C-I Additive Manufacturing, Thermal Cutting and Spray

79th Annual Assembly Salzburg 2026

I-1693-2026, Final, R1

Chair: Doug Kautz

Agenda – Monday, 13 July 2026

Time	Agenda Item	Responsibility	Action
14.00	**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 Genoa, Italy (Doc. I-1649-2024)	D. Kautz	**Motion Required**
	1.6. Adoption and Approval of Agenda (Doc. I-1649-2026)	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 2026 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		
14.05	**2. Presentations**	Authors	Information
18.00	**3. Adjournment for the Day**	D. Kautz	Information

Agenda – Tuesday, 14 July 2026

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 – Wednesday, 15 July 2026

Time	Agenda Item	Responsibility	Action
09.00	**1. Opening of Joint Session with C-I, C-II, and C-IX**	G. Mohr	Information
09.05	**2. Presentations**	Authors	Information
13.00	**3. Adjournment for the Day**	G. Mohr	Information

Agenda – Thursday, 16 July 2026

Time	Agenda Item	Responsibility	Action
08.30	**1. Opening of Session**	D. Kautz	Information
08.35	**2. Presentations**	Authors	Information
12.00	**3 . Administrative Tasks**		
	3.1. Continued from 13 July Administrative Tasks	D. Kautz	Information
12.30	**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)

79th Annual Assembly Salzburg 2026

Venue: Salzburg Congress

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

July 13-16, 2026

Room: Listed by day of meeting

Monday 13 July 2026, 1400 – 1800 @ Paracelsus

1400: Session 1: C-I Papers (20 minutes per paper incl. questions) Session Chair: Doug Kautz

[01] 1405: Process Evaluation and Optimization of Thin Coatings by Extreme High-Speed Laser Cladding for Brake Disc Applications

Junki Hong, Dong Hyuck Kam, Minjung Kang, Seung Hwan Lee, Jae Hoon Kim, Jisu Hwang (South Korea)
I-1704-2026

[02] 1425: Formation of corrosion- and heat-resistant titanium layers by TIG surfacing with cored wires containing synthesized carbide compositions

Serhiy Schwab, Serhii Akhonin, Mykola Gadzyra, Valerii Bilous (Ukraine)
I-1705-2026

[03] 1445: Building Al-to-Steel Hybrid Components via EHLA: Role of CuNiSiCr Buffer Layer and Thermal Management

João Henrique Silva Pinto, Erwin Werner Teichmann, Min-Uh Ko (Brazil)
I-1706-2026

[04] 1505: Characteristics of hardfaced high-strength steels based on fatigue crack growth behaviour

Ákos Meilinger, Gábor Terdik, János Lukács (Hungary)
I-1707-2026

[05] 1525: Inhibition mechanism of cold sprayed Al-based composite repairs on micro-galvanic corrosion in a cast magnesium alloy substrate

Shuo Fu, Yaxin Xu, Wenya Li (China)
I-1708-2026

1545-1615: Coffee break

[06] 1615: Influence of Process Parameters on Build Quality and Microstructure in Wire Arc Additive Manufacturing of High-Strength Low-Alloy Steel

Malan Jayawickrama. Prashant Kumar Chaurasia, Joel Andersson, Paul Kah (Sweden)
I-1714-2026

[07] 1635: The Development of a Sinter-Based Process Chain for the Production of Additively Manufactured Copper Matrix Composite (Cu-MMC) Components

Dennis Melnikow (Germany)
I-1710-2026

[08] 1655: Multi-Scale Modelling of Mechanical Anisotropy and Failure in FDM-Printed PLA Using an RVE–Cohesive Framework

Reza Sadeghpour, Sebastian Baum, Sven-Frithjof Goecke, Martin Kraska (Germany)
I-1711-2026

[09] 1715: Assessment of fatigue life behaviour of an additive manufacturing workpiece compared to welding assembly

David Plélan, Driss El KhouKhi, Anatole Helterlin, Laurent Jubin (France)
I-1712-2026

[10] 1735: Effect of build strategy and interpass temperature on thermal history, porosity formation, and mechanical properties of aluminium alloys in arc-based directed energy deposition using layer-by-layer and continuous material application

Leon Müller, Jörg Hildebrand, Jean Pierre Bergmann (Germany)
I-1713-2026

Discussion on WitW Papers

Close of Day 1 Activities

Tuesday 14 July 2026, 0830 -1800 @ Karajan

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

Morning Session, 0830-1230

Session 1: Chair: Professor Satoshi Yamane

0830: Opening of Joint Meeting of C-I, C-IV, C-XII and C-XIX– Professor Satoshi Yamane

[11] 0830: Fundamental energy-material interaction framework for process harmonisation and transferability in fusion based additive manufacturing and welding

Stewart Williams (UK)
I-1732-2026/IV-1743-2026/XII-xxxx-2026/XIX-0048-2026

[12] 0850: Experimental study of different multi-camera configurations for in-situ monitoring of the DED-arc process

Akshay Manoj Shahane, Götz-Friedrich Gottschalk, Sven-Frithjof Goecke (Germany)
I-1733-2026/IV-1744-2026/XII-xxxx-2026/XIX-0049-2026

[13] 0910: Influence of Environmental Pressure on Microstructure and Mechanical Properties of Wire-Arc Directed Energy Deposited Al-Cu Alloy

Ji Chen, Hairui Wang , Dongsheng Wu, Hao Su , Shengli Li, Chuansong Wu (China)
I-1734-2026/IV-1745-2026/XII-xxxx-2026/XIX-0050-2026

[14] 0930: Overhang Structure Fabrication in Wire Arc Directed Energy Deposition Using Sand-Printed Supports

Chang Young Choi, Hwi Jon Son, Yeong Jae Kim, Young Tae Cho (Korea)
I-1735-2026/IV-1746-2026/XII-xxxx-2026/XIX-0051-2026

[15] 0950: Combination of laser-MIG hybrid welding and submerged arc welding processes for medium to thick EH36 plates welding

Chen Shen, Xueming Hua, Yuelong Zhang, Fang Li, Xiaopeng Wei (China)
I-1736-2026/IV-1744-2026/XII-xxxx-2026/XIX-0052-2026

[16] 1010: Presentation by IIW Staff

Elisabetta Sciaccaluga (IIW)

Coffee Break (1015– 1045)

Session 2, Chair: Dr. Patrick Hochanadel

[17] 1045: Dissimilar copper-stainless steel welding by blue laser in heat pumps manufacturing

António Pereira, Miriam Tavares, Dina Silva, Catarina Bastos, Nélia Silva, Bernardo Mascate (Portugal)
I-1694-2026/IV-1748-2026/XII-2388-2026/XIX-0053-2026

[18] 1105: Fundamental mechanisms of spatter formation during full penetration laser welding revealed by high-speed synchrotron X-ray imaging

Christian Diegel, Leander Schmidt, Klaus Schricker, Marc Seibold, Hannes Friedmann, Peter Hellwig, Fabian Fröhlich, Falk Nagel, Alexander Rack, Herwig Requardt, Yunhui Chen (Germany)
I-1695-2026/IV-1749-2026/XII-2389-2026/XIX-0054-2026

[19] 1125: 6kW High-power and High-brightness Blue Laser using Wavelength Beam Combining Technology

Kazuya Hatakeyama, Norihiro Dejima, Yoshio Okamoto, Yasuo Tanahashi, Yuto Oki, Takuya Tsujimoto, Nao Senga, Yoshihiro Kimura, Ryohei Hirose, Yojiro Ichiraku, Tsutomu Yamada, Kaname Saito, Masaki Omori (Japan)
I-1696-2026/IV-1750-2026/XII-2390-2026/XIX-0055-2026

[20] 1145: Numerical and experimental investigation of metal vapour dynamics in electron beam welding for in-orbit manufacturing

Federico Faustini, Tiberiu Minea, Adrien Revel, Guillaume Mohara (France)
I-1697-2026/IV-1751-2026/XII-2391-2026/XIX-0056-2026

[21] 1205: Modeling Temperature Dependence of Laser Absorptivity for Copper in Laser Additive Manufacturing

Susumu Kato, Haruhisa Koguchi, Tetsuji Shimizu, Keisuke Takenaka, Yuji Sato, Masahiro Tsukamoto (Japan)
I-1698-2026/IV-1752-2026/XII-2392-2026/XIX-0057-2026

Afternoon Session, 1400-1800

Session 3: Chair: Doug Kautz

1400: Opening of Afternoon Session of C-I, C-IV, C-XII, and C-XIX– Dr. Patrick Hochanadel

[22] 1405 Development of net-shape wire based additive manufacturing for the International Space Station

Wojciech Suder, Goncalo Pardal, Xin Chen, Stewart Williams, Anthony Lecossais, Batiste Allilaire, Sebastien Girault, Mathieu Chevalier, Advenit Makaya, Caterina Lantaffi, Rob Postema (UK)
I-1699-2026/IV-1753-2026/XII-2393-2026/ XIX-0058-2026

[23] 1425: Wire Arc Directed Energy Deposition of High-Strength Steels: Initial Results and Future Directions

Ruslan Kim, Kaue C. Riffel, Antonio J. Ramirez (USA)
I-1700-2026/IV-1754-2026/XII-2394-2026/ XIX-0059-2026

[24] 1445: Analysis of Mechanical and Metallurgical Properties of ER110S-G HSLA Steel Parts Manufactured by Wire Arc Additive Manufacturing (WAAM)

Matheus Miranda, Bruno Cota, Valdemar Duarte, Tarcísio Brito, Gustavo Carvalho, Telmo Santos (Brazil)
I-1701-2026/IV-1755-2026/XII-2395-2026/ XIX-0060-2026

[25] 1505: Geometrical and mechanical properties of mild steel DED-Arc plates

Max Mierzwa, Erhan Özel, Mirco Olesch, Rahul Sharma, Nils Rittich, Helen Bartsch, Markus Feldmann (Germany)
I-1702-2026/IV-1756-2026/XII-2396-2026/ XIX-0061-2026

[26] 1525: Experimental Investigation and Process Window Development for Bead Geometry Control in SS316L SI DED-Arc Additive Manufacturing

Antti Salminen, Ashish Ganvir, Mohsen Amraei, Shafi Uddin (Finland)
I-1703-2026/IV-1757-2026/XII-2397-2026/ XIX-0062-2026

Coffee Break (1600 – 1615)

Session 4: Chair: Dr. Isabelle Choquet

[27] 1615: Discussion on transition prediction in metal transfer with axial droplet elongation in gas metal arc welding.

Yuriko Sato, Yosuke Ogino, Tomokazu Sano (Japan)

I-1737-2026/IV-1758-2026/XII-xxxx-2026/XIX-0063-2026

[28] 1635: Analysis of weld pool and weld bead formation during gas metal arc welding (GMAW) using parameterized surrogate model accounting for the distributed dynamic effects of the arc

Oleg Mokrov, Rahul Sharma, Uwe Reisgen, Sergej Warkentin, Lukas Westhofen, Jan Bender (Germany)
I-1738-2026/IV-1759-2026/XII-xxxx-2026/XIX-0064-2026

[29] 1655: Avoiding hot cracking in welding: A combined finite element and phase-field simulation approach

Fang Han, Zhihang Zhang, Zhibo Dong (China)
I-1739-2026/IV-1760-2026/XII-xxxx-2026/XIX-0065-2026

[30] 1715: Predicting and Mitigating Distortion in Wire L DED Using Thermomechanical Simulations and Experimental Validation

Dik Baas, Björn Nijhuis, Christiaan Kok, Constantinos Goulas (Germany)
I-1740-2026/IV-1761-2026/XII-xxxx-2026/XIX-0066-2026

[31] 1735: Investigation of metal transfer stability in LDED-w

Ali Abadi, *et al.* (Sweden)
I-1741-2026/IV-1762-2026/XII-xxxx-2026/ XIX-0067-2026

1755: Close Out of Joint Meeting of C-I, C-IV, C-XII, and C-XIX – P. Hochanadel

Wednesday 15 July 2026, 0830 - 1800 @ Wolf Dietrich

Joint Meeting of C-I, C-II, and C-IX

Morning Session, 0830-1230

Session 1: Feedstock Innovations and Material Design: Chair: Dr. Gunther Mohr

0830: Opening of Joint Meeting of C-I, C-II, and C-IX– Professor Peter Mayr

[32] 0840: Study on in-situ synthesized rare earth/ TiC particles on microstructure and mechanical properties of wire arc additive manufactured aluminum alloy

Qingfu Yang, Zewu Qi, Bojin Qi (China)
I-1726-2026/II-xxxx-2026/IX-xxxx-2026

[33] 0900: Influence of Geometry-Induced Thermal Histories on Powder Degradation in Laser Powder Bed Fusion

Josué Dávila, Tagir Iskhakov, Gunther Mohr, Kai Hilgenberg (Germany)
I-1728-2026/II-xxxx-2026/IX-xxxx-2026

[34] 0920: Development of a novel hybrid wire–powder DED-Arc plasma system for fabrication of metal matrix composites

Z. Elsayed, S. Kurian, R. Paiotti, P. Mayr (Germany)
I-1742-2026/II-xxxx-2026/IX-2918-2026

0940: Short 10 minute break

Session 2: Process Development and Advanced Manufacturing: Chair: Peter Mayr

[35] 0955: Process Development and Characterization of Large-Scale Stiffened AA2319 Aerospace Structures Produced by Wire Arc Additive Manufacturing

Oguzcan Dedeci, Tansu Goynuk, Ahmet Hakan Dursun, Murat Yucel, Gokhan Can (Turkey)
I-1724-2026/II-xxxx-2026/IX-xxxx-2026

[36] 1015: On the investigation of aluminium thin-wire (< 0.8 mm) wire-arc directed energy deposition

M. Silmbroth, M. Nimmervoll, B. Streibl, S. Gneiger (Austria)
I-1743-2026/II-xxxx-2026/IX-2919-2026

[37] 1035: Influence of active cooling and deposition strategies on wire arc directed energy deposition of 316LSi stainless steel walls

I. Thomas, M. Zinke, S. Jüttner (Germany)
I-1744-2026/II-xxxx-2026/IX-2920-2026

[38] 1055: Development of a Roller-Integrated WA-DED Process with Molten-Bead Compression for High Speed Deposition Stabilization

H.J. Son, Y.T. Cho (Korea)
I-1745-2026/II-xxxx-2026/IX-2935-2026

1115: Short 10 minute break

Session 3: Process Monitoring, Qualification and Quality Assessment: Chair: Gunther Mohr

[39] 1130: : Integrated Process Traceability and Quality Assessment in DED-Arc Additive Manufacturing of High Strength Al-Mg-Si Alloys

Andreas Pittner, Cagtay Fabry, Alexander Ulbricht, Michael Rethmeier (Germany)
I-1729-2026/II-xxxx-2026/IX-xxxx-2026

[40] 1150: Mechanical property sensitivity to sampling location in wire additive welding for pressure component qualification

Mia Abdulla, J. Eduardo Alvarez Rocha, Prof. Patricio F. Mendez (Canada)
I-1727-2026/II-xxxx-2026/IX-2760-2026

[41] 1210: Specimen size effects in DED-Arc on surface geometry and mechanical properties

Marc Müggenburg, Markus Köhler, Martín Altobelli, Stefan Vogts, Felix Hinz, Hendrik Jahns, Jonas Hensel, Klaus Thiele, Julian Unglaub (Germany)
I-1730-2026/II-xxxx-2026/IX-xxxx-2026

Afternoon Session, 1400-1800

Session 4: Chair: Microstructural Evolution and Advanced Characterization: Chair: Arne Kromm

1400: Opening of Afternoon Session of C-I, C-II, and C-IX – Arne Kromm

[42] 1405 Wire arc additive manufacturing of Al–Mg alloy: microstructure and mechanical properties

K. T. Suzuki, H. Mizutani, S. Tokita, Y. Zhao, A. Wu, Y. S. Sato (Japan)
I-1746-2026/II-A-489-2026/IX-xxxx-2026

[43] 1425: Influence of Temperature Management and Cooling Conditions on Martensitic Transformation in WAAM of Hot-Work Tool Steel X37CrMoV5-1

Yarop Ali, Jean Pierre Bergmann (Germany)
I-1718-2026/II-xxxx-2026/IX-xxxx-2026

[44] 1445: Microstructure and mechanical performance of functionally graded low-alloy steels produced by tandem wire-arc directed energy deposition

T. Reindl, C. Hagner, S. Rotzsche, R. Paiotti, J. Vincic, P. Mayr (Germany)
I-1747-2026/II-xxxx-2026/IX-2917-2026

[45] 1505: Processability and microstructural evolution of low-transformation-temperature alloys fabricated by laser-directed energy deposition

J. Konkel, G. Rørvik, T.A. Hassel, M. Svela, V.A. Hosseini, T. Mánik (Germany)
I-1748-2026/II-xxxx-2026/IX-2921-2026

1525: Short 10 minute break

Session 5: Post-Processing and Heat Treatment Strategies: Chair: Peter Mayr

[46] 1540: Influence of PWHT on TIG welds on AlSi10Mg alloy produced by selective laser melting additive technology

P. Mohyla, M. Lindovský, L. Krejčí, I. Hlavatý, J. Kozák, M. Bučko, L. Gembalová, M. Sondel (Czechia)
I-1749-2026/II-xxxx-2026/IX-2922-2026

[47] 1600: Effect of heat treatment on the microstructures and mechanical properties of 2319/2A14 hybrid aluminum alloy structures additively manufactured by electron beam directed energy deposition

B. Chang (Korea)
I-1750-2026/II-xxxx-2026/IX-2925-2026

[48] 1620: 30 minute break

Session 6: Mechanical Properties and High-Temperature Service Behaviors: Chair: Peter Mayr

[49] 1655: Influence of shielding gas on surface topography and fatigue properties of high-strength low-alloy steel produced by DED-Arc

Martin Gabriel Altobelli, M. Köhler, K. Hoefer, J. Hensel (Germany)
I-1731-2026/II-xxxx-2026/IX-xxxx-2026

[50] 1715: Influence of high temperature oxidation on the corrosion behavior of WE43 magnesium scaffolds fabricated by laser powder fusion

J. Liu, P. Wen, B. Teng (China)
I-1751-2026/II-xxxx-2026/IX-2923-2026

[51] 1735: Analysis of the high temperature performance of wire direct energy deposition (DED) grade 91

T. Melfi, J. Siefert, B. Schaeffer (USA)
I-1752-2026/II-xxxx-2026/IX-2924-2026

1755: Close Out of Joint Meeting of C-I, C-II, and C-IX – G. Mohr

Thursday 16 July 2026, 0830 - 1230 @ Trapp

Commission I Meeting, continued from Monday

0830: Session 2: C-I Papers (20 minutes per paper including questions)

0830: Open and Welcome – D. Kautz

[52] 0835: Rapid Tooling for Forming Applications Using Laser Powder Bed Fusion of 4340 Steel

Michael Brand, Nick Barta, Denise Gutzler, Robin Montoya, Carl Osborne, Ryan Mier (USA)
I-1709-2026

[53] 0855: Effect of Post-Heat Treatment on the Microstructure and Mechanical Properties of High-Strength Low-Alloy Steel Fabricated by Wire Arc Additive Manufacturing with Hot Forging

Ana Elize da Silva, Reny Renzetti, Telmo Santos, Jonnas Peressinoto, Bruno Cota (Brazil)
I-1725-2026/II-xxxx-2026/IX-2758-2026

[54] 0915: Probing Printability, Deposition Efficiency and Property Evolution of Tool Steel Builds by Wire and Arc-based Directed Energy Deposition

Prashant Kumar Chaurasia, Malan Jayawickrama, Mattias Igestrand, Joel Andersson (Sweden)
I-1716-2026

[55] 0935: High temperature resistant Titanium Aluminide development through Twin-wire Electric Arc Additive Manufacturing: Experimental evaluation of Tribological and Corrosion behaviour

R. Jose Immanuel, T Rajagopala Chary, Ilyas Hussain, Md Saad Patel, Surendar K Marya, Jean Yves Hascoet (India)
I-1717-2026

[56] 0955: Comparative Investigation of Reversing Actively Controlled Transfer (REACT) and Conventional Short-Circuit Transfer for Wire Arc Additive Manufacturing of Invar 36

Giulio Mattera, Elena Manoli, Luigi Nele, Alberto Massari (Italy)
I-1723-2026

Coffee Break (1000– 1030)

[57] 1030: Very high deposition rate additive manufacturing for low alloy steel parts: Ductility and eligibility for critical applications

Antoine Kieffer, Michel Perez, Xavier Boulnat, Alexandre Brosse, Corentin Chavignon, Flore Villaret (France)
I-1719-2026

[58] 1050: From wire to tube: flow-forming of additively manufactured Ti components

Michael Koch, Vito Burgio, Ghazal Moeini (Germany)

I-1720-2026

[59] 1110: Point cloud-based path planning approach for selective interlayer milling in wire arc additive manufacturing

Matthias Schäfer, Tim Ungethüm, Hans Christian Schmale (Germany)
I-1721-2026

[60] 1130: Discussion of ASME document on Quality Requirements for Fabrication using Additive Manufacturing Technologies

Teresa Melfi (USA)
I-1722-2026

1200: Completion of Commission I Business Meeting including election of new chair – D. Kautz

Adjournment of the 2026 C-I Meeting