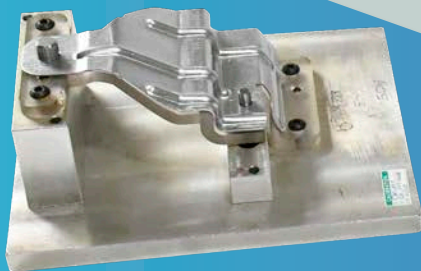


EXPERIENCE THE ENTIRE  
**ADDITIVE MANUFACTURING**  
INDUSTRY AT ONE EVENT



# 2018 AMUG

CONFERENCE PROGRAM  
AND AGENDA



## **AMUG CONFERENCE**

ST. LOUIS, MISSOURI  
APRIL 8 - 12, 2018

**ADDITIVE MANUFACTURING USERS GROUP**  
FOR USERS, BY USERS



# CONTENT



<b>3</b>	<b>Welcome Message</b> AMUG President Paul Bates welcomes attendees	<b>14</b>	<b>Scholarship Winners</b>
<b>4</b>	<b>Mission and Philosophy</b>	<b>15</b>	<b>Technical Competition</b>
<b>5</b>	<b>Mobile App</b> 2018 AMUG Mobile App instructions	<b>16-17</b>	<b>AMUGexpo Map and Exhibitor List</b>
<b>5</b>	<b>First-Time Attendees</b>	<b>18-19</b>	<b>Hotel Maps</b>
<b>6-7</b>	<b>Global Attendees</b>	<b>20-27</b>	<b>Agenda</b>
<b>8-9</b>	<b>AMUG History</b>	<b>28-29</b>	<b>DINOs</b>
<b>10</b>	<b>General Information</b>	<b>30-31</b>	<b>Board, Advisors, Ambassadors, and Liaisons</b>
<b>11</b>	<b>Agenda at a Glance</b>	<b>32-33</b>	<b>Board History</b>
<b>12-13</b>	<b>Featured Speakers</b>	<b>34</b>	<b>Appreciation</b>
		<b>35</b>	<b>Sponsors</b>

# WELCOME

## **Welcome to the 30th Annual Additive Manufacturing Users Group (AMUG) Conference.**

I am thrilled to be your AMUG president and proud to help provide this outstanding event to the AM community. AMUG Conference is a unique event, unlike the traditional expos and conferences. It is deliberately focused on benefiting AM users with presentations and workshops to help educate and support each other. It is organized and run “by users for users”. The board and all its committees are volunteers, and all work very hard to provide this yearly event. Participate and you will have exposure to the use, support and best practices of industrial AM equipment.

This year marks our 30th anniversary, and it amazes me that we have grown and evolved so well in those three decades. It all started with just over a dozen users, individuals just trying to figure out how to use and leverage those early machines. Now we have grown to nearly 2000 attendees, and we have such a treasure trove of great experience.


*If you are returning for your 30th AMUG Conference, or this is your first, welcome!* I cannot wait to meet you. In order to best facilitate getting to know one another, please be ready to mingle. AMUG is built around the idea of networking and sharing. I encourage you to be as open as you can about what you do and how you have found ways to make your use of AM better. The more you share during the conference, the more you will get out of it.

Please bring your passion. I don't think AMUG would have survived if we didn't all have a true love for what we do. Yes, I have had machines break down just before Christmas, and I have had many builds crash and frustrate me, but I remain passionate, and I know you are too. Let's share that passion and have a great event together.

I want to explain another cool aspect of AMUG. Mixed in with all the attendees, there are some members with the distinction of a DINO award. I encourage you to find one and have a conversation. They are not just members who have been doing this a long time, they also have given back to our membership and community in important ways. DINO is a very special recognition—there are typically only 5-10 awards given out each year—yet the recipients of this award are as open and giving as any other AMUG member.

So again, speaking for the entire board, welcome to the 2018 AMUG Conference, our 30th year of getting together. Meet people, give away all your business cards and fill your pockets with everyone else's. Dive into conversations over lunch so deeply that you forget to finish your soup. Attend every event, workshop and dinner. Most of all learn, laugh and participate at every opportunity.



  
Paul Bates  
2017-2018 AMUG President







## AMUG MISSION

Additive Manufacturing Users Group (AMUG) educates and advances the uses and applications of additive manufacturing technologies. The cornerstone of AMUG is the annual Education & Training Conference. AMUG members meet annually to share information, tips and tricks on additive manufacturing processes, applications, materials, ancillary equipment, and industry trends.

## EXPERIENCE

To call the AMUG event a conference is an understatement. It is a unique gathering of AM users, of all levels, that assemble and band together to provide and share valuable insights and experiences to help one another.



## PHILOSOPHY

“For users, by users” is both AMUG’s philosophy and its guiding principle. Every presentation, workshop, sponsor and exhibitor passes through one simple filter: does it provide value to AM users? That is the crux of “For Users.” We then turn to users to provide the content and count on them to make the conference valuable, memorable and unique. That is the “By Users” component.

*AMUG creates the sharing environment; users create the experience.*



# AMUG MOBILE APP

## 2018 AMUG CONFERENCE APP

Download the “AMUG” app from the Apple App Store or Google Play Store. Once the app opens select “2018 AMUG Conference”.

Log in with your **registration email address** (user name) and your **registration ID** (password) that was emailed to you.

**Full-conference attendees** receive access to all contents within the app including all course materials, presentations and evaluations.

**Exhibitors and Expo Staff** receive access to non-course materials.

## EVALUATIONS

Speaker and Conference evaluations are accessible through the mobile app or through the online planner.

Join us Wednesday, April 11 at the Introduction to the AM Wish List session to find out more about the new AM Wish List and how to submit your feedback through the mobile app.



## First-Time Attendees



### Welcome First-Time Attendees!

The AMUG Conference was developed as a way for you, the user of professional additive manufacturing technology, to share ideas, information and knowledge with your fellow colleagues. We have all been in your position as a first-time attendee. Don't be shy. Don't be afraid to dive right in and get involved as part of the team. The more involved you get during the conference, the more value you will take away.

Along with access to the AMUG Board, AMUG Global Ambassadors, and AMUG Liaisons, you will see individuals with a dinosaur on their name

tag. These individuals are known as DINOs (Distinguished INnovative Operators). Take time to introduce yourself to these individuals. DINOs have been recognized as leaders in the Additive Manufacturing industry. Pick their brains, take advantage of their knowledge.

We look forward to meeting you, and please feel free to seek us out with any questions and concerns.

**Have a great conference!**



# We have members **all over the world**

The Additive Manufacturing Users Group's origins date back to the late 1980's when the founding industry users group was called 3D Systems North American Stereolithography Users Group, a users group solely focused on the advancement of stereolithography (SL) use with the owners and operators of 3D Systems' equipment. Today, AMUG educates and supports users of all additive manufacturing technologies. The primary charter of the group remains the same, but its members are much more diversified, global and focused in advancing additive manufacturing technology for rapid manufacturing and prototyping.

With AMUG's expanded range, operators/owners of any commercial technology — stereolithography (SL), selective laser sintering (SLS), 3D printing, CLIP, DMD, DMLM, DMLS, EBM, FDM, LC, LS, MJP, PolyJet, SLM, and more — can benefit from the information exchange and professional network that AMUG offers.

## OBJECTIVES

- Encourage effective communication of information exchange amongst all additive manufacturing equipment owners and operators.
- Provide a forum for presentations and the ability to network with colleagues.
- Propose solutions to problems that involve basic modification to hardware or software.
- Provide an open atmosphere for technology exchange.

## ACTIVITIES

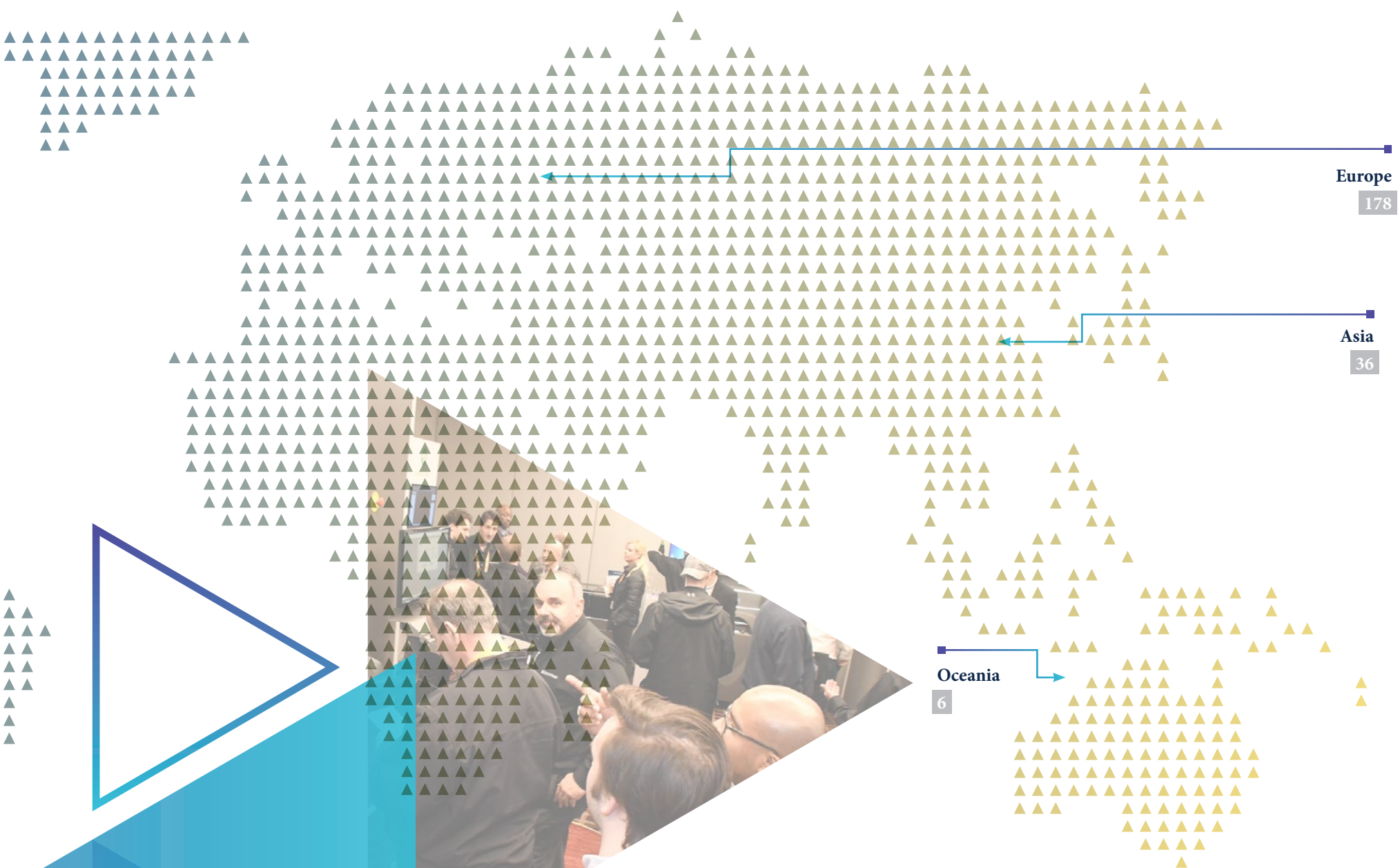
- Hold annual and periodic meetings for the purpose of conducting business of the AMUG.
- Establish special task or interest groups to study specific mutual areas of interest.
- Identify problems and propose solutions or improvements and recommend uniform practices and techniques to be used by the membership.

Americas

1328







Europe  
178

Asia  
36

Oceania  
6

**2012**  
262 attendees  
17 countries

**2013**  
361 attendees  
16 countries

**2014**  
527 attendees  
17 countries

**2015**  
888 attendees  
26 countries

**2016**  
1061 attendees  
23 countries

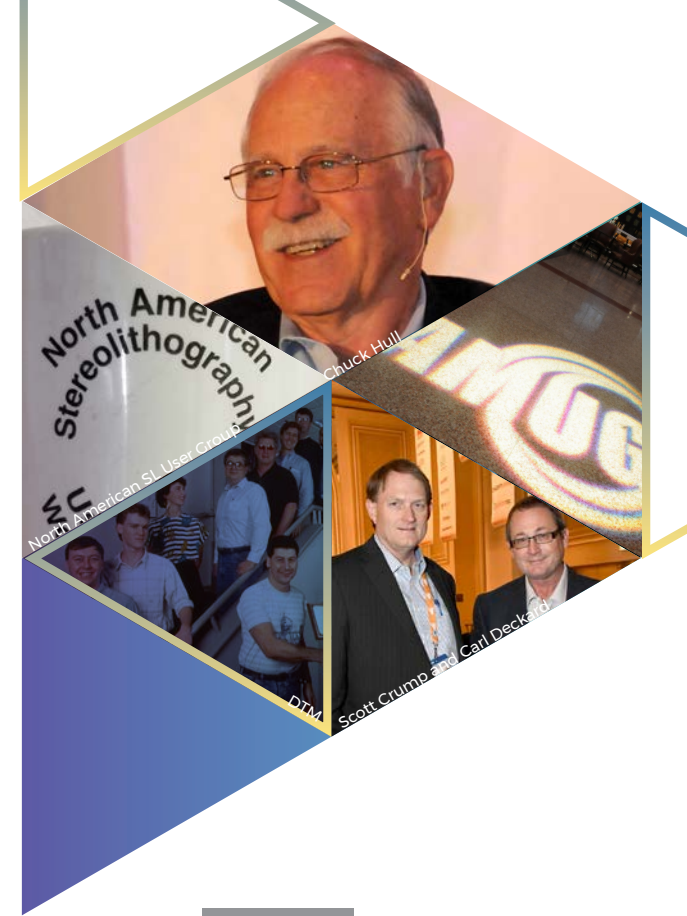
**2017**  
1548 attendees  
27 countries

Breakdown listed above in gray

For Users By Users

# It Started with a vision

AMUG has grown, expanded and evolved to keep pace with the sweeping changes in the additive manufacturing industry. The users group has been hard at work since 1988 as a volunteer organization working with OEMs to design a community focused on advancing the uses of additive manufacturing technology.



1980s



## 3D Systems North American Stereolithography Users Group

Founded in the late 1980s, the users group was dedicated to the users of 3D Systems' stereolithography technology.

1990s

## Selective Laser Sintering Users Group

This group, founded in the early 1990s, focused on the users of DTM Corporation's selective laser sintering technology.

2001



## 3D Systems Users Group

In 2001, 3D Systems acquired DTM Corporation. Shortly after, the users groups for stereolithography and selective laser sintering consolidated into one association.

2010

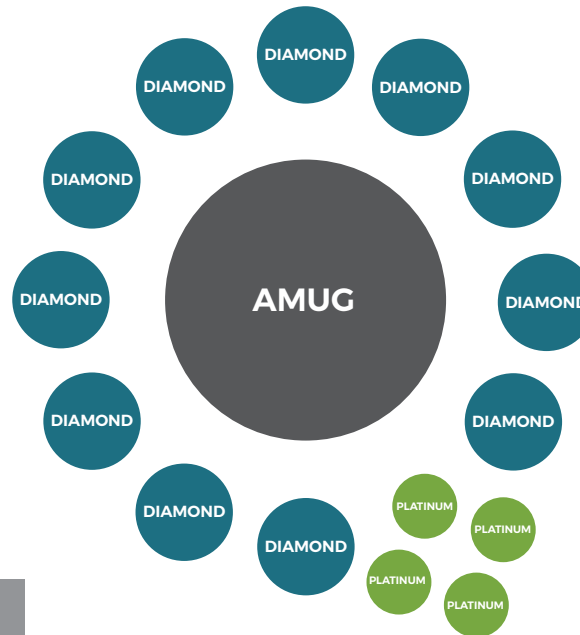
## 3DS Users Group, Inc. (3DSUG)

As more and more users operated technologies from other additive manufacturing companies, the users group elected to open its doors (speakers, AMUGexpo and Sponsors Program) to companies other than 3D Systems. Membership continued to be owners/operators of stereolithography and selective laser sintering.





# A Users Group within a Users Group



## ● AMUG

- Users Group Conference
- Technical and educational sessions
- Hands-on workshops and training sessions
- Software training
- Panel discussions
- AMUGexpo
- Networking lunches
- Evening network events

## ● Diamond Sponsors

- Dedicated Diamond suite for presentations and training by OEMs

## ● Platinum Sponsors

- Shared Platinum space for presentations and training by OEMs

2011



2018

## Additive Manufacturing Users Group

At the 2011 conference, members voted to open the users group to owners/operators of all commercial additive manufacturing technologies. Objet and Stratasys joined as premier supporters of AMUG.

## AMUG Celebrates 30 years of Community

Throughout the years, AMUG has grown from a small gathering of 12 individuals with a common cause to a global community with a common cause. A community that is pushing forward a passion for technology that inspires, redefines and empowers people every day, and that is changing manufacturing as we know it.



# GENERAL INFORMATION

## REGISTRATION AND BADGE

### PICK-UP HOURS

Sunday, April 8:	12:00pm-6:00pm
Monday, April 9:	7:00am - 8:00am, 10:15am-12:00pm
Tuesday, April 10:	7:00am - 8:00am, 10:00am-10:30am

## AMUGEXPO HOURS

AMUGexpo and Dinner	
Sunday, April 8:	5:00pm-10:00pm
AMUGexpo	
Monday, April 9:	10:15am - 12:00pm
AMUGexpo, Technical Competition, and Dinner	
Monday, April 9:	6:00pm - 10:00pm

## AWARDS BANQUET

Conference attendees have full access to all conference activities including the AMUG Tuesday-night Awards Banquet. Conference attendees have the option of bringing a guest to the Awards Banquet for an additional fee, which can be purchased at the registration desk.

Awards Dinner:	Tuesday, April 10
Board Buses:	5:00pm
Buses Leave:	5:15pm promptly

You must wear your conference badge to board the bus. We suggest you wear closed-toe shoes and comfortable clothing appropriate for indoor and outdoor activities.

## BUS AND SHUTTLE LOCATION

AMUG provides transportation daily between the Union Station and Hilton Ballpark hotels and to and from the Tuesday-night Awards Banquet.

### TRANSPORTATION LOCATION

**UNION STATION:** S 80th Street, outside Midway West door

**HILTON BALLPARK:** Walnut Street entrance

## DINING

Your AMUG Conference attendee pass includes all meals from Sunday evening through Thursday evening.

## NAME BADGES

Wear your AMUG badge at all times during the conference, as it is required for entry to all sessions and evening activities. Badges are *mandatory* for the Tuesday night event. Badges are issued to the registered individual and may not be used by others.

## BUSINESS MEETING

The AMUG Business Meeting will take place Wednesday, April 11 at 11:00am. The Business Meeting is for AMUG Conference attendees only. We need 17% of the AMUG attendees present for voting purposes. All AMUG Conference attendees are considered AMUG Members, *even first-time attendees*. Please make sure to attend!

## WI-FI

Wi-Fi is available for free throughout the public areas and in your hotel room at Union Station and Hilton Ballpark hotels.

## SAFETY AND SECURITY






Please do not leave your belongings or conference materials unattended in session rooms. Should you have any issues during your stay, please contact Tom Sorovetz, mobile: +1 (734) 320-6310, or visit the AMUG Information Desk located in the Grand Hall Staircase on the Midway Level

## RECYCLING BADGES



AMUG recycles the name badge holders. Prior to leaving the conference, please place your name badge holder in the box provided at the AMUG Information desk.

# AMUG CONFERENCE AGENDA AT-A-GLANCE

SATURDAY, APRIL 7	SUNDAY, APRIL 8	MONDAY, APRIL 9	TUESDAY, APRIL 10	WEDNESDAY, APRIL 11	THURSDAY, APRIL 12
<p><b>PRE-CONFERENCE ACTIVITY</b> <b>Golf</b> 10:00am Shotgun Start AMUG Conference attendees, sponsors, exhibitors and spouses/partners welcome to participate. SPACE IS LIMITED. (Additional fees apply)</p>	<p><b>PRE-CONFERENCE ACTIVITY</b> <b>Skeet Shooting</b> 7:00am All AMUG Conference attendees, sponsors, exhibitors and spouses/partners welcome to participate. SPACE IS LIMITED. (Additional fees apply)</p> <p><b>PRE-CONFERENCE ACTIVITY</b> <b>UL/SME</b> <b>Fundamentals of Additive Manufacturing Certification</b> 8:00am-3:30pm Fundamentals of Additive Manufacturing Certification is for any business professional, engineer, or designer with a desire to learn about 3D printing and enter the Additive Manufacturing industry. Location: New York/Illinois Central, 2nd floor</p> <p><b>CONFERENCE ACTIVITY BEGINS</b> <b>Registration Open</b> 12:00pm-6:00pm Location: Grand Hall</p> <p><b>New Member Welcome</b> 4:00pm-4:30pm First-time conference attendees welcome and introduction to the AMUG way. Location: Grand Hall</p> <p><b>AMUGexpo and Dinner</b> <b>EXPO OPEN</b> 5:00pm - 10:00pm All demo spaces and exhibits open. Join us Sunday night for the AMUGexpo Opening. Enjoy a Buffet Dinner and Beverages as you tour 14 Diamond Suites, 21 Platinum Demo Spaces, and 72 Exhibitors.  See Floor Plan on page 16-17</p>	<p><b>Registration Open</b> 7:00am-8:00am</p> <p><b>Breakfast</b> 7:00am-8:00am</p> <p><b>AMUG Opening Address</b> 8:00am-8:15am</p> <p><b>Keynote</b> <b>TODD GRIMM</b> T.A. Grimm 8:15am-9:15am</p>  <p><b>AM Insights and Highlights</b> 9:15am-10:15am</p>  <p><b>Break</b> 10:15am-10:45am</p> <p><b>Registration Open</b> 10:15am - 12:00pm</p> <p><b>AMUGexpo and Sponsor Demos</b> <b>EXPO OPEN</b> 10:15am - 12:00pm All demo spaces and exhibits open</p> <p><b>Networking Lunch</b> 12:00pm-1:15pm Sponsors and Exhibitors welcome</p> <p><b>AMUG and Sponsor Sessions</b> 1:30pm - 5:30pm</p> <p><b>AMUGexpo and Dinner</b> <b>EXPO OPEN</b> with Technical Competition 6:00pm - 10:00pm All demo spaces and exhibits open</p>	<p><b>Registration Open</b> 7:00am-8:00am</p> <p><b>Breakfast</b> 7:00am-8:00am</p> <p><b>AMUG General Session, 2018 Scholarship Winners, 2017 Technical Competition Winners, Global AM Review</b> 8:00am-10:15am</p>  <p><b>Break and Registration Open</b> 10:15am-10:45am</p> <p><b>Diamond Keynote Sessions</b> 11:00am - 12:00pm</p> <p><b>Networking Lunch</b> 12:00pm-1:15pm</p> <p><b>Diamond Keynote Sessions</b> 1:30pm - 2:30pm</p> <p><b>Platinum Keynote Sessions</b> 2:45pm-4:00pm</p> <p><b>Diamond Sessions</b> 2:45pm-4:00pm</p> <p><b>AMUG Awards Banquet</b> 5:00pm - 10:00pm An event for all full conference pass attendees and sponsors. DINO Awards, Technical Competition and Sponsor Awards.  Transportation provided. Additional banquet tickets are available for purchase.</p>	<p><b>Breakfast</b> 7:30am-8:30am</p> <p><b>AMUG General Session</b> 8:30am-9:00am</p> <p><b>Innovators Showcase</b> <b>FRIED VANCRAEN</b> Founder and CEO, Materialise 9:00am-10:00am</p>  <p><b>Break</b> 10:00am-10:30am</p> <p><b>AMUG General Session</b> 10:30am-11:00am</p> <p><b>AMUG Business Meeting</b> 11:00am-12:00pm Open to all full conference pass attendees and sponsors.</p> <p><b>Networking Lunch</b> 12:00pm-1:15pm</p> <p><b>AMUG and Sponsor Sessions</b> 1:30pm - 5:00pm</p> <p><b>Dinner - A Taste of St. Louis</b> 6:00pm-10:00pm An event for all full conference pass attendees and sponsors.  Experience the local flavors as we take your taste buds on a culinary tour of St. Louis. Enjoy a night of great food, games, and more.</p>	<p><b>Breakfast</b> 7:30am-8:30am</p> <p><b>AMUG Feedback Session</b> 8:30am-9:00am</p> <p><b>Keynote</b> <b>DR.-ING. DOMINIK RIETZEL</b> Head of BMW Group Additive Manufacturing Non-Metal 9:00am-10:00am</p>  <p><b>Break</b> 10:00am-10:30am</p> <p><b>AMUG and Sponsor Sessions</b> 10:30am-12:00pm</p> <p><b>Networking Lunch</b> 12:00pm-1:15pm</p> <p><b>AMUG and Sponsor Sessions</b> 1:30pm - 5:00pm</p> <p><b>Family Dinner &amp; Closing</b> An event for all full conference pass attendees and sponsors.  AMUG Family Dinner is the official closing event at the AMUG Conference. Attendees and sponsors are encouraged to submit their family or favorite recipes for consideration.  Along with a family dinner there will be music and activities for everyone to participate. <b>CONFERENCE CONCLUDES</b></p>

AMUG Agenda subject to change - Access the AMUG Mobile App for up to date information



## Featured Speakers

**MONDAY** APRIL 9  
8:15AM-9:15AM

**KEYNOTE:** *Light at the End of the Tunnel*



### TODD GRIMM

T.A. GRIMM

Todd Grimm is a 27 year veteran of the additive manufacturing/3D printing industry. From his work as a consultant, writer, author, speaker, editor and advisor, he was named as one of The TCT Magazine's 20 most influential in the additive manufacturing (AM) industry.

Todd is President of T. A. Grimm, an additive manufacturing consulting and communications company. He sits on the board of directors of ARC Group Worldwide (NASDAQ: ARCW). He is also a columnist for The TCT Magazine and author of User's Guide to Rapid Prototyping. Todd currently serves on the board of the Additive Manufacturing Users Group (AMUG) as its AM industry advisor, sits on the TCT Expert Advisory Board, and is an advisor for the RAPID Conference. He has also served as chairman of the Society of Manufacturing Engineers' (SME) RTAM community.

**THURSDAY** APRIL 12  
9:00AM-10:00AM

**KEYNOTE:** *Additive Manufacturing on the Road.  
A Journey from Prototyping to Production*



### DR.-ING. DOMINIK RIETZEL

Head of BMW Group Additive Manufacturing Non-Metal

Dominik Rietzel studied chemical engineering at the Technische Universität in Munich (TUM) with a focus on materials and their mechanical behavior. For his diploma thesis, he was awarded the DIN prize for standardization in 2007. Subsequently he continued his academic career in Erlangen-Nuremberg as scientific assistant at the Institute of Polymer Technology (LKT), where he obtained his doctoral degree (Dr.-Ing.) with his thesis about the material behavior and process analysis for laser sintering of thermoplastic materials. Due to his work he was deputy chairman of the workgroup Polymers of the German VDI-Committee "Rapid Prototyping". His career in the automotive field started at MAN Truck & Bus GmbH where his final position was head of quality assurance in the cabin paint shop. In 2012, he switched to the Additive Manufacturing Center of BMW Group, where he focused on additive manufacturing for serial production. His current position at BMW Group is Head of Additive Manufacturing – Non Metals.

# Innovators Showcase

## INNOVATORS SHOWCASE

WEDNESDAY APRIL 11

9:00AM-10:00AM

### FRIED VANCRAEN

Founder and CEO, Materialise

Materialise CEO Fried Vancraen began his career in 1985 after receiving a Master of Science in Electro-Mechanical Engineering. Working as a Research Engineer and Consultant at the Research Institute of the Belgian Metalworking Industry, Fried discovered 3D printing. Passionate about this new technology, and firm in his belief that it could help create a better and healthier world, he founded Materialise in July 1990, where he remains CEO to this day.

Materialise was established as the first rapid prototyping service bureau in the Benelux countries. Immediately after its foundation, the company concentrated on researching and developing solutions for transferring data to rapid prototyping machines, for industrial as well as medical applications. Today, Materialise's open and flexible platforms enable players in industries such as healthcare, automotive, aerospace, art and design, and consumer goods, to build innovative 3D printing applications that make the world a better and healthier place.

Fried holds several patents related to the technical and medical applications of 3D printing and remains committed to using the technology to make positive changes in people's lives. In recent years, Fried has been awarded the RTAM/SME Industry Achievement Award, the highest honor in the 3D printing industry, has been selected as the most influential person in additive manufacturing by industry professionals and TCT Magazine, and has been listed one of the five leading players in his sector by the Financial Times. He is also the recipient of a 2013 Visionaries! Award from the Museum of Art and Design in New York and most recently an inaugural inductee into the TCT Hall of Fame.

#### 2018 Innovator Showcase Recipient

Fried Vancraen, Materialise software for AM



#### Innovator Showcase Recipients

2015 Chuck Hull, Stereolithography

2016 Scott Crump, Fused Deposition Modeling

2017 Carl Deckard, Selective Laser Sintering

# 2018 SCHOLARSHIP WINNERS



## 2018 GUY E. BOURDEAU SCHOLARSHIP

**DANIEL DELGADO CAMACHO** University of Texas at Austin

Daniel Delgado Camacho's research for his master's degree is on the application of AM in the construction industry. Patricia Clayton, Ph.D., assistant professor in UT Austin's Department of Civil, Architectural and Environmental Engineering, is Mr. Delgado Camacho's co-advisor for his research. Dr. Clayton said, "I believe that Daniel's research investigating large-scale construction applications for AM will provide innovative architectural and structural design and construction solutions that are only made possible by AM. I know that Daniel will be a true leader in our field, providing a much-needed excitement for technological innovation in a field (infrastructure construction) that often lags behind the innovation curve."

In 2016, Mr. Delgado Camacho began his research on the current state of AM in the construction industry, becoming the first to do so at UT Austin. This led to his research of AM for fabrication of connections using the material extrusion process. He also foresees leveraging his knowledge and research to accelerate the advancement of concrete 3D printing for construction projects. Following his May 2018 graduation, Mr. Delgado Camacho will join ExxonMobil, a company that has enjoyed his contributions as an intern over a three-year period and sponsored him for the prestigious GEM Fellowship.

Dr. Clayton said, "I strongly believe that Daniel has the intelligence, drive, and ingenuity to develop and market pioneering applications for AM in construction. Attending the AMUG Conference will provide him opportunities to connect with and learn from the best in the field." Recognizing the information gap between industry, users and researchers, Mr. Delgado Camacho said, "This is knowledge I could gain by attending the AMUG Conference. The conference can provide a better picture of how far advancements in AM have come and all the benefits and potential applications that AM can offer."



## 2018 RANDY STEVENS SCHOLARSHIP

**DR. EMRAH CELIK, PHD** University of Miami, Florida  
Assistant Professor of Mechanical Engineering & Aerospace

Dr. Emrah Celik is an assistant professor, researcher and academician with a passion for AM, both as a user and as a developer of technology. He integrates AM into his engineering courses to teach students this new manufacturing platform and give them hands-on experience. Victoria Cornerstone, Ph.D., UM's chair of the Department of Mechanical and Aerospace Engineering, said, "Dr. Celik is the leading professor in promoting application of 3D printing/additive manufacturing in teaching. Teaching 3D printing technologies and hands-on work of our college students stimulated their interest and understanding in this course."

In his research laboratory, Advanced Nano Systems Laboratory (ANSyL), Dr. Celik investigates novel 3D printing methodologies for fabrication of energy-harvesting materials and reinforced composites for strong, yet lightweight, structural components. He works closely with federal agencies including NASA, US Airforce, and Army Research Laboratory. Dr. Celik's aim is to develop state-of-the-art AM technologies that leverage this research.

Dr. Celik stated, "Although I have extensive experience with the 3D printing techniques, my interaction with the additive manufacturing community has been very limited. I envision that attending the AMUG Conference will give me the opportunity to initiate long-lasting interactions with the additive manufacturing community." Dr. Cornerstone added, "This scholarship will greatly benefit Dr. Celik's academic career, our department's vision on continuous improvement of teaching, and lead to new research projects in his laboratory."



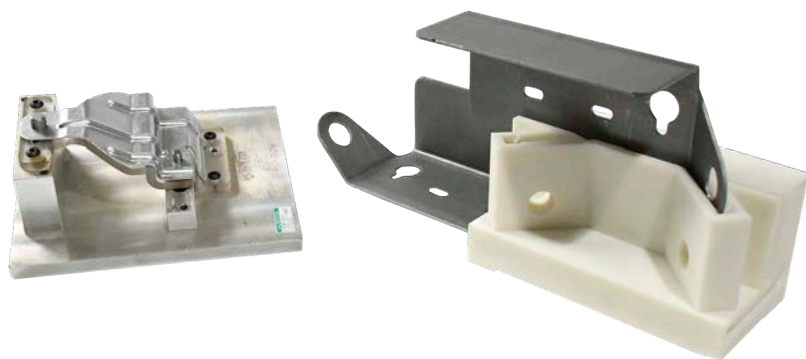


2017

# TECHNICAL COMPETITION

The AMUG Technical Competition provides a forum for users of additive manufacturing to display their unique applications and their finishing capabilities. The competition is divided into two categories: Advanced Concepts and Advanced Finishing.

## ADVANCED CONCEPTS WINNER



### TAMPER PROOF GAGES

**Vince Anewenter**, Milwaukee School of Engineering (MSOE)

Vince Anewenter's winning entry in the Advanced Concepts category was titled "Tamper Proof Gages." Judges cited the practicality of the application and the ingenuity in resolving a common problem as reasons for the award. The gage was made for Capitol Stampings Corp. to allow shop-floor personnel to quickly perform several quality control measurements on two versions of a stamped part. The ingenious aspect is that Anewenter's team elected to use a ceramic-filled SLA resin that would fracture if struck or dropped. Fracturing prevents a common problem of unreported gage damage, which can lead to unnecessary scrap and rework.

In the Advanced Concepts category, the challenge was really to find entries that genuinely pushed the envelope in terms of a unique or advanced use for additive manufacturing. This year's winner in that category proved that thinking outside the box sometimes yields a solution that can be beautiful in its simplicity.

## ADVANCED FINISHING WINNER



### MATILDA, 1931 CORD SERIES L-29 CABRIOLET

**Mike Littrell**, CIDEAS, Inc.

Mike Littrell's winning entry in the Advanced Finishing category was an exquisite replica of a 1931 Cord Series L-29 Cabriolet. Specifically, it is a replica of #2929409 that was named "Matilda" by Mike's father, Gary, when he owned this amazing vehicle. In collaboration with Brian Yingling, who created the CAD models and performed detail finishing, CIDEAS brought this car to life using Fused Deposition Modeling (FDM) and Stereolithography (SLA). According to Littrell, 99.9% of the car is 3D printed; the only exceptions are fabric and leather coverings, brass spokes, and brass nuts.

In the Advanced Finishing category, some of the detailed work, painting skills, and finishing skills were faultless. Ranking the entries really came down to who had truly pushed the boundaries of finishing techniques.



# AMUGexpo

Sunday, April 8 and Monday, April 9

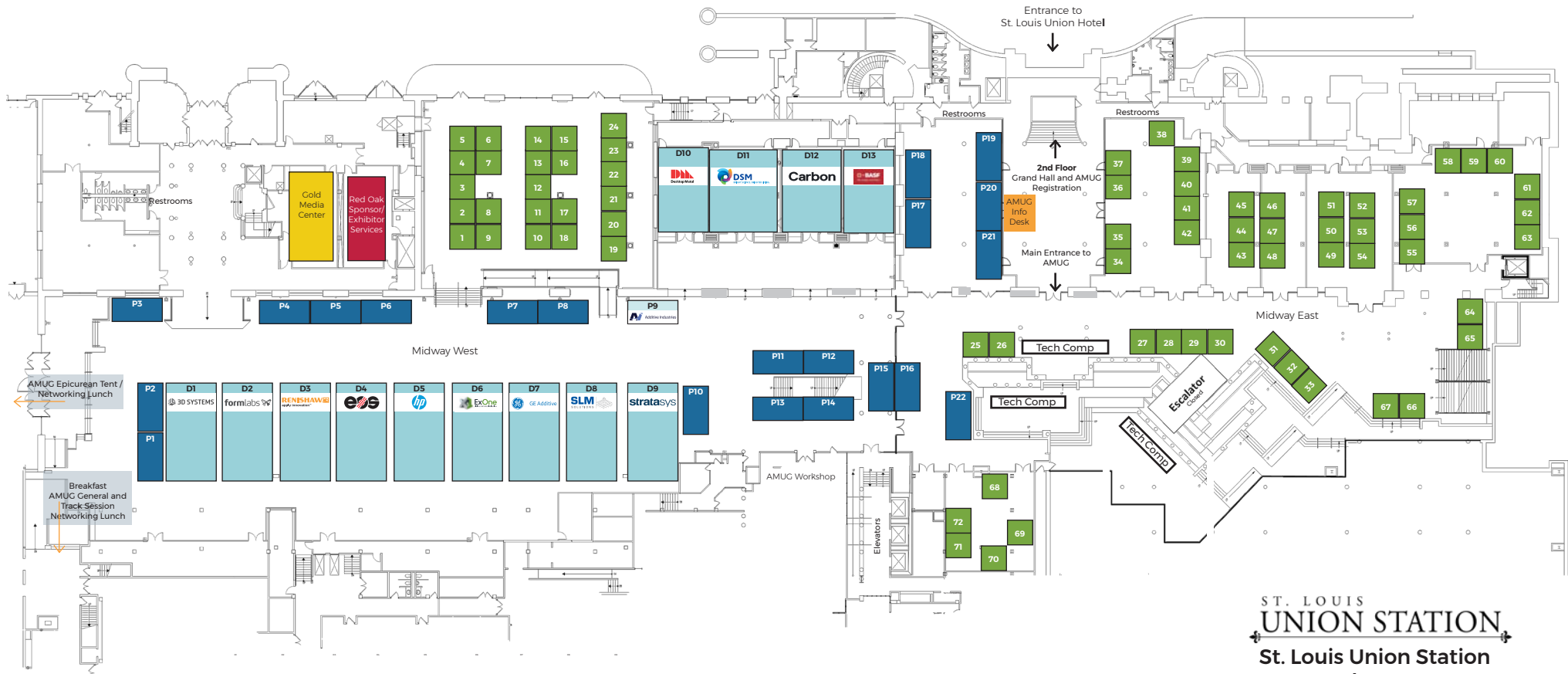
Location: Midway West and Midway East

## AMUGexpo Hours

Sunday, April 8 5:00pm-10:00pm

Monday, April 9 10:15am-12:00pm

6:00pm-10:00pm



ST. LOUIS  
**UNION STATION**  
 St. Louis Union Station  
 1820 Market Street  
 St. Louis, MO 63103



#### DIAMOND SPONSORS

ORGANIZATION	SUITE
3D Systems	D1
Additive Industries	P9
BASF	D13
Carbon	D12
Desktop Metal, Inc.	D10
DSM Additive Manufacturing	D11
EOS North America	D4
ExOne	D6
Formlabs	D2
GE Additive	D7
HP	D5
Renishaw	D3
SLM Solutions	D8
Stratasys	D9

#### PLATINUM SPONSORS

ORGANIZATION	BOOTH
3D Platform	P11
3YOURMIND	P17
AddUp	P21
BeAM Machines	P2
BigRep America, Inc	P12
Computer Aided Technology	P6
EnvisionTEC	P7
Farsoon Technologies	P16
GKN Additive	P20
Materialise	P10
Matsuura Machinery USA, Inc.	P18
MicroTek Finishing	P1
Oerlikon	P22
Optomec	P13
Plural Additive Manufacturing	P15
PostProcess Technologies Inc.	P3
Rize Inc.	P5
Tekna	P19
TRUMPF Inc.	P14
Ultimaker	P4
UnionTech	P8

#### EXHIBITORS

ORGANIZATION	BOOTH
3D Material Technologies	61
3DEO	67
Admatec Europe BV	29
AlphaSTAR Corporation	49
ANSYS	22
Arkema Inc.	8
Aurora Labs Ltd	41
Authentise Inc	34
Autodesk	12
Baker Industries	72
Bel Air Finishing Supply	60
CAD BLU	27
CBG Biotech	70
CIDEAS INC	31
Clemco Industries Corp.	52
Colorado Photopolymer Solutions	4
Custom Prototypes	26
Dinsmore & Associates	2
DSH Technologies, LLC	21
DuPont Performance Materials	19
CEHR Plastics, Inc.	6
GoProto, Inc.	47
GPI Prototype & Manufacturing Services	65
Granta Design	10
H.C. Starck Surface Technology and Ceramic Powders GmbH	11
Impossible Objects, Inc.	48
Inert	23
Intamsys	63
InTech Industries	64
InterPRO	56
iSQUARED AG	53
Jesse Garant	71
Keene Village Plastics	68
Lewellyn Technology	51
LINK3D	57
Lithoz America, LLC	38

ORGANIZATION	BOOTH
LPW Technology, Inc.	18
MasterGraphics	45
MET-L-FLO Inc	42
Metal Powder Industries Federation	40
Midwest Prototyping	66
Mimaki USA	32
MSC Software	50
Ophir-Spiricon	69
Pivot AM Service	24
Poly-Shape	43
Polymaker	62
Powder Alloy Corporation	44
Praxair Surface Technologies	9
Pressure Technology	59
PRODWAYS	25
RAMCO Equipment	3
Rapid Prototyping Services	5
Realize Inc.	14
RePliForm, Inc.	17
Ricoh USA, Inc.	33
Sandvik	20
Senvol	13
SLA SALES COMPANY	58
Strangpresse, LLC	54
The SL PRO	1
TIGER-VAC INC.	55
Titan Robotics Ltd.	7
Toner Plastics Group	16
UL Additive Manufacturing	28
University of Louisville	30
VAC-U-MAX	36
VacuCoat Technologies, Inc.	15
Vorti-Siv	37
voxeljet America Inc.	39
Wenzel America Ltd	35
ZEISS Industrial Metrology	46

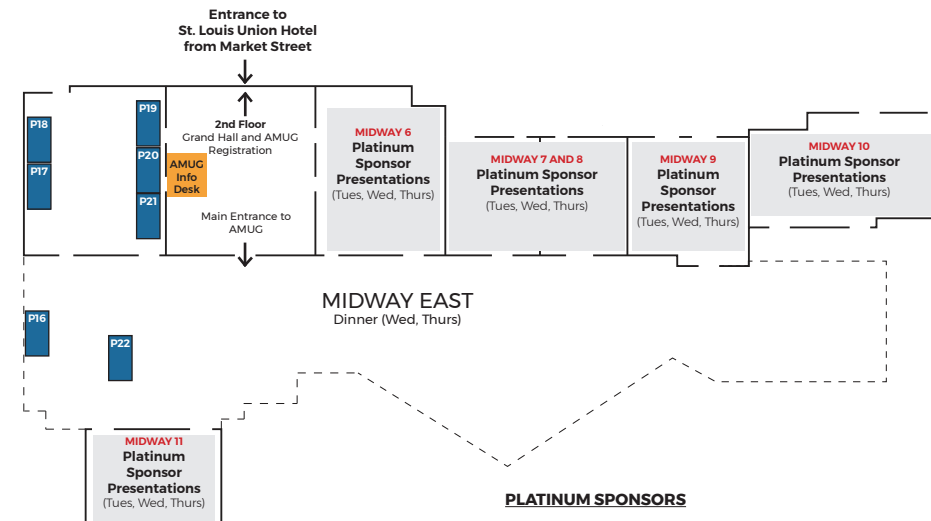
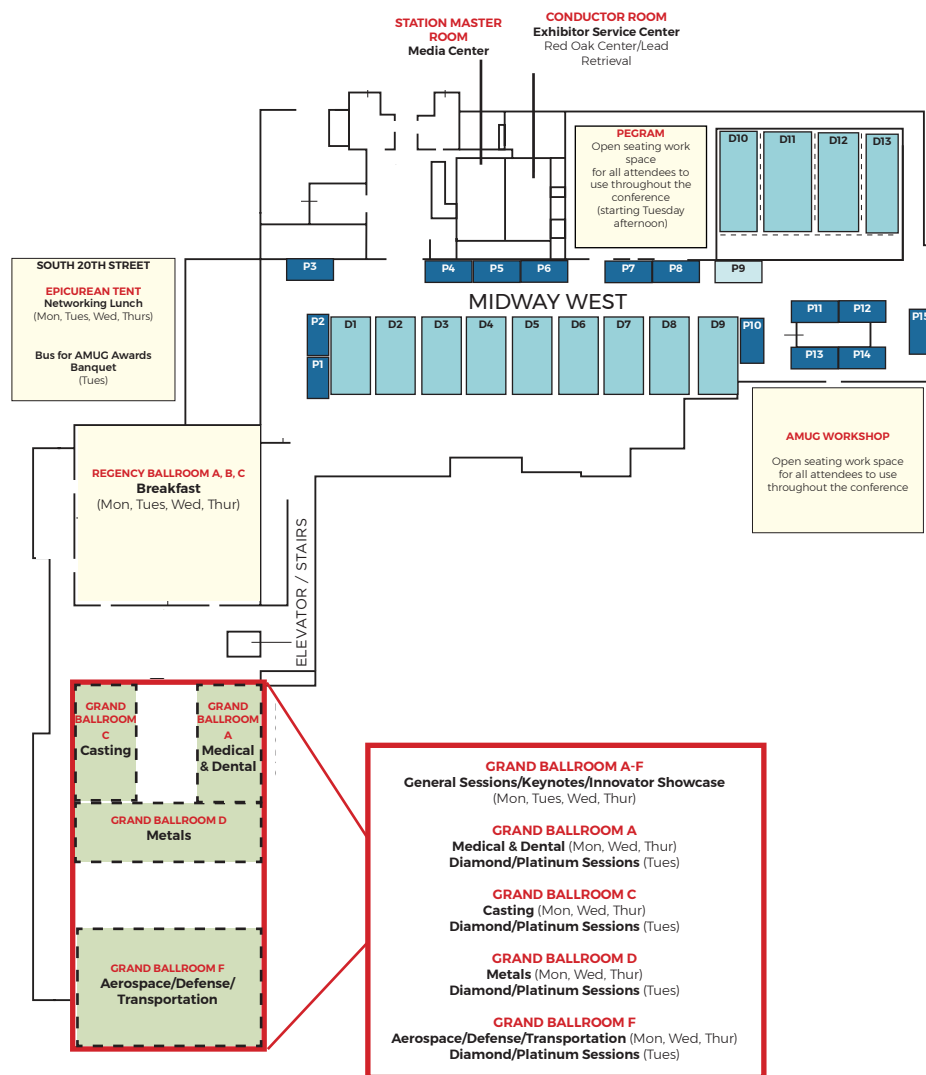
#### GOLD MEDIA PARTNER CENTER

ORGANIZATION
3D Metal Printing Magazine
3D Printing Industry
Additive Manufacturing
DEVELOP3D
Digital Engineering
ENGINEERING.COM
MakePartsFast
Metal AM Magazine
Rapid+TCT
The TCT Group



# 1st Floor Union Station

Maps representative of general locations and are not to scale



## DIAMOND SPONSORS

ORGANIZATION	SUITE
3D Systems	D1
Additive Industries	P9
BASF	D13
Carbon	D12
Desktop Metal, Inc.	D10
DSM Additive Manufacturing	D11
EOS North America	D4
ExOne	D6
Formlabs	D2
GE Additive	D7
HP	D5
Renishaw	D3
SLM Solutions	D8
Stratasys	D9

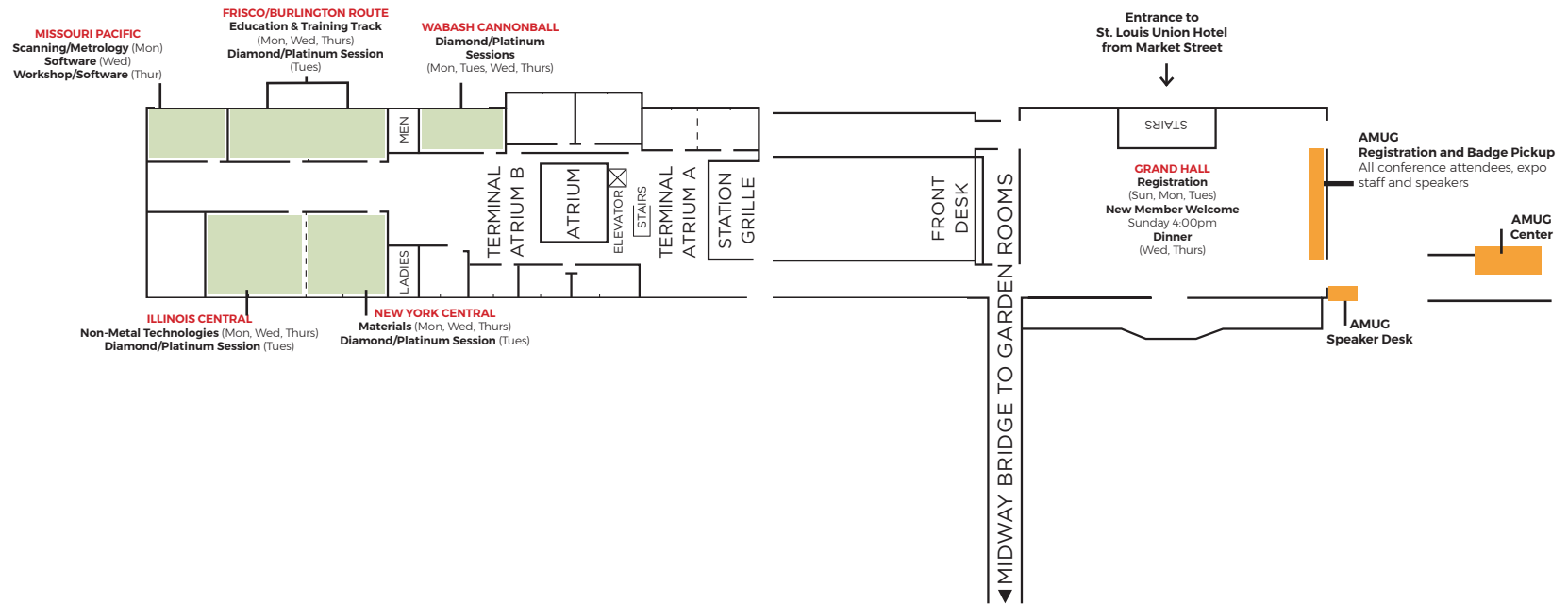
## PLATINUM SPONSORS

ORGANIZATION	BOOTH
3D Platform	P11
3YOURMIND	P17
AddUp	P21
BeAM Machines	P2
BigRep America, Inc	P12
Computer Aided Technology	P6
EnvisionTEC	P7
Farsoon Technologies	P16
GKN Additive	P20
Materialise	P10
Matsuura Machinery USA, Inc.	P18
MicroTek Finishing	P1
Oerlikon	P22
Optomec	P13
Plural Additive Manufacturing	P15
PostProcess Technologies Inc.	P3
Rize Inc.	P5
Tekna	P19
TRUMPF Inc.	P14
Ultimaker	P4
UnionTech	P8

# 2nd Floor Union Station

Maps representative of general locations and are not to scale

ST. LOUIS  
**UNION STATION**  
St. Louis Union Station  
1820 Market Street  
St. Louis, MO 63103



## AMUG TRACK LEADERS



**AEROSPACE**  
Ted Anderson  
CE Additive



**AM TECHNOLOGIES**  
**NON-METAL**  
Andrew Allshorn  
At-3D-Squared Ltd



**AM METALS**  
Bob Markley  
3rd Dimension LLC



**CASTING**  
Steve Murray  
Consultant



**CASTING**  
Thomas Sorovetz  
FCA US LLC



**CASTING**  
Jack Ziemba  
Aristo Cast



**EDUCATION & TRAINING**  
Jordan Weston  
Milwaukee School of Engineering (MSOE)




**MATERIALS**  
Nate Schumacher  
Midwest Prototype



**MEDICAL & DENTAL**  
Shannon VanDeren  
Layered Manufacturing and Consulting



**SCANNING & METROLOGY**  
Giles Gaskell  
Wenzel America Ltd.

7:00am - 8:00am	REGISTRATION and BADGE PICK-UP								Grand Hall, 2nd Floor
7:00am - 8:00am	BREAKFAST								Regency Ballroom A-C, 1st Floor
8:00am-8:15am	AMUG OPENING ADDRESS PAUL BATES, AMUG President								Grand Ballroom A-F, 1st Floor
8:15am-9:15am	KEYNOTE ADDRESS: <i>Light at the End of the Tunnel</i>   TODD GRIMM, T.A. Grimm & Associates								Grand Ballroom A-F, 1st Floor
9:15am-10:15am	AMUG INSIGHTS AND HIGHLIGHTS MARK BARFOOT, AMUG Past President and JAMES WOODCOCK, THE TCT Group Mark and James will provide a quick look at the insights and highlights of the 14 Diamond sponsors at AMUG								Grand Ballroom A-F, 1st Floor
10:15am-10:45am	BREAK								
10:15am-12:00pm	REGISTRATION and BADGE PICK-UP								Grand Hall, 2nd Floor
10:15am-12:00pm	AMUGEXPO AND SPONSOR DEMO OPEN								Midway West and Midway East, 1st Floor
12:00pm-1:15pm	NETWORKING LUNCH   AMUG Epicurean Tent								
TRACK	AEROSPACE/DEFENSE/TRANSPORTATION	AM METALS	CASTING	EDUCATION & TRAINING	MATERIALS	MEDICAL & DENTAL	NON-METAL TECHNOLOGIES	SCANNING AND METROLOGY	 Additive Industries
ROOM	Grand Ballroom F	Grand Ballroom D	Grand Ballroom C	Frisco/Burlington	New York Central	Grand Ballroom A	Illinois Central	Missouri	Wabash
1:30pm-2:00pm	<b>PANEL</b> Department of Defense Additive Manufacturing  <b>PANELIST</b> Benjamin Bouffard Department of Navy Michael Froning USAF James Zunino US Army RDECOM-ARDEC  B I A	Despite the Hype, Complexity is NOT Free Matthew Donovan Oerlikon Additive Manufacturing  I A	Design to Qualification: Leveraging Sand Mold AM for Navy Tactical Replacement Castings Bryce Weber Naval Undersea Warfare Center Leah Dunlay University of Northern Iowa  I	How to Approach Material Validation for Production Parts Mike Vasquez 3Degrees  A	Improved Sustainability for Nylon 11 Laser Sintering Materials Soeren Griesbach CS-PRO GmbH  B I A	3D Printing in Medicine: Tips and Tricks Peter Liacouras Walter Reed National Medical Center  B I A	The Right Material for Your Application Joerg Griesbach The SL Pro  SOFTWARE Challenges and Opportunities for Polygonal Modeling Fengqiang Lin MachineWorks  B I A	<b>WORKSHOP</b> METROLOGY WORKSHOP Scott Plier Milwaukee School of Engineering  H	Accelerating Industrial Additive Manufacturing Towards Productivity Leadership Daan A.J. Kersten Additive Industries
2:00pm-2:30pm		Powder-Free Ceramic and Metal AM Dror Danai XJet  B I A			New Generation AM Materials for FFF Process Thiago Medeiros Araujo Lehmann & Voss & Co KG  B I A				
2:30pm-3:00pm	BREAK								
3:00pm-3:30pm	The Journey to NADCAP AM Accreditation Caitlin C. Oswald Adam Rivard LAI International  B I A	Standards and Certifications for Additive Manufacturing Shane Collins Additive Industries of North America  B I A	Understanding Your SL Patterns for Investment Castings Ed Graham ProtoCAM  I A	Data Connectivity and Interoperability: MTConnect for Additive Manufacturing Mike Bosveld Strataysys (for The MTConnect Institute)	SOFTWARE Additive Manufacturing at Production Scale Andre Wegner Authentise  I A	3D Bioprinting to Save Lives Steven Morris Biolife 4D  I	3D Printing Through Hands-on Experience Geir Jarle Jensen The Oslo School of Architecture and Design	Needing to Meet the Standards? Best Metrology Practices for AM Part Validation Ryan Timboe QC Group  B I A	closed
3:30pm-3:45pm	transition								
3:45pm-4:15pm	EBM Q20+ Process Qualification for Space Applications Bruce McLean Zenith Technica  B I A	Update-Laser Measurements Critical to Successful Additive Manufacturing Processes Kevin Kirkham Ophir-Spiricon  I A	Click2Cast and Introductory Course on Model Solidification for Castings Ravi Kunju Altair  B I A H	Finishing the Job - AMT Post Processing for Polymer Parts Steve Grundahl Midwest Prototyping Joseph Crabtree Additive Manufacturing Technologies  I	Challenges of a 3D Printing Factory Clement Moreau Sculpteo  I A	3D Printing: Transformative Technology in Medicine Shafkat Anwar, M.D. Washington University School of Medicine in St. Louis  I	NON-METAL TECHNOLOGIES Additive Pellet Extrusion Opening New Doors for Polymer Additive Materials and Solutions Clay Gullory Titan Robotics Bill Macy Macy Consulting  B I A	From Hand Tools to High Energy. Choosing the Right Tools for AM part Metrology Giles Gaskell Wenzel America  B I A	Integration and Automation in Metal Powder Bed Fusion Improves Reproducibility and Drives Down Cost Per Part Mark Vaes Additive Industries
4:15pm-4:30pm	transition								
4:30pm-5:30pm	How Digitalization Will Change the AM World Cero Corman Volkswagen AG  I A	Emerging Metal Technology Mini-Session 15 min session with each company followed by Q&A  TECHNOLOGY PRESENTERS Jeffrey Crandall Connecticut Center for Advanced Technology Melanie Lang Formality Albert Klein FIT America Shawn Allan Lithoz  B I A		Effective Ways to Manage the Combustible Dust Hazards Associated with Additive Manufacturing Jason Reason Lewellyn	WORKSHOP Efficiently Model the Metal AM Process with Simufact Additive Jeff Robertson Arjaan Buijk Simufact Engineering  B I A	Integration of AM Technology for Face Transplant Andrew Buckland New York University  B I A	ROUNDTABLE/PANEL In-House Procedures for Machine and Material Maintenance  MODERATOR Andrew Allshorn At 3D-Squared PANEL Steve Grundahl Midwest Prototyping Paul Hohan Christie Digital Mike Littrell CIDEAS John Schaefer DSM Additive Manufacturing	Accelerator-Based, Large Format Computed Tomography for Additive Manufacturing Andrew Good Jesse Garant Metrology Center  B I A	Design for Operator Safety: Continuous Inert Powder Handling and Long Live Filter System Shane Collins Additive Industries
5:00pm-5:30pm								5:00pm-5:30pm Metrology Open Forum Questions to the Metrology and Scanning Speakers  MODERATOR Giles Gaskell, Wenzel America PANEL Scott Plier, MSOE Ryan Timboe, QC Group Andrew Good, Jesse Garant Metrology Center  B I A	
5:30pm-6:00pm	All Sessions Closed								
6:00pm-10:00pm	AMUGexpo and Technical Competition   Dinner and Networking Location: Midway West and Midway East								








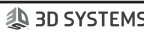





























## Conference Key

- B** Beginner Session      **C** Customer Only Session  
**I** Intermediate Session      **R** Preregistration Required  
**A** Advance Session      **H** Hands-On Session

# Monday, April 9, 2018

	3D SYSTEMS	BASF	Carbon	DSM	Desktop Metal	EOS	ExOne	formlabs	GE Additive	hp	RENISHAW	SLM	stratasys
ROOM	D1	D13	D12	D11	D10	D4	D6	D2	D7	D5	D3	D8	D9
1:30pm-2:00pm	<b>How Figure 4 Makes Tool-Free Production a Reality</b> Scott Turner 3D Systems Dr. Timothy H. Osborn University of Dayton Research Institute <b>B I A</b>	<b>Metal Filament Printing with BASF Ultrafuse: Processing Requirements for Industrial Applications</b> Felix Hapke, Kai Sudau BASF <b>B I A</b>	<b>Improved Efficiencies for Producing Complex Parts</b> Greg Cebular The Technology House <b>B I</b>	<b>AM Healthcare Application Qualification: Where it All Begins @ Your Materials Partner (DSM)</b> Jasper van Dieren-Blom DSM Additive Manufacturing <b>B I</b>	closed	<b>The State of 3D Printing in Automotive</b> Jon Walker EOS	<b>Binder Jet Printing for Powders with Difficult Flow Characteristics</b> Gabe Doman ExOne	<b>Decentralized Manufacturing of Patient-Specific Medical Models</b> Gaurav Manchanda Formlabs <b>I</b>	<b>PANEL Understanding Different Metal Additive Manufacturing Technologies to Achieve Maximum Value</b> Laurence Vigeant-Langlois GE Additive <b>PANELIST</b> Laura Ely GKN Additive Dr. Youping Gao, Castheon Bruce McLean Zentiva Technica <b>B I A</b>	<b>HP 3D Materials Workshop</b> Mariona Company Mar Lezcano HP Inc. <b>B I A H</b>	<b>Multi-Laser AM Boosts Productivity and Reduces Part Costs</b> Stephen Anderson Renishaw AMPD <b>I</b>	<b>Additive Intelligence Software Solutions for AM in Production</b> Hubert Kerschbaum SLM Solutions	<b>Path to Certification: FDM for Certified Aircraft Interiors</b> Christopher Rollag Stratasys <b>I</b>
2:00pm-2:30pm		<b>Convert and Scale the BASF Ultrafuse Technology into the GKN Technology Landscape</b> Markus Josten GKN Additive <b>A</b>			<b>Closed Session: Desktop Metal</b>								
2:30pm-3:00pm <b>BREAK</b>													
3:00pm-3:30pm	<b>Changing the Injection Molding Equation with Conformal Cooling and Metal 3D Printing</b> Jared Rauch B&J Specialty, Inc. David Lindemann 3D Systems <b>B I A</b>	<b>BASF and BigRep: Spare Parts on Demand for Deutsche Bahn</b> Stephen Beyer BigRep Stefanie Brickwede Deutsche Bahn Volker Hammes BASF	<b>Rethinking Foam: Carbon's Lattice Innovation</b> Phil DeSimone Carbon <b>B I</b>	<b>Using the UL Blue Card to Accelerate the Adoption of AM for Plastic Part Production</b> Melissa Albrecht UL	<b>An Introduction to the World's First Office-Friendly, Affordable, On-demand Metal 3D Printing System for Rapid Prototyping and Functional Parts</b> Jonah Myerberg Desktop Metal	<b>AM with Polymers is Closer Than You Think</b> Donnie Vanelli EOS	<b>Rapid Understanding of Metal Binder Jet Systems Through Micro-Scale Comparison</b> Craig Metcalfe Expanse Microtechnologies Inc. <b>I</b>	<b>How a Leading Automotive Supplier Reduced Production Lead Time with 3D Printed Jigs</b> Andrew Edman Formlabs	<b>Optimizing Metal Powder for AM</b> Frédéric Marion GE Additive <b>B I A</b>	<b>HP Open Platform: Accelerating Materials Innovation</b> Mariona Company HP Inc. <b>B I A</b>	<b>X Marks the Spot - Finding Ideal Process Parameters</b> John Laureto Marc Saunders Renishaw Inc. <b>A</b>	<b>Newbies Guide to Running a Metal Machine</b> Mike Boice Oakridge National Laboratory	<b>Stratasys Additive Manufacturing Solutions for Composite Fabrication</b> Scott Eliason Stratasys <b>B I</b>
3:30pm-3:45pm <b>transition</b>													
3:45pm-4:15pm	<b>The Benefits and Challenges of 3D Printing in Metal</b> Kirill Volchek 3D Systems <b>B I A</b>	<b>BASF's TPU for HP's Multi Jet Fusion</b> Kara Noack BASF	<b>Is Additive Manufacturing Ushering in a Post-Injection Molding Era?</b> Scott Kraemer Carbon <b>I</b>	<b>Accelerating the Development of DSM Filament Grades Through Advanced Additive Manufacturing Simulation</b> Bobby Cook e-Xstream <b>I</b>	<b>An Inside Look at Metal 3D Printing for the Mass Production of Complex Parts</b> Larry Lyons Desktop Metal	<b>Coordinate and Automate Distributed Production Centers</b> Andre Wegner Authentise Dr. Gregory Hayes EOS	<b>Novel Post Processing in Binder Jetting for Improved Properties</b> Nathan Crane University of South Florida	<b>Identifying, Introducing, and Validating Additive Workflows Alongside Conventional Manufacturing</b> Jon Bruner Formlabs <b>I</b>	<b>The Incredible Shrinking Antenna - Reducing Part Count From 100 to 1</b> Rob Smith Optisys <b>B</b>	<b>PANEL Accelerating TPU Applications</b> Mariona Company HP Inc. <b>PANELIST</b> Volker Hammes, BASF Cert Jan Nijhuis LUBRIZOL <b>B I A</b>	<b>Real-Time AM Monitoring Opens Up New Process Control Opportunities</b> Jon Forster Renishaw AMPD <b>A</b>	<b>Aerospace Requirements Drive Optimization of Process Parameters and Powder in Ti6Al4V</b> John Barnes The Barnes Group	<b>Finding Days and Dollars on Your Manufacturing Floor</b> Richard Kaung Kevin Nerem Stratasys <b>B I</b>
4:15pm-4:30pm <b>transition</b>													
4:30pm-5:00pm	<b>Getting the Most from Your 3D Systems ProJet MJP 2500 Printer</b> Trevor Snyder Michael Norkitis 3D Systems <b>B I</b>	<b>Functional Applications Based on Diverse Polyamide 6 Powders for Laser Sintering</b> Alexander Cochrane BASF	<b>Carbon Knowledge Academy and Carbon Certification</b> Dee Kerr Carbon <b>B I</b>	<b>Carefully Consider Your Design for 3D Printed Tooling</b> Brigitte Jacobs DSM Additive Manufacturing <b>B I</b>	<b>Metallurgy in a Box. How Software Innovation Changes the Game, Optimizing Fabrication for Functional Prototyping and End-Use Parts</b> Rick Chin Desktop Metal	<b>AM Supply Chain Strategy</b> Ivan Madets Morf3D Inc.	<b>Open Ceramics Material Discussion</b> Jesse Blackler ExOne	<b>Becoming a Pre-Form Master: Designing for SLA</b> Andrew Edman Formlabs <b>B I A</b>	<b>Winning with Additive: An Interactive Session</b> Laurence Vigeant-Langlois GE Additive <b>B I A</b>	<b>Industrial Applications with HP Multi Jet Fusion</b> Virginia Palacios Clara Remacha Isabel Sanz HP Inc. <b>B I A</b>	<b>ParaMatters Next Generation Design and Manufacturing of Motorcycle Engine Bracket (ECOSSE)</b> Michael Bogomolny Sergei Azernikov ECOSSE Motorcycles	<b>Smart Manufacturing with Selective Laser Melting</b> Christian Lindemann Universität Paderborn Direct Manufacturing Research Center (DMRC)	<b>Cobalt-Chrome Tensile Response to Corrective Action Across 7 Platforms</b> Andrew Carter Stratasys Direct Manufacturing <b>I A</b>
5:00pm-5:30pm		<b>New Ultrasint PA6 Powders with Low Melting Temperature for Standard SLS Machines</b> Claus Gabriel BASF			closed						<b>Additive is Not an Island, a Systematic Approach to Processes</b> Dan Skulan Renishaw Inc. <b>I A</b>		
5:30pm-6:00pm	<b>All Sessions Closed</b>												
6:00pm-10:00pm	<b>AMUGexpo and Technical Competition   Dinner and Networking</b> Location: Midway West and Midway East												


7:00am - 8:00am		REGISTRATION and BADGE PICK-UP						Grand Hall, 2nd Floor			
7:00am - 8:00am		BREAKFAST						Regency Ballroom A-C, 1st Floor			
8:00am-9:00am		2018 SCHOLARSHIP WINNERS 2017 AMUG TECHNICAL COMPETITION WINNERS						Grand Ballroom A-F, 1st Floor			
9:00am-9:15am		30 YEARS OF USERS GROUP PAUL BATES, AMUG President						Grand Ballroom A-F, 1st Floor			
9:15am-10:15am		GLOBAL AM REVIEW AMUG AMBASSADORS: GRAHAM TROMANS, G.P. Tromans & Associates, and STEFAN RITT, SLM Solutions						Grand Ballroom A-F, 1st Floor			
10:15am-10:45am BREAK and REGISTRATION OPEN											
10:45am-11:00am transition											
											
ROOM	Grand Ballroom F	Frisco/Burlington	Grand Ballroom C	Grand Ballroom D	New York Central	Illinois Central	Grand Ballroom A				
11:00am-12:00pm	<b>Additive Manufacturing Across Industry</b> <b>MODERATOR</b> Jeremy Peterson, Stratasys <b>PANEL</b> Sameer Desai, 383 Health Ventures Mike Hayes, Boeing Tracy Bailey, FedEx Harold Sears, Ford Motor Company Aaron Frankel, Siemens PLM Software ① ②	<b>3D Printing - Where Are We on Our Road to Manufacturing</b> Hugo da Silva DSM Additive Manufacturing ② ① ③	<b>Productivity with Quality: Changing the Value Proposition with High-Power, Multi-Laser Powder Bed Fusion</b> Richard Grylls SLM SOLUTIONS	<b>Disrupting the Disruption: How GE Additive is Pushing the Boundaries of AM</b> Greg Morris GE Additive	<b>Binder Jetting Gaining Momentum</b> Rick Lucas ExOne	<b>Breaking Down Barriers to Metal AM Adoption</b> Marc Saunders Stuart Jackson Dan Skulan Renishaw	<b>Behind the Scenes: Driving Our Own Digital Transformation in HP</b> Michelle Bockman HP				
12:00pm-1:15pm NETWORKING LUNCH   AMUG Epicurean Tent											
1:15pm-1:30pm transition											
											
ROOM	Grand Ballroom F	Frisco/Burlington	Grand Ballroom C	Grand Ballroom D	New York Central	Illinois Central	Grand Ballroom A				
1:30pm-2:30pm	<b>Manufacturing Redefined: Figure 4 In the Real World</b> Chuck Hull, Phil Schultz, Steve Hanna 3D Systems Dr. Timothy H. Osborn, University of Dayton Research Institute ② ① ③	<b>The Key to the Digital Factories of the Future: Collaborative Product Partnerships</b> Joe DeSimone Carbon ② ①	<b>LPBF AISI10Mg: It's All in the Details</b> Scott Volk Incodema3D	<b>BASF 3D Printing Solutions for our Customer Industries</b> Volker Hammes BASF	<b>Making 3D Printing Cost Effective for End Use Parts</b> David Lakatos Formlabs ①	<b>Accelerating Industrial Additive Manufacturing Towards Productivity Leadership</b> Daan A.J. Kersten Additive Industries	<b>Redefining Manufacturing with Metal 3D Printing</b> Ric Fulop Desktop Metal				
2:30pm-2:45pm transition											
											
ROOM	Grand Ballroom F	Frisco/Burlington	Grand Ballroom C	Grand Ballroom D	New York Central	Illinois Central	Grand Ballroom A	Midway 6	Midway 7/8	Midway 9	Midway 10
2:45pm-3:15pm	<b>PLATINUM The Future of Digital Dentistry</b> Chris Kabot EnvisionTEC ②	<b>PLATINUM Pellets vs Filament - Comparing and Contrasting FFF Printing</b> Jonathan Schroeder 3D Platform ①	<b>PLATINUM Rethinking Quality Control: 3D Scanning</b> Cody Doiron Computer Aided Technology ② ①	<b>PLATINUM New Directions in a Fresh Dimension for Stereolithography</b> Jim Reitz UnionTech ② ① ③	<b>PLATINUM BigRep Applications Presented by Steelcase and Deutsche Bahn</b> Stephen Beyer BigRep America Stefanie Brickwede Deutsche Bahn Eric Barth Steelcase ③	<b>PLATINUM Scaling Additive Manufacturing from the Lab to the Field</b> Andy Kalambi Rize Inc. ② ① ③	<b>PLATINUM Using Agile Manufacturing Software Platform to Produce Metal 3D Printed Parts</b> Markus Josten GKN Additive ② ① ③	<b>PLATINUM Reducing Costs and Speeding Up the Validation of AM Parts</b> Manuel Michiels Materialise	<b>PLATINUM The Future of the Digital Thread: How Post-Printing Fits into the Picture</b> Daniel Hutchinson PostProcess Technologies ①	<b>PLATINUM Ultimaker Professional Desktop 3D Printer - Ideal Solution for a Fast-Paced Design Firm</b> Marcel Botha 10xBeta LLC ① ③	<b>PLATINUM Open Materials are Open for Business: The Value of Open Materials, Multi-Material Printing, and Support Removal Options</b> Ed Israel Doug Dingus Plural Additive Manufacturing
3:15pm-3:30pm transition											
											
ROOM	Grand Ballroom F	Frisco/Burlington	Grand Ballroom C	Grand Ballroom D	New York Central	Illinois Central	Grand Ballroom A	Midway 6	Midway 7/8	Midway 9	
3:30pm-4:00pm	<b>PLATINUM AM Production: The Next Evolution with Continuous Additive Manufacturing</b> Dr. Xu Xiaoshu Farsoon Technologies ①	<b>PLATINUM Industrial Additive Manufacturing with Laser Metal Fusion and Laser Metal Deposition</b> Carolyn Hoerrmann Franziska Maschowski TRUMPF Inc. ② ① ③	<b>PLATINUM Hydrostatic Oil Mixer Case Study</b> Matt Shockey AddUp	<b>PLATINUM AM Components for Aerospace Flight Applications</b> Matt Donovan Oerlikon	<b>PLATINUM DED... It's not PBF</b> Tim Bell BeAM Machines ②	<b>PLATINUM MMP Technology. The Engineered SuperFinishing Enhancing AM Parts</b> JT Stone MicroTek Finishing ② ① ③	<b>PLATINUM How PostNord Automated Customized Production from User-Generated Data</b> Aleksander Ciszek 3YOURMIND Tomas Lundström PostNord ② ① ③	<b>PLATINUM The Quiet Transition to Additive Manufacturing in Series Production</b> Ken Vartanian Optomec	<b>PLATINUM Manufacturing of Spherical Metal Powders Dedicated to AM</b> Jérôme Pollak Tekna	<b>PLATINUM Capitalizing on Hybrid AM Technology in Your Manufacturing Operation</b> Thomas Houle Matsuura Machinery USA ②	
4:00pm-5:00pm All Sessions Closed											
5:00pm Board Buses Leave Promptly at 5:15pm - Union Station and Hilton Ballpark (must wear your badge)											
6:00pm-10:00pm AMUG Awards Banquet   Dinner and Entertainment											

## Conference Key

- B Beginner Session
- C Customer Only Session
- I Intermediate Session
- R Preregistration Required
- A Advance Session
- H Hands-On Session

# Tuesday, April 10, 2018

	3D SYSTEMS	BASF	Carbon	DSM	Desktop Metal	EOS	ExOne	formlabs	GE Additive	hp	RENISHAW	SLM SOLUTIONS	stratasys
ROOM	D1	D13	D12	D11	D10	D4	D6	D2	D7	D5	D3	D8	D9
11:00am-2:30pm	Diamond Suites Closed												
2:30pm-2:45pm	transition												
ROOM	D1	D13	D12	D11	D10	D4	D6	D2	D7	D5	D3	D8	D9
2:45pm-3:15pm	<b>REPEAT</b> <b>Changing the Injection Molding Equation with Conformal Cooling and Metal 3D Printing</b> Jarod Rauch B&J Specialty, Inc. David Lindemann 3D Systems	<b>3D-Printing Industry Needs Agnostic Material Solutions</b> Zhizhong Cai BASF	<b>Design for Digital Light Synthesis: The Evolution of a Part</b> Dee Kerr Carbon	<b>Are You Getting the Best Part Accuracy Out of Your SLA Equipment?</b> John Schaefer DSM Additive Manufacturing	<b>How Leading Experts Overcame Materials Barriers to Produce 3D Printing for Complex Metal Parts</b> Jonah Myerberg Desktop Metal	<b>REPEAT</b> <b>AM with Polymers is Closer Than You Think</b> Donnie Vaneli EOS	<b>Evaluation of Support Structures by Binder Jetting 316L Stainless Steel</b> David Espalin University of Texas at El Paso	<b>What's Next for SLA Materials</b> Sharon Soong Formlabs	<b>Going Much Faster on the Salt Flats - EBM AM High Ratio Titanium Roller Rockers for Motorcycle</b> Bruce McLean Zenith Technica	<b>Robotics and Machinery Applications</b> Paloma Muñoz HP Inc	<b>High Performance Part Design and Production with Additive Manufacturing</b> Ben Farmer H/ETA Technologies	<b>The Questions Customers SHOULD be Asking about DMLS/SLM</b> Ken Burns Forecast 3D	<b>Make Your Multi-Printer Lab More Efficient</b> Shuvom Ghose Jerome Knapp Stratasys
3:15pm-3:30pm	transition												
3:30pm-4:00pm	<b>Accelerating In-Cabin Aerospace Solutions with 3D Systems</b> Holt Song 3D Systems	<b>Implementation of AM by Adapting Conventional Design</b> Felix Volkmann Florian Bechtold BASF		<b>Questions About 3D Printing Liquids? Safety Datasheets!</b> Kevin Zaras DSM Additive Manufacturing	<b>Evaluating Use-Case Scenarios and Applications for In-office Metal 3D Printing</b> Allison Schuster Desktop Metal	<b>REPEAT</b> <b>Coordinate and Automate Distributed Production Centers</b> Andre Wegner Authentise Dr. Gregory Hayes EOS	<b>Understanding and Designing the Process Characteristics of Binder Jetting</b> Li Yang University of Louisville	<b>Using New Hybrid Processes for Faster, Smarter Prototyping</b> Jon Bruner Formlabs	<b>AFIT and Metal AM: Enabling Defense Focused Graduate Research</b> Ryan O'Hara Air Force Institute of Technology	<b>Electric Vehicle and Automotive Applications with MJF</b> Virginia Palacios Clara Remacha HP Inc.	<b>Multi-Laser AM Boosts Productivity and Reduces Part Costs</b> Stephen Anderson Renishaw AMPD	<b>High Speed AISi10Mg Printing on an SLM125</b> Joseph Schramm Uniformity Labs	
4:00pm-5:00pm	All Sessions Closed												
5:15pm	Buses Leave Promptly at 5:15pm												
6:00pm-10:00pm	AMUG Awards Banquet   Dinner and Entertainment												

7:30am - 8:30am	BREAKFAST									Regency Ballroom A-C, 1st Floor					
8:30am-9:00am	INTRODUCTION OF THE AM WISHLIST PAUL BATES, AMUG President									Grand Ballroom A-F, 1st Floor					
9:00am-10:00am	INNOVATORS SHOWCASE FRIED VANCRAEN, Founder and CEO of Materialise									Grand Ballroom A-F, 1st Floor					
10:00am-10:30am	BREAK														
10:30am-11:00pm	CURRENT LANDSCAPE OF STANDARDS IN ADDITIVE MANUFACTURING MATTHEW DONOVAN, Principal Engineer Additive Manufacturing, Oerlikon, Vice Chair ASTM F42 committee on Additive Manufacturing Technologies									Grand Ballroom A-F, 1st Floor					
11:00am-12:00pm	AMUG BUSINESS MEETING - For All Conference Attendees									Grand Ballroom A-F, 1st Floor					
12:00pm-1:15pm	NETWORKING LUNCH   AMUG Epicurean Tent														
TRACK	AEROSPACE/ DEFENSE/ TRANSPORTATION	AM METALS	CASTING	EDUCATION & TRAINING	MATERIALS	SOFTWARE	MEDICAL & DENTAL	NON-METAL TECHNOLOGIES	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	 Additive Industries	
ROOM	Grand Ballroom F	Grand Ballroom D	Grand Ballroom C	Frisco/Burlington	New York Central	Missouri Pacific	Grand Ballroom A	Illinois Central	Midway 6	Midway 7/8	Midway 9	Midway 10	Midway 11	Wabash	
1:30pm-2:00pm	<b>Additive Manufacturing At-Sea</b> Bryce Weber NAVSEA  ①A	<b>Hybrid Manufacturing of Bi-Metallic Liquid Rocket Engine Igniter</b> Steve Burlingame NASA/MSFC Greg Hyatt DMG Mori  A	<b>When Modern Metal Casting Meets Generative Design</b> Andreas Bastian Autodesk  ①	<b>3DPrint Path Coverage and Effect of Defects on Part Performance</b> Cody Codines AlphaStar  ①A	<b>High-Throughput Quality Control on Metal Powder and Printed Parts</b> Kristin Mulherin Thermo Fisher Scientific	<b>SOFTWARE WORKSHOP</b>  <b>Materialise Magics Workshop</b> Evan Kirby Materialise  B①②	<b>FDA 3D Printing Research and Guidance</b> James Coburn US Food and Drug Administration  ①A	<b>Increasing Interlaminar Strength in Big Area Additive Manufacturing</b> Alex Roschli Oak Ridge National Labs	<b>PLATINUM Capitalizing on Conformal Cooling Technology</b> Tom Houle Matsuura Machinery USA  B	<b>PLATINUM Manufacturing of Spherical Metal Powders Dedicated to AM</b> Jean-François Carrier Tekna	<b>PLATINUM High Efficiency Powders for Metal AM</b> Michael Marucci GKN Additive	<b>PLATINUM How to Implement AM in a Corporate Network Combining Technology and Change Management</b> Aleksander Ciszek 3YOURMIND Stephanie Brickwede Deutsche Bahn AG B①A	<b>PLATINUM MMPTechnology. The Engineered SuperFinishing Enhancing AM Parts</b> JT Stone MicroTek Finishing B①A	<b>Dynamic Laser Assignment: Optimizing Productivity and Process Window on the MetalFAB1 System</b> Shane Collins Additive Industries	
2:00pm-2:15pm	transition														
2:15pm-2:45pm	<b>Driving Growth with AM</b> Michael T. Kenworthy Honeywell Aerospace B①A	<b>Applying Artificial Intelligence to Analyze AM Data</b> Annie Wang Senvol  ①A	<b>New Approach for Designing Castings Made with Additively Manufactured Patterns and Molds</b> Ravi Kunju Altair  B①A	<b>High-Volume Manufacturing in Photopolymer Jetting</b> Chris Noble Xaar  B①	<b>Innovations in 3D Printing Materials for AM</b> Amelia Davenport Neil Cramer Mike Idacavage Colorado Photopolymer Solutions  B①A		closed	<b>Design for Additive Manufacturing (For Non-Metals)</b> Alexei Samimi FATHOM	<b>PLATINUM Applications and Capabilities of DED</b> Daniel Driscoll BeAM Machines  B	<b>PLATINUM Part Cost Reductions Your CFO Will Believe</b> Ed Israel Plural Additive Manufacturing	<b>PLATINUM The Fit of SL Capabilities in Today's AM World</b> Jim Reitz UnionTech  B①A	<b>PLATINUM Hydrostatic Oil Mixer Case study</b> Matt Shockley AddUp	<b>PLATINUM Become Even More Productive by Optimizing Part and Powder Handling</b> Ben Haugk TRUMPF Inc  ①A	<b>Gas Flow Optimization for Large, High quality AM parts: Development of the Process Gas Flow in the MetalFAB1 System</b> Mark Vaes Additive Industries	
2:45pm-3:15pm	BREAK														
3:15pm-4:00pm	<b>Method for Powder Bed Parameter Development</b> Eric M. Johnson John Deere  A	<b>Advancements in AM Facility Safety Standards</b> Norman Lowe UL  B①A	<b>Case Study of Additive Manufactured Molds and Patterns for Commercial Castings</b> David Weiss Eck Industries  ①	<b>AM Software - Current Landscape for AM Simulation and Design</b> Timothy Gornet University of Louisville  ①	<b>Laser AM Processing of Mixture of Metal Powders</b> Joseph Strauss HJE Company  ①	<b>SOFTWARE WORKSHOP</b>  <b>Part Design for 3D Printing</b> Mark Abshire Computer Aided Technology  ①②	<b>PANEL AM Medical Panel Discussion</b>  <b>MODERATOR</b> Shannon VanDeren Layered Manufacturing and Consulting <b>PANELIST</b> Andy Christensen Somaden LLC Pete Liacouris Walter Reed National Medical Center Andrew Buckland New York University James Coburn FDA	<b>PLATINUM Open Strategies - A Customer Centric View on Value from Farsoon</b> Chuck Kennedy Farsoon Technologies	<b>PLATINUM Regenerative Medicine Research Performed Using EnvisionTEC's 3D-Bioplotter</b> Nicole Witzleben EnvisionTEC  B①	<b>PLATINUM Powder Bed Fusion vs. Directed Energy Deposition - A Case Study in Speed!</b> Lucas Brewer Optomec	<b>PLATINUM An Economic Analysis of Implementing Automated Post-Printing: A Real World Case Study</b> Jeff Mize PostProcess Technologies  B	<b>PLATINUM Cost-Efficient Metal Support Generation Made Easy - A User Experience</b> Evan Kirby Materialise David Bentley Protolabs	<b>PLATINUM Ultimaker Professional Desktop 3D Printer - Ideal Solution for a Fast-Paced Design Firm</b> Marcel Botha 10xBeta LLC  ①A	<b>Total Cost Per Part, How Can Metal AM Beat Casting in Leadtime and Quality?</b> Shane Collins Additive Industries	
4:00pm-4:15pm	transition														
4:15pm-5:00pm	<b>Impacting Product Development and Support Through AM</b> Thierry Marchione Douglas Jones Caterpillar  ①	<b>Metal AM Build Failures - Attendee Discussion for Issues and Solutions</b> Bob Markley 3rd Dimension Industrial 3D Printing B①A	<b>Advancing Sculpture and Changing Aesthetics Through Technology</b> Rob Arps Eyal Chernichovsky Form  B①A	<b>ROUNDTABLE Identifying &amp; Solving Process Inefficiencies in AM</b> MODERATORS Andre Wegner Authentise Pete Zelinski Additive Manufacturing Magazine ①A	<b>Material and Process Development for a Therosetting Laser Sintering Powder</b> Rob Kleinjen Inspire AG  B①A		<b>Enabling Epoxy Hybrids for DLP Platforms</b> William Wolf Arkema, Inc.	<b>PLATINUM Customers Only Session Rize User Advisory Board Meeting</b> Julie Reece Rize Inc.  B①A	<b>PLATINUM How the BigRep Metering Extruder will be the Game Changer for FDM</b> Frank Marangell Moshe Aknin BigRep America, Inc. A	<b>PLATINUM From Powder to Part Manufacturing: Technical Insights into Oerlikon's AM Industrial Offering</b> Shawn Kelly Oerlikon	<b>PLATINUM Leveraging 3D Scanning Technology in Reverse Engineering</b> Chad Whitebeck Computer Aided Technology  B①	<b>PLATINUM High Throughput 3D Printing Techniques</b> Mark Huebner 3D Platform  ①	<b>Managing the Metal AM Value Stream for Full Traceability: the Additive World Platform and MetalFAB1 System Health Monitoring</b> Shane Collins Additive Industries		
5:00pm	All Sessions Closed														
6:00pm-10:00pm	Networking Dinner - A Taste of St. Louis - Midway East and Grand Hall														




## Conference Key

- B** Beginner Session     **C** Customer Only Session  
**I** Intermediate Session     **R** Preregistration Required  
**A** Advance Session     **H** Hands-On Session

# Wednesday, April 11, 2018



	3D SYSTEMS	BASF We create possibility	Carbon	DSM RAPID SCIENCE. BRIGHTER LIVING	Desktop Metal	EOS	ExOne REAL. NOT IMITATION.	formlabs	GE Additive	hp	RENISHAW apply innovation™	SLM SOLUTIONS	stratasys
ROOM	D1	D13	D12	D11	D10	D4	D6	D2	D7	D5	D3	D8	D9
1:30pm-2:00pm	<b>REPEAT</b> <b>Accelerating In-Cabin Aerospace Solutions with 3D Systems</b> Hoi Song 3D Systems	<b>Photopolymer Jetting System for 3D Parts Manufacturing</b> Li Chen BASF	<b>Application Discovery Workshop</b> Dee Kerr Carbon <b>B I H</b>	<b>Tetrashell: Investment Casting Continuous Improvement</b> Lieke Boeykens Kevin Zaras DSM Additive Manufacturing <b>I</b>	<b>An Introduction to the World's First Office-Friendly, Affordable, On-demand Metal 3D Printing System for Rapid Prototyping and Functional Parts</b> Ben Arnold Desktop Metal	<b>DMLM Copper Applications and Parameters</b> Matt Garrett ISD MFG	<b>Designing for Binder Jetting Sand Molds and Cores</b> Mico Curren ExOne	<b>Scaling Desktop 3D Printing for High Volume Production</b> Joe Sinopoli Formlabs <b>B I A</b>	<b>Understanding the Path to Aerospace Certification with AM</b> Adam Rivard LAI	<b>Solutions for Industrial-Scale Additive Manufacturing</b> Lorenzo Mayoli HP Inc. Ken Burns FORECAST 3D <b>B I A</b>	<b>Good Things Come in Small Packages. Using the RBV to Advance AM Metals</b> Brian Slocum Lehigh University	<b>Real World Aerospace Part Applications within Additive Manufacturing</b> Pavlo Earle Sintavia	<b>Pedal to the Metal: Designing for Additive Metal Concepts</b> Jesse Marin Stratasys Direct Manufacturing <b>B I</b>
2:00pm-2:15pm	transition												
2:15pm-2:45pm	<b>Continuous Innovation: A Decade of Metal Additive Production on ProX DMP 320</b> Ruben Wauthle 3D Systems <b>B I A</b>	<b>Ceramic Photopolymer Printing of Silica Materials for Investment Casting</b> Jan Sumarel BASF		<b>Investment Casting with Somos® Element SL Patterns - An All-Around Solution</b> Dave Hockemeyer Peridot Inc. <b>I</b>	<b>An Inside Look at Metal 3D Printing for the Mass Production of Complex Parts</b> Larry Lyons Desktop Metal	<b>AM Material and Process Developments</b> Dr. Ankit Saharan EOS	<b>Binder Jetting of Aluminum Nitride for Electrically Insulating and Thermal</b> David Espalin University of Texas at El Paso	<b>REPEAT</b> <b>What's Next for SLA Materials</b> Sharon Soong Formlabs <b>B I A</b>	<b>EBM Titanium Aluminide (TiAl) Material Development for High Temperature Applications</b> David Hill Addaero Manufacturing	<b>A New Era of Functional Color 3D Prototyping and Production</b> Jeff Fawcett HP Inc. <b>B I A</b>	<b>High Temperature Takes the Stress out of Laser Powder-Bed Fusion</b> Marc Saunders Renishaw AMPD <b>A</b>	<b>The Quest for High Strength Aluminum and Why CP Ti is Often the Answer</b> Ken Davis CalRAM	<b>Customers Only Session: What's New in 2018? Product Sneak Peek</b> Rob Winker Stratasys
2:45pm-3:15pm	BREAK												
3:15pm-4:00pm	<b>Best Practices for Accura ClearVue Transparent Parts</b> Tracy Beard 3D Systems <b>B I A</b>	<b>Metal Filament Printing with BASF Ultrafuse: Professional Processing Requirements for Industrial Applications</b> Kai Sudau BASF	<b>Changing the World of Medical Device Manufacturing at Scale Through 3D Printing</b> Steve Pollack Carbon <b>B I</b>	<b>3D Printing - Where Are We on Our Road to Manufacturing</b> Hugo da Silva DSM Additive Manufacturing <b>B I A</b>	<b>Unlocking Generative Design Potential with Live Parts™</b> Andy Roberts Desktop Metal	<b>From 3D-Printed Raw Parts to High-Value Products</b> Felix Ewald DyeMansion	<b>Customers Only Session: ExOne Users Group Closed Session</b>	<b>REPEAT</b> <b>How a Leading Automotive Supplier Reduced Production Lead Time with 3D Printed Jigs</b> Andrew Edman Formlabs <b>I</b>	<b>Firearm Suppressor Designs with Metal AM</b> Jonaaron Jones Volunteer Aerospace	<b>Behind the Technology: HP Color 3D Printing</b> Vance Stephens HP Inc. <b>B I A</b>	<b>Accelerating Metal AM Workflows Through Predictive Physics-Based Simulation</b> Brent Stucker ANSYS <b>B I A</b>	<b>Additive Intelligence Software Solutions for AM in Production</b> Hubert Kerschbaum SLM Solutions	<b>Large Format FDM Technology 3D Printing with H2000</b> Chris Holshouser Stratasys <b>I</b>
4:00pm-4:15pm	transition												
4:15pm-5:00pm	<b>Investment Casting Overhaul: Updating Speed, Cost and Integration of 3D Printed Patterns</b> Tom Mueller Mueller AMS <b>B I A</b>	<b>Better AM-Parts by Using Anisotropic Material Models in Simulation</b> Andreas Wüst BASF	<b>Producing Life Sciences Components Using Digital Light Synthesis™</b> Larry Monahan Becton Dickinson and Company <b>B I</b>	<b>INVITATION to Open Discussion - What Does the Industry Need to Accelerate 3D Printing to Manufacturing?</b> Hugo da Silva Kevin Zaras DSM Additive Manufacturing <b>B I A</b>	<b>Office Hours with Desktop Metal</b> Desktop Metal Team	<b>Part Screening and Selection Workshop</b> Tyson Gregory EOS		<b>Applications Workflow Demos</b> Formlabs	<b>Identifying Your Killer App... and Building a Business Case Too!</b> Gregg Wilson GE Additive <b>B</b>	<b>Technical Walkthrough: HP Jet Fusion 3D 4200</b> David Ramirez HP Inc. <b>B I A</b>	<b>Can you Build AM Parts Without Supports</b> Marc Saunders Renishaw AMPD <b>I A</b>	<b>Taming the Complexities of Laser Powder Bed Fusion</b> Ken Sabo Concurrent Technologies Corporation	<b>The Workforce Development Challenge: Bridging the AM Skills Gap</b> Gina Scala Stratasys Vince Anewenter MSOE <b>I</b>
5:00pm	All Sessions Closed												
6:00pm-10:00pm	Networking Dinner - A Taste of St. Louis - Midway East and Grand Hall												

7:30am - 8:30am <b>BREAKFAST</b>									Regency Ballroom A-C, First Floor					
8:30am-9:00am <b>AMUG FEEDBACK SESSION</b> PAUL BATES, AMUG President									Grand Ballroom A-F, 1st Floor					
9:00am-10:00am <b>KEYNOTE:</b> ADDITIVE MANUFACTURING ON THE ROAD. A JOURNEY FROM PROTOTYPING TO PRODUCTION Dr.-Ing. Dominik Rietzel, Head of Additive Manufacturing Center - Non Metal, BMW Group									Grand Ballroom A-F, 1st Floor					
10:00am-10:30am <b>BREAK</b>														
TRACK	AEROSPACE/ DEFENSE/ TRANSPORTATION	AM METALS	CASTING	EDUCATION & TRAINING	MATERIALS	WORKSHOP	MEDICAL & DENTAL	NON-METAL TECHNOLOGIES	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	
ROOM	Grand Ballroom F	Grand Ballroom D	Grand Ballroom C	Frisco/Burlington	New York Central	Missouri Pacific	Grand Ballroom A	Illinois Central	Midway 6	Midway 7/8	Midway 9	Midway 10	Midway 11	Wabash
10:30am-11:15am	<b>Additive Manufacturing and the Production System</b> Adam Broda <i>The Boeing Company</i> ①	<b>PANEL</b> In Situ Monitoring Panel Discussion <b>MODERATOR</b> Aaron LaLonde, BeAM  <b>PANELIST</b> Mark Cola Sigma Labs Tristan Fleming Queen's University John Middendorf Universal Technology	<b>Patternless Investment Casting</b> Jack Ziembka Aristo Cast	<b>Thinking Differently - Design for AM</b> Jeremy Owen RP America ①	<b>Additively Manufactured Polymers: Using Testing and Simulation to Realize Reliable End-Use Parts</b> Mark Oliver Veryst Engineering ① A	<b>WORKSHOP</b> Metrology Workshop Scott Plier Milwaukee School of Engineering  1 hour B H	<b>Surface Improvement of AM-Built Components for the Biomedical Industry</b> Justin Michaud Bill Nebiolo REM Surface Engineering B ① A	<b>Justification Strategy: Building the Right Strategy for Your Business</b> Mark Barfoot Cimetrix B ① A	<b>PLATINUM</b> Using Metal Hybrid Additive Manufacturing to Reduce Injection Mold Build Times Tom Houle Matsuura Machinery USA ①	<b>PLATINUM</b> 17 Ways to (Automatically) Calculate Prices of Metal and Plastic AM Parts Stephan Kuehr 3YOURMIND ① A	<b>PLATINUM</b> Laser Metal Deposition - Technology Overview and Applications Frank Ceyer TRUMPF Inc	<b>PLATINUM</b> Realizing The Economic Benefits of Using Additive for Producing Molds with Conformal Cooling David Muller AddUp	<b>PLATINUM</b> Beyond the Hooey of AM "Disruption" for Practical 3D Printing Application Jim Reitz UnionTech ① A	<b>REPEAT</b> Accelerating Industrial Additive Manufacturing Towards Productivity Leadership Daan A.J. Kersten Additive Industries
11:15am-11:30am <i>transition</i>														
11:30am-12:00pm	<b>NAVSEA Approach to Qualification and Certification</b> Susan Hovanec Naval Surface Warfare Center ①	<b>Environmental Effects on EB-PBF</b> Mathew Lewis LAI International B ① A	<b>3D Printing for Investment Casting</b> Jerry LePore Spectra3D	<b>LS-MJF Plating Comparison</b> Sean Wise RePliForm	<b>High Performance Materials for 3D Printing</b> Rahul Kasat DuPont Company		<b>Strategies for Successfully Producing AM Medical Devices</b> Chris Krampitz NOVA MACHINA A		<b>PLATINUM</b> Polymeric Materials for Healthcare Additive Manufacturing Applications Eugene Giller Rize Inc ① A	<b>PLATINUM</b> Balancing Print Speed, Quality and Part Strength Scott Halbrader 3D Platform ①	<b>PLATINUM</b> From Scan-to-Print Tips & Tricks Jeremy Marvin Computer Aided Technology B ①	<b>PLATINUM</b> Best Practices for 3D Models to Enable Optimum Printed Parts Daniel Lavertu Oerlikon	<b>PLATINUM</b> Ideate, Design, Fabricate - Latest developments by BigRep's Innovation Lab Steven Rizzo BigRep America A	<b>REPEAT</b> Integration and Automation in Metal Powder Bed Fusion Mark Vaes Additive Industries
12:00pm-1:15pm <b>NETWORKING LUNCH</b>   AMUG Epicurean Tent														
TRACK	AEROSPACE/ DEFENSE/ TRANSPORTATION	AM METALS	CASTING	EDUCATION & TRAINING	MATERIALS	SOFTWARE	MEDICAL & DENTAL	NON-METAL TECHNOLOGIES	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	PLATINUM TRACK	<b>REPEAT</b>
1:30pm-2:15pm	<b>Embedding Sensors via Metal AM</b> Mark Norfolk Fabriconic LLC ①	<b>Accelerating the Design Cycle with Metal Printing</b> Greg Mark Markforged B ① A	<b>3DP/AM Investment Casting Applications - An Industry Update</b> Mike Hascher Eagle Engineered Solutions	<b>Design for Additive Manufacturing with Case Study</b> Behnoush Rezaeianjouybari, Xuewei Ma University of Missouri B	<b>WORKSHOP</b> Workshop for the Generation of Additive Manufacturing Specific Powder Specifications Nate Kistler LPW Technology B ① A H	<b>Managing Metal AM Process Variability Through FEA Based Testing and Controls</b> Jeff Robertson Simufact Engineering B ① A	<b>Mass Communication - A Successful Medical Case Study</b> Jean Philippe Carmona Caboma Inc ①	<b>FOLLOW UP TO 2017 PRESENTATION</b> Additively Manufactured Plastic Injection Mold Inserts Andrew Allshorn At 3D-Squared	<b>PLATINUM</b> GKN's Additive Journey Laura Ely GKN Additive	<b>PLATINUM</b> Manufacturing of Spherical Metal Powders Dedicated to AM Steven Adler Tekna	<b>PLATINUM</b> Incorporating Additive Manufacturing in to Your Business Ed Israel Plural Additive Manufacturing ①	<b>PLATINUM</b> Software and Programming for DED Alex Steinberg BeAM Machines ①	<b>PLATINUM</b> MMPTechnology. The Engineered SuperFinishing Enhancing AM Parts JT Stone MicroTek Finishing B ① A	<b>REPEAT</b> Total Cost Per Part, How Can Metal AM Beat Casting in Leadtime and Quality? Shane Collins Additive Industries
2:15pm-2:30pm <i>transition</i>					B ① A H									
2:30pm-3:00pm	<b>FDM Nylon 12CF Materials for Aerospace Applications</b> Jerry Feldmiller Orbital ATK ①	<b>Modification for Alloy 230 When Laser Processing</b> William Jarosinski Praxair Surface Technologies ①	<b>Will 3D Metal Printing Replace Investment Casting?</b> Tom Mueller Mueller AMS B ① A	<b>Creating the Most Coveted Trophy in NASCAR Racing - Goodyear Gold Replica</b> Rick Dunlap Michael Dunlap Studios		<b>Design Guidelines for Polymer and Metal Small-Scale Features</b> Jack Ashby University of Louisville B ① A	<b>Utilize CT Scanning for Evaluation of AM</b> Jarnie Cone Alex DeJong Becton Dickinson B	<b>Building a Professional FDM 3D Printer</b> Gustavo Costa Protosul	closed	<b>PLATINUM</b> Innovations in Powder-bed Technology Post-Printing: Advancing Productivity with Automated Powder Removal Chris Parrag PostProcess Technologies ①	<b>PLATINUM</b> Advanced Tooling Applications with Additive Manufacturing Phillip Conner Farsoon Technologies A	<b>PLATINUM</b> Ultimaker Professional Desktop 3D Printer - Ideal Solution for a Fast-Paced Design Firm Marcel Botha 10xBeta LLC ① A	<b>PLATINUM</b> Lattice Structure Design for AM Jalel Nadjli Materialise	<b>REPEAT</b> Gas Flow Optimization for Large, High quality AM Parts Mark Vaes Additive Industries
3:00pm-3:30pm <b>BREAK</b>														
3:30pm-4:00pm	<b>Additive Manufacturing Tooling for Aerospace Grade Composites</b> Jude Zils SSL B ①	<b>Electrochemical Surface Finishing of Additive Manufactured Parts</b> Timothy Hall Faraday Technology ① A	<b>WORKSHOP</b> Foundry in a Box Steve Murray		<b>High Temperature Nylons for SLS: Material Innovations Part Performance Prediction</b> Elodie Seignobos Solvay Performance Polyamides ①	<b>AM Studies at Naval Nuclear Laboratory with Focus on Stainless Steel Microstructures</b> Steven Attansio Naval Nuclear Laboratory (NNL) ① A	<b>Next-Generation Design Tools for Additive Manufacturing Approaches</b> Duann Scott Autodesk	<b>Orthopaedic Implants with Customized Mechanical Performance</b> Ahmed Sherif El-Gizawy Xuewei Ma University of Missouri ①	<b>ROUNDTABLE</b> Recap and Networking Session for New Users  Technology Overview and Roundtable Discussion	<b>PLATINUM</b> Functionalizing Structures via Aerosol Jet 3D Printed Electronics Bryan Germann Optomec	<b>PLATINUM</b> Bringing Foundry Manufacturing into the Future with Robotic 3D Printing Prabh Gowrisankaran Viridis3D B			<b>REPEAT</b> Managing the Metal AM Value Stream for Full Traceability Shane Collins Additive Industries
4:00pm-4:15pm- <i>transition</i>									<b>MODERATOR</b> Andrew Allshorn At 3D-Squared  <b>ROUNDTABLE CAPTAINS</b> Paul Bates AMUG President Paul Hojan Christie Digital Jordan Weston MSOE					
4:15pm-5:00pm	<b>Sikorsky Rotorcraft AM Insertion</b> William C. Harris, Jr Sikorsky ①	<b>Surface Finishing for Optimal Mechanical Performance</b> Agustin Diaz REM Surface Engineering B ① A				<b>CLOSED</b>	<b>Influence of Filament Moisture on Quality and Mechanical Performance of FDM ULTEM</b> David Witkin The Aerospace Corporation ①	<b>CLOSED</b>	<b>Regulatory Concerns for Additively Manufactured Medical Devices</b> Khalid Rafi Laura Elan UL B ① A					<b>Dynamic Laser Assignment: Optimizing Productivity and Process Window on the MetalFAB1 System</b> Shane Collins Additive Industries
5:00pm <b>All Sessions Closed</b>														
6:00pm-10:00pm <b>AMUG Family Dinner and Closing</b> Location: Midway East and Grand Hall														

## Conference Key

- B** Beginner Session      **C** Customer Only Session  
**I** Intermediate Session      **R** Preregistration Required  
**A** Advance Session      **H** Hands-On Session

# Thursday, April 12, 2018

	3D SYSTEMS	BASF	Carbon	DSM	Desktop Metal	EOS	ExOne	formlabs	GE Additive	hp	RENISHAW	SLM	stratasys
ROOM	D1	D13	D12	D11	D10	D4	D6	D2	D7	D5	D3	D8	D9
10:30am-11:15am	<b>REPEAT</b> <b>Investment Casting Overhaul: Updating Speed, Cost and Integration of 3D Printed Patterns</b> Tom Mueller Mueller AMS <b>B I A</b>	<b>Industrial Extrusion and Tooling for Injection Molding with FlashFuse</b> Blake Teipel Essentium Materials <b>Conductive FlashFuse Filament for ESD Applications</b> Brandon Sweeney Essentium Materials	<b>Design for DLS: Lattices, Simulation, and Textures</b> Hardik Kabaria Carbon <b>B I</b>	<b>High Performance Filaments on a High Performance Machine</b> Daniel Fernback Zac DiVencenzo Juggerbot3D Greg Costantino DSM Additive Manufacturing <b>I</b>	<b>An Introduction to the World's First Office-Friendly, Affordable, On-demand Metal 3D Printing System for Rapid Prototyping and Functional Parts</b> Ben Arnold, Desktop Metal <b>An Inside Look at Metal 3D Printing for the Mass Production of Complex Parts</b> Ben Fisk, Desktop Metal	<b>EOSPRINT 2 Introduces New Scan Strategies</b> Al Burchi EOS	<b>Binder Jetting of High Density, Homogeneous Copper</b> Ashwath Kumar Virginia Tech Dreams Lab	<b>Insourcing SLS: How the Fuse 1 Changes Prototyping and Production</b> Eduardo Torrealba Formlabs <b>I</b>	<b>From Idea to Medical Device on the Market</b> Dr. Maria Petterson GE Additive <b>B</b>	<b>Post-Processing: Beyond a Necessary Evil</b> Mar Lezcano HP Inc. Dr. Daniel Rothfuss Henkel <b>B I A</b>	<b>Real-Time AM Monitoring Opens Up New Process Control Opportunities</b> Jon Forster Renishaw AMPD <b>A</b>	<b>Developing Parameters for Laser Powder Bed AM</b> Jim Sears Carpenter	<b>Get the Most Out of Your Stratasys F123</b> Jeff Bisek Stratasys <b>B I A</b>
11:15am-11:30am	transition												
11:30am-12:00pm	<b>REPEAT</b> <b>Best Practices for Accura ClearVue Transparent Parts</b> Tracy Beard 3D Systems <b>B I A</b>	<b>Continuous Additive Manufacturing System (CAMS) Suitable for High Temp PA6 Powders</b> Xu Xiaoshu Farsoon	<b>Ushering in a 3D Manufacturing Era: Carbon Customer Case-Studies</b> Paul DiLaura Carbon <b>B I</b>	<b>Do You Know How to Handle Photopolymers - User Guides</b> John Schaefer DSM Additive Manufacturing <b>B I</b>	<b>Metallurgy in a Box. How Software Innovation Changes the Game, Optimizing Fabrication for Functional Prototyping and End-Use Parts</b> Rick Chin Desktop Metal	<b>REPEAT</b> <b>DMLM Copper Applications &amp; Parameters</b> Matt Garrett ISD MFG	<b>Binder Jet Efforts at Oak Ridge National Lab and Using it as a Platform for MMC</b> Dr. Corson Carmer Oak Ridge National Lab	<b>Applications Workflow Demos</b> Formlabs	<b>Optimizing Metal Powder for AM</b> Frédéric Marion GE Additive <b>B I A</b>	<b>HP MJF Post-Processing Methods and Applications</b> Isabel Sanz HP Inc. <b>B I A</b>	<b>Print to Perform: Digitally Accelerating Additive Manufacturing</b> Subham Sett Dassault Systemes	<b>Metal Powder Safety: Lessons from the Nuclear Industry</b> Steve Barwin SLM Solutions	<b>Building "Fan-Plastic" Parts: Designing for Additive Thermoplastics</b> Jesse Marin Stratasys Direct Manufacturing <b>B I</b>
12:00pm-1:15pm	NETWORKING LUNCH   AMUG Epicurean Tent												
1:30pm-2:15pm	<b>From Prototyping to Production with the New ProX SLS 6100</b> David Cullen 3D Systems <b>B I A</b>	<b>Affordable Photo-Resins for Durable Parts</b> András Marton BASF	<b>Programmable Liquid Resins for Carbon's Digital Light Synthesis Platform</b> Jason Rolland, Ph.D. Carbon <b>B I</b>	<b>REPEAT</b> <b>AM Healthcare Application Qualification: Where it all Begins @ Your Materials Partner (DSM)</b> Jasper van Dielen-Biom DSM Additive Manufacturing <b>B I</b>	<b>Evaluating Use-Case Scenarios and Applications for In-office Metal 3D Printing</b> Allison Schuster Desktop Metal	<b>REPEAT</b> <b>Part Screening and Selection Workshop</b> Tyson Gregory EOS	<b>Density Analysis of Exone BinderJet Parts by CT and Metrology</b> Larry Bronisz Los Alamos National Lab	<b>REPEAT</b> <b>Becoming a PreForm Master: Designing for SLA</b> Andrew Edman Formlabs <b>B I A</b>	<b>REPEAT</b> <b>Your Path to Production: Materials Considerations and Best Practices to Full Production</b> Mark Shaw GE Additive	<b>Design Freedom, Not Design Ignorance</b> Clara Remacha, David Woodcock HP Inc. Ashley Eckhoff Siemens <b>I A</b>	<b>Multi-Laser AM Boosts Productivity and Reduces Part Costs</b> Stephen Anderson Renishaw AMPD <b>I</b>	<b>What's New at SLM Solutions: Hardware, Software and Processes</b> Michael Hansen SLM Solutions	<b>Closed Session</b> <b>Insight Software Basics and Advanced Parameters for FDM Operators</b> Jesse Merrill Stratasys <b>B I A</b> <b>Pre-Reg Required</b> amy.teal@stratasys.com
2:15pm-2:30pm	transition												
2:30pm-3:00pm	<b>REPEAT</b> <b>Continuous Innovation: A Decade of Metal Additive Production on ProX DMP 320</b> Ruben Wauthie 3D Systems <b>B I A</b>	<b>BASF Ultrafuse Plastic Filaments</b> Firat Hizal BASF	<b>Biocompatibility, the FDA Guidance, and Readiness for Additive Manufacture of Medical Devices</b> Steve Pollack Carbon <b>B I</b>	<b>Open Demo Suite</b> DSM Additive Manufacturing	<b>Office Hours with Desktop Metal</b> Desktop Metal Team	<b>REPEAT</b> <b>From 3D-Printed Raw Parts to High-Value Products</b> Felix Ewald EOS	<b>TBA</b> Dan Brunner ExOne	<b>REPEAT</b> <b>Scaling Desktop 3D Printing for High Volume Production</b> Joe Sinopoli Formlabs <b>B I A</b>	<b>Advanced X-ray Computed Tomography in Additive Manufacturing</b> Shana Telesz GE Oil & Gas <b>B I A</b>	<b>How Healthcare 3D Applications are Going Mainstream</b> Lee Dockstader HP Inc. <b>B I A</b>	<b>High Temperature Takes the Stress Out of Laser Powder-Bed Fusion</b> John Laureto Renishaw Inc. <b>A</b>	<b>Making Dense Metal with Multi-Laser SLM</b> Richard Grylls SLM Solutions	<b>Processing Parts in T40 on the 900mc; Applications That Work</b> Allen Kreemer Stratasys <b>I</b>
3:00pm-3:30pm	BREAK												
3:30pm-4:00pm	<b>REPEAT</b> <b>The Benefits and Challenges of 3D Printing in Metal</b> Kirill Volchek 3D Systems <b>B I A</b>	<b>Large Scale Extrusion for Tooling and Structural Parts</b> Kara Noack BASF	<b>Materials Delivery Systems for Additive Manufacturing at Scale</b> Courtney Converse Carbon <b>B I</b>	<b>REPEAT</b> <b>Questions About 3D Printing Liquids? Safety Datasheets!</b> Kevin Zaras DSM Additive Manufacturing <b>B I</b>	<b>Closed Session: Desktop Metal</b>	<b>REPEAT</b> <b>AM Material and Process Developments</b> Dr. Ankit Saharan EOS	<b>Open Demo Suite</b> ExOne	<b>Applications Workflow Demos</b> Formlabs	<b>Operational EHS Best Practices for Metal Additive Manufacturing</b> Srinivas Durgam GE Additive <b>B</b>	<b>3D Printing Legal and Regulatory Issues</b> Jennifer Prioleau HP Inc. <b>B I A</b>	<b>Additive is Not an Island, a Systematic Approach to Processes</b> Dan Skulan Renishaw Inc. <b>I A</b>	<b>Aluminum and Titanium - Latest Applications and New Directions</b> Richard Grylls SLM Solutions	<b>REPEAT</b> <b>Finding Days and Dollars on Your Manufacturing Floor</b> Richard Kaung Kevin Nerem Stratasys <b>B I</b>
4:00pm-4:15pm	transition												
4:15pm-5:00pm	<b>REPEAT</b> <b>From Prototyping to Production with the New ProX SLS 6100</b> David Cullen 3D Systems <b>B I A</b>	<b>Aerospace AM Plastic Parts and Selected Qualification &amp; Certification Aspects</b> Stephan Eelman BASF	<b>AM as a Tool for Production</b> Alejandro Espiagno Sean McConnell Irish Manufacturing Research (IMR) <b>B I</b>	<b>Open Demo Suite</b> DSM Additive Manufacturing	<b>Closed Session: Desktop Metal</b>	<b>REPEAT</b> <b>EOSPRINT 2 Introduces New Scan Strategies</b> Al Burchi EOS	<b>ExOne Open Demo Suite</b> ExOne		<b>Shaping the Future of Additive</b> Leslie Frost GE Additive	<b>Behind the Technology: HP Color 3D Printing</b> Vance Stephens Jeff Fawcett HP Inc. <b>B I A</b>	<b>X Marks the Spot - Finding Ideal Process Parameters</b> John Laureto Renishaw Inc. <b>A</b>	<b>closed</b>	<b>Stratasys Open for Visitors</b> Stratasys
5:00pm	All Sessions Closed												
6:00pm-10:00pm	AMUG Family Dinner and Closing Location: Midway East and Grand Hall												

# 2017 DINO RECIPIENTS

AMUG  
**DINO**



The **Distinguished INnovator Operator (DINO)** Award recognizes individuals for both their contributions and years of service within the additive manufacturing industry and within the AMUG efforts. Each year, the selection committee reviews the list of conference registrants and selects DINOs based on factors such as:

- Contributions to the AM industry worldwide
- Contributions to AMUG (e.g., speaker, volunteer)
- Years of hands-on work with an AM technology
- Willingness to share and assist
- Skill level
- And other subjective factors

These criteria makes the DINO Award very prestigious.

**Ted Anderson**  
GE Additive



**Bruce Bradshaw**  
Arcam AB



**Carl Deckard**  
Structured Polymers



**Joerg Griessbach**  
The SL Pro



**Jim Harrison**  
The Solid Experts



**Kim Killoran**  
Stratasys



**Peter Liacouras**  
Walter Reed Military Medical Center



**Steve Murray**  
Hoosier Pattern



**Shannon VanDeren**  
Layered Manufacturing and Consulting



**Kevin Zaras**  
DSM Functional Materials





## PAST DINO RECIPIENTS

### 2016

**Andrew Allshorn**, At 3D-Squared, Ltd.  
**Ben Dolan**, UC Irvine  
**Vito Gervasi**, Milwaukee School of Engineering  
**Elizabeth Goode**, Goodelink  
**Mike Hascher**, Eagle Engineered Solutions Inc.  
**Joe Holland**, Hyphen  
**Bonnie Meyer**, Stratasy  
**Todd Reese**, Realize, Inc.  
**Dan Welker**, Yazaki North America  
**Jack Ziemba**, Aristo-Cast, Inc.

### 2015

**Vince Anewenter**, Milwaukee School of Engineering (MSOE)  
**Derek Ellis**, Computer Aided Technology, Inc.  
**Andrew Graves**, Stratasy Direct Manufacturing  
**Steven Kossett**, Natural Resource Research Institute, University of Minnesota  
**Stefan Ritt**, SLM Solutions  
**Harold Sears**, Ford Motor Company  
**Ed Tackett**, University of California, Irvine  
**Mark Wynn**, Yazaki North America

### 2014

**Mark Barfoot**, Hyphen  
**Scott Crump**, Stratasy  
**Stewart Davis**, CRP USA  
**Jason Dickman**, American Precision Prototyping  
**Jim Reitz**, Rapid Tech Consulting

### 2013

**Chuck Alexander**, Solid Concepts  
**Brian Bauman**, Linked In 3D  
**Paul Bordner**, Laser Reproductions  
**Todd Grimm**, T.A. Grimm & Associates  
**Terry Hoppe**, Stratasy

### 2012

**Paul Bates**, Reebok  
**David Bourell**, University of Texas  
**Bill Braune**, Met-L-Flo  
**Duane Byerly**, Xerox  
**Robert Coleman**, Mattell  
**Roger Cunningham**, Integra  
**Mike Littrell**, CIDEAS Inc.  
**Jason Lopes**, Legacy Effects  
**Frank Medina**, University of Texas El Paso  
**Dan Mishek**, Vista Technologies  
**Larry Monahan**, Becton Dickinson  
**Charlie Norton**, NCP Leasing  
**Ken Patton**, RapidTech/Saddleback  
**Brad Palumbo**, Phoenix Analysis & Design  
**Bradley Ruprecht**, US Army  
**Scott Schermer**, S.C. Johnson  
**Thomas Starr**, University of Louisville  
**Sean Wise**, RePliForm  
**Michael Zerbe**, Newell Rubbermaid

### 2011

**Bret Bordner**, Laser Reproductions  
**Mike Connor**, Integra  
**Kevin Dyer**, InterPro  
**Bob Dzuga**, buyCASTINGS  
**Fred Hilbrandt**, FBI  
**Bill Lamey**, Boeing  
**John Schaefer**, DSM Somos  
**Greg Stein**, Northrop Grumman  
**Xu Xiaoshu**, Farsoon Hi-Tech  
**Arnold Zieger**, Dalimer

### 2010

**Ron Belknap**, Protocam  
**Jerry Bordner**, Laser Reproductions  
**Dr. Dave Bourell**, University of Texas  
**Sheku Kamara**, MSOE  
**Kevin McAlea**, 3D Systems  
**Bruce Okkema**, Eagle Design & Technology  
**Lance Shanklin**, Integra Support

### 2009

**Neil Hopkinson**, Loughborough University  
**Dr. Paul Jacobs**, 3D Systems  
**Harold Luper**, Huntsman  
**Steve McDonald**, L3  
**Dave Rosen**, Georgia Tech  
**Richard Smeenk**, Agile Manufacturing  
**Graham Tromans**, Loughborough University

### 2008

**Mark Abshire**, DSM  
**Denny Black**, Valeo Sylvania  
**Chris Huskamp**, The Boeing Phantom Works  
**Steinar Killi**, Oslo School  
**Troy Kuhn**, Chrysler  
**Gideon Levy**, University of Applied Sciences  
**Ariel Lijenstein**, Robtec  
**Jan Richter**, Solid Concepts

### 2007

**Rick Booth**, Advanced Laser Materials  
**Carl Dekker**, Met-L-Flo  
**Kent Firestone**, Solid Concepts  
**Gary Graf**, University of Louisville  
**Bruce LeMaster**, Applied Rapid Technologies  
**Tom Mueller**, Express Pattern  
**Gary Rabinovitz**, Reebok International  
**Lawrence Winnen**, Tyco Electronics

### 2006

**Joe Allison**, Solid Concepts  
**Daniel Baker**, US Army Benet Labs  
**Phillip Conner**, 3D Systems  
**Renee Flynn**, Paramount Industries  
**Soeren Griessbavh**, V.G. Kunststofftechnik  
**Terry Kreplin**, Baxter  
**R.J. Robinson**, University of Kentucky  
**Igata Tersuzo**, INCS  
**Georgia Theriot**, GT Signature  
**James Williams**, Paramount Industries

### 2005

**Gregg Banyon**, Delphi  
**Martin Colombo**, ATI  
**Richard Davis**, Motorola  
**Ken Davis**, University of Louisville  
**Al DeWitt**, Rapid Solutions  
**Mike Scanlon**, Homes Group  
**Roger Speilman**, Solid Concepts  
**Brent Stucker**, Utah State  
**Scott Turner**, Scicon  
**Rethia Williams**, RMB Products

### 2004

**Kevin Ayers**, FBI  
**Tim Gornet**, University of Louisville  
**David Leigh**, Harvest Technologies  
**Jeff Smith**, Moeller Design  
**Derrick Spaven**, RPM Solutions  
**Bob Speer**, ALCOA  
**Scott Sutterer**, DSM Somos  
**Bob Zubrickie**, Tyco Electronics

### 2003

**Phill Dickens**, Loughborough University  
**Judy Gill**, Raytheon  
**Mark Horner**, The Technology House

### 2001

**Steve Deak**, Hasbro  
**Beth Israelnaim**, Becton-Dickenson  
**Kevin Kennedy**, Prototech Engineering  
**Tom Sorovetz**, Daimler Chrysler

### 2000

**Dave Flynn**, Express Pattern  
**Elaine Hunt**, Clemson University  
**Graham Tromans**, Rover Group  
**Doug Van Putte**, Eastman Kodak

### 1998

**Guy Bourdeau**, Beckman Coulter  
**Rob Connelly**, Becton-Dickinson  
**Joe DeGuglielmo**, Eastman Kodak  
**John Mack**, General Motors  
**Fred Steinbauer**, Pratt & Whitney



# AMUG BOARD



**AMUG President**

**Paul Bates**, UL  
president@amug.com  
Years of AMUG service: 6



**AMUG Past President**

**Mark Barfoot**, Cimatrix Solutions  
pastpresident@amug.com  
Years of AMUG service: 6



**AMUG Chairman**

**Gary Rabinovitz**, Reebok  
chairman@amug.com  
Years of AMUG service: 16\*



**AMUG Treasurer**

**Vince Anewenter**, MSOE  
treasurer@amug.com  
Years of AMUG service: 7



**AMUG Secretary**

**Kim Killoran**, Stratasy  
secretary@amug.com  
Years of AMUG service: 5



**AMUG Vice President**

**Jamie Cone**, Becton Dickinson  
vicepresident@amug.com  
Years of AMUG service: 1



**AMUG Vice President**

**Carl Dekker**, MET-L-FLO  
vicepresident@amug.com  
Years of AMUG service: 3\*



**AMUG Event Manager**

**Thomas Sorovetz**, FCA US LLC  
eventmanager@amug.com  
Years of AMUG service: 25\*



**AMUG AM Industry Advisor**

**Todd Grimm**, T.A. Grimm & Associates  
amadvisor@amug.com  
Years of AMUG service: 7

\* Includes years served under 3DSNAUG and/or DTM Users Group

AMUG - an all volunteer organization is celebrating 30 years. As an all volunteer organization, the AMUG Board works with individuals globally to increase awareness and build a strong additive manufacturing community. If you are interested in joining the expanding AMUG team, contact our Nominating Committee at [info@amug.com](mailto:info@amug.com).

## Contact AMUG

AMUG Phone +1 623-242-2172

Skype: AdditiveMFGUG

Email: [info@amug.com](mailto:info@amug.com)

[www.amug.com](http://www.amug.com)

# Deputies and Advisors



**AMUG Registrar**  
**Kevin Zaras**, DSM Additive Manufacturing  
registrar@amug.com  
Years of AMUG service: 1



**AMUG Deputy Secretary**  
**Leslie Frost**, GE Additive  
deputysecretary@amug.com  
Years of AMUG service: 1



**AMUG Deputy VP**  
**Mark Wynn**, Yazaki North America  
deputyvp@amug.com  
Years of AMUG service: 2



**AMUG Deputy VP**  
**Jay Dinsmore**, Dinsmore Associates  
jaydinsmore@amug.com  
Years of AMUG service: 1



**AMUG VP Advisor**  
**Dana McCallum**, Carbon  
vpadvisor@amug.com  
Years of AMUG service: 4



**AMUG Advisor**  
**Mark Abshire**, Computer Aided Technology, Inc.  
mark.abshire@amug.com  
Years of AMUG service: 8\*



**Principal Consultant**  
**Elizabeth Goode**, Goodelink  
elizabeth.goode@amug.com  
Years of AMUG service: 12\*

## Stay Connected with AMUG



GROUP: AdditiveManufacturingUsersGroup



@AdditiveMFGUG #2018AMUG #AMUG



AdditiveManufacturingUsersGroup



additivemanufacturingusersgroup



additivemanufacturingug.tumblr



additivemfgug

# Ambassadors & Liaisons



**AMUG Ambassador**  
**Graham Tromans**  
GP Tromans Associates



**AMUG Ambassador**  
**Stefan Ritt**  
SLM Solutions



**AMUG Ambassador**  
**Nora Cibula**  
GE Additive



**AMUG Ambassador**  
**Andrew Allshorn**  
At 3D-Squared



**AMUG Liaison**  
**Kevin Ayers**  
Danfoss



**AMUG Liaison & Sergeant-at-Arms**  
**Tim Gornet**  
University of Louisville



**AMUG Liaison**  
**Shannon VanDeren**  
Layered Manufacturing and Consulting



**AMUG Liaison**  
**Jordan Weston**  
Milwaukee School of Engineering



**AMUG Liaison**  
**Jim Harrison**  
The Solid Experts



**AMUG Liaison**  
**Nate Schumacher**  
Midwest Prototype



**AMUG Liaison**  
**Carlos Bolanos**  
Reebok



**AMUG Liaison**  
**Mike Zerbe**  
Newell Rubbermaid

# HISTORY OF THE USERS GROUP BOARD



## 1988

Chairperson: Dick Aubin, Pratt & Whitney  
Vice-Chairperson: Tom Kerschensteiner, AMP  
Secretary: Dave Flynn, Prototype Express  
Treasurer: Dave Flynn, Prototype Express  
Site Coordinator: Peter Sferro, Ford Motor Company

## 1989

Chairperson: Dick Aubin, Pratt & Whitney  
Vice-Chairperson: Tom Kerschensteiner, AMP  
Secretary: Dave Flynn, Prototype Express  
Treasurer: Dave Flynn, Prototype Express  
Site Coordinator: Peter Sferro, Ford Motor Company

## 1990

Chairperson: Tom Kerschensteiner, AMP  
Vice-Chairperson: Dave Flynn, Prototype Express  
Secretary: Frost Prioleau, Plynetics  
Treasurer: Frost Prioleau, Plynetics  
Site Coordinator: Jim Southard, Pratt & Whitney  
Past Chairperson: Dick Aubin, Pratt & Whitney

## 1991

Chairperson: Dave Flynn, Prototype Express  
Vice-Chairperson: Frost Prioleau, Plynetics  
Secretary: Doug Young, General Motors  
Treasurer: Doug Young, General Motors  
Site Coordinator: Jim Southard, Pratt & Whitney  
Past Chairperson: Tom Kerschensteiner, AMP

## 1992

Chairperson: Dave Flynn, Prototype Express  
Vice-Chairperson: Frost Prioleau, Plynetics  
Secretary: Ed Garguilo, duPont  
Treasurer: Ed Garguilo, duPont  
Site Coordinator: Jim Southard, Pratt & Whitney

## 1993

Chairperson: Frost Prioleau, Plynetics  
Vice-Chairperson: Ed Garguilo, duPont  
Secretary: Elaine Persall, Clemson University  
Treasurer: Jeff Smith, PCC  
Site Coordinator: Jim Southard, Pratt & Whitney  
Past Chairperson: Dave Flynn, Prototype Express

## 1994

Chairperson: Ed Garguilo, Dupont  
Vice-Chairperson: Clint Atwood, Sandia National Laboratories  
Secretary: Elaine Persall, Clemson University  
Treasurer: Al DeWitt, Laserform  
Site Coordinator: Jim Southard, Pratt & Whitney  
Past Chairperson: Frost Prioleau, Plynetics

## 1995

Chairperson: Clint Atwood, Sandia National Laboratories  
Vice-Chairperson: Elaine Persall, Clemson University  
Secretary: Beth Israelnaim, Becton Dickinson  
Treasurer: Al DeWitt, Laserform  
Site Coordinator: Tom Sorovetz, Chrysler Corporation  
3D Systems Advisor: Susan Arellano, 3D Systems, Inc.

## 1996

Chairperson: Elaine Persall, Clemson University  
Vice-Chairperson: Al DeWitt, Laserform  
Secretary: Beth Israelnaim, Becton Dickinson  
Treasurer: John Thiell, Prototype Express, Inc.  
Site Coordinator: Tom Sorovetz, Chrysler Corporation  
3D Systems Advisor: Susan Arellano, 3D Systems, Inc.  
Past Chairperson: Clint Atwood, Sandia National Laboratories

## 1997

Chairperson: John Theill, Plynetics Express  
Vice-Chairperson: Rob Connelly, Fineline Prototyping  
Secretary: Bob Flint, Prototype Express  
Treasurer: Joe Allison, Solid Concepts  
Site Coordinator: Tom Sorovetz, Chrysler Corporation  
3D Systems Advisor: Janine McQuaid, 3D Systems, Inc.  
Past Chairperson: Elaine Persall, Clemson University

## 1998

Chairperson: Rob Connelly, Fineline Prototyping  
Vice-Chairperson: Joe Allison, Solid Concepts, Inc.  
Secretary: Steve Deak, Hasbro, Inc.  
Treasurer: Bronson Hokuf, duPont  
Site Coordinator: Tom Sorovetz, Chrysler Corporation  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: John Theill, Plynetics Express

## 1999

Chairperson: Joe Allison, Solid Concepts, Inc.  
Vice-Chairperson: Steve Deak, Hasbro, Inc.  
Secretary: Guy Bourdeau, Beckman Coulter  
Treasurer: Bob Olsen, Molex  
Site Coordinator: Tom Sorovetz, Chrysler Corporation  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Rob Connelly, Fineline Prototyping

## 2000

Chairperson: Steve Deak, Hasbro, Inc.  
Vice-Chairperson: Jim Harrison, 3Dimensional Engineering  
Secretary: Doug Greenwood, Square D  
Treasurer: Bob Olsen, Molex  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Joe Allison, Solid Concepts, Inc.

## 2001

Chairperson: Jim Harrison, 3Dimensional Engineering  
Vice-Chairperson: Bruce Okkema, Eagle Design and Technology  
Secretary: Derek Ellis, PTE Distribution  
Treasurer: Guy Bourdeau, Beckman Coulter  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Steve Deak, Hasbro, Inc.



## 2002

Chairperson: Bruce Okkema, Eagle Design and Technology  
Vice-Chairperson: Bruce LeMaster, Applied Rapid Technologies  
Secretary: Derek Ellis, PTE Distribution  
Treasurer: Guy Bourdeau, Beckman Coulter  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Jim Harrison, 3Ddimensional Engineering

## 2003

Chairperson: Bruce LeMaster, Applied Rapid Technologies  
Vice-Chairperson: Derek Ellis, PTE Distribution  
Secretary: Carl Dekker, Met-L-Flo, Inc.  
Treasurer: Guy Bourdeau, Beckman Coulter  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Bruce Okkema, Eagle Design and Technology

## 2004

Chairperson: Steve Deak, Huntsman Advanced Materials  
Vice-Chairperson: Joe Llamas, DSM Somos  
Secretary: Carl Dekker, Met-L-Flo, Inc.  
Treasurer: Guy Bourdeau, 3DSNASUG, Inc.  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Bruce LeMaster, Applied Rapid Technologies

## 2005

Chairperson: Steve Deak, GE Aviation  
Vice-Chairperson: Bruce LeMaster, Applied Rapid Technologies  
Secretary: Andrew Layton, Georgia Institute of Technology  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.

## 2006

Chairperson: Bruce LeMaster, Applied Rapid Technologies  
Vice-Chairperson: Bob Zubrickie, Tyco Electronics  
Secretary: Andrew Layton, Georgia Institute of Technology  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
3D Systems Advisor: Patti Brown, 3D Systems, Inc.  
Past Chairperson: Steve Deak, GE Aviation

## 2007

President: Bob Zubrickie, Tyco Electronics  
Vice-President: Sheku Kamara, Milwaukee School of Eng  
Vice President: Brian Bauman, DSM Somos  
Secretary: Brad Palumbo, Phoenix Analysis and Design  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
Past Chairperson: Bruce LeMaster, Applied Rapid Technologies

## 2008

President: Sheku Kamara, Milwaukee School of Eng  
Vice-President: Luis Folgar, Paramount Industries  
Vice President: Brian Bauman, DSM Somos  
Secretary: Brad Palumbo, Phoenix Analysis and Design  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
Past Chairperson: Bob Zubrickie, Tyco Electronics

## 2009

President: Brian Bauman, DSM Somos  
Vice-President: Luis Folgar, Paramount Industries  
Vice President: Tom Mueller, Express Pattern  
Secretary: Bob Zubrickie, Tyco Electronics  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
Past Chairperson: Sheku Kamara, Milwaukee School of Engineering

## 2010

President: Luis Folgar, Paramount Industries  
Vice-President: Tim Gornet, University of Louisville  
Vice President: Stewart Davis, CRP Technologies  
Secretary: Bob Zubrickie, Tyco Electronics  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Daimler Chrysler  
Past Chairperson: Brian Bauman, DSM Somos

## 2011

President: Tim Gornet, University of Louisville  
Vice-President: Mark Abshire, DSM Somos  
Vice President: Gary Rabinovitz, Reebok International  
Secretary: Scott Schermer, SC Johnson  
Treasurer: Guy Bourdeau, Huntsman Advanced Materials  
Site Coordinator: Tom Sorovetz, Chrysler Group, LLC  
Past Chairperson: Luis Folgar, Paramount Industries

## 2012

President: Gary Rabinovitz, Reebok International  
Vice-President: Mark Abshire, DSM Somos  
Vice President: Scott Schermer, SC Johnson  
Secretary: Bret Bordner, Laser Reproductions  
Treasurer: Guy Bourdeau, 3D Systems/ Vince Anewenter, MSOE  
Event Manager: Tom Sorovetz, Chrysler Group, LLC  
Past President: Tim Gornet, University of Louisville  
AM Industry Advisor: Todd Grimm, T.A. Grimm & Associates  
Principal Consultant: Elizabeth Goode, GoodeInk

## 2013

President: Gary Rabinovitz, Reebok International  
Vice-President: Bret Bordner, Laser Reproductions  
Vice President: Mark Barfoot, Christie Digital  
Secretary: Mark Abshire, DSM Somos (replaced)  
Treasurer: Vince Anewenter, MSOE  
Event Manager: Tom Sorovetz, Chrysler Group, LLC  
Past President: Tim Gornet, University of Louisville  
AM Industry Advisor: Todd Grimm, T.A. Grimm & Associates  
Principal Consultant: Elizabeth Goode, GoodeInk

## 2014

President: Bret Bordner, Laser Reproductions  
Vice-President: Mark Barfoot, Hyphen  
Vice President: Derek Ellis, CATI  
Secretary: Kim Killoran, Stratasys  
Treasurer: Vince Anewenter, MSOE  
Event Manager: Thomas Sorovetz, Chrysler Group, LLC  
Past President: Gary Rabinovitz, Reebok Advanced Concepts  
AM Advisor: Mark Abshire, Somos Materials by DSM  
AM Industry Advisor: Todd Grimm, T.A. Grimm & Associates  
Principal Consultant: Elizabeth Goode, GoodeInk

## 2015

President: Mark Barfoot, Hyphen  
Past President: Bret Bordner (formerly Laser Reproductions, purchased by 3D Systems)  
Vice-President: Steve Deak, GE  
Vice President: Dana Foster, rp+m  
Secretary: Kim Killoran, Stratasys  
Treasurer: Vince Anewenter, MSOE  
Event Manager: Thomas Sorovetz, Fiat Chrysler Automobiles (FCA)  
AM Industry Advisor: T.A. Grimm & Associates  
Registrar: Mark Abshire, CATI  
Advisor: Gary Rabinovitz, Reebok International  
Expo Advisor: Derek Ellis, CATI  
Principal Consultant: Elizabeth Goode, GoodeInk

## 2016

President: Mark Barfoot, Hyphen  
Past President: Bret Bordner (formerly Laser Reproductions, purchased by 3D Systems)  
Chairman: Gary Rabinovitz, Reebok International  
Treasurer: Vince Anewenter, MSOE  
Secretary: Kim Killoran, Stratasys  
Vice President: Steve Deak, GE  
Vice President: Dana McCallum, Carbon  
Event Manager: Thomas Sorovetz, FCA US LLC  
AM Industry Advisor: Todd Grimm, T.A. Grimm & Associates  
Registrar: Mark Abshire, CATI  
Deputy VP: Paul Bates  
New Members: Derek Ellis, CATI  
Principal Consultant: Elizabeth Goode, GoodeInk

## 2017

President: Steve Deak, GE Aviation  
Past President: Mark Barfoot, University of Waterloo  
Chairman: Gary Rabinovitz, Reebok  
Treasurer: Vince Anewenter, MSOE  
Secretary: Kim Killoran, Stratasys  
Vice President: Paul Bates, UL  
Vice President: Dana McCullum, Carbon  
Event Manager: Thomas Sorovetz, FCA US LLC  
AM Industry Advisor: Todd Grimm, T.A. Grimm & Associates  
Registrar: Mark Abshire, CATI  
Deputy VP – New Members: Derek Ellis, CATI  
Deputy VP: Mark Wynn, Yazaki North America, Inc.  
Principal Consultant: Elizabeth Goode, GoodeInk

## 2018 (July 1, 2017 – June 30, 2018)

President: Paul Bates, UL  
Past President: Mark Barfoot, Cimatrix Solutions  
Chairman: Gary Rabinovitz, Reebok  
Secretary: Kim Killoran, Stratasys  
Treasurer: Vince Anewenter, MSOE  
Vice President: Carl Dekker, Met-L-Flo  
Vice President: Jamie Cone, BD  
Event Manager: Thomas Sorovetz, FCA US LLC  
AM Industry Advisor: Todd Grimm, T.A. Grimm & Associates  
Registrar: Kevin Zaras, DSM Additive Manufacturing  
Deputy Secretary: Leslie Frost, GE Additive  
Deputy VP: Mark Wynn, Yazaki North America, Inc.  
Deputy VP: Dana McCallum, Carbon  
Deputy VP: Jay Dinsmore, Dinsmore & Associates  
Advisor: Mark Abshire, CATI  
Principal Consultant: Elizabeth Goode, GoodeInk

# WE WORK WITH AWESOME PEOPLE

At AMUG we consider ourselves very fortunate. There are so many passionate AMUG members and industry associates that contribute to the success of pulling off a large conference managed by all volunteers. We would like to take a moment to say thank you to everyone that participated in the 2018 AMUG Education & Training Conference. We truly appreciate your continued support and dedication.

**CIDEAS** – special projects

**Dinsmore** – Production of train car containers

**JJ Jinkleheimer** – awards and clothing

**Mathew Mitchell** – CAD production

**MSOE** – printing of DINOs

**Repliform** – plating of DINOs and special projects



## SCAD

## AMUG COMMITTEES

Don't let anyone fool you. It takes a lot to put on a large conference year after year (not to mention control this rowdy group) and we are continually improving our processes, and expanding our team to meet the growing demands of the AM community. This year we introduced a number of committees and members that participate as non-board members to ensure your experience and education is continually improved upon. If you are interested in becoming a board member, volunteer, or sit on one of our very active committee teams, contact us at [info@amug.com](mailto:info@amug.com). Thank you to all our volunteers and committee members.

### SCHOLARSHIP COMMITTEE

**Brett Charlton**, BD

**Kevin Zaras**, DSM Additive Manufacturing

**Jim Harrison**, The Solid Experts

**Sheku Kamara**, Milwaukee School of Engineering

**Clay Guillory**, Titan Robotics

**Claire Belson**, Emerson Automation Solutions

### NOMINATING COMMITTEE

**Tim Gornet**, University of Louisville

**David Leigh**, Vulcan Laboratories

**Steve McDonald**, L3 Aerospace

**Harold Sears**, Ford

## PAST SCHOLARSHIP RECIPIENTS

### GUY E. BOURDEAU SCHOLARSHIP

- 2018** Daniel Delgado Camacho  
The University of Texas at Austin
- 2017** Claire Belson  
University of Alabama
- 2015** Dr. Yaser Shanjani  
Stanford University School of Medicine
- 2014** Kaiyi Jiang  
The University of Texas at Austin

### RANDY STEVENS SCHOLARSHIP

- 2018** Dr. Emrah Celik, PhD  
University of Miami
- 2017** Dr. Haijun Gong  
Georgia Southern University
- 2016** Dr. Nathan Patterson  
Milwaukee School of Engineering
- 2015** Lydia Nelson  
Whitman-Hanson Regional High School

# 2018 AMUG SPONSORS

THANK YOU! To our 2018 sponsors and exhibitors that make the AMUG Conference a great success.

## DIAMOND



## PLATINUM



## TITANIUM



## GOLD/GOLD+

3D Material Technologies  
3D Metal Printing Magazine  
3D Printing Industry  
Additive Manufacturing  
Admatec  
Aristo Cast  
Autodesk  
CAD BLU  
CBG Biotech  
CIDEAS  
Custom Prototypes Inc.  
DEVELOP3D  
Digital Engineering  
Dinsmore Inc.  
DowDuPont Transportation & Advanced Polymers  
ENGINEERING.com  
Granta Design  
H.C. Starck  
INTAMSYS  
InTech Industries  
LPW Technology  
MakePartsFast

Metal Additive Manufacturing Magazine  
Midwest Prototyping  
Mimaki  
Praxair Surface Technologies  
Prodways  
RAPID + TCT  
Rapid Prototyping Services  
RePliForm  
Ricoh  
RP America  
Sandvik  
SHINING 3D  
Solvay  
The SL PRO  
The TCT Group  
UL  
XJet

## SILVER

Association for Manufacturing Technology (AMT)  
ASTM International  
CadmiumCD  
Clemco Industries Corp.  
GRANUTOOLS  
Ophir  
Yazaki North America, Inc.





# The City's Newest Family Destination

Get ready for an amazing journey in 2019, as the St. Louis Aquarium at Union Station brings to the city the newest family entertainment destination with thousands of aquatic species from rivers and oceans around the world. The state-of-the-art technology and interactive experiences will take you to the treasures of vast shores. A fantastic journey you'll never forget!

ST. LOUIS  
UNION STATION



1820 Market Street  
St. Louis, Missouri  
314.621.5262  
[stlouisunionstation.com](http://stlouisunionstation.com)