



National Science Foundation

Pedro Marronetti

APS Virtual Meeting

April 2020

NSF Update

New NSF Director

Dr. Sethuraman Panchanathan has been designated as the next NSF Director

- PhD in Electrical and Computer Engineering from the University of Ottawa
- Member of the National Science Board since 2014
- Executive Vice President of Knowledge Enterprise at Arizona State University
- Dr. Kelvin Droegemeier, OSTP, is currently Acting Director



NSF Update

MPS Assistant Director departure

Dr. Anne Kinney is leaving NSF for a position as Deputy Director for the Goddard Space Flight Center

- Search ongoing for a new AD
- Dr. Sean Jones (current MPS Deputy Assistant Director) will be Acting AD



NSF Update

Covid-19

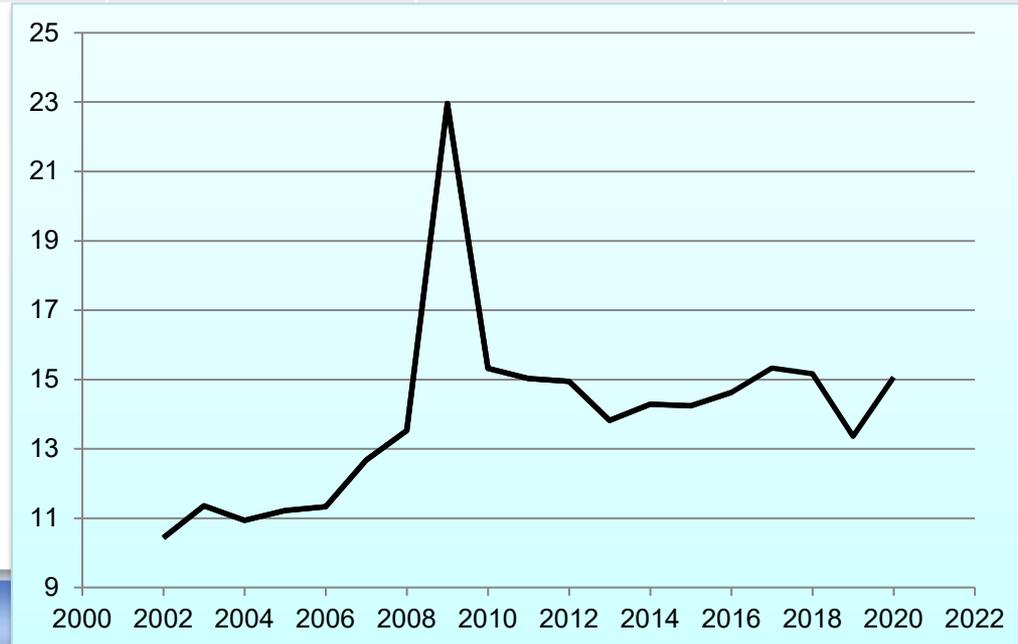
- NSF has cancelled non-essential travel for NSF staff until further notice
- Physics Division is currently conducting fully virtual panels
- All Gravitational Physics panels have already been held in person: **no impact on our programs!**

Budget news

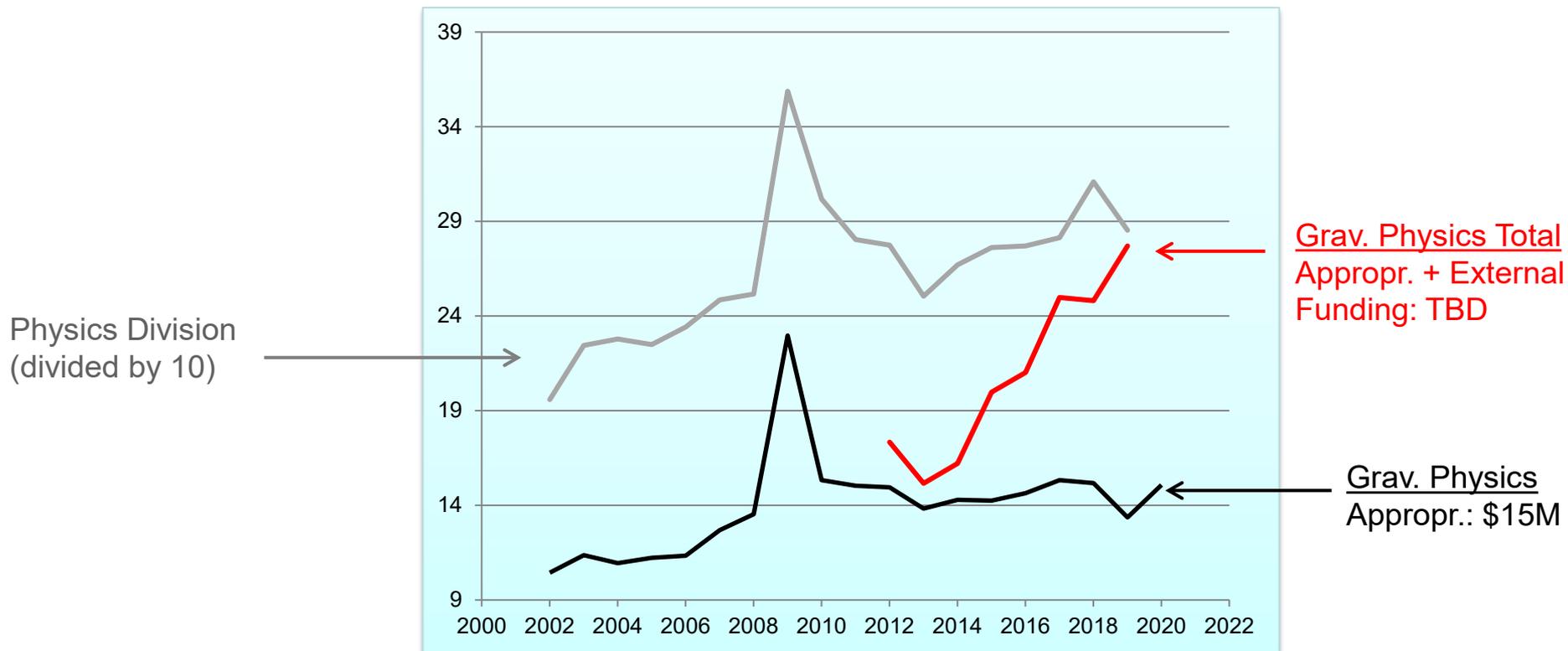
Progression of NSF budget in the last three fiscal years (FY) and FY21 request (in millions):

| | FY18 Actual (Δ from last FY) | FY19 Actual (Δ from last FY) | FY20 (Δ from last FY) | FY21 Request (Δ from last FY) |
|------------------|---------------------------------|---------------------------------|--------------------------|----------------------------------|
| NSF | \$8,040 (7.1%) | \$8,338 (3.7%) | \$8,578 (2.9%) | \$7,948 (-7.3%) |
| MPS Directorate | \$1,503 (10%) | \$1,491 (-1%) | - | \$1,448 (-2.9%) |
| PHY Division | \$311 (11%) | \$285 (-8.4%) | - | \$258 (-9.5%) |
| Gravity programs | \$15.17 (-1%) | \$13.36 (-12%) | \$15.07 (13%) | TBD |

Gravitational Physics programs:
 Grav. Theory
 Grav. Experiments
 LIGO Research Support



Budget: Appropriation + External sources (in millions)



In 2019 about **52%** of the funding awarded to Grav. Physics PIs was obtained from outside the Grav. Physics programs (i.e., Windows on the Universe, RAISE, PFC, MRI, PIF/CP, SI2 (OAC), co-funding with other programs in and out of Physics Division, External agencies, etc.).



Other programs' deadlines

- **CSSI: New solicitation from Office of Advanced Cyberinfrastructure**
 - Replaces SSI, SSE and DIBBS!
 - CSSI is an umbrella program for four classes of proposals: Elements, Frameworks, Cyberinfrastructure Planning Grants, Cyberinfrastructure Implementations.
 - Deadline: **TBD**
- **RAISE (successor of INSPIRE)**
 - \$1M max / Duration up to 5 years
 - Support of two or more Prog. Directors from different disciplines
 - No LOI needed / No Deadlines (similar to EAGERs)
- **MRI**
 - New revised solicitation in 2014
 - Major change: In **Acquisition** proposals the 70% cost requested from NSF can only be used for **equipment**: personnel costs (if any) have to come from the cost-sharing 30%.
 - Proposal window: **January 2021**
- **CAREER**
 - Deadline: **July 17, 2020**
- **CDS&E / PIF – Computational Physics**
 - Discontinued



Program News

- All Gravitational Physics panels have been conducted normally
- I am currently communicating the funding decisions. If you don't receive an email by the end of April, contact me.
- A record number of proposals were reviewed in the LIGO Research Support Program (35)
- Next year the LIGO related proposals will be divided in two groups: Instruments and Data Analysis.
- The 3 Gravitational Physics programs have been restructured as follows:
 - Gravity Theory: No changes
 - Gravity Exp. and Data Analysis: Will support non-LIGO related experiments plus all data analysis activities, including LIGO and NANOGrav but excluding LISA (supported by NASA).
 - LIGO Research Support: Will support LIGO instrumentation and detector commissioning and characterization.



Proposal Submission News

- NSF is slowly phasing out Fastlane and ramping up Research.gov for proposal submission. More information is given in the auxiliary slides.
Use Research.gov if you have never submitted an NSF proposal before!
- NSF has now official templates for
 - Bio Sketches (<https://www.nsf.gov/bfa/dias/policy/biosketch.jsp>) and
 - Current & Pending document (<https://www.nsf.gov/bfa/dias/policy/cps.jsp>)

These templates will be required after Jun 1, 2020



Physics Division Committee of Visitors (CoV)

- Every four years, a group of experts from across the country gather at NSF to review the performance of the Physics Division as a whole and of each of its individual programs.
- Thank you to **Peter Saulson**, **Andrew Geraci** and **Joshua Smith** for participating in this year's Physics Division CoV as the Gravitational Physics review sub-committee!
- The official report can be found at https://www.nsf.gov/events/event_summ.jsp?cntn_id=298911&org=MPS.

- **CoV Comments on CAREER awards:**

“The CAREER award program at NSF has some complications. Most of the complications apparently result from a misunderstanding between PIs and their institutions and the NSF concerning the goals of the program. The NSF states that the CAREER award, while intended for promising junior researchers, is not strictly speaking a research excellence award. Instead, it is an alternative research funding program with an educational component. Many institutions apparently believe that the program is a research excellence award program and thus encourage their junior researchers to apply for the award. Such blanket pressure can burden some junior researchers with applying for a type of award they are not especially well suited for, at some cost to their productivity.”



Windows On The Universe

The Era of Multi-Messenger Astrophysics (WoU-MMA)

The universe is the ultimate laboratory, and we can now probe it as never before through several powerful and diverse windows – electromagnetic waves, high-energy particles, and gravitational waves. Each of these windows provides a different view. Together they reveal a detailed picture of the Universe that will allow us to study matter, energy, and the cosmos in fundamentally new ways.

The WoU-MMA program welcomes proposals in any area of research supported through the participating divisions that address at least one of the following criteria:

- Coordination*: Hardware, software, or other infrastructure **to coordinate observations involving more than one messenger**.
- Observations*: **Observations** of astrophysical objects or phenomena that are **potentially sources of more than one messenger**, including the use of existing observatories, experiments, and data archives, as well as the development and construction of new capabilities for advancing multi-messenger astrophysics.
- Interpretation*: Theory, simulations and other activities **to understand or interpret observations of astrophysical objects that are sources of more than one messenger**.

Solicitation published in 2018 (NSF 18-5115). But do not submit your proposals to this call!
Keep using “Division of Physics: Investigators Initiated Research Projects” NSF 18-564!

About 200 proposals were reviewed in 2019



DFG-NSF Lead Agency Agreement

DFG-NSF opportunity for collaborations between US and German groups in Gravitational Physics (experimental, computational & theoretical projects)

- Still on hold, but new DFG-NSF MoU has been signed. I expect the program will resume in 2020 before the GP November deadline.
- Fourth review process conducted in 2019.
- This works in a way similar to the NSF “Collaborative Research” proposals: single proposal core with two sets of budgets, CVs, etc.
- Researchers decided which is the “Lead” agency (NSF or DFG). The Lead Agency conducts the review process with participation of officers from the non-lead agency (i.e., single review simplifies administrative workload)
- It incentivizes international collaborations for small groups. Deadline:
 - If NSF is Lead Agency: Hopefully to be resumed by November 2020
 - If DFG is Lead Agency: Ditto



Gravitational Wave Agencies Correspondents (GWAC)

- The GW scientific community recommended “... a closer link between the global funding agencies, to start to coordinate medium- and long-term planning, and looking for synergy between the agency capabilities to most effectively stimulate the field.” (“What Comes Next for LIGO?” Workshop, May 2015, Silver Spring MD.)
- NSF created an informal communication framework between funding agencies called “*Gravitational Wave Agencies Correspondents*” (GWAC).
- Homepage <http://www.nsf.gov/mps/phy/gwac.jsp>.
- The 5th GWAC meeting was held on March 3, 2020. GWAC presented GWIC with a review of its 3G reports.
- Current member agencies: ARC (Australia), CFI (Canada), CNRS (France), CONACYT (Mexico), DFG (Germany), European Space Agency (ESA), DAE (India), DST (India), FWO (Belgium), INFN (Italy), NASA (US), NSF (US), NWO (Netherlands), STFC (UK). **Discussions with BMBF (Germany) undergoing!**



For the latest news:

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

NSF 20-XXX

Email any questions to
pmarrone@nsf.gov
or call (703)292-7372

The screenshot shows the NSF website interface. At the top, there is a navigation bar with tabs for Research Areas, Funding, Awards, Document Library, News, and About NSF. Below this is a breadcrumb trail: Home > Research Areas > Mathematical & Physical Sciences. A left-hand navigation menu lists various research areas, with Physics (PHY) selected and expanded. A red arrow points from the text 'NSF 20-XXX' to the 'Staff' link in this menu. The main content area features a large banner for 'LIGO pioneers awarded 2017 Nobel Prize in Physics' with a 'Read More' button. Below the banner is an 'Announcements' section with three items: 'PHY Uses Solicitation for Investigator Proposals Read More >', 'Special Announcements Read More >', and 'LIGO Detects Gravitational Waves Read More >'. To the right is a 'News' section with three articles: 'JILA team invents new way to 'see' the quantum world' (March 5, 2018), 'Dressing atoms in an ultracold soup' (February 28, 2018), and 'UMass Amherst physicists contribute to dark matter detector success' (February 21, 2018). A 'See All >' link is at the bottom right of the news section.



Auxiliary slides

- Research.gov: The new Fastlane!
- DMARC: NSF emails are getting lost
- Common mistakes in proposal preparation
- Mentoring program EPSCoR Research Fellow (Track 4)
- Solicitation NSF 20-XXX “Division of Physics: Investigator-Initiated Research Project”



Research.gov open for proposal submissions

- If you are submitting your first NSF proposal this year, use **Research.gov**. If you already know Fastlane.gov, keep using it until it is phased out (probably very soon).
- Pros of Research.gov:
 - Integrated compliance checks for fonts, margins, and line spacing
 - Real-time compliance feedback and alerts, so proposers know a proposal section is compliant before moving on to another section
 - Specific checks on the budget screens and for Collaborators and Other Affiliations (COA) uploads
 - A few seconds to upload documents versus 30-90 seconds for each document upload in Fastlane
 - Embedded relevant sections of the Proposal & Award Policies & Procedures Guide (PAPPG) and video job aids, so proposers don't have to go to multiple sites to access guidance and tools
- Cons of Research.gov
 - It is bound to have some bugs. **If you have problems, call the Help Desk, not me!**



Problems with emails from NSF

- A DHS requirement for all federal agencies, Domain-based Messaging and Reporting Compliance (**DMARC**) helps improve email security by preventing bad actors' attempts to impersonate NSF personnel in emails (also called spoofing), conduct phishing campaigns, and spam the organization. As a result, many of NSF's and the Federal Government's communities and stakeholders are also sharing information about this important initiative. Most federal agencies, including NIH and NASA, have implemented DMARC.
- Many emails sent from NSF in the past year did not reach the PIs. They were alternatively sent to Trash/Spam folder or quarantined by the institution email servers and/or by Gmail.
- They most common occurrences happen when PIs auto-forward emails from their institution's account to a third-party account (i.e., **Gmail**)
- Fixes:
 - Talk to your institutions about updating the email server software
 - Don't auto-forward emails from your institution account!
 - Set in your proposal the final destination (gmail.com) as your email address



Common proposals mistakes

In times of tight budgets, the main reason proposals go unfunded **is not fatal flaws in research but imperfections (of different caliber) that make some proposals less competitive than others.**

- Context of research not properly described:
 - Claims that a group is the only one working on a subject or single-handedly carrying out a given type of research
 - What other groups are doing the same or similar work? How is your project different? Who are you collaborating with and what is your role?
- Large increase in request:
 - How well can you justify an increase (in some cases of a factor of 2 or 3) over your current level of funding?
- Lack of details:
 - Typical of long “laundry list” of projects proposals



Writing proposals: Mentoring program

Mentoring Program: The goal is to make the expertise of senior researchers on proposal writing available to young investigators

How does it work?

- The Mentee requests a Mentor (email me at pmarrone@nsf.gov).
- I will send you a list of Mentor Volunteers. You can contact anyone you like without identifying them to NSF.
- The Mentor will read your proposal and provide feedback once. Send the proposal timely! Mentors are busy people.
- NSF accepts no responsibility on the interaction/outcome of the program!



EPSCoR Research Fellows (Track 4)

- New track for EPSCoR states PIs

Deadline: **March 20, 2020**

- What is this about?

Support collaborative visits to the nation's premier private, governmental, or academic research centers. During these visits, the EPSCoR Research Fellows will be able to learn new techniques, develop new collaborations or advance existing partnerships, benefit from access to unique equipment and facilities, and/or shift their research toward potentially transformative new directions.

- Who can apply?

Non-tenured investigators (no postdocs!)

- How much funding and for how long?

- Up to \$300K for a total duration of 24 months.
- Budgets can include up to six months of salary for PIs (6 out of 24 months).
- Up to \$75K total in travel expenses



Division of Physics: Investigator-Initiated Research Project

NSF 20-XXX

- Starting in 2014, **all proposals** submitted to the Division of Physics programs (*LIGO Research Support, Theor. Grav. Physics, Exp. Grav. Physics, etc.*) **have to go through this solicitation!**
- This includes:
 - **Conference** proposals.
- This does not include:
 - **CAREER, MRI, INSPIRE, RUI**, etc. and any other proposal that pertains to an NSF-wide solicitation.
 - **Supplements** and **EAGER**. You can use NSF 20-1 GPG
- It has **Deadlines** (instead of Target Date).
 - All three Grav. Physics programs: **Nov 25, 2020**
- See Auxiliary slides for more information



On Fastlane, choose solicitation NSF 20-XXX

Do **NOT** choose
NSF 20-1 GPG or anything else.
Prop. could be **returned w/o**
review!

Program Announcement / Solicitation Number Selection

Select a Program Announcement or, if not in response to a program announcement, choose 'NSF 14-1 GPG: Not in response to a program announcement/solicitation'. If the program announcement is within multiple divisions or programs, the next page will allow you to select from the associated divisions and programs. If the program announcement is associated with only one division and program, the unit of consideration will automatically be selected.

There are currently 305 Program Announcements/Program Descriptions

Program Announcement / Solicitation Number

Select one of the items below.

- NSF 14-1 Grant Proposal Guide - GPG
- NSF 14-579 Facilitating Research at Primarily Undergraduate Institution...
- NSF 14-578 Science of Science and Innovation Policy Doctoral Dissertat...
- NSF 14-577 Advanced Technological Education
- NSF 14-576 Division of Physics: Investigator-Initiated Research Project...**
- NSF 14-575 US-Japan Big Data and Disaster Research
- NSF 14-574 Methodology, Measurement, and Statistics
- NSF 14-572 Tribal Colleges and Universities Program
- NSF 14-571 NSF/Intel Partnership on Cyber-Physical Systems Security and...

Select

Go Back

Unit Selection Lists

Select the organizational unit you wish to consider your proposal from **either** the Division selection box (if you want to review the NSF Divisions and associated Programs) **or** the Program selection box (if you know the Program you wish to select).

Note: Some program announcements will be associated with multiple Divisions and Programs. In these cases, a logical step-by-step selection process is provided.

Divisions

Select a Division within NSF 14-576

- Directorate, MPS Directorate for Mathematical & Physical Sciences
- PHY-Division of Physics**

Programs

Select a Program within NSF 14-576

- Accelerator Science
- ASTROPHYSICS & COSMOLOGY THEOR
- ATOMIC & MOLECULAR PHYSICS
- ATOMIC THEORY
- COMPUTATIONAL PHYSICS
- ELEMENTARY PARTICLE ACCEL USER
- ELEMENTARY PARTICLE THEORY
- GRAVITATIONAL EXPERIMENTS
- GRAVITATIONAL THEORY

Select Program Show the divisions in this program.

Choose the Program in the next
screen

