



C-I Additive Manufacturing, Thermal Cutting and Spray

78th Annual Assembly Genoa 2025

I-1649-2025

Chair: Dr. Patrick W. Hochanadel

Agenda – 23 June 2025

Time	Agenda Item	Responsibility	Action
09.00	1. Administrative Tasks: Note Tasks continue 25 June		
	1.1. Opening of the meeting	D. Kautz	Information
	1.2. Anti-Trust and Code of Conduct Briefing	D. Kautz	Information
	1.3. Request for Secretary to write meeting minutes	D. Kautz	Assignment
	1.4. Attendees and Apologies, Identification of C-I Delegates	D. Kautz	Information
	1.5. Approval of the minutes from the last annual assembly in Rhodes, Greece (Doc. I-1649-2024)	D. Kautz	Motion Required
	1.6. Adoption and Approval of Agenda (Doc. I-1649-2025)	D. Kautz	Motion Required
	1.7. Discussion of Joint Intermediate Meeting in Trollhättan, Sweden	D. Kautz	Information
	1.8. Emerging Technologies Subgroup Briefing	D. Kautz	Information
	1.9. Presentation of Documents	D. Kautz	Information
	1.10. Structure of Commission I	D. Kautz	Information
	1.11. Activities of Commission I	D. Kautz	Information
	1.12. List of Documents (Doc. I-1683-25)	D. Kautz	Information
	1.13. Joint Workshops/Meetings with Other IIW Units	D. Kautz	Information
	1.14. Resolutions by Commission I from 2025 AA	D. Kautz	Motion Required
	1.15. Other Business - Recommendations for Welding in the World - Satisfaction Survey	D. Kautz	Information

	• Preparations for Upcoming Annual Assemblies and Intermediate		
09.05	2. Presentations	Authors	Information
13.00	3. Adjournment for the Day	D. Kautz	Information

Agenda – 24 June 2025

Time	Agenda Item	Responsibility	Action
08.55	1. Opening of Joint Session with C-I, C-IV, C-VIII (Super-Joint Session in the afternoon), and C-XII	S. Yamane	Information
08.55	2. Presentations	Authors	Information
18.25	3. Adjournment for the Day	P. Hochanadel	Information

Agenda – 25 June 2025

Time	Agenda Item	Responsibility	Action
09.00	1. Opening of Session	D. Kautz	Information
09.05	2. Presentations	Authors	Information
12.55	3. Administrative Tasks		
	3.1. Continued from 23 June Administrative Tasks	D. Kautz	Information
13.00	4. Adjournment of the Meeting of Commission I	D.Kautz	Information

Members' List (C-I Leadership)

First name	Last name	Role	IIW user/e-mail	Country
Doug	Kautz	Chair – C-I	dougkautz@msn.com	USA
Matteo	Pedemonte	Vice-Chair – C-I	matteo.pedemonte@iis.it	Italy
Zhenying	Liu	Chair, Sub-Commission I-C	jiakexinxing@126.com	China
Michael	Schnick	Chair, Sub-Commission IV-E	m.schnick@oscar-plt.de	Germany
Gunther	Mohr	Chair, Sub-Commission IV-F	gunther.mohr@bam.de	Germany

Appendix (Schedule of Presentations)

78th Annual Assembly Genoa 2025

Venue: Centro Congressi Porto Antico

C-I: Additive Manufacturing, Thermal Cutting, and Thermal Spray

June 23-25, 2025

Room: Listed by day of meeting

Monday 23 June 2025, 0900 – 1300 @ Ex Novo 2

0905: Session 1: C-I Papers (20 minutes per paper incl. questions) Session Chair: Doug Kautz

[01] 0905: Computational analysis of molten pool behaviour and vibration signal-based cut quality assessment in plasma

Dae-Won Choa, Seung-Hoon Bae, Seonmin Kim, Gwang-Ho Jeonga, Sang-Hyun Ahna, Sun Il Kimd, Dong-Hyun Kimd, Moo-Keun Son (South Korea)
Doc. I-1651-2025

[02] 0925: Understanding the limitations and potential of thermal cutting for fused silica

S. Kottwitz (Germany)
Doc. I-1665-2025

[03] 0945: Process development for the regeneration of die casting tools by robot-guided laser wire deposition (DED-LB/w)

Florian Hahn (Germany)
Doc. I-1666-2025

[04] 1005: Non-destructive Evaluation Technology for Thermal Spray Coatings

Akiyoshi Yokota (Japan)
Doc. I-1667-2025

[05] 1025: An Additive Manufacturing Database : example of UNS S17400 1.4542 /WAAM and UNS32205 1.4462/WAAM couples

Lauriane Guilmois, Quentin Saby, Florence Doré, Adrien Barroux, Laurent Jubin, Benoit Verquin (France)

Doc. I-1655-2025

1045-1115: Coffee break

[06] 1115: Analysis of Melt Pool Behavior in Inconel 718 Deposits Using Computational Fluid Dynamics Simulation

Deok Hyun Jo, Hak-Sung Lee, Jong Bae Jeon (South Korea)

Doc. I-1670-2025

[07] 1135: Parametric Optimization for Bead Geometry in ER70S-6 DED Arc Additive Manufacturing Establishing a Process Window

Shafi Uddin (Finland)

Doc. I-1671-2025

[08] 1155: Automated In-situ Monitoring of Process Signatures and Multi-track Build Profile During Wire Arc-Directed Energy Deposition

Prashant Kumar Chaurasia, Çağtay Fabry, Andreas Pittner, Michael Rethmeir (Germany)

Doc. I-1653-2025

[09] 1215: Prediction and optimization of weld bead geometry for steel components produced by wire arc additive manufacturing

Jun Cheng, Wim De Waele (Belgium)

Doc. I-1672-2025

[10] 1235: Microstructural Evolution and Mechanical Properties of NB-Si-Ti-Hf-Al-Cr Alloys Fabricated via Additive Manufacturing

W. Liu, S. Huang, X. Y. Ren, C. Gao, H. P. Xiong (China)

Doc. I-1673-2025

Discussion on WitW Papers

Close of Day 1 Activities

Tuesday 24 June 2025, 0855 -1830 @ Grecale

Joint Meeting of C-I, C-IV, C-VIII, C-XII, and C-XIV

Morning Session, 0855-1300

Session 1: Chair: Professor Satoshi Yamane

0855: Opening of Joint Meeting of C-I, C-IV, and C-XII – Professor Satoshi Yamane

[11] 0855: Traveling Steady Pool Model for Efficient and Accurate Thermal Analysis in Welding and Additive Manufacturing

Sang-Hyun Ahna, Inyoung Songa, Junsung Baea, Gwang-Ho Jeonga, Dae-Won Choa, Hee Shin Kange and Young Whan Park (Korea)
I-1685-2025/IV-xxxx-2025/XII-2757-2025

[12] 0915: Exploring the Microstructure and Mechanical Properties of Bimetallic Layer Structures Fabricated by DED-Arc Trajectory Weaving

Shujun Chen, Haojie Gou, Zhaoyang Yan, Jun Xiao (China)
I-1686-2025/IV-xxxx-2025/XII-2758-2025

[13] 0935: Improvement of printing Accuracy in WAAM Using AC Synchro-feed Welding

Keiji KADOTA, Kenta TSUTSUI (Japan)
I-1687-2025/IV-xxxx-2025/XII-2759-2025

[14] 0955: Probing Melt Pool Stability and Dimensional Consistency for out-of-position Wire Arc Directed Energy Deposition

Gauravkumar Roshanlal Dak, Birendra Kumar Barik, Prashant Kumar Chaurasia, Götz-Friedrich Gottschalk, Akshay Manoj Shahane, Sven-F Goecke, Amitava De (India)
I-1688-2025/IV-xxxx-2025/XII-2760-2025

[15] 1015: Probing Smartphone based Photogrammetry for Part Profiling in Wire Arc Directed Energy Deposition

Birendra Kumar Barik, Prashant Kumar Chaurasia, Vikram Kumar, Gaurav Dak, Sven-F Goecke, Amitava De (India)
I-1689-2025/IV-xxxx-2025/XII-2761-2025

[16] 1035: Presentation by IIW Staff

Elisabetta Sciacaluga (IIW)

Coffee Break (1045– 1115)

Session 2: Chair: Dr. Patrick Hochanadel

[17] 1115 Blue-IR Hybrid Laser System for Copper Welding

Toshiaki Sakai, Hiroto Kageyama, Naoki Mori, Akira Yukumoto, Hideki Kondo (Japan)
XII-2762-2025/I-1657-2025/IV-1683-2025

[18] 1135 Optimization and Characterization of Laser Beam Welding applied to Inconel 718 Additively Manufactured for Liquid Propulsion Systems

Rinaldo Rigon, Bruno Di Dato, Domenico Borrelli (Italy)
XII-2763-2025/I-1658-2025/IV-1684-2025

[19] 1155: Underwater laser cutting technology in an environment simulated at a depth of 10m underwater

Su-Jin Lee, Ryoohan Kim, Jeongsoo Choi, Danbi Song, and In Duck Park (South Korea)
XII-2764-2025/I-1659-2025/IV-1685-2025

[20] 1215: Measurement of optical absorption using a calorimetric method during welding of pure copper with a blue diode laser

Keisuke TAKENAKA, Kazuki KODA, Mao SUDO, Hideaki SHIRAI, Yuji SATO, Masahiro TSUKAMOTO (Japan)
XII-2765-2025/I-1660-2025/IV-1686-2025

[21] 1235: A statistical investigation of the laser energy absorption and keyhole stability in high-power laser beam welding

Xiangmeng Menga, Stephen Nugraha Putra, Marcel Bachmann, Michael Rethmeier (Germany)
XII-2766-2025/I-1661-2025/IV-1687-2025

Afternoon Session, 1425-1830

Session 3: Chair: Doug Kautz

1425: Opening of Afternoon Session of C-I, C-IV, and C-XII – Dr. Patrick Hochanadel

[22] 1425 Investigation on the influence of electron beam modulation on the mechanical properties of additively manufactured titanium components

Georg Fischer, Peter Grass, and Ghazal Moeini (Germany)
Doc. XII-2767-2025/I-1650-2025/IV-1688-2025

[23] 1445: A Comprehensive Experimental Comparison of Solid and Metal-Cored Wires in WAAM

Batuhan Turgut, Ugur Gurol, Recep Onler (Turkey)
Doc. XII-2768-2025/I-1654-2025/IV-1689-2025

[24] 1505: Deposition Anomaly Detection Through Welding Current Analysis in Hybrid Manufacturing System Integrating Robot-assisted Wire Arc Additive Manufacturing and Machining

Sakufu Ko, Yuka Yamagata, Shigeru Aoki and Keita Terashima (Japan)
Doc. XII-2769-2025/I-1668-2025/IV-1690-2025

[25] 1525: Thermal Modelling in High Deposition Rate Laser Directed Energy Deposition Process

E. A. Bonifaz, J. Li (USA)
Doc. XII-2770-2025/I-1669-2025/IV-1691-2025

[26] 1545: Microstructural and Mechanical Properties of Multi-Material Elements via DED Arc and Hybrid Manufacturing

Shafi Uddin, Ruizhi Zhang, Mohsen Amraei, Leroy Gardner, Antti Salminen (Finland)
Doc. XII-2771-2025/I-1652-2025/IV-1692-XXXX

Coffee Break (1615 – 1645)

Session 4: Chair: David Werba

1645: Opening of Afternoon Session of C-I, C-IV, C-VIII, C-XII and C-XIV – Dr. Patrick Hochanadel

[27] 1645: Handheld laser beam welding – about various influences on resulting properties

Simon Jahn, Martin Schmitz, Robert Prowaznik, Mario Rockser, Michael Wolters (Germany)
Doc. XII-2772-2025/I-1662-2025/IV-1693-2025/VIII-2402-2025

[28] 1705: Advancements in handheld laser welding (HH LBW) for multi-pass butt joint applications

J. Eduardo Alvarez Rocha, Doug J. Hamre, Felipe Castro Cerda, Patricio F. Mendez (Canada)
Doc. XII-2773-2025/I-1663-2025/IV-1694-2025/VIII-2403-2025

[29] 1725: Optimizing Handheld Laser Welding: Analyzing the Effects of Laser Power and Wobble Optic Parameters

Corey Cox (USA)
Doc. XII-2774-2025/I-1664-2025/IV-1695-2025/VIII-2404-2025

[30] 1745: Hand held welding investigation on process mechanisms and recommendations for joining various materials suitable for hydrogen storage solution and lightweight structures

Jan Frostevarg and Farid Akhtar (Sweden)

Doc. XII-2776-2025/I-1690-2025/IV-1711-2025/VIII-2406-2025

[31] 1805: Understanding Laser Beam Welding under Space Conditions

A. Brimmer, E. Choi, W. McAuley, K.C. Riffel, B. Panton, A.J. Ramirez (United States)

I-1684-2025/IV-1712-2025/VIII-2405-2025/XII-2775-2025

1825: Close Out of Joint Meeting of C-I, C-IV, and C-XII – P. Hochanadel

Wednesday 25 June 2025, 0900 - 1300 @ Ex Novo 2

Commission I Meeting, continued from Monday

0900: Session 2: C-I Papers (20 minutes per paper including questions)

0900: Open and Welcome – D. Kautz

[32] 0905: Automated Repair of Gas Turbine Blades Using DED-Arc, Point-to-Point Registration Of 3D Scans and a Closed-Loop Monitoring System.

Michael Winkler, Andreas Pittner, Cagtay Fabry, Michael Rethmeier (Germany)

Doc. I-1656-2025

[33] 0925: Arc Directed Energy Deposition for Efficient Production of Nickel Aluminum Bronze Components

Ali Nasiri (Canada)

Doc. I-1674-2025

[34] 0945: Wire Arc Additive Manufacturing of Ti-10V-2Fe-3Al alloy

Jelte Orths (Germany)

Doc. I-1675-2025

[35] 1005: Functionally graded lightweight steel designed by additive manufacturing with an excellent strength-ductility balance and corrosion resistance

Jeong-Hun Kim, Joonoh Moon, Seong-Jun Park, Heon-Young Ha, Heung Nam Han, Siwhan Lee, Yongjoon Kang, Hyun-Uk Hong (South Korea)

Doc. I-1676-2025

[36] 1025: Development of Niobium Zirconium (Nb1Zr) Alloy for Structural Material Usage in Microreactors

Michael J Brand, Robin Montoya, Omar Mireles, Kevin Le, and Bryant Kanies (USA)
Doc. I-1677-2025

Coffee Break (1045– 1115)

[37] 1115: Wire arc additive manufacturing of CNT coated AISI316L stainless steel

Pratishtha Sharma, S. Aravindan and Kusum Meena (India)
Doc. I-1678-2025

[38] 1135: DED-arc additive manufacturing of high alloyed martensitic steel

Jan Reimann, Yarop Ali, Jörg Hildebrand, Jean Pierre Bergmann (Germany)
Doc. I-1679-2025

[39] 1155: Effect of dwell time on mechanical properties of wire arc additively manufactured Inconel 625

Rajnish Mishra, CS Wu and Murshid Imam (India)
Doc. I-1680-2025

[40] 1215: Microstructural Evolution and Mechanical Properties of Nb-Si-Ti-Hf-Al-Cr Alloys Fabricated via Additive Manufacturing

W. Liu, S. Huang, X. Y. Ren, C. Gao, H. P. Xiong (China)
Doc. I-1673-2025

[41] 1235: Study on anisotropy of fatigue crack propagation behavior of laser directed energy deposited Ti-6Al-2Zr-1Mo-1V alloy

Renkai Li, Yanyan Zhu, Zhuo Li (China)
Doc. I-1682-2025

Adjournment of the 2025 C-I Meeting