

Cracking Phenomena in Welding and Additive Manufacturing 2025, 5th Int. Conference

12th-14th March 2025, University West, Trollhättan, Sweden



Wednesday, March 12				
Time				
13:00	Conference Opening and Welcome	Asun Valiente	University West	Sweden
	Session 1: Weld Hot Cracking (7) Session Chair: Carolin Fink			
13:15	Keynote: Influential Factors on Hot Cracking and the Evaluation Method	K. Kadoi	Osaka University	Japan
13:55	Weld-Related Cracking Susceptibility of a High Entropy Alloy, the Cantor Alloy	B. Varbai, M. Benke, V Mertinger, Kuzella L, Y. Adonyi	Budapest University, University of Miskolc, University West	Hungary, Sweden
14:20	Ranking the susceptibility of duplex stainless steel flux-cored wires to solidification cracking	E.M. Westin , F.G. Warchomicka	voestalpine Böhler Welding, Graz University of Technology	Austria
14:45	Evaluation of solidification cracking susceptibility of VDM Alloy 780 subjected to various pre-weld solution annealing and Alloy 718	A. Ariaseta , J. Andersson, O. Ojo	University West, University of Manitoba	Sweden/Canada
15:10	Break - sponsored by voestalpine Böhler Welding			
15:35	Heat-affected zone liquation cracking of Al-rich steels	K.C. Riffel, R. Giorjao, E. Brizes, K. Sebec, A.J. Ramirez	The Ohio State University, NASA, US Army	USA
16:00	New Developments on the Flow Resistance Index Quantification of Solidification Cracking Susceptibility of Metallic Alloys	H. León-Henao , K.C. Riffel, A.J. Ramirez	The Ohio State University	USA
16:25	Determination of Hot Cracking Susceptibility Using a Large Scale Actively Restrained Test	M. Neumann , P. Liepold, K. Hoefer, A. Kromm, T. Kannengießer, J. Hensel	University of Technology Chemnitz, BAM	Germany
16:50	Session closes			

Thursday, March 13				
08:30	Welcome by IIW President	Thomas Böllinghaus	BAM	Germany
	Session 2: Additive Manufacturing I (7) Session Chair: Asun Valiente			
8:40	Keynote: From Pores to Brittle Phases: Critical Pathways to Failure in Advanced Manufacturing	N. Nudelis, Z. Mohamed, C. Obergefell, S. Rotzsche, P. Mayr	TU Munich	Germany
9:20	Weldability Evaluation of Additive Manufactured Materials	J. Guzman Hernandez , W. Evans, E. Brizes, A.J. Ramirez	The Ohio State University, NASA	USA
9:45	Solidification cracking phenomenon in 316L and 316L+10%Cu bi-material manufactured by L-PBF	R. Sokkalingam , M. Åsberg, P. Krakhmalev	Karlstad University	Sweden
10:10	Susceptibility to Solidification Cracking in Duplex Stainless Steel: Insights from Electron Beam Welding and Additive Manufacturing	E.M. Westin , F. Warchomicka, T. Tóth, B. Axelsson, M.A. Valiente Bermejo	voestalpine Böhler Welding, Graz University of Technology, University of Braunschweig, Alfa Laval Technologies, University West	Austria, Germany, Sweden
10:35	Break - sponsored by ESAB			
11:00	Keynote: Hot Cracking Mechanisms in Ni-base Superalloys Fabricated by Powder Bed Fusion Additive Manufacturing	C. Fink , A. Mouro, B. Welk, A. Breen, S. Ringer, S. Vijayan, J.R. Jinschek	The Ohio State University, The University of Sidney, Michigan Technological University, Technical University of Denmark	USA
11:40	Investigation of Hot Cracking in Wire-Arc Directed Energy Deposition Additive Manufacturing of New High Strength Low Alloy Steel	M. Vega , B. Alexandrov, L. McNeil, D. Harwig, P. Flater	The Ohio State University	USA
12:05	An Assessment of the Reduction of Solidification Cracking in Nickel and Aluminum Alloys Modified for Improved Additive Manufacturability	D. McConville , J. Kleindienst, N. Bagshaw, J. Iten, B. Rafferty, J. Klemm-Toole	Colorado School of Mines, Fortius, Metals, Elementum 3D	USA
12:30	Lunch - Sponsored by SAAM AB			

Session 3: Additive Manufacturing II (8) Session Chair: Elin Westin				
13:20	Keynote: A Review of Additive Manufacturing, Welding, and Weldability Testing of Ni and Ni-Fe Superalloys	J. Andersson	University West	Sweden
14:00	Investigation on the microstructure and hot cracking of Alloy 625 by wire additive manufacturing	X. Guo, Y. Han, X.C. Lv, Y.L. Jiang, W.J. Fu, H. Zhang	Harbin Welding Institute Limited Company	China
14:25	Cracking phenomena in Laser Powder Bed Fusion of IN738LC Ni-base superalloy	M. Alishavandi, A. Orhangül, R. Ünal, M. U. Salamci	Gazi University, Tusas Engine Industries Inc	Turkey
14:50	Hot crack formation and their connection to hot ductility and microstructural evolution in Hastelloy X by laser DED	F. Hanning, D.B. Villa	University West	Sweden
15:15	Break			
15:40	Cracking sensitivity of L-PBF CM247LC to various geometries and layer thicknesses	S. Kutiyal, R.G. Aswathanarayanawamy, A.J. Moore, A. Farndell, N. Jones	Renishaw Plc, Heriot-Watt University, Edinburgh	UK
16:05	Avoiding cracking in large components by using Submerged Arc Welding Additive Manufacturing	L.-E. Stridh, P. Jansson, H. Gruber	SAAM AB, Subseatech, Saab Kockums AB	Sweden
16:30	Failure analysis of the interface in hybrid printing of maraging steels on tool steel substrates	A. Hoseinpur	Seco Tools AB	Sweden
16:55	3D Reconstruction and Quantitative Analysis of Hot Cracking by Metallographic Extraction	J. Berkson, E. Schwalbach, A. Ramirez	The Ohio State University, United States Air Force Research Laboratory	USA
17:20	Session Closes			
19:00	Conference Dinner			
Friday, March 14				
Session 4: Weld Solid-state and HIC (7) Session Chair: John Lippold				
8:15	Keynote: New Developments in Studying Ductility Dip Cracking in Welds of Austenitic Alloys	B. Alexandrov	The Ohio State University	USA
8:55	Keynote: Testing the compatibility of austenitic stainless steel welds for green hydrogen applications	T. Böllinghaus, S. H. Shaanika, O. Sobol, O. Johnson, E. Krafft, R. Campe, S. Ravi	University of Namibia, BAM, CMB.Tech Namibia, Cleanenergy Solutions Namibia	Germany, Namibia
9:35	Testing a new welding procedure with reduced pre and post heating for X3 CrNiMo 13-4 martensitic steel by implant tests	F. Villaret, T. Taboulot	EDF R&D	France
10:00	Hydrogen compatibility of steel welds using the SSRT-HST (Hollow Specimen Technique)	N. Shikomba, O. Sobol, T. Böllinghaus, S. Blason, E. Krafft, T. Staudt, O. Ohijeagbon, O.T. Johnson, R. Campe, S. Ravi	University of Namibia, BAM, Cleanergy Solutions Namibia, AG der Dillinger Hüttenwerke	Namibia, Germany
10:25	Break			
10:50	Keynote: Influence of residual stresses and heat control on stress relief cracking in a CrMoV steel mockup	A. Kromm, T. Lausch, M. Rhode, T. Kannengeisser	BAM	Germany
11:30	Numerical simulation of hydrogen diffusion in thick-walled S690 SAW joints: the role of microstructure-dependent diffusion vs. welding heat input	D. Czeskleba, K. Wandke, M. Rhode, T. Kannengießer	BAM	Germany
11:55	Mitigation Strategies for Delayed Cracking in Laser Welding of Advanced High-Strength Steel	E. Sullivan, P. Borg, J. Siltanen, K. Durmaz, S. Mozgovoy	Swerim	Sweden
12:20	Conference Closing Remarks	Organizing Committee		
12:30	Lunch - Sponsored by UDDEHOLM			
13:30	Visit to the Production Technology Center			
15:30	Adjourn			

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