



# 3D Aerospace & Defense

Additive Manufacturing Symposium  
January 12, 2017

A discussion among government, industry, and academic experts on how Additive Manufacturing is reshaping the Aerospace and Defense Sector.

Hosted by the Regional Additive Manufacturing Partnership of Maryland (RAMP MD)

**RAMPMD**

JANUARY 12  
2017

## ABOUT RAMP MD

RAMP MD was formed by the Maryland General Assembly in 2014 to expand the state's capabilities in additive manufacturing. Additive manufacturing represents a significant opportunity for the state of Maryland to be at the leading edge of a technology that is dramatically changing how we live, work, and play. This is because Maryland is home to federal lab facilities that have made multi-million dollar investments in additive manufacturing equipment and resources.

RAMP MD streamlined the process for businesses to partner with these federal labs. In addition to increasing the number of businesses taking advantage of this unique partnership opportunity, RAMP MD also works to create educational pathways into additive manufacturing careers, and to build a strong additive manufacturing infrastructure that promotes businesses' success. For more information about RAMP MD, visit [www.rampmd.org](http://www.rampmd.org) or contact Rick Decker at [rick@rampmd.org](mailto:rick@rampmd.org).

## Our hosts: OpenWorks in Baltimore

OpenWorks' mission is to make tools, technology, and the knowledge to use them accessible and affordable. OpenWorks does this through memberships, access to workshops and expert staff, and classes for youth, adults, and families. RAMP MD is pleased to partner with this important organization. Find them at [www.openworksbmore.com](http://www.openworksbmore.com) or contact general manager Will Holman at [will@openworksbmore.com](mailto:will@openworksbmore.com).



# About Our Speakers

**Rick Moore** serves as Chief of the Rapid Technologies and Inspection Branch of the Edgewood Chemical Biological Center. Moore began his career as a computer-aided drafting and design technician and has achieved a Master Certification in Rapid Prototyping and Manufacturing from the Society of Manufacturing Engineers. Rick's unit is recognized as one of the most comprehensive AM facilities in the country. It provides "quick reaction" additive manufacturing, urethane casting, model making, 3D laser scanning/reverse engineering, and QA/QC part inspection to the US Army.

**Adam Naramore** earned his bachelor's degree in aerospace engineering from Purdue University and his master's degree in systems engineering from Penn State University. Adam is a program manager leading advanced missile defense programs maturing technologies for the Department of Defense. He is the co-founder and lead for the Additive Manufacturing Center of Excellence for Orbital ATK.

**William A. Davidson** is the CEO & Chief Engineer at UAV Solutions with a background as a UAV program and project engineer with large aerospace industry firms. Along with his wife, Bill grew UAV Solutions from two employees in 2006 to more than 40 today, and grew the company from a sub-assembly manufacturer to a designer and developer of fixed wing and multi rotor UAS in support of the US Special Operations Command. Today, manufacturing is an integral part of UAV Solutions' business operations.

**Robert C. Matteson III** is a mechanical engineer with the Johns Hopkins University Applied Physics Lab. He currently acts as supervisor of the advanced manufacturing group. He holds a mechanical engineering degree from the University of Maryland Baltimore County.

**Matt Scassero** is the Director of the University of Maryland Unmanned Aircraft Systems (UAS) Test Site, focusing the resources and efforts of the state of Maryland on working with the FAA to integrate UAS into the national airspace, and enabling public access to these valuable assets. His focus is to lead the university's

efforts to be a premier force in advancing UAS safely, efficiently and effectively, while delivering products and programs in support of workforce development and higher education goals.

**Dr. Paul Witherell** is a mechanical engineer in the Systems Integration Division of the Engineering Laboratory at the National Institute of Standards and Technology (NIST). Paul manages a project on Systems Integration for Additive Manufacturing and serves as the Associate Program Manager of the Measurement Science for Additive Manufacturing program in the Engineering Laboratory. Paul is active in ASTM F42/ ISO TC261 standards efforts and is Vice Chair on ASME's Y14.46 subcommittee on Product Definition for Additive Manufacturing.

**John Getz** is a product manager in the Tissue Injury and Regenerative Medicine Project Management Office at the US Army Medical Materiel Development Activity on Ft. Detrick, MD, which is responsible for restoring form, function, and appearance for wounded warriors who have suffered catastrophic injuries. His project efforts span many Defense-related regenerative medicine areas to include: extremity injury, prosthetics, assistive technologies, haptics and proprioception, as well as advanced pharmaceutical systems.

As Chief of the Materials Manufacturing Technology branch at the Army Research Laboratory, **Dr. Robert Carter** leads a group of 34 researchers, technicians and assistants in developing advanced manufacturing technologies for novel materials and material systems with a focus on technology transition. Rob also is responsible for the development of a public-private partnership for agile manufacturing technologies, which is focused on maturation of materials and manufacturing science. His areas of research include manufacturing of advanced materials and structures, mechanics of composite materials, multifunctional materials, and probabilistic design methodologies. He holds three patents and over 50 technical publications on advanced materials and mechanics.

*Speaker Bios continue on back page*

# Agenda and Speakers

**0730 Registration and Exhibition Hall Networking**

**0810 Welcoming Remarks**

**0820 Panel Discussions**

## **Aerospace & Defense Applications and Technical Challenges**

*Participants discuss current projects and applications of additive manufacturing in their organizations and possible barriers to widespread adoption of 3D printing technologies.*

- Rick Moore, US Army Edgewood Chemical Biological Center
- Adam Naramore, Orbital ATK
- Bill Davidson, UAV Solutions
- Bob Matteson, Research and Exploratory Development Department, The Johns Hopkins University Applied Physics Laboratory

## **Future Requirements in Additive Manufacturing for Aerospace & Defense**

*Panel members anticipate the direction of additive manufacturing for aerospace & defense applications and discuss trends in unmanned aerial systems, standards, materials, medical, and technology.*

- Matt Scassero, University of Maryland Unmanned Aerial Systems Test Site
- Dr. Paul W. Witherell, National Institute of Standards and Technology (NIST)
- John Getz, US Army Medical Materiel Development Activity
- Dr. Robert Carter, U.S. Army Research Laboratory

**1000 Networking and Exhibit Hall**

**1015 Break-Out Session 1**

## **Technology Innovation: New developments in equipment & hardware (Classroom 1)**

*Panelists offer their perspectives on new printers, materials, capabilities, and equipment.*

- Lester Hitch, EOS
- Ricardo Rodriguez, 3D Systems

## **Supporting services for additive manufacturing (Classroom 2)**

*A discussion of finishing, scanning, quality assurance, and other topics.*

- Rick Dunlap, Repliform
- Chris Cosgrove, SURVICE Metrology
- Chris Peitsch, Chesapeake Testing

## **Intellectual property in an additive world (Upper Level Cafe)**

*An exploration of how to protect innovation in additive manufacturing.*

- Jill Sorensen, Bilyan

## **Educational pathways and certifications in additive manufacturing (General Session)**

*New programs and pathways in additive manufacturing.*

- Jim Zahniser, University of Maryland School of Engineering
- Doug Kendzierski, Community College of Baltimore County
- Harry Preston, Baltimore City Public Schools

**11:05 Break-Out Session 2 (Rotate Topics - NO Educational Pathways)**

**1200 Business Roundtable Discussion Panel and Lunch: Collaboration with Federal Labs**

- Dave Wheatley, DWE Plastics
- Cyrus Etemad-Moghadam, RPM Tech
- Chad Schneider, Root 3 Labs

**Lester Hitch** is a material sales specialist for EOS North America, a global leader in Polymer and Metal Additive Manufacturing. Lester has 15 years of experience within the industry, most of which is from working at the US Army's Rapid Technologies Lab of the Edgewood Chemical Biological Center at Aberdeen Proving Ground.

**Ricardo Rodriguez** is an aerospace and defense engineer with 3D Systems Corporation. He is currently embedded as a guest researcher with the Army Research Laboratory executing research and development programs in additive manufacturing. He holds a Masters in Electrical and Electronics Engineering from University of Texas.

**Rick Dunlap** is the Sales and Marketing Engineer at RePliForm, Inc., where he has developed a proficient understanding of the materials and capabilities available through different printing processes. Rick graduated from James Madison University with a Bachelor's of Science in Physics, where he was awarded the Physics Department's Teaching Award for bringing unique lessons to local schools.

**Chris Cosgrove** is Metrology Group Manager for SURVICE Engineering. In this role, he provides leadership for SURVICE's dimensional inspection, reverse engineering, and rapid prototyping support services for customers in many industries with commercial and government applications. Cosgrove has a degree in mechanical engineering.

**Chris Peitsch** serves as a subject matter expert in non-destructive testing, specifically in the method industrial x-ray computed tomography (CT) scanning, at National Technical Systems (NTS) in Aberdeen, Maryland. He holds a B.S. in Electrical Engineering from the University of Maryland, College Park, and an M.S. in Electrical & Computer Engineering from the University of Delaware.

**Jill Sorensen** is a senior innovation manager with over 25 years of experience in emerging technology, intellectual asset, business and economic development management. She is the Founder and President of Bilyan and has served as professional faculty at Johns Hopkins University 2005-present, teaching social entrepreneurship, innovation, business ethics and technology transfer.

**Jim Zahniser** is the Executive Director of Engineering Information Technology at the University of Maryland's School of Engineering. He has responsibility for a wide variety of IT services and recently has been working on operationalizing Terrapin Works as a one-stop resource for all the digital manufacturing resources available at the School of Engineering. He has University of Maryland degrees in software engineering and mechanical engineering.

**Doug Kendzierski** is Chair of the Applied Technology programs at CCBC, overseeing the Aviation, Automotive, HVAC, Manufacturing & Design/ Fabrication degrees. His team launched one of the first MIT-affiliated FAB LAB operations, which is a national model for technology democratization and additive manufacturing training, and home to the school's Associate in Applied Science Degree in Design, Fabrication & Advanced Manufacturing.

**Harry Preston** is a CTE Department Chair/ Lead Teacher for Engineering with Baltimore City Public Schools. He developed and grew an additive manufacturing program at Westside Skills Center/Edmondson High School where students gain hands-on experience in product development as part of their curriculum. He holds a Masters in Urban Education from Johns Hopkins University.

**Chad Schneider** is a professional mechanical engineer with over 15 years of experience in the process of product development. He enjoys designing practical, efficient, and robust electro-mechanical systems and offers extensive knowledge of various rapid prototyping and manufacturing techniques. Schneider founded Root3 Labs in 2012. Root3 Labs designs and develops technology products for clients as well as internal ventures.

**Cyrus Etemad-Moghadam** is a product development expert with experience in designing a broad range of products for government, military, industrial, telecom, energy, medical, and consumer applications. Cyrus founded RPM Tech in 2006 to offer end-to-end solutions to the high tech industry. He holds a master's in mechanical engineering from JHU.

**Dave Wheatley** is the owner of DWE Plastics, a manufacturing firm located in Belcamp, MD, that employs 80 people and provides precision engineering and manufacturing services.



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