



STEM mentoring initiative moves forward

<http://US2020.org>

Education in science, technology, engineering, and mathematics (STEM) fields fills the materials research pipeline and provides experts who continue to drive materials innovation. But will there be enough materials researchers, and indeed STEM professionals in general, to fill future needs? This question has been a rising concern for governments worldwide with many projecting a significant lack of qualified professionals to fill future STEM jobs. This so-called “STEM Crisis” was addressed in a 2012 report by the US President’s Council of Advisors on Science and Technology, that forecasts a need to produce approximately one million more STEM graduates than currently expected over the next decade to fill the gap between qualified

STEM professionals and STEM jobs in the United States.

Now imagine communities banding together to help produce the next generation of STEM professionals. Imagine local governments working in partnership with corporations, nonprofits, and schools to bolster interest in STEM fields through dramatic scale-up of STEM mentorship efforts. That is exactly the goal of the US2020 City Competition. Announced in June 2013 at the Clinton Global Initiative and sponsored by Cisco, the City Competition is a part of the broader US2020 STEM mentorship initiative, and seeks to capitalize on the convening power of cities to build and grow a nationwide mentoring community for STEM education.

US2020 is an answer to the White House call for increased access to STEM education and careers specifically for girls, underrepresented minorities, and low-income children. The initiative, unveiled by President Obama at the 2013 White House Science Fair, is an independent organization focused on STEM mentoring. By the year 2020, the organization seeks to match one million STEM mentors with students ranging from kindergarten through college to create what US2020 calls “moments of discovery”—experiences that spark an interest in STEM-based careers.

US2020 is a partnership between education nonprofits and STEM-focused corporations. Incubated within education nonprofit Citizen Schools, US2020 is set to become an independent nonprofit in 2014. The partnership is growing and building momentum, evidenced by both the large number of applicants to the City Competition and by the fact that Raytheon and Chevron have recently joined corporate founding partners Cisco, Cognizant, SanDisk, and Tata Consultancy Services.

Fifty-two cities across the United States submitted applications to the City Competition and 13 were chosen as finalists. Eric Schwarz, Co-founder and CEO of Citizen Schools and Executive Chair of US2020, said that while not every city won the competition, “every city that applied to this competition has the opportunity to win.” He added, “Every applying city formed impressive coalitions that are committed to a shared vision for transforming STEM education in their community. The inspiring plans that came out of every city can continue to be implemented. The country needs them to be implemented.”

In December 2013, representatives from the 13 finalist cities met in Boston to begin to develop a national network for STEM mentorship, and to discuss the important factors that should span each mentorship plan. These factors include incorporating a focus on relevant and hands-on activities, providing multiple mentorship sessions that culminate in a student presentation or product, and finding ways to measure results of



Students practice laboratory skills in preparation for a summer internship at the University of California–San Francisco Science and Health Education Partnership (SEP), the coalition lead for US2020 City Competition winner, San Francisco, Calif. Photo credit: Ben Koo, Academic Coordinator at SEP.

mentorship activities—specifically measuring changes in student interest in STEM careers. All 13 finalist cities have been invited to continue to be a part of the US2020 STEM mentoring network, and the group will meet periodically to continue sharing ideas and working to scale up STEM mentoring activities.

Out of the 13 finalists, seven winners—Allentown, Pa.; Chicago, Ill.; Indianapolis, Ind.; Philadelphia, Pa.; Research Triangle Park, N.C.; San Francisco, Calif.; and Wichita, Kan.—were announced at the White House Science Fair in May 2014, representing over 200 companies and organizations. In addition to participating in the larger group activities, the City Competition winners will share \$1 million in support from US2020. This support will take many forms including communications consulting and training with Discovery Communications, help with volunteer recruitment and training

from AmeriCorps VISTA, access to a state-of-the-art online volunteer matching platform developed by US2020 and Tata Consultancy Services, and management consulting services from US2020 and external partners. Three Grand Prize Winners—Allentown, Chicago, and Research Triangle Park—will also receive funds to hire a local project manager to help coordinate their STEM mentoring efforts.

US2020 is seeking STEM professionals who can share their moments of discovery with participants. Each of the winning cities is starting to develop mentorship programs, including seeking materials researchers, among others, to help inspire the next generation of scientists, engineers, and innovators. Information on how to get involved with US2020 or one of the City Competition winners can be found on the appropriate website.

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US2020 websites

US2020: <http://US2020.org>

Allentown, PA: <http://us2020.org/city-competition/allentown>

Chicago, IL: <http://us2020.org/city-competition/chicago>

Indianapolis, IN: <http://us2020.org/city-competition/indianapolis>

Philadelphia, PA: <http://us2020.org/city-competition/philadelphia>

Research Triangle Park, NC:
<http://us2020.org/city-competition/research-triangle-park>

San Francisco, CA: <http://us2020.org/city-competition/sanfrancisco>

Wichita, KS: <http://us2020.org/city-competition/wichita>

German Research Foundation approves collaborative research center for soft-matter simulations www.uni-mainz.de

The German Research Foundation (DFG) has approved the establishment of a new collaborative research center (CRC) to be coordinated by Johannes Gutenberg University Mainz (JGU). The new CRC/Transregio Multiscale Simulation Methods for Soft-Matter Systems will focus on developing methods for computer-aided research on structural properties and processes of soft matter.

Collaborative research centers are long-term DFG projects in fundamental research; CRC/Transregio projects are special in that the application must be submitted by several universities and/or institutions jointly. In addition to Mainz University as coordinator, the Technical

University of Darmstadt and the Max Planck Institute for Polymer Research in Mainz will be participating in the new CRC/Transregio. DFG will fund the CRC/Transregio with about €7 million over the next four years.

According to DFG, the new research center will concentrate on multiscale modeling. Soft matter represents an important class of materials that ranges from simple plastics to complex biomolecular systems and materials used in organic electronics applications. Their properties are determined by a subtle interplay of energy and entropy. Small changes in molecular interactions can lead to large changes in the macroscopic

properties of a system. The aim of the Center is to develop new simulation and analytical techniques that allow for the simulation of complex systems in the “real world,” such as materials composed of many components and non-equilibrium processes in materials.

German Minister of Science Doris Ahnen said, “This new research-related achievement demonstrates the exceptional potential of the Rhine-Main scientific hub and again underlines the excellence of the work being undertaken by our researchers in the field of materials science, which is—with good reason—one of the main disciplines shaping JGU’s research profile.” □



The Materials Research Society has been included as an eligible organization on the **2014 Combined Federal Campaign (CFC)**. The CFC is the annual workplace fundraising drive conducted by U.S. federal employees and military personnel each fall, which raises millions of dollars benefiting thousands of nonprofit charities.

Your donation to MRS (**CFC code 51015**) will be directed to the Materials Research Society Foundation and will support the next generation of students and scientists.

Learn more about the Materials Research Society Foundation and how you can make a difference!
www.mrs.org/foundation

