DIVISION OF MATERIALS RESEARCH (DMR) $314,630,000
+$20,080,000 / 6.8%

DMR Funding
(Dollars in Millions)

	FY 2012 Actual	FY 2012 Enacted/ Annualized FY 2013 CR	FY 2014 Request	Change Over FY 2012 Enacted Amount	Percent
Total, DMR	**$294.40**	**$294.55**	**$314.63**	**$20.08**	**6.8%**
Research	**229.27**	**231.84**	**243.92**	**12.08**	**5.2%**
CAREER	23.79	18.00	19.35	1.35	7.5%
Centers Funding (total)	58.22	53.23	60.12	6.89	12.9%
Materials Centers	49.56	44.35	56.00	11.65	26.3%
Nanoscale Science & Engineering Centers	4.66	4.88	0.80	-4.08	-83.6%
STC: Center for Layered Polymeric Systems	4.00	4.00	3.32	-0.68	-17.0%
Education	**9.20**	**9.06**	**7.96**	**-1.10**	**-12.1%**
Infrastructure	**55.93**	**53.65**	**62.75**	**9.10**	**17.0%**
CHESS	19.67	19.67	20.00	0.33	1.7%
NHMFL	25.30	24.30	30.89	6.59	27.1%
NNIN	2.58	2.58	2.58	-	-
Other MPS Facilities[1]	2.52	2.52	2.66	0.14	5.6%
Research Resources	5.87	4.58	6.62	2.04	44.5%

Totals may not add due to rounding.

[1] Other MPS Facilities is the Center for High Resolution Neutron Scattering (CHRNS) for all years.

DMR focuses on research aimed at advancing materials discovery and characterization, including condensed matter physics, solid-state chemistry, and the science of materials that are multifunctional, hybrid, electronic, photonic, metallic, superconducting, ceramic, polymeric, biological and nanostructured. DMR awards enable the community to advance understanding of electronic, atomic, and molecular mechanisms and processes that govern macroscale properties so that we can learn how to manipulate and control them, to discover new synthesis and processing strategies that lead to new materials with unique and novel properties, and to discover and to understand emerging phenomena. The discoveries and advancements transcend traditional scientific and engineering disciplines, and can result in elimination of roadblocks to enabling new technology including those with the goal of sustainability. A key and critical enabler to these scientific advances is the investment in development and support of the materials workforce, in cyberinfrastructure and in next generation instruments and facilities.

In general, 29 percent of the DMR portfolio is available for new research grants and 71 percent funds continuing grants.

FY 2014 Summary

All funding decreases/increases represent change over the FY 2012 Enacted level.

Research

- CAREER (+$1.35 million for a total of $19.35 million): These awards are a high priority and are used to develop a pipeline of new faculty in materials research that will form the community of the future.
- Centers:
  - Materials Centers (+$11.65 million to a total of $56.0 million): Funding will support 18 Materials Research Science and Engineering Centers (MRSECs). A competition in FY 2014 will reduce the number of centers from 23 to 18 but increase funds to each center, in keeping with the recommendation of the 2007 NRC report on MRSECs. (For more information, see the Centers narrative in the NSF-Wide Investments section).
  - Nanoscale Science and Engineering Centers (-$4.08 million for a total of $800,000) are sunsetting as planned, but DMR will continue to fund those projects that advance environmental health and safety and societal impacts of nanotechnology.
  - Science and Technology Centers (-$680,000 for a total of $3.32 million): This decrease reflects the planned sunsetting of the Center for Layered Polymeric Systems.
- Cognitive Science and Neuroscience ($400,000): Funding supports cross-Foundation fundamental research relevant to cognitive science and neuroscience.
- Changes in NSF-wide investments are accommodated through strategic investments through DMR core programs, accompanied by small reductions to programs not receiving proposals in these areas. These NSF-wide investments include:
  - BioMaPS (+$2.23 million for a total of $4.15 million): DMR supports a large and growing amount of research at the intersection of the life and physical sciences, not only in its Biomaterials program, but throughout its portfolio, including the centers and facilities.
  - Clean Energy (-$4.55 million to a total of $66.83 million): Funding in the DMR portfolio supports research in clean energy, including hydrogen, fuel cells, biomass, solar energy, hydrocarbon conversion, and energy storage.
  - CEMMSS (+$22.80 million to a total of $35.0 million): CEMMSS is comprised of two components in MPS:
    - Advanced Manufacturing (+$7.80 million for a total of $20.0 million): This addresses nanomanufacturing.
    - DMREF (+$15.0 million for a total of $15.0 million): DMR leads the DMREF activity, which is based on the national Materials Genome Initiative (MGI). The DMREF competition is run in partnership with CHE and DMS, as well as with the Directorates for Engineering and Computer and Information Science and Engineering. DMREF is a major effort to accelerate the discovery and deployment of new materials with a specific and desired function or property through integration of theory and computation, experiments and systematic use of materials data.
  - CIF21 (+$1.73 million for a total of $3.48 million): Funding will accelerate research, especially related to DMREF/CEMMSS, by investing in new functional capabilities in computational methods, algorithms, tools and data core methods, and technologies.
  - SEES (+$6.43 million for a total of $11.93 million). DMR is a major contributor to SEES. In the Sustainable Chemistry, Engineering and Materials (SusChEM) program, DMR focuses work to enable the capture and use of CO_2, discover new materials that can withstand extreme conditions, use new (non-petroleum based) raw materials as feedstocks for society's materials, and synthesize and process materials to optimize the use of raw materials, water, chemicals, and energy in an environmentally benign way. In FY 2014, DMR will lead the initiation of a new component of the SusChEM program to address critical elements, minerals, and materials.

Education

- Research Experiences for Undergraduates Sites and Supplements program (REU) (+$800,000 to a

total of $6.27 million.): $400,000 of this additional funding will support enhanced research experiences for students in their first two years of college, as recommended by the President's Council of Advisors on Science and Technology (PCAST) in their report, *Engage to Excel: Producing One Million Additional College Graduates with Degrees in Science, Technology, Engineering, and Mathematics.* The remaining $400,000 will support efforts to broaden participation to groups including veterans and others that are under-represented in science, technology, engineering, and mathematics.

- IGERT (-$1.90 million to zero): All final funding increments in this program are consolidated into OMA. IGERT will sunset in FY 2014 with the initiation of the NSF Research Traineeships (NRT) program.

Infrastructure

- NHMFL (+$6.59 million to a total of $30.89 million): Funds will continue to support transformational research using high magnetic fields. This facility serves researchers in disciplines ranging from biology to materials and condensed matter physics. The requested level reflects a new cooperative agreement for operations that started in FY 2013.
- CHESS (+$330,000 to an estimated total of $20.0 million): The CHESS user program supports work in cancer research, new materials for electronics, aircraft, biotechnology, batteries, fuel cells, solar cells and other energy applications. The current cooperative agreement with CHESS ends in FY 2014 and a renewal is currently being reviewed.
- Research Resources (+$2.04 million to a total of $6.62 million): This includes support to pilot activities associated with the Material Innovation Platforms (MIPs) (+$3.0 million to a total of $3.0 million). In addition, decreased funding for Coherent Light Source development (CLS) reflects the planned end, in April 2014, of the current cooperative agreement (-$960,000 to a total of $3.62 million).