THE WHITE HOUSE
Office of Science and Technology Policy

FOR IMMEDIATE RELEASE June 19, 2014

FACT SHEET: The Materials Genome Initiative – Three Years of Progress

This week marks the third anniversary of the launch by President Obama of the Materials Genome Initiative (MGI)—a commitment to work across sectors toward the goal of doubling the pace of advanced materials discovery, innovation, manufacture, and commercialization. The MGI is part of a broad Administration commitment—including new steps announced earlier this week—to take concrete actions that spur innovation and entrepreneurship to revitalize American manufacturing.

Since the MGI's launch in 2011, the Federal Government has invested over $250 million in new R&D and innovation infrastructure that will help anchor emerging industrial sectors in the United States that depend on advanced materials. This infrastructure promises to accelerate the development of new high-tech materials that can help address a broad range of national goals diverse domains such as energy, health, transportation, food and agriculture, and national defense.

Early milestones for the MGI include:

- A $25 million multi-stakeholder NIST Center of Excellence, focusing on the development of industrially ready advanced materials in emerging fields such as self-assembled biomaterials, organic photovoltaic materials, advanced ceramics, and novel polymer and metal alloys for structural applications;

- Funding from DOD, DOE and NSF to help support more than 500 research scientists across 200 companies, universities, and national labs who are defining the cutting edge in materials innovation, developing new tools in computation and instrumentation, and engaging in innovative research to compress the time it takes deploy new materials to market; and

- The launch of four new public-private partnerships that employ MGI activity to accelerate development and adoption of cutting-edge technologies including three of the recently launched Institutes for Manufacturing Innovation (America Makes, the Lightweight and Modern

Metals Innovation Institute, and Next Generation Power Electronics) and the DOE Critical Materials Institute .

Today, marking three strong years of progress for the MGI, the Administration is highlighting a set of new commitments to expand this effort both within the Federal Government and with stakeholders in the advanced materials community. New steps announced by the Obama Administration today include:

- **Expanding investment in the Materials Genome Initiative to ensure U.S. leadership in inventing and manufacturing advanced materials.** Five Federal agencies will invest more than $150 million in ground-breaking research to support the Materials Genome Initiative, upping the Administration's investment in the manufacturing of game-changing advanced materials. This public-private endeavor aims to cut in half the time it takes to develop novel materials that can fuel advanced manufacturing and bolster the 21st century American economy.

- **Releasing a draft of the Administration's MGI Strategic Plan for public comment.** The National Science and Technology Council's Subcommittee on the Materials Genome Initiative is releasing for public comment a draft of its first strategic plan, which will ultimately serve as an agency roadmap for executing on the MGI vision going forward. Federal agencies participating in MGI collaborated to develop the draft strategy, which also includes input from academia and industry.

- **Announcing new NIST investments in high-throughput research.** NIST is investing $1 million per year in high-throughput materials development, including by supporting "smart" window coatings to increase energy efficiency in buildings. This work will complement MGI related activity already underway at NIST, including its recently announced MGI Center of Excellence.

New commitments by private-sector and academic partners include:

- **Launching an open Materials Data Facility pilot to boost data access and sharing.** A consortium of research universities, national laboratories, and academic publishers are today announcing their intention to establish a Materials Data Facility Pilot as part of the National Data Service (NDS). In support of the Materials Genome Initiative, this new facility will enable greater community access to materials data with the goal of accelerating materials development and supporting advanced manufacturing. Key components of the NDS Materials Data Facility Pilot will include multi-petabyte storage environments at the National Center for Supercomputer

Applications (NCSA) at University of Illinois at Urbana-Champaign and at Argonne National Laboratory, as well as the Globus research data management service operated by the University of Chicago.

- **Establishing a new MGI Ambassadors program to strengthen the national MGI network.** The Minerals, Metals & Materials Society (TMS) is committing to identify a ten individuals from across the country who are well versed in the principles of MGI and have exhibited leadership in the materials-science field who will serve as regional points of contact for MGI-related engagements, events, or inquiries. After nominations are received through the TMS website and the TMS Materials Innovation Committee, MGI Ambassadors will be selected by the committee to ensure a balance of attributes. Final selections will be announced in late summer 2014.

- **Documenting MGI-relevant collaborations in regions across the country.** Today, five U.S. universities are releasing a new report summarizing a series of regional workshops held during the third year of the Materials Genome Initiative (MGI). The workshops, held at Northeastern University, the University of Southern California, Rice University, Georgia Institute of Technology, and the University of Illinois at Urbana-Champaign, brought together academic researchers, leaders from industry, representatives from national laboratories, and government science and technology officials. The workshops aimed to spur regional discussions and partnerships to address priority topics in the materials science field, including models for collaboration, scientific progress, facilities and infrastructure, data sharing, and education. The report presents a summary of those meetings along with recommendations about ways to advance the MGI.

- **Expanding access to high-throughput materials development tools, data, and opportunities.** Cornell University, the University of Maryland, the Joint Center for Artificial Photosynthesis, the Critical Materials Institute, the Stanford Synchrotron Radiation Lightsource, Cornell High Energy Synchrotron Source, Duke University, Intermolecular, and the University of South Carolina are announcing new efforts to provide open-access software and data related to high-throughput materials development. The University of South Carolina will also grant free access to related facilities as well as a forthcoming online course on high-throughput techniques. In addition, the Materials Research Society will soon release a white paper based on contributions from more than 90 experts, identifying key opportunities in high-throughput materials science that can further support the MGI's goal of reducing time from lab to market.

- **Establishing a new Center for Advanced Materials at Renssalaer Polytechnic Institute.** Renssalaer Polytechnic Institute is building on its $15 million investment in 'Materials by Design' research platforms to support a new Center for Materials, Devices, and Integrated Systems. Rensselaer's priority research areas in the materials domain include new 'Big Data' analytics of materials using supercomputers as well as advancing materials discovery and analysis with the IBM 'Watson' natural language capabilities.

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