

Division of Materials Research (DMR)

Mission

To make new discoveries about the behavior of matter and materials; to create new materials and new knowledge about materials phenomena; to address fundamental materials questions that often transcend traditional scientific and engineering disciplines and may 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 science with the public at large.

The research and educational activities supported are critical to national competitiveness. DMR supports experimental and theoretical research over a broad range of subfields, including condensed matter and materials physics, solid state and materials chemistry, electronic and photonic materials, metals, polymers, ceramics, and biomaterials. Funding modes range from awards to individual investigators and small groups to centers, instrumentation and major facilities.

Broadening Participation

The Division of Materials Research strives to broaden the participation of women and underrepresented minority groups in science and engineering at all academic levels. One aspect of this vision is the Partnership for Research and Education in Materials (PREM) program, which develops and supports long-term partnership between minority serving institutions and DMR centers and facilities. This program was started in 2004 and currently supports 10 awards.

Contact Information

Division Director

Dr. Zakya H. Kafafi

Executive Officer

Dr. W. Lance Haworth

National Science Foundation
Division of Materials Research
4201 Wilson Boulevard

Room 1065

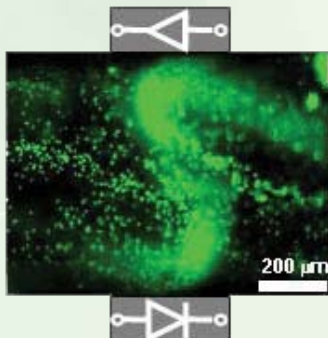
Arlington, VA 22230

Telephone: (703) 292-8810

Fax: (703) 292-9035 or (703) 292-9036

Web site: <http://www.nsf.gov/div/index.jsp?div=DMR>

A microfluidic diode mixer operated by AC field. The orientation of the diodes applies a torque on the liquid in the microchannel, which leads to a mixing vortex.



Credit: S-T Chang, V.N. Paunov, D.N. Petsev and O.D. Velev, *Nature Materials* 6 (2007) pp. 235-240.

Programs in Materials Research

Programs for Individual Investigators and Groups

Biomaterials
Ceramics
Condensed Matter and Materials Theory
Condensed Matter Physics
Electronic Materials
Metals
Polymers
Solid State and Materials Chemistry

Crosscutting DMR Programs

Instrumentation for Materials Research

Materials Research Science and Engineering Centers (MRSEC)

- MRSECs address fundamental materials research problems whose scope and complexity requires the advantages of scale and interdisciplinary interaction provided by a center. Twenty-six centers are currently supported. For more information visit <http://www.mrsec.org/>.

- Partnerships for Research and Education in Materials (PREM)

National Facilities

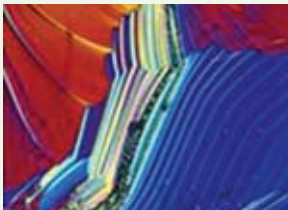
- DMR supports user facilities for neutron scattering, x-rays, high magnetic fields and nano-fabrication.

Office of Special Programs

- International Materials Institutes
- Materials World Network
- Research Experiences for Undergraduates (REU) and Teachers (RET)

A Guide to Programs / Browse Funding Opportunities is available at http://www.nsf.gov/funding/browse_all_funding.jsp.

The Materials World Network (MWN), initiated and supported by the Division of Materials Research in partnership with over 50 research funding organizations worldwide, engages global intellectual resources for the advancement of materials research and education. International collaborative projects underpin the network; the International Materials Institutes serve as its nodes. The NSF annual investment in the MWN is about \$10 million.

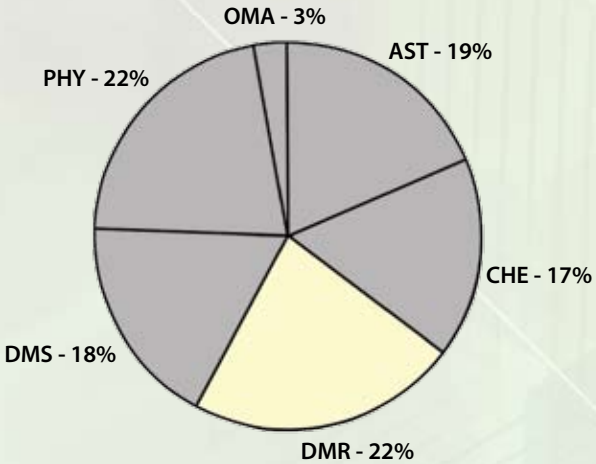


The Division of Materials Research supports user facilities that provide the scientific community with instrumentation and expertise in high magnetic fields, neutron and x-ray scattering, and nano-fabrication. The photomicrograph at left shows a high temperature superconducting crystal (Yttrium 123), one of many materials being explored at the National High Magnetic Field Laboratory in Tallahassee, Florida.

Credit: Michael W. Davidson.

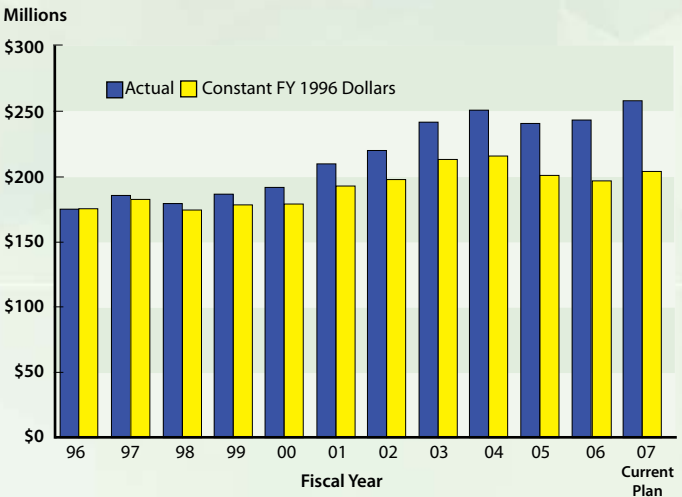
Division of Materials Research (DMR)

MPS Funding FY 2007 Current Plan



Pie chart showing divisional portions of MPS total budget for FY 2007. DMR will spend \$257 million in FY 2007, which is 22% of the total MPS budget. *Totals may not add due to rounding.*

Budget in Actual and Constant FY 1996 Dollars

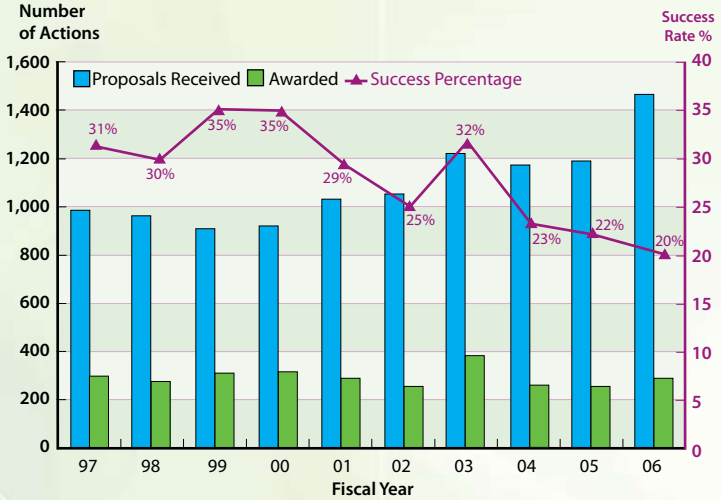


DMR annual budgets in actual and constant FY 1996 dollars. Constant dollars show the purchasing power of the DMR budget. Over this 12-year period, the constant dollar budget for DMR has increased 16%.

Data provided from FY 1998 to 2008 NSF Budget Requests to Congress, <http://www.nsf.gov/about/budget/>. Constant 1996 Dollar Deflator from Section 10 of the Gross Domestic Product and Implicit Outlay Deflators, Historical Tables of the U.S. Budget, FY 2005, <http://www.whitehouse.gov/omb/budget/fy2008/pdf/hist.pdf>.

DMR

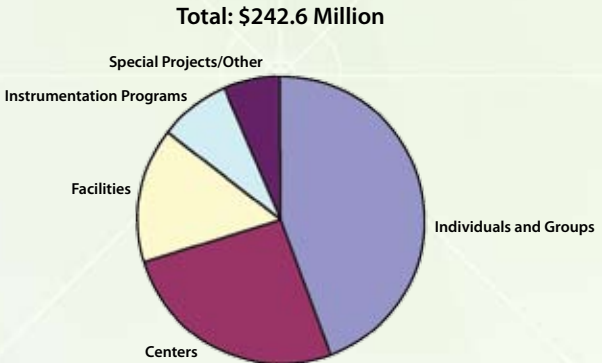
Success Rates and Number of Actions



Graph shows number of proposals submitted versus awarded for Research Grants as defined by NSF and resultant success rates. Success rate is defined as the number of new or renewal proposals awarded funding divided by the total number of proposals received. The number of proposals received by DMR in 2006 was 26% higher than in 1997.

Note: the distribution of success rates reflects the average for the Materials Research Division and may not represent success rates in individual programs.

Materials Research Funding FY 2006



Pie chart showing breakdown of FY 2006 DMR by funding categories.