AeroDef Manufacturing 2017 is the launch pad for mission-critical technologies, strategies and industry connections.

Look inside for complete event details and special offer.

Early bird rates expire February 3, 2017.

Register today!
Dear Member of the Aerospace and Defense Manufacturing Community:

On behalf of the AeroDef 2017 Executive Committee, I invite you to join us at the 2017 AeroDef Manufacturing Conference and Exposition. This exclusive, collaborative event is designed specifically for aerospace and defense manufacturing professionals. It’s where critical technologies, strategies and valuable industry connections are discovered and leveraged. By registering in advance, you can save $150 off the full conference registration fee.

Join us at AeroDef; it’s where the industry’s most influential leaders gather to transfer knowledge and make important technology decisions and investments to maintain competitiveness in the global marketplace. You’ll expand your personal and professional network and increase the depth of your knowledge. The future of our industry depends on professionals like you, and together we reach higher, helping aerospace and defense manufacturers achieve their full promise.

I look forward to seeing you in Fort Worth in March. To take advantage of our special offer and SAVE $150 off the full conference registration fee, use code EXCLUSIVE when you register.

Sincerely,

Bill Saathoff
Director, Advanced Manufacturing Technology & Development
Lockheed Martin Aeronautics

AERODEFEVENT.COM
EXECUTIVE COMMITTEE
WHO WILL YOU MEET?
JOIN THE TOP MANUFACTURERS IN AEROSPACE AND DEFENSE
AERODEF IS EXCLUSIVE

Many events offer you speakers and exhibits – but only AeroDef delivers the high-level, exclusive experience our attendees have come to expect year after year. We partner with industry-leading OEMs and technology experts to select the brightest minds from the top companies in aerospace and defense manufacturing to share mission-critical knowledge you won’t find anywhere else.

WHEN YOU ATTEND AERODEF, YOU WILL:

• Make lasting connections with leaders in all areas of aerospace and defense – these are the people you’ll call on in the future to partner with or support your business
• Discover the technologies, processes and applications that enable businesses like yours to accelerate delivery, increase affordability, and drive innovations throughout the supply chain
• Learn new strategies and trends and get answers to your most pressing questions from the most influential professionals in the aerospace and defense manufacturing industry

You never know who you may meet along the way: That person standing or sitting next to you may connect you with the ideas, technologies or people you need to make your vision a reality.

KEYNOTE SPEAKERS

Selected by our executive committee, our keynote speakers are chosen from the highest levels of government, commercial and defense aerospace manufacturing. They’re eager to share their experience, expertise and knowledge. You’ll leave their presentations with key takeaways that will encourage you about the future of aerospace and defense manufacturing.

TUESDAY, MARCH 7 | 8:00 AM–8:45 AM
Andreas Wüllner
Chairman, Composites Business Unit - Fibers & Materials; Managing Director, SGL Automotive Carbon Fibers; SGL Group
Topic: Where the Industry is Going in Carbon and Why

WEDNESDAY, MARCH 8 | 8:00 AM–8:45 AM
Alexander Eksir
Vice President of Quality & Mission Success (Q&MS)
Lockheed Martin Aeronautics
Topic: Zero Defect Mentality at the Global Supply Chain Level

WEDNESDAY, MARCH 8 | 12:00 PM–12:50 PM*
Paul Marks
Chairman and CEO
Argosy International Inc.
Topic: China’s Aerospace Strategy and its Implications for Western Aerospace

*Conference delegates receive a plated lunch during the presentation. Exhibits Only and Exhibits Plus registrations includes admission to the presentation but do not include lunch.
AeroDef’s panel discussions are developed in partnership with the leading OEMs to identify the technologies and materials that hold the greatest potential for transforming aerospace and defense manufacturing. Panelists are thought leaders on issues critical to manufacturing’s future and are professionals making investment decisions for their enterprise.

Take a seat at The Deck to hear how industry leaders are making strides in aerospace and defense manufacturing—and how you can apply what they’ve learned to your business.

<table>
<thead>
<tr>
<th>TUESDAY, MARCH 7</th>
<th>8:50 AM–9:50 AM</th>
<th>TUESDAY, MARCH 7</th>
<th>12:00 PM–1:30 PM*</th>
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<tbody>
<tr>
<td><strong>Industrial IoT and the Digital Twin</strong></td>
<td><strong>The Next 100 Years of Air Force Manufacturing Technology</strong></td>
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</tbody>
</table>
| Greg Harris, PhD, PE - Moderator  
Associate Professor  
Auburn University | John Russell, DSc - Moderator  
Technical Director, Manufacturing and Industrial Technologies Division; Air Force Research Laboratory (AFRL/RXM) |
| Eric Green  
Vice President and Managing Director,  
Dassault Systèmes | Lane Ballard  
Vice President, Materials and Manufacturing Technology  
Boeing Research and Technology |
| Avner Ben-Bassat  
President & CEO  
Plataine Technologies | Michael Maher  
President  
Maher & Associates LLC |
| David Riemer  
Vice President, Aerospace and Defense Strategy  
Siemens Product Lifecycle Management Software Inc. | Ralph Resnick  
President and Executive Director  
National Center for Defense Manufacturing and Machining (NCDMM) |

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<tr>
<th>WEDNESDAY, MARCH 8</th>
<th>8:50 AM–9:50 AM</th>
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<th>1:00 PM–1:50 PM</th>
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<tbody>
<tr>
<td><strong>How to Identify, Mitigate and Close Cybersecurity Gaps that Threaten Manufacturing Production</strong></td>
<td><strong>Additive Manufacturers Team with Aerospace and Defense Sector to Reduce Material Requirements</strong></td>
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</table>
| Rebecca Taylor - Moderator  
Sr. Vice President  
National Center for Manufacturing Sciences | Neal Orringer - Moderator  
Vice President, Defense Alliances & Partnerships  
3D Systems |
| Greg Carnevale  
Deputy Branch Chief  
U.S. Department of Homeland Security | Dr. Mark Benedict, PhD  
Senior Materials Engineer, Materials & Manufacturing Directorate  
U.S. Air Force Research Laboratory |
| Matthew Doan  
Senior Associate  
Booze Allen Hamilton | Richard Martukaniz, PhD  
Director, Center for Innovative Materials Processing through Direct Digital Deposition,  
Applied Research Laboratory  
Pennsylvania State University |
| Catherine Ortiz  
President & Owner  
Defined Business Solutions LLC | Michael Nikodinovski  
Mechanical Engineer, Materials Division  
U.S. Army TARDEC |
| Mark Weatherford  
Sr. Vice President & Chief Cybersecurity Strategist  
vArmour | Sung Park, PhD  
Senior Engineer, Manufacturing & Materials  
Northrop Grumman Aerospace Systems |

*Conference delegates receive a plated lunch during the presentation. Exhibits Only and Exhibits Plus registrations includes admission to the presentation but do not include lunch.
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<tr>
<th>Date</th>
<th>Activity</th>
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<th>Location</th>
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<tr>
<td><strong>3/6</strong></td>
<td><strong>MONDAY</strong></td>
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<tr>
<td><strong>REGISTRATION:</strong></td>
<td>8:00 AM–4:00 PM</td>
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<td><strong>EXHIBITOR MOVE-IN:</strong></td>
<td>8:00 AM–4:30 PM</td>
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<tr>
<td><strong>TOUR:</strong></td>
<td>8:30 AM–11:30 AM</td>
<td>Concept Laser</td>
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<tr>
<td><strong>WORKSHOP:</strong></td>
<td>9:00 AM–12:00 PM</td>
<td>Composites 101</td>
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<td><strong>WORKSHOP:</strong></td>
<td>9:00 AM–12:00 PM</td>
<td>Fundamentals of Adhesive Bonding of Composite Materials</td>
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<tr>
<td><strong>TOUR:</strong></td>
<td>12:30 PM–4:00 PM</td>
<td>Triumph Aerostructures</td>
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<tr>
<td><strong>WORKSHOP:</strong></td>
<td>1:00 PM–4:00 PM</td>
<td>Fundamentals of Additive Manufacturing for Aerospace</td>
<td></td>
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<tr>
<td><strong>WORKSHOP:</strong></td>
<td>1:00 PM–4:00 PM</td>
<td>Assembly &amp; Joining of Composite Materials</td>
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<tr>
<td><strong>EARLY ARRIVAL RECEPTION AT HILTON HOTEL:</strong></td>
<td>6:00 PM–7:30 PM</td>
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**THE DECK**

At the center of it all is The Deck—the “main stage” for keynote speakers and panel discussions. It also functions as a central meeting place where OEMs, contract suppliers, executives, managers, directors, business owners and attendees can network with each other and hold one-on-one meetings.

**At THE DECK, you can:**

- Hear keynote speakers address the challenges that face the extended manufacturing enterprise
- See panel discussion participants share new ways to use technology and processes
- Talk face-to-face with the people and companies who may be looking for what you have to offer

| **3/7** | **TUESDAY** |  |  |
| **REGISTRATION:** | 7:00 AM–4:30 PM |  |  |
| **KEYNOTE:** | 8:00 AM–8:45 AM | Where the Industry Is Going in Carbon and Why | Andreas Wüllner, SGL Group |
| **PANEL DISCUSSION:** | 8:50 AM–9:50 AM | Industrial IoT and the Digital Twin |  |
| **EXHIBITS OPEN:** | 10:00 AM–5:30 PM |  |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 10:15 AM–11:45 AM | Innovations in Composites Manufacturing |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 10:15 AM–11:45 AM | Composite Manufacturing Processes |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 10:15 AM–11:45 AM | Additive Manufacturing in Big Industry & Government/Military |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 10:15 AM–11:45 AM | Quality, Measurement & Inspection I |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 10:15 AM–11:45 AM | Machining & Tooling |  |
| **PANEL DISCUSSION:** | 12:00 PM–1:30 PM | The Next 100 Years of Air Force Manufacturing Technology |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 2:15 PM–4:15 PM | Intelligent Robotics |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 2:15 PM–4:15 PM | Machining of Composites |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 2:15 PM–4:15 PM | Next Generation Additive Manufacturing |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 2:15 PM–4:15 PM | Quality, Measurement & Inspection II |  |
| **CONFERENCE TECHNICAL SESSIONS:** | 2:15 PM–4:15 PM | Automation & Assembly |  |
| **AWARDS PRESENTATION & RECEPTION:** | 4:30 PM–6:00 PM |  |  |
| **EXHIBITOR MOVE-OUT:** | 5:00 PM–9:00 PM |  |  |
| **AERODEF ROUNDUP AT BILLY BOB’S TEXAS:** | 6:30 PM–9:00 PM |  |  |
3/8
REGISTRATION: 7:00 AM–3:00 PM

EXHIBITOR MOVE-IN: 8:00 AM–4:30 PM
TOUR: 8:30 AM–11:30 AM
WORKSHOP: 9:00 AM–12:00 PM
Concept Laser
WORKSHOP: 1:00 PM–4:00 PM
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WORKSHOP: 1:00 PM–4:00 PM
Assembly & Joining of Composite Materials
EARLY ARRIVAL RECEPTION AT HILTON HOTEL: 6:00 PM–7:30 PM

3/9
REGISTRATION: 8:00 AM–12:00 PM
EXHIBITOR MOVE-OUT: 8:00 AM–4:30 PM
TOUR: 12:00 PM–3:00 PM

CONFERENCE TECHNICAL SESSIONS: 9:00 AM–11:00 AM
Innovations in Composites Manufacturing
Finishing & Coatings
Additive Manufacturing Design
Precision Machining II
Digital Manufacturing

PANEL DISCUSSION: 8:50 AM–9:50 AM
How to Identify, Mitigate and Close Cybersecurity Gaps that Threaten Manufacturing Production

KEYNOTE: 8:00 AM–8:45 AM
Zero Defect Mentality at the Global Supply Chain Level
Alexander Eksir, Lockheed Martin Aeronautics

PANEL DISCUSSION: 12:00 PM–1:30 PM
The Next 100 Years of Air Force Manufacturing Technology

KEYNOTE: 12:00 PM–12:50 PM
China’s Aerospace Strategy and Its Implications for Western Aerospace
Paul Marks, Argosy International
Lunch Included with Conference Registration

PANEL DISCUSSION: 1:00 PM–1:50 PM
Additive Manufacturers Team with Aerospace & Defense Sector

CONFERENCE TECHNICAL SESSIONS: 2:15 PM–4:15 PM
Composites Automation II
Integrated Assembly II
Metal Additive Manufacturing II
Nonmetallic Additive Manufacturing
Precision Machining I

AWARDS PRESENTATION & RECEPTION: 4:30 PM–6:00 PM

EXHIBITOR MOVE-OUT: 5:00 PM–9:00 PM
AeroDef Manufacturing® has developed an Executive Committee made up of the leading OEMs in the United States to drive the development of this industry-defining event.

Executives from Bell Helicopter, Boeing, Lockheed Martin, the National Center for Defense Manufacturing & Machining, Northrop Grumman, and more have all come together as one team that is committed to the sustainability of aerospace and defense manufacturing.

**EXECUTIVE COMMITTEE**

Dianne Chong, PhD  
VP of Assembly, Factory and Support Technologies – Boeing Engineering, Operations & Technology  
The Boeing Company [Retired]

Leslie Jay Cohen, PhD  
Senior Vice President, New Business Development & Strategic Technology  
HTC0

Rick Copas  
President, AIM Technologies LLC

Mark Cumm  
Vice President of Business Development, MTomes America

Dean Hilgenberg  
Director of Manufacturing Engineering and Tooling  
Global Operations  
Northrop Grumman, Aerospace Systems

Michael Maher  
President, Maher & Associates LLC

Andrew Mallow  
Director, Technology Strategy Integration  
Boeing Defense, Space & Security

Nicholas Melillo  
Senior Manager, Boeing Company Research and Technology

Jose Nogueira-Cabo  
Senior Manager, Strategy Department  
Airbus Group

Paul Oldroyd  
Technical Fellow, Manufacturing & Engineering Process Development  
Bell Helicopter / Textron

Ralph Resnick  
President and Executive Director, National Center for Defense Manufacturing and Machining (NCDMM)

Bill Saathoff  
Director, Advanced Manufacturing Technology & Development  
Lockheed Martin Aeronautics

Todd Szallay  
Director, Advanced Manufacturing & Technology  
Northrop Grumman Aerospace Systems

John Vickers  
Assistant Manager of the Materials and Processes Laboratory, NASA Marshall  
Space Flight Center
SME AND AERODEF THANK THE FOLLOWING TECHNOLOGY CHAMPIONS, SPONSORS, MEDIA PARTNERS AND SUPPORTERS:

TECHNOLOGY CHAMPIONS

The AeroDef Manufacturing Technology Champions support the growth of the industry by serving as an exclusive resource to all attendees, exhibitors, speakers and partners of the event. Visit their booths at AeroDef to explore innovative solutions that will enable you to streamline and advance your business.

Mazak

Controls Technology Champion
Booth #605
Mazak Corporation is a leader in the design and manufacture of productive machine tool solutions. Committed to being a partner to customers with innovative technology, its world-class facility in Florence, Kentucky, produces over 100 models of turning centers, Multi-Tasking machines and vertical machining centers, including 5-axis models. Continuously investing in manufacturing technology allows the Kentucky Mazak iSMART Factory™ to be the most advanced and efficient in the industry, providing high-quality and reliable products through its “Production-On-Demand” practice. Mazak maintains eight Technology Centers across North America to provide local hands-on applications, service and sales support to customers.
mazak.com

Additive Manufacturing Metals Technology Champion
Booth #419
SLM Solutions is a leading provider of metal-based additive manufacturing systems that optimize fast and cost-efficient part production. With multi-laser options, bi-directional recoating, open-software controls and closed-loop powder handling, Selective Laser Melting® systems achieve best-in-class safety and increased build speeds for complex and completely dense metal parts. These powerful and innovative machines, available in three sizes, support an optimal approach for faster, more flexible metal part production and prototypes across the aerospace, automotive, academia, energy and medical industries. Headquartered in Lübeck, Germany, SLM Solutions Group is a publicly traded company (TecDax) with its North American offices located in Metro-Detroit.
slm-solutions.us
The AeroDef 2017 Conference offers diverse technical sessions to choose from. Sessions provide a unique opportunity for aerospace manufacturers to meet face-to-face with engineers, product designers, and managers to find innovative solutions to their most difficult manufacturing challenges. Presentations offer a practical look at the issues encountered at multiple levels of the extended enterprise and represent a wide spectrum of manufacturing technologies.

Organized into five tracks over three days, the AeroDef technical sessions are led by industry experts, not just a company representative.

**Additive Manufacturing/3D Technologies** – Computer-integrated technologies that design, manufacture, test and simulate together with rapid and additive technologies

**Automation & Assembly** – Advanced techniques for manufacturing and assembly that enable commercial aerospace and defense suppliers to meet stringent cost targets, quality requirements and time constraints for increased production

**Composites & Advanced Materials** – High-performance materials and the manufacturing processes that make them possible for commercial and military aircraft

**Precision Machining & Tooling** – Manufacturing of high-tolerance parts using advanced materials that feature complex surfaces, thin walls and challenging part geometries

**Quality, Measurement & Inspection** – Advanced inspections, quality control, validation methods, and equipment for mission critical operations
The 2017 AeroDef and Composites conference advisory committees have provided invaluable recommendations and guidance in the selection of content and speakers for your conference. Their expertise in the industry ensures you will receive practical, cutting-edge knowledge at AeroDef that will help you address your most critical manufacturing challenges.
SESSION: ADDITIVE MANUFACTURING IN BIG INDUSTRY & GOVERNMENT/MILITARY
10:15 am | Porosity Analysis of Ti-6Al-4V Parts Fabricated by Powder-Bed Electron Beam Additive Manufacturing
Kevin Chou, Professor, The University of Alabama
Kenneth Cooper, Team Lead, Advanced Manufacturing Team, Marshall Space Flight Center

10:45 am | The 5 P’s of Additive Manufacturing at Lockheed Martin
Robert Ghobrial, Advanced Manufacturing Technology Leader, Lockheed Martin Aeronautics Co.

11:15 am | Top 3 Challenges Facing the Military AM Supply Chain
Ed Tackett, Director of Educational Programs, University of Louisville

SESSION: DESIGN CONSIDERATIONS FOR COMPOSITE MANUFACTURING
10:15 am | Composite Manufacturing Data Management
Erdal Tekin, Senior Systems Specialist, Information Management Systems, TAI

10:45 am | Dimensions on Day One
Denise Shimazu, Manufacturing Technology, Northrop Grumman Corp.
Luis Martinez, Design Engineer, Northrop Grumman Corp.

11:15 am | Simulation-Driven Design of Composite-Made Cockpit Aircraft Interior Components
Pier-Olivier Duval, FEA/CFD Team Leader, Creaform

SESSION: MACHINING & TOOLING
10:15 am | Lean Set-Up for Trim & Drill Tooling
Todd Hammer, Sales Manager A&D, Stiles Machinery, Inc.

10:45 am | The Importance of Volumetric Machine Tool Accuracy in Aerospace Parts Manufacturing
Scott Walker, President, Mitsui Seiki USA Inc.

11:15 am | Deciphering the Many Types of NC Program Optimization
Joel Schule, Technical Support Engineer, CGTech

SESSION: QUALITY, MEASUREMENT & INSPECTION I
10:15 am | The Problem with Production Monitoring Systems
Adam Delio, Field Application Specialist, MAJiK Systems
Jared Evans, Product Manager, MAJiK Systems

10:45 am | AS6081 Procurement: A Guide to Utilizing the Open Market
Christine Lutheran, Director of Operations & Supply Chain, Secure Components

11:15 am | Thermographic Detection and Measurement of Porosity and Foreign Object Debris in Composite Materials
Steven Shepard, President, Thermal Wave Imaging, Inc.

SESSION: COMPOSITE MANUFACTURING PROCESSES
10:15 am | The Application of Digital Printing Technologies to Precision in Composite Manufacturing
Peter Mason, President, Xactive Inc.

10:45 am | In-Line Atmospheric Plasma Surface Treatment Technologies for Improved Bond Strength of Advanced Materials
Ryan Schuelke, VP of Sales, Enercon Industries Corp.

11:15 am | Development of Intelligent Plasma Tool for Primary Composite Structure Bonding
Mikhail Grigoriev, Manufacturing Engineer, Northrop Grumman
Tom Williams, PhD, Plasma Specialist, Surfx Technologies LLC
SESSION: NEXT-GENERATION ADDITIVE MANUFACTURING
2:45 pm | How to Operate Smarter, Safer and More Profitably with the Factory of Tomorrow
John Murray, President & CEO, Concept Laser Inc.
3:15 pm | Next-Generation 3D Metal Printing Systems
Louis Schlegel, Sr. Vice President, Fonon Corp.
3:45 pm | Hybrid Manufacturing Technology Takes Additive Mainstream
Jason Jones, Co-Founder & CEO, Hybrid Manufacturing Technologies

SESSION: MACHINING OF COMPOSITES
2:15 pm | Traditional and Alternative Machining Methods for Perforating Composite Materials
Vincent Liberi, Technology Manager, IKONICS Corp.
2:45 pm | Best Practices for the Machining of Core Materials
Richard Walters, Corporate Marketing Consultant, LMTOnsrud LP
3:15 pm | A Study of Aramid Honeycomb Machining with a High-Speed Camera
David Gill, Assistant Professor, Manufacturing Engineering, Western Washington University
3:45 pm | Trim & Drill Processes for Large Composite Aircraft Structural Components
Tye Reid, Program Manager, Janicki Industries

SESSION: AUTOMATION & ASSEMBLY
2:15 pm | How to Get Started on an Automation Project
Craig Salvalaggio, Vice President of Engineering, Applied Manufacturing Technologies
2:45 pm | Managing EBOM, MBOM, BOP and Graphical Data with PLM
Rob Robinson, Solution Architect, Siemens PLM
3:15 pm | Inertial/Gravitational Mass Modification for Faster Than Light (FTL) Deep Space Applications
William Alek, President & CEO, AuroraTek
3:45 pm | Leveling: Solving Flatness Issues from Lightweight Alloys to Armor Plating
Nicholas Miller, Technical Director, ARKU Coil Systems

SESSION: INTELLIGENT ROBOTICS
2:15 pm | Intelligent Automation Solutions for Aerospace Manufacturing
Chris Blanchette, National Account Manager, FANUC America Corp.
2:45 pm | Predictive Manufacturing Applying 3D Simulation Advanced Technologies
Robert Axtman, CEO/President, Visual Components
3:15 pm | Lightweight Retractable Platform with Various Industrial Attachments for Carrying & Transporting Products with Compact Storage Capabilities
Renato Gross, Chief Executive Engineer, Crazy Turtle Robotic Platforms LLC
3:45 pm | Effective Spindle Utilization with Small Batch Sizes
David Suica, President, Fastems LLC

SESSION: QUALITY, MEASUREMENT & INSPECTION II
2:15 pm | Universal Metrology Automation: Configurable, Intelligent and Automated Quality Control
Paul Oberle, Director, Metrology Automation, 3D Infotech
2:45 pm | Hole Defect Identification & Quantification by 3D Laser Hole Scanning
Harris Bergman, Executive Vice President, United Sciences
3:15 pm | Using Electronic Sensors for Error-Proof Manufacturing
George Keremedjiev, President, Tecknow Education Services, Inc.
3:45 pm | Measurement and Inspection of Additive Manufactured Parts with CT-Scanning
Hermisso Villarraga-Gomez, X-ray, CT Metrology Specialist, Nikon Metrology
SESSION: METAL ADDITIVE MANUFACTURING I
10:15 am | Hot Isostatic Pressing of Additive Manufacturing Parts
Anders Eklund, Senior Sales Manager – Americas, Quintus Technologies, LLC

10:45 am | Prediction of Stress, Distortion and Microstructures within Aerospace Components Made Using Metal Laser Sintering
Brent Stucker, CEO, 3DSIM

11:15 am | Using Additive Manufacturing to Produce Your Metal Casting Requirements from Legacy to Prototype
Steve Murray, Sales Rep & Additive Manufacturing Consultant, Hoosier Pattern

SESSION: COMPOSITES AUTOMATION I
10:15 am | Automated Fiber Placement Performance on In-Form, One-Piece Wing Spar for Wide-Body Commercial Aircraft
Justin Nielson, Mechanical Engineer, Electroimpact, Inc.

10:45 am | Novel Process for Automated Pick-Peel Lamination of Composite Pre-Form Stacks
Derek Black, Vice President – Business Development, ARM Automation, Inc.

11:15 am | Real-Time Automatic Inspection and Process Control of Composite Parts
Scott Blake, President, Assembly Guidance Systems, Inc.

SESSION: INTEGRATED ASSEMBLY I
10:15 am | C-130 Automated Drilling and Fastening Systems Integration
Michael Kline, Applications Engineer, Lockheed Martin Aeronautics Co.

10:45 am | Laser Cleaning Surface Preparation for Bonded Nutplates on Metallic Structure
Michael Stoddard, Manufacturing Technology, Lockheed Martin Aeronautics Co.

11:15 am | Optimization of a Trainer Aircraft Assembly through Development and Manufacturing Phases
Necmi Kara, Chief Manufacturing Engineer, TAI

SESSION: CYBERSECURITY FOR ADVANCED MANUFACTURING
10:15 am | Cybersecurity Challenges to the Integrity of the Semiconductors Supply Chain
John Adams, President, Alliance for American Manufacturing

10:45 am | Protecting the Digital Thread: Cybersecurity for Defense Advanced Manufacturing
Catherine J. Ortiz, President & Owner, Defined Business Solutions LLC

11:15 am | Cyber-Physical Security for Advanced Manufacturing
Gregory Purdy, Research Assistant Professor, Virginia Tech

SESSION: QUALITY INNOVATIONS IN TOOLING
10:15 am | Common Tooling, Gaging, Fixturing and Simple Testing with Your Suppliers to Ensure Mission Success
Timothy Foran, Consultant, TRF Consulting

10:45 am | New Tool Technology that Drives Quality Production and Profitability
Tom Hutchens, Director of Strategic Accounts, Ingersoll Rand

11:15 am | Non-Contact Metrology for F-16 Tooling Digitization
Devin Grande, Applications Engineer, Lockheed Martin Aeronautics Co.
SESSION: METAL ADDITIVE MANUFACTURING II
2:15 pm | Full-Density Metal Rapid Manufacturing in Ambient Conditions
Keng Hsu, Assistant Professor, Arizona State University

2:45 pm | Finding the Value in Metal Additive Manufacturing
Robert Markley, President, 3rd Dimension Industrial 3D Printing

3:15 pm | A Novel Method for Rapid Prototyping/Additive Manufacturing Building in Multiple Axes
Richard Holdren, Senior Welding Engineer, ARC Specialties

3:45 pm | Processing Superalloy Materials in Additive Manufacturing Using Electron Beam Melting Technology
Francisco Medina, Principal Engineer, Additive Manufacturing, Buffalo Manufacturing Works

SESSION: COMPOSITES AUTOMATION II
2:15 pm | Flexibility in Automated Composites Lamination
Manu Motilva, AFP Product Manager, M. Torres

2:45 pm | Quantifying AFP Capability and Reliability for the Purpose of Choosing an AFP System and Building a Business Case for Investment
Todd Rudberg, Senior Engineer, Electroimpact, Inc.

3:15 pm | Multi-Process Composites Equipment for ATL, AFP and AM Processing
Dave Champa, Additive Manufacturing and Composites, Ingersoll Machine Tools

3:45 pm | Evolutions in Automated Composites Lamination
Vernon Benson, Chief Engineer, Composites Technology, Orbital ATK

SESSION: INTEGRATED ASSEMBLY II
2:15 pm | Assembly Metadata Integration for Improved Quality Data Handling
Aaron Ells, Manufacturing Engineer, Northrop Grumman Corp.

2:45 pm | Augmented Reality Work Instructions Using the Microsoft HoloLens
Roger Richardson, CEO, Delta Sigma Co.

3:15 pm | Advanced Manufacturing Technologies and the Digital Thread
Don A. Kinard, Ph.D., Senior Technical Fellow, Deputy, F-35 Fighter Production System, Lockheed Martin Aeronautics Co.

3:45 pm | The IoT-Enabled Factory: Asset Management and Improved Shop Floor Visibility
Madeline Salazar, Manufacturing Engineer, Northrop Grumman Corp.

SESSION: NONMETALLIC ADDITIVE MANUFACTURING
2:15 pm | Microwave-Induced Welding of Carbon Nanotube-Thermoplastic Interfaces for Enhanced Mechanical Strength of 3D-Printed Parts
Bryan Zahner, Product Development, Essentium Materials

2:45 pm | Photonic Sintering: Understanding this Low Temperature Alternative
William MacNeil, Managing Partner, CSI Central Valley

3:15 pm | 3D Printing with Carbon Fiber for Aerospace
John Hartner, Chief Operating Officer, EnvisionTEC

3:45 pm | Unit Cell-Based Lightweight Additive Manufacturing Structure Design: Modeling and Size Effects
Li Yang, Assistant Professor, University of Louisville

SESSION: PRECISION MACHINING & TOOLING I
2:15 pm | Connected Solutions for Digital Machining and Industry 4.0
Jeff Rizzie, Sr. Manager, Business Development, Sandvik Coromant

2:45 pm | Laser Processing for Aerostructures
Kevin Arnold, Sales Manager, IPG Photonics

3:15 pm | EDM Hole Drilling: Capability and Design Considerations
Jonathan Wilkof, Vice President, Stark Industrial LLC

3:45 pm | Rapid Reverse Engineering and Fabrication of Aerospace Components
Rich Peoples, Fabrication Manager/Mechanical Engineer, Duotech Services
### SESSION: ADDITIVE MANUFACTURING DESIGN

**9:00 am | In-Process Quality Assurance™: Process Monitoring Software for Additive Manufacturing**
Mark Cola, CEO & Co-Founder, Sigma Labs

**9:30 am | The Future Factory Starts with Digital Continuity Throughout Production**
Enrico Scharlock, Aerospace & Defense Manufacturing Solutions, Dassault Systèmes

**10:00 am | Additive Manufacturing from Lab to Production Scale**
Andre Wegner, CEO, Authentise

**10:30 am | Examples and Benefits of Additive Manufacturing for Aerospace Production Applications**
Michael Kline, Applications Engineer, Lockheed Martin Aeronautics Co.

### SESSION: DIGITAL MANUFACTURING

**9:00 am | Embracing the Digital Thread in Engineering, Manufacturing and Inspection**
David Schlitt, Business Development, Origin International Inc.

**9:30 am | Industry and Internet Will Soon Be Inseparable**
Mohamed Abuali, Head of Global Marketing & Brand Manufacturing, FORCAM, Inc.

**10:00 am | 3D Visualization for Real-Time In-Process Verification in Metrology-Assisted Assembly**
Roger Richardson, CEO, Delta Sigma Company

**10:30 am | Aerodefense and Digital Manufacturing: Achieving ROI through Analytics**
Jon Sobel, CEO & Co-Founder, Sight Machine

### SESSION: INNOVATIONS IN COMPOSITES MANUFACTURING

**9:00 am | High-Performance Composites: Runway for Innovative Manufacturing Solutions**
Berthold Erdel, President, IMS, LLC

**9:30 am | Now You See It, Now You Don’t: The Magic of Dry Ice in Composites**
Steve Wilson, Director of Global Business Development, Cold Jet

**10:00 am | Savings and Process Understanding in the Dry Drilling of Composite Metal Stacks**
Peter Mueller-Hummel, Head of Product Management Aerospace, MAPAL

**10:30 am | A Hybrid Multifunctional Composite Material by Co-Curing Lay-Up Process for Enhanced Stability and Durability**
Cheryl Xu, Associate Professor, Florida State University

### SESSION: PRECISION MACHINING & TOOLING II

**9:00 am | Ultra-Precision Machining of Sapphire and Manufacturing for Design**
Sangkee Min, Assistant Professor, University of Wisconsin-Madison

**9:30 am | Ultrasonic Assisted Turning of Hard-to-Cut Materials Used in Aerospace Applications**
Varun Sharma, Ph.D. Research Scholar, Delhi

**10:00 am | Accelerated Machining: Examining the True Costs and Maximization of Value in an Advanced High-Throughput Environment**
Elliot Frazier, Product Manager, Tungaloy America

**10:30 am | Machine and Tooling Process Optimization**
John Winebrenner, Manager of Product Development, Fullerton Tool

### SESSION: FINISHING & COATINGS

**9:00 am | Dawn of a New Age in Blisk/Blade Surface Finishing**
Mike Shappell, Senior Applications Engineer, Saint-Gobain Abrasives

**9:30 am | Advance Wear and Corrosion Resistant Coatings for Aluminum, Titanium and Magnesium Alloys**
Solomon Berman, CEO & President, IBC Coatings Technologies, Inc.

**10:00 am | High-Speed Dry-Spindle Deburring and Finishing of Rotating Hardware**
Michael Massarsky, President, Turbo-Finish Corp.

**10:30 am | Using a New and Green Approach in Coating Removal**
Isabelle Roberts, President, BRIC Engineered Systems
AeroDef Manufacturing is excited to announce the 2017 mobile app!

- Connect with other attendees via search
- Browse speaker profiles and bookmark favorites
- Set reminders for sessions you don’t want to miss
- Take session notes for future reference
- Learn more about exhibitors and sponsors

Search for “AeroDef Manufacturing.”
Or go to aerodefevent.com/app
WORKSHOPS

The AeroDef workshops are in-depth sessions that will expose you to innovative processes, materials and best practices for aerospace and defense manufacturing. These workshops take place on Monday, March 6, and serve as an excellent introduction to the AeroDef conference and exposition.

**COMPOSITES 101 | 9:00 AM – 12:00 PM**

**RICHARD LOFLAND**
President, Richard Lofland and Associates

**CARROLL GRANT**
Aerospace Marketing Contractor, Aerospace Composites Consulting

This workshop is intended as an introduction to materials and processes related to the production of parts made of composite materials. The workshop will have an emphasis on parts for aerospace applications, but will briefly cover some non-aerospace applications as well. The workshop will walk the audience through the major materials utilized—how they are made and used, primarily focusing on carbon fiber-based materials. We will cover the processes for fabrication of parts.

**FUNDAMENTALS OF ADHESIVE BONDING OF COMPOSITE MATERIALS | 9:00 AM–12:00 PM**

**LOUIS DORWORTH**
Manager, Direct Services Division, Abaris Training Resources, Inc.

**GILES DILLINGHAM**
CEO & Chief Scientist, Brighton Technologies LLC

This workshop examines the requisite methods & techniques for achieving long-lasting adhesive bonds to fiber reinforced thermoset matrix laminates, as well as providing insight into bolted composite joints/fasteners. To a great extent, the conversation focuses on significant factors in bonded joint design and the subtle, but important differences in surface preparation techniques, surface cleanliness, adhesive selection, adhesive wetting, bondline thickness/carrier selection, uniform application of pressure at the joint, and assuring proper cure of the adhesive in the joint. The discussion also includes the significance of fiber forms/orientation at interfacial surfaces as well as failure modes in bonded vs bolted structures.

**FUNDAMENTALS OF ADDITIVE MANUFACTURING FOR AEROSPACE | 1:00 PM–4:00 PM**

**FRANCISCO MEDINA**
Principal Engineer, Additive Manufacturing, Buffalo Manufacturing Works

This workshop will begin with background information on Additive Manufacturing (AM) including its benefits and challenges, the different polymer and metal AM processes including discussion of the characteristics of the equipment, the materials available for each process, and historical applications. Next will be a review of current applications for AM in the aerospace industry. The workshop will then move to a discussion of emerging applications in aerospace ranging from smaller complex structures to large primary metallic structures. The workshop will conclude with a view of future needs for high-performance aerospace applications including: closed-loop process control, standards/specifications for feedstock materials and AM processes, requirements for the digital thread and supply chain, and finally improved non-destructive testing techniques.

**ASSEMBLY & JOINING OF COMPOSITE MATERIALS | 1:00 PM–4:00 PM**

**GEORGE N. BULLEN**
Technical Fellow, Advanced Automation & Global Manufacturing, Northrop Grumman Corp.

This workshop will address the challenges related to the assembly of composite structure and cover a broad spectrum of factors across a range of disciplines – design, manufacturing, quality and logistics. Within these disciplines, there are many elements that affect the cost and the time required to assemble composite parts and components into subassemblies and assemblies. In this workshop these factors will be addressed and their impact on fabrication and assembly cost and schedule discussed in more detail. The context of the workshop is focused on aircraft structure, but many of the principles and ideas apply to structures in marine, transportation, energy and other industrial sectors.
Get a behind-the-scenes look at the companies that are meeting today’s technology challenges. A favorite attraction of AeroDef attendees each year, these on-site company tours will fill up fast—so register now. Additional details and guidelines available at aerodefevent.com/tours.

**MONDAY, MARCH 6 | 8:30 AM–11:30 AM**

**CONCEPT LASER**

Speed, superior quality monitoring, and an open architecture that enables innovation – that is what makes Concept Laser’s Direct Metal Laser Melting (DMLM) technology a leader in the metal additive manufacturing industry. Come and hear about how Concept Laser is investing to bring you innovation through new products and processes that will lead to revenue-generating opportunities for your business.

**MONDAY, MARCH 6 | 12:30 PM–4:00 PM**

**TRIUMPH AEROSTRUCTURES**

Triumph Aerospace Structures, a division of Triumph Group, Inc., is a leading global manufacturer of aerostructures for commercial, military and business jet aircraft. Products include fuselages, wings, empennages, nacelles and helicopter cabins. Its customer base consists of the world’s leading aerospace OEMs, and more than 80 percent of its programs are sole-source, long-term contracts. A newly constructed site opened to provide a domestically competitive facility able to support the aerospace industry with high quality, major integrated composite or metal airframe structures as well as complex bonded details and assemblies for any type of aircraft.

**THURSDAY, MARCH 9, 2016 | 12:00 PM–3:00 PM**

**LOCKHEED MARTIN**

The Fort Worth Lockheed Martin Aeronautics Facility produces F-16 and F-35 Aircraft for US and International Partners. The assembly building is over a mile long and has been producing military aircraft since WWII starting with the B-24 Liberator and including the B-36 Peacemaker, the B-58 Hustler, the F-111 Aardvark, F-16s and now the F-35 fifth generation fighter. The focus of the tour will be the F-35 assembly line highlighting flow to takt lean manufacturing, material flow, and advanced manufacturing implementations.
Brochures only give you the basics. Videos only tell part of the story. The best way to learn about any new product is to see it in person. Visit AeroDef and meet the exhibitors leading aerospace and defense manufacturing all in one location.

As of January 4, 2017
Aerodef’s goal is to provide contract suppliers and aerospace and defense decision-makers a place to meet face-to-face. That’s why we teamed up with Aerofied to create the Aerofied Preferred Supplier Pavilion.

The Pavilion provides an enhanced networking experience that connects attendees, pre-qualified contract suppliers and decision-makers from aerospace and defense companies. It gives attendees and exhibitors a chance to directly engage with large and medium manufacturers who are looking to make both short- and long-term investments.

HOW IT WORKS
All Pavilion exhibitors are hand-selected by Aerofied. As attendees enter the Pavilion, they’re greeted by Aerofied representatives who create customized itineraries based on the attendee’s specific interests, needs and requirements. Key contacts from large aerospace and defense companies share strategic insights through presentations and one-on-one sessions, and attendees receive points-of-contact to reach out to after the event.

Learn more at aerodefevent.com/aerofied.

SMART MANUFACTURING HUB
Building on SME’s new magazine, Smart Manufacturing, the Smart Manufacturing Hub is a dynamic area featuring advanced manufacturing technologies like automation, advanced materials, additive manufacturing and 3D printing, the industrial internet of things (IIoT), 3D scanning and more. Insightful technical presentations combined with resources from leading technology providers will bring attendees up to speed quickly on developments in this quickly changing field.

3D-PRINTED NASA ORION CAPSULE
Lockheed Martin’s actual Orion exterior crew module has been 3D-scanned and now printed on a CI BAAM (Big Area Additive Manufacturing) Technology. The Orion Capsule is a 1/3 scale of the capsule being built by Lockheed Martin. It was printed on a CI BAAM 3D printer in 41 hours. The Orion weighs 500 pounds and is 5 feet in diameter. It is made from ABS plastic reinforced with fiberglass and carbon fiber. Visit the AeroDef exhibit floor to see the Orion in person!

AERODEF MANUFACTURING POSTER CHALLENGE AND DISPLAY
Posters will be on display on the exhibit floor on Tuesday, March 7, and Wednesday, March 8. This poster session showcases the next generation of manufacturing researchers, engineers and industry professionals. The runners-up and winning poster will be recognized at the Awards Presentation & Reception on Wednesday, March 8, 2017. Interested in submitting a poster abstract? Submissions are due by February 9, 2017. Details at aerodefevent.com.
EARLY ARRIVAL RECEPTION
MONDAY, MARCH 6 | 6:00 PM–7:30 PM
Hilton Hotel Lobby
Network with AeroDef conference attendees, speakers, advisors, and exhibitors in a casual setting. Meet new faces, make plans for dinner after the reception, and identify other opportunities to connect throughout the week at the event.

EXHIBIT FLOOR WELCOME RECEPTION
TUESDAY, MARCH 7 | 4:00 PM–5:30 PM
Convention Center, Hall A
Enjoy complimentary hors d’oeuvres and drinks, meet the exhibitors and view the latest technologies and services.

AERODEF ROUNDUP AT BILLY BOB’S TEXAS
TUESDAY, MARCH 7 | 6:30 PM–9:00 PM
Billy Bob’s Texas
Get on down to the AeroDef Roundup at Billy Bob’s Texas for an unforgettable night at the world’s largest honky tonk!

FOOD – DRINKS – NETWORKING – FUN
- Enjoy western-themed activities including a live bull riding show, quick-draw challenge, and line dance lessons with saloon girls
- Go-Round (mechanical bull riding)
- Eat, drink and enjoy some of Texas’s favorite foods
- Experience honky tonk attitude and friendly Fort Worth hospitality in a unique atmosphere

Transportation will be provided.

Admission included with the purchase of the AeroDef Conference.
Advance ticket price is $50 and includes on-site activities, entertainment, food and drinks.

AWARDS PRESENTATION & RECEPTION
WEDNESDAY, MARCH 8 | 4:30 PM–6:00 PM
Convention Center Grand Lobby
Join us as we recognize the winners of SME’s Composites Manufacturing Awards!

JUD HALL COMPOSITES MANUFACTURING AWARD
The J.H. “Jud” Hall Composites Manufacturing Award honors the late Judge H. Hall (1931-85) for his dedication to founding the former Composites Manufacturing Association of SME (CMA/SME). The award is presented annually to an individual who has contributed to the composites manufacturing or tooling technology through leadership, technical developments, patents or educational activities.

EXCELLENCE IN COMPOSITES MANUFACTURING AWARDS
In recognition of the valuable contributions within the composites manufacturing industry, awards are presented annually to one large company and one small company that have demonstrated “excellence in the field of advanced composites manufacturing.” That excellence will include developing an innovative way via tooling and/or manufacturing process techniques, which will help manufacture future products made from these materials; or have shown accelerated growth by providing superior service, quality or cost reduction initiatives.
PRICING INFORMATION

• All conference registrations include exhibit attendance on March 7–8, 2017.
• A Full Conference Pass includes all of the receptions, keynote presentations, panel discussions, technical sessions, and lunch on Tuesday and Wednesday.
• For a One-Day Conference Pass you must select the specific day you plan to attend.
• Conference Pass holders may attend presentations in any meeting room on the day(s) selected.
• AeroDef is a business event. No one under the age of 18 will be admitted.
• AeroDef has the right to amend this program as necessary. In the event of a cancellation, AeroDef is not responsible for incidental costs incurred by registrants.
• Cancellation Policy: Only written requests received by SME on or before February 20, 2017 will receive a full refund, less a $50 administrative fee. Exhibits Only registration is non-refundable.

Early Bird Pricing THRU February 3, 2017

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<td>AeroDef Roundup at Billy Bob’s Texas*</td>
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*AeroDef Roundup is FREE to Conference Attendees including Full, 1-Day, Full and 1-Day with Workshop purchases.

DISCOUNTS:

SME Members receive a 20% discount off the Full or One Day Conference Pass list price! Exhibits only is FREE for SME Members.

Academic, Military & Government Pricing: 20% discount on Conference Pricing. Discount does not apply to exhibits only, exhibits plus, tours, workshops or AeroDef Roundup at Billy Bob’s.

Full-Time Students: 50% discount on Conference Pricing. Discount does not apply to exhibits only, exhibits plus, tours, workshops or the AeroDef roundup at Billy Bob’s.

Abaris Training: if you are among the over 18,000 graduates of an Abaris program, you will receive the SME Member discount for this event. Abaris Training is a leader in their field; visit abaris.com to learn more about this dynamic company.

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MARCH 6–9, 2017 | EXHIBITS: MARCH 7–8
FORT WORTH (TX) CONVENTION CENTER
aerodefevent.com

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Who will you meet at AeroDef 2017?

KEYNOTE SPEAKERS

- **Andreas Wüllner**
  General Manager & Vice President
  SGL Group

- **Alexander Eksir**
  Vice President of Quality & Mission Success (Q&MS)

- **Paul Marks**
  Chairman & CEO
  American Aerospace International

PANEL MODERATORS

- **Greg Harris, PhD, PE**
  Associate Professor, Industrial & Systems Engineer, Auburn University

- **John Russell, DSc**
  Technical Director, Manufacturing and Industrial Technologies Division, Air Force Research Laboratory (AFRL/BXM)

- **Rebecca Taylor**
  Sr. Vice President, National Center for Manufacturing Sciences

- **Neal Orringer**
  Vice President, Defense Alliances & Partnerships, 3D Systems