

# SMWC XX - CONFERENCE AGENDA

[TUESDAY] October 22, 2024

7:30 - 8:30	<b>Registration / Continental Breakfast</b>		<b>Sponsored by: ARO Welding Technologies</b>	
<b>Session</b>	<b>Opening Keynote Session</b>		<b>Aspen Room</b>	
8:30 - 8:35	<b>Opening Remarks - Andrea Orr (Conference Chair)</b>			
8:35 - 9:15	K1	<b>Artificial Intelligence in Automotive Welding: From Body-in-White to Battery Cell Welding, Hassan Ghassemi-Armaki (GM)</b>		
9:15 - 9:30	<b>Break (Lobby and Lobby Hallway)</b>		<b>Sponsored by: Matuschek</b>	
<b>Session</b>	<b>2A</b>	<b>Liquid Metal Embrittlement</b> <b>Session Chair: Kevin Teng</b> <b>Room: Laurel</b>	<b>2B</b>	<b>Battery Welding</b> <b>Session Chair: Jerry Gould</b> <b>Room: Aspen</b>
9:30 - 10:00	2A-1	Quantitative Analysis of LME Cracking Behavior during Half-Sectioned Resistance Spot Welding by In-Situ Monitoring <i>JiUng Kim, University of Waterloo</i>	2B-1	Printing a Better Bus Bar <i>Matthew Burkhart, Fabrisonic</i>
10:00 - 10:30	2A-2	Integrated process-performance model to assess effects of liquid metal embrittlement cracks on mechanical properties of resistance spot welds <i>Fernando Okigami, The Ohio State University</i>	2B-2	Investigating Performance and Reliability of Resistance Spot Welds on Additively Manufactured Battery Tabs <i>Desmond Bourgeois, The Ohio State University</i>
10:30 - 11:00	2A-3	Control of Liquid Metal Embrittlement in Resistance Spot Welded Gen3 AHSSs with a Multi Principal Element Alloy Foil <i>Ben Schneiderman, Colorado School of Mines</i>	2B-3	Conductive Heat Ultrasonic-Assisted Resistance Spot Welding of Multilayered Thin Foil Stacks for Joining Li-ion Battery Cell <i>Ho Kwon, The Ohio State University</i>
11:00 - 11:30	2A-4	Determination of Liquid Metal Embrittlement-free Process Windows for Component-Scale Resistance Spot Welding of 3rd Generation AHSS <i>Max Biegler, Fraunhofer</i>	2B-4	Benefits of Process Monitoring and Quality Inspection of EV Battery Laser Welding Processes in Mass Production <i>Yongjoon Cho, Monitech Co., LTD.</i>
11:30 - 12:20	<b>Lunch (Oak/Willow Room)</b>			
<b>Session</b>	<b>Midday Keynote Session</b>		<b>Aspen Room</b>	
12:20 - 1:00	K2	<b>Outline - The Road to 100% Simulation, John Catterall (JCAT Engineering)</b>		
1:00 - 1:15	<b>Break (Lobby and Lobby Hallway)</b>		<b>Sponsored by: Luvata Ohio, Inc.</b>	
<b>Session</b>	<b>3A</b>	<b>Aluminum Spot Welding</b> <b>Session Chair: Murali Tumuluru</b> <b>Room: Laurel</b>	<b>3B</b>	<b>Steel Linear Welding</b> <b>Session Chair: Andrea Orr</b> <b>Room: Aspen</b>
1:15 - 1:45	3A-1	Development of an Analytical Model for Estimating Electrode Life Under Harsh Service Conditions <i>Rafael Giorgao, EWI</i>	3B-1	Comparison of Hot Wire Laser to GMAW P on HSLA(550HR) and Generation III (980HF) Steels via Hardness, Tensile, and Fatigue Testing <i>Austin Croft, Lincoln Electric</i>
1:45 - 2:15	3A-2	Improved Electrode Life for Aluminum Spot Welding by Destroying the Oxide Layer <i>Stefan Heilmann, TU Dresden</i>	3B-2	Laser Welding for Electrification Applications <i>Jake Hay, EWI</i>
2:15 - 2:45	3A-3	Production Comparison of an Automotive Door Assembly using RSW and RFSSW <i>Yuri Hovanski, Brigham Young University</i>	3B-3	New AWS Classification of ER70S-9 in A5.18 <i>Taylor Dittrich, Lincoln Electric</i>
2:45 - 3:15	3A-4	The Role of Material Selection and Thermal Cycling on Tool Life in Refill Friction Stir Spot Welding <i>Michael Eff, EWI</i>	3B-4	Advanced Intermetallic Compound Formation Fortifying Mechanical Performance of Laser Braze Welded Joints in Vehicle Roof Assembly <i>Shima Akbarian, University of Waterloo</i>
3:15 - 3:30	<b>Break (Lobby and Lobby Hallway)</b>			
<b>Session</b>	<b>4A</b>	<b>Resistance Welding Predictive Tools</b> <b>Session Chair: Olga Eliseeva</b> <b>Room: Laurel</b>	<b>4B</b>	<b>Inspection and Simulation for Electrification</b> <b>Session Chair: Elliot Biro</b> <b>Room: Aspen</b>
3:30 - 4:00	4A-1	Unified Approach to RSW Simulation: From Single Spot to Body-in-White <i>Jeff Robertson, Hexagon Manufacturing Intelligence</i>	4B-1	Understanding Dynamic Formation and Propagation of Weld Nugget Formation in Ultrasonic Assisted Resistance Spot Welding Process through Numerical Modeling <i>Taosif Alam, The Ohio State University</i>
4:00 - 4:30	4A-2	Artificial Intelligence for Interpretation of Ultrasonic Process Monitoring Data from Resistance Spot Welding <i>Ryan Scott, Tessonics Inc.</i>	4B-2	In-line Inspection of Ultrasonically Welded Battery Tabs using Machine Learning <i>Zachary Corey, EWI</i>
4:30 - 5:00	4A-3	Enhancing Resistance Spot Welding Quality Control: A Machine Learning Approach <i>Zhili Feng, Oakridge National Laboratory</i>		

# SMWC XX - CONFERENCE AGENDA

[WEDNESDAY] October 23, 2024

7:30 - 8:30	<b>Registration / Continental Breakfast</b>		<b>Sponsored by: AET Integration</b>	
<b>Session</b>	<b>Opening Keynote Session</b>		<b>Aspen Room</b>	
8:30 - 8:35	<b>Opening Remarks - Andrea Orr (Conference Chair)</b>			
8:35 - 9:15	K3 <b>Advancements in Laser Technology: From Science Fiction to Modern Manufacturing, Marco Olpitz (Trumpf)</b>			
9:15 - 9:30	<b>Break (Lobby and Lobby Hallway)</b>		<b>Sponsored by: ARO Welding Technologies</b>	
	<b>Aluminum RSW</b>		<b>Laser Welding</b>	
<b>Session</b>	<b>5A</b>	<b>Session Chair: Kate Namola</b> <b>Room: Laurel</b>	<b>5B</b>	<b>Session Chair: Andrea Orr</b> <b>Room: Aspen</b>
9:30 - 10:00	5A-1	Extension of the Process Boundaries in Aluminum RSW <i>Maximilian Wohner, Bosch Rexroth AG</i>	5B-1	Determining the Effect of Surface Defects on Mechanical Property of Laser Welds by Numerical Simulation <i>Ying Lu, GM</i>
10:00 - 10:30	5A-2	Investigating the Effect of Welding Fixture on Tensile Behavior of AA5182 and AA6111 Resistance Spot Welds <i>Mohsen Sarparast, University of Toledo</i>	5B-2	Evaluation of in situ optical weld depth monitoring in laser welding across a variety of material combinations in electric vehicle manufacturing <i>Tristan Fleming, IPG Photonics</i>
10:30 - 11:00	5A-3	The Effect of Multi-Pulsed Current and External Magnetic Field on Resistance Spot Welding of Hot-Stamped AA7075 <i>Zhenke Teng, GM</i>	5B-3	Virtual Manufacturing of Laser Welded and Inflated Cold Panels and Experimental Validation <i>Andrew Bobel, GM</i>
11:00 - 11:30	5A-4	Estimations of Energy Efficiency for Spot Welding Aluminum Sheet with MFDC and MF-based Frequency Converter Power Supplies <i>Jerry Gould, EWI</i>	5B-4	Effect of Laser Cleaning on Weldability and Corrosion of Automotive Aluminum Alloy Body Panels and Weldments <i>Jo Ann Clarke, Ford Motor Company</i>
11:30 - 12:45	<b>Lunch and Vendor Exhibits (Oak/Willow Room)</b>			
	<b>Advancement in Resistance Spot Welding</b>		<b>Aluminum Fusion Welding</b>	
<b>Session</b>	<b>6A</b>	<b>Session Chair: Menachem Kimchi</b> <b>Room: Laurel</b>	<b>6B</b>	<b>Session Chair: Mike Palko</b> <b>Room: Aspen</b>
12:45 - 1:15	6A-1	Ultrasonic RSW Inspection <i>John Macdonald, RAM Solutions</i>	6B-1	Solving Porosity Issues in Electric Vehicle Aluminum Battery Tray Production with Laser Hybrid GMAW <i>Wesley Doneth, Fronius International GmbH</i>
1:15 - 1:45	6A-2	Development of CDC Spot Welding Technology for Three Sheets Stacks with High Sheet Thickness Ratio <i>Shinya Watanabe, Honda Japan</i>	6B-2	Aluminum Battery Enclosures - Effect of Alloy and Diameter Selection on Overall Weld Quality <i>Tim Hurley, Lincoln Electric</i>
1:45 - 2:15	6A-3	Development of Properties Database for Resistance Spot Welding: Streamlining Testing through Design of Experiments Techniques and Spatial Mapping <i>Olga Eliseeva, EWI</i>	6B-3	Nondestructive evaluation of fusion weld section geometry <i>Bita Ghaffari, Ford Motor Company</i>
2:15 - 2:30	<b>Break (Lobby and Lobby Hallway)</b>			
	<b>Inspection Methods for Resistance Spot Welding</b>		<b>Mixed Material Joining</b>	
<b>Session</b>	<b>7A</b>	<b>Session Chair: Ivan Meisner</b> <b>Room: Laurel</b>	<b>7B</b>	<b>Session Chair: Tyler Alexander</b> <b>Room: Aspen</b>
2:30 - 3:00	7A-1	Influence of Sheet Thickness and Test Speed on Spot Weld Torsion Testing <i>Christian Mathiszik, TU Dresden</i>	7B-1	Resistance Spot Riveting (RSR) of Thick Castings for Next Gen Body Structures <i>Terry Phenix, Centerline</i>
3:00 - 3:30	7A-2	Study on Cross Tension Strength and Fracture Behavior for Resistance Spot Welds of 3rd Generation AHSS <i>Du-Youl Choi, POSCO</i>	7B-2	Dissimilar Materials Joining Utilizing Resistance Spot Riveting: Process Characterization and Monitoring through in-process ultrasonic imaging <i>Danilo Stocco, Tessonics Inc.</i>
3:30 - 4:00	7A-3	Real-Time Ultrasonic Nugget Monitoring for Adaptive Spot Weld Controller <i>Andriy Chertov, Tessonics Inc.</i>	7B-3	<i>Warren Peterson, Retired</i>
4:00 - 7:15	<b>Vendor Display Event (Oak/Willow/Maple/Walnut Room)</b> <i>Free Admission to the Welding Community</i>			

# SMWC XX - CONFERENCE AGENDA

[THURSDAY] October 24, 2024

7:30 - 8:30	<b>Registration / Continental Breakfast</b>	
<b>Session</b>	<b>Characterization of Electrode Behavior</b>	<b>Mixed Material Joining</b>
<b>8A</b>	<b>Session Chair: Michael Karagoulis</b> <b>Room: Laurel</b>	<b>8B</b> <b>Session Chair: Liya Amanuel</b> <b>Room: Aspen</b>
8:30-9:00	8A-1 Advanced Electrical-Thermal-Mechanical Finite Element Analysis of Annular Projection Welding <i>Nicholas Avedissian, The Ohio State University</i>	8B-1 An Investigation of the Effect of Steel Alloying Elements on the Characteristics of Fe-Al Intermetallics <i>Luke Walker, The Ohio State University</i>
9:00-9:30	8A-2 Novel W, Cr, Be, Ni-free composite for thin sheet resistance welding and brazing of highly conductive materials <i>Kevin Chan, Huys Industries</i>	8B-2 Interlayer Deposition Methodologies to Inhibit the Growth of Intermetallic Compound Formation of Al-Fe Resistance Spot Welds <i>Rakhi Bawa, The Ohio State University</i>
9:30-9:45	<b>Break (Lobby and Lobby Hallway)</b>	
9:45-10:15	8A-3 Development of an Inline Method for Weld Diameter Measurements Using Ultrasound Micro Array <i>Andrew Ouellette, Tessonics Inc.</i>	8B-3 Assessing the Performance and Failure Mechanisms of Weld-Bonded Advanced High Strength Steels <i>Henry Leon-Henao, The Ohio State University</i>
10:15-10:45	8A-4 Development of an Enhanced Analytical Model for Estimating Thermal Cycles based on a Modified Zener Approximation for Heat Flow <i>Jerry Gould, EWI</i>	
10:45-11:30	<b>Final Comments &amp; Open Q&amp;A</b>	

## VENDOR DISPLAY CONTRIBUTORS

Changer & Dresser Corp – IPG Photonics – Matuschek Welding Products – Huys Industries Limited  
 EWI – ARO Welding Technologies – Ram Solutions Inc. – Cutter Solutions International  
 Boellhoff – Koops Automation Systems – Vitronic Machine Vision – Sunstone Welders  
 Welding Technology Corp – Lincoln Electric – Luvata Ohio, Inc. – Fusion Welding Solutions  
 AWS – Gestamp – RoMan Manufacturing – Tuffaloy Products, Inc. – Obara Corp. USA  
 Milco Manufacturing Company – Centerline (Windsor) Limited – Tolomatic Inc. – Fronius USA  
 Verder Scientific – Weld Systems Integrators, Inc. – G.E. Schmidt – TRUMPF  
 United Technical – STANLEY Engineered Fastening

## RECOMMENDED ACCOMODATIONS

Courtyard by Marriott Livonia | 17200 N Laurel Park Dr, Livonia, MI 48152 | Phone: 734-462-2000  
 Hilton Garden Inn Plymouth | 14600 Sheldon Rd, Plymouth, MI 48170 | Phone: 734-354-0001