



# News from NSF

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# R&RA – Research and Related Activities

(Direct Support for Research and Facilities)

MPS is 22.5% of Total

## R&RA Funding

(Dollars in Millions)

	FY 2011	FY 2012	FY 2013	Change over FY 2012 Estimate	
	Actual	Estimate	Request	Amount	Percent
Biological Sciences	\$712.27	\$712.38	\$733.86	\$21.48	3.0%
Computer & Information Science & Engineering	636.06	653.59	709.72	56.13	8.6%
Engineering	763.33	826.17	876.33	50.16	6.1%
Geosciences	885.32	885.27	906.44	21.17	2.4%
<b>Mathematical &amp; Physical Sciences</b>	<b>1,312.42</b>	<b>1,308.94</b>	<b>1,345.18</b>	<b>36.24</b>	<b>2.8%</b>
Social, Behavioral & Economic Sciences	247.33	254.25	259.55	5.30	2.1%
Office of Cyberinfrastructure	300.75	211.64	218.27	6.63	3.1%
Office of International Science & Engineering	49.03	49.85	51.28	1.43	2.9%
Office of Polar Programs <sup>1</sup>	440.70	435.87	449.74	13.87	3.2%
Integrative Activities	259.60	349.59	431.52	81.93	23.4%
U.S. Arctic Research Commission	1.58	1.45	1.39	-0.06	-4.1%
<b>Total, R&amp;RA</b>	<b>\$5,608.38</b>	<b>\$5,689.00</b>	<b>\$5,983.28</b>	<b>\$294.28</b>	<b>5.2%</b>

Totals may not add due to rounding.

<sup>1</sup> Funding for FY 2011 Actual excludes a one-time appropriation transfer of \$54.0 million, less the 0.2% rescission, to the U.S. Coast Guard per P.L. 112-110.



In FY 2013, funding within the broad and flexible R&RA portfolio highlights the Administration's priorities for science and innovation, including a focus on interdisciplinary science and engineering; innovative research on clean energy and sustainability; key investments in advanced manufacturing, break-through materials, wireless communications, and smart systems; an emphasis on bolstering our Nation's cybersecurity; strong support for new faculty and young investigators; and vital evidence-based educational activities at every level of learning that build the science and engineering workforce of tomorrow.

**FY 2013 OneNSF Framework Priorities**

(Dollars in Millions)

	FY 2011 Actual	FY 2012 Estimate	FY 2013 Request
Cyber-enabled Materials, Manufacturing, and Smart Systems (CEMMSS) <sup>1</sup>	-	\$141.65	\$257.42
Cyberinfrastructure Framework for 21 <sup>st</sup> Century Science and Engineering (CIF21)	-	78.00	106.08
Expeditions in Education (E <sup>2</sup> )	-	-	49.00
NSF Innovation Corps (I-Corps)	1.06	7.50	18.85
Integrated NSF Support Promoting Interdisciplinary Research and Education (INSPIRE)	-	20.35	63.00
Secure and Trustworthy Cyberspace (SaTC) <sup>1</sup>	-	111.75	110.25
Science, Engineering, and Education for Sustainability (SEES) <sup>1</sup>	87.96	157.00	202.50
<b>Total, NSF</b>	<b>\$89.02</b>	<b>\$516.25</b>	<b>\$807.10</b>

Totals may not add due to rounding.

<sup>1</sup> The FY 2011 number shown above for SEES, and the FY 2012 numbers for CEMMSS, SaTC, and SEES, represent estimated levels for directly related activities in these areas.



**MPS Funding**  
(Dollars in Millions)

	FY 2011 Actual	FY 2012 Estimate	FY 2013 Request	Change Over FY 2012 Estimate	
				Amount	Percent
Division of Astronomical Sciences (AST)	\$236.78	\$234.55	\$244.55	\$10.00	4.3%
Division of Chemistry (CHE)	233.55	234.06	243.85	9.79	4.2%
Division of Materials Research (DMR)	294.91	294.55	302.63	8.08	2.7%
Division of Mathematical Sciences (DMS)	239.79	237.77	245.00	7.23	3.0%
<b>Division of Physics (PHY)</b>	<b>280.34</b>	<b>277.37</b>	<b>280.08</b>	<b>2.71</b>	<b>1.0%</b>
Office of Multidisciplinary Activities (OMA)	27.06	30.64	29.07	-1.57	-5.1%
<b>Total, MPS</b>	<b>\$1,312.42</b>	<b>\$1,308.94</b>	<b>\$1,345.18</b>	<b>\$36.24</b>	<b>2.8%</b>

Totals may not add due to rounding.

**MPS Major Investments**

(Dollars in Millions)

Area of Investment	FY 2011 Actual	FY 2012 Estimate	FY 2013 Request	Change Over FY 2012 Estimate	
				Amount	Percent
Advanced Manufacturing	\$23.42	\$32.15	\$40.00	\$7.85	24.4%
BioMaPS	3.37	7.69	11.60	3.91	50.8%
<b>CAREER</b>	<b>66.08</b>	<b>54.02</b>	<b>56.74</b>	<b>2.72</b>	<b>5.0%</b>
CEMMSS	-	32.15	50.00	17.85	55.5%
CIF21	-	11.50	19.55	8.05	70.0%
Clean Energy Technology	132.00	137.31	137.31	-	-
E <sup>2</sup>	-	-	5.00	5.00	N/A
EARS	0.03	3.00	12.00	9.00	300.0%
I-Corps	0.20	1.00	1.30	0.30	30.0%
<b>INSPIRE</b>	<b>-</b>	<b>3.00</b>	<b>7.00</b>	<b>4.00</b>	<b>133.3%</b>
SEES	2.72	16.50	27.20	10.70	64.8%
SaTC	-	0.50	2.00	1.50	300.0%

Major investments may have funding overlap and thus should not be summed.

Priority Funds are Imbedded in the Core Programs in Areas of Overlap with NSF Priorities

Priority Funds Represent 13.5% of Total Budget – Remaining 86.5% is Invested in open “Discovery” Projects



Physics Division Request for FY 2013 is \$280 M

Approximately 2% for Operations -  
Panels, IPA Appointments, IPA Travel, M&S

Approximately 26% for M&O for Facilities –  
ATLAS and CMS, IceCube, LIGO, NSCL

Approximately 7% for Physics Frontiers Centers – Currently Ten

Approximately 3% for Education and Broadening Participation –  
REU Sites, LIGO Education Center, QuarkNet

Leaves 62% (\$173.6 M) to Cover Six Major Areas of Physics –  
Experimental and Theoretical



## Division of Physics

Denise Caldwell  
Director (Acting)

Brad Keister  
Deputy Director (Acting)

**Experiment**

Atomic, Molecular,  
Optical, and Plasma  
Siu Au Lee  
Steve Gitomer

Elementary Particle  
Physics LHC  
Marv Goldberg, Saul Gonzalez,  
Randy Ruchti

Particle Astrophysics  
IceCube  
Jean Cottam-Allen, Jim Whitmore

Gravitational Physics  
LIGO  
Tom Carruthers  
Pedro Marronetti

Nuclear Physics  
NSCL  
Gail Dodge  
Brad Keister

Physics of Living Systems  
Krastan Blagoev

**Theory**

Elementary Particle  
Physics, Astrophysics, and  
Cosmology  
Keith Dienes

Nuclear Physics &  
Nuclear Astrophysics  
Brad Keister

Physics of Living Systems  
Krastan Blagoev

Gravitational Physics  
Pedro Marronetti

Atomic, Molecular, and  
Optical  
Ann Orel

Mathematical Physics  
Earle Lomon

**Cross-cutting**

Physics Frontier Centers  
Denise Caldwell  
Kathy McCloud

Education and  
Interdisciplinary Research  
Kathy McCloud

Accelerator Physics and  
Physics Instrumentation

Physics at the Information  
Frontier  
Marv Goldberg,  
Brad Keister, Ann Orel



## Four Research Areas:

Hadronic Physics, Heavy Ion Physics  
Nuclear Structure and Nuclear Astrophysics,  
Fundamental Symmetries and Neutrinos

Experimentally: Nuclear Physics

Theoretically: Nuclear Theory

Facilities: Support for NSCL

Connections: Physics at the Information Frontier (esp. Computation)  
Physics Frontiers Centers (esp. JINA at Notre Dame)

(Total Funding Approximately 17% of Physics Division Budget in FY 2012)

Leveraging of Additional Resources –

Major Research Infrastructure (MRI)

\$1.5 M in FY 2012; Over \$30M since 1998





## Strong, Vibrant Program

### Reflections on FY 2012

Neutrino Physics ( $\theta_{13}$  measurement)

Spin and Heavy Ion Results at RHIC

GRETINA campaign at NSCL

JLab upgrade and preparation for 12 GeV experiments

- Broad portfolio of outstanding research in all four subfields
  - ❖ Close connections to astro, AMO, HEP, computational physics ...
- 3 MRI awards
- Education/mentoring (CEU - conference experience for undergraduates)
- Positive Review from February 2012 Committee of Visitors
- Close cooperation with DOE on common projects