WASHINGTON UPDATE

Northeastern made an impact in two recent Washington, D.C., events related to security research, as President Joseph Aoun participated in the inaugural meeting of the Department of Homeland Security Academic Advisory Council, and the university held its first congressional briefing on cyber security. Both events emphasized the critical role for academic research in addressing emerging vulnerabilities that threaten consumers, industry, and government at all levels.

Capitol Hill has been focused on the FY2013 budget. The House of Representatives passed the budget bill proposed by House Budget Committee Chairman Paul Ryan (R-WI) along partisan lines. The bill increases defense spending, while cutting $19 billion in domestic discretionary and entitlement spending from the $1.047 trillion budget approved with bipartisan support in last year’s Budget Control Act (BCA).

The Ryan budget sets lower caps for the appropriations committees that determine spending levels for research funding agencies that Northeastern relies on, such as the National Institutes of Health, National Science Foundation, Department of Defense, Department of Homeland Security, Department of Education, and National Institute of Standards and Technology. However, the energy section of the bill includes language that advocates for the continuation of funding for basic research and development. Beyond research funding, the bill also calls for revamping Medicare and Medicaid, repealing health-care reform, and overhauling the tax code. The bill’s summary does not discuss the charitable deduction, American Opportunity tax credit, or tuition-and-fees deduction, among others of interest to universities. It is also unclear regarding Pell Grants, but says that the Pell program would be put on a sustainable path by limiting the growth of financial aid and focusing it on low-income students.

The Democratically-controlled Senate will begin moving their FY2013 appropriations bills based on spending levels agreed on in the BCA. Still looming, unless Congress takes action to repeal the spending “sequester,” are an additional $109 billion in automatic cuts that will take effect in January, pruning about $1.4 trillion in domestic discretionary programs, and the balance out of mandatory programs.

To learn more, contact Tim Lebhai, VP for government relations, at northeastern.edu/governmentrelations.

Northeastern is in the vanguard of a small number of research institutions worldwide working to develop advanced magnetic materials free of rare earth metals. These naturally occurring elements are critical to the manufacture of super-strong magnets that power many renewable energy technologies, like wind turbines and hybrid vehicles. China mines and produces more than 95 percent of the rare earth metals used worldwide, and current economic and geopolitical trends suggest that the production of these costly materials will not be able to keep up with global demand.

Under a new $3.5 million grant from the Department of Energy’s Advanced Research Projects Agency (ARPA-E), Cabot Professor of Chemical Engineering Laura Lewis (above) will work with colleagues from Northeastern and five other institutions—including General Motors Research and Development—to engineer new magnetic materials that are free of rare earth metals.

One approach they are pursuing is to make a rare earth-free magnet by replicating a compound found naturally only in meteorites. By artificially synthesizing the meteorite’s unique iron-nickel crystal structure, Lewis explained, “we’re working to manipulate magnetic structures at the atomic level to create the same superior magnetic properties that developed in meteorites over millions of years as the parent asteroid cooled in space.”

This new material could offer magnetic properties that are equivalent to today’s best commercial magnets, but at a significantly reduced cost. The ultimate goal of the project is to demonstrate bulk magnetic properties that can be fabricated at the industrial scale.

The Northeastern team includes Vince Harris, the W. L. Smith Chair Professor of Electrical and Computer Engineering and director of the Center for Microwave Magnetic Materials and Integrated Circuits. Harris is part of another ARPA-E project led by Virginia Commonwealth University that will develop cobalt carbide to produce the world’s fourth most powerful magnet that does not rely on rare earth metals.

Rare earth alternatives will contribute to the cost-effectiveness of electric vehicles and wind generators, facilitating their widespread use and drastically reducing the amount of greenhouse gases released into the atmosphere.
NORTHEASTERN TO HOST PRESTIGIOUS NATIONAL SCIENCE FOUNDATION INNOVATION CONFERENCE

 Northeastern will host the National Science Foundation’s Engineering Research and Innovation Conference this July. Universities compete to host the highly visible forum, also known as the CMMI Grantee Conference.

 The four-day event, which starts July 9, serves as the focal point for many National Science Foundation (NSF) activities in key areas, including industrial innovation and partnerships and translational research across a broad range of engineer- ing disciplines. Attendees include the 1,200 researchers currently receiving NSF funding and 40 NSF program directors.

 Northeastern proposed the theme of this year’s conference, “Engineering Transformation through Partnerships,” which highlights the university’s mission to create and translate knowledge to meet global and societal needs. Interim Dean of Engineering Allen Soyster, who led the NSF’s Division of Engineering Education and Centers until last year, is actively involved in planning for the event. “Partnerships are the key to innovative engineering strategies of the future,” said Soyster. “We are very pleased to be hosting the conference and look forward to sharing Northeastern’s established expertise in academic-industrial collaboration with our colleagues across the U.S.”

 While much of the conference will take place at the Hynes Convention Center, the Northeastern campus will host graduate-student professional development workshops, community outreach activities, tours of campus facilities, and the conference’s opening reception. Learn more at neu.edu/cmmi2012 and cmmigranteeconference.org.

 HAVE YOU CLAIMED YOUR PIVOT PROFILE?

 The Northeastern research community now has access to Pivot, a powerful new web-based search tool that provides information about funding and collaboration opportunities. Pivot is the most comprehensive such database, containing up-to-date grants, awards, fellowships, and other funding opportunities covering all disciplines, as well as identifying researcher expertise within and outside of Northeastern.

 Formerly separate Community of Science (COS) databases, (COS Funding Opportunities, COS Expertise, and COS Scholar Universe), Pivot is pre-populated with Northeastern researcher profiles (and others), and matches them to current funding opportunities in the COS database. This allows users to search for a funding opportunity and instantly view matching faculty from inside or outside Northeastern. Searching by name will link to matching funding opportunities. The more detailed and accurate the profile, the better the funding-opportunity matches.

 Pivot allows individuals to create unique funding searches, receive weekly emails based upon those searches, and track relevant opportunities. Northeastern researchers simply have to log in and claim their profile in order to begin building saved searches.

 Pivot may be used from any on-campus computer for basic searches without setting up an account. Registering for a free account allows full access to the database from any location.

 Pivot can be found at pivot.cos.com. Training opportunities and how-to YouTube videos on how to create an account and claim or create a profile can be found at pivot.cos.com/support. A standing Northeastern Pivot Training Workshop will be held on the last Friday of the month, conducted by Hillary Corbett, scholarly communication librarian.

 For more information, contact Karen Drew in the Office of Research Development, k.drew@neu.edu.

 SELECTED FUNDED PROJECTS

 Martha Davis, professor of law, received a grant from the Ford Foundation to support the Program on Human Rights and the Global Economy, which works closely with scholars, institutions, and advocates nationally and internationally to address issues of human rights and economic development.

 Carolyn Lee-Parsons, associate professor with appointments in the Departments of Chemical Engineering and Chemistry and Chemical Biology, was awarded one of three Massachusetts Clean Energy Center Catalyst Program grants for a project to demonstrate the commercial viability of a technology that extracts clean energy from plants.

 Chris Bosso, professor and associate dean of public policy and urban affairs, and Jacqueline Isaacs, professor of mechanical and industrial engineering, received funding under the National Science Foundation Scalable Nanomanufacturing program to study methods for scaling up nanomanufacturing. As part of the project, they will study the long-term societal effects of large-scale implementation of nanomanufacturing innovations.

 Carlos Cuevas, assistant professor in the School of Criminology and Criminal Justice, was funded by the Department of Justice for a project on dating violence among Latino adolescents.

 John Enges, professor of chemistry, was awarded a contract from the German firm Roche Diagnostic GmbH to probe the structural dynamics of proteins using hydrogen exchange and mass spectroscopy (HDXMS). A protein’s folded three-dimensional shape is directly related to its function and efficacy.

 RESEARCH CONNECTIONS AT NORTHEASTERN

 Informing, Inspiring, and Engaging

 Office of the Senior Vice Provost for Research and Graduate Education

 Churchill Hall
 360 Huntington Avenue
 Boston, MA 02115
 northeast.edu/research

 UPCOMING RESEARCH EVENTS

 MAY 10
 Museum of Science, Boston
 7:30 – 9:00 PM
 Happiness: The Science and Economics of Finding Happiness
 Offered by the Northeastern University Affective Science Institute as part of its educational outreach program. Free and open to the public.
 northeast.edu/sssi/special-events/happiness

 MAY 11
 Northeastern University School of Law
 9:00 AM – 4:30 PM
 Where We’ve Been, Where We’re Going Fourth Annual Women in the Law Conference
 Keynote Speaker: Gloria Cordes Larson, president, Bentley College
 northeaster.edu/law/alumni/news/women-law/conference12.html

 JULY 9 – 12
 John B. Hynes Veterans Memorial Convention Center
 Northeastern University
 NSF CMMI Engineering Research and Innovation Conference 2012: Engineering Transformation through Partnerships
 Sponsored by the National Science Foundation’s Division of Civil, Mechanical, and Manufacturing Innovation (CMMI) and hosted by Northeastern University.
 neu.edu/cmmi2012 and cmmigranteeconference.org

 JULY 30 – AUGUST 3
 Northeastern University
 2012 National Institutes of Health mHealth Summer Institute
 The NIH Mobile Health (mHealth) Summer Institute is designed to provide investigators with an opportunity to learn about mobile health research in a collaborative team environment.
 obssrd.od.nih.gov/training_and_education/mhealth/index.aspx