

MULTIDISCIPLINARY ACTIVITIES

\$34,370,000

The FY 2008 Request for the Office of Multidisciplinary Activities (OMA) is \$34.37 million, an increase of \$1.97 million, or 6.1 percent, over the FY 2007 Request of \$32.40 million.

Multidisciplinary Activities Funding

(Dollars in Millions)

| | FY 2006 Actual | FY 2007 Request | FY 2008 Request | Change over FY 2007 Request | |
|-------------------------------------|-------------------|--------------------|--------------------|--------------------------------|-------------|
| | | | | Amount | Percent |
| Multidisciplinary Activities | \$29.90 | \$32.40 | \$34.37 | 1.97 | 6.1% |
| Major Component: | | | | | |
| Research and Education Grants | 29.90 | 32.40 | 34.37 | 1.97 | 6.1% |

About OMA:

The Office of Multidisciplinary Activities enables and facilitates MPS support of particularly novel, challenging, or complex projects of varying scale in both research and education that are not readily accommodated by traditional organizational structures and procedures. This is done primarily in partnership with the five MPS disciplinary divisions to encourage multidisciplinary proposals from all segments of the MPS community and especially to encourage initiatives by multi-investigator, multidisciplinary teams pursuing problems on a scale that exceeds the capacity of individual investigators. Most often, these cooperative undertakings involve two or more partners – within MPS or beyond – that join with OMA to push in new directions of scientific understanding and that broaden and enrich education and research training activities in the MPS disciplines. Such partnerships are critically important to the pursuit of the strategic goals of the Foundation and of the MPS community and contribute significantly to the preparation of a diverse workforce for the new century that is broadly trained, flexible, and globally competitive. Facilitation by OMA of both disciplinary partnerships and organizational partnerships is vital to the accelerated discovery of new ideas, the development of new tools, and the broadened training necessary to enable the Nation’s workforce to meet new and rapidly evolving demands.

Because OMA plays a catalytic role in initiating new multidisciplinary activities and enabling broadening participation, the portfolio contains few commitments from prior years. Approximately 80 percent of the funds requested will be available for new research and education grants. Almost all awards are managed in the MPS divisions with co-funding from OMA.

OMA Priorities for FY 2008:

Enabling the creativity of the MPS community by facilitating partnership-enabled multidisciplinary and high-risk research that extends the intellectual frontiers of the MPS disciplines. Such activities include fundamental multidisciplinary research at the interface between the AST and PHY Divisions that enables advances in our understanding of the physics of the universe; at the interface between the MPS disciplines and the biological sciences that provides insights into the molecular basis of life processes, bio-inspired materials, and biological physics; in the multidisciplinary arena wherein the fundamental science beyond Moore’s Law will be explored; and by multidisciplinary teams of scientists, mathematicians, and engineers which leads to the development of next-generation

instrumentation, particularly instrumentation at the mid-scale level, that enables fundamental advances across a wide spectrum of disciplines.

Catalyzing the development of a diverse, well-prepared, internationally competent, and globally engaged STEM workforce includes both MPS participation in Foundation-wide programs and MPS-centric activities that leverage the directorate's research investment. These activities enrich the education and training continuum at all levels and facilitate the formation of research-based partnerships that not only increase diversity and broaden participation in the Science, Technology, Engineering, and Mathematics (STEM) enterprise directly, but also build the physical and intellectual capacity of educational institutions, particularly minority serving institutions (MSIs), to produce larger, more diverse cohorts of U.S. graduates who are well prepared to both support and to lead the Nation's STEM enterprise in the 21st Century.

Changes from FY 2007:

Funding for **research-enabled broadening participation in the MPS disciplines**, including the MPS-wide **Research Partnerships for Diversity**, diversity-targeted outreach from MPS centers and facilities, and diversity-building partnerships with MPS professional societies, increases by \$750,000 to the level of \$5.0 million. These co-investments with the five disciplinary MPS divisions enable research-based collaborative activities primarily between MPS-supported centers and facilities and MSIs. These collaborative interactions build research capacity of the MSI faculty; strengthen the research infrastructure of the MSIs; and engage, stimulate, retain, and develop an increasingly diverse cadre of students in the MPS disciplines at the undergraduate and graduate levels.

Support for **collaborative public education and outreach** activities at MPS-supported research centers and facilities will be maintained at the FY 2007 level of \$3.0 million. This investment includes the MPS Internships in Public Science Education program and related activities that enable effective leveraging of the MPS research investment for public science education, and clear public articulation of MPS science themes such as Physics of the Universe.

The OMA investment in the **Research Experiences for Teachers** activity (RET) will be sustained at the FY 2007 level of \$3.0 million, to provide more than 300 pre-service and in-service K-12 teachers with discovery-based learning experiences in the MPS disciplines. Support for the **NSF Graduate Teaching Fellows in K-12 Education** program (GK-12) will be maintained at the FY 2007 level of \$3.0 million.

Investment in cooperative **international research and training activities** will be increased by \$200,000 to the level of \$1.4 million to enhance the global competitiveness of U.S. scientists, engineers, and students. This international portfolio includes investments in the NSF-wide Pan-American Advanced Study Institutes, international research training networks, and opportunities for graduate students to establish and enrich international dimensions of their individual research and education programs.

All the above activities take place in the context of **disciplinary and interdisciplinary research** and are strongly aligned with the goals of the **ACI**. OMA places particular emphasis on fundamental investigations by multidisciplinary teams of scientists and engineers exploring science beyond Moore's Law, to be co-supported at the level of \$2.0 million; on cooperative, high-risk research at the AST-PHY interface focused on Physics of the Universe, which will be co-supported at the level of \$2.50 million; and on innovative research in multidisciplinary areas that enhance our understanding of the molecular basis of life processes, biological physics, and bio-inspired materials, to be co-supported at the level of \$3.0 million.