



# The View from NSF

LSC Meeting – August 2005

**Beverly K. Berger**

National Science Foundation

- Introduction
- Budget for FY 2005, prospects for FY 2006 and beyond
- Advanced LIGO
- Proposal submission: advice and instructions

LIGO-G050339-00-0



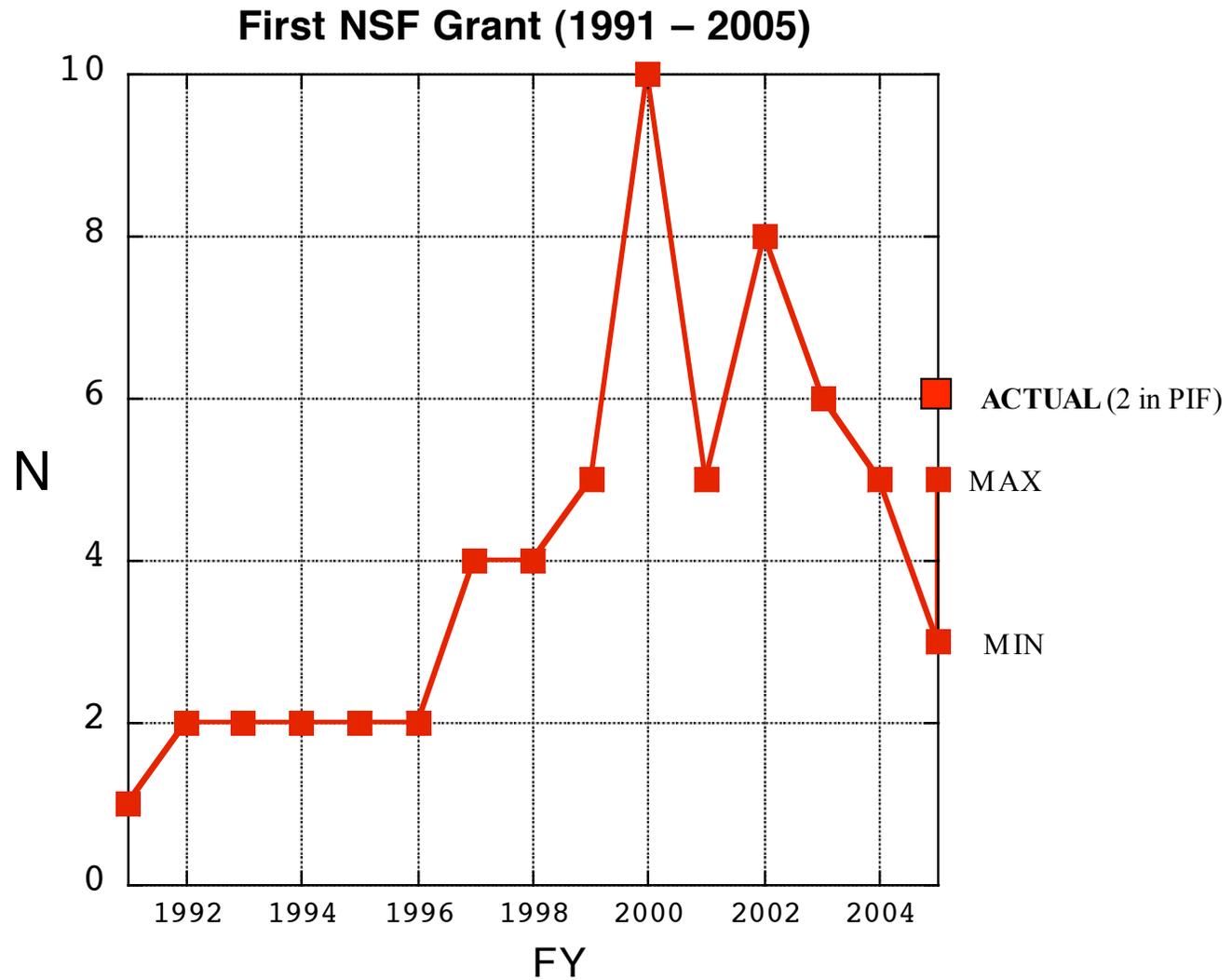
# Gravitational Physics Program

- Research related to gravitational waves
- Experiments to test gravitational theories
- Experiments to test particle physics and string theory via equivalence principle violations and deviations from  $1/r^2$
- Theoretical research in classical and quantum gravity

Beverly Berger, Program Director, Gravitational Physics  
Tom Lucatorto, Program Director, LIGO  
Joe Dehmer, Division Director, Physics



# Growth of the program





# Budget FY 2003

(\$M)

	NSF	MPS	PHY	Gravity
FY2002	4789	922	195.9	38.5
FY2003	5310	1041	224.5	44.5
$\Delta$	10.9%	12.9%	14.6%	15.6%



# Budget FY 2004

**(\$M)**

	NSF	MPS	PHY	Gravity
FY2003	5369	1041	224.5	44.47
FY2004	5652	1092	227.7	44.00
$\Delta$	5.3%	4.9%	1.4%	-1.0%



## Gravity in Detail for FY 2004

(\$M)

	PHY GP	LIGO Lab	LSC + Other (Core PI)
FY2003	44.47	33.00	11.47
FY2004	44.00	33.00	11.00
$\Delta$	-1.0%	0%	-4.1%



# Budget FY 2005

(\$M)

	NSF	MPS	PHY	Gravity
FY2004	5652	1092	227.7	44.00
FY2005	5473	1070	224.9	42.96
$\Delta$	-3.2%	-2.0%	-1.2%	-2.4%

March 2005



# Budget FY 2005

(\$M)

	NSF	MPS	PHY	Gravity
FY2004	5652	1092	227.7	44.00
FY2005	5473	1070	224.9	43.26
$\Delta$	-3.2%	-2.0%	-1.2%	-1.7%

August 2005



# Gravity in Detail for FY 2005

(\$M)

	PHY GP	LIGO Lab	LSC + Other (Core PI)
FY2004	44.00	33.00	11.00
FY2005	42.96	32.00	10.96
$\Delta$	-2.4%	-3.0%	-0.4%

March 2005



## Gravity in Detail for FY 2005

(\$M)

	PHY GP	LIGO Lab	LSC + Other (Core PI)
FY2004	44.00	33.00	11.00
FY2005	43.26	32.00	11.26
$\Delta$	-1.7%	-3.0%	+2.4%

August 2005



## President's Request FY 2006

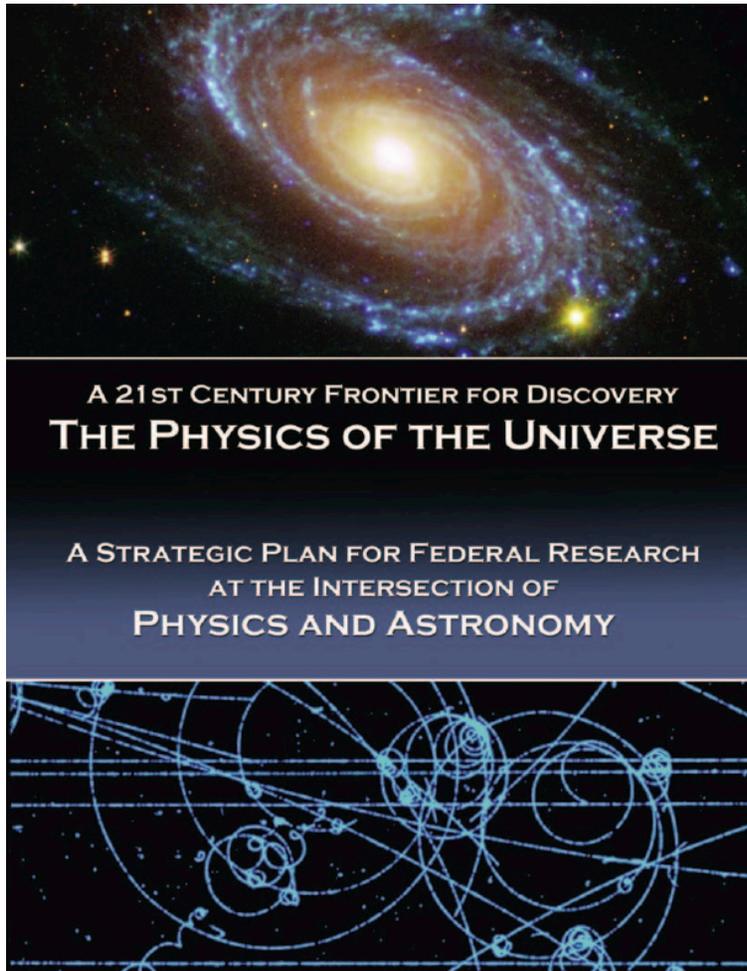
(\$M)

	NSF	MPS	PHY	LIGO
FY2005	5473	1070	224.9	32.00
FY2006	5605	1086	230.1	32.00
$\Delta$	2.4%	1.5%	2.3%	0%

- For the latest information see NSF Office of Legislative and Public Affairs:  
<http://www.nsf.gov/about/congress/index.jsp> and AIP Science Policy News: <http://www.aip.org/fyi/> .
- Pending in Congress. “Markups” are slightly higher.



# Physics of the Universe



<http://www.ostp.gov/html/physicsoftheuniverse2.pdf>

Gravity priorities:

Advanced LIGO

GW source simulation

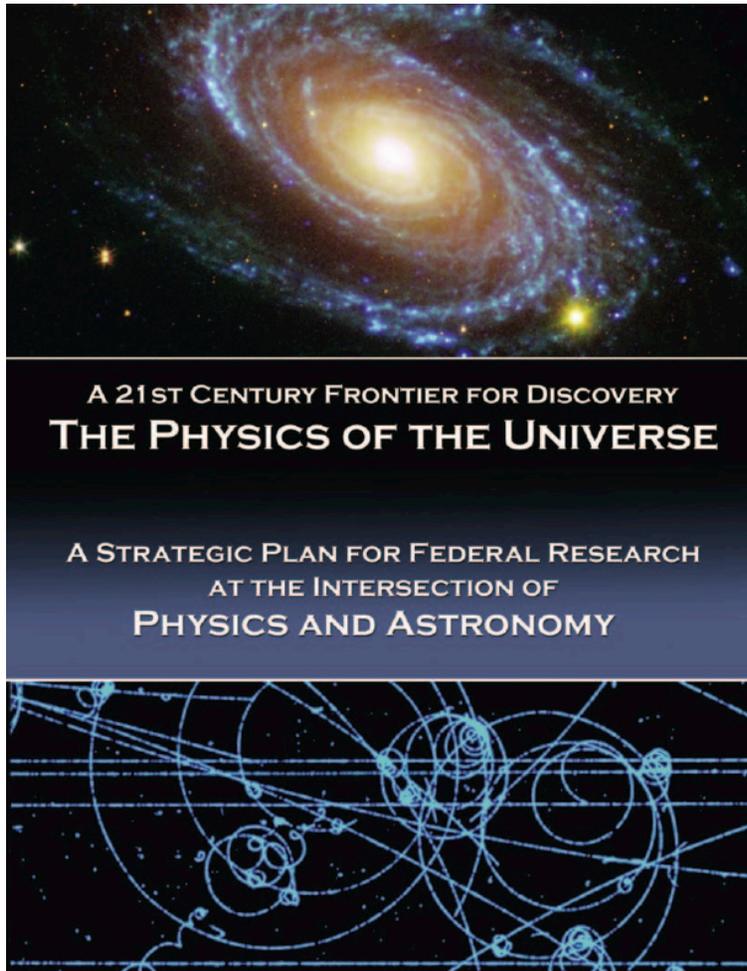
Implementation:

POU funds in FY 05 Request and to extent possible in FY 05 actual.

POU funds in FY 06 Request.



# Physics of the Universe



## Marburger Outlines Administration's FY 2007 R&D Priorities:

### PHYSICAL SCIENCES:

"Within discovery-oriented physical science investments, priority will be given to those projects and programs that are demonstrably well coordinated with related programs in other agencies and countries. [Examples of well coordinated, inter-agency investments in the discovery-oriented sciences are described in the interagency working group report, "A 21st Century Frontier for Discovery: The Physics of the Universe."](#)



# Advanced LIGO

## National Science Board Resolution:

The Board concurred that planning for Advanced LIGO is sufficiently advanced and the intellectual value of the project sufficiently well demonstrated to justify consideration by the Acting Director and the National Science Board for funding in FY 2007 or a future NSF budget request. The Board approved the resolution with the understanding that the existing LIGO Program will collect at least a year's data of coincident operations at the science goal sensitivity before initiating facility upgrades to the new Advanced LIGO technology.

Advanced LIGO is in the FY 2006 President's Request for an FY 2008 start.



# Advice

- 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 broad impact.

\*LIGO Lab review of submitted proposals helps provide information.



## Other programs

- ITR program is over. Ongoing discussions related to possible future Computer Infrastructure program. Check the CISE web site <http://www.nsf.gov/dir/index.jsp?org=CISE> for possible funding opportunities.
- Computationally intensive proposals can be submitted to Physics at the Information Frontier (PIF).
- International Division has become the Office of International Science and Engineering (OISE). Check <http://www.nsf.gov/div/index.jsp?div=OISE> for possible funding opportunities.



# Instructions

- Submit to “Dear Colleague” Letter NSF 05-036  
<http://www.nsf.gov/pubs/2005/nsf05036/nsf05036.jsp>
- Submit to “Support of LIGO Research” Program  
(program element 1252)
- Target date is September 28, 2005
- Call or email if you have questions