

NSF Nuclear Physics Overview for NSAC



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Experimental Nuclear Physics Program Scope



Dec, 2014: Particle Astrophysics Program was reorganized with $0\nu\beta\beta$ being moved to the ENP program.

- Proposals submitted to ENP = $53 + 9 = 62$
- PA Program Directors (Jean Cottam-Allen & Jim Whitmore) consulted with ENP regarding scope of $0\nu\beta\beta$ portfolio, ad hoc reviewers and panelists
- ENP panel \rightarrow rankings with $0\nu\beta\beta$ interwoven with other proposals
- ENP program directors participating in DOE-NSF $0\nu\beta\beta$ Working Group
- Scope of ENP portfolio better represents the nuclear physics community



NSF FY15 Operating Budget & FY16 Request

	FY 12 (M\$)	FY 13 (M\$)	FY 14 (M\$)	FY15 Estimate (M\$)	Change from FY14	FY16 Request (M\$)	Change from FY14
NSF Total	7,105	6,902	7,131	7,344	+2.9%	7,724	+8.3%
R&RA	5,758	5,559	5,775	5,934	+2.7%	6,186	+7.1%
MPS	1,309	1,249	1,268	1,337	+5.4%	1,366	+7.8%

R&RA: Research and Related Activities (includes directorates)

MPS: Mathematical and Physical Sciences

NSF Priority Areas in which PHY participates: Brain,
CIF21, Optics and Photonics



NSF PHY FY15 Estimate & FY16 Request

Physics (PHY) Funding

(Dollars in Millions)

	FY 2014 Actual	FY 2015 Estimate	FY 2016 Request	Change Over FY 2015 Estimate	
				Amount	Percent
Total, PHY	\$267.09	\$274.99	\$277.37	\$2.38	0.9%
Research	163.82	176.05	176.19	0.14	0.1%
CAREER	8.57	7.44	7.45	0.01	0.1%
Centers Funding (total)	0.02	0.02	-	-0.02	-
Nanoscale Science & Engineering Centers	0.02	0.02	-	-0.02	-
Education	5.38	5.56	5.32	-0.24	-4.3%
Infrastructure	97.89	93.38	95.86	2.48	2.7%
IceCube Neutrino Observatory	3.45	3.45	3.45	-	-
Large Hadron Collider (LHC)	17.37	18.00	18.00	-	-
Laser Interferometer Grav. Wave Obs. (LIGO)	36.43	39.43	39.43	-	-
National Superconducting Cyclotron Laboratory (NSCL)	22.50	23.00	22.50 ?	-	-
Research Resources	11.56	-	-	-	N/A
Mid-scale Research Infrastructure	6.58	10.00	12.48	2.48	24.8%

Totals may not add due to rounding.

Budget Trends – NSF Nuclear Physics



FY	Hadrons & Light Nuclei (k\$)	Structure & Heavy Ions (k\$)	Fund. Sym. (k\$)	Nucl. Astro. (k\$)	Theory (k\$)	Program Total (k\$)	NSCL (k\$)	JINA JINA -CEE (k\$)	MRI (k\$)	Mid-Scale (k\$)	Total Nuclear Physics (k\$)
2009	7,663	4,734	5,572	N/A	5,825	23,794	20,500	2,000	8,058		65,877
2010	6,421	6,863	5,532	1,078	3,855	22,672	21,000	2,150	1,134		46,956
2011	5,349	6,485	5,336	1,994	3,719	22,883	21,500	2,150	729		47,262
2012	7,657	3,375	5,855	1,610	3,829	22,326	21,500	2,150	2,744		48,720
2013	5,218	4,259	5,304	1,754	3,474	20,008	21,500	2,150	2,996	490	47,144
2014	5,275	4,215	5,250	2,475	3,514	20,728	22,500	2,280	1,038	1,188	47,733
2015	X,XXX	X,XXX	X,XXX + $0\nu\beta\beta$	X,XXX	X,XXX	YY,YYY	23,000	2,280			YY,YYY

MRI: competes each year; supplemental one-time acquisition/development funds
 Mid-scale: ad hoc competition; supplemental construction funds

Announcements: NSF Physics Division Investigator-Initiated Research Projects (14-576)



October 2014: **all proposals** submitted to the Division of Physics programs (Expt'l Nuclear Physics, Theoretical Nuclear Physics, Particle Astrophysics, Computational Physics, *etc.*) **required to go through this solicitation.**

Changes:

- Deadlines
- PIs with concurrent sources of support must explain how the scope of each award would be different and how the PI will accomplish goals of multiple awards
- List of collaborators included as a supplemental document
- Requests for instrumentation over \$1M must submit documents related to cost, schedule, risk management

Announcements: NSF Physics Division Investigator-Initiated Research Projects (14-576)



The solicitation will be updated soon – check the Division website!

- All proposals (including conference, workshop, and school proposals) must be submitted by the program deadline.
 - Letters of collaboration must follow prescribed text. Letters of support have never been allowed.
 - **Deadlines:**
 - October 28, 2015 for Particle Astrophysics
 - *November 13, 2015 for Experimental Nuclear Physics & Theoretical Nuclear Physics*
 - December 3, 2015 Computational Physics
 - February 3, 2016 for Accelerator Science
 - 17:00 in the PI's time zone
-



Announcements: Major Research Instrumentation (MRI)

- Solicitation: NSF 15-504
- Due date = 22-jan-2015 (past)
- Maximum award is \$4 million; awards above \$1 million compete across the entire foundation
- Proposals from non-PhD granting institutions have slightly different requirements
- *Physics received 24 proposals, NP received 8 proposals*
- Currently being reviewed; will be judged in part by merit of science that will be done with instrument
- Many PIs contacted program officers well ahead of submission to discuss (avoid pitfalls)



Announcements: Career-Life Balance

- Instituted in 2012, NSF's Career-Life Balance (CLB) Initiative is an ambitious, *ten-year initiative that will build on the best of family-friendly practices among individual NSF programs to expand them to activities NSF-wide*. This agency-level approach will help attract, retain, and advance graduate students, postdoctoral students, and early-career researchers in STEM fields.
- See the Dear Colleague Letter: NSF 13-075 for information about requesting supplements to CAREER awards.
- *The Physics Division will consider such requests from all awardees. **Contact your program officer for information.***



Announcements: Diversity

The Physics Division is in a year-long study on increasing diversity in the research community:

- Collecting Best Practices from community, PFCs, Facilities, ...
- PHY Web Site
http://www.nsf.gov/mps/phy/broadening_participation/index.jsp
 - Departments, Faculty, Postdocs, Students,
 - Recruitment and Retention
 - Statistics and Reports
 - Networks and Organizations



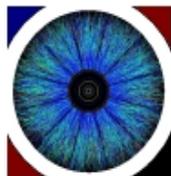
Announcements: Diversity (continued)

- Send feedback and comments on the website to:
Program Director for Integrative Activities in
Physics, Dr Kathleen McCloud.
- Providing demographic data voluntary and
response rate is very low. NSF needs your help:
 - Data collected are **not** used for research
 - Selecting “prefer not to report” is an option in the system
 - Please encourage the people supported by your NSF
awards to respond to the participation reporting system
and to include their demographic information



Nuclear Physics Program Scope

- Nucleon and Hadron QCD
- Nuclear Structure and Reactions
- Nuclear Astrophysics
- Nuclear Precision Measurements and Fundamental Symmetries
- Nuclear Theory





NSF/MPS/Physics Personnel

- **France Cordova** – Director
- **Fleming Crim** – Associate Director for MPS
- **Denise Caldwell** – Physics Division Director
- **Brad Keister** – Deputy Division Director
- **Bogdan Mihaila** – Nuclear Theory Program Director
- **Ken Hicks** – Expt'l Nuclear Physics Program Director
- **Allena Opper** – Expt'l Nuclear Physics Program Director
- **Jim Whitmore** – Particle Astrophysics Program Director
- **Jean Cottam** – Particle Astrophysics Program Director



For the latest updates, check out

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

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The screenshot shows the NSF website interface. At the top, there is a navigation bar with links for HOME, FUNDING, AWARDS, DISCOVERIES, NEWS, PUBLICATIONS, STATISTICS, ABOUT NSF, and FASTLANE. Below this is the NSF logo and the text "National Science Foundation Directorate for Mathematical & Physical Sciences (MPS)". A search bar and a "QUICK LINKS" button are also visible. The main navigation bar includes "MPS HOME", "MPS FUNDING", "MPS AWARDS", "MPS DISCOVERIES", "MPS NEWS", and "ABOUT MPS". The page content is divided into two columns. The left column features a "Physics (PHY)" header with a small image of Albert Einstein, followed by a list of links: PHY Home, About PHY, Funding Opportunities, Awards, News, Events, Discoveries, Publications, Career Opportunities, Facilities and Centers, PHY Program Director Jobs, See Additional PHY Resources, and View PHY Staff. Below these links is a search box for "PHY Staff". The right column has a "Physics (PHY)" header with social media sharing options (Email, Print, Share). The main content area contains two news items: "PHY Replaces DCL with Solicitation NSF 14-576" and "PHY Int'l Activities - Potential Co-Review". The "PHY Replaces DCL" item includes a paragraph of text: "The Physics Division has issued a solicitation (NSF 14-576) for FY2015 that replaces its prior annual Dear Colleague Letter. The solicitation follows most of the requirements in the Grant Proposal Guide, but has additional requirements that relate primarily to proposers who anticipate having multiple sources of support, and proposals involving significant instrumentation development. The solicitation also has deadlines instead of target dates. All proposals submitted to the Physics Division that are not governed by another solicitation (such as CAREER) should be submitted to this solicitation; otherwise they will be returned without review." The "PHY Int'l Activities" item includes a paragraph: "The Physics Division has issued a Dear Colleague Letter (NSF 14-009) to announce the guidelines for 'International Activities within the Physics Division - Potential International Co-Review'. The DCL outlines a possible coordinated review of projects involving international colleagues and counterpart funding organizations where a mutual review and funding process is beneficial to the advancement of Physics research. Contact with the appropriate NSF Program Officer is a necessary first step and additional time for this coordination must be allowed. Proposals requesting co-review will be competing with all other proposals in that area and must succeed on the strengths of their intellectual merit and broader impact." Below the news items is a "Special Announcements" section with two links: "MPS Alliances for Graduate Education and the Professoriate - Graduate Research Supplements (AGEP-GRS) Dear Colleague Letter (NSF 13-071)" and "Dear Colleague Letter - Announcement of Instrumentation Fund to Provide Mid-Scale Instrumentation for FY2014 Awards in Physics Division (NSF 13-118)". At the bottom of the page, there is a list of "MPS Organizations": Astronomical Sciences (AST), Chemistry (CHE), and Materials Research (DMR).



Backup Slides