The University of Maryland’s dynamic faculty, students and staff, along with innovative approaches by the Division of Research, brought in a record $550 million in outside research awards in fiscal 2015, a one-year increase of more than $70 million at a time when research income at most universities was stagnant.

This reinforces UMD’s reputation as a leading international research university, seen by funding institutions as a solid investment during uncertain fiscal times.

“This year’s awards reflect the University of Maryland’s leadership in research fields of great societal importance, and the work of our extraordinary faculty, staff and students who collaborate in the amazingly creative discovery and innovation ecosystem we have established here in College Park,” says Vice President and Chief Research Officer Patrick O’Shea. “We are uniquely positioned as the model 21st-century research university, our prime geographic location in the DC metro area allows us to leverage our expertise, partnerships and strategic vision to be among the best in the world.”

Several factors drove the increase despite flagging government spending. Those include partnerships with like-minded institutions, seed grant programs, strategic outreach to funding agencies and cross-disciplinary research projects by Maryland faculty. As the university begins its second year in the Big Ten—a research powerhouse as well as sport conference—it is concurrently diversifying and deepening its research portfolio.

The proactive and strategic efforts and programs of the Division of Research are helping UMD as a whole thrive in an era of fiscal uncertainty. “We are proud to have achieved this record-setting year and are reinforcing years of fruitful research collaboration through innovation and collaboration.” says Associate Vice President for Research Development Ken Gertz.

“We are proud to have achieved this record-setting year in the face of significant funding challenges, when many other universities’ research funding numbers were flat,” says Gertz.

Among a host of funding awards, the university is partnering with the MITRE Corporation to operate the first and only federally funded research and development center (FFRDC) solely dedicated to enhancing cybersecurity and protecting national information systems. A significant number of faculty will contribute research in computer science, public policy, engineering, business and criminology. MITRE and UMD are also working to advance collaborations in the areas of trusted autonomy, quantum, analytics and the science of logistics.

Innovation from UMD’s world-renowned geographical sciences department will orbit Earth on the International Space Station in coming years. The Global Ecosystem Dynamics Investigation (GEDI) Lidar is being developed by UMD and NASA’s Goddard Space Flight Center, scheduled for completion in 2018. GEDI will use lasers to map forest vegetation worldwide to answer questions about how deforestation affects Earth’s climate and biodiversity. The 2015 total surpasses by $5 million the previous record set in 2010, when fiscal stimulus dollars flooded university research coffers.

“Thanks to our extraordinary faculty, the leveraging of our unique location, a proactive and strategic approach in our outreach to funding agencies and partners, and exceptional administrative support,” O’Shea says, “we were able to accomplish a great deal.”

UMD Faculty Lead in MURI Grant Awards

Six of 22 teams awarded Multidisciplinary University Research Initiative (MURI) grants by the Department of Defense feature University of Maryland researchers, tying the university for most MURI grants received this year. Only the Massachusetts Institute of Technology (MIT) and Stanford University received as many.

The research arms of the Army, Air Force and Navy solicited proposals covering 19 topics vital to the Pentagon. Of 76 resulting proposals, DOE chose 22 teams to receive awards totaling $149 million over five years.

Maryland will lead one of the studies. Wolfgang Losert (physics) is the lead investigator on the proposal “Understanding and Controlling the Coupled Electrical, Chemical and Mechanical Excitable Networks of Living Systems.” UMD biology, chemistry and biochemistry faculty will also participate.

Maryland faculty will also play key roles in other MURI projects:

• "Engineering Exotic States of Light with Superconducting Circuits."
• "Harnessing Strong-Feld Midinfrared (IR) Lasers: Designer Beams of Relativistic Particles and Thz-to-X-ray Light.”
• "A 4D Nanoprinter for Making and Manipulating Macroscopic Materials.”
• "Metalloid Cluster Building Blocks and Their Inclusion with Composite.”
• "Evolutionary Mechanics of Impulsive Biological Systems: Guiding Scalable Synthetic Design.”

Seed Grants Grow UMD-Smithsonian Partnership

The University of Maryland and the Smithsonian Institution are reinforcing years of fruitful research collaboration through continuing support of the Seed Grants for Research Program.

Now in its sixth year, the program encourages teams of investigators to cross institutional and disciplinary boundaries. Seed grant recipients have secured more than $4 million in external funding.

“The funded projects are a wonderful cross-section of the diversity of our two organizations, including dozens of Smithsonian museums and centers and University of Maryland departments, all with impressive outcomes, presentations and publications,” says Amy Marino, senior program officer for Seed Grants for Research at the Smithsonian.

The current funding cycle features four collaborations:

1. Researchers from the Department of Mechanical Engineering and the Smithsonian Conservation Biology Institute will develop a microfluidic system to grow cultures of testicular matter of rare mammals to aid in the genetic rescue of species.

2. The Institute for Research in Electronics and Applied Physics (IREAP) and the Smithsonian Astrophysical Observatory will collaborate on using graphene, a single layer of carbon atoms, to improve radio telescopes.

3. Department of Geographical Sciences and Smithsonian Conservation Biology Institute researchers will study how natural catastrophes affect large mammals in arid and semi-arid ecosystems to ensure that protected wildlife survive.

4. Researchers from the Department of Government and Politics and the Smithsonian’s Office of the Under Secretary for History, Art, and Culture will study the causes of deliberate destruction of cultural heritage during armed conflicts.

PACKED HOUSE ON HILL FOR UMD WORKSHOP

A standing-room-only crowd of 100+ attendees from government, industry and academia participated in a UMD-organized panel of experts discussing unmanned aerial systems at the Russell Senate Office Building in July.

WoRkSHOp O N H ILL Fo R UMD

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ARHU Grant Melds Digital Humanities, African-American Studies

A $1.25 million grant from the Andrew W. Mellon Foundation to the College of Arts and Humanities (ARHU) will energize the study of African-American history and culture at the University of Maryland while expanding the field of digital humanities on campus.

The grant focuses on the themes of African-American migration, artistic expression and labor, and draws on Maryland’s exceptional faculty, staff and centers in the digital humanities and African American literature, history and culture.

“This ambitious project enables scholars in the region to leverage the remarkable resources we have on campus,” says ARHU Dean Bonnie Thornton Dill, professor of women’s studies and principal investigator of the Mellon grant. “To explore the histories of the African-American population in the U.S., scholars will work with the rich and diverse data sets and archives found in these interdisciplinary centers.”

Scholars and students will work on migration-oriented projects in collaboration with ARHU’s Center for the History of the New America, while embarking on visual art-themed studies with the David C. Driskell Center and delving into labor issues using the University Libraries’ recently acquired George Meany Memorial AFL-CIO Archive.

The grant supports a faculty project director, postdoctoral fellows, graduate students and staff in ARHU and the University Libraries. It also funds workshops, public programming, digitizing of materials from large archival collections, support of faculty research and integration of digital humanities work into the undergraduate curriculum.