MRS and WGBH unleash nationwide materials science public outreach campaign

www.mrs.org/makingstuff
www.pbs.org/wgbh/NOVA/tech/making-stuff.html

"So…what do you do?"
"I'm a graduate student in Materials Science."
"Materials science…" (perplexed silence) "What's that?"

Does this sound like the beginning of a conversation you've had one too many times at parties, visits to your hairdresser, or even family reunions? Then, you'll be excited to learn that the Materials Research Society (MRS) has teamed up with WGBH, Boston's public television station and producer of NOVA, to create a month-long nationwide outreach campaign, *Making Stuff*, aimed at sparking an appreciation and better understanding of our material world.

Museums, schools, universities, laboratories, and businesses in 17 states across the country will combine forces and create local and regional outreach partnerships to run engaging educational activities that transform "viewers" into active "doers." Scheduled to occur in early 2011, these outreach activities are geared not only toward middle and high school youth, families, and educators, but also toward engineers and scientists.

Among the exciting events lined up for this "Month of Stuff" is the Junk Fashion Show scheduled to occur at Discovery Place in Charlotte, N.C. where participants will strut their stuff along a catwalk to model wearable designs created from repurposed manufacturing scraps. By investigating the materials properties of the scraps in a hands-on manner, they will learn how the pieces can be manipulated and adhered together to produce entirely new fashion designs ranging from belts, bags, and hats to complete outfits.

Thanks to a partnership with WUFT-TV/FM, local Boy Scouts down in Gainesville, Fla. will also be able to sport new items—in the form of merit badges for Chemistry, Composite Materials, or Engineering—after successfully completing a special materials science workshop. Up in the East Village of New York City, a series of informal science cafés co-organized by New York University researchers, the Lower Eastside Girls Club, and Bio-Bus—a mobile laboratory—are slated to take place at the Bowery Poetry Club. And, over in the West, a *Making Stuff* roadshow will tour the state of Idaho with demonstrations and hands-on activities for K–12 classrooms.

In addition to the plethora of activities planned by the outreach coalitions, WGBH and MRS are working to create a materials science activity guide for after-school settings targeting 4th–6th graders. In an hour, these simple hands-on activities using readily available materials will allow students to experiment with different materials, ask questions, and start to make connections—all in the name of materials science!

Making Stuff also has activities in store for materials researchers interested in sharing their research with a lay audience, encouraging public engagement with materials science, and stimulating an interest in science and engineering among the youth. During the "Month of Stuff," MRS and WGBH will provide both online and local workshops aimed at helping materials researchers become more effective communicators through hands-on activities and interactive discussions.

The *Making Stuff* nationwide outreach campaign is designed to coincide with the premiere of an exciting four-part primetime television series of the same name, *Making Stuff*, to be hosted by respected journalist, *New York Times* columnist, and Emmy-award winning CBS News correspondent David Pogue. Each episode—"Stronger," "Smaller," "Smarter," and "Cleaner"—of this inventive series will present dramatic stories about how the field of materials science has changed history and what amazing discoveries are just around the corner.

For more details about the television series and how you can participate in this unique nationwide public outreach opportunity, take a peek at the MRS NOVA Web site www.mrs.org/makingstuff.

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Museum of Science, Boston and Twin Cities Public Television (Dragonfly TV) at the 2009 MRS Fall Meeting


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Nanometrology satellite workshop held in Montreal

http://nt10.org/msin10_e.html

The Fourth International Workshop on Metrology, Standardization and Industrial Quality of Nanotubes (MSIN10) took place on June 27, 2010, in Montreal, Canada, as a satellite of the Eleventh International Conference on the Science and Application of Nanotubes (NT10). Because of the different behaviors of nanomaterials relative to their bulk parent counterparts, the standardization and metrology of nanostructures requires a much greater and more direct involvement of the research community than for conventional materials. The MSIN series has been unique in bringing together the research community engaged in the fundamental aspects of research in this field with those engaged in developing the metrology and standards for these nanostructured materials.

Because of the richness of the structure and properties of carbon nanotubes which exhibit the novelty of (n,m) chirality dependence, as well as semiconducting/metallic metallicity dependence, the development of an appropriate metrology for carbon nanotubes is complex. Since the start of the MSIN series, carbon nanotubes have played a unique role in the development of the new field of nanometrology and the MSIN workshop series has been defining a new role for the scientific research community in advancing the scientific basis of metrology.

The entry of graphene into the research arena in 2004 has added another dimension to the metrology scene. On one hand, graphene has expanded the number of topics under consideration, thereby adding to complexity. On the other hand, the entry of graphene, which is the building block for all sp^2 carbon materials, including nanotubes, has provided a route for bringing more order and direction to the development of viable standards for nanometrology.

This fourth meeting of the MSIN series thus saw a much more directed effort toward providing an informed discussion of what standards are needed for nanostructures, how standards are established, what is special about carbon nanotube and graphene standards, what the nomenclature for standards is all about, and what progress has been made to date on the nomenclature for carbon nanotubes and graphene. Discussions focused on the agenda and goals for different working groups engaged in establishing standards for these materials (under technical committee TC229) and the progress they had made thus far. Progress in nanometrology is now accelerating and carbon nanostructures continue to play a central role, according to expectations from this research community.

However, what also emerged from these discussions was news that regulators are already on the scene, engaged in setting requirements for products containing carbon nanotubes and graphene, often without proper input from the metrology/standards or research communities on their consensus about the special considerations imposed by the unique and special properties of these materials. In other words, a take-home message of this workshop was that both the research and metrology communities need to move faster toward reaching a consensus about the standards that are needed if they are to have any influence on the legislation and regulations that are now evolving on the topic of carbon nanotubes and graphene-related materials, and the products based on these materials.

The conference also showed a number of encouraging trends. There was a much larger involvement of graphene into the discussion of metrology/standards for nanomaterials than at previous workshops, consistent with worldwide trends in this research arena. Second, there was a much clearer and more informed discussion of metrology/standards from both a needs standpoint and from a summary of the actual progress being made by the four working groups and other national bodies worldwide engaged in such work. Third, the important issues of health and safety were again discussed in the context of carbon nanotubes and graphene. This remains an important issue for the future of applications in this research area and its promise for commercial products of benefit to society. Also, some excellent presentations were made from an industrial standpoint on the special needs of companies producing carbon nanotubes and products based on them for standards. These presentations included discussion on how they were handling these needs from both a technology perspective and their concerns about how to handle health and safety issues effectively and responsibly. The conference ended with a wrap-up that looked to the future and toward planning for the fifth MSIN11 to be held in Cambridge, United Kingdom in 2011.

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International summer school focuses on "Materials for Renewable Energy"

www.ccsem.infn.it

An International Summer School on "Materials for Renewable Energy" was held on May 28–June 2, 2010 as an event of the International School of Solid State Physics of the Ettore Majorana Foundation & Centre for Scientific Culture in Erice, a small, medieval town in Sicily, Italy.

Co-organized by the Materials Research Society (MRS) and the European Materials Research Society (E-MRS), the school represented a venue for interaction among young researchers and world-leading experts in the field of materials research applied to the production, utilization, and storage of sustainable and renewable energies. Outstanding directors, speakers, students, and sponsors contributed to the event's success.

Organizers of the school were David Ginley (National Renewable Energy Laboratory, USA and president of MRS), John Poate (Colorado School of Mines, USA and past president of MRS), Abdelilah Slaoui (InESS-CNRS, France and past president of E-MRS), Emanuele Rimini (University of Catania, Italy), and Antonio Terrasi (University of Catania, Italy). The current president of E-MRS, Francesco Priolo of the University of Catania, gave an official welcome to all participants.

Speakers for the school included Lynn Orr (Stanford University, USA), Paul Waide (Navigant Consulting-UK), Augustin McEvoy (EPFL-Switzerland and Dyesol, Australia), Antonio Martì (University of Madrid, Spain), Jef Poortmans (IMEC, Belgium), David Carlson (BP Solar, USA), Billy J. Stanbery (Helio Volt, USA), Salvo Coffa (STM, Italy), Ryan O'Hayre (Colorado School of Mines, USA), Harry Atwater (California Inst. of Technology, USA), Mila Hadjieva (Central Laboratory of Solar Energy, Bulgaria), and David Cahen (Weizmann Institute, Israel). Organizers Ginley and Poate also gave presentations.

Seventy students from Denmark, France, Germany, Israel, Italy, Norway, Spain, the United Kingdom, and the United States attended high-level lectures on many topics relevant to their fields of study. One of the young scholars was a prodigy student from Southern University in Baton Rouge, USA, 16-year-old Stewart Polite Jr.

Participants of the International School "Materials for Renewable Energy" during the social excursion to Selinunte archaeological park.

Particularly valuable to students was the global overview the school provided on current energy challenges, including political-socio-economic issues. They also learned from authorities about the planet's main sources of energy: conventional (oil, coal, and gases), nuclear, geothermal, solar thermal, photovoltaics (conventional, thin film, next generation, organic), biomass, wind hydrogen, and fuel cells.

E-MRS seeks nominations for inaugural €U-40 materials prize for 2011

www.emrs-strasbourg.com

The European Materials Research Society (E-MRS) has launched a new scientific award for young scientists, €U-40 Materials.

The award recognizes outstanding contributions to materials research by a scientist under the age of 40 in the year in which the nomination is submitted. The award is reserved to researchers showing exceptional promise as leaders in materials science, having performed the research while working in Europe.

The award consists of a €5,000 prize, a certificate, waiver of the E-MRS meeting registration fee, and delivery of a plenary talk at the 2011 E-MRS Spring Meeting where the award will be presented.

Nominations should include:

1. a curriculum vitae including birth date;
2. list of key publications (including citations and impact factors);
3. letters of support from two well-established scientists; and
4. any additional supporting information relevant to the award.

The nomination package should not exceed 10 pages (excluding the list of key publications) and should be sent by e-mail to emrs@emrs-strasbourg.com (subject: eu40materials) before December 31, 2010.

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