

Preparing for Proposal Writing

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- General advice (any agency, any program)
- Proposals to NSF
- NSF website demo

Part of this presentation was developed by other NSF staff, especially Dr. Wendy Fuller-Mora.



Key Points

- Where to submit
- Content of the proposal
- How to be competitive
- If your proposal is not funded
- What you can do now



Where to submit

- Sounds simple: decide what you want to do; find out who funds it
 - ♦ Who funds your colleagues
 - ◆ Acknowledgments in papers
 - ◆ Grants offices often track new requests for proposals: get on the mailing list
- If there are several options (e.g. NASA, NSF, DoD, DoE, ...) submit several proposals. NSF does not allow submission of identical proposals to different NSF programs. Must list proposals also submitted to other agencies.
- Find the right program(s) within an agency: Don't send an electrical engineering proposal to the gravitational theory program.
- Find the guidelines for the program you select. (Your grants office can help.)

Content of the Proposal

- Basic principles
 - ◆ Explain clearly what you want to do: reviewers should not have to guess
 - ◆ Why is your project important: you are competing for priority with other proposals
 - ♦ Why are you the person to do it: what have you done before? what unique facilities or equipment do you have access to?
- Follow the guidelines (call / request for proposals, solicitation, NSF Grant Proposal Guide). Failure to follow guidelines even at the level of font size or reference format could lead to return of the proposal without review. **Don't miss the deadline!**
- Check that you have provided all the required information.
- Align the budget with the proposed activities.
- Proofread!



- Place your proposed project in context: What is the current state-of-theart? What are the major questions you are trying to answer? Cite all relevant previous work others have done. Assume reviewers are experts but not necessarily in all the details of your project.
- Try hard to convey your excitement about the project in the proposal.
 How will the field advance and/or society benefit if your project is successful? What is the breakthrough you envision?
- Don't be overly modest. A proposal is the place to mention your previous achievements.
- Make sure your proposal is readable. Reviewers may be put off by tiny fonts and incomprehensible figures. Ask a funded colleague to provide a detailed critique of your draft: be sure to leave time for this!



- **Don't be discouraged.** Recognize that most proposals that are turned down describe worthwhile science. Success rates are often very low. Keep trying.
- Read the reviews carefully. Ask colleagues to read the reviews. Make sure you understand what reviewers objected to.
- Discuss your reviews with the program officer if you have any questions or think you might have submitted to the wrong program.
- Resubmissions should address all issues raised by reviewers. The next set of reviewers may be different. New concerns may arise. The same concern should not arise.
- Replanning your project may be necessary.



- Ideas on where to submit: How are you funded? How is your supervisor funded? What agency or agencies? What programs?
- Ask to read one or more successful proposals. What is the "culture" in the funding program? What do reviewers for that program expect to see in a proposal? E.g., Gravitational Experiments reviewers expect to see a detailed, quantitative analysis of potential systematic errors.
- Offer to help write a proposal.
- Become as visible as possible in your field: conferences, publications
- Teaching and giving talks helps you learn to explain clearly.



NSF

NSF Web Site: www.nsf.gov





- Established in 1950
 - Blueprint: Vannevar Bush's Science: the Endless Frontier
- Mission: Promote the progress of science
 - NSF Act of 1950
 - Broad definition of science to include engineering
- Supports research and education in all disciplines of the natural and social sciences, mathematics and engineering



NSF strategic goals

Discovery

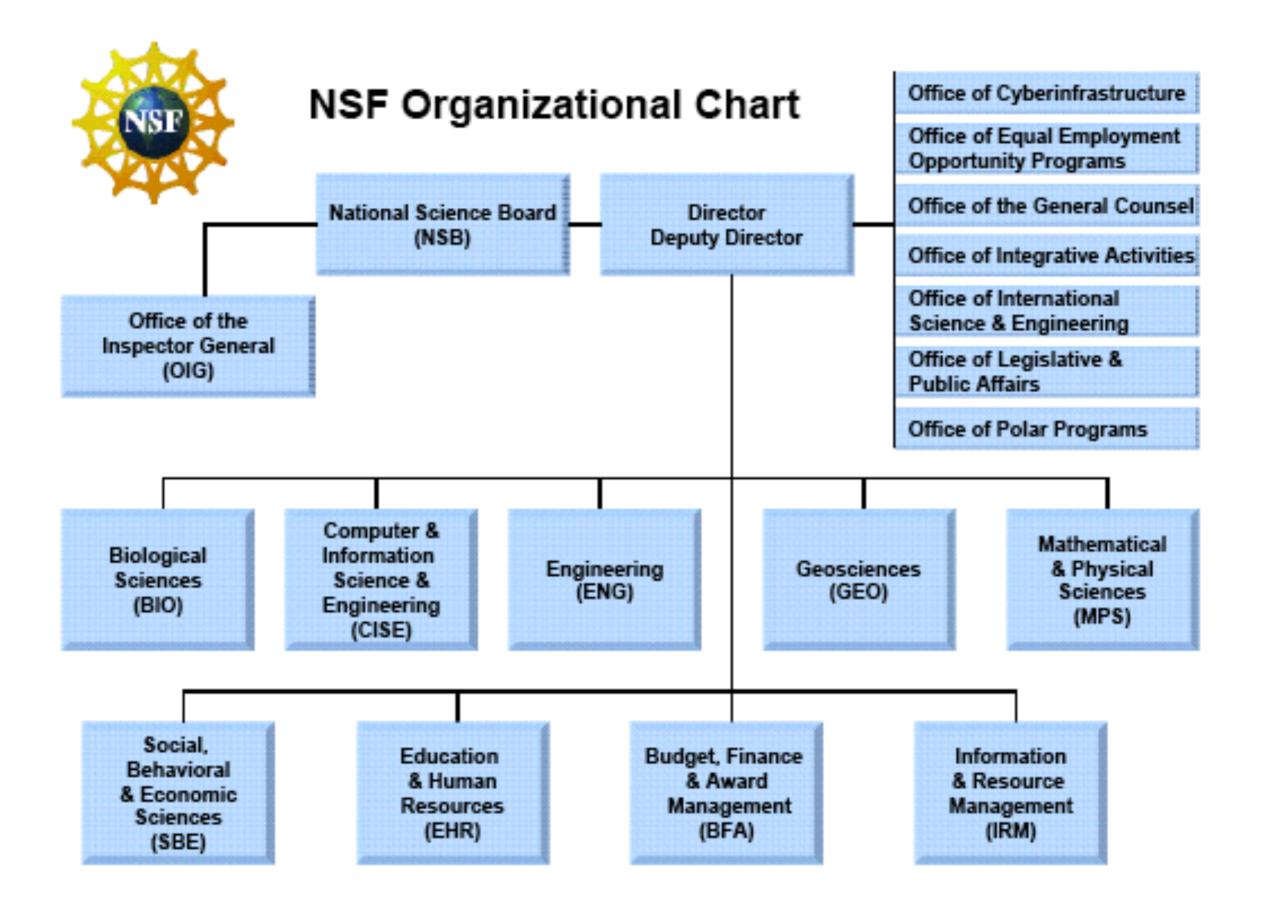
- Foster research that will advance the frontiers of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational Science and Engineering (S&E).

Learning

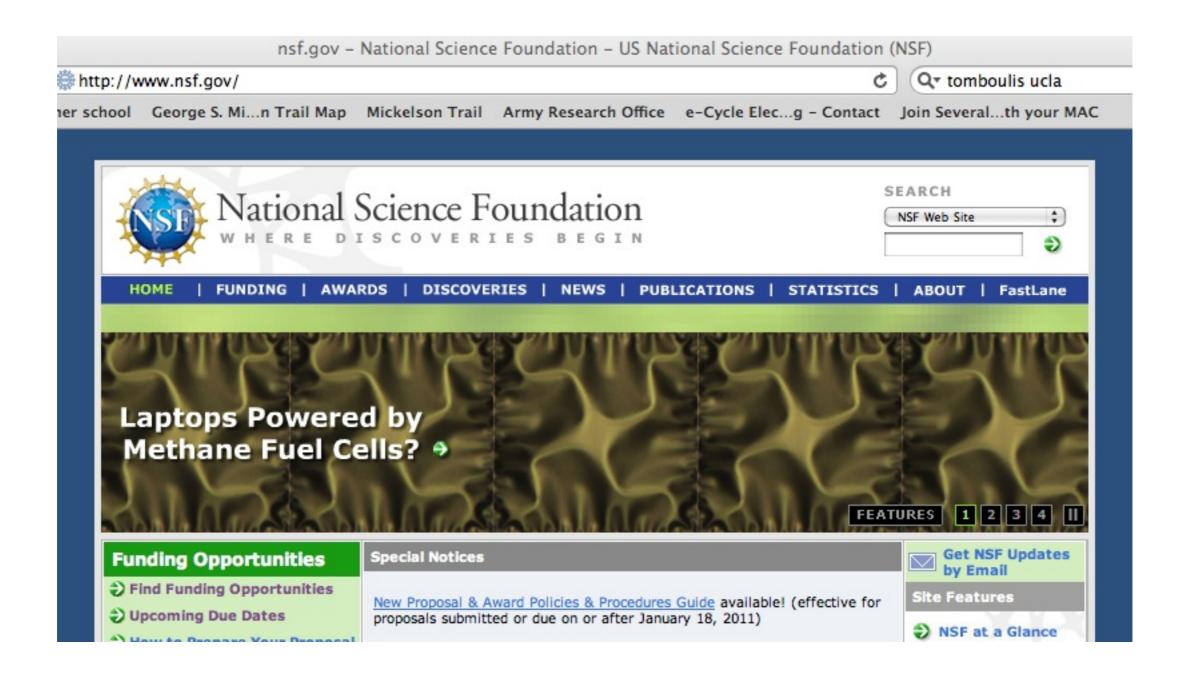
 Cultivate a world-class, broadly inclusive S&E workforce, and expand the scientific literacy of all citizens

Research Infrastructure

 Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure, and experimental tools.



Where to submit???



HOME | FUNDING | AWARDS | DISCOVERIES | NEWS | PUBLICATIONS | STATISTICS | ABOUT | FastLane

Award Search

Awardee Information Program Information Search All Free-Text Search All Fields

earch Award For:	string theory	
estrict to Title Only:		
Awardee Information		
incipal Investigator		
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Historical data is fro	m prior to 1976. This data may n	
ve and Expired Award		

Search Results

Back

Results are sorted by award date, with the most recent awards at the top. Click on a column heading to re-sort the results.

The up/down arrows at the right of each column title control whether the sort is ascending or descending.

To view the abstract, click on the award number or title. Click on the data in other columns to perform a new search with that parameter.

Refine Search

297 awards found, displaying 1 to 50.

[First/Prev] 1, 2, 3, 4, 5, 6 [Next/Last]

DC: Small: Accelerating Large-

Award Number	<u>Title</u>	NSF Organization	Program(s)	Start Date	† Principal Investiga	ator	Organization	Awarded Amount to Date
0969910	Aspects of String Theory Cosmology	PHY	ASTROPHYSICS & COSMOLO	OGY 10/01/2010	Blanco-Pillado, Jose 3	Juan MA	Tufts University	\$20,000.00
1001296	The Particle Physics and Cosmology of Supersymmetry and String Theory	PHY	ELEMENTARY PARTICLE TH	EORY 10/01/2010	Ovrut, Burt	PA	University of Pennsylvania	\$60,000.00
0969020	Quantum Field Theory of Elementary Particles	PHY	ELEMENTARY PARTICLE TH	EORY 10/01/2010	Weinberg, Steven	TX	University of Texas at Austin	\$230,000.00
0969919	Open Strings	PHY	MATHEMATICAL PHYSICS, ELEMENTARY PARTICLE TH	10/01/2010	Rastelli, Leonardo	NY	SUNY at Stony Brook	\$55,000.00
0946452	Strings 2010 Conference held in Collge Station, TX	PHY	MATHEMATICAL PHYSICS, ELEMENTARY PARTICLE TH	10/01/2010	Becker, Katrin	<u>TX</u>	Texas A&M Research Foundation	\$10,000.00
0969739	Theoretical Physics	PHY	ELEMENTARY PARTICLE TH NUCLEAR THEORY	10/01/2010	Sterman, George	NY	SUNY at Stony Brook	\$410,000.00
1062170 104	Genome Structure and Variation Workshop to be held in the summer 2011 at Rutgers Center for Discrete Mathematics and Theoretical Computer Science (DIMACS). Combinatoric	<u>MC6</u>	Genetic Mechanisms	10/01/2010	Roberts, Fred	<u>LN</u>	Rutgers University New Brunswick	\$36,190.00
096	RUI: Aspects Local Dynami Theory		DHV	ELEMENTARY PA	ARTICLE	09/15/2010	Sahakian, Vatche	<u>CA</u> <u>Ha</u>
100	Some Analyt 01777 of the Theory Integrable Sy	of of	DMS	ANALYSIS PROC	GRAM	09/15/2010	Its, Alexander	<u>IN</u> <u>Inc</u>
103 100	07414 Applications to Physics based Sensing and		DMS COMMS, CIRCUITS & SENS	GEOMETRIC AN	ALYSIS Wu, Min	09/15/2010	Morrison, David University of Maryland College Park	CA Uni Bai
1029/03	Communications	ECCS	COMMS, CIRCUITS & SENS	09/15/2010	WU, PIIII	HU	Offiversity of Planyland College Park	\$344,330.00

Award Abstract #0968726

RUI: Aspects Of Non-Local Dynamics In String Theory

NSF Org: PHY

Division of Physics

Initial Amendment Date: September 8, 2010

Latest Amendment Date: September 8, 2010

Award Number: 0968726

Award Instrument: Standard Grant

Program Manager: Keith R. Dienes

PHY Division of Physics

MPS Directorate for Mathematical & Physical Sciences

Start Date: September 15, 2010

Expires: August 31, 2013 (Estimated)

Awarded Amount to Date: \$60000

Then call the program officer!

	CLAKEMONT, CA 91/11 909/621-8121			
NSF Program(s):	ELEMENTARY PARTICLE THEORY			
Field Application(s):				
Program Reference Code(s):	9229			
Program Element Code(s):	1286			

ABSTRACT

Non-local dynamics is an emerging interest in physics across many disciplines, from condensed matter physics to particle physics to quantum gravity. This project explores the effects of non-local dynamics as realized in the context of a certain class of string theory models of particular interest to cosmology. The string theory embedding of these models



NSF review criteria

1. 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, please 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 the necessary resources?

2. 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?



Additional factors

Along with the advice provided by reviewers/panels,

"NSF staff will give careful consideration to the following in making funding decisions:"

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects and activities it supports at academic and research institutions. ...

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens, women and men, underrepresented minorities, and persons with disabilities, are essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.



Proposal structure

- Cover Sheet
- Project Summary must separately address intellectual merit and broader impacts
- Table of Contents
- Project Description: Research and Broader Impacts
- References
- Biographical Sketches
- Budget
- Current and Pending Support
- Facilities, Equipment, and Other Resources
- Special Information and Supplementary Documentation:
 - Short letters of commitment to collaborate NOT Support
 - Postdoc Mentoring Plan
 - Data Management Plan



Proposal requirement: postdoc mentoring plan

"...each proposal that requests funding to support postdoctoral researchers must include a description of the mentoring activities that will be provided for such individuals. Proposals that do not comply with this requirement will be returned without review..."

Guidelines: What mentoring did you find helpful? What would you have liked in addition?

This plan should be submitted as a 1 page supplementary document.



NSF data policy

Dissemination and Sharing of Research Results

- a. Investigators are expected to promptly prepare and submit for publication, with authorship that accurately reflects the contributions of those involved, all significant findings from work conducted under NSF grants. Grantees are expected to permit and encourage such publication by those actually performing that work, unless a grantee intends to publish or disseminate such findings itself.
- b. Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing. Privileged or confidential information should be released only in a form that protects the privacy of individuals and subjects involved. General adjustments and, where essential, exceptions to this sharing expectation may be specified by the funding NSF Program or Division/Office for a particular field or discipline to safeguard the rights of individuals and subjects, the validity of results, or the integrity of collections or to accommodate the legitimate interest of investigators. A grantee or investigator also may request a particular adjustment or exception from the cognizant NSF Program Officer.
- c. Investigators and grantees are encouraged to share software and inventions created under the grant or otherwise make them or their products widely available and usable.
- d. NSF normally allows grantees to retain principal legal rights to intellectual property developed under NSF grants to provide incentives for development and dissemination of inventions, software and publications that can enhance their usefulness, accessibility and upkeep. Such incentives do not, however, reduce the responsibility that investigators and organizations have as members of the scientific and engineering community, to make results, data and collections available to other researchers.
- e. NSF program management will implement these policies for dissemination and sharing of research results, in ways appropriate to field and circumstances, through the proposal review process; through award negotiations and conditions; and through appropriate support and incentives for data cleanup, documentation, dissemination, storage and the like.



NSF data management plan requirement

- Plans for data management and sharing of the products of research. Proposals must include a
 supplementary document of no more than two pages labeled "Data Management Plan". This
 supplement should describe how the proposal will conform to NSF policy on the dissemination
 and sharing of research results (see <u>AAG Chapter VI.D.4</u>), and **may** include:
 - the types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project;
 - the standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
 - policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements;
 - policies and provisions for re-use, re-distribution, and the production of derivatives; and
 - plans for archiving data, samples, and other research products, and for preservation of access to them.



NSF data management plan guidance

http://www.nsf.gov/bfa/dias/policy/dmp.jsp

National Sci	ience Four	dation		NSF W	eb Site	†			
WHERE DIS						Q			
Home Funding Awards	Discoveries	News	Publications	Statistics	About	FastLane			
Office of Budget, Finance and Award Management (BFA)	Dissemina	tion an	d Sharing	of Resea	rch Re	sults			
DIAS Home	NSF Data Sharing Policy Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing. S Award & Administration Guide (AAG) Chapter VI.D.4.								
CAAR Branch Policy Office Systems Office View DIAS Staff	document of no m	ed or due or ore than two	or after January 1 pages labeled "Da	ata Managemen	t Plan". This				
earch DIAS Staff PA Organization	supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. See Grant Proposal Guide (GPG Chapter II.C.2.j for full policy implementation.								
Office of Budget, Finance, & Laward Management Studget Division Division of Acquisition and Cooperative Support	Links to data mana Offices, Divisions,	agement red Programs, d not provided	e, Office, Division quirements and plan or other NSF units, I, then the requirer	ns relevant to s are provided be	pecific Direc	torates, ance specific			
Division of Financial Management Division of Grants & Agreements	Please note that if a specific program solicitation provides guidance on preparation of data management plans, such guidance must be followed. • Education & Human Resources Directorate (EHR)								
Division of Institution & Award Support	Directorate-wide Guidance Engineering Directorate (ENG) Directorate-wide Guidance Geosciences Directorate (GEO) Directorate-wide Guidance								
	Mathematic	al and Phys	ical Sciences Direct	torate (MPS)					



NSF data management plan guidance

http://www.nsf.gov/bfa/dias/policy/dmp.jsp

PHYSICS DIVISION GUIDANCE:

...The goal is to provide clear, effective, and transparent implementation of the long-standing NSF Policy on Dissemination and Sharing of Research Results, which may be found in the Award Administration Guide, Section VI.D.4. This policy states:

• • •

MPS-supported research covers a broad spectrum of communities of investigators, from individual investigators on experimental and theoretical topics to support for users at national and international facilities to large national and international collaborations of investigators involving tens or hundreds of individuals.

MPS Divisions will rely heavily on the merit review process in this initial phase to determine those types of plan that best serve each community and update the information accordingly.

The Physics Division is not in a position to recommend a Division-specific single data sharing and archiving approach applicable to the disparate communities supported through the Division. The Division will rely on the process of peer review to allow each of these communities to identify best practices.

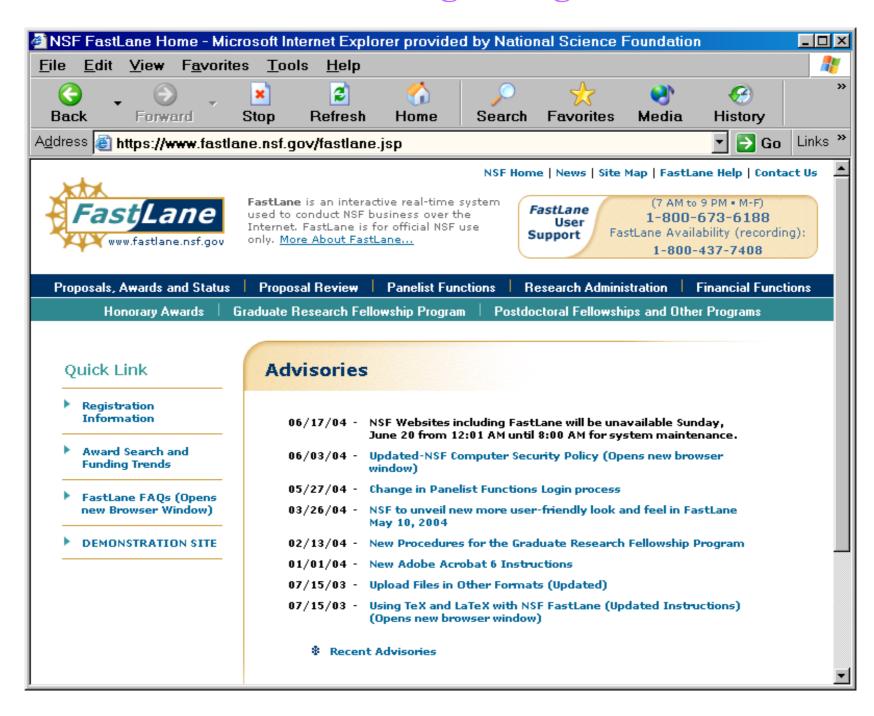
Physics Division PIs should include in their Data Management Plan those aspects of data retention and sharing that would allow them to respond to a question about a published result. If there is no such data, this should be stated.

Members of formal collaborations may refer to the collaboration's existing policies and practices.

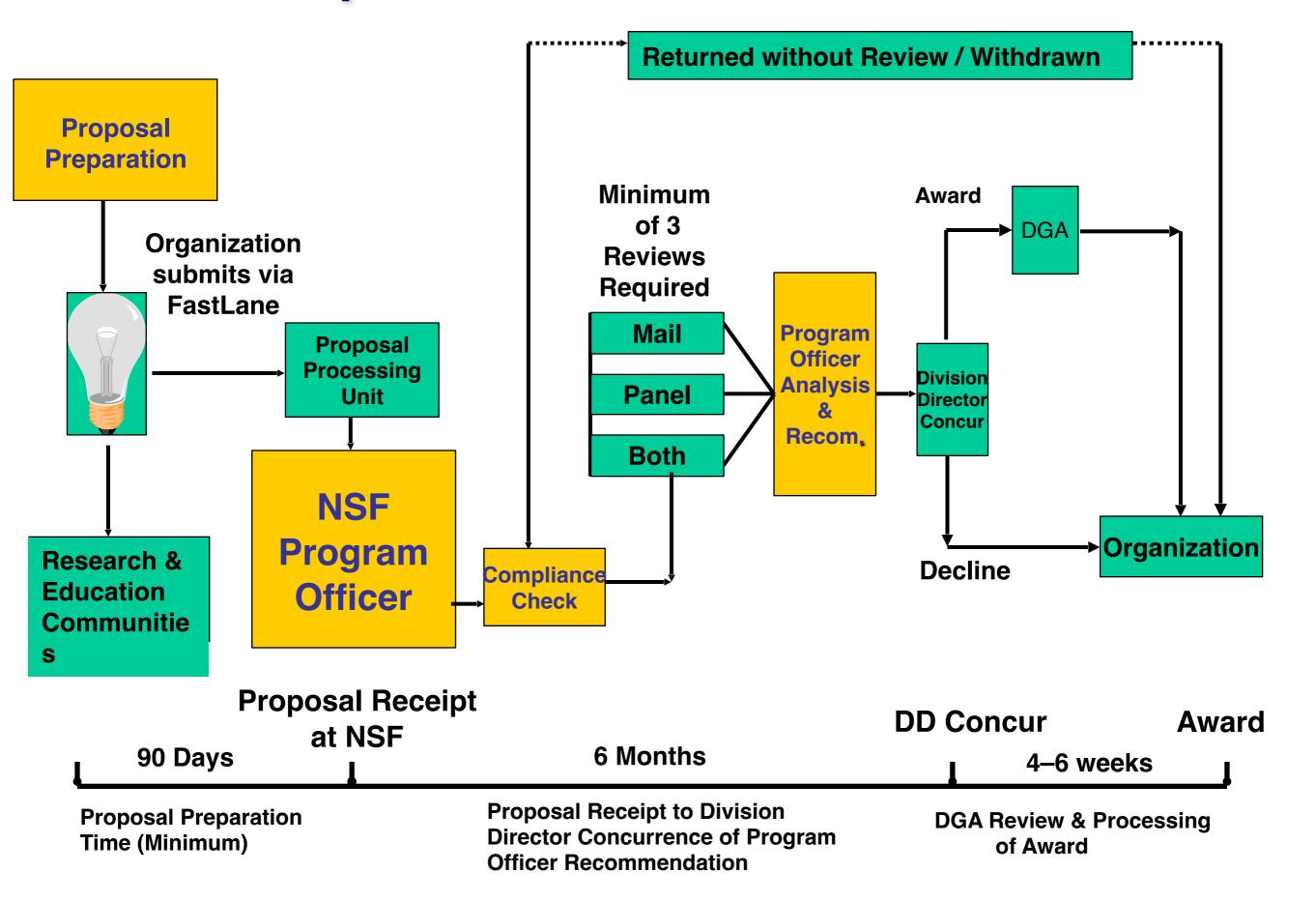


Submit via Fastlane or grants.gov

Web Sites: www.fastlane.nsf.gov www.grants.gov



NSF Proposal & Award Process + Timeline





Faculty Early Career Development Program NSF 11-690

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503214&org=NSF&sel_org=XCUT&from=fund

- NSF's most prestigious awards in support of junior faculty exemplifying the role of teacher-scholar.
- Enhances and emphasizes the importance of balanced academic careers
- Career development plan to integrate research and education.
- Different NSF units and programs have different expectations for the plan to integrate research and education.
- Many examples of innovative education and/or outreach programs have arisen through CAREER awards.
- Propose something you really want to do; augmenting ongoing activities in your department is acceptable in some NSF programs.



- **LLIGIBILTY:**
 - As of Directorate Deadline
 - Hold doctorate in field supported by NSF
 - Be untenured
 - Not previously received an NSF PECASE or CAREER award
 - Have not competed more than two times in NSF CAREER Program
 - As of October 1 of submission year be employed
 - In a tenure-track (or equivalent) position at US academic institution or US non-profit, non-degree granting organization
 - As an Assistant Professor (or equivalent)

ASSOCIATE PROFESSORS WITH or WITHOUT TENURE ARE NOT ELIGIBLE



- SIZE
 - Lower Limit \$400K (total)
 - Upper Limit non specified
 - BIO Directorate: \$500K (total) minimum
- DURATION
 - 5 Years
- **SUPPLEMENTS**
 - Standard NSF supplements (see GPG)
- PECASE
 - HONORARY ONLY



- DEPARTMENTAL ENDORSEMENT LETTER: (About One Page)
 - Returned without Review if Missing
- LETTERS OF COMMITMENT/COLLABORATION (if needed):
 - Short
 - Describe collaborative efforts
 - Not recommendation/endorsement
- **DEADLINES**:
 - July 27, 2011 for MPS, GEO, SBE, OPP
 - July 26, 2011 for ENG
 - July 25, 2011 for BIO, CISE, EHR



Last words

- Don't wait until the deadline to submit
- Download and Print the PDF file after finishing and double-check the font size, diagrams, etc
- Different Program Officers may handle things differently but you are always safer if you follow GPG and solicitation guidelines
- Get someone else (with experience) to read the proposal, and leave your ego behind



- NSF updates
- Award database
- Program websites
- Solicitations
- Fastlane
- Website for success rates:

http://dellweb.bfa.nsf.gov/starth.asp

click on *Summary Proposal and Award Information (Funding Rate) by State and Organization*