



WINTER 2012 NEWSLETTER

During the past three months, Washington, DC continues to experience tumultuous events that will shape the national economy and federal support for science for years to come. The MRS Government Affairs Committee aims to understand the changing policy environment and its impact on materials research. This quarter the Committee continued to monitor changes affecting R&D policies, organized and facilitated federal government agency presentations at the 2011 MRS Fall Meeting in Boston, and coordinated a letter-writing campaign both at the meeting and online. Other recent activities include spearheading the latest round of competition for Congressional Science and Engineering Fellows. MRS is working hard to make sure that the materials research community is being heard and that it has input in developing effective government policy for support of materials science. Here is the latest news.

CHANGE IN GOVERNMENT AFFAIRS COMMITTEE LEADERSHIP

Due to changes in his career path that precludes continuing Chairing the Government Affairs Committee, Alan Hurd has stepped down as the chair after serving in that role for one year. Under his leadership, MRS continued its growth in degree and breadth of advocacy, from our core missions focused on funding of basic research to international advocacy via the World Materials Summit (see below), and continued Special Projects such as a focus on the Materials Genome Initiative (see below) and the Energy-Critical Elements Study. Alan has agreed to serve as the vice chair of the committee until April, 2012 in order to aid in the transition.

Succeeding Alan for leadership of this committee is Nabil Bassim from the U.S. Naval Research Laboratory. Nabil has been a member of the committee for 4 years, and has spent the last 2.5 years heading the Grassroots subcommittee, which is responsible for publishing this newsletter, as well as the letter-writing campaigns associated with Materials Voice. During his tenure, the letter-writing via Materials Voice has increased 4-fold so that our voices are heard consistently when related to science funding, and other issues important in the Materials community.

A MESSAGE FROM OUR NEW GOVERNMENT AFFAIRS COMMITTEE CHAIR

Nabil D. Bassim



Happy New Year, MRS membership! I am delighted and honored to chair your Government Affairs Committee in this critical time in Washington. The global economy is facing historic challenges, and basic scientific research is going to be needed to produce the innovations that will protect our environment, meet our ever-growing energy needs, ensure economic growth, and improve the lives of people all over the world. Through our groundbreaking research in fundamental Materials Science, our membership will contribute greatly on many of these issues.

It is extremely important that our capabilities and innovative talents be obvious to policy makers in order to ensure steady support and time for our community to make important innovations. While scientific research funding has been largely spared in the recent budget cuts, we live in times of draconian budget fights, austerity and partisanship and we have to find a way to make our hopeful message and contributions get noticed above the din.

The Government Affairs Committee mission exists to provide a conduit for this message to reach policy makers. But real change can only be realized through volunteer action. We encourage you to participate through our web portal at www.mrs.org/advocacy to see the many ways you can become involved or to contact us.

Please enjoy this newsletter. Take a look at events and activities that might pique your curiosity. I look forward to working for and with MRS Membership in these critical times.

WHAT'S HAPPENING IN WASHINGTON

Ronald L. Kelley, MRS Washington Consultant



This calendar year starts with the FY2012 budget having been resolved and finalized, rather than being still in limbo. The final results for the current budget year provide modest increases or comparable budgets to the previous year in what was a very difficult congressional year of proposed and real budget cuts in many

categories. The primary agency results that MRS advocated for include NSF at 3% increase; DOE Office of Science at 4% increase; and Defense Department research (6.1) at 16% increase over FY2011 funding levels.

During the budget control and deficit reduction debates between Congress and the White House last year, the 10 year numbers have been adjusted to produce a total of ~\$2B of spending reductions in all discretionary categories, including Defense. Some of the enactments will take place under a 'sequestration' or budget cutting process that will become effective starting on January 1, 2013. We are actively working with the science community in Washington to maintain a priority for research programs, over the long-term, through our own MRS advocacy efforts combined with those of our coalition partners in DC.

The President will release his formal budget request for FY2013 on February 13 which will initiate the discussions, hearings, and appropriations debates between the House and Senate. We anticipate that the President will continue to put a high priority on research and education, and incentives for science and technology, where the federal government's investments can make a

difference for US global competitiveness. The appropriation process in an election year will likely be protracted with final decisions reached only after the November election.

Engagement by MRS members during this election year will continue to be important even when Congress will have much of their attention on the Presidential election cycle as well as many in Congress facing their own reelections. As of the writing of this issue of the newsletter, we do not have a Republican candidate for President, but this will be resolved during the primary process in the coming weeks and months. Both the House and Senate majorities are up for grabs in the November election, and a number of Members of Congress have already been indicating their plans to retire. Divided government has been our recent experience, and it has led to many challenges for passing legislation and getting broad agreement. Regardless of the final outcome in November, we want MRS to continue to be perceived as supporting research for the physical sciences in a bipartisan way, and working to inform both parties and Members of Congress who have many different political persuasions and perspectives.

MRS CONGRESSIONAL SCIENCE AND ENGINEERING FELLOWSHIP UPDATE

Kevin Whittlesey, Chair, Fellowship Subcommittee

This is a busy time for the Congressional Fellowship Subcommittee, working to ensure that MRS continues to provide scientific expertise to the policy making process. Although it seems as if we just barely welcomed our two new Fellows to Capitol Hill, the 2011-2012 Fellows are well established in their placement offices. Meanwhile, as the 2012 election cycle heats up the Government Affairs Committee is already hard at work to select the 2012 - 2013 Congressional Fellows and ensure that MRS continues to serve as a technical resource to Congress.

The 2011-2012 MRS Fellows have secured outstanding placement offices. Laura Povlich, the MRS/OSA Fellow, is working on health issues including medical technology innovation and Medicare in the office of Representative Sandy Levin (D-MI). Representative Levin is the ranking member of the powerful Committee on Ways and Means, which has jurisdiction over tax policy, Social Security, and other entitlement programs. Jennifer Nekuda-Malik, the MRS/TMS Fellow, is placed with the Senate Committee on Energy and Natural Resources working on a portfolio of issues including DOE organization and technologies, high performance computing, emerging energy technologies, and nuclear energy. The

highly sought after offices in which our fellows were offered positions further demonstrates the consistently high caliber of the MRS Fellows.

While our 2011-2012 Fellows are busy navigating the ways of Washington, the 2012-2013 Fellowship selection process is in full swing. On January 6th we received another pool of highly competitive applications for both the MRS/OSA and MRS/TMS Fellowship positions. The selection process will proceed over the coming months, so stay tuned for announcement of the next pair of MRS Fellows in the spring!

GOVERNMENT AGENCY INFORMATION SESSIONS AT 2011 MRS FALL MEETING— A BIG HIT

Joshua D. Caldwell, Chair, Government Agency Subcommittee

As has become traditional at the Spring and Fall MRS Meeting, materials science and engineering leadership at various funding agencies presented overviews of their research portfolios, provided insight into potential future opportunities and discussed the various mechanisms by which funding can be obtained. These sessions are traditionally held at the MRS Spring and Fall Meetings from 6:00-8:15 PM on Tuesday and Thursday evenings. Each talk is slotted for 45 min total, for a total of three talks each night, with an overview talk followed by an open Q&A session. Following each talk, the speakers have traditionally remained in the room to be available for further discussion. While these talks have been well attended in the past, this meeting saw some of the largest attendances to date, with over 150 attendees at the start of the Tuesday night session.

The Tuesday night session began with an overview of the Department of Energy, Basic Energy Science's materials science investments that were given by Dr. Linda Horton. Dr. Horton discussed in detail the various areas of DOE/BES that are involved in materials development efforts and in particular highlighted the upcoming Materials Genome Initiative (MGI) and the collaborative role that NSF, DOE and members of the DoD funding communities will play in its implementation. This Presidential Initiative is designed to reduce the time and investment needed to develop new materials and bring them through market through the combination of computation and materials characterization efforts with enhancements in manufacturing technology. The MGI was also the topic of the Monday Symposium X, where Dr. Horton, Dr. Harriet Kung (DOE/BES), Prof. Ian Robertson (National Science Foundation, Division of Materials Research; NSF/DMR) and Dr. Cyrus Wadia (Office of Science and Technology Policy; OSTP) pre-

sented an overview of the MGI and upcoming opportunities for the MS&E community. Dr. Robertson continued on this topic during his overview of NSF/DMR programs during the first session on Thursday. During this session, Dr. Robertson also highlighted several areas of NSF investment and the various proposal forms and mechanisms available to potential PIs.

Following Dr. Horton's talk, a brief overview of the SunShot initiative was given by Dr. Elaine Ulrich of the Energy Efficiency and Renewable Energy division of DOE, then by a presentation from Dr. Shawn Thorne of the Office of Naval Research - Global division (ONR-Global). Dr. Thorne's talk was the first within these sessions to focus primarily on opportunities available to non-US based scientists and engineers. His talk focused on several possibilities available to foreign researchers that serve to both cultivate foreign research in areas of interest to the U.S. Navy as well as introduce these researchers to the broader ONR and Naval Research community. Based on the growth in non-US based membership within MRS, it is clear that including such talks that highlight opportunities for this demographic is imperative. The final talk was presented by Dr. Brian Holloway of the Defense Advanced Research Projects Agency (DARPA). Dr. Holloway gave both an interesting overview of his scientific path, including stints in industry, academia and now government, as well as an overview of the various successes, mission and potential future opportunities afforded by DARPA. One highlight involved a discussion of the type of game-changing ideas that are required for a successful DARPA proposal. Such insights are obviously one of the reasons that these Government Agency Sessions have been not just well attended, but seeing growing attendance with each successive meeting.

The Thursday session began with Dr. Robertson's session highlighting NSF/DMR programs and opportunities and was immediately followed by Dr. Rosemarie Hunziker of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) of the National Institutes of Health. Dr. Hunziker provided an insightful view not only into potential areas for materials scientists and engineers to obtain funding and impact the biological and medical sciences, but also into the methodology of the NIH funding process. In particular, the differentiation between program managers and grant handlers was instructive in that it identified a key difference between how NIH and other agencies handle their grant submission process. Dr. Hunziker clarified the role of these two positions for the audience, stating that in contrast to other agencies, program managers at NIH do not play a role in the selection of proposals for funding, instead

acting strictly in an advisory capacity helping in identifying the key scientific areas to be funded and helping potential PI's provide the best possible proposals.

Dr. Hunziker was followed by Dr. John Prater of the Army Research Office (ARO), who highlighted the key areas of interest within ARO and identified the role of ARO in the full funding profile of the Army. In particular, he informed the audience that ARO serves only the role of funding basic research efforts, while the applied research efforts are handled by other agencies within the Department of the Army. He also highlighted the four program managers within the Materials Science Division of ARO and their overall portfolios, with one of these program managers, Dr. Suveen Mathaudhu, attending the session with Dr. Prater.

The strong attendance and wide array of insightful questions from the audience further enhanced these sessions. In all cases, each of the program managers offered their time following the talks to answer any further questions from the audience, in some cases staying more than 45 min after the official end of their talk. MRS has expressed a strong dedication to providing its membership with direct contact with the various program managers and funding agencies in an effort to ensure that the best science is promoted and funded. These Government Agency Sessions serve as one such opportunity. These sessions will continue at the upcoming Spring MRS Meeting in San Francisco, CA.

GOVERNMENT AFFAIRS AT THE 2011 MRS FALL MEETING

Nabil Bassim, Chair, Grassroots Subcommittee and New Chair, Government Affairs Committee



At the Fall Meeting in Boston, the Grassroots subcommittee volunteers and graduate assistants working at the kiosk were able to persuade MRS members to send 3371 letters, which best our previous meeting by 670

letters. Letters were primarily on three subjects, Support of the NSF budget, the Department of Energy Basic Research and the total Scientific Research and Development agency-wide. These letters are effective communications tools to indicate the MRS members are engaged in Government policy and are interested in further baseline scientific research funding.

For the year, MRS members sent close to 7000 letters, which far exceeds any previous year. This is obviously an indication of our responsiveness to turbulent times, as well as our growing understanding of the importance of communication with policy makers. In the coming year, we need to ensure that our voice continues to be heard.

To be heard, visit the Materials Voice Web site at www.congressweb.com/cweb2/index.cfm/siteid/MRS to send your letters today!

2011 WORLD MATERIALS SUMMIT ADDRESSED SUSTAINABLE ENERGY AND WATER ACCESS

Alan Hurd, Vice Chair, Government Affairs Committee

The 2011 World Materials Summit, held October 9–12, 2011 in Washington DC, convened international policy makers and researchers to discuss materials research needs for the emerging energy economy. Held every two years, this Summit was the third international summit cosponsored by the Materials Research Society (MRS), the European MRS, and the Chinese MRS. As with the prior Summits held in Lisbon, Portugal and Suzhou, China, this four-day invitation-only gathering resulted in a Summit Declaration defining an overall vision to address materials solutions related to global needs.

New this year, the Summit included a Student Congress for graduate students and postdoctoral scholars. From 150 student applicants, Summit Chairs Gabriel Crean of the Commissariat à l'Energie Atomique (Europe), David Ginley of the National Renewable Energy Laboratory (USA), Yafang Han of the Beijing Institute of Aeronautical Materials (China), and Alan Hurd of Los Alamos National Laboratory (USA) selected 45 participants from 18 countries. The group developed their own ideas for global cooperation in energy and water access and they established a group on Linked-in: Materials for Energy and Sustainable Development. The Student Congress General Recommendations were:

Energy Statement: Provide unbiased reporting and analysis of energy technologies based on standardized sustainability metrics such as: greenhouse gas (GHG) emissions (actual, potential reductions), lifecycle analysis, risk assessment and reduction, region-specific

assessments of potential technologies.

Market and Economics: Address global imbalances in innovation and manufacturing through targeted funding to translate basic science into products, encouraging economic education, and initiating goal-based prizes for breakthrough materials.

Education Statement: Support and maintain an online Global Resource Center for Sustainability (GRCS) that will provide educational lectures and demonstrations.

Outreach Statement: Empower students to advocate for energy and sustainability to reach both policy makers and the general public in ways which are relevant and clear.

Water Statement: Develop appropriate technologies, educational awareness, and policies to encourage efficient water purification, management and access for a growing world population.

The vision expressed in the Summit Declaration solidly grounds materials research: *"It is an inherent right of everyone on Earth to have access to clean energy and water in a sustainable way. Achieving this goal is a global endeavor that will require international coordination, cooperation and collaboration. Materials play a critical role in enabling viable solutions to these problems."*

Detailed recommendations from the Summit and the Student Congress can be found on the MRS Web site www.mrs.org/2011wms.

The Summit was funded, in part, by the National Science Foundation, the Office of Basic Energy Sciences, the Office of Naval Research, Aldrich Materials Science, Dow Chemical Company, American Elements, and the Materials Science and Engineering Expert Committee of the European Science Foundation. The World Materials Summit IV will be held in Paris in 2013 hosted by the EMRS.

FEEDBACK

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