



Day 1: Tuesday January 19th

All times EST

Welcome & Overview

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| 10:00-10:15am | Welcome & Agenda Review
Steve McCracken/Jorge, IAB Chair, EPRI
Antonio Ramirez, OSU, Center Director |
| 10:15-10:20am | Student Awards Criteria Review
Stephen Tate, EPRI |

Material/Joint Performance

Chair: Mike Buehner, TechnipFMC; **Co-Chair: Boian Alexandrov**, OSU

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| 10:20-11:40am | <p>Thrust Area Update (10 minutes)</p> <p>Student Presentations
<i>10 minute presentation + 5 minute Q&A</i></p> <p>Jonah Duch, Lehigh, "Stress Relief Cracking and Strain Ageing in 347H and In 740H," 01-LU-012018</p> <p>Stan Hawkes, OSU, "Friction Stir Welding for Armor Applications Phase II," 01-OSU-062019</p> <p>Jeremy McNicol, OSU, "Waveform Controlled Gas Metal Arc Welding of Corrosion Resistant Alloys Without Back-Purging," 02-OSU-082019</p> <p><i>20 minute presentation + 5 minute Q&A</i></p> <p>Connor Sarich, OSU, & Yi Yang, UTK "Stress Relaxation Cracking Phase II," 01-OSU-032019</p> |
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Modeling Highlights

Chair: Adam Hope, ThermoCalc; **Co-Chair: Zhenzhen Yu**, CSM

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| 11:40-12:10pm | <p>Thrust Area Update (10 minutes)</p> <p>Student Presentation
<i>15 minutes + 5 minute Q&A</i></p> <p>Eun Jang, OSU, "Temperbead Welding Phase II," 04-OSU-062020</p> |
| 12:10-12:45pm | Break |

Day 1: Tuesday January 19th Continued

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Hot Topics

Presentations on relevant topics from researchers new to the center.

12:30-1:15

10 minute presentation + 5 minute Q&A

Desmond Bourgeois, OSU, “Future Nondestructive Evaluation Projects”

Eric Lass, UTK, “Alloy Development for Additive Manufacturing”

Yannis Korkolis, OSU, “Plastic anisotropy and ductile fracture of metals: experiments and modeling”

Poster Session

Live presentations of poster overviews from selected students. Thrust Area Chair & IAB Rep selected the top two pre-recorded presentations to be given live. IAB members will be asked to vote on their top presentation from each thrust area at the end of the program.

1:15-2:15pm

Student presenters to be announced based on the recommendations from thrust area leadership. Will be released ahead of meeting.

Material/Joint Performance

Ben Wing, UTK, Characterization of Friction Stir Welded (FSW) Al Alloys for Aerospace Applications, 03-UTK-02020

Chris DiGiovanni, UW, Zinc Effects of Mechanical Behavior of AHSS Welds, 06-UW-012018

Additive /Process Development/Control

Colleen Hilla, OSU, Processing-Microstructure-Performance Relation of Additively Manufactured High Gamma Prime Nickel Superalloy, 03-OSU-012019

Jack Canaday, OSU, Computer Aided Robotics for Welding, Cladding & Additive Manufacturing Large Structures, 02-OSU-082018

Materials/Microstructure/Weldability

Due to the number of students presenting, graduating students, and other circumstances, there will be no posters from this thrust area presented. Project updates are available in Box for your review.

Workshop: Modeling techniques & capabilities

Tuesday January 19th 2:30-3:45PM

Led by San Gooroochurn (ESI-SYSWELD)

The goal of this workshop is multifold. First, it will give the audience a broad view of the capabilities of ESI's Welding and Additive Manufacturing Solution which could help identify potential use of the solution in other projects/areas within the center. Second, it will show the work being performed within Ma²JIC, namely the "Temperbead Welding Project" and frame how the extended capabilities of ESI Software can be leveraged within the center. And finally, with an example, show ESI's capabilities to perform end-to-end analysis: Analyzing the performance of weldments (weld-rupture: seam weld rupture and spot-weld rupture).

- Brief of Overview of the capabilities of ESI's Welding/AM Solution → 25 min
- The Temperbead Welding Analysis: MA2JIC Project → 15 min
- Weld-Rupture Analysis → 25 min
- Q&A → 10 min

Day 2: Wednesday January 20th

Teams virtual access information remains the same
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Welcome & Center Updates

10:00-10:15am	Welcome & Introduction Antonio Ramirez, OSU
10:15-10:30am	Welcome Remarks Dr. Morley Stone, Senior Vice President for Research, The Ohio State University
10:30-11:15am	Center & Site Updates IAB Chair Antonio Ramirez, Center Director OSU Site Update, Carolin Fink PSU Site Update, Todd Palmer Waterloo Site Update, Elliot Biro UTK Site Update, Bill Hamel & Tony Schmitz CSM Site Update, Zhenzhen Yu Lehigh Site Update, John DuPont

Project Proposals & Extensions

11:15-11:45pm	10 minute presentation + 5 minute Q&A Wei Zhang , 01-OSU-012021, Process Modeling of Mash Seam Welding Phase III Dennis Harwig , 03-OSU-012021, Anviloy Die Hardfacing Development for Aluminum Die Casting Heat Checking Resistance Phase II
11:45-12:15pm	Break

Center Administration

12:15-12:45pm	Ma²JIC Research Future Boyd Panton
12:45-1:00pm	Proposed Bylaws Changes Review Steve McCracken Antonio Ramirez
1:00-2:15pm	Separate IAB, PI & Student meetings Attendees will be sent to appropriate breakout rooms for discussion
2:15-2:20pm	Announcement of New IAB Leadership & Transition
2:20-2:30pm	Daily Wrap Up & Info for Thursday

Workshop: Additive Manufacturing/Process Development/Control
Wednesday January 20th, 2:45-4:45pm
Led by Andrzej Nycz (ORNL), Stephen Tate (EPRI) & Bill Hamel (UTK)

The purpose of the Workshop is to familiarize students and participants with technical aspects of new technologies with the focus on “how to” in an interactive way. The topic of the first workshop will be Wire-Arc Additive Manufacturing. It will cover three main aspects: design and toolpath planning, process development (how to turn welding into AM and the difference) and a presentation from students point of view showing their lessons learned and difference between expectations and practical experience. The main theme is to discuss what it takes to use the technology, present challenges, strengths, weaknesses and needs potentially leading to new projects.

Day 3: Thursday, January 21st

Teams virtual access information remains the same

All times in EST

Welcome & Review

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| 10:00-10:15am | Welcome & Agenda Review
IAB Chair
Antonio Ramirez |
| 10:15-11:00am | Reports from Separate IAB PI Student Meetings
10 minutes per group + 5 minute discussion |

Additive Manufacturing/Process Development/Control

Chair: Andrzej Nycz, ORNL; Co-Chair: Bill Hamel, UTK

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| 11:00-12:30pm | Thrust Area Update (5 minutes)
Student Presenters
<i>10 Minute Presentation + 5 Minutes Q&A</i>
Ethan Sullivan , CSM, "Al-based Metal Matrix Composite Tubular Wires for Additive Manufacturing Deposition-Extended," 01-CSM-082020
Tim Babyak , OSU, "Corrosion Resistant Weld Overlays for Pipelines, Oil and Gas, and Petrochemical Installations," 06-OSU-012016
Sam Robertson , UTK, "Adaptive Welding for Power Plant Piping and Pressure Vessels (AW-PPV)," 01-UTK-012019
Pablo Enrique , UW, "Repair of Additive Manufactured Products by Electro-Spark Deposition," 07-UW-012018
Matt Lamsey , UTK, "Innovative Fabrication and Repair of Aerospace Invar Molds using Large Scale Additive Metals Manufacturing Methods," 03-UTK-092019 |
| 12:30-1:00pm | Break |

Day 3 : Thursday, January 21st Continued

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Materials/Microstructure/Weldability

Chair: Martin McDonnell, GVSC; Co-Chair: Carolin Fink, OSU

1:00-2:10pm

Thrust Area Update (10 minutes)

Student Presentations

15 minute presentations + 5 minute Q&A

Andres Acuna, OSU, "Welding of Hyper-Duplex Stainless Steels," 04-OSU-012019

Jordan Ream, CSM, "Laser Welding Behavior of Additive Manufactured 304L Stainless Steel- Phase II Arc-Based additive/subtractive manufacturing," 02-CSM-062019

10 minute presentation + 5 minute Q&A

Tate Patterson, OSU, "Development of Computational Tools for LBW and EBW," 01-OSU-062018

Center Administration

2:15-2:00pm

Attendee Feedback Survey

Brooke Felts

2:00-2:10pm

Student Awards

Stephen Tate, EPRI

2:10-2:20pm

Meeting Wrap Up

Optional Project Specific Meetings

Friday January 22nd

All times in EST

Optional Meetings

All below meetings are led by [Dr. Boian Alexandrov](#) and will be conducted via Zoom. Please contact Dr. Alexandrov with any questions. These meetings are open to all Ma2JIC IAB members and may have guests present *for portions*. The purpose of these meetings is to do a deeper dive in to topics of interest for our meeting attendees, you'll hear details of research, applications, and future plans not always described our business meeting due to time limitations. Typically, when our meetings are held in person it is a convenient way to communicate information when we're geographically together.

8:00-10:00am

Dissimilar Metal Welds

<https://osu.zoom.us/j/99431939384?pwd=WHpvREgveXNMK0RqcFU4d1FyS0hiZz09>

Meeting ID: 994 3193 9384

Password: 068678

10:00-12:00pm

Temperbead Welding

<https://osu.zoom.us/j/93677309824?pwd=VnU1RFZsUi9zNkxzZnYwQWdZQUt4QT09>

Meeting ID: 936 7730 9824

Password: 536417

1:00-3:00pm

SRC/347

<https://osu.zoom.us/j/93708260744?pwd=dDgzCHgzRUo3U0Fjc0xjR3FjSlgxdz09>

Meeting ID: 937 0826 0744

Password: 443982

3:00-5:00pm

Corrosion Resistant Weld Overlays for Pipelines, Oil and Gas, and Petrochemical Installations

<https://osu.zoom.us/j/95351401800?pwd=c3hkSUUwUE1LbnhNenJrY0ppdFNYZz09>

Meeting ID: 953 5140 1800

Password: 882927