



# National Science Foundation

Pedro Marronetti  
APS April Meeting  
Columbus, OH – April 2018

## New MPS Assistant Director

Dr. Anne Kinney has been appointed as the Assistant Director of the Directorate of Mathematical and Physical Sciences

- She has a PhD in Astrophysics from NYU
- Before coming to NSF, Dr. Kinney served as the Chief Scientist of the Keck Observatory
- Prior appointments include multiple positions in NASA



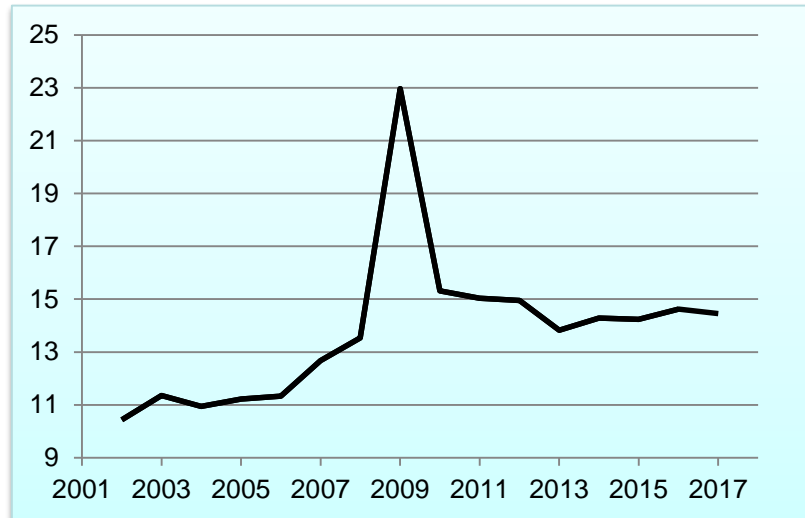
# Budget news

Progression of NSF budget in the last three fiscal years (FY) and FY18/FY19 request (in millions):

	FY17 Actual ( $\Delta$ from last FY)	FY18 Appopr. ( $\Delta$ from last FY)	FY19 ( $\Delta$ from FY17)	
NSF	\$7,504 (0.1%)	\$7,767 (4%)	?	
MPS Directorate	\$1,362 (1.0%)	?	?	
PHY Division	\$281 (1.4%)	?	?	
Gravity programs	\$14.6 (2.1%)	?	?	

## Three Gravitational Physics programs:

- Grav. Theory
- Grav. Experiments
- LIGO Research Support



# 10 Big Ideas for Future NSF Investments

([https://www.nsf.gov/about/congress/reports/nsf\\_big\\_ideas.pdf](https://www.nsf.gov/about/congress/reports/nsf_big_ideas.pdf))

## NSF's 10 BIG IDEAS FY 2019 REQUEST FUNDING

(Dollars in Millions)

Big Ideas	FY 2019 Request
<b>Research Ideas</b>	<b>\$180.00</b>
→ Harnessing the Data Revolution for 21st- Century Science and Engineering - HDR (CISE/ITR) <sup>1</sup>	30.00 ←
Navigating the New Arctic - NNA (GEO/ICER)	30.00
The Future of Work at the Human-Technology Frontier - FW-HTF (ENG/EFMA) <sup>1</sup>	30.00
The Quantum Leap - QL (MPS/OMA)	30.00
Understanding the Rules of Life - URoL (BIO/EF)	30.00
→ Windows on the Universe - WoU (MPS/OMA)	30.00 ←
<b>Process Ideas</b>	<b>\$102.50</b>
Growing Convergence Research - GCR (IA)	16.00
Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science - NSF INCLUDES (EHR)	20.00
→ Mid-Scale Research Infrastructure (IA)	60.00 ←
NSF 2026 Fund (IA)	6.50
<b>Total, NSF Big Ideas</b>	<b>\$282.50</b>



# Gravitational Wave Agencies Correspondents (GWAC)

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- 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>.
- A 3<sup>rd</sup> meeting was held on Feb 26, 2018 (best attended so far!). Members of GWIC gave a presentation on the state of the field that included all types of GW detectors
- Current member agencies: ARC (Australia), CFI (Canada), CNRS (France), CONACYT (Mexico), DFG (Germany), DAE (India), INFN (Italy), NASA (US), NSF (US), NWO (Netherlands), STFC (UK).



# New Panel on Multi-Messenger Astrophysics (MMA)

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- Second year of the MMA panel.
- Jointly organized by the Astronomy and Physics Divisions at NSF. NSF and NASA coordinate the funding of proposals submitted to both agencies.
- No modification in proposal submission:
  - PIs submit their proposals to their program of choice (AAG in Astronomy Division or Gravitational/Nuclear Physics in Physics Division)
  - Deadlines are those of each program
  - Program officers sort out which proposals qualify for the joint panel (27 proposals were reviewed this year)
- **Why is this good for GP?**
  - MPS Directorate provided in FY17 an extra \$1M in funding
  - While there is a unique ranking, Grav. Physics funds proposals coming to the panel through its programs (i.e., similar success rate as other GP panels)
  - NSF Astronomy & Physics and NASA coordinate awards, reducing double funding



# LIGO Research Support

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- Deadline **October 24, 2018**
- **This year we had the first panel with LSC members!**
- 7 of your colleagues did a remarkable job reviewing the ~20 proposals received in 2017. I will be discussing the results with PIs during this meeting.
- Conflicts of Interest (COI) are created by
  - Writing small author list papers (i.e., full LSC membership papers are excluded)
  - Receiving a sub-award from the PIs' institution (i.e., getting funding through the LIGO Lab M&O award)
  - These COI do not prevent you from participating in the panel: if you are conflicted with a given proposal, you will leave the room during the corresponding discussion
- If you are interested in participating, let me know.



# Other programs' deadlines

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- **CSSI: New solicitation from Office of Advanced Cyberinfrastructure**
  - Replaces SSI, SSE and DIBBS! Now called “Elements” (Data or Software Elements)
  - Deadline: **April 18, 2018**
- **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**
  - 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%.
  - Deadline: **Early January, 2019**
- **CAREER**
  - Deadline: **July 20, 2018**
- **CDS&E / PIF – Computational Physics**
  - Deadline: **Not available in 2019**





# Common proposals mistakes

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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

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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](mailto: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!



For the latest news:

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

NSF 17-561



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## LIGO pioneers awarded 2017 Nobel Prize in Physics

Three scientists who led the development of the National Science Foundation (NSF)-funded Laser Interferometer Gravitational-wave Observatory (LIGO) have won the 2017 Nobel Prize in Physics for their work detecting gravitational waves.

[Read More](#)

### Announcements


PHY Uses Solicitation for Investigator Proposals [Read More](#) >


Special Announcements [Read More](#) >


LIGO Detects Gravitational Waves [Read More](#) >

[See All](#) >

### News

 JILA team invents new way to 'see' the quantum world  
MARCH 5, 2018

 Dressing atoms in an ultracold soup  
FEBRUARY 28, 2018

 UMass Amherst physicists contribute to dark matter detector success  
FEBRUARY 21, 2018

[See All](#) >

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



# Auxiliary slides

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- DFG-NSF : Joint review of German – US proposals
- Changes to Proposal Submission Procedures (PAPPG)
- Solicitation NSF 17-561 “Division of Physics: Investigator-Initiated Research Project”



# DFG-NSF Lead Agency Agreement

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

- Second review process conducted in February 2017. One award out of 2 proposals rec. (so far, 2 recommendations out of 5).
- 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: **Oct. 24, 2018**
  - If DFG is Lead Agency: **None**



# Changes to Proposals & Awards Policies & Procedures Guide 2018 (PAPPG)

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- Increase in Budget Justification page limit: Fastlane allows now up to 5 pages instead of 3.
- Deadline Submission: NSF will strictly enforce proposal submission deadlines to comply with policy outlined in the PAPPG. **Organizations will not be able to submit proposals after 5:00 pm submitter's local time** on the deadline date (this has been there for years. It will be actively enforced from now on).
- NSF-approved extensions: A request for NSF-Approved extensions has to be submitted at least 45 days prior to the end date of the grant. Note that this applies to the 2<sup>nd</sup> and 3<sup>rd</sup> year extensions (the first extension for 1 year is Grantee-Approved).



## Changes to PAPPG 2017

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- Proposal Preparation: Upload the following individual files for each Senior Personnel listed on the proposal (i.e., they **cannot longer be grouped** into one single file):
  - Biosketch
  - Collaborators & Other Affiliations (as Single Copy Document. **No more in Biosketch!**)
  - Current & Pending



# Division of Physics: Investigator-Initiated Research Project

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## NSF 17-561

- 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 17-1 GPG
- It has **Deadlines** (instead of Target Date).
  - All three Grav. Physics programs: **Oct 25, 2017 (estimated)**
- See Auxiliary slides for more information





## On Fastlane, choose solicitation NSF 17-561

Do **NOT** choose  
NSF 17-1 GPG or anything else.  
Prop. will be **returned w/o review!**

Choose the Program in the next  
screen

### 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.



# What is different?

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- The solicitation has **Deadlines** instead of Target Dates
  - Gravitational Physics: **Oct. 24, 2018** (Last Wedn. in Oct.).
- PIs who have or anticipate **additional concurrent sources of support should clearly explain the differences** between this proposal and the other awards.
- **List of collaborators** : The GPG (sect II.C.1.e) now **requires a supplemental document for each person listed as senior personnel listing their collaborators: not in the Biosketch anymore!** For large collaborations, proposers must individually list the members with whom the person works directly. It is not sufficient just to name the collaboration or provide a URL pointing to a list of collaborators.
- **Letters of Collaboration** should follow the following single-sentence format:

*“If the proposal submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding by the NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description.”*
- **Letters of Membership** should follow the following single-sentence format:

*“The [Name of PI’s Institution] group is a member in good standing of the [Name of Collaboration], including you as a member of that group.”*



# What are the exceptions?

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- RUI proposals  
Use the RUI solicitation instead but **follow the new Deadlines** for each Physics program
- CAREER, MRI, INSPIRE, SI2, etc.  
NSF-wide solicitations or solicitations from other Divisions (AST, ACI, etc.) are unaffected.
- Supplement proposals and EAGER are unaffected (i.e., you can use NSF 16-1 GPG)
- Conference proposals are **not** excepted! They also have to be submitted through NSF 16-566 and, thus, before Oct 26, 2016.



# What is different?

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- The solicitation has **Deadlines** instead of Target Dates
  - Gravitational Physics: **Oct. 24, 2018** (Last Wedn. in Oct.)
  - PIF Computational Physics: **No call in 2018!**
- PIs are strongly encouraged to submit **single proposals** for possible co-review **instead of multiple similar proposals** to different programs



# Additional Criteria I

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- PIs who have or anticipate **additional concurrent sources of support should clearly explain the differences** between this proposal and the other awards (including ALL grants regardless of the agency of origin)
  - Where? **Project Description** or **Current & Pending** (you may need to upload a separate file in this case)
  - *“The proposal review process will include an assessment of the proposers’ ability to carry out the proposed research in light of these commitments”*
  - PIs with similar proposals for different agencies will be expected to withdraw all other applications should one of them be funded



## Additional Criteria II

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- For proposals involving development or construction of **complex instrumentation** (typically above \$1M), the following aspects will be assessed by during the review:
  - Ability of the proposers to deliver within the proposed budget
  - Cost, schedule and risk mitigation management (project management documentation should be uploaded as a Supplementary Document)
  - **Contact the corresponding NSF Program Officer for details**



## Additional Criteria III

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- **List of collaborators** that do not fit in the Bio sketches (such as those of large collaborations) should be included as Supplementary Document
  - For those who belong to the LSC, identify those members with whom the PIs and Co-PIs work closely (i.e., publish non-full-LSC-authorship papers, etc.).
  - The full list of LSC **is not required** for proposals submitted to LIGO Research Support. However, do include any other affiliation (i.e., ANTARES, Ice Cube, etc.)



## Additional Criteria IV

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- **Letters of Collaboration** should follow the following single-sentence format:  
*“If the proposal submitted by Dr. [insert the full name of the Principal Investigator] entitled [insert the proposal title] is selected for funding by the NSF, it is my intent to collaborate and/or commit resources as detailed in the Project Description.”*
- **Letters of Membership** should follow the following single-sentence format:  
*“The [Name of PI’s Institution] group is a member in good standing of the [Name of Collaboration], including you as a member of that group.”*
- **Letters of Support are NOT allowed.**

