

**Registration Hours**

Monday, May 8 7:00 AM - 4:30 PM  
 Tuesday, May 9 7:00 AM - 5:00 PM  
 Wednesday, May 10 7:00 AM - 5:00 PM  
 Thursday, May 11 7:00 AM - 1:00 PM

**Exhibit Hours**

Tuesday, May 9 10:00 AM - 6:00 PM  
 Wednesday, May 10 10:00 AM - 6:00 PM  
 Thursday, May 11 10:00 AM - 2:00 PM



May 8 - 11, 2017 | David L. Lawrence Convention Center | Pittsburgh, Pennsylvania USA

Monday, May 8							
7:00 AM - 4:30 PM							
Registration							
<b>8:00 AM - Noon</b> Facility Tours  All morning programming runs concurrently <i>Choose Only One</i>  <b>8:00 AM - 1:00 PM</b> Workshops and Review Course	Facility Tour Arconic (Alcoa)	Facility Tour ExOne					
	Casting Processes and Materials Room: 310/311 Zayna Connor PhD American Foundry Society	Bioprinting Fundamentals Room: 321 Roger Narayan, UNC/NCSSU Joint Department of Biomedical Engineering Phil Campbell, Carnegie Mellon University Prashant Kumta, University of Pittsburgh Adam Feinberg, Carnegie Mellon University Ken Church, nScript	Realizing Value with Additive Manufacturing Room: 317/318 Mark Cotteleer: Jim Joyce Kelly Marchese: Mark Vitale: Brenna Sniderman Deloitte LLP	Regulatory & Quality System Considerations for 3D Printed Medical Devices Room: 319 Matthew DiPrima, Food & Drug Administration Kim Torluemke, 3D Systems Janelle Schrot & Jenny Jones, Materialise Beatrice Ogembo, American Preclinical Services Gilbert Cortes, Johnson & Johnson	3D Printing in Hospitals: What You Need to Know Room: 320 Jonathan Morris MD, Mayo Clinic Jane Matsumoto MD, Mayo Clinic Andy Christensen, LimbForge Amy Alexander, Mayo Clinic Nicole Wake, New York University Adam Jakus, Northwestern University		
	Fundamentals of Additive Manufacturing Room: 301/302 Graham Tromans GP Tromans Associates	Fundamentals of 3D Scanning and 3D Modeling Room: 304/305 Giles Gaskell Wenzel America Ltd	Metal Part Fabrication Using Additive Manufacturing Technologies Room: 315/316 Frank Medina PhD, EWI	Additive Manufacturing with Metals & Its Impact on Plastic Injection Molding Room: 306/307	Additive Manufacturing Certification Review Course Room: 334		
<b>Kickoff</b> <b>1:30 PM - 5:00 PM</b>  <b>Spirit of Pittsburgh Ballroom</b>	SME Additive Manufacturing Community Awards Dick Aubin Distinguished Paper Award Direct Digital Competition Award Industry Achievement Award	State of America Makes Rob Gorham, Director of Operations	KEYNOTE Networked Matter and the Nature of Things Mikey McManus Chairman, MAYA and Research Fellow Office of CTO/Future of Learning Autodesk	What's New: Roundup of the Latest 3D Printing and 3D Scanning Products Todd Grimm President T.A.Grimm & Associates Inc	PANEL Transformation of Manufacturing Vyomesh Joshi, President & Chief Executive Officer, 3D Systems; Stephen Nigro, President-3D Printing, HP; Greg Morris, Additive Technologies Leader, GE Aviation; Fried Van Craen, Founder & CEO, Materialise		







Tuesday, May 9 - morning

7:00 AM - 5:00 PM	Registration
8:00 AM - 9:45 AM	<p style="text-align: center;">PANEL</p> <p style="text-align: center;">New Frontiers in Metal 3D Printing</p> <p style="text-align: center;">Ric Fulop, CEO, Desktop Metal</p> <p style="text-align: center;">KEYNOTE</p> <p style="text-align: center;">Brilliant Factory: A New Era of Manufacturing</p> <p style="text-align: center;">Philippe Cochet, Executive Vice President, GE</p> <p style="text-align: right;">sponsored by: </p>

9:00 AM - 2:00 PM	Student Summit
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10:00 AM - 6:00 PM	Show Open
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10:00 AM - 5:00 PM	3D Playground Activities	America Makes ACADEMI ADX	ToolingU-SME Manufacturing Challenge
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Concurrent AM Sessions 10:15 AM - 12:15 PM	3D Imaging / Scanning: CT Scanning	Digital Thread & Standards Power Up	Post Processing I 	Casting I 	Applications 	Materials I 	Business & Economic Considerations - Execution I 	MMI: Clinical Applications I 	Show Floor Theater
		Michael Raphael Room: 301/302	Charles Gilman Room: 310/311	Boris Fritz Room: 304/305	Tom Sorovetz/Zayna Connor Room: 303	David Leigh Room: 317/318	Pedro Gonzalez Room: 319/320/321	Brennon White Room: 315/316	Adam Jakus Room: 306/307
10:15 AM - 10:40 AM Dynamic Industrial CT: Its Benefits Within Manufacturing and Inspection (Intermediate) Alex Doukas Kinetic Vision	10:15 AM - 10:25 AM Additive Manufacturing Standards Development Roadmap (Intermediate) Lauralyn McDaniel, SME and Jim Williams, All Points Additive	10:15 AM - 10:40 AM 3D Printing: The Impact of Post-processing (Novice) Frank Marangelli Rize Inc	10:15 AM - 11:10 AM MetalCasting Seminar - Integrating Design Efficiency with Additive Manufacturing to Improve Time to Market (Novice) Zayna Connor PhD American Foundry Society	10:15 AM - 10:40 AM SLM-Optimization of Aero-Engine Components: SLM Bleed Valve (Intermediate) Scott P. Lathrope Meggitt Control Systems	10:15 AM - 10:40 AM The Value of Traditional Manufacturing Materials in the Age of Digital Fabrication (Intermediate) Graham Bredemeyer Collider	10:15 AM - 10:40 AM A 73 Year-Old Machine Shop's Journey into Metal Additive Manufacturing (Novice) Wesley J. Hart & Christian G. Joest Imperial Machine & Tool Co	10:15 AM - 10:25 AM Low Cost and Equipment Methods to Create Flexible Anatomical Models (Novice) Joseph P. Higgins Cardiovascular Systems Inc	10:15 AM - 10:45 AM Development of Low Cost Hand Prostheses by Additive Manufacturing (Expert) Jorge Lino Alves PhD & Daniel Sousa Ferreira University of Porto / Faculty of Engineering	10:30 AM - 11:30 AM Tech Briefing: Fundamentals of 3D Scanning
10:45 AM - 11:10 AM New Advances in Computed Tomography Helping Accelerate Development & Quality of Additive Manufacturing Products & Processes (Intermediate) Brett A. Muehlhauser North Star Imaging	10:45 AM - 10:55 AM American Welding Society D20 Committee Development of a Metal Additive Manufacturing Standard (Intermediate) Jessica Coughlin Naval Nuclear Laboratory	10:45 AM - 10:55 AM Post-processing - The Untold Story Regarding Industrial Resin Based 3D Printing (Novice) Edward T. Graham ProtoCAM	10:45 AM - 11:10 AM Effect of 3D Printing Process Parameters on Electrical & Mechanical Properties of Nylon/PEEK-CNT Composite (Intermediate) Yan Shao PhD Eaton	10:45 AM - 11:10 AM Direct Digital Manufacturing of Flight Hardware for Unmanned Aircraft Systems (Intermediate) Shayne A. Kondor & Warren Lee Georgia Tech Research Institute	10:45 AM - 11:10 AM Additive Manufacturing of From Fiction to Factory (Novice) John Dulichinos Jabil	10:45 AM - 10:55 AM Additive Manufacturing of Silicone Prosthetic Implants with Heterogeneous Properties (Intermediate) Farzad Liravi & Ehsan Toyserkani PhD University of Waterloo	10:45 AM - 10:55 AM Development of a Custom Ankle-Foot Orthosis (Novice) Arif Sirinterlikci PhD & April Krivoniak Robert Morris University	10:45 AM - 11:15 AM Simulation of Coronary Atrial Intervention Challenges, Learnings, and Final Methods (Intermediate) Joseph P. Higgins Cardiovascular Systems Inc	11:30 AM - 12:30 PM Why TECH-BELT? America Makes and the Youngstown Business Incubator are presenting a series of short presentations from various regional Additive Manufacturing organizations. Each presenter will focus on "Why the Cleveland to Pittsburgh TECH-BELT Corridor is the nation's hub for 3D Printing and Additive Manufacturing". A panel discussion will follow to allow for questions.
11:15 AM - 11:40 AM High Resolution to High Volume: Keys to Controlling Industrial Processes (Intermediate) Leah L. Lavery PhD & Luke Hunter Carl Zeiss X-ray Microscopy Inc	11:00 AM - 11:10 AM An Open Material Database for Additive Manufacturing (Novice) Yan Lu National Institute of Standards and Technology	11:15 AM - 11:40 AM Automation of Post-Processing Through Energy Optimization Daniel Hutchinson & Michael Frauens PostProcess Technologies	11:15 AM - 11:40 AM 3D Scanning/Printing for the Automotive Restoration and Customization Industry (Novice) Paul A. Vorbach & William R. Vorbach HV3Dworks LLC	11:15 AM - 11:40 AM From Desktop 3D Printing to Large Area Additive Manufacturing - The Challenges of Polymer Development (Intermediate) Kevin Cable PhD & Ed Ferber Eastman Chemical Company	11:15 AM - 11:40 AM Adaptive Manufacturing with Universal Metrology Automation (Intermediate) Paul M. Oberie 3D Infotech	11:15 AM - 11:40 AM Using 3D Printing (Additive Manufacturing) to Produce Low Cost Simulation Models for Medical Training (Novice) Peter C. Liacouras PhD Walter Reed National Military Medical Center, Department of Radiology	11:15 AM - 11:40 AM Using 3D Printing (Additive Manufacturing) to Produce Low Cost Simulation Models for Medical Training (Novice) Peter C. Liacouras PhD Walter Reed National Military Medical Center, Department of Radiology	11:05 AM - 11:15 AM Simulation of Coronary Atrial Intervention Challenges, Learnings, and Final Methods (Intermediate) Joseph P. Higgins Cardiovascular Systems Inc	12:30 PM - 1:30 PM Innovation Auditions
11:45 AM - 12:10 PM Assessing the Internal Features of Additive Manufactured Parts (Expert) Hermisno Villarraga-Gomez Nikon Metrology Inc	11:45 AM - 11:55 AM The Intersection of 3D Printing and Intellectual Property (Novice) Christopher Higgins & Vann Pearce Orrick Herrington & Sutcliffe LLP	11:45 AM - 12:10 PM Integration of PAAW and Digital Workholding for Post-processing Additive Manufactured Parts (Expert) Chip Potter Advanced Simulation Technology Inc and Edward C. De Meter PhD Pennsylvania State University	11:45 AM - 12:10 PM Beyond Prototyping: The Future of Printed Patterns in Investment Casting (Novice) Thomas J. Mueller Mueller AMS	11:45 AM - 12:10 PM Development of Additive Manufactured Production Parts at Caterpillar (Intermediate) Paul A. Zwart Caterpillar Inc	11:45 AM - 12:10 PM The Impact of 3D Printing on Part Performance (Intermediate) Thomas Fabian PhD & Melissa Albrecht UL	11:45 AM - 12:10 PM Improving Industrial 3D Printing with MRP Integration, Big-O Analysis, and Generative Geometry (Intermediate) Michael Crockett PE HP	11:45 AM - 12:10 PM Potential Best Use Cases for 3D Printing for Cardiothoracic Surgery (Intermediate) Justin Ryan PhD Phoenix Children's Hospital	1:30 PM - 2:30 PM ITEAM Launch	

10:30 AM - 11:30 AM	Attendee Show Floor Tour
12:15 PM - 2:15 PM	Lunch on Exhibit Floor






**Tuesday, May 9 - afternoon**

2:00 PM - 3:00 PM									
Attendee Show Floor Tour: Metal Additive Manufacturing									
Concurrent PM Sessions 2:15 PM - 4:15 PM	3D Imaging / Scanning: Surface Scanning	Direct Write Printed Materials / Electronics	Post Processing II	Casting II	Design Considerations	Material Properties I	Additive Manufacturing Standardization Forum	MMI: Clinical Applications II	Show Floor Theater
	Michael Raphael Room: 301/302	Denis Cormier Room: 317/318	 Boris Fritz Room: 304/305	 Tom Sorovetz/Zayna Connor Room: 303	 Brian Levy Room: 315/316	 Rex Brown Room: 319/320/321	Lauralyn McDaniel Room: 310/311	 Janelle Schrot Room: 306/307	Booth 2321
	2:15 PM - 2:40 PM Longer Range Point Cloud Scanning and 3D Printers Used in the Production and Sale of Large Mining Haul Truck Components (Intermediate) LeRoy G. Hagenbuch PE & Quinton Burcar Philippi-Hagenbuch Inc	2:15 PM - 2:40 PM Fabrication of Multifunctional 3D Printed Devices via a Multitechnology Hybrid Printer (Intermediate) David Espalin, W.M. Keck Center for 3D Innovation / UTEP	2:15 PM - 2:40 PM Multiscale Post-processing of Metal Additive Manufactured Parts by Electro-polishing Technology (Intermediate) Lucas Hof Concordia University	2:15 PM - 2:40 PM 3D Printing - The Pattern Makers Friend (Novice) Steven R. Murray Hoosier Pattern Inc	2:15 PM - 2:40 PM A Computer-Aided Design System for Additive Manufacturing (Intermediate) David W. Rosen PhD Georgia Institute of Technology and Suraj Musuvathy PhD Siemens Corporate Technology	2:15 PM - 2:40 PM Metallographic Characterization Techniques for Additive Manufacturing Powders and Parts (Novice) Thomas F. Murphy Hoeganaes Specialty Metal Powders LLC	2:00 PM - 5:00 PM Additive Manufacturing Standardization Forum: Accelerating Standards & Specs Development  Welcome Debbie Holton, SME & Ed Morris, America Makes  Additive Manufacturing Standards Collaborative Overview: Jim McCabe, ANSI  Panel 1: Moderated by Jim Williams, All Points Additive and AMSC Chair  Pat Picariello, ASTM Intl: Jennifer Herron, Action Engineering, Chair of the ASME Y14 Subcommittee: Laura Feix, SAE International	2:15 PM - 2:40 PM Retro Engineering the Feyh-Kastenbauer Retractor System for Transoral Robotic Surgery Using Surface Scanning & 3D Printing (Intermediate) Jonathan Morris MD Mayo Clinic  2:45 PM - 2:55 PM 3D Printed Wear Model to Simulate Tissue Ablation: Equipment, Materials, Technologies, and Tools Used by Interventionalists (Intermediate) Jacob Draxler & Joseph P. Higgins Cardiovascular Systems Inc  2:55 PM - 3:15 PM Single Institution Experience in 3D Modeling of Congenital Heart Defects (Novice) Robert Wesley Nicklaus Children's Hospital	2:30 PM - 3:30 PM Tech Briefing: Fundamentals of Additive Manufacturing  3:30 PM - 5:00 PM Technology LaunchPad
	2:45 PM - 3:10 PM Techniques and Methods for 3D Scanning Internal Geometry with Replicating Rubber (Novice) Steven B. Leinski Advanced Simulation Technology Inc	2:45 PM - 3:10 PM 3D Printing of Soft Electronics & Functional Microfluidics via Liquid Metal Direct-Writing (Intermediate) Dishit P. Parekh North Carolina State University	2:45 PM - 3:10 PM CoolPulse Technology for Finishing of 3D Printed Parts (Intermediate) Patrick Matt Extrude Hone	2:45 PM - 3:10 PM Ceramic Additive Manufacturing for Complex Precision Castings (Intermediate) Dan Z. Sokol Renaissance Services Inc and Ben Rampulla PCC Structural	2:45 PM - 3:10 PM An Additive Design Revolution (Expert) Ted D. Blacker PhD Sandia National Laboratories	2:45 PM - 3:10 PM Z-axis Anisotropy Study of Additively Manufactured Components (Expert) Ravi Kunju solidThinking Inc	Panel 2: Moderated by Lauralyn McDaniel, SME and AMSC Vice Chair  Annette Alonso, AWS; Allan Noordryk, McKesson Imaging, MITA, DICOME WG-17 Co-chair: Joe Lewelling, AAMI; Paul Tykodi, Tykodi Consulting, IEEE-ISTO Printer Working Group  Individual meetings with Standards Development Organizations	3:15 PM - 3:40 PM Creation of Functional Finger Prostheses Combining 3D Printing with Traditional Materials (Intermediate) Irene R. Healey New Attitude Prosthetic Designs Inc	
	3:15 PM - 3:40 PM Non-Contact Methods for Validating Industrial and Additive Manufacturing Parts Ryan Timboe Industrial Inspection & Analysis Inc	3:15 PM - 3:40 PM 3D Printed Devices Employing Sculpted Dielectrics (Advanced) Raymond C. Rumpf PhD University of Texas at El Paso	3:15 PM - 3:40 PM Surface Finish Control of Additive Manufactured-Inconel 625 Components Using Combined Chemical-abrasive Polishing (Intermediate) Neda Mohammadian Polytechnique de Montreal and Sylvain Turenne PhD Ecole Polytechnique de Montreal	3:15 PM - 3:40 PM Multifunctional Composite Lattice Structures by Embedding in 3D Printed Sand Molds (Intermediate) Christopher Williams PhD & Alan Druschitz Virginia Tech	3:15 PM - 3:40 PM A Topology Optimization Paradigm for Additive Manufacturing (Intermediate) Ahmad Barati PhD PEng & Amralli Lalehpour University of Ontario Institute of Technology	3:15 PM - 3:40 PM Fracture Mechanics of Additively Manufactured Plastic Parts (Intermediate) Devendra Bajaj PhD & Peter Johnson PhD SABIC		3:45 PM - 4:10 PM Separating Conjoined Twins: Applying Virtual Surgical Planning and 3D Printing (Intermediate) Hayeem L. Rudy Albert Einstein College of Medicine and Katie Weiner 3D Systems - Healthcare	
	3:45 PM - 4:10 PM 3D Scanning Accuracy vs Resolution: Why it Matters and What it Means (Intermediate) Mike Formica threeRivers 3D	3:45 PM - 4:10 PM Powdered Metals - What to Expect When You Build Metal Additively (Intermediate) Himanshu Sahasrabudhe PhD Optomec Inc	3:45 PM - 4:10 PM Improving Mechanical Performance of Additive Manufactured Components by Chemical Accelerated Vibratory Finishing (Intermediate) Agustin Diaz PhD REM Surface Engineering	3:45 PM - 4:10 PM Prototype Castings, Shorter Lead Times for Less Money (Intermediate) David W. Rittmeyer Hoosier Pattern Inc	3:45 PM - 4:10 PM Hollow Metal Additive Manufacturing versus Conformal Cooling (Intermediate) Scott Kraemer PTI Engineered Plastics	3:45 PM - 4:10 PM Fatigue Life Prediction for AISI10Mg Parts Produced by Selective Laser Melting (Intermediate) Ming Tang & Petrus Pistorius PhD Carnegie Mellon University			
6:00 PM - 8:00 PM									
Welcome Event: Heinz Field									

Wednesday, May 10 - morning										
7:00 AM - 5:00 PM	Registration									
8:00 AM - 9:45 AM	<p><b>KEYNOTE</b> New Materials for 3D Printing in Medicine: What's Next is Closer than You Think Ramil Shah PhD, Assistant Professor, Materials Science and Engineering, Assistant Professor, Surgery (Transplant Division), Northwestern University Sue Jordan MD PhD, Chief Resident-Plastic and Reconstructive Surgery, Northwestern Memorial Hospital</p>				<p><b>PANEL</b> Medical 3D Printing Applications-Growth Beyond Surgical Guides Ramil Shah PhD, Assistant Professor, Materials Science and Engineering, Assistant Professor, Surgery (Transplant Division), Northwestern University Carlos Carvalho, Process &amp; Materials Development, EnvisionTEC William Wagner, Director, McGowan Institute for Regenerative Medicine, Professor of Surgery, Bioengineering and Chemical Engineering, University of Pittsburgh Fried Vancaeren, Founder &amp; CEO, Materialise</p>					<p>sponsored by: </p>
9:00 AM - 2:00 PM	Student Summit									
10:00 AM - 5:00 PM	3D Playground Activities		America Makes ACADEMI ADX	ToolingU-SME Manufacturing Challenge						
Concurrent AM Sessions 10:15 AM - 12:15 PM	Academic Research I	Applications Power Up 	Building Regional Leadership in Additive Manufacturing I	Process Monitoring, Control, and Qualification	DoD Additive Manufacturing Research & Applications I 	Material Properties II 	Business & Economic Considerations - Execution II 	MMI: Biomaterials 	Show Floor Theater	
	Sheku Kamara Room: 303	David Leigh Room: 317/318	Sandra DeVincent Wolf Room: 304/305	Brandon McWilliams Room: 310/311	Michael Nikodinovski Room: 301/302	Jian Yu Room: 319/320/321	Brennon White Room: 315/316	Jayanthi parthasarathy Room: 306/307	Booth 2321	
	10:15 AM - 10:40 AM Combinatorial Assessment of High Entropy Alloys: Microstructure, Microhardness, and Magnetic Properties (Expert) Tushar Borkar PhD Cleveland State University and Rajarshi Banerjee PhD University of North Texas	10:15 AM - 10:25 AM Developing Teaching Aids for Blind Computer Science and Information Systems Students (Novice) Arif Sirinterlikci PhD Robert Morris University 10:30 AM - 10:40 AM 3D Printed Tooling and Fixtures for Assembly Operators with Disabilities (Novice) George R. Allman Liberty Electronics Inc	10:15 AM - 10:40 AM Additive Manufacturing's Role in the TechBelt Region's Renewed Growth (Intermediate) Ralph Resnick America Makes and Petra Mitchell Catalyst Connection	10:15 AM - 10:40 AM The Next Level of Additive Manufacturing Inspection and Control (Intermediate) Dieter Ghsybrecht Materialise	10:15 AM - 10:40 AM Integrated Printed Electronics and Additive Manufacturing Solutions for the US Army (Intermediate) James L. Zunino US Army ARDEC	10:15 AM - 10:40 AM Optimizing TIAI EBM Parameters for Aerospace Components (Intermediate) Francisco Medina PhD, EWI and Andrew Heidloff PhD Praxair Surface Technologies Inc	10:15 AM - 10:40 AM Utilizing Additive Manufacturing in Sustainment of Fielded Systems (Novice) Frederick J. Herman SHEPRA Inc and Jason Ray Paperless Parts	10:15 AM - 10:40 AM Drug-eluting Polymeric Additive Manufacturing for Applications in Orthopaedics (Intermediate) Martin J. Petrak PENG Precision ADM / Orthopaedic Innovation Centre and Trevor C. Gascoyne PENG Orthopaedic Innovation Centre	10:30 AM - 11:30 AM Tech Briefing: Fundamentals of Additive Manufacturing 11:30am - 12:30pm Additive Manufacturing: Where To Next? Moderator: Professor Milan Brandt Royal Melbourne Institute of Technology, Monash University	
	10:45 AM - 11:10 AM Microstructure Tailoring by Selective Laser Melting Pulse Optimization (Expert) Mathieu Brochu PhD McGill University	10:45 AM - 10:55 AM Reducing Build Failures Through Predictive Simulation (Intermediate) Brent Stucker, 3DSM and Tim Gornet University of Louisville 11:00 AM - 11:10 AM Will It Break? Putting an Additive Manufactured Optimized Design to the Test (Novice) Adam Rivard LAI International	10:45 AM - 11:10 AM Industry-inspired Additive Manufacturing Processing Research at Carnegie Mellon (Intermediate) Jack Beuth PhD Carnegie Mellon University	10:45 AM - 11:10 AM Proactive Monitoring of Additive Builds Using Artificial Intelligence Based Optical Recognition (Expert) Joseph M. Sinclair Solid Innovations LLC and Christian M. Joest Imperial Machine & Tool Co	10:45 AM - 11:10 AM High Strain Rate Testing of Gyroid Cellular Structures (Expert) Miriam Dennis University of Florida and Amanda Schrand PhD Air Force Research Laboratory	10:45 AM - 11:10 AM Investigation of Minor Elements on Built Properties of C300 Managing Steel Powder (Expert) Satyajeet Sharma PhD & Kumar Kandasamy PhD Oerlikon	10:45 AM - 11:10 AM Digital Technical Data Package Business Models for Spare Parts Produced Using Additive Manufacturing (Intermediate) Brett Conner PhD & Ashley Marlot Youngstown State University	10:45 AM - 10:55 AM 3D Printing Soft Polydimethylsiloxane (PDMS) Elastomer Toward Custom Fit Wearable Devices (Intermediate) Sara Abdollahi & Adam Feinberg PhD Carnegie Mellon University 10:55 AM - 11:05 AM 3D Bioprinting Collagen Scaffolds for Engineering Human Cardiac Tissue (Intermediate) Andrew Lee & Adam Feinberg PhD Carnegie Mellon University	Panelists: John E. Barnes Arconic Richard Grylls SLM Solutions NA, Inc Gene Kulesha Stryker Kirk Rogers PhD GE Center for Additive Technology Advancement (CATA) Mihaela Vlasoa University of Waterloo	
	11:15 AM - 11:40 AM Control of Solidification Microstructure Across Additive Alloy Systems (Expert) Sneha Prabha Narra Carnegie Mellon University	11:15 AM - 11:25 AM Integrated Additive Manufacturing with MetAFB1: Pushing 3D Printing into Industry for Full Functional Parts (Intermediate) Iliko Bosman Additive Industries 11:30 AM - 11:40 AM Additive Manufacturing for Pattern Based Secondary Processes (Novice) Carl Dekker, MET-L-FLO	11:15 AM - 11:40 AM Industry-inspired Additive Manufacturing Materials Research at Carnegie Mellon (Intermediate) Anthony Rollett PhD Carnegie Mellon University	11:15 AM - 11:40 AM In-Process Monitoring and Control of Selective Laser Melting Using a Low-Cost Sensor Fusion Approach (Intermediate) John R. Middendorf Universal Technology Corp and Glen P. Perram PhD PE Air Force Institute of Technology	11:15 AM - 11:40 AM US Navy Additive Manufacturing Applications at the Naval Surface Warfare Center-Philadelphia Division (Novice) Philip Greiner & Scott A. Storms Naval Surface Warfare Center - Philadelphia Division	11:15 AM - 11:40 AM The Influence of Powder Ageing Characteristics on 316L Steel Processed by Selective Laser Melting (Intermediate) Keith Murray & Mary Kate Johnston Sandvik Osprey	11:15 AM - 11:40 AM Effective Ways to Manage the Combustible Dust Hazards Associated with Additive Manufacturing (Novice) Jason P. Reason Lewellyn Technology LLC	11:05 AM - 11:15 AM 3D Printing Collagen Type I Using Freeform Reversible Embedding of Suspended Hydrogels (FRESH) (Intermediate) Thomas J. Hinton & Adam Feinberg PhD Carnegie Mellon University 11:15 AM - 11:25 AM Control of Gelatin Particle Size and Uniformity to Improve Fidelity Using FRESH 3D Bioprinting (Expert) Andrew Hudson & Adam Feinberg PhD Carnegie Mellon University	Today, additive manufacturing is playing an ever-increasing role in a range of industries globally such as the aerospace, automotive, medical and defense because of the many benefits it offers compared to traditional subtractive technologies. The first 3D printers were used in the 1980s to make plastic prototypes, so that the engineers and designers could see and touch a full-size model of what the actual device would look like. Since then, the field of 3D printing has exploded and transformed from prototyping into manufacturing. Today, there are arrays of different types of 3D printers working with plastics, metal and ceramic powders, biological and organic feedstock. The technology is evolving rapidly with new 3D concepts, machines and suppliers entering the market almost on a monthly basis. The recent acquisition by GE of Arcam and Concept Laser is said to further accelerate the growth and adoption of Additive Manufacturing technology globally. A panel of experts will examine and explore current trends and future opportunities for AM technology globally.	
11:45 AM - 12:10 PM Melt Pool Geometry and Thermal Emission Monitoring in Laser Powder Bed Fusion (Expert) Brian A. Fisher & Jack Beuth PhD Carnegie Mellon University	11:45 AM - 11:55 AM 3D Printing for Large Aerospace Tooling (Novice) Rick Neff Cincinnati Incorporated Noon - 12:10 PM Geometrically Controlled Sound Dampening Using 3D Binder Jetting (Intermediate) Brandon Cary & Tom Pasterik The ExOne Company	11:45 AM - 11:55 AM Accelerating Industry Adoption of Additive Manufacturing: Perspectives from an Additive Manufacturing Demonstration Facility (Intermediate) Timothy W. Simpson PhD Penn State College of Engineering Noon - 12:10 PM Additive Manufacturing Research and Capabilities at the University of Pittsburgh (Intermediate) Markus Chmielus University of Pittsburgh	11:45 AM - 12:10 PM Additive Manufacturing Rocket Engine Qualification and Testing (Intermediate) Alison M. Park Aerojet Rocketdyne	11:45 AM - 12:10 PM Additive Manufacturing of a Wind Tunnel Force Balance (Intermediate) Devin Burns PhD NASA Langley Research Center	11:45 AM - 12:10 PM Effect of Compositional Variations in MelcoAdd HX-A Powder on Crack Susceptibility, Microstructure, and Mechanical Properties (Expert) Kumar Kandasamy PhD & Shawn Kelly PhD Oerlikon	11:45 AM - 12:10 PM Metal AM Process & Facility Safety. Are You Prepared? (Novice) Paul Bates & Norman Lowe LIL	11:25 AM - 11:45 AM Additive Manufacturing of Biodegradable Photopolymers and Ceramics (Intermediate) Johannes Benedikt PhD Lithoz GmbH 11:45 AM - 12:10 PM Additive Manufacturing of Polymeric Biosensors and Drug Delivery Devices (Intermediate) Rogar Narayan UNC/NCSSU Joint Department of Biomedical Engineering			
10:30 AM - 11:30 AM	Attendee Show Floor Tour									
12:15 PM - 2:15 PM	Lunch on Exhibit Floor									

**Wednesday, May 10 - afternoon**

1:00 PM - 6:00 PM		Poster Session							
2:00 PM - 3:00 PM		Attendee Show Floor Tour: MMI-New to Medical Applications							
Concurrent PM Sessions 2:15 PM - 4:15 PM	Academic Research II	New Processes Power Up	Building Regional Leadership in Additive Manufacturing II	Quality and Inspection	DoD Additive Manufacturing Research & Applications II	Materials II	Workforce Development	MMI: Quality, Regulatory & Implants	Show Floor Theater
	Kevin Hart Room: 303	Boris Fritz Room: 317/318	Sandra DeVincent Wolf Room: 304/305	Sheku Kamara Room: 310/311	Lance Hall Room: 301/302	Pedro Gonzalez Room: 319/320/321	Carl Dekker Room: 315/316	Roger Narayan Room: 306/307	Booth 2321
	2:15 PM - 2:40 PM Multimaterial Additive Manufacture of RF Structures and Connectors (Expert) Zachary Larimore University of Delaware	2:15 PM - 2:25 PM 3D Printing: Breaking Barriers and Expanding Full Speed into Manufacturing (Intermediate) Roger Kelesoglu Stralasy	2:15 PM - 2:40 PM Empowering Metal Additive Manufacturing Through ANSYS Tools (Intermediate) David Conover ANSYS	2:15 PM - 2:40 PM Agile Quality Control Process for FDM Parts (Intermediate) Tim Yewchuk 3D Print Western	2:15 PM - 2:40 PM Influence of Processing Parameters on the Development of Microstructure and Texture in EBM Ti-6Al-4V (Expert) Kevin J. Chaput PhD Air Force Research Laboratory	2:15 PM - 2:40 PM Magnetic Particle Alignment for 3D Printed Composites (Expert) Madhuparna Roy Florida State University	2:15 PM - 2:40 PM 3DP Education and Workforce Outreach: Delivering Impact (Intermediate) Leanne Gluck America Makes	2:15 PM - 2:40 PM Quality Strategy Approach for Additive Manufacturing (Intermediate) Gilbert A. Cortes Johnson & Johnson	12:30 PM - 1:30 PM Medical Manufacturing Innovations Presentations MODERATOR: Lauralyn McDaniel, SME
		2:30 PM - 2:40 PM Development of New Metal Additive Manufacturing Concepts for Large Parts Manufacturing (Intermediate) Filipe R. Coutinho & Tiago Faro ADIRA Metal Forming Solutions S.A.	2:45 PM - 3:10 PM A Curvature-Based Direct Slicing Algorithm for Precision Additive Manufacturing Using Milne-Simpson Multistep Method (Expert) Ahmad Barari PhD PEEng & Hossein Gohari, Univ of Ontario Institute of Technology (UOIT)	2:45 PM - 3:10 PM GE CATA & SW PA - Mutually Assured Economic Success (Intermediate) Kirk Rogers PhD GE Center for Additive Technology Advancement (CATA)	2:45 PM - 3:10 PM Surface Metrology of Additive Manufacturing Components: Understanding the Complex Texture of Powder Bed-Based Surfaces (Intermediate) Agustin Diaz PhD REM Surface Engineering	2:45 PM - 3:10 PM Feature Based Fatigue Characterization for Powder Bed Fusion and Small Scale Propulsion Components (Intermediate) Onome E. Scott-Emuakpor PhD US Air Force Research Laboratory	2:45 PM - 3:10 PM Creating Highly Dense Copper Components via Binder Jetting (Intermediate) Yun Bai & Christopher Williams PhD Virginia Tech	2:45 PM - 3:10 PM Is Your Workforce Ready for Additive Manufacturing? (Novice) Joseph W. Lampinen CMfgE KellyOCG	12:30 PM - 12:50 PM SME Medical Additive Manufacturing/3D Printing Workgroup: Addressing Challenges
		2:45 PM - 3:10 PM A Study on Removal of Additive Manufacturing Residue from Complex Parts Matthew DiPrima & James Coburn US Food and Drug Administration	3:15 PM - 3:40 PM Aerospace is Making a Future with Additive Manufacturing (Intermediate) John Barnes Arconic	3:15 PM - 3:40 PM Visual Identification, Error Detection, and Compensation for Additive Manufacturing Material Deposition Systems (Intermediate) Gijs van Houlum University of Waterloo / Eindhoven University of Technology	3:15 PM - 3:40 PM Enabling Expeditionary Battlefield Manufacturing Using Recycled, Reclaimed, and/or Indigenous Materials (Intermediate) Marc S. Pepi US Army Research Laboratory	3:15 PM - 3:40 PM Creation of an Affordable Aerospace Grade Aluminum Alloy via Computational Alloy Design Methods (Intermediate) Eric J. Fodran PhD & Eric Barnes Northrop Grumman	3:15 PM - 3:40 PM Training the Workforce for Future Fabrication (Intermediate) Sarah Boisvert Fab Lab Hub and Mike Adelstein CPA Potomac Photonics Inc	3:15 PM - 3:40 PM Addressing Challenges in Custom Orthopedic Implants Using Additive Manufacturing (Novice) Maryam Jahanzad & Guha Manogharan PhD Pennsylvania State University	12:50 PM - 1:03 PM Standards, Quality Metrics, and Innovation with the FDA / CDRH
		3:45 PM - 4:10 PM Constructing the DMLS Processing Window from Computational Modeling (Intermediate) Patcharapit Promopattam & Shi-Chune Yao PhD Carnegie Mellon University	3:45 PM - 3:55 PM Three-Dimensional Metal Printing by Thixotropic Metal-based Paste Deposition (Intermediate) Michael R. Sullivan University at Buffalo The State University of New York	3:45 PM - 4:10 PM Powder Characterization and Development for Additive Manufacturing (Intermediate) Brian Morrison ATI Specialty Metals	3:45 PM - 4:10 PM Additive Manufacturing and Its Effect on Hybrid Rocket Motor Performance (Intermediate) Michael G. Morales United States Naval Academy	3:45 PM - 4:10 PM Gas Atomized Powder Synthesis Improvements for Additive Manufacturing (Expert) Iver E. Anderson PhD & Emma M. White PhD Ames Laboratory of USDOE	3:45 PM - 4:10 PM Bridging Educational Excellence with Advanced Manufacturing: How to Cultivate Win-Win Partnerships in Your Community (Novice) Owen Schoeniger MakerGear LLC	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	1:03 PM - 1:16 PM 3D Printing in Medical Imaging Standards
	3:45 PM - 4:10 PM Bridging Educational Excellence with Advanced Manufacturing: How to Cultivate Win-Win Partnerships in Your Community (Novice) Owen Schoeniger MakerGear LLC	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	1:16 PM - 1:30 PM Special Interest Group for 3D Printing within the Radiologic Society of North America to Advance Medical Applications	
	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	1:30 PM - 2:30 PM Crowdsourced Content	
	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	2:30 PM - 3:30 PM Tech Briefing: Fundamentals of 3D Scanning	
	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:45 PM - 4:10 PM Anisotropic Behaviors of 3D Printed Dental Jaw Bone Implants (Intermediate) Xiong Yu PhD PE & Russel Wang Case Western Reserve University	3:30 PM - 5:00 PM Technology LaunchPad	
4:45 PM - 6:30 PM	Show Floor Reception Design Studio Fashion Show							reception sponsored by:	

Thursday, May 11									
7:00 AM - 1:00 PM	Registration								
8:00 AM - 9:45 AM	<b>PANEL</b> So Where Do We Go From Here? Mark Cottelear, Managing Director, Deloitte Services, LP Todd Grimm, President, T.A. Grimm & Associates Inc. Graham Tromans, Owner and Principal Industry Consultant, GP Tromans Associates Robin Wilson, Head of Manufacturing, Innovate UK			<b>KEYNOTE</b> The Future of Additive Manufacturing and 3D Printing Terry Wohlers Principal Consultant and President Wohlers Associates Inc.			sponsored by: <b>Deloitte.</b>		
9:00 AM - 2:00 PM	Student Summit								
10:00 AM - 2:00 PM	Show Open								
<b>Concurrent AM Sessions</b> 10:15 AM - 12:15 PM	<b>Academic Research III</b> Blake Bennett Room: 303	<b>Innovative Applications Power Up</b>  innovates you can count on		<b>Material Properties III</b> 	<b>Part / Product Certification</b>	<b>Materials III</b> 	<b>Business &amp; Economic Considerations - Strategic Power Up</b> 	<b>MMI: Metals</b> 	<b>Show Floor Theater</b>
				Rex Brown Room: 301/302	Charles Gilman Room: 310/311	Pedro Gonzalez Room: 319/320/321	Brennan White Room: 315/316	Alejandro Espinoza Room: 306/307	<b>Booth 2321</b>
	10:15 AM - 10:40 AM <b>Filled Thermoconductive Plastics for Fused Filament Fabrication (Intermediate)</b> Tom Mulholland Univ of Wisconsin - Madison	10:15 AM - 10:25 AM <b>Realizing the Promise of Next Generation Manufacturing with Additive Manufacturing (Intermediate)</b> Ryan DeHoff PhD Oak Ridge National Laboratory Bruce Bradshaw, Arcam AB	10:15 AM - 10:40 AM <b>Microstructure Improvement of SS17-4PH Fabricated by Laser Powder Bed Fusion by Modified Heat Treatment (Expert)</b> Sunil B. Sadiye PhD North American Hoganas and Somayeh Pesebani PhD Oregon State University <b>(REPLACEMENT)</b> <b>Reducing Build Failures Through Predictive Simulation (Intermediate)</b> Brent Stucker 3DSIM	10:15 AM - 10:40 AM <b>When Risks Cannot Be Seen: Regulating Uncertainty in Emerging Technologies (Intermediate)</b> Jaime Bonnin Roca & Parth Vaishnav PhD Carnegie Mellon University	10:15 AM - 10:40 AM <b>How Advances in Powder Metallurgy are making 3D Printing Accessible to Every Engineer (Intermediate)</b> A. John Hart PhD Desktop Metal	10:15 AM - 10:25 AM <b>Advanced Economies Collaborative Initiatives in Advanced Manufacturing (Novice)</b> Bart Pascoli Italian Trade Agency	10:30 AM - 10:40 AM <b>800,000 Additive Manufactured Parts Analysed: An Overview of the Usage &amp; Performance of Additive Manufacturing Machines and Materials (Novice)</b> Dan Grigras 3D Hubs	10:15 AM - 10:40 AM <b>Additive Manufacture of Stiffness Matched Skeletal Fixation Devices (Expert)</b> David Dean PhD The Ohio State University	10:15 AM - 11:00 AM <b>Tech Briefing: MMI</b>  11:30 AM - 12:30 PM <b>Technology LaunchPad</b>
	10:45 AM - 11:10 AM <b>Capacitance-based Nondestructive Evaluation of Three-dimensionally Printed Polymer (Expert)</b> Debarah D.L. Chung PhD University at Buffalo The State University of New York	10:45 AM - 10:55 AM <b>3D Printing Kit for Technical Schools (Novice)</b> Cristian Sandre INTI (National Institute of Industrial Technology) of Argentina	10:45 AM - 11:10 AM <b>How Helium Improves Additive Manufacturing of Ti-6Al-4V and IN718 Parts (Expert)</b> Grzegorz Moroz Linde LLC	10:45 AM - 11:10 AM <b>Design to Certification - Additive Manufacturing for Aerospace Applications (Expert)</b> Shaun Kroeger solidThinking Inc	10:45 AM - 11:10 AM <b>Fracture Properties of Additively Manufactured Acrylonitrile-Butadiene-Styrene Materials</b> Kevin R. Hart US Army Research Laboratory	10:45 AM - 10:55 AM <b>How 3DP Can Create More Business and Create More Jobs (Novice)</b> Steven R. Murray Hoosier Pattern Inc	11:00 AM - 11:10 AM <b>Developing a Strategy for Additive Manufacturing (Novice)</b> Phill Dickens Added Scientific Limited	10:45 AM - 11:10 AM <b>Design Considerations and Capabilities for Implants Manufactured with Integrated Porous Structures (Intermediate)</b> Oscar Hedin Arcam AB	
	11:15 AM - 11:40 AM <b>Raster Printing for Fiber Encapsulation and Sensor Manufacturing (Intermediate)</b> Jolie B. Friketic FAMU/FSU College of Engrg	11:15 AM - 11:25 AM <b>Next Generation Heat Exchangers Realized Through Ultrasonic Additive Manufacturing (Intermediate)</b> Mark Norfolk PE Fabrisonic	11:15 AM - 11:40 AM <b>Additive Manufacturing of Ceramics and Composites: Microstructure, Properties, and Applications Examples (Intermediate)</b> Prashant Karandikar PhD M Cubet Technologies Inc	11:15 AM - 11:40 AM <b>Evaluation of Standard Metal Additive Manufacturing Test Articles (Intermediate)</b> Trevor Hicks & Jessica Coughlin Naval Nuclear Laboratory	11:15 AM - 11:40 AM <b>Crack Remediation in Difficult to Weld NiCr-alloys When Processed by Additive Manufacturing Using the Laser Powder Bed Process (Intermediate)</b> William J. Jarosinski Praxair Surface Technologies Inc	11:15 AM - 11:25 AM <b>Creative Disruption: How Additive Manufacturing Can Impact Traditional Supply Chain. Lessons Learned for the Media and Entertainment Industries (Intermediate)</b> Stephan Thomas Identify3D	11:30 AM - 11:40 AM <b>Secrets to Money Making in Metal Additive Manufacturing (Novice)</b> Bob Henderson Linear AMS	11:15 AM - 11:40 AM <b>Different Metal Additive Manufacturing Laser Methods Compared to EBM for Serialized Production of Orthopedic Implants (Intermediate)</b> Emanuele Magalini Eurocoating s.p.a.	
11:45 AM - 12:10 PM <b>In-Situ Thermoplastic Impregnation of a Dry Composite Fiber Tow for Additive Manufacturing (Expert)</b> Daniel F. Walczyk PhD PE & Daniel A. Kaczmarek Rensselaer Polytechnic Institute	11:45 AM - 11:55 AM <b>Additive Manufacturing Techniques with Professional Championship Sports Rings (Novice)</b> Anthony J. Maelita Jeff Jones	11:45 AM - 12:10 PM <b>Additive Manufacturing of Enhanced Alnico Magnets (Intermediate)</b> Emma M. White PhD Ames Laboratory of USDOE	11:45 AM - 12:10 PM <b>Qualifications Challenges in Printed Structures with Embedded Electronics (Intermediate)</b> Nathan B. Crane PhD University of South Florida	11:45 AM - 12:10 PM <b>Optimizing Metal Powder Chemistries for Use in Additive Manufacturing (Expert)</b> Nathan Kistler LPW Technology Inc	11:45 AM - 11:55 AM <b>Metal Additive Manufacturing: Cost Competitive Beyond Low Volumes (Intermediate)</b> Ria Laureijs Carnegie Mellon University	Noon - 12:10 PM <b>The 5Ps of Additive Manufacturing at Lockheed Martin (Novice)</b> Robert G. Ghobrial Lockheed Martin	11:45 AM - 12:10 PM <b>Effect of Powder Morphology on Mechanical Properties of Cobalt-Chrome Alloy for the Dental Industry by Laser Powder Bed Fusion (Intermediate)</b> Ivy Li CMiGE Material Technology Innovations Co Ltd		
11:00 AM - Noon	Attendee Show Floor Tour: MMI-Advancements for Medical								
11:00 AM - 1:00 PM	3D Playground Activities America Makes ACADEMI ADX ToolingU-SME Manufacturing Challenge								
12:15 PM - 2:15 PM	Lunch on the Exhibit Floor								
1:00 PM - 5:00 PM	Facility Tours Choose only one								
1:00 PM - 5:00 PM	Bally Design and MAYA Design	Arconic (Alcoa)							
1:00 PM - 5:00 PM	SME Medical AM/3DP Workgroup Meeting (Room: 327)								
1:00 PM - 4:30 PM	AM Certification Exam (Room: 334)								