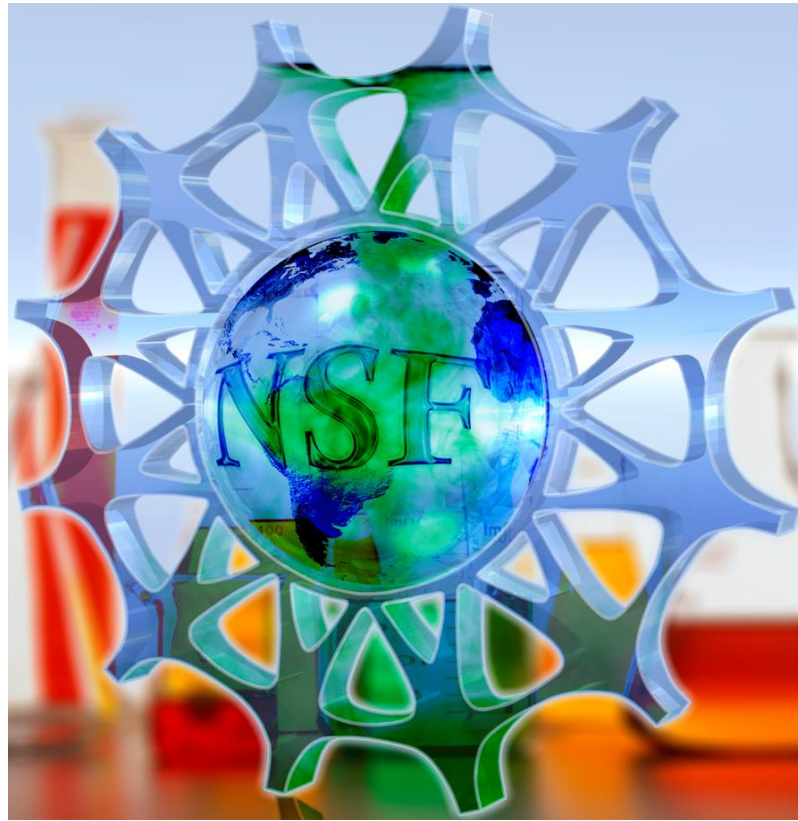


# *NSF 101*

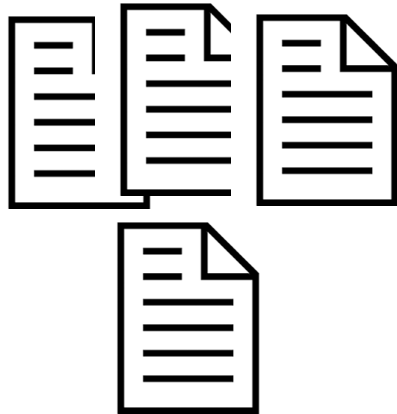
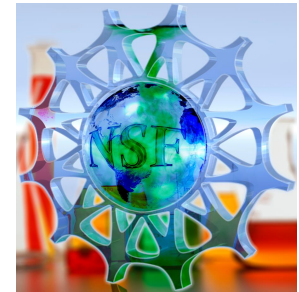
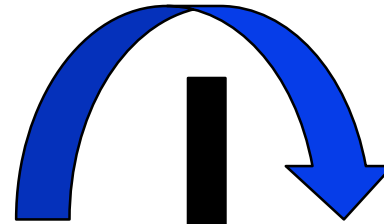
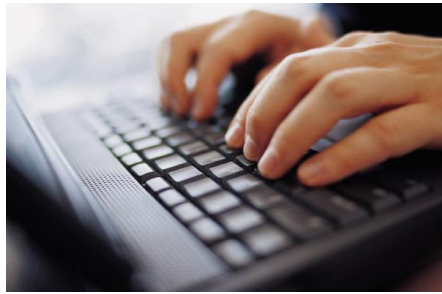


Part I: I have a research idea. Where can I get funding to support the project?

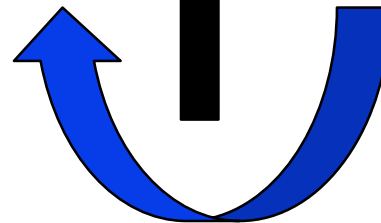
*Kevin Moeller*



# Doing Science vs. Science Funding



Yea!  
Boo!



# NSF is One of Many Federal Science Funding Agencies





NSF



DOE-BES



NIH



DOD (ARO, ONR,  
AFOSR, DARPA)



NASA



DHS-DTRA



USDA



EPA



DOEd

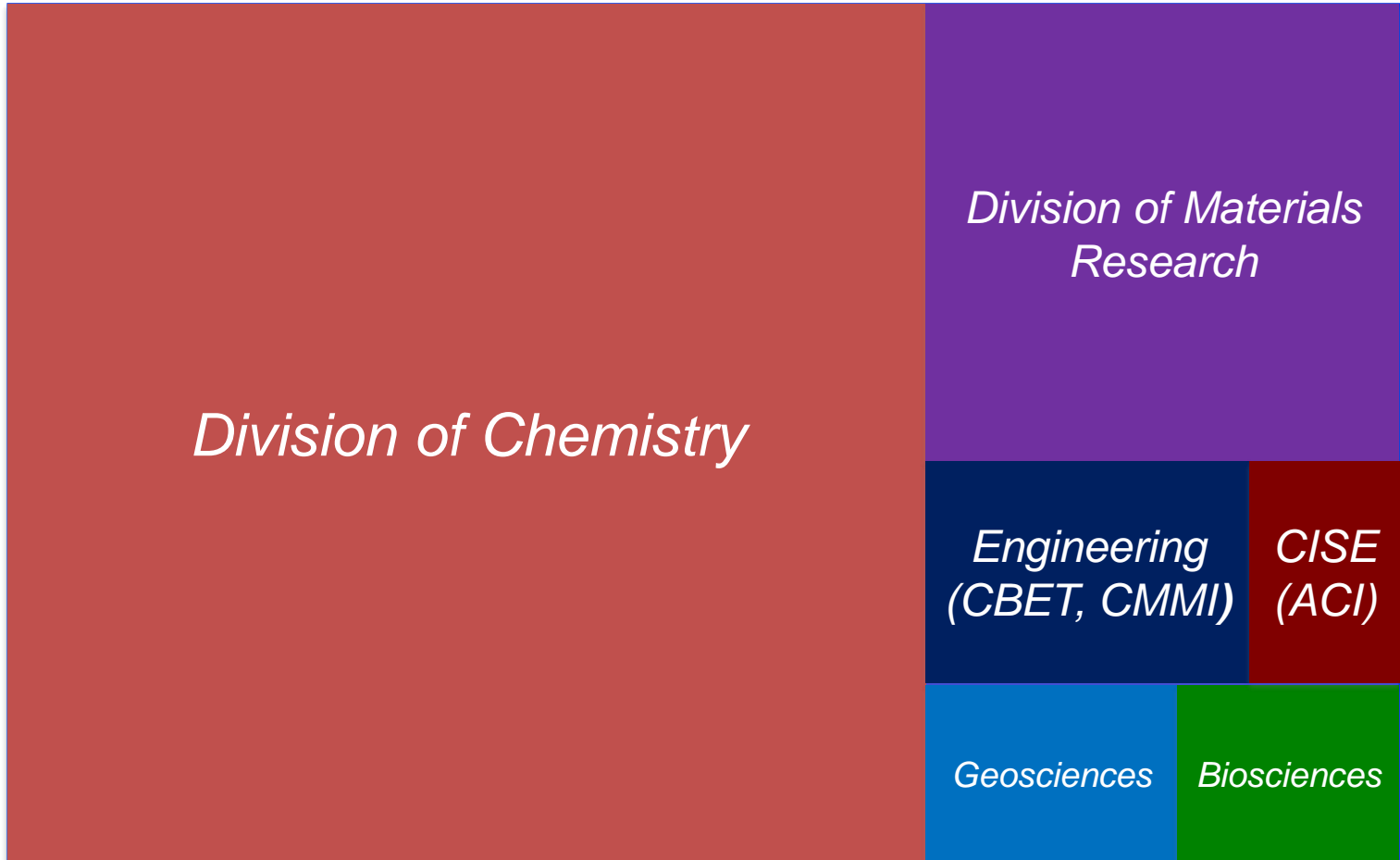


## You Should. . .

1. Find out which federal agencies support fundamental and applied chemistry research in your area of interest
2. Find out if there are programs or solicitations that might be a good match to your project idea(s)
3. Find out more about the proposal submission and review process at your agency of interest

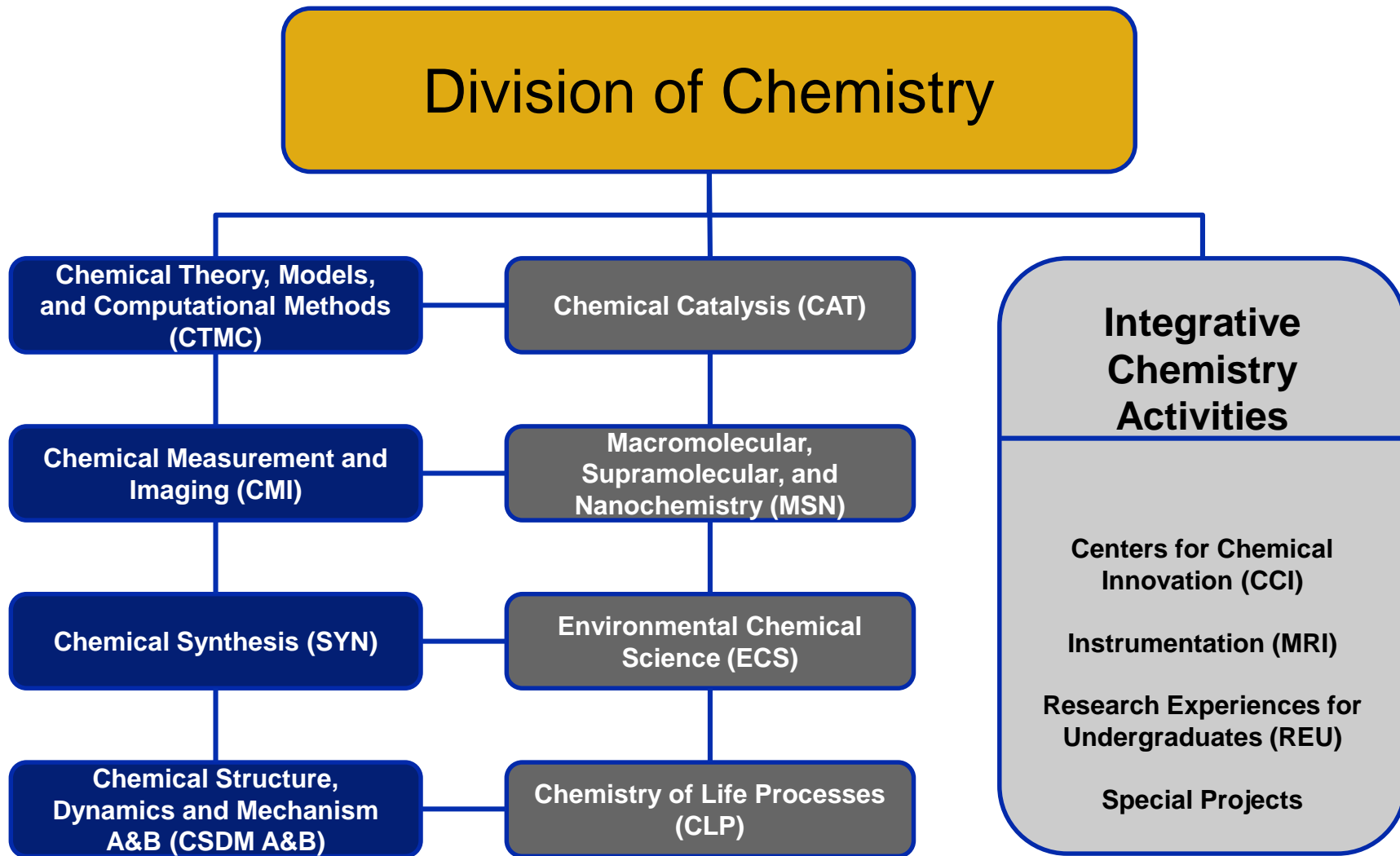


# The Chemistry Division at NSF Does Not Handle All of the Chemistry Research Supported by NSF

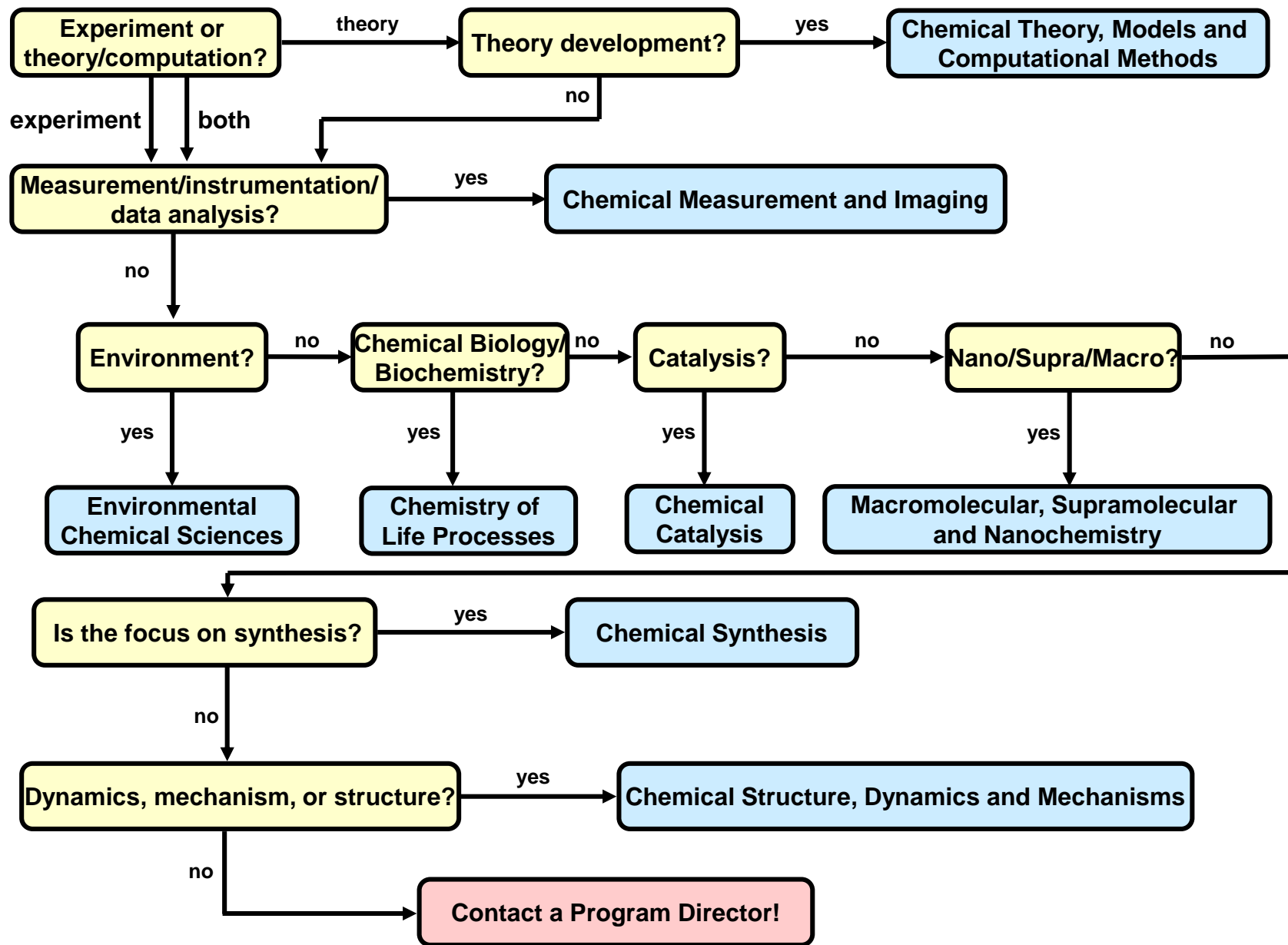




# Division of Chemistry







## Finding your research idea's home at NSF

1. Read the Program Descriptions at the NSF web site.
2. Talk to Program Directors at this workshop.
3. Read the award abstracts of what has already been funded at NSF.
  - [www.nsf.gov/awardsearch/](http://www.nsf.gov/awardsearch/)
  - Visit the webpage of a program of interest and click on the link “What Has Been Funded”

Programs will review and support proposals that fit within their Program Description.

“NSF is 75% bottom-up and 25% top-down”



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## Chemistry's Winter 2017 Newsletter

Interested in learning more about Chemistry's Division Director, or meeting Chemistry's Staff, then come visit our website, and check out our Winter 2017 Newsletter!

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Dates [Read More >](#)[See All >](#)

## News

Remarkable 'electronic nose' could sniff out  
nerve gas and rotten foods simultaneously

FEBRUARY 22, 2018

Researchers achieve 'Olympic ring' molecule  
breakthrough just in time for Winter Games

FEBRUARY 20, 2018

Asteroid 'time capsules' may help explain how  
life started on Earth

FEBRUARY 17, 2018

[See All >](#)

## Funding Opportunities

Innovations at the Nexus of Food,  
Energy and Water Systems

(NSF 18-545) POSTED FEBRUARY 28, 2018

## Upcoming Due Dates

EPSCoR Research Infrastructure  
Improvement Track 4: EPSCoR  
Research Fellows(NSF 18-528) FULL PROPOSAL: MARCH 13,  
2018

## Popular Links

- Career Opportunities
- CHE Employment Opportunity
- Chemistry Blogs on Tumblr





## Mathematical & Physical Sciences (MPS)

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## Chemical Theory, Models and Computational Methods (CTMC)

### CONTACTS

Name	Email	Phone	Room
<a href="#">Evelyn Goldfield</a>	<a href="mailto:egoldfie@nsf.gov">egoldfie@nsf.gov</a>	(703) 292-2173	1055 S
<a href="#">Robert Cave</a>	<a href="mailto:rjcave@nsf.gov">rjcave@nsf.gov</a>	(703) 292-2304	1055.11
<a href="#">Susan Atlas</a>	<a href="mailto:satlas@nsf.gov">satlas@nsf.gov</a>	(703) 292-4338	1055.23

Administrative Program Support: [Kimberly Noble](#), [knoble@nsf.gov](mailto:knoble@nsf.gov) or (703)292-2969

### PROGRAM GUIDELINES ...

### DUE DATES ...

### SYNOPSIS ...

The Chemical Theory, Models, and Computational Methods Program supports the discovery and development of theoretical and computational methods or models to address a range of chemical challenges, with emphasis on emerging areas of chemical research. ...

... ..

...

**[What Has Been Funded \(Recent Awards Made Through This Program, with Abstracts\)](#)**





- NSB
- Research Areas
- Funding
- Awards
- Document Library
- News
- About NSF



- About Awards
- Award Statistics (Budget Internet Info System)
- Award Conditions
- Managing Awards
- Policies and Procedures
- Presidential and Honorary Awards
- Search Awards**

- RELATED LINKS
- Research.gov
  - FastLane
  - NSF Public Access Repository (NSF-PAR)



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  - Send Comments
  - Award Search Help

### Awards Simple Search

[Overview of Award Search Features](#)

Search award for:

*Use double quotes for exact search. For example "water vapor".*

Active Awards  Expired Awards

[Feedback](#)

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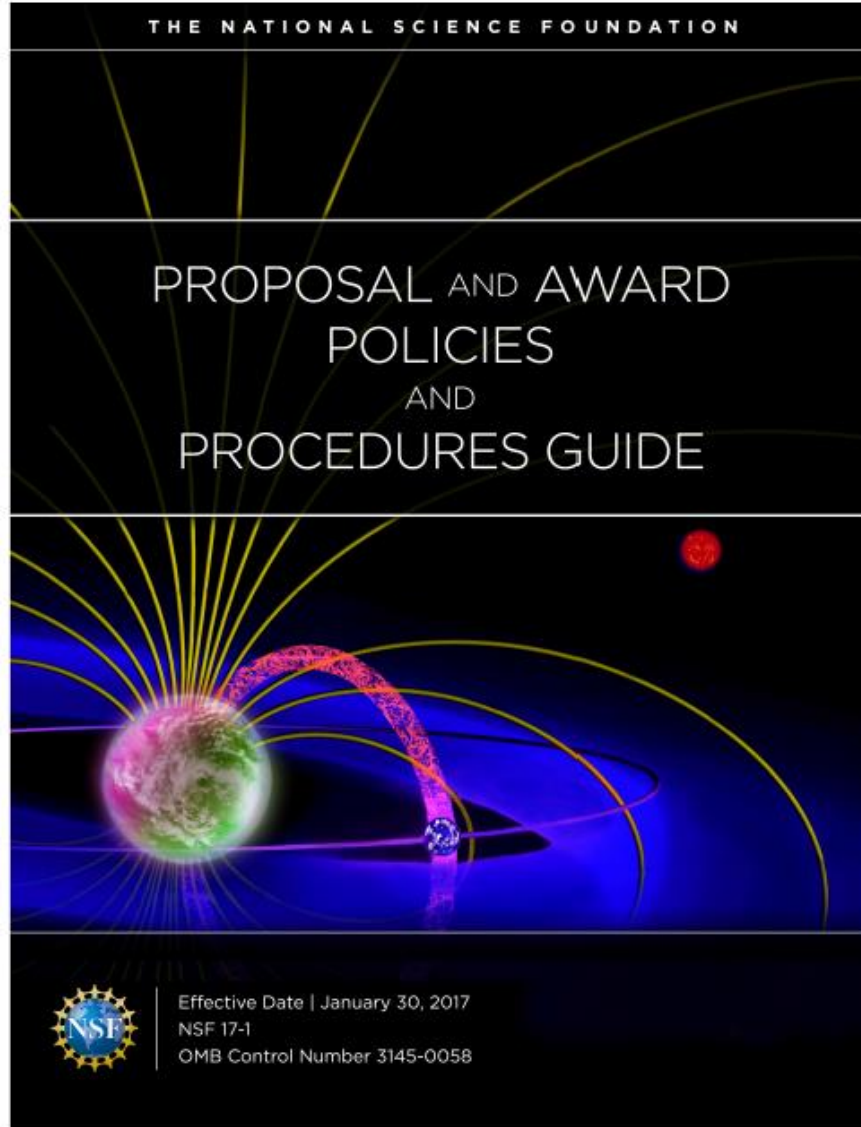
Part II: I have a research idea. How do I go about writing a proposal?

Step 1: Follow the instructions

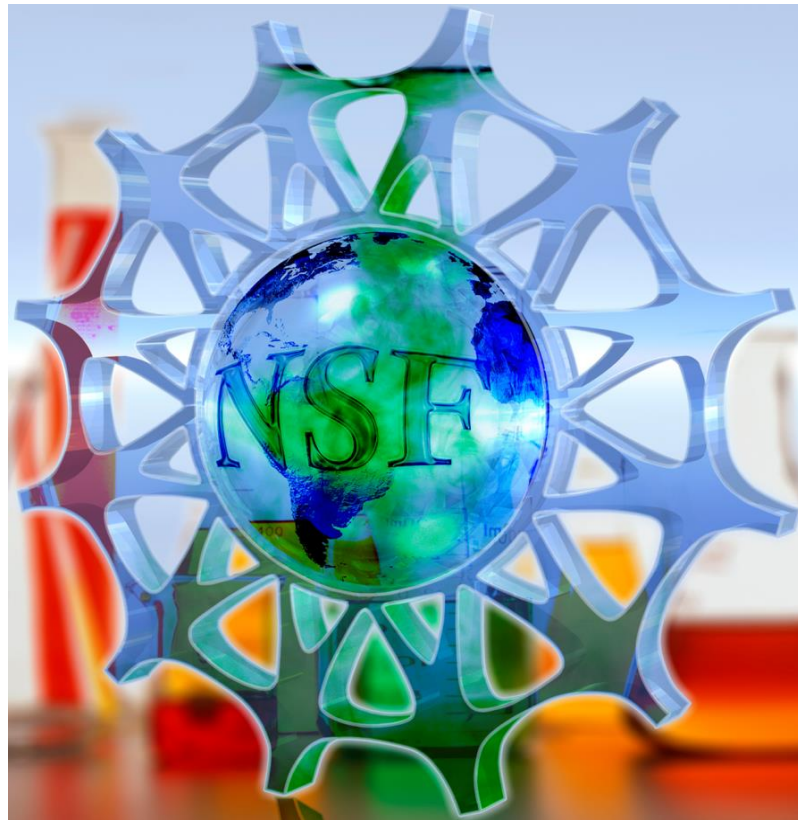
*C. Michelle Jenkins*



# PAPPG – Proposal and Award Policies and Procedures Guide



Read the PAPPG, and then  
Read it Again. Repeat.





## A bit of vocabulary

- The **Proposal and Award Policies and Procedures Guide** (PAPPG) describes all of the requirements and review criteria for an NSF proposal.
- The PAPPG requirements must be followed when writing and assembling a proposal.
- Proposals submitted to a **program description** during a division's submission window are called, "**unsolicited.**"
  - Even though a proposal may be called "unsolicited," that does not imply unwanted!



## A bit of vocabulary

- A **solicitation** is a document describing a specific competition that has different requirements than in the PAPPG.
- The proposal formatting and procedures guidelines in the PAPPG must be followed unless instructions the solicitation supersede the PAPPG
- Solicitations can be ongoing or one-time competitions.
- CAREER, MRI and REU are examples of solicitations and have specific rules.



# Read the CAREER Solicitation, and then Read it Again



# Format Requirements in the CAREER Solicitation

*CAREER proposals have a few special requirements.  
Search “NSF career” to get the solicitation (NSF 17-537)*

- **Title page:** select CAREER for program solicitation and start your title with “CAREER:”
- **Project Description:**
  - *Include description of the proposed educational activities, including plans to evaluate their impact*
  - *Describe how the research and educational activities are integrated with one another*
- **Additional Documents:**
  - ***Department letter is required.*** Typically from the Chair, it must state that the PI is eligible for a CAREER award. See solicitation for more details.



## Important Tips:

- **Read solicitation and follow instructions carefully.**
- **Reference the NSF Proposal and Award Policies and Procedure Guide (PAPPG ).**
- Talk to a Program Director (good advice in general).
- Read the award abstracts of what has already been funded at NSF.



**Upcoming CAREER Deadline: [July 20, 2018](#)**  
**Must be submitted by 5pm submitters local time.**

**An eligible principal Investigator may submit only one CAREER proposal per annual competition.**

**Three attempts total are allowed, and no more than one award.**



# Presidential Early Career Awards for Scientists and Engineers (PECASE)

*Tingyu Li*

- *Be a U.S. citizen, national, or permanent resident*
- *You can not apply for it*
- *First two year CAREER awardees nominated by NSF*
- *Check the citizenship box on PI info*
- *Keep program officer informed of your great work*
- *Submit a well written first annual report*



Part II: I have a research idea. How do I go about writing a proposal?

Step 2: Some advice about proposal writing.

*Tarek Sammakia*





# Be Direct About Your Research Idea, Why You Want to Do it and How You Plan to Do it.

*Pay attention to:*

- 1. Scope and focus of the project.*
- 2. Risk / novelty / innovation. There is a risk / reward balance.*
- 3. Feasibility and contingency plans.*
- 4. CAREER: Integration of Research with Education Plan.*



# Yes, Proposals Should Be Scholarly and Thoughtful, BUT Proposals Should Be Easy to Understand.

- 1. Remember that not all panelists will be experts in your area.*
- 2. Graphics are important and it is essential that they are clear.*

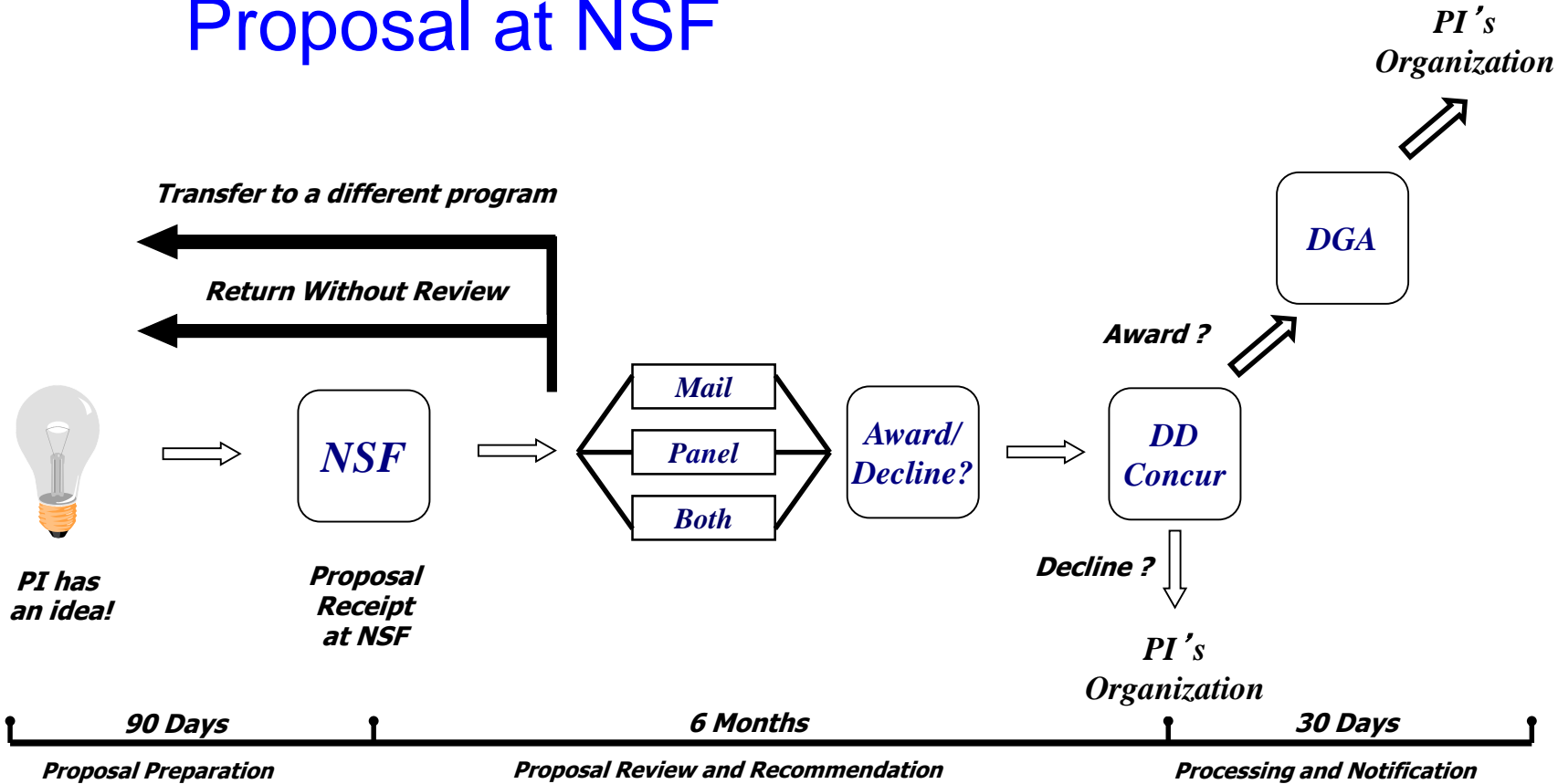


Part II: I have a research idea. How do I go about writing a proposal?

Step 3: Know how the proposal will be reviewed.



# The Life Cycle of a Proposal at NSF



# The Review Process

## 1. Internal Review

1. Compliance
2. Program Fit (CHE Programs [here](#))
3. Overlap or Duplication

## 2. Merit Review

1. “*ad hoc*” review (~3 to 4 reviews) – send proposal to reviewers; reviewers return written comments and ratings via FastLane
2. Panel review (~3 to 4 reviews and a panel summary) – send proposal to panelists; panelists attend a meeting to discuss and rank proposals
3. Combination “*ad hoc*” and panel review.

## 3. Program Discussions (portfolio balance)



# A Typical Reviewer Approach

1. Read title. Quick look at Cover Page. Flip through figures.
2. Read Project Summary.
3. Skim through the proposal. First impressions: What is the area of research? What is the approach? What is novel? What are the weaknesses? What are the broader impacts?
4. First pass read through.
5. Sit down with the proposal and give it a thorough reading.



# The NSF Merit Review Criteria – Worth Understanding in Depth



# Merit Review Principles: Intellectual Merit

*“All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.”*

- The Intellectual Merit is the contribution that your research makes to the knowledge base and how that impacts the field
- Questions:
  - What is already known and what will your research add?
  - How important is your contribution?
  - How might the results of your research enhance or enable research in its field or other fields?
  - How might your results be “transformative”?





# Merit Review Principles: Broader Impact

*“NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These broader impacts may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.”*

- The Broader Impact focuses on the benefit to society at large as a result of your research project



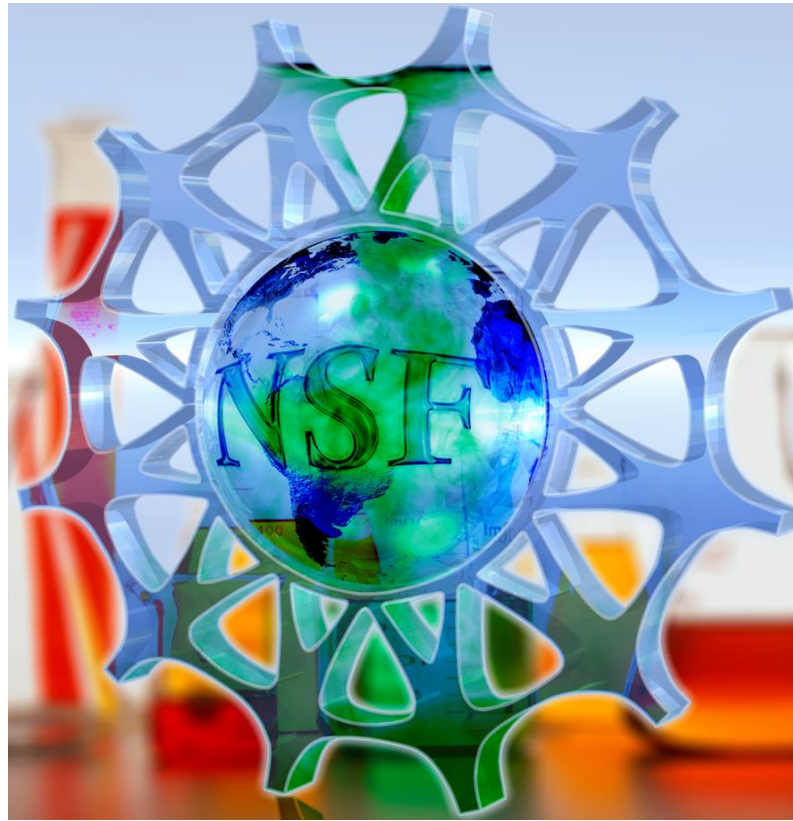
# Merit Review Criteria

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to:
  - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
  - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?



Every Year, We Decline More Good  
Science Ideas than We Are Able to  
Fund.





One final piece of advice.

Calling a Program Director Can Be  
Very Helpful, BUT Prepare  
Beforehand!

A free form discussion will not serve  
your interests.





Questions?