



MANUFACTURING & MATERIALS  
JOINING INNOVATION CENTER

Agenda for the June 2019  
IAB Meeting of the NSF I/UCRC:

# Manufacturing and Materials Joining Innovation Center (Ma²JIC)

June 26-27th



Iacocca Conference Center-Wood Dining Room  
Lehigh University-Mountaintop Campus  
111 Research Drive  
Bethlehem, PA 18015

**WIFI: lehigh-guest (open)**



## Tuesday, June 25<sup>th</sup>

**Optional Meetings** *See separate agenda*

Whitaker Lab 3<sup>rd</sup> Floor Conference Room  
5 E. Packer Ave, Bethlehem, PA 18015

**9AM-6:00PM**

### Welcome Reception & Networking

Join the Ma²JIC crew for a grill out reception, all guests are welcome!

Lehigh University, Rauch Business Center/Tamerler Courtyard

621 Taylor St, Bethlehem, PA 18015

*See maps/parking instructions for details*

**6:00-8:00PM**

## Day 1: Wednesday, June 26<sup>th</sup>

Iacocca Conference Center-Wood Dining Room, Lehigh University-Mountaintop Campus  
111 Research Drive , Bethlehem, PA 18015

7:00-8:00am	<b>Breakfast &amp; Registration</b> All attendees are asked to sign in and will receive an agenda Non-members will be required to sign a "Non-disclosure agreement"
8:00-8:15am	<b>Welcome &amp; Introduction</b> John DuPont, Lehigh University Site Director
8:15-8:35am	<b>Keynote</b> Dr. Richard Sause, Director Advanced Technology for Large Structural Systems (ATLSS) Engineering Research Center
8:35-8:50am	<b>Meeting Kickoff &amp; Annual Update</b> Jorge Penso, Industry Advisory Board Vice-Chair Antonio Ramirez, Center Director
8:50-8:55am	<b>Group Photo</b>

9:00-9:20am	<b>IUCRC Program Review-Video</b> Prakash Balan, NSF Division of Industrial Innovation & Partnerships (ENG/IIP), Acting IUCRC Program Manager
9:20-9:25am	<b>Overview of LIFE form feedback process</b> Craig Scott, NSF Assessment Coordinator
9:25-9:30am	<b>Student Award Criteria Review</b> Adam Rowe, Stress Engineering
<b>Modeling</b>	
9:30-9:45am	<b>Modeling Cross Cutting Thrust Update</b> <b>Chair: Adam Hope</b> , Thermocalc; <b>Co-Chair Zhenzhen Yu</b> , CSM <i>Modeling focused presentations are integrated in to the thrust area presentations</i>
<b>Materials/Weldability</b>	
9:45-11:00am	<u>Thrust Committee Presentation (10 Minutes)</u> <b>Chair: Darren Barborak</b> , AZZ/WSI; <b>Co-Chair Carolin Fink</b> , OSU  <u>Student Presenters:</u> <b>15 minute presentation + 5 minute Q&amp;A</b> <b>Alejandro Alvarez</b> , OSU, 08-OSU-062017, "Welding of Externally Clad X65 Pipes for Pre-Salt Subsea Oil Applications (Phase II)" <b>William Farrell</b> , UTK, 44-UTK-072016, "Metal Polymer Composite Joining" <b>Jim Rule</b> , OSU, 03-OSU-2016"Criterion for Dissimilar Metal Welds for Service in Hydrogen Containing Environments"
<b>Poster Session</b>	
11:00-11:30am	<b>Materials/Weldability</b>
<b>Lunch &amp; Hot Topics</b>	
11:30am-12:45pm	<i>Buffet lunch in the general meeting room. Presentations will start promptly at 12:00pm</i> <b>Oak Ridge National Lab Manufacturing Demonstration Facility &amp; IUCRC Project Collaboration Update</b> Suresh Babu, UTK/ORNL & Dr. Steven Shooter, Fellow of Science and Technology Policy, Advanced Manufacturing Office, US Dept. of Energy
<b>Material/Joint Performance</b>	
12:45-2:15pm	<u>Thrust Committee Presentation (10 Minutes)</u> <b>Chair: Mike Buehner</b> , Technip FMC; <b>Co-Chair Boian Alexandrov</b> , OSU  <u>Student Presenters:</u> <b>15 minute presentation + 5 minute Q&amp;A</b> <b>Sebastian Romo</b> , OSU, 03-OSU-032019, Exploration and Development of New Technologies for Coke Drum Fabrication and Repair <b>Ally Fraser</b> , LU, 18-OSU/LU-012017, Effect of Interstitial Elements in the Weldability of Nickel Alloys ( <b>Modeling Focus</b> ) <b>7 minute presentation + 3 minute Q&amp;A</b> <b>Jonah Duch</b> , LU, 01-LU-012018, Stress Relation Cracking Phase II <b>Boeing Smith</b> , OSU, 06-OSU-062017, Developing the Relationship between Microhardness, Instrumented Indentation, and Impact Toughness <b>Jiarui Kang</b> , OSU, 01-OSU-082018, Effect of Niobium on Weld Metal Toughness
<b>Poster Session</b>	
2:15-2:45pm	<b>Material/Joint Performance</b> <i>Refreshments to be served</i>

<b>Additive Manufacturing/Process Development/Control</b>	
2:45-4:15pm	<p><i>Thrust Committee Presentation (10 Minutes)</i>  <b>Chair: Dan Javernick</b>, Los Alamos National Laboratory; <b>Co-Chair Bill Hamel</b>, UTK</p> <p><i>Student Presenters:</i>  <b>15 minute presentation + 5 minute Q&amp;A</b>  <b>Ethan Sullivan</b>, CSM, 04-CSM-012018, "Al-based Metal Matrix Composite Tubular Wires for Additive Manufacturing Deposition"  <b>Eric Brizes</b>, OSU, 13-OSU-102017, "Multiscale Characterization and Modeling for Hybrid Joining of Dissimilar Material Combinations for the Transportation Industry" (<b>Modeling Focus</b>)</p> <p><b>7 minute presentation + 3 minute Q&amp;A</b>  <b>Josh Penny &amp; Logan McNeil</b>, UTK, 02-UTK-012019, "Large Scale Additive Manufacturing Using Non-Gravity Aligned GMAW (LSAMM-NGA)"  <b>Bryan Lara</b>, OSU, 03-OSU-082018, "Exploration of Additive Manufacturing Technology to Improve Material Joining for the Transportation Industry"  <b>Tim Babyak</b>, OSU, 06-OSU-012016, "Corrosion Resistant Weld Overlays for Pipelines, Oil and Gas, and Petrochemical Installations"  <b>Sam Robertson</b>, UTK, 01-UTK-012910, "Adaptive Welding for Power Plant Piping and Pressure Vessels (AW-PPV)"</p>
<b>LIFE Form</b>	
4:15-4:30pm	<p><b>LIFE Form Feedback Day 1</b>  Craig Scott, NSF Assessment Coordinator</p>
<b>Poster Session</b>	
4:30-5:00pm	<b>Additive Manufacturing/Process Development/Control</b>
<p><b>Dinner &amp; Networking</b>  <b>Fegley's Bethlehem Brew Works</b>  559 Main Street Suite 101  Bethlehem, PA 18018  <i>Across from the Hyatt Place Hotel</i></p>	
6:00-9:00pm	<p><b>Dinner, Networking &amp; Trivia</b>  Buffet dinner and cash bar at Bethlehem Brew Works. Be on the lookout for trivia team assignments (no stacking your team beforehand!)  6:00PM Dinner is served  6:30PM Trivia starts (90 minutes)</p>

## Day 2: Thursday June 27<sup>th</sup>

Iacocca Conference Center-Wood Dining Room, Lehigh University-Mountaintop Campus  
111 Research Drive , Bethlehem, PA 18015

7:00-8:00am	<b>Breakfast &amp; Registration</b> All attendees are asked to sign in both days Non-members will be required to sign a non-disclosure agreement		
8:00-8:10am	<b>Morning Kickoff &amp; Recap</b> Jorge Penso John DuPont		
8:10-8:30am	<b>Presentation of Student Awards</b> Adam Rowe, Stress Engineering		
8:30-8:45am	<b>Affiliated Site Updates</b> Todd Palmer, Penn State		
8:45-9:15am	<b>Proposal Presentations</b> <i>New Proposals (15 minutes including Q&amp;A)</i> <i>Additional Phase Proposals &amp; Extensions (10 minutes including Q&amp;A)</i>  <b>Dr. Antonio Ramirez</b> , 01-OSU-062019, Friction Stir Welding for Armor Materials –Phase II <b>Dr. Stephen Liu</b> , 02-CSM-062019, Laser Welding Behavior of Additive Manufactured 304L Stainless Steel- Phase II		
9:15-9:45am	<b>IUCRC Phase III Preparation Report</b> Antonio Ramirez		
9:45-10:15am	<b>Required NSF Survey Completion Session &amp; LIFE Form Review</b> <i>Survey is for Industry Members &amp; Faculty Only</i> Craig Scott, Assessment Coordinator	<b>Student Laboratory Tour &amp; Activity</b> <b>10am-11am</b> Advanced Technology for Large Structural Systems (ATLSS) <i>Meet with Lehigh student leaders for logistics</i>	
10:15-10:30am	<b>Break &amp; Leg Stretch</b>		
10:30-11:30am	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center; border: none;"> <b>IAB – Closed Door Meeting</b> </td> <td style="width: 50%; text-align: center; border: none;"> <b>PI Meeting</b>                      Room C002                 </td> </tr> </table>		<b>IAB – Closed Door Meeting</b>
<b>IAB – Closed Door Meeting</b>	<b>PI Meeting</b> Room C002		
<b>Lunch</b>			
11:30-1:00pm	<i>Buffet lunch in the general meeting room. Presentations will start promptly at 12pm.</i>  <ol style="list-style-type: none"> <li>1. <b>Dr. Xuesong Gao</b>, Post-Doctoral Scholar, OSU, “Simulation of Thermal and Flow Related Phenomenon in SLM Additive Manufacturing”</li> <li>2. <b>Dr. Rafael Giorjao</b>, Post-Doctoral Scholar, OSU, “Material flow during friction stir welding of an AZ31B alloy with threaded and unthreaded pin geometries using numerical simulation”</li> </ol>		
<b>Joint IAB/PI Meeting</b>			
1:00-2:00pm	<b>Discuss outcomes of IAB &amp; PI meetings and action items</b>		
2:00-3:00pm	<b>ORNL Manufacturing Demonstration Facility &amp; Ma2JIC Collaboration</b> Discuss next steps, potential projects and collaboration.		
3:00-3:15pm	<b>Closing Remarks</b>		