Division of Materials Research (DMR)

Mission

The mission of the Division of Materials Research (DMR) is 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 education 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, metallic materials and nanostructures, polymers, ceramics, and biomaterials. Funding modes range from awards to individual investigators and small groups to centers, instrumentation and major facilities.

Workforce Development and Broadening Participation

DMR 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 partnerships between academic institutions serving underrepresented groups and DMR centers and facilities. PREM was started in 2004 and currently supports 10 awards.

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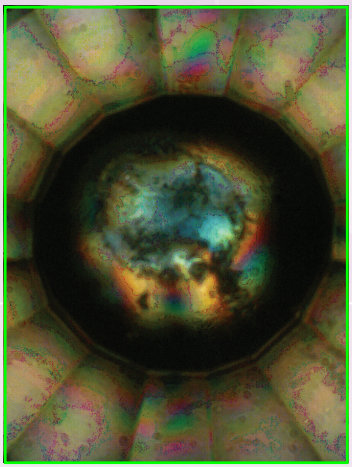


A sample of lutetium (blue oval) compressed between diamond anvils to a pressure of 174 GPa (25 million psi). Using high pressures to create new superconductors and to modify their properties helps us develop superior materials with potentially important applications.

Credit: James Schilling

Programs in Materials Research

Programs for Individual Investigators and Groups

Biomaterials
Ceramics
Condensed Matter and Materials Theory
Condensed Matter Physics
Electronic and Photonic Materials
Metallic Materials and Nanostructures
Polymers
Solid State and Materials Chemistry

Crosscutting DMR Programs

Instrumentation for Materials Research

Materials Research Science and Engineering Centers (MRSECs)

- MRSECs address fundamental materials research problems whose scope and complexity require the advantages of scale and interdisciplinarity provided by a center. Twenty-seven centers are currently supported. For more information visit http://www.mrsec.org/.

-Partnerships for Research and Education in Materials (PREM)

National Facilities

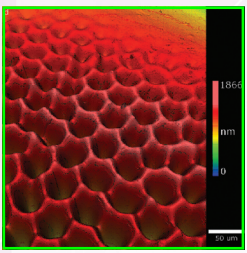
-DMR supports user facilities for neutron scattering, x-rays, high magnetic fields and nano-fabrication.

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 fifty research funding organizations worldwide, engages global resources for the advancement of materials research and education. International collaborative projects underpin the network; the International Materials Institutes serve as its nodes.



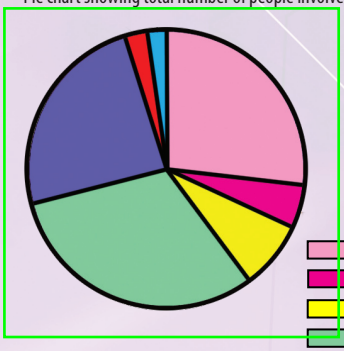
New wrinkle morphologies can be induced in polymers, such as the silicone rubber shown here, which could offer major benefits to their surface and adhesive properties.

Credit: Alfred Crosby.

Division of Materials Research (DMR)

Human Resources FY 2008

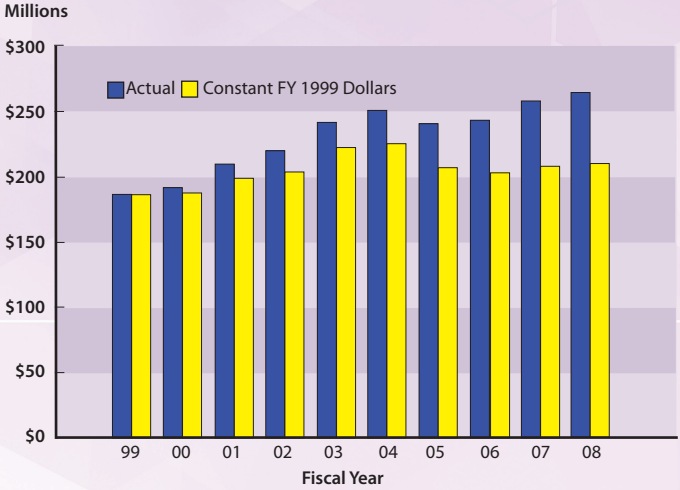
Pie chart showing total number of people involved in DMR.



- Senior Researchers - 27%
- Other Professionals - 5%
- Post Doctorials - 8%
- Graduate Students - 31%
- Undergraduate Students - 24%
- K-12 Teachers - 2%
- K-12 Students - 3%

Totals may not add due to rounding.

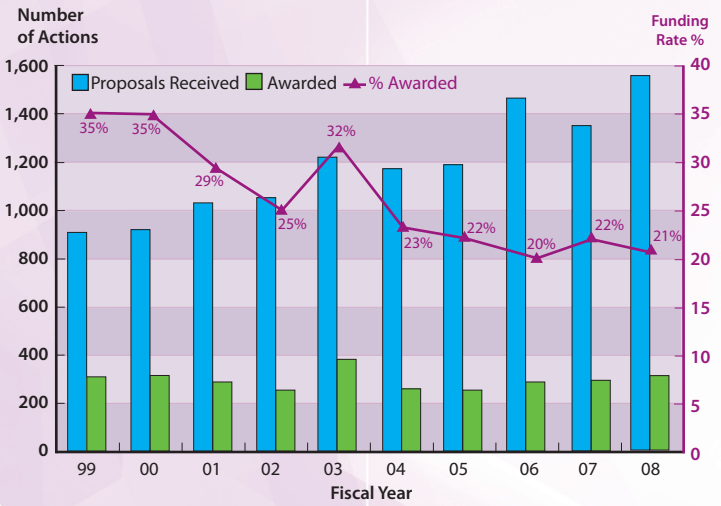
Budget in Actual and Constant FY 1999 Dollars



DMR annual budgets in actual and constant FY 1999 dollars. Constant dollars show the purchasing power of the DMR budget. Over this 10-year period, the constant dollar budget for DMR has increased 13%.

Data provided from FY 1999 to 2009 NSF Budget Requests to Congress, http://www.nsf.gov/about/budget/.

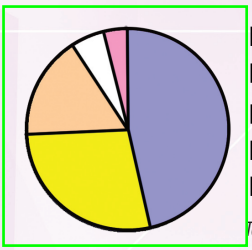
Success Rates and Number of Actions



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.

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

Modes of Support FY 2008



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