Stimulus Funds
ongoing recruitment, the program and its impact will
13 postdoctoral positions and 13 senior positions). With
scientifi  c talent pool. As such, it provides both immediate
advancements and to develop and support the American
Maryland and from across the U.S., to spur technological
top level students and scientists drawn from the national
the NIST-ARRA program "will create jobs and support
highly talented pool of fellows to work with NIST ."
According to Co-Principal Investigator, Robert Briber,
strengthen ties between NIST and UM and will "employ a
Laboratory in Charleston, South Carolina. Daniel
in Gaithersburg, Maryland, and at Hollings Marine
program focuses on selection and awarding of research
and implement a national measurement science and
Engineering fellowship program. /T_h  e UM NIST-ARRA
and News and W orld Report. /T_h  is past fi  scal year, the University of Maryland received
its visibility and impact and is now ranked 18th among national public research facilities
for research and technology in the nation. For example, the University is rapidly increasing
Existing collaborations have been expanded at major
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Recently signed partnerships include the following:
 A broad three-year strategic agreement
 Cooperative agreement with BARC promotes
research collaborations.
includes a seed grant program to support joint
trained/mentored in NCI laboratories and
trained/mentored in NCI laboratories and
to enable Maryland graduate students to be
creation of the Joint Space Science Institute.
in space-based science and engineering and
A Message from Dr. Norma Allewell

As the flagship campus of the University of Maryland System, the University of Maryland at College Park plays a leadership role in Maryland’s growth as one of the premier centers for research and technology in the nation. For example, the University is rapidly increasing its visibility and impact and is now ranked 18th among national public research facilities by U.S. News and World Report. This past fiscal year, the University of Maryland received approximately $545 million in direct research funding, a 5% increase over fiscal year 2009.

By virtually every measure of quality, the University of Maryland has gained national recognition as one of the fastest rising comprehensive research institutions in the country and is helping to redefine the research university of the 21st century.

Key Successes in the Division of Research

The mission of the Division of Research is to support and amplify the scale, impact and visibility of the University’s research enterprise; to develop and implement University research policy; and to ensure compliance with federal, state and University policies and regulations. The Vice President for Research (VPR) leads, facilitates and supports existing and new research initiatives across the campus; fosters campus-wide interdisciplinary research initiatives; works to develop research partnerships with other academic institutions, federal and state agencies and corporations; advocates for campus research priorities and resources; promotes and supports technology transfer; initiates and supports economic development programs; and works to reduce administrative burdens for researchers. Offices in the Division include Research Development, Research Administration and Advancement (ORAA), Research Compliance, Research and Economic Development and Technology Commercialization (OTC).

Building Partnerships

Existing collaborations have been expanded at major federal agencies with research facilities near UM, NIH, NASA, NIST, NOAA, National Archives, FDA, NSA, Smithsonian Institution, USDA Beltsville Agricultural Research Center (BARC), Department of the Interior and Army Research Laboratory.

Recently signed partnerships include the following:

* Cooperative agreement with NASA-Goddard in space-based science and engineering and creation of the Joint Space Science Institute.
* Cooperative agreement with BARC promotes collaborations with multiple University units and creation of a center for agricultural, environmental and natural resources research.
* MOU with the National Cancer Institute to enable Maryland graduate students to be trained/mentored in NCI laboratories and to promote professional exchanges among University faculty and NCI researchers.
* A broad three-year strategic agreement with Lockheed Martin to enhance research development collaborations in cyber security, logistics and climate change.
* MOU with the Smithsonian Institution that includes a seed grant program to support joint research collaborations.

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Key Successes in the Division of Research

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Sponsored Research Award & Expenditure Totals - 10 Year Trend

Technology Commercialization

ARRA @ UM
UM Contract & Grant Award Activity — Fiscal Years 2000-2010

FY10 Sponsored Research & Outreach Activity by College

**Other** includes: EXST, FMGT, GRAD, LIBR, OIT, PRES, SVPAAP, UGST, VPAA, VPR, VPSA

*Other units on campus: EXST, FMGT, GRAD, LIBR, OIT, PRES, SVPAAP, UGST, VPAA, VPR, VPSA*
UM Sponsored Research and Outreach Activity, FY 2010:
Projects Administered & not Administered by ORAA

Data below summarize external support received for research, training, service and fellowships.

<table>
<thead>
<tr>
<th>UM College</th>
<th>Projects Administered by ORAA</th>
<th>Research &amp; Outreach</th>
<th>Total Amount Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. James Clark School of Engineering</td>
<td>$107,883,420</td>
<td>$13,140,992</td>
<td>$121,024,412</td>
</tr>
<tr>
<td>College of Agriculture &amp; Natural Resources</td>
<td>$34,292,798</td>
<td>$10,713,242</td>
<td>$45,006,041</td>
</tr>
<tr>
<td>College of Arts &amp; Humanities</td>
<td>$15,736,673</td>
<td>$385,000</td>
<td>$16,121,673</td>
</tr>
<tr>
<td>College of Behavioral &amp; Social Sciences</td>
<td>$55,851,347</td>
<td>$10,243,657</td>
<td>$66,095,004</td>
</tr>
<tr>
<td>College of Chemical &amp; Life Sciences</td>
<td>$34,397,963</td>
<td>$738,283</td>
<td>$35,136,246</td>
</tr>
<tr>
<td>College of Computer, Math &amp; Physical Sciences</td>
<td>$155,638,239</td>
<td>$1,328,432</td>
<td>$156,966,671</td>
</tr>
<tr>
<td>College of Education</td>
<td>$12,834,216</td>
<td>$152,122</td>
<td>$12,986,338</td>
</tr>
<tr>
<td>College of Information Studies</td>
<td>$3,365,350</td>
<td>$89,194</td>
<td>$3,454,544</td>
</tr>
<tr>
<td>Other Units **</td>
<td>$38,201,156</td>
<td>$19,155,447</td>
<td>$57,356,603</td>
</tr>
<tr>
<td>Philip Merrill College of Journalism</td>
<td>$1,117,989</td>
<td>$770,245</td>
<td>$1,888,234</td>
</tr>
<tr>
<td>Robert H. Smith School of Business</td>
<td>$1,534,310</td>
<td>$1,428,200</td>
<td>$2,962,510</td>
</tr>
<tr>
<td>School of Architecture</td>
<td>$1,467,228</td>
<td>$710,348</td>
<td>$2,177,576</td>
</tr>
<tr>
<td>School of Public Health</td>
<td>$11,851,517</td>
<td>$480,264</td>
<td>$12,331,781</td>
</tr>
<tr>
<td>School of Public Policy</td>
<td>$7,517,079</td>
<td>$3,836,543</td>
<td>$11,353,623</td>
</tr>
</tbody>
</table>

TOTAL AWARDED FOR ALL SPONSORED PROJECTS          | $481,689,284                 | $63,171,969         | $544,861,253          |

* Based on assigned Unit credit
** “Other” Includes - EXST, FMGT, GRAD, LIBR, OIT, OPS, SVPAAP, UGST, VPAA, VPR, VPSA

UM Sponsored Research Award & Expenditure Totals, FY 2000-2010

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[Graph showing the trend of awards and expenditures from FY 2000 to FY 2010]
Office of Technology Commercialization

Disclosures over the past 10 years

Joint Ownership

29% of FY2010’s 126 disclosures (36) are jointly owned with 24 different universities, businesses, and government institutions.

An OTC Success Story:

VisiSonics
As Good as Being There!

www.visisons.com

Start-up company VisiSonics, created in fiscal year 2010, has developed an audio camera that can “see” noise by creating audio images from sound arriving from all directions. The technology has varied applications, from pinpointing the direction of gunfire to helping architects better design concert halls. VisiSonics uses technologies created by University of Maryland inventors from the College of Computer, Mathematical and Physical Sciences: Dr. Ramani Duraiswami, Dr. Nail Gumerov, Dr. Dmitry Zotkin, and Mr. Adam O’Donovan. One of these technologies is the winner of OTC’s 2007 Invention of the Year award. VisiSonics is already doing a brisk business.
NIST Awards UM $15 Million in Stimulus Funds for Fellowships

The University of Maryland has been awarded a $15 million grant from the National Institute of Standards and Technology (NIST) American Recovery and Reinvestment Act (ARRA) funds, to develop and implement a national measurement science and engineering fellowship program. The UM NIST-ARRA program focuses on selection and awarding of research positions for undergraduate, graduate, postdoctoral and senior fellows in all six laboratories at NIST headquarters in Gaithersburg, Maryland, and at Hollings Marine Laboratory in Charleston, South Carolina. Daniel Lathrop, Principal Investigator, says that this program will strengthen ties between NIST and UM and will “employ a highly talented pool of fellows to work with NIST.”

According to Co-Principal Investigator, Robert Briber, the NIST-ARRA program “will create jobs and support top level students and scientists drawn from the national pool ... to advance the science and technology crucial for maintaining U.S. leadership in the world economy.” The NIST-ARRA program actively recruits fellows from Maryland and from across the U.S., to spur technological advancements and to develop and support the American scientific talent pool. As such, it provides both immediate and long-term benefits to the economy by bolstering the national science and technology infrastructure, and by creating new jobs for scientists and engineers (including, so far, 32 undergraduate summer and semester internships, 13 postdoctoral positions and 13 senior positions). With ongoing recruitment, the program and its impact will continue to grow.

At the core of the NIST-ARRA program is a cutting-edge, cross-disciplinary group of UM researchers, representing such departments and groups as Engineering, Computer Engineering, the UM Nanocenter, the Institute for Advanced Computer Studies, the Institute for Research in Electronics and Applied Physics, and the Joint Quantum Institute. With these researchers, the program is fostering and strengthening collaborations between UM and NIST scientists on projects including: development of semiconductor optical switches using quantum dots; study of spin-orbit coupling and conductivity in ultra-cold atoms; development of innovative fire protection via sustainable infrastructure materials and disaster-resilient structures; complete thermodynamic analysis of metal-hydride transformation via construction of standard coherent phase diagrams; characterization and modeling of silicon carbide devices; development of a new instrument with high mid-infrared spectral resolution for measurement of metal-organic frameworks; and in situ liquid-cell transmission electron microscopy studies.

Among NIST-ARRA’s ten supported Fall 2010 undergraduates, 6 are from UM and 4 are from nearby universities, including UM Baltimore County, UM Towson, Mount Saint Mary’s and George Mason. James O’Beirne of George Mason is an example of the NIST-ARRA program in action. He is at NIST in Gaithersburg, working on the development of a finite-volume partial differential equation solver. Mr. O’Beirne’s experiences thus far in his fellowship have allowed him to solidify and apply his learning in a “hands-on, real-world environment which goes beyond the academic exercises presented in classes.” He hopes that his experiences will serve as a foundation to further his studies, and that he’ll be able to apply this research to other important projects in the future.
At the core of the NIST-ARRA program is a cutting-edge, cross-disciplinary group of UM researchers, creating new jobs for scientists and engineers (including top level students and scientists drawn from the national pool). The UM NIST-ARRA Engineering fellowship program will "employ a senior fellows in all six laboratories at NIST headquarters and NIST scientists on projects and collaborations between UM researchers, the program is fostering and strengthening links between NIST and UM and will "employ a senior fellow in all six laboratories at NIST headquarters and NIST scientists on projects and collaborations between UM researchers, the program is fostering and strengthening links between NIST and UM.

The UM NIST-ARRA program in action. Mr. O'Beirne's experiences in the NIST-ARRA program targets.

Shilpi Gupta, NIST Fellow with Dr. Edo Waks
Jess Molina, photographer

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Sources:
* UM Newsdesk-“NIST Awards UM $15 Million in Stimulus Funds for Fellowships” (permission granted by Dr. Daniel Lathrop)
* Jess Molina-UM NIST photos
* UM Newsdesk-Photo of Physical Sciences Complex-Joint Quantum Lab
* UM Division of Research
* UM Office of Research Administration and Advancement
* UM Office of Technology Commercialization
* Nanoparticles: Medical Imaging-H.Kang/NIST & F. Tokumasu/NIAID
* Nanoscale Vise, Quantum Daisy, Cobalt Nanoparticles-NIST
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* Nanotechnology: Magnesium Oxide Dice-J.H. Scott, J. Bonevich/NIST
* Graphic Design - ivdesignhouse.com