The View from NSF

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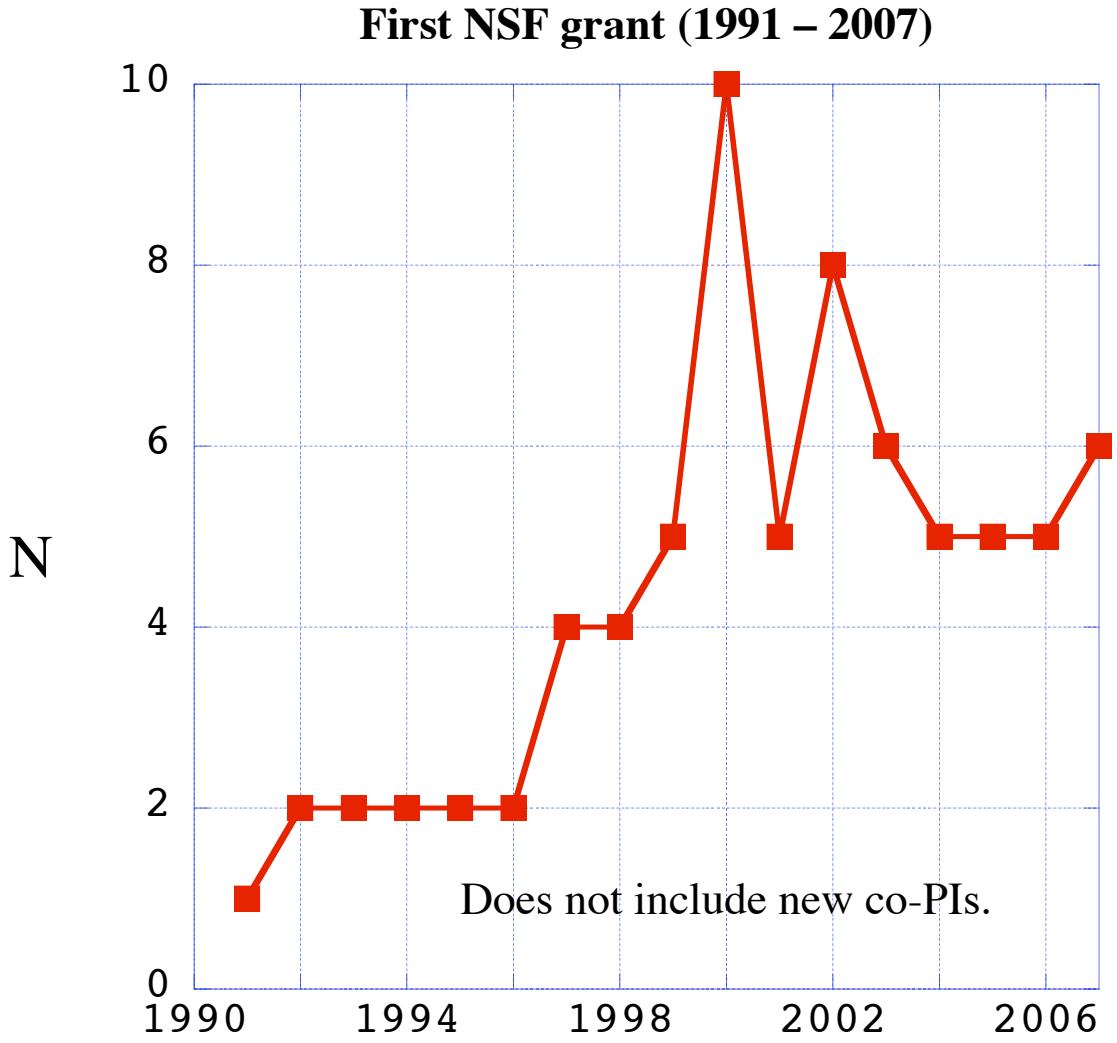
- Gravity Program Overview
- Other NSF support for Gravity
- Funding Trends
- Proposal Advice

Gravitational Physics

- Sub-programs
  - LIGO Laboratory
  - Gravitational Theory
  - Gravitational Experiments
  - LIGO Research Support (LSC) New name!!
- Topics
  - Gravitational Wave Research
  - Tests of Fundamental Physics
  - Cosmology
  - Classical and Quantum Gravity Theory

New Investigator Trends



Other gravity support at NSF

- Physics Division
  - Particle & Nuclear Astrophysics + Theory
  - Physics at the Information Frontier (PIF)
  - **Physics Frontier Centers**: Pre-proposal Aug. 29.
- Astronomy Division
- Mathematical Sciences Division
- Office of International Science & Engineering
- Office of Cyberinfrastructure

Other programs at NSF

- Major research instrumentation (MRI)
- Focused Research Groups in Mathematics and Science
- International collaborations
- International graduate fellowships
- Communicating research to public audiences
- Computer infrastructure?

Budget FY 2007

($M)

	NSF	MPS	PHY	Gravity
FY2006	5581	1085	233.1	43.16
FY2007	5917	1150	248.5	45.68
Δ	6%	6%	6.6%	5.8%

Gravity in detail for FY 2007

($M)

	PHY GP	LIGO Lab	Core PI
FY2006	43.16	31.68	11.48
FY2007	45.66	33.00	12.68
Δ	5.8%	4.2%	10.4%*

*Includes support for LIGO Data Grid and move of panel support to Divisional account. “True” increase is 4.0%.

Gravity Program Priorities

In a growing field with flat or declining Gravity Program budgets, only “high priority” proposals have a good chance for support.

• Highest priorities are LIGO / AdvLIGO critical path and / or research in any area of gravitational physics with the potential to influence the direction of the field.

• Other priorities are relevance to LIGO, important gravitational physics, broadening participation, and unusual educational or outreach broader impact.

President's request FY 2008

($M)

	NSF	MPS	PHY	LIGO	AdvLIGO
FY2007	5917	1150	248.5	33.00	0
FY2008	6429	1253	269.1	28.20	32.75
Δ	8.6%	9.0%	8.3%		

This request is working its way through Congress.
The news so far is positive.

American Competitiveness Initiative

Leading the World in Innovation

Domestic Policy Council
Office of Science and Technology Policy

February 2006

Figure 1: ACI Research Funding, 2007-2016.

	FY 2006 Funding	ACI Research FY 2007		ACI Research FY 2016	
	(billions of dollars)	(billions of dollars)	% increase	(billions of dollars)	% increase over FY06
NSF	$5.58	$6.02	7.8	$11.16[1]	100.0
DoE SC	$3.60	$4.10	14.0	$7.19[1]	100.0
NIST Core[2]	$0.57[3]	$0.54	-5.8[4]	$1.14[1]	100.0
TOTAL	$9.75	$10.66	9.3	$19.49	100.0

[1] ACI doubles total research fund; individual agency allocations remain to be determined.
[2] NIST core consists of NIST lab research and construction accounts.
[3] The 2006 enacted level for NIST core includes $137 million in earmarks.
[4] Represents a 24 percent increase after accounting for earmarks.

FY 2008 Budget Priorities

NSF-wide:

Cyber-enabled Discovery and Innovation (CDI): MPS will join other directorates in achieving the CDI objective of developing a new generation of computation-based discovery concepts and tools to deal with complex, data-rich, and interacting systems.

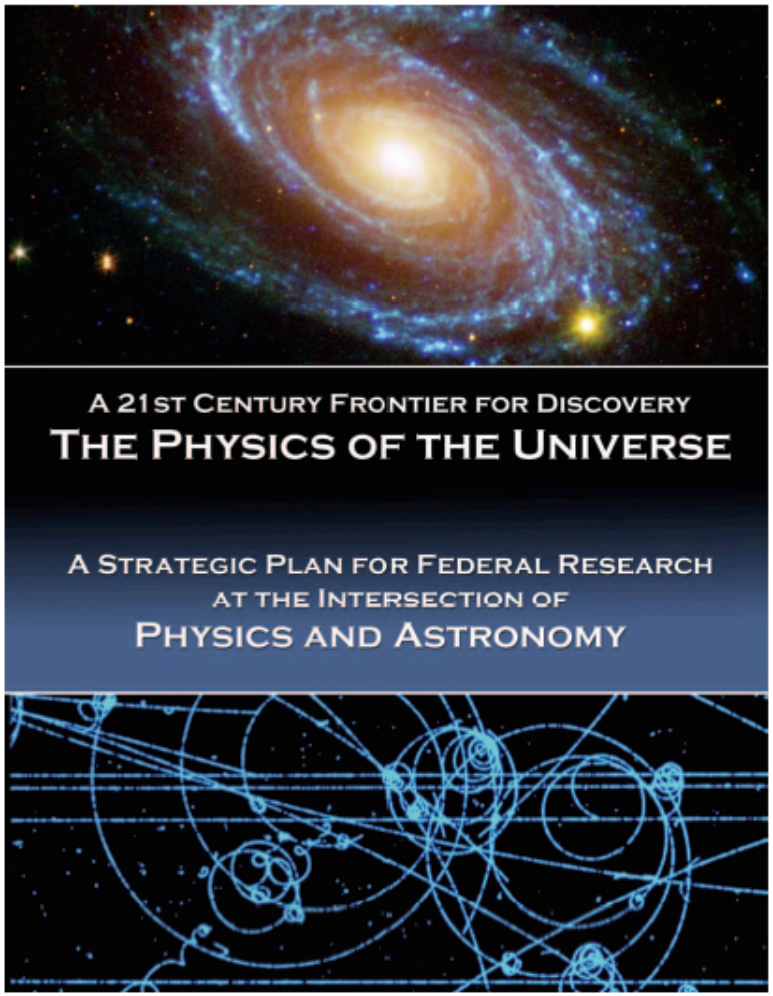
Physics Division:

- **A strong, flexible program of research and education grants to create new ideas and technology and attract and train students** is the highest priority in overall stewardship of the portfolio.

- **Elementary Particle Physics (EPP) Investment**. The opportunities for discovery in EPP and the challenges to addressing them are greater than at any time in the last half-century.

- **Physics of the Universe (POU)**, the highest scientific priority, addresses the compelling questions that have arisen at the interface of physics and astronomy

Physics of the Universe



Gravity

* NSF, NASA, and DOE will strengthen numerical relativity research in order to more accurately simulate the sources of gravitational waves.
* The timely upgrade of Laser Interferometer Gravitational wave Observatory (LIGO) and execution of the Laser Interferometer Space Antenna (LISA) mission are necessary to open this powerful new window on the universe and create the new field of gravitational wave astronomy.

Proposal Advice

TARGET DATE: SEPTEMBER 26, 2007!!!!!!

No late proposals accepted without prior permission.

SUBMIT TO LIGO RESEARCH SUPPORT.

Submit to "Dear Colleague Letter (NSF 07-036)" or "Program Description (PD 06-1244)" if at all possible. DO NOT SUBMIT TO GPG unless absolutely necessary.

If this is your first proposal or a previous proposal was declined, seek mentoring. If you are an experienced grantee, offer mentoring.

Proposal Review

Step 1: With PI permission, proposal is sent to the LIGO Lab for review: (1) importance to LIGO/AdvLIGO; (2) quality of gravitational wave science; (3) track record of PI and/or group in LSC; (4) impact, if any, on LIGO Lab resources.

Step 2: Normal NSF review by panel: (1) intellectual merit; (2) broader impact. Usually, they will have access to the LIGO Lab review.

NSF panelists are unlikely to be GW scientists: (1) include a general introduction in proposal; (2) clearly explain relevance of proposed activities to LIGO/AdvLIGO; (3) include copy of most recent MOU with LIGO Lab if available; (4) include pointers to any relevant LSC white papers.

Proposals and Timelines

End of S5 plus starts of AdvLIGO and enhanced LIGO mean that proposers should discuss the alignment of their proposed research with relevant LIGO/AdvLIGO timelines.

Examples:
(1) This data analysis activity will continue during the 3 years covered by this proposal (even though S5 has ended) because ...
(2) R&D activity ABC will continue until AdvLIGO's EFG happens (expected in year 2). The group will then focus on XYZ.
(3) This R&D program's goal is enhancement to AdvLIGO after the initial construction phase.

Call or email if you have questions.
P.S. I expect to be on vacation from 18 August through 9 September.