



MRS's FOCUS ON Sustainability

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Sustainable development, as defined by the United Nations' Brundtland Commission, entails meeting the needs of the present without compromising the ability of future generations to meet their own needs. As technology enablers, materials play a pivotal role in solving the key challenges our society will continue to face, such as carbon dioxide mitigation, access to clean energy and water, and a dependable supply of raw and recycled materials for infrastructure, devices, and consumables. Meeting these challenges will require new approaches to materials science as well as expertise from related fields, including other scientific and engineering disciplines, sociology, economics, and policy.

In recognition of the complexity of tackling sustainable development issues and the importance of materials to enabling solutions, the Materials Research Society (MRS) Board of Directors recently approved the creation of the Focus on Sustainability Subcommittee of the Public Outreach Committee. The subcommittee's formation is an important step in the evolution of MRS's sustainability-related programming and other activities. For many years, MRS has held technical symposia on topics such as sustainable infrastructure materials, waste management, and photovoltaics, and

MRS Bulletin has published an *Energy Quarterly* section since 2010. In 2011, MRS co-sponsored the World Materials Summit, a gathering of technical experts and policymakers, assembled to assess and document global research and innovation needs, develop policies, and outline the future of advanced energy materials. The following year, *MRS Bulletin* published a special issue on materials for sustainable development, and MRS held sustainability-related forums at its Fall and Spring Meetings. In 2014, MRS and Cambridge University Press began publishing *MRS Energy & Sustainability—A Review Journal*, which reviews key topics in materials research and development as they relate to energy and sustainability within an integrated context of scientific, technological, and sociological complexities.

Today, MRS's dedicated efforts in sustainability encompass those types of activities and more. An active MRS LinkedIn subgroup, Materials for Energy and Sustainable Development, examines and shares materials research challenges, and the Impact of Materials on Society Subcommittee supports the development and distribution of an introductory college course developed by the University of Florida on how engineering shapes and is shaped by social and cultural variables. Another MRS subcommittee is developing the Strange Matter Green Earth international traveling exhibition on sustainability and materials science, offering hands-on experiences that demonstrate how materials will help meet future needs. The project will build on the success of the Strange Matter exhibit that has been traversing the globe for over a decade.

MRS meeting programming on sustainable development has expanded as well. The 2016 MRS Spring Meeting and Exhibit in Phoenix will feature 16 symposia in the Energy and Environment

cluster. One of those symposia, EE15: Materials for Sustainable Development—Integrated Approaches, will be the foundation of a suite of Focus on Sustainability activities that seek to build a robust community of practice around materials and sustainability.

Focus on Sustainability debuted at the 2014 MRS Fall Meeting with Symposium FF: Materials as Tools for Sustainability and related programming, including a tutorial, student poster exhibition, and industry panel discussion on corporate social responsibility. The 2016 Spring Meeting's Focus on Sustainability will build on that successful model. The two-day EE15 Symposium will include technical talks and posters on topics such as materials for water purification, materials impacts on human health and the environment, and materials for alternative energy sources, as well as a half-day session focused on sustainable supply-chain issues in industry. A half-day tutorial on how to teach the importance of materials in sustainable development will precede the symposium. A suite of complementary activities includes a professional development seminar on how to integrate sustainability principles into materials research, a MRS University Chapter student poster exhibition on "Sustainability in My Community," and public outreach and meeting attendee engagement, including hands-on activities, free outreach resources, and special features at the Focus on Sustainability informational booth in the Hub.

Shifting materials scientists' perceptions of and approaches to sustainable development will take a concerted effort that builds over time. In the near term, MRS's Focus on Sustainability Subcommittee will seed future activities and events at MRS meetings and will coordinate with publications that put the materials-sustainability nexus in the spotlight. In the long term, the efforts aim to encourage students and young researchers, faculty, and industry representatives to see sustainable development as a defining challenge of our time and as a context in which much of materials research should be framed.

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