MATERIALS RESEARCH $282,590,000

The FY 2008 Request for the Materials Research Division (DMR) is $282.59 million, an increase of $25.14 million, or 9.8 percent, over the FY 2007 Request of $257.45 million.

Materials Research Funding
(Dollars in Millions)

	FY 2006 Actual	FY 2007 Request	FY 2008 Request	Change over FY 2007 Request Amount	Change over FY 2007 Request Percent
Materials Research	**$242.59**	**$257.45**	**$282.59**	**$25.14**	**9.8%**
Major Components:					
Research and Education Grants	138.48	146.13	162.77	16.64	11.4%
Centers Programs	65.03	71.30	74.80	3.50	4.9%
Facilities	39.08	40.02	45.02	5.00	12.5%
National High Magnetic Field Laboratory (NHMFL)	24.25	25.00	27.50	2.50	10.0%
National Nanofabrication Infrastructure Network (NNIN)	2.52	2.55	2.55	-	-
Other MPS Facilities	12.31	12.47	14.97	2.50	20.0%

Totals may not add due to rounding.

About DMR:

The Division of Materials Research advances the intellectual frontiers of materials research. The activities supported are a critical component of the ACI. DMR awards enable the science and engineering community to make new discoveries about the fundamental behavior of matter and materials; to create new materials and new knowledge about materials phenomena; to address questions about materials that often transcend traditional scientific and engineering disciplines and lead to new technologies; to prepare the next generation of materials researchers; to develop and support the instruments and facilities that are crucial to advance the field; and to share the excitement and significance of materials and condensed-matter science with the public at large. DMR supports experimental and theoretical research over a broad range of subfields, including condensed matter and materials physics; solid state chemistry; polymers; biomaterials; ceramics; metals; and electronic, magnetic and photonic materials. The division maintains a balanced portfolio of research topics through individual investigator grants, focused research groups, centers, and awards for instrumentation and user facilities. DMR programs support a variety of interagency and international partnerships to advance materials research and education.

The DMR portfolio has three major components: research and education awards, centers, and user facilities. Support for international collaboration and for broadening participation in materials research and education is integrated throughout the portfolio.

- DMR research and education awards comprise grants to individual investigators and small groups, and to teams of several investigators addressing complex problems in materials and condensed-matter research. DMR also supports six International Materials Institutes based at U.S. universities to enhance international cooperation in materials, and a program to support the acquisition and development of instrumentation for materials research. Ten awards for Partnerships for Research and Education in Materials (PREM) are aimed at broadening participation in the materials research field.

- DMR Centers address major interdisciplinary problems in materials and condensed-matter science. DMR plans to support up to 29 Materials Research Science and Engineering Centers (MRSECs) in FY 2008; three MRSECs are being phased out in FY 2007. The division also supports three Nanoscale

Science and Engineering Centers (NSECs), provides partial support for a further seven NSECs, and supports two Science and Technology Centers (STCs).

- DMR supports world-class facilities for high magnetic fields, synchrotron radiation, and neutron scattering, and provides partial support for the National Nanofabrication Infrastructure Network. Researchers use these facilities to address challenging problems across a very broad range of disciplines including materials and condensed-matter science, physics, chemistry, biology, geosciences, and many areas of engineering.

Approximately 20 percent of the funds requested for DMR in FY 2008 will be available for new competitive research grants; in addition about 10 percent of the funds will be available for the FY 2008 MRSEC competition. The remaining funds will support continuing commitments from prior years, facilities, instrumentation, and education and outreach. In FY 2006, DMR received 1466 research proposals and made 297 research grants for a success rate of 20 percent for research grants.

DMR Priorities for FY 2008:

Support for materials research programs that explore new phenomena, develop novel materials, and undergird technological innovation. These programs include awards to individual investigators, interdisciplinary teams, and centers. Emphasis will be given to research on materials and phenomena at the nanoscale; on complex systems including biomaterials; on computational discovery and innovation; and on the regime in materials and condensed matter where the quantum nature of matter increasingly comes into play. Such programs have significant potential for economic impact and for enhancing U.S. competitiveness.

Broadening participation in materials research. DMR will provide strong support for the participation of undergraduates, pre-college students and pre-college teachers in research, and for partnerships that strengthen the links between institutions serving under-represented groups and DMR-supported research teams, centers, and facilities.

Maintaining support for world-class user facilities, while enabling the development of future user facilities and major instrumentation for synchrotron radiation, neutron scattering, and high magnetic fields. (For more details about the National High Magnetic Field Lab, please see the Facilities Chapter.)

Changes from FY 2007:

DMR will increase support for **research and education grants** by $16.64 million to a total of $162.77 million. This will enhance support for research on nanoscale materials and phenomena; on complex systems including biomaterials; on materials aspects of computational discovery and innovation; and for fundamental research addressing “Science Beyond Moore’s Law”, encompassing novel materials and phenomena required for the future development of new computational and communications technologies.

DMR will increase support for the **centers programs** by $3.50 million to a total of $74.80 million. The increase will partially support two to three new materials centers to be established through open competition; further funds will be derived by phasing out support for re-competing centers as needed.

DMR will increase support for **facilities** by $5.0 million to a total of $44.02 million. This will enable continued operational support for X-ray, neutron and nanofabrication user facilities, and includes enhanced support for the conceptual design of future X-ray facilities and for operation of the National High Magnetic Field Laboratory.