

August 2017

Manufacturing Technology Office
Office of the Secretary of Defense

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UPCOMING EVENTS

September 20-21, 2017 – America Makes TRX + Design for Additive Manufacturing (San Francisco, CA)

September 21, 2017 – NextFlex Innovation Day Open House (San Jose, CA)

September 21, 2017 – AIM Photonics TAP Facility Grand Opening (Rochester, NY)

September 27, 2017 – LIFT Laboratory Ribbon Cutting (Detroit, MI)

October 6, 2017 – Manufacturing Day 2017

November 1-3, 2017 – ARM Institutes' First Membership Meeting (Pittsburgh, PA)

November 8, 2017 – DMDII Technology Showcase (Chicago, IL)

November 17-19, 2017 – FabLab Innovation Awards and Science Fair (Santa Monica, CA)

December 4-7, 2017 – Defense Manufacturing Conference (Tampa, FL)



DoD Manufacturing USA Institutes

Monthly Highlights

LIFT CONNECTS TECHNOLOGICAL BREAKTHROUGHS TO EDUCATION



The Manufacturing USA institutes are tasked not only with facilitating the advancement of new technologies into the marketplace, but also with helping to ensure the pipeline of workers has the knowledge, skills, and abilities to use those technologies in the workplace.

With that goal in mind, the Lightweight Innovations for Tomorrow Department of Defense (DoD) Manufacturing USA institute commissioned leaders from two nationally recognized organizations -- Association of Public & Land-grant Universities (APLU) and National Center for Manufacturing Sciences (NCMS) -- to lead the Institute's work in bringing the conversation about education and workforce needs closer to the development of emerging technologies, recognizing that if we wait until technologies are deployed, it's too late.

As technology becomes more and more advanced across manufacturing and at all levels of design and production, the workforce is required to possess higher level skills and more robust competencies related to new technologies, materials, and processes. Strong partnerships are needed between post-secondary education and

industry. If community and technical colleges and universities are not incorporating the evolving needs of industry into their curricula and training opportunities, their students will not be prepared for the world of innovation in advanced manufacturing.

LIFT commissioned its "[Expert Educator Team](#)" of faculty experts earlier this year, and it has since met with the Institute's technology teams to review the projects underway and help identify the knowledge, skills, and abilities workers at all levels will need to deploy the lightweighting technologies, materials, and processes being created. Members of the team represent both LIFT and APLU institutions, including: University of Kentucky; Colorado School of Mines; University of Tennessee - Knoxville; Miami (OH) University; Wayne State (MI) University; and Lorrain (OH) County Community College.

The first report of recommendations from the Expert Educator Team was released this summer and urges programs at both the technical/production (two-year, associate's degree) and design/engineering (four-year, bachelor's degree) levels to review curricula and integrate materials and approaches that address competencies in four different manufacturing areas, including integrated computational materials engineering (ICME), metamorphic manufacturing, distortion control, and thin-wall aluminum die casting.

The full report and information on the EET is available [here](#). The second report is due out in the Fall of 2017.

DIRECTOR'S CORNER

On August 16, 2017, America Makes celebrated their fifth birthday. America Makes is the first Manufacturing USA institute to reach this initial five year milestone.

On behalf of the Department of Defense, I congratulate the institute on its incredible accomplishments to date and look forward to continue working side-by-side with America Makes in full support of the institute's plans for the future. Over the past five years, the America Makes team has created a collaborative environment that has already started to bring technology advancements from the lab to the factory floor, produce more competitive products, and reaffirm the United States' place of leadership in the global manufacturing market. I have complete confidence that the institute will continue to accelerate the adoption of additive manufacturing technologies in the U.S. manufacturing sector and increase domestic manufacturing competitiveness. The Department of Defense looks forward to continuing to strengthen our already strong public-private partnership with America Makes.

For more information about America Makes visit [here](#).

– Tracy Frost

Director, DoD Manufacturing USA Institutes
Acting Director, DoD ManTech

FOR MORE INFORMATION VISIT:
www.businessdefense.gov
www.manufacturingusa.com

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LIFT commissioned leaders from the Association of Public & Land-grant Universities (APLU) and National Center for Manufacturing Sciences (NCMS) to lead work in bringing the conversation about education and workforce needs closer to the development of emerging technologies.





THE ARM INSTITUTES' FUTURE LOCATION VISITED BY PENNSYLVANIA GOVERNOR

On August 7, Pennsylvania Governor Tom Wolf visited the Advanced Robotics for Manufacturing (ARM) Institute's proposed future location in Pittsburgh's Hazelwood neighborhood, at a site currently called Almono. In partnership with Carnegie Mellon University, the ARM Institute will act as the Almono site's first anchor tenant. The site was originally a steel mill and is currently Pittsburgh's largest brownfield. By redeveloping this former steel mill, the developers hope to honor Pittsburgh's past as a steel producer while looking towards the city's ongoing leadership in robotics technology. The redevelopment will retain the skeleton of the existing structure but include a solar panel installation intended to completely power the buildings. In addition to the ARM Institute, the site will also host manufacturing research at Carnegie Mellon, and will boast state-of-the-art facilities, including a high bay, for the creation, testing, and demonstration of industrial robots.

Commenting on the redevelopment of the Almono site, Governor Wolf noted: "I think what they're trying to do here is an audacious thing: to try to re-establish that connection with the past in a way that pays tribute to Pittsburgh's current incarnation as a high-tech capital."

As one of the Manufacturing USA innovation institutes, the ARM Institute's mission is to transform U.S. manufacturing through innovations and education in robotics and related automation technologies.



For more information about ARM visit [here](#).

The ARM Institute CEO Gary Fedder (2nd from left) participates in conversation with PA Governor Wolf (far right) about the plans for the Institute's proposed new location.

biofabUSA BIOFABUSA OPENS HQ IN MANCHESTER, NH

BioFabUSA, the 7th DoD Manufacturing USA institute, celebrated the opening of its national headquarters with laboratories and over 300 in attendance on July 28, 2017. The event featured speakers including New Hampshire Governor Christopher Sununu, former Governor John Lynch, Senators Jeanne Shaheen(D-NH) and Maggie Hassan (D-NH), Acting Deputy Assistant Secretary of Defense, Dr. John G. (Jerry) McGinn, Rockwell Automation CEO Blake Moret, University of New Hampshire Provost, Dr. Nancy Targett and Dean Kamen, President DEKA Research & Development and Acting Executive Director, ARMI.

BioFabUSA will work to integrate and organize the fragmented collection of industry practices and domestic capabilities in tissue biofabrication technology to better position the US relative to global competition. It will also focus on accelerating regenerative tissue research and creating state-of-the-art manufacturing innovations in biomaterial and cell processing for critical DoD and civilian needs.

"It is an exciting day for Manchester and New Hampshire, and, as Dean Kamen noted, for our war fighters and the country," Senator Shaheen (D- New Hampshire) said, recalling a 2006 event she attended at Harvard University, where Kamen talked of one day being able to produce organs and replace a lost kidney.

Letters of support were received and read from: President Donald J. Trump; Congresswoman Anne McLane Kuster and Congresswoman Carol Shea-Porter, both from New Hampshire.



Event VIPs cut the ribbon for the new BioFabUSA headquarters and laboratories on July 28, 2017.

"What we are saying is that there are all sorts of miracles that already exist in roller bottles and petri dishes at medical schools, labs," Dean Kamen said, comparing BioFabUSA's effort to what Campbell's Soup Company has done with the production of soup. "We said let's go out to the biggest, best companies that do automation, controls, sensors, and that understand process, that understand high-level manufacturing, and let's bring them to the same place as all of the people who have the magic in their roller bottles."

ABOUT BIOFABUSA

The Advanced Regenerative Manufacturing Institute (ARMI), headquartered in Manchester, NH, is the 12th Manufacturing USA Institute. It brings together a consortium of nearly 100 partners from across industry, government, academia and the non-profit sector to develop next-generation manufacturing processes and technologies for cells, tissues and organs. ARMI, through BioFabUSA, will work to organize the current fragmented domestic capabilities in tissue biofabrication technology to better position the U.S. relative to global competition. For more information on ARMI visit [here](#).



HAPPY BIRTHDAY AMERICA MAKES

On August 16, 2012, the then Undersecretary of Defense for Acquisition, Technology, and Logistics, Mr. Frank Kendall, announced the award of the National Additive Manufacturing Innovation Institute to the National Center for Defense Manufacturing and Machining (NCDMM). Five years later, America Makes celebrated their successes as a strong public-private partnership with over 180 members from industry, academia, and government. This birthday provides an opportunity to reflect on the first Manufacturing USA institute and their work in convening our nation's brilliant technical minds to create a hub of advanced manufacturing innovation in additive manufacturing (AM).

America Makes Executive Director Rob Gorham and Founding Director Ralph Resnick spoke at the birthday celebration, summarizing the achievements of the last five years, as well as what lies ahead for the Institute in the next five years. "There's no question that



America Makes has accomplished a great deal in its first five years," said Ralph Resnick, America Makes Founding Director. "Not only did America Makes pave the way for the Institutes to follow within the Manufacturing USA network as a trailblazing and successful example of the public-private partnership and collaborative model, but we also made substantial contributions to advance the AM industry, fostering a highly collaborative infrastructure for the open exchange of AM information and research."

Of the Institute's milestone and the future of the Institute, Rob Gorham said, "While we are taking the time to pause and commemorate our accomplishments to date, we are keenly focused on the future, strategically laying the groundwork for the Institute's continued success. Moving forward, I see America Makes defined by three main roles-first, as an impartial convener of AM and 3D printing stakeholders; second, as a coordinator of technical and workforce information and data; and lastly, as an activation catalyst through high-value, high-difficulty, and high-impact projects. We have rolled out support mechanisms, in the form of methodologies and technologies, to enable the Institute to succeed in these crucial roles."



Manufacturing USA celebrates America Makes' 5th Birthday!

