foundation

Directorate for Mathematical & Physical Sciences
Division of Physics

EXAMPLE

(Be sure to check for the solicitation for additional requirements not in the GPG)



Example from Physics

Other Support—2 new requirements

For PIs who anticipate having other concurrent sources of support (including but not limited to grants from other agencies or private foundations, and laboratory appointments), proposals should clearly **explain how the proposed work is distinct from other funded activities**. The proposal should also articulate the nature of commitments (such as deliverables, specific projects) associated with other sources of support. These commitments may be presented in the Project Description or in the Current/Pending Support section. [Note that the FastLane web interface for Current/Pending Support is not adequate for providing this information, and a separate file upload will be needed.] The proposal review process will include an assessment of **the proposers' ability to carry out the proposed research in light of these commitments**. PIs who have applied to more than one agency with very similar proposals will be expected to withdraw all other applications should one of these proposals be funded.



Practical Questions

- Which Program is best for me?
- What if I span several Programs?
- What are the most common mistakes?



Practical Questions

- Which Program is best for me?
- What if I span several Programs?
- What are the most common mistakes?



NSF Organization Chart



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Physics



.. contains many Programs

Physics: Solicitation 15-601 (Plasma Partnership) and 15-579 (all others)

EXAMPLE

Living Systems

Atomic, Molecular, and Optical

Elementary Particle

Gravitational

Integrative Activities

Particle Astro

Nuclear

Cosmology

Computational Physics

Quantum Information

Accelerator

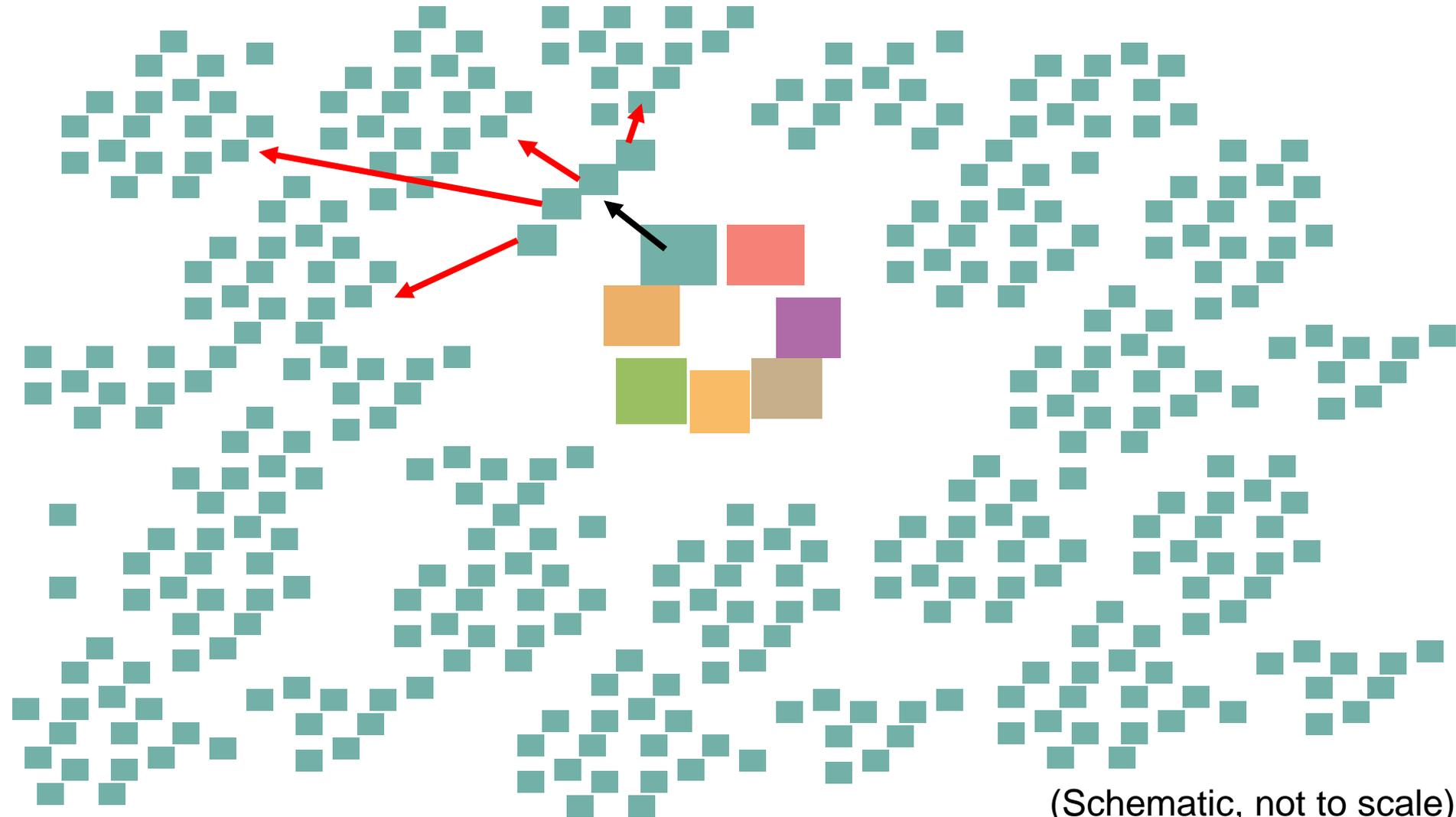
Plasma

(theory and experiment sometimes separate)

(Partnership with DOE)



To Which One Should I Apply?





THE MAZE RUNNER

BASED ON THE BEST-SELLING NOVEL

SEPTEMBER

THEMAZERUNNERMOVIE.COM
#MAZERUNNER



Ineffective Strategies

- “Shop a proposal around” from Program to Program
 - » It can waste years (not only yours).
 - » Those little boxes on the org chart don’t really stop us—Program Directors talk to each other!
 - » We may transfer a proposal to another program if we think it is appropriate



Ineffective Strategies

- “Shop a proposal around” from Program to Program



Every proposal you have ever submitted to NSF, in one click.



Ineffective Strategies

- “Shop a proposal around” from Program to Program
- Resubmit the same proposal next year

(Similarity index)



Ineffective Strategies

- “Shop a proposal around” from Program to Program
- Resubmit the same proposal next year
- “Repaint” or “shoehorn”



Ineffective Strategies

- “Shop a proposal around” from Program to Program
- Resubmit the same proposal next year
- “Repaint” or “shoehorn”
- Submit multiple proposals without consulting the Program Director(s)



Our Return Policy



- A proposal will be returned without review if it is. . .
 - » Not responsive to the program description
 - » Substantially similar to a proposal already under consideration by NSF from the same submitter
 - » Not revised to take into account the comments from a prior NSF review
 - » Not compliant



How Some PIs Select a Program

- Which one has the most money?
- Which one has the highest success rate?





How Some PIs Select a Program

- Which one has the most money?
- Which one has the highest success rate?
- Which one has not turned me down before?



How Some PIs Select a Program

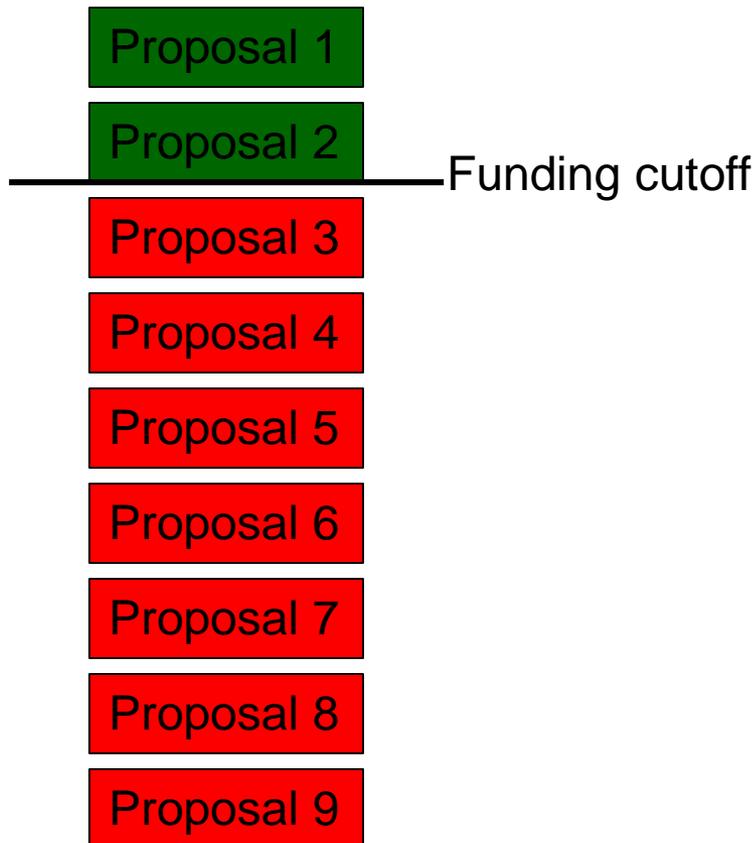
- Which one has the most money?
- Which one has the highest success rate?
- Which one has not turned me down before?

These are the wrong questions to ask!

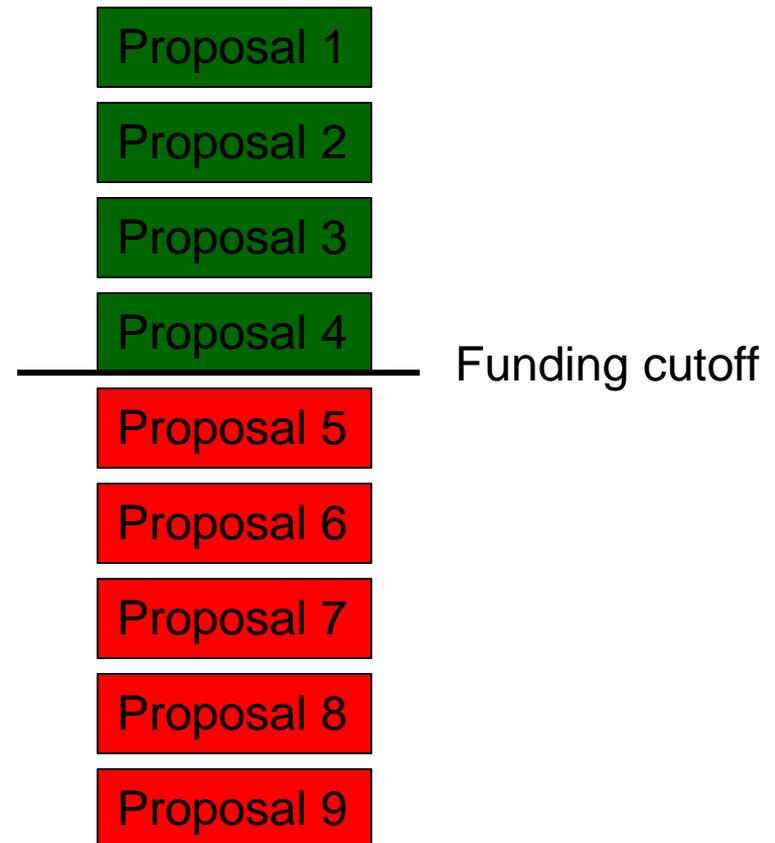


Example: Program A or B?

A
\$10M Program budget



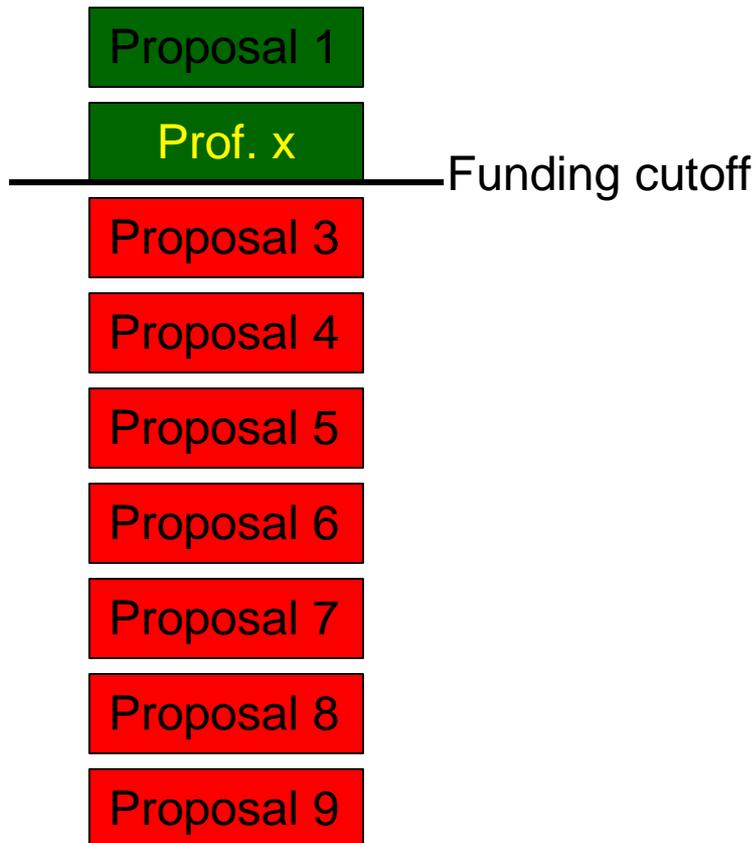
B
\$20M Program Budget



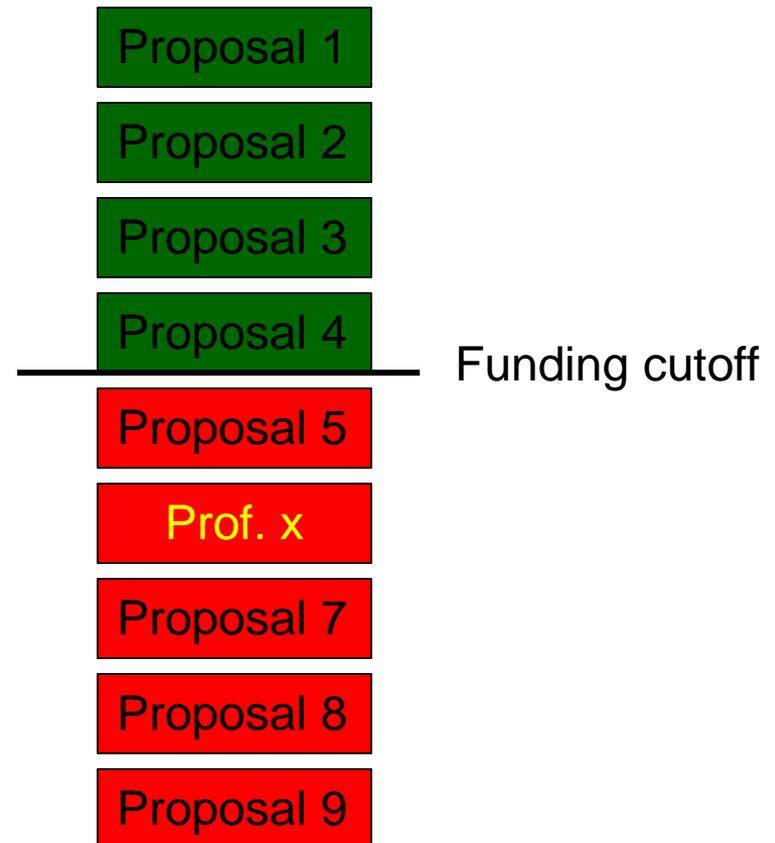


A Real Outcome:

A
\$10M Program budget



B
\$20M Program Budget





Some Relevant Questions

- How intense is the average competition in each program?
- Was one proposal written more carefully than the other?
- Did the topic match the programs equally well?
- How novel did the proposal appear to each program?



Some Relevant Questions

- How intense is the average competition in each program?
- Was one proposal written more carefully than the other?
- **Did the topic match the programs equally well?**
- How novel did the proposal appear to each program?



Check the Program Description

Example:
AMO-E Program

The screenshot shows the NSF website interface. At the top left is the NSF logo with the tagline "WHERE DISCOVERIES BEGIN". To the right is a "QUICK LINKS" button and a search bar. Below the header is a navigation menu with links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. The main content area is divided into two columns. The left column has a "Funding" section with a list of links: Find Funding, A-Z Index of Funding Opportunities, Recent Funding Opportunities, Upcoming Due Dates, Advanced Funding Search, Interdisciplinary Research, How to Prepare Your Proposal, and About Funding. Below this is a "Proposals and Awards" section with links for Proposal and Award Policies and Procedures Guide, Introduction, Proposal Preparation and Submission, Grant Proposal Guide, and Grants.gov Application Guide. The right column features a "Division of Physics" header, followed by the program title "Atomic, Molecular and Optical Physics - Experiment". Below the title are "CONTACTS" and a table with columns for Name, Email, Phone, and Room. The table lists John Gillaspay with email jgillasp@nsf.gov and phone (703) 292-7173 in room 1015 N. Below the table is the "PROGRAM GUIDELINES" section, which includes a link to "15-579 Program Solicitation" and a section for "Important Information for Proposers" stating that a revised version of the NSF Proposal & Award Policies & Procedures Guide (PAPPG) is effective for proposals submitted on or after December 26, 2014. At the bottom of the right column is the "DUE DATES" section, which lists the full proposal deadline as October 28, 2015, and the last Wednesday in October thereafter.

Funding

- [Find Funding](#)
- [A-Z Index of Funding Opportunities](#)
- [Recent Funding Opportunities](#)
- [Upcoming Due Dates](#)
- [Advanced Funding Search](#)
- [Interdisciplinary Research](#)
- [How to Prepare Your Proposal](#)
- [About Funding](#)

Proposals and Awards

- [Proposal and Award Policies and Procedures Guide](#)
- [Introduction](#)
- [Proposal Preparation and Submission](#)
- [Grant Proposal Guide](#)
- [Grants.gov Application Guide](#)

Division of Physics

Atomic, Molecular and Optical Physics - Experiment

CONTACTS

Name	Email	Phone	Room
John Gillaspay	jgillasp@nsf.gov	(703) 292-7173	1015 N

PROGRAM GUIDELINES

[15-579](#) Program Solicitation

Important Information for Proposers

A revised version of the *NSF Proposal & Award Policies & Procedures Guide (PAPPG)* (NSF 15-1), is effective for proposals submitted, or due, on or after December 26, 2014. The PAPPG is consistent with, and, implements the new Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) (2 CFR § 200). Please be advised that the guidelines contained in NSF 15-1 apply to proposals submitted in response to this funding opportunity.

DUE DATES

Full Proposal Deadline Date: October 28, 2015
Last Wednesday in October, Annually Thereafter

Look for the Synopsis



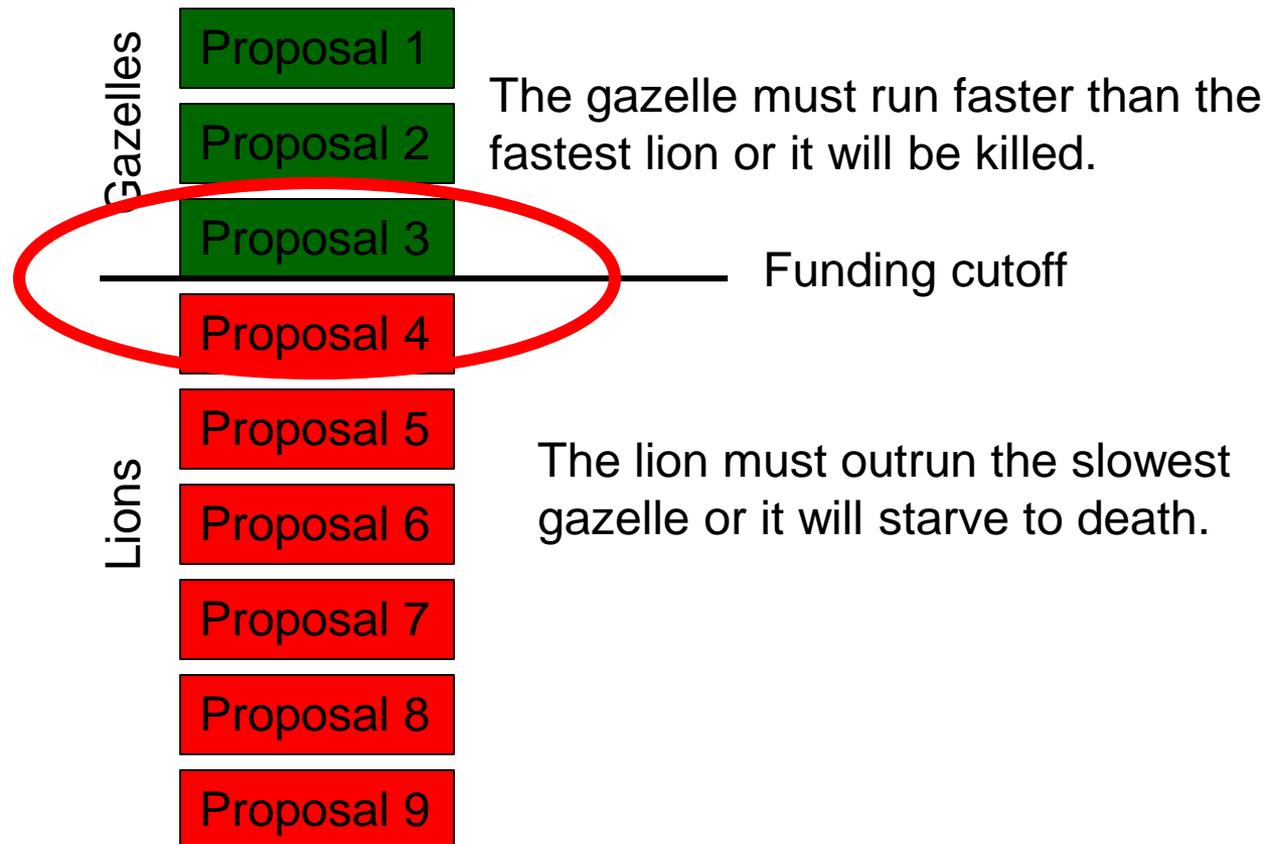
Get to Know the Community

- Can your proposal compete favorably with those that are funded?
- Can it compete *much* more favorably than those that are *not* funded?
- One way to view the competition: volunteer to serve as a reviewer (if you are not applying that year).



The Lion and the Gazelle

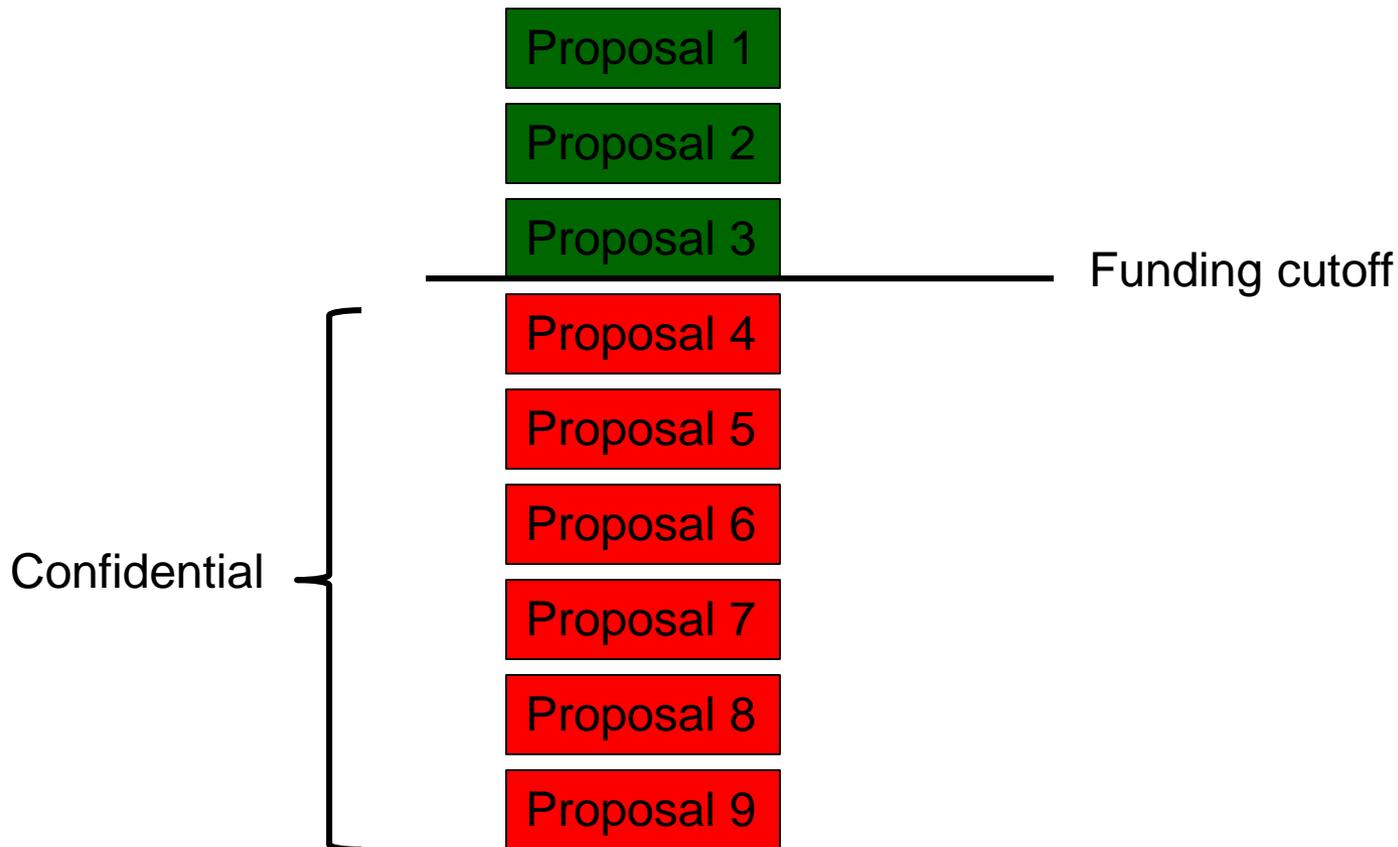
In which program can I compete favorably near cutoff?





The Lion and the Gazelle

In which program can I compete favorably near cutoff?





Check the Recent Awards

Example:
AMO-E Program

The screenshot shows the NSF website for the AMO-E program. At the top is the NSF logo and the text "National Science Foundation WHERE DISCOVERIES BEGIN". A search bar and "QUICK LINKS" button are in the top right. A navigation bar includes "HOME", "FUNDING", "AWARDS", "DISCOVERIES", "NEWS", "PUBLICATIONS", "STATISTICS", "ABOUT NSF", and "FASTLANE".

The main content area is titled "Funding" and features a "Division of Physics" link. The primary heading is "Atomic, Molecular and Optical Physics - Experiment". Below this is a "CONTACTS" section with a table listing contact information for John Gillaspv.

Name	Email	Phone	Room
John Gillaspv	igillasp@nsf.gov	(703) 292-7173	1015 N

Below the contacts table is a "PROGRAM GUIDELINES" section with a link to "15-579 Program Solicitation".

At the bottom of the page, there are three vertical dots and a section titled "What Has Been Funded (Recent Awards Made Through This Program, with Abstracts)". Other links include "Map of Recent Awards Made Through This Program", "News", and "Discoveries".



Know Your Audience (and have them know you)

- NSF is grounded in peer-review, so get to know your peers (it really is a competition, after all!):
 - » Attend the conferences that funded PIs attend.
 - » Talk (in the hallway, as well as from the podium).
 - » Publish in the journals they publish in.



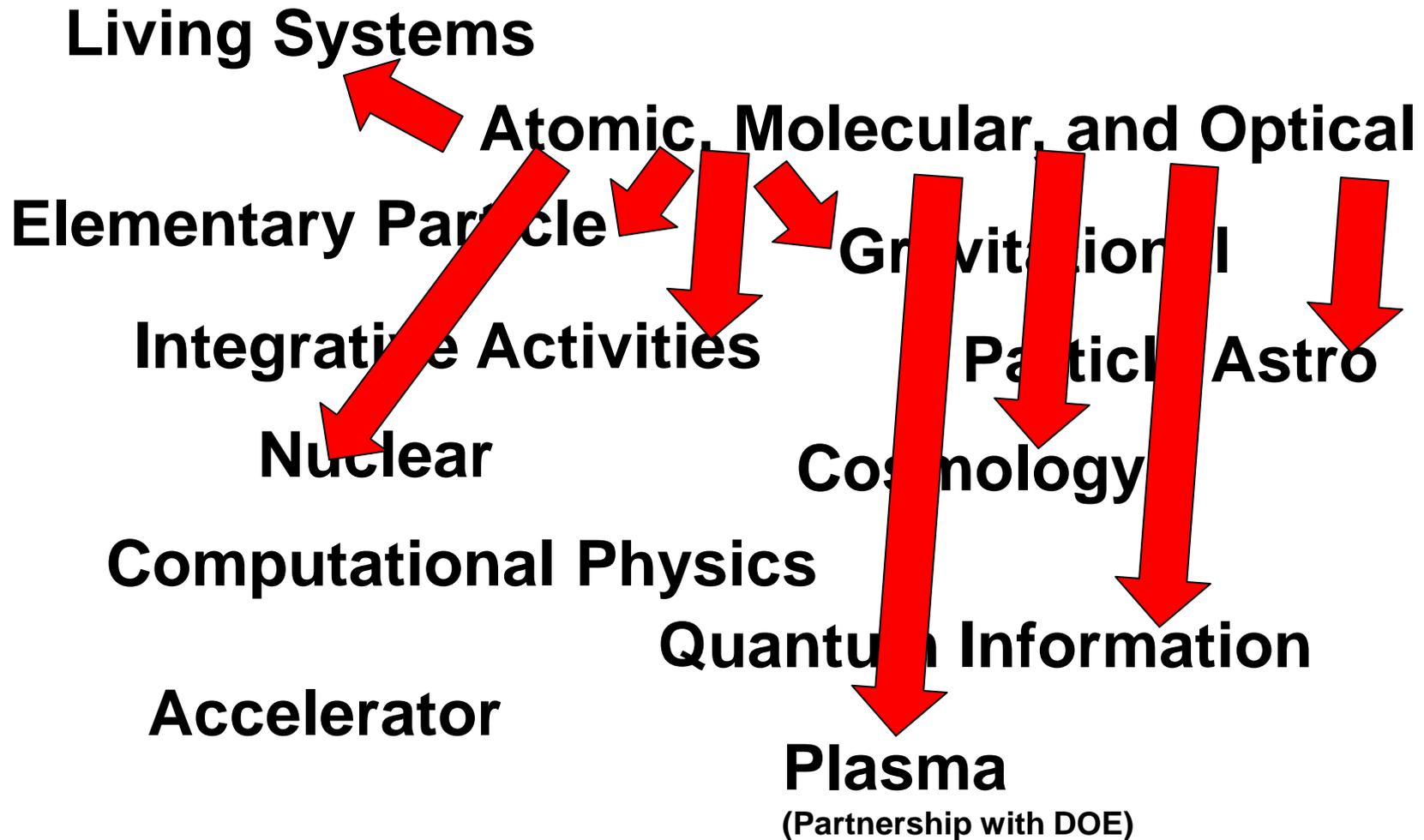
Practical Questions

- Which Program is best for me?
- What if I span several Programs?
- What are the most common mistakes?



Example: AMO Connections

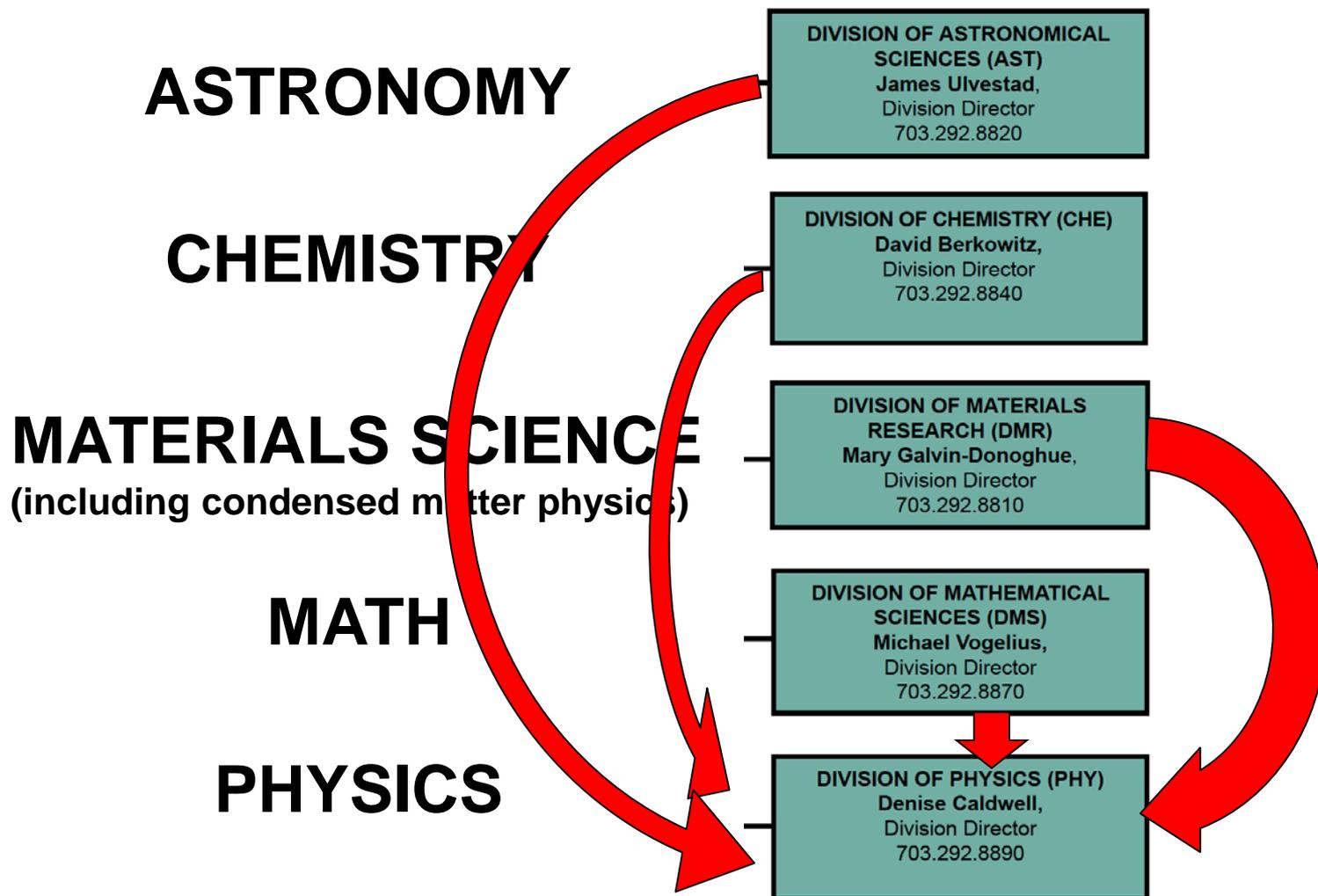
(within the Division)





Across Divisions

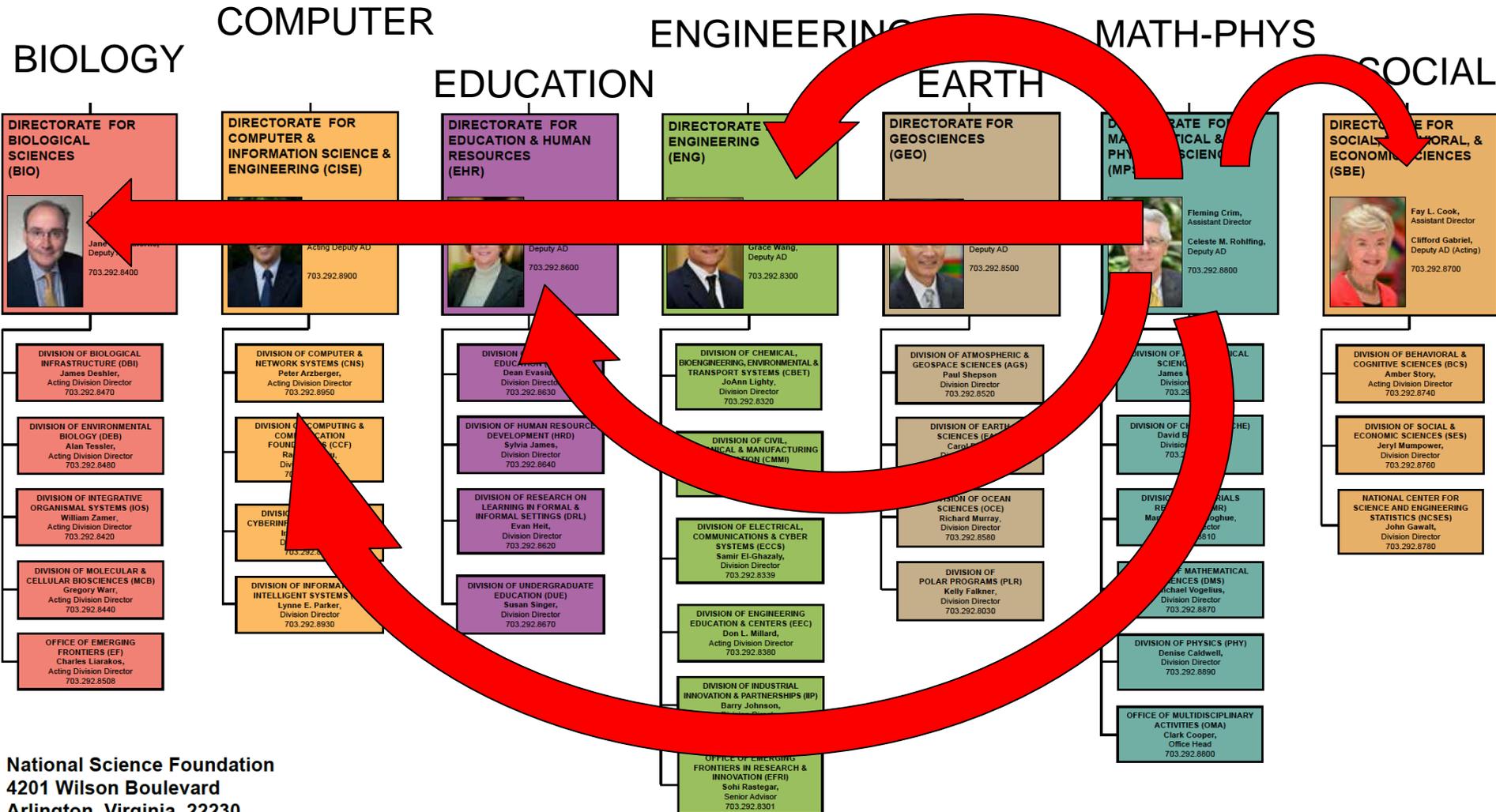
(Example of AMO Program Connections)





Across Directorates

(Example of AMO Program Connections)





Indicate Connections When You Submit

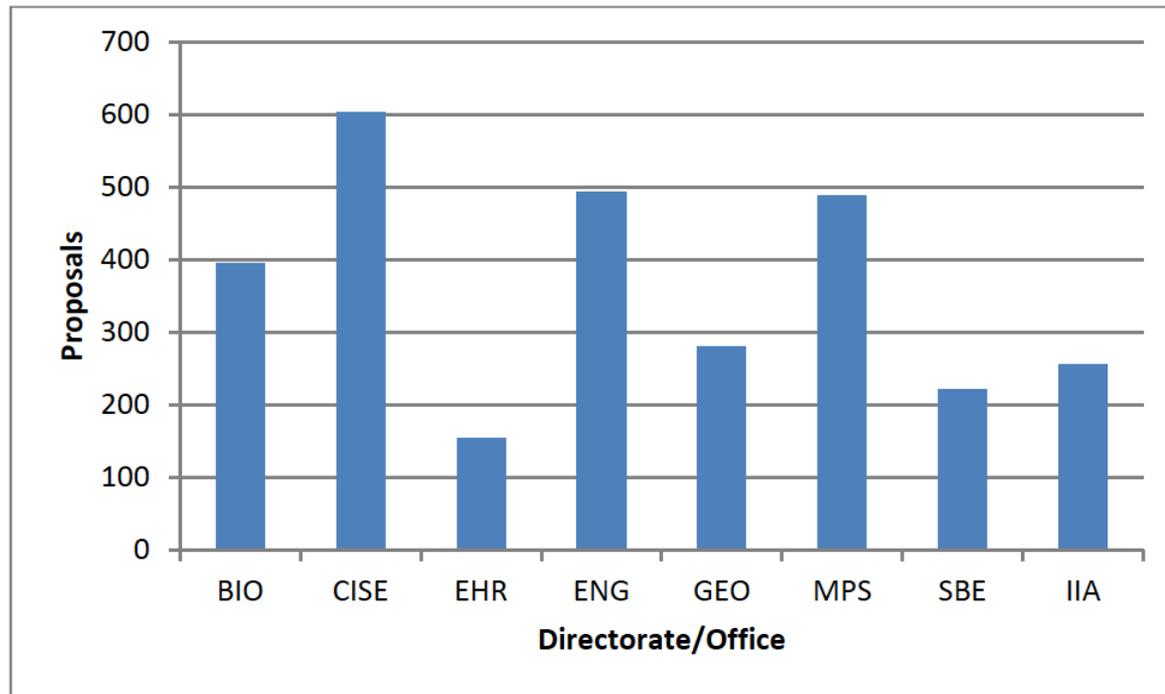
COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) - continued from page 1
(Indicate the most specific unit known, i.e. program, division, etc.)



Co-Funding

Figure 19 - FY 2014 Awards Co-funded



Source: NSF Enterprise Information System, 10/01/14 and 3/12/14.

The total number of unique, co-funded awards included in **Figure 19** is 1,329, which is approximately 12.1% of FY 2014 competitive awards. IIA is included separately in this figure.

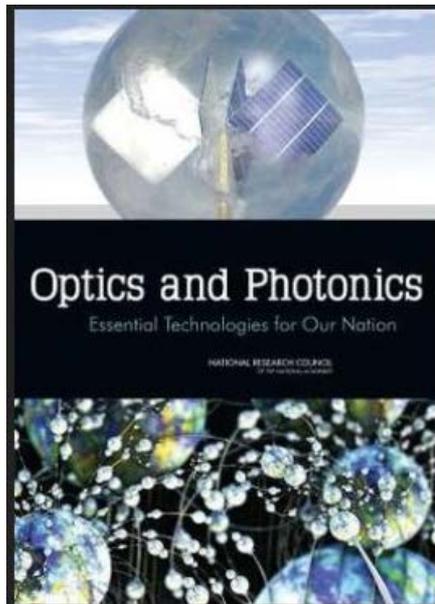


Look for Special Programs

- Optics & Photonics Crosscutting
- Quantum Information Science
(Coming soon: “Connections In QIS”?)
- INSPIRE
- Research Opportunity Awards (ROA)
- Major Research Instrumentation (MRI)
- CAREER



Optics & Photonics



The screenshot shows the NSF website interface. At the top, the NSF logo and the text "National Science Foundation WHERE DISCOVERIES BEGIN" are visible. A search bar and "QUICK LINKS" button are in the top right. A navigation menu includes "HOME", "FUNDING", "AWARDS", "DISCOVERIES", "NEWS", "PUBLICATIONS", "STATISTICS", "ABOUT NSF", and "FASTLANE". The "Funding" section is active, displaying a "Crosscutting" link and the "Optics and Photonics (OP)" heading. Below this is a "CONTACTS" section with a table of names and their respective divisions.

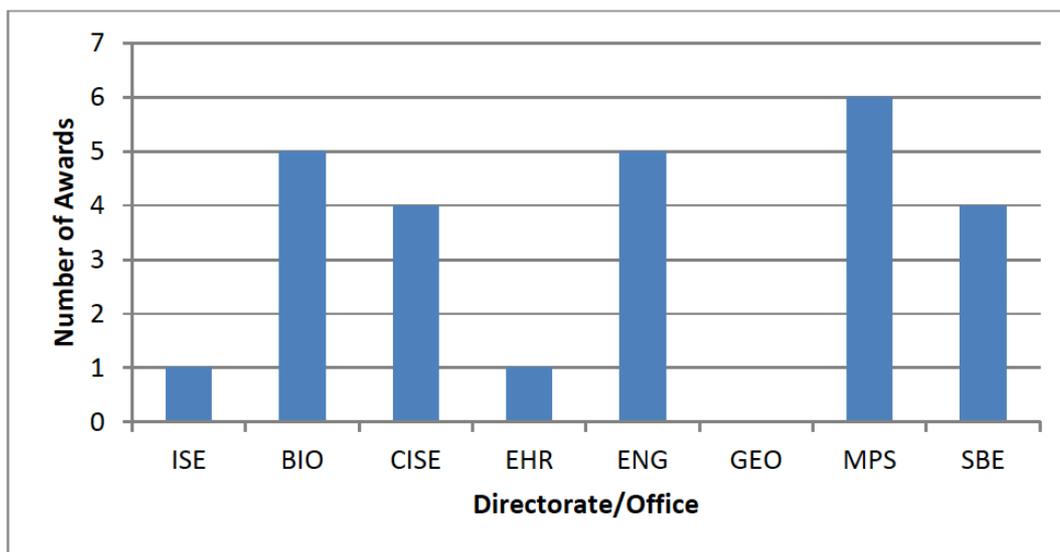
Name	Dir/Div	Name	Dir/Div
Victor Roytburd	MPS/DMS	Eugene C. Gartland	MPS/DMS
Glen Langston	MPS/AST	Claire Cramer	MPS/AST
Tingyu Li	MPS/CHE	Linda Peteanu	MPS/CHE
Paul E. Sokol	MPS/DMR	Charles Ying	MPS/DMR
John Gillaspay	MPS/PHY	Ann Orei	MPS/PHY
Dominique Dagenais	ENG/ECCS	Mahmoud Fallahi	ENG/ECCS
Leon Esterowitz	ENG/CBET	Jack Brassil	CISE/CNS
Robert D. Fleischmann	BIO/DBI	Christopher Sanford	BIO/DBI

Released October 5, 2015 (no new money, yet)
Link to this page is provided in NSF 16-004 (DCL)



INSPIRE

Figure 18 – INSPIRE Awards Supported by NSF Directorates in FY2014



Source: NSF INSPIRE Program, 1/3/14.

²⁷ INSPIRE Track 1 awards are limited to a maximum award size of \$1,000,000, a maximum duration of five years and must be substantially co-funded by *two* or more intellectually distinct NSF divisions or programs. INSPIRE Track 2 awards are for mid-scale, interdisciplinary projects and can be for up to \$3,000,000 with a maximum duration of five years. They must be endorsed by at least *three* intellectually distinct NSF divisions or programs whose research communities do not have a well-established history of collaboration. See NSF 13-518.

FY 2014 Report on the NSF's Merit Review Process — May, 2015



Talk to Program Directors

- Particularly important before applying to special programs.
- Essential for INSPIRE (by invitation only).
- Each Program operates a little differently.



Practical Questions

- Which Program is best for me?
- What if I span several Programs?
- What are the most common mistakes?



Google “how not to get funded” + NSF

www.middlebury.edu/offices/support/grants/sro/proposal/sciences/notfunded

Most Visited ▾ google traffic bridge beltway at river road I270 at montrose Sharepoint webTA Research.gov Virtual Desktop (P...

Return to **Offices & Services** Quick links for **POLICIES** ▾ **TOOLS** ▾ F...



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How Not To Get Funded by NSF

Courtesy of the NSF Division of Astronomical Sciences (special thanks to Frank Winkler)



Google “how not to get funded” + NSF



HOME

Former NSF program officer offers the inside scoop

Tricia L. Callahan
October 2, 2014



NSF PROPOSALS: HOW *NOT* TO GET FUNDED* NSF Division of Astronomical Sciences

THE FAST PATHS TO RETURN-WITHOUT-REVIEW:

GRANT PROPOSAL GUIDE AND PROGRAM SOLICITATION: BOOOORRR-RIIINNNGGG!
Don't waste your time reading these documents. They're nothing but detailed descriptions of program objectives, proposal requirements, and formatting guidelines, all of which you can ignore. If you must read the GPG, get an old copy from your colleague down the hall, because it never changes.

BROADER IMPACTS: SOMEBODY ELSE'S PROBLEM
Just because you're asking a federal agency for taxpayer dollars, that's no reason to address the agency's review criteria. Your brilliance transcends such petty concerns. Don't write about them in the 1-page project summary; nobody reads this page anyway.

RESULTS FROM PRIOR NSF SUPPORT: WHO CARES?
Everybody knows past performance is no guarantee of future returns. So what if the GPG says it's required and that there's no difference between PIs and co-PIs? You know better than to waste valuable space. Put it in a figure caption. Better yet, leave it out. Any diligent reviewer can look it up.

EIGHT FUN WAYS TO ANNOY REVIEWERS AND PROGRAM DIRECTORS:

WRITE FOR YOUR FRIENDS
Everybody is either already working in your area or wishing they could—and there's no need to impress the latter. Jargon can be taken for granted. If reviewers can't see the far-reaching implications of your work, that's their problem.

IT'S NOT A PROPOSAL, IT'S A REVIEW ARTICLE
Your knowledge of the literature and technical intricacies of your field are sufficient to earn you funding. Reviewers are impressed by what you know, not what you don't. Discussion of work yet to be done is best scattered through the proposal, hidden inside lengthy paragraphs, or confined to the bottom of page 15.

MAKE 'EM EARN IT
Reviewers should put as much effort into reading your proposal as you put into writing it. Section headings, paragraph breaks, and logical flow are just crutches. Format each page for maximum information density!

EDUCATION: YOU'RE THE FIRST
Nobody has ever attempted to teach astronomy, so there is no literature on the subject for you to be aware of.

SHOW YOU CARE
For a personal touch, refer to female graduates of your Ph.D. program as "Ms." instead of "Dr." to emphasize your inclusiveness.

USE THAT SERIES OF TUBES
Honestly, your web page is all the Broader Impact you need, as long as you've updated it since 1998.

PROOFREADING IS FOR WMIPs
Nobody equates typos and other errors with being sloppy. Its not like your trying to convince anyone you can carry out a complex project.

AVOID UNPLEASANTNESS
Did you just get an Email advising you to fix a problem in your submitted proposal? Ignore it! NSF gets so few proposals that they'll be grateful for yours, no matter how non-compliant it is. Besides, program directors are sad, lonely people who used to be scientists. If you respond you're only encouraging them.

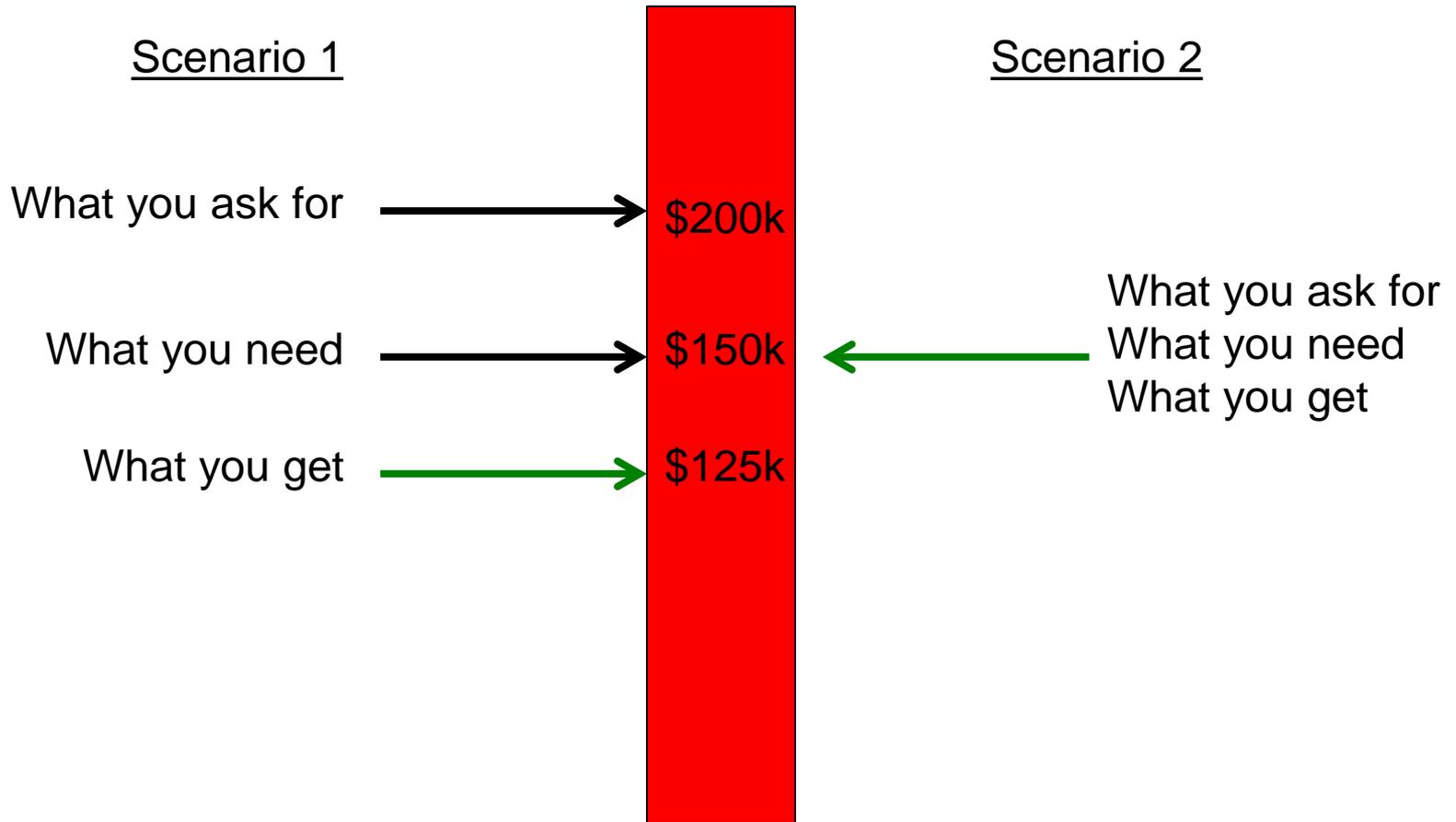
*May contain traces of sarcasm.

Dr. Joyce Fernandes referred workshop participants to this tongue-in-cheek publication by the NSF Division of Astronomical Sciences.



The Risk of Inflating A Budget

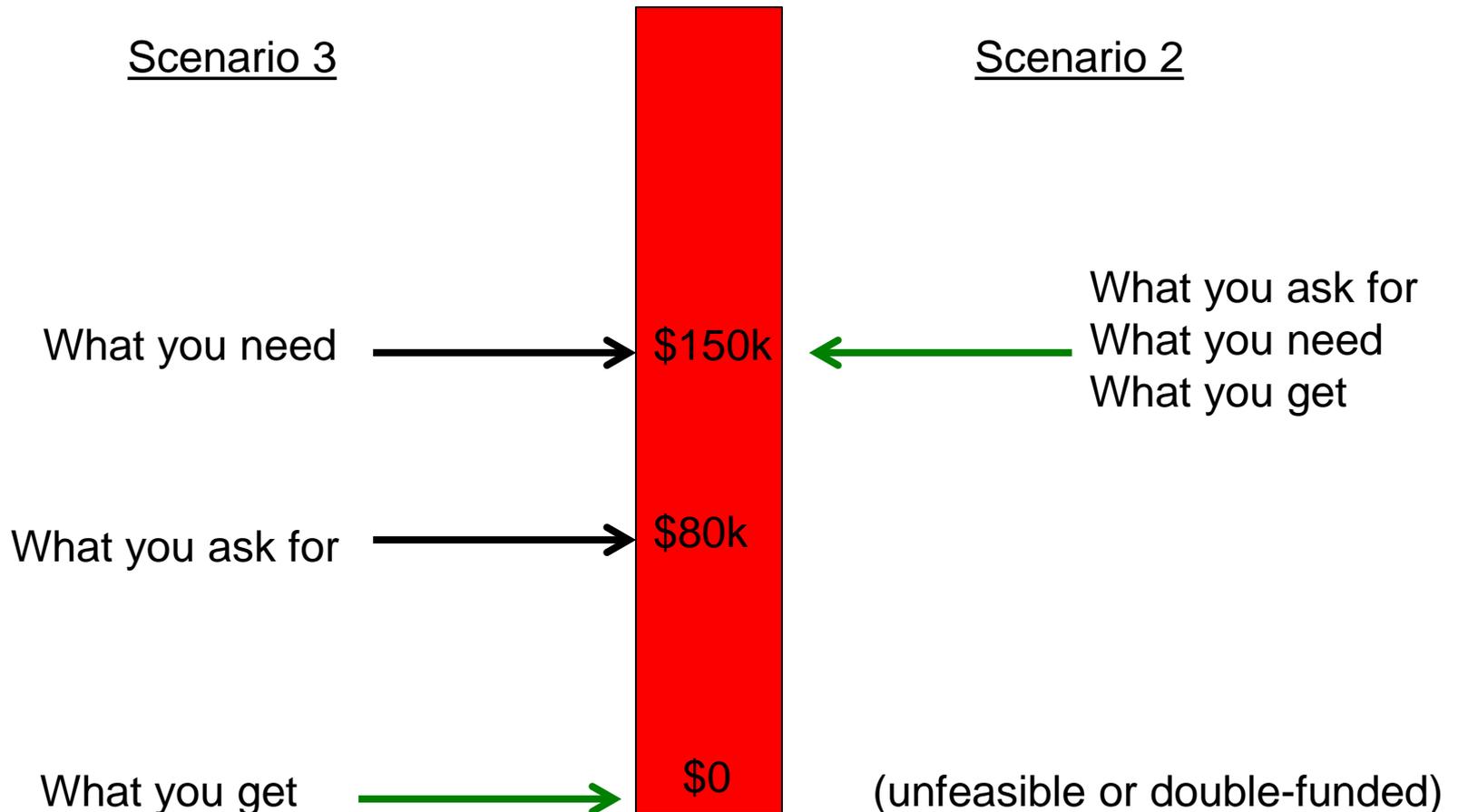
Nobody knows better than you what you really need, but many people know when you are asking for a lot more than you need.





The Risk of Deflating a Budget

Nobody knows better than you what you really need, but many people know when you are asking for a lot less than you need.





Compliance

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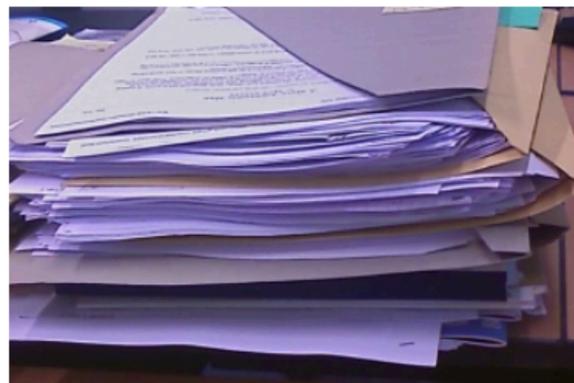
[f](#) [t](#) [g+](#) [e](#) | [Print](#) Comment (1)

Grant Programs Get Persnickity

By Karen Markin | OCTOBER 21, 2015

To tame a rising tide of grant proposals, federal agencies are becoming sticklers about enforcing their application requirements — stating deadlines in hundredths of seconds and using software to prevent the submission of error-riddled applications.

In announcing grant programs now, a variety of agencies include explicit language warning applicants that failure to follow the guidelines for file names, content, and format could result in the proposal's being returned without review. It is more important than ever to *closely* follow all requirements spelled out in a call for proposals and to submit early enough to fix any mistakes caught by the submission system.



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Compliance

- Increasingly: automatic rejection (by the software) for non-compliance, immediately upon submission.
- This can cause you to miss the submission deadline if you submit at the last minute (Program Director might not have authority to accept proposals after 5:00 PM local time on the deadline).



Compliance: II

- Manual checks by:
 - » Administrative Staff (weeks)
 - » Program Director (weeks-months)
 - » Peer review (several months)
 - » NSF Grants Office (>6 months)



Common Compliance Issues

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New Rules!

Here's what you need to know about the federal government's new grant regulations



Brian Taylor for The Chronicle



Common Compliance Issues

- Broader Impacts. Must be discussed in **3 places**, with headings (project summary, prior and proposed work).
- Postdoc Mentoring Plan
- Data Management Plan
- Letters of endorsement (incl collabs)
- “et al.” in references
- PhD and postdoc advisor names



Postdoc Mentoring

- Plan is required in the proposal.
- Statement also required in **annual reports** (no special box). Example of AMO Program Guidance:

You should include a subsection labeled "Postdoc Mentoring" under the subsection labeled "What opportunities for training and professional development has the project provided?" There you should describe any aspects of mentoring, e.g., roughly how often you met, what was discussed, were past goals met, new goals set, etc. Mention anything that was directed specifically to a particular postdoc (e.g., coaching them for a job interview, helping them prepare talks, guiding them on how to interact with students working with them, etc). It need not be lengthy, but it should be about what YOU did as their mentor, not what they learned from doing the research on their own. It is great to hear that they got good jobs, for example, but it would be better if you could say a word or two about how your mentoring helped make that happen.



Other Compliance Issues

- Unjustified salaries in excess of 2 months.
- Unjustified request for clerical or secretarial support.
- Voluntary Committed Cost Sharing (it is prohibited).
- Over 15 page limit (including tricks like using small font, inserting material in other sections, etc.)



It's Against the Law

- Plagiarism
- Double-funding

Don't Make the OIG Get Involved!



What Makes a Strong Proposal?

(Ann's Advice)

- New and original ideas
- Potentially transformative research
- Sound, succinct, detailed, focused plan
- Clear description of impact of new research within the context of prior work in the field
- Preliminary data and/or convincing feasibility
- Thoughtfully developed and well articulated broader impacts



What Makes a Strong Proposal?

(Nigel's additional advice)

- Relevant experience
- Important & timely within field
- Clarity concerning future direction



For a strong proposal ...

(more from Ann)

- It is your responsibility to “make your case” to the reviewers and panel, not theirs to draw out hidden meaning (but avoid hype!)

Secrets for Success !

Pay attention to:

- NSF-wide requirements (GPG)
- Solicitation and Program webpage
 - Due dates!
 - Program description
 - What has been funded by the Program
- Model on successful proposals
- **Get someone experienced to read your proposal**
- If you still have questions, talk to Program Directors



NSF Proposal Submission

(more from Nigel)

- Match and justify the budget to the scope of the proposed work - ask for what you need
- Submit proposals **before the last day/hour/minute !!**
- Download your completed proposal back to you to check that what we got is really what you think you sent



If You Forget Everything Else

(last words of advice from John)

- Find the right program, then work on improving your ideas and proposal.
- Ask your peers for help.
- Read the GPG and Solicitation.
- Include Broader Impacts in 3 places.
- Don't be afraid to pursue new ideas



End

John Gillaspay

(I look forward to talking to you during the Workshop)