

**UNIVERSITY OF MASSACHUSETTS**  
**AMHERST•BOSTON•DARTMOUTH•LOWELL•WORCESTER**  
**MINUTES OF THE MEETING OF THE**  
**COMMITTEE ON SCIENCE, TECHNOLOGY AND RESEARCH**

**Wednesday, May 27, 2009; 8:00 a.m.**  
**Amherst Room**  
**225 Franklin Street – 33rd Floor**  
**Boston, Massachusetts**

**Committee Members Present:** Chair Pearl; Vice Chair Johnston, Trustees Gerson, Lawton, Osterhaus-Houle and Thomas

**Committee Member Absent:** Trustees King-Shaw and Tocco; Chairman Manning

**University Administration:** President Wilson; General Counsel Heatwole; Executive Vice President Julian; Senior Vice President Williams; Vice President Chmura; Associate Vice President Brancato; Chancellors Holub, Motley, MacCormack, Meehan and Collins; Executive Deputy Chancellor Flotte; Provosts Abdelal, Langley and Garro; Interim Vice Chancellor for Research and Engagement Kostecki; Assistant Vice Chancellor for Research Development Petrovic; Vice Provost for Research Chowdhury; Assistant Chancellor for Economic Development Vigeant; Mr. Lenhardt, Deputy Chief Operating Officer

**Faculty Representatives:** Professors O'Connor and May, UMass Amherst; Professor Carter, UMass Lowell; Ms. Gibbs, UMass Dartmouth

**Guests:** Julie Chen, Professor of Mechanical Engineering, and Co-Director, Nanomanufacturing Center; Robert Giles, Chair and Professor of Physics, and Director, Submillimeter Wave Technology Laboratory; Laura Punnett, Professor of Work Environment, and Director, Center for the Promotion of Health in the New England Workplace

Chair Pearl convened the meeting at 8:05 a.m. and welcomed all present.

Chair Pearl then asked for a motion to **Consider the Minutes of the Previous Meeting.**

It was moved, seconded and

**VOTED:** To approve the minutes of the February 4, 2009 meeting of the Committee.

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Chair Pearl then outlined the agenda: a report from the President and two feature presentations on UMass Dartmouth and UMass Lowell's Research and Development Strategy. Chancellor MacCormack will lead the Dartmouth panel, and Chancellor Meehan will lead the Lowell panel.

Last year, the Committee received a statistical overview of the University's research performance. The Committee then expressed an interest in learning more about campus research strategies. At the last meeting, Chancellor Motley and his team presented UMass Boston's strategy. Today, there will be an opportunity to hear more in depth from the Dartmouth and Lowell campuses about their strategies and plans for the future. It is the Committee's intent to invite the Amherst campus and the Medical School to make similar presentations at future Committee meetings.

Under the **President's Report**, President Wilson indicated that this is the youngest Trustee Committee, and yet it is one of the most active and exciting. In his remarks, he emphasized that in spite of our current economic challenges, we are still moving ahead and having success.

Specifically, he highlighted progress the University has made this year:

**Recent Successes:**

- Award of \$16M DOE grant to UMass Amherst for "Energy Frontier Research Center" on polymers-based materials for harvesting solar energy.
- Award of \$15M state grant to UMass Dartmouth for bio-processing center in Fall River.
- Opening of Venture Development Center at UMass Boston funded by \$5M in state economic stimulus funds.

**Initiatives in Development:**

- Proposal for Green High Performance Computing Center with Mass research universities and the IT industry.
- Over 300 UMass proposals soliciting over \$250 M submitted in response to R&D opportunities provided in federal stimulus.
- UMass Worcester led a \$25M system-wide proposal to NIH for Center for Clinical and Translational Science. The proposal is under final review.
- Joint efforts are underway with MIT and others to pursue new DOE regional R&D centers in FY 2010.

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**Record-setting Performances:**

- \$435 M in R&D expenditures in FY 08 is the highest ever in University history.
- \$41 M in technology commercialization income through the 3<sup>rd</sup> quarter of FY 09 is also a record for the University.

Chair Pearl then introduced the first item for **Discussion -- UMass Dartmouth Research and Development Strategy**. She first acknowledged that Chancellor MacCormack is well recognized as a strategic thinker and leader for the campus, and that this presentation will allow the Committee to learn more about how the campus strategy has evolved in the R&D area.

Chancellor MacCormack and her team presented the campus's R&D activity and plans for the future. The Dartmouth panel included Provost Garro and Associate Vice Chancellor for Research Petrovic.

Chancellor MacCormack provided an overview for the Committee on the strategic plans for research at UMass Dartmouth. She talked about where they have been and where they are going. UMass Dartmouth has grown significantly and has goals for further growth. As a regional research university, UMass Dartmouth emphasizes a focus on local issues that present research challenges that will have global impact when solved.

UMass Dartmouth is the only major comprehensive R&D institution in the South Coast, and is responding to emerging challenges and leveraging new opportunities. R&D spending was at \$5M in FY90 and has grown to over \$20M today. The R&D goal for 2015 is to double and reach \$40 M.

As a relatively young research university, UMass Dartmouth had to build an infrastructure for supporting research. A research-oriented Provost has been hired and new R&D standards for hiring new research faculty have been established.

Provost Garro then talked about investments supporting research strengths. In developing the campus organizational infrastructure, an Associate Vice Chancellor for Research and an Associate Provost for Graduate Studies have been hired, the Office of Research Administration (ORA) has been reorganized and upgraded, and investments in a full-time Commercial Ventures and Intellectual Property function on campus were made.

UMass Dartmouth is focused on building its research strengths -- including marine science and technology, engineering, life sciences, and STEM areas. In order to achieve its goal of doubling its R&D base by 2015, Dartmouth plans to implement a strategic research plan, grow existing and new PhD programs, strategically hire new research faculty, and renovate and convert labs and R&D facilities. To take R&D to the next level, the campus needs to grow its research space and increase intra-campus initiatives, international collaborations and partnerships, and industry partnerships.

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Associate Vice Chancellor Petrovic highlighted a variety of R&D strengths that have been developed in recent years involving partnership with industry -- autonomous undersea vehicles, marine renewable energy, bio-materials, and bio-manufacturing. Vice Chancellor Petrovic and Assistant Chancellor for Economic Development Vigeant described the \$15M from economic stimulus funds the campus recently received to support a bio-manufacturing facility as a result of a partnership with the state's biotech industry.

Chancellor MacCormack concluded the campus presentation by emphasizing the importance of "stretch" goals to shape where the campus is going.

In the Trustee discussion that followed, Trustee Pearl indicated that she was very impressed with what the campus has done. Trustee Johnston made special note of the importance of having strong industry partnerships as part of the strategy for growing R&D and complimented the campus for their efforts in this regard.

Trustee Pearl thanked Chancellor MacCormack and then turned to Chancellor Meehan and his team to present the **UMass Lowell Research and Development Strategy**. She indicated that the Lowell campus has a long history of strengths in technology and innovation, with extensive ties and partnerships with industry.

Chancellor Meehan provided an overview of Lowell's R&D activities and plans for the future. Lowell's roots have always been in technology and innovation, and research has traditionally focused on manufacturing and technologies that have a high likelihood of commercialization. In terms of its vision, UMass Lowell wants to strengthen ties and partnerships with business and industry, increase recognition internationally and nationally, increase funding, and be a leader in experiential learning. Chancellor Meehan also emphasized the importance and value of collaborating with other campuses.

Provost Abdelal then highlighted the strategic premises that will support Lowell's R&D development, including: strengthening interdisciplinary centers of excellence through collaboration across colleges; encouraging research directions in emerging fields to achieve national and international recognition; emphasizing collaborations with other UMass campuses, and where complementary, with other universities; deepening partnerships with corporations, businesses, hospitals, and foundations; providing firm foundations for research and scholarship by encouraging university-wide graduate faculty groups; developing experiential opportunities to further connect R&D with societal challenges; and incorporating R&D collaboration in international partnerships.

Provost Abdelal also talked about research productivity metrics. The annual amount of R&D expenditures is one of the accepted ones, and the campus goal is to double R&D expenditures over the next five years from \$40 M to \$80 M. Other metrics include the amount of research per tenured faculty (where Lowell compares favorably with larger institutions) and competitive

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grants awarded (such as ones recently received from the Massachusetts Life Science Center). Metrics in humanities and fine arts consider the number of books published and performances by faculty per semester. In the area of technology transfer, the goal is to increase disclosures by 50% in five years.

Following the Provost, three faculty highlighted R&D in the areas of nano-manufacturing, submillimeter-wave technology and work environment.

Professor Chen presented an overview of the Nanomanufacturing Center. The Center was established in 2004 with funding from the National Science Foundation and the John Adams Innovation Institute. There are forty-plus faculty across a wide range of disciplines currently engaged with the Center. Much of the nano research is looking at applications in multi-functional sensors. On the life sciences side, they are looking at emerging technologies in biomaterials and their impacts on the environment. With connections to over 35 companies, industry partnerships are an important component of the Nanomanufacturing Center. Last year, the Center received multiple awards from the University's technology development fund. The campus has also developed a number of international partnerships, including Dublin City and Queens in Ireland and Northern Ireland, and Tsinghua in China.

Professor Giles then presented an overview of the submillimeter-wave technology laboratory. The work of the lab began at MIT's Lincoln Laboratory in 1979 and moved to Lowell in 1982. Since then, Lowell has been working on developing emerging terahertz technologies for meeting Department of Defense (DoD) radar signature requirements. The laboratory has a history of \$60M in UMass Lowell grant activity. The U.S. Army has provided continuous support for 30 years. In 2000-2001, Congressman Meehan's Office helped bring about an additional \$4M in funding to the lab.

The submillimeter-wave technology laboratory is now a prime source of ground target radar signatures for DoD agencies, and is readily performing classified efforts addressing current real-world situations. Government agencies are continually leveraging its technology and energy, and the lab's talent pool enables it to remain a key player in evolving technologies.

Lastly, Professor Punnett presented an overview of R&D in the field of the work environment, which is made up of a unique group of faculty from engineering and public health. This interdisciplinary group addresses both the evaluation of occupational and environmental hazards and the design of solutions to those problems. Work environment has a huge research portfolio, with several multi-million dollar projects funded by multiple federal agencies as well as the private sector. There is also international recognition that UMass Lowell through its designation as a collaborative center of the World Health Organization in the area of occupational health.

Professor Punnett co-directs the Center for the Promotion of Health in the New England Workplace. The Center combines occupational health and safety and worksite health promotion,

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evaluates strategies that provide health benefits and/or cost-effectiveness, and assesses organizational readiness for change. It has been supported by the President's Office Creative Economy Fund, and collaborates with faculty at UMass Boston and UMass Amherst.

In his closing remarks, Chancellor Meehan highlighted the new emerging technology building that is being built on the North campus, with active discussions underway with the UMass Building Authority and DCAM to finalize the project. This facility will further integrate the University with business and industry. He also noted that a new health facility is being built on the South campus and is expected to open in fall 2012. Finally, a highly capable new assistant director has been hired in the area of technology transfer.

In the Trustee discussion that followed, Trustee Lawton updated the Committee on the Nuclear Science and Technology Task Force, noting that it had received its first grant from an energy company with two more expected. He also highlighted funding opportunities that are being made available through the US Department of Energy which will provide important opportunities for UMass Lowell and other campuses to pursue.

The meeting adjourned at about 9:50 a.m.

Zunilka Barrett  
Assistant Secretary to the Board