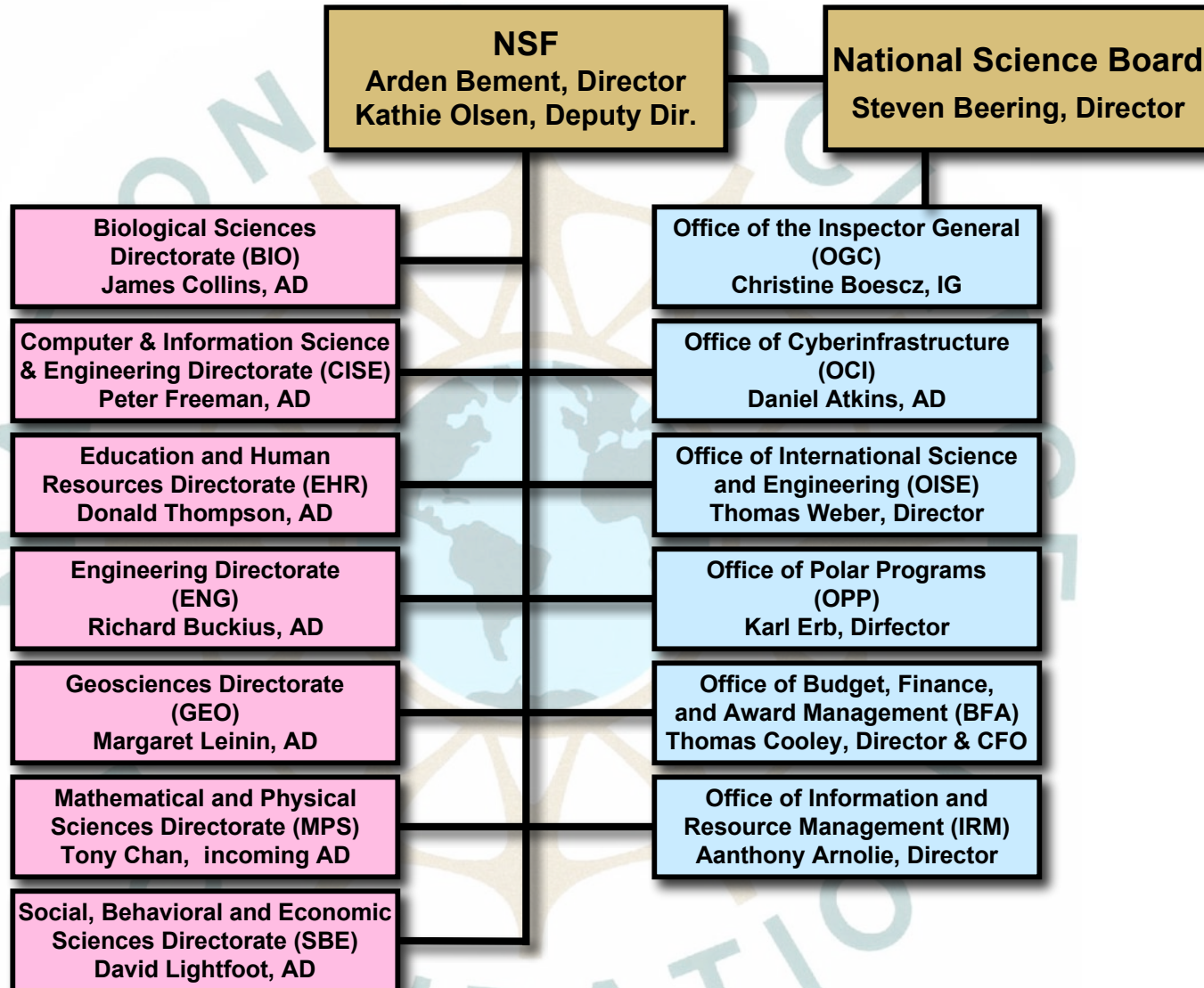


The View from NSF



Tom Carruthers
LIGO Program Officer
National Science Foundation
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(703) 292-7373

The NSF Organization



The NSF Organization



**Incoming MPS AD
Tony F. Chan**

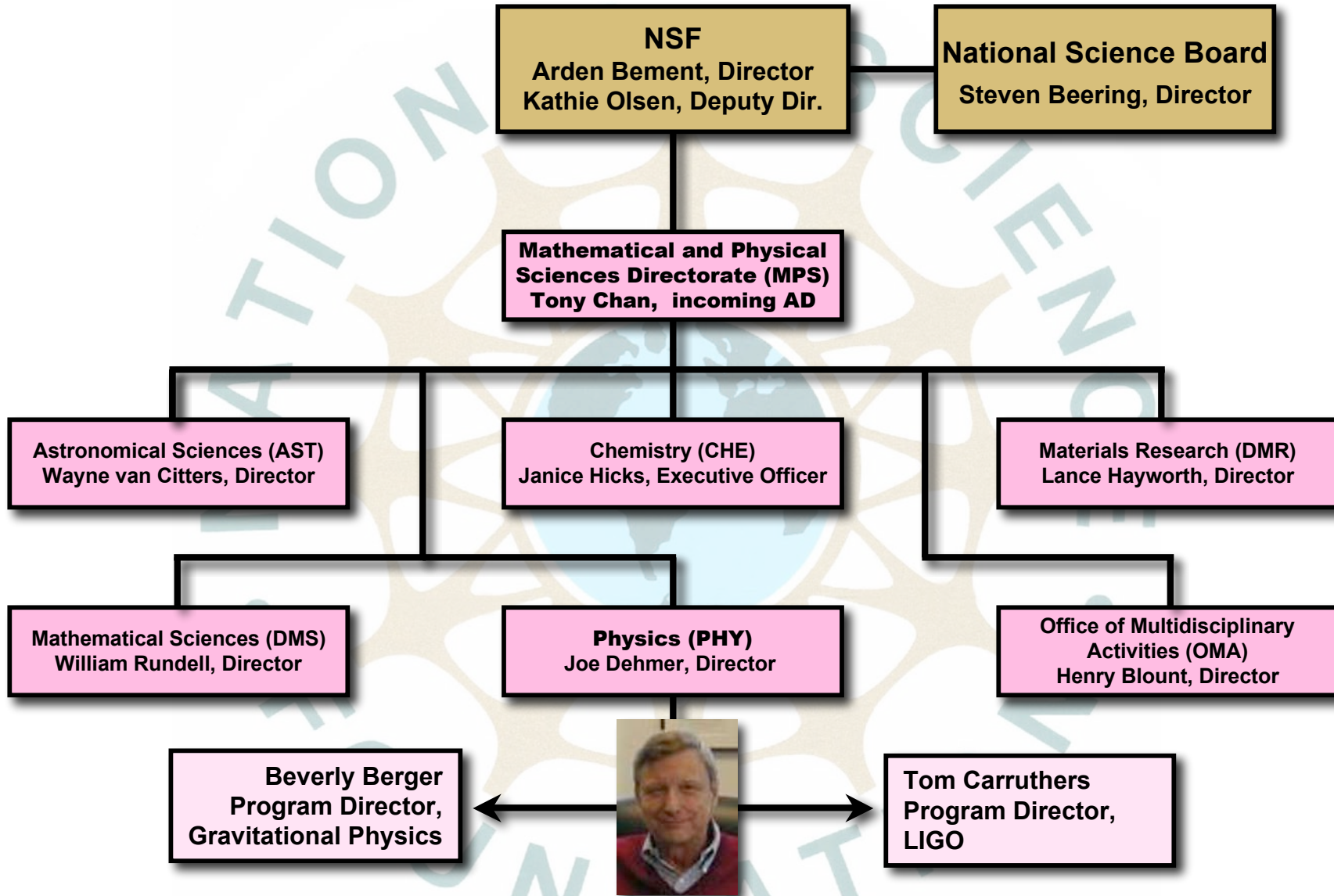
**Dean of Physical Sciences, UCLA
Professor, Computational & Applied
Mathematics**

Current research interests:

**interdisciplinary
mathematics: machine
vision, multiscale
computational methods**



The NSF Organization



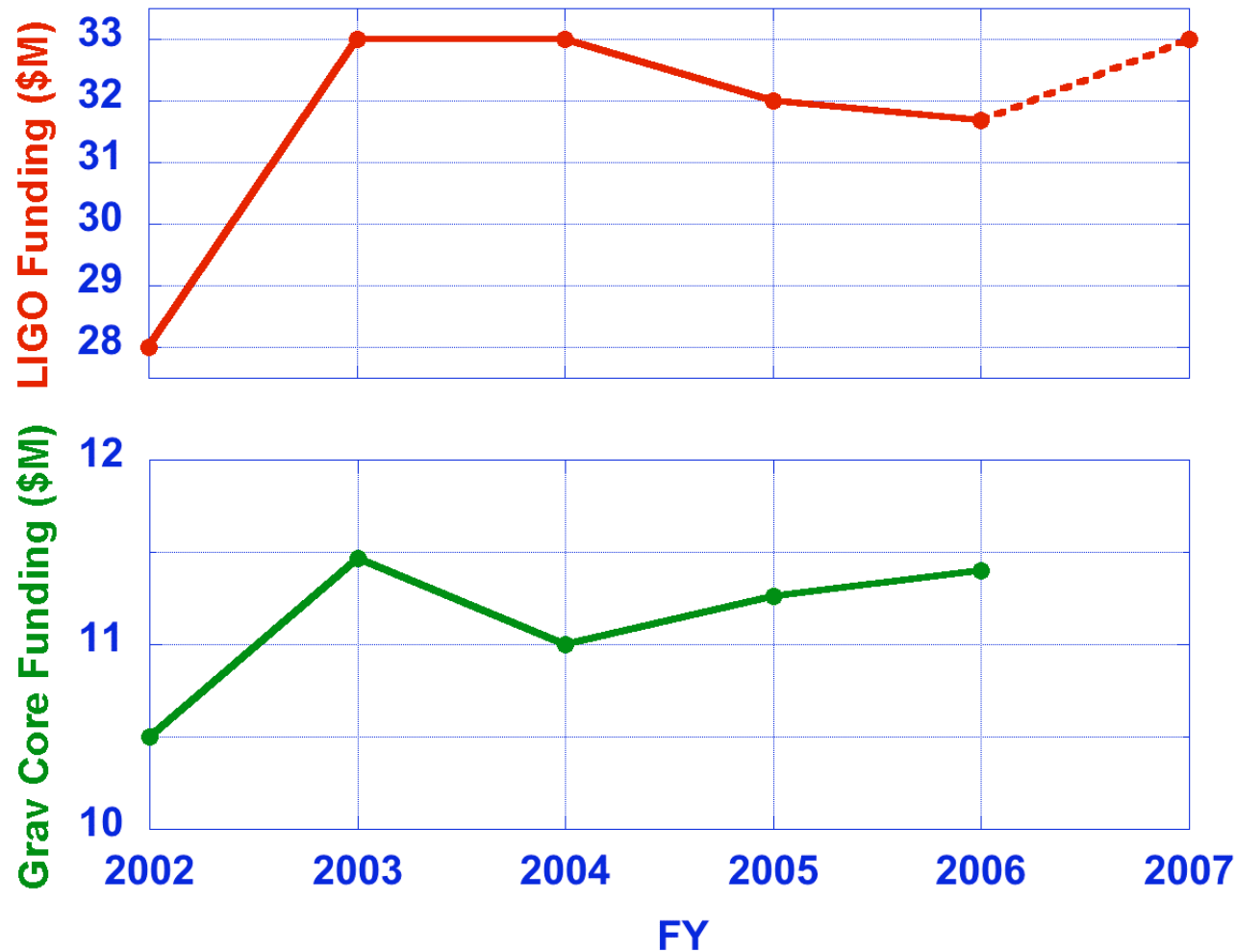
NSF Budget in Senate Committee



Activity	FY 2006 Estimate	FY 2007 Request	Senate Committee Markup	Δ Senate: FY06
R & RA: Research and Related Activities	\$4,331	\$4,666	\$4,646	+7.3%
EHR: Education and Human Resources	797	816	836	+4.9%
MREFC: Major Research Equipment and Facilities Construction	191	240	237	+24.1%
Total, NSF	\$5,581	\$6,020	\$5,992	+7.4%

Source: NSF OLPA

LIGO and Gravity Core Funding



Source: NSF FY 2007 Budget Request to Congress <http://www.nsf.gov/about/budget/fy2007/>

NSF Funding Summary



FY	NSF	MPS	PHY	LIGO	Gravity Core PI
2005	5473	1069.4	224.86	32.00	11.26
2006	5605	1085.4	233.13	31.68	11.40
Δ	+2.4%	+1.5%	+3.6%	-1.0%	+1.2%

Other NSF programs funding GW research in FY 2006:

MRI: 1 new for LSC

FRG (Focused Research Group in Mathematics):

1 award in numerical relativity

MRI: 1 award recommendation

PIF: 1 award recommendation

NSF Funding Opportunity



http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=12819

Partnerships for International Research and Education (PIRE)

CONTACTS

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Edward O. Murdy	emurdy@nsf.gov	(703) 292-7222	929 N
Michael Pritchard	mpritcha@nsf.gov	(703) 292-7533	935 N

For specific Project Development inquiries: The OISE geographic region/country program manager regarding project development. Contacts are available from the [OISE Staff by Country page](#).

PROGRAM GUIDELINES

06-589 Solicitation

DUE DATES

Preliminary Proposal Deadline Date: **October 30, 2006**
(required) (due by 5 p.m. proposer's local time)

Full Proposal Deadline Date: **February 28, 2007**
BY INVITATION ONLY

SYNOPSIS

Partnerships for International Research and Education (PIRE) seeks to catalyze a cultural change in U.S. institutions by establishing innovative models for international collaborative research and education. The program will enable U.S. institutions to establish collaborative relationships with international groups or institutions in order to engender new knowledge and discoveries at the frontier and to promote the development of a globally-engaged, U.S. scientific and engineering workforce....

Proposals may be submitted for support for up to five years, with annual budgets not to exceed \$500,000.

Advanced LIGO



“LIGO has just begun its search for gravity waves, and its upgrade to increase its coverage of the universe by a factor of 1000 has... been proposed.

“The timely upgrade of LIGO... [is] necessary to open a powerful new window on the universe and create the new field of gravitational wave astronomy.”

—*Physics of the Universe*, NTSC 2004

Advanced LIGO Reviews



- **AdvLIGO Review, June 11-13, 2003:**

“Advanced LIGO will provide the capability to observe a variety of astrophysical phenomena.... Detection of any source would be a dramatic direct confirmation of the existence of gravitational waves and would have exciting and wide-ranging implications for gravitational physics, astrophysics, and our understanding of the universe.

“The Panel agrees that the current state of the proposed project is at a sufficiently mature level that the process leading to construction should proceed.”

- **NSB Summary Report of October 13-14, 2004 Meeting:**

“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.”

- **AdvLIGO Baseline Review, May 31 – June 2, 2006:**

“The Panel recommends that the Advanced LIGO project go forward and... is ready for a construction start in FY 08.”

- **AdvLIGO’s budget estimate will be presented to the NSB this Autumn.**
- **A Final Design Review will be held in the Spring.**

Cybersecurity



- Security for all information technology systems, including equipment and information, is the awardee's responsibility.
- NSF has a Facilities Security board (FACSEC) to assist with institutional security; Tom Carruthers is a member.
- Cybersecurity should be a component in annual reviews.
- Major cybersecurity incidents should be included in monthly reports.

Definition of major:

- an intrusion that requires an unusual level of response or
- causes a significant discontinuity of operation.



- **Cybersecurity Summit 2006**
End of October, probably at NSF in Arlington, VA
- **Security Professionals' Conferences**
April 10–12, 2007, Denver, CO

Sponsored by EDUCAUSE

<http://www.educause.edu/securityconference> (no info posted yet)

- Best academic security conference
- >400 attendees from academia & gov't

Cybersecurity Summit 2006



Arlington, VA - October, 2006

The research and education community faces a pressing need for effective and efficient strategies for securing its IT infrastructure. This requirement is particularly important in large, federally sponsored research facilities that operate very substantial, interconnected networks of diverse resources including computers, information stores, and special instrumentation.

The National Science Foundation and its partner agencies will host Cybersecurity Summit 2006 to establish and maintain collaborative efforts to advance cybersecurity among the university and government research community. Summit participants will work with leading experts in cybersecurity to identify major threats, strategies, and solutions for a class of very difficult problems of technology, policy, and practice that increasingly threaten the successful operations of large facilities in support of distributed scientific research.

Gravitational Physics Program



Scope

- Research related to gravitational waves, including research in support of LIGO ;
- Experiments to test gravitational theories;
- Experiments to test particle physics and string theory:
 - equivalence principle violations,
 - deviations from $1/r^2$;
- Theoretical research in classical and quantum gravity.

Process

1. Proposals are sent to LIGO Lab for review (with permission of PI).
2. Proposals are sent to mail reviewers and panelists for individual review.
3. The panel meets and has access to all the reviews including the LIGO Lab review and PAC report if they have been completed. (The PAC report was late this year.)

Deadline: September 27, 2006

(This slide should not be necessary.)



Proposals for research in support of LIGO should be submitted under the category...

“Support for LIGO Research”

...and not another category in the Gravitational Physics program.

Gravitational Physics Program



Reviews

It is becoming almost impossible to select reviewers who have detailed knowledge of LIGO because most such people have conflicts of interest with the proposers.

1. Many reviewers from outside the field would have liked to have seen more background information and details. It might be wise to assume that your proposal will be evaluated primarily by scientists outside the gravitational wave community when you write the Project Description.
2. A significant number of reviewers would have liked to have seen some "endorsement" by LIGO (either Lab or Collaboration) within the proposal to be able to judge the importance of the activity to LIGO. While the panel sees the LIGO Lab reviews, the individual reviewers do not. The LSC might wish to think about how to provide this information within the proposal.

Deadline: September 27, 2006

Proposal Submissions



<http://www.nsf.gov/div/index.jsp?div=PHY>

[Gravitational Physics](#)



Division of Physics Gravitational Physics

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DUE DATES

Deadline unless prior approval is obtained from PO:

Full Proposal ~~Target Date:~~ September 27, 2006

Beverly will be on vacation and out of e-mail contact August 19 – Sept 11.

SYNOPSIS

Emphasizes the theory of strong gravitational fields and their application to astrophysics and cosmology, computer simulations of strong and gravitational fields, and gravitational radiation; and construction of a quantum theory of gravity. The program oversees the management of the construction, commissioning, and operation of the Laser Interferometer Gravity Wave Observatory (LIGO), and provides support for LIGO users and other experimental investigations in gravitational physics and related areas.