



IIW COMMISSION II

"ARC WELDING AND FILLER METALS"

Chair: Zhuyao Zhang (United Kingdom)

75TH IIW Annual Assembly Tokyo, July 19-21, 2022

AGENDA

Time schedule for Social Events and Commission II activities (Tokyo Time)

Sunday, 17 th July	10:30 – 12:30	IIW General Assembly Venue: <i>Palaise Royal A and B</i>
	18:00 – 19:30	IIW Opening Ceremony Venue: <i>Palaise Royal A and B</i>
Tuesday, 19 th July	8:30 – 12:30	Commission II regular meeting (C-II A) Venue: <i>Room Ginga / Virtual hybrid</i>
Wednesday, 20 th July	8:30 – 12:30	Commission II regular meeting (C-II C) Venue: <i>Room Ginga / Virtual hybrid</i>
Thursday, 21 st July	8:30 – 10:30	Commission II regular meeting (C-II E) Venue: <i>Room Ginga / Virtual hybrid</i>
	11:00 – 12:30	Joint Meeting C II and C VIII (Health&Safety) Venue: <i>Room Ginga / Virtual hybrid</i>

IIW ANTITRUST POLICY

IIW activities are based on a close, voluntary cooperation of its worldwide members with the overall target to improve the knowledge and skills in joining. To maintain these fruitful activities, it is strictly necessary to meet the obligatory terms of antitrust laws during IIW working sessions, meetings and other events. Thus, any commercial oriented discussion (including, but not limited to market shares, prices, turnovers, production quantities, costs, suppliers and/or customers) is strictly banished.

By attending the meeting, you commit to follow the terms of prevailing antitrust laws (relevant antitrust laws can be found at www.iiwelding.org)



IIW Commission II

SUBCOMMISSION II-A MEETING Metallurgy of Weld Metals

Agenda (II-A-410r1-2022)

Chair: Thomas Kannengiesser (Germany)

Tuesday, 19th July 2022, 8:30-12:30 Tokyo Time

Venue: Grand Nikko Tokyo Daiba, Tokyo, Japan

Room Ginga / Virtual Hybrid Meeting

1. Welcome and Opening Day 1

- Chair's Welcome by Z. Zhang
- Highlights of the scheduled meetings by Z. Zhang
- IIW Antitrust policy by Z. Zhang

2. Message of the Editorial Board of "Welding in the World"

- Facts & Figures about "Welding in the World" by J. Lippold
- Editorial Board activities and plans by J. Lippold

3. Administrative matters of Sub Commission II-A

- II-2243r4-2022 (II-A-410r1-2022): Approval of the agenda
- II-2209r1-2022 (II-A-402r1-2022): List of documents of subcommission II-A by T. Kannengiesser
- II-2210-2022 (II-A-403-2022): List of members of subcommission II-A by T. Kannengiesser
- II-2207-2021: Executive Summary Commission II, Annual Assembly 2021 Subcommission II-A by G. Posch (presented by Z. Zhang)

4. Hydrogen in weld metal

- II-2212-2022 (II-A-405-2022): "Joining processes for components in hydrogen technologies - Current need and future importance", by M. Rhode and T. Kannengiesser (postponed)

5. The Constitution of Weld Metal

- II-2216-2022 (II-A-409-2022): "Precipitation influence and thermodynamic prediction of HAZ properties of a GMAW S690QL with varying Ti and Nb contents", by N. Schroeder, M. Rhode and T. Kannengiesser
- II-2242-2022 (II-A-412-2022): "Weldability of dissimilar metal welds of innovative high and medium entropy alloys to austenitic stainless steels joint by tungsten inert gas and friction stir welding", by T. Richter, K. Erxleben, M. Rhode, D. Schroefer, T. Michael and A. Boerner



6. Metallurgy of Additive Manufactured Components

- II-2213-2022 (II-A-406-2022): "Alloy modification for additive manufactured Ni alloy components Part I: Effect on microstructure and hardness" by A. Eissel, K. Treutler, V. Wesling, L. Engelking, D. Schroepfer and T. Kannengiesser
- II-2214-2022 (II-A-407-2022): "Alloy modification for additive manufactured Ni alloy components Part II: Effect on subsequent machining properties", by L. Engelking, D. Schroepfer, T. Kannengiesser, A. Eissel, K. Treutler and V. Wesling
- II-2215-2022 (II-A-408-2022): "Influence of the WAAM process and design aspects on residual stresses in high-strength steels", by K. Wandtke, D. Schroepfer, A. Kromm, R. Scharf-Wildenhain, A. Haelsig, T. Kannengiesser and J. Hensel

7. Weld metal cracking

- II-2211-2022 (II-A-404-2022): "Investigation of Stress Relief Cracking Mechanism by Simulation of uniaxial stress condition in the coarse grain HAZ of CrMoV steel SAW joints", by D. Czeskleba, J. Nietzke, M. Rhode and T. Kannengiesser

8. Development and behaviour of filler metals for High Strength Steels

- No documents

9. Working program of Sub Commission II-A

- II-2241-2022 (II-A-411-2022): "SC II-A Working Program 2022/2023", by T. Kannengiesser

10. Date and venue of next CII-A meetings

- Spring Meeting 2023: March 7-9, 2023, Munich.



IIW Commission II

SUBCOMMISSION II-C MEETING Testing and Measurement of Weld Metal

Agenda (II-C-2022)

Chair: Zhuyao Zhang (United Kingdom)

Wednesday, 20th July 2022, 8:30-12:30 Tokyo Time
Venue: Grand Nikko Tokyo Daiba, Tokyo, Japan
Room Ginga / Virtual Hybrid Meeting

1. Welcome and Opening Day 2

- Brief welcome by Z. Zhang
- IIW Antitrust policy by Z. Zhang

2. Administrative matters of Commission II

- Election of new chair of Subcommission II-C by IIW secretary

3. Administrative matters of Sub Commission II-C

- II-2243r4-2022 (II-C-610r3-2022): Approval of the agenda by Z. Zhang
- II-2227-2022 (II-C-611-2022): List of members of SC II-C by Z. Zhang
- II-2228r1-2022 (II-C-612r1-2022): List of documents of SC II-C by Z. Zhang
- II-2207-2021: Executive Summary Commission II, Annual Assembly 2021, Subcommission II-C by G. Posch (presented by Z. Zhang)

4. Testing of austenitic and duplex stainless steel weld metals

- II-2238-2022 (II-C-616-2022): "Open gap root welding of austenitic stainless steel without the use of backing gas", by J. McNicol and C. Fink
- II-2246-2022 (II-C-620-2022): "Simulated heat affected zone ferrite content influence on toughness for standard duplex and new duplex stainless steel grade with enhanced weldability", by A. Higelin, S. L. Manchet, G. Passot and J. Grocki

5. Testing of weld metal for microstructure, mechanical properties, cold cracking, hot cracking and microfissuring

- II-2239-2022 (II-C-617-2022): "Effect of Mo in Ni-30Cr Filler Metal on the Eutectic Phases of Weld Metal", by X. Guo, K. Xu, C. Wei, Y. L. Jiang, X. C. Lv and Y. J. Xu

6. Corrosion testing of weld metal

No document

7. Procedures for weld metal chemical analysis and weld metal sample preparation – Comparison of analysis methods

No document

8. Testing of high-strength weld metals

- II-2221-2022 (II-603-2022): "A renewed understanding of Ti, B, Al, O and N addition to Fe-C-Mn high strength steel weld metals", by K. Sampath



- II-2224-2022 (II-C-608-2022): "Effect of Ni Content on Low-Temperature Toughness of Low-alloy Steel Welds", by Ma. Yiming, Lv Xiaochun, Guo Xiao and An Hongliang
- II-2237-2022 (II-C-615-2022): "Effect of microstructural heterogeneities on variability in low-temperature impact toughness on multi-pass weld metal of 420 MPa offshore engineering steel", by S. Nellikode, Y-G Back, S-J Jung, I-C Kim, S-D Kim and Y-D Park
- II-2445-2022 (II-C-619-2022): "The Effect of Micro-alloys on the Ultimate Tensile Stress of C-Mn Multi-run Weld Metal", by G. M. Evans

9. Testing of creep- and heat resistant weld metal

- II-2222-2022 (II-C-604-2022): "Substructure & fracture toughness of 9Cr-1.5Mo-Co-V-Nb-N-B creep resisting cast steel (COST-CB2)", by S. T. Mandziej and A. Vyrostkova
- II-2223-2022 (II-C-605r1-2022): "Effect of PWHT and welding procedure on the properties and microstructure of the weld metal matching MARBN alloys", by S. Roberts, J. Wildgoose, M. Jepson, W. Philpott, Z. Zhang and D. Allen

10. Testing of non-ferrous weld metal

- II-2229-2022 (II-C-613-2022): "Welding materials for TIG welding, surfacing and WAAM technology of titanium alloys", by S. Schwab, R. Selin, M. Voron
- II-2230r1-2022 (II-C-614r1-2022): "Weldability assessment of new nanoparticle-reinforced aluminium metal matrix composites (Al-MMCs) in the FLAMINGo project", by B. Correia, A. B. Lopez, V. Ferreirac and P. J. Morais

11. Working program of Sub Commission II-C

- II-2244-2022 (II-C-618-2022): "SC II-C Working Program 2022/2023", by Z. Zhang

12. Date and venue of next CII-C meetings, other matters

- Spring Meeting 2023: March 7-9, 2023, Munich.
- Handover of Subcommission II-C Chair
- Inauguration speech of the new Subcommission II-C Chair

Appendix 1:

Candidate for the Chair of Subcommission II-C

Dr Carolin Fink

Dr. Carolin Fink is a metallurgist working on fundamental and applied research in materials joining and additive manufacturing. She earned her PhD from Otto-von-Guericke University Magdeburg (Germany), and is currently an Assistant Professor in the Welding Engineering Program at The Ohio State University (USA).

Dr. Fink received the IIW Henry Granjon Prize (Category B) in 2016, and was awarded the Warren F. Savage Memorial Award in 2021.

She has been involved in IIW Commission II and IX since 2011 in varying roles as Observer, Delegate or Vice-Delegate.



IIW Commission II

SUBCOMMISSION II-E MEETING Standardization

Agenda (II-E-830r1-2022)

Chair: David Fink (USA)

Thursday, 21st July 2022, 8:30-10:30 Tokyo Time
Venue: Grand Nikko Tokyo Daiba, Tokyo, Japan
Room Ginga / Virtual Hybrid Meeting

1. Welcome and Opening day 3

- Brief welcome by Z. Zhang
- IIW Antitrust policy by Z. Zhang
- Handing over the meeting to D. Fink

2. Administrative matters of Sub Commission II-E

- II-2243r4-2022 (II-E-830r1-2022): Approval of the agenda by D. Fink
- II-2232-2022 (II-E-831-2022): List of documents of Subcommission II-E by D. Fink
- II-2233-2022 (II-E-829-2022): Minutes of SC II-E meeting at Annual Assembly July 2021 by D. Fink

3. Update standards for welding consumables in review

- II-2234-2022 (II-E-832-2022): "2022 Update on Standards for Welding Consumables under Review", by D. Fink
- Update on Standards for Systematic Review for 2022
 - ISO 14175:2008 Welding consumables — Gases and gas mixtures for fusion welding and allied processes
 - ISO 26304:2017 Welding consumables — Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of high strength steels — Classification
 - ISO 17633:2017 Welding consumables — Tubular cored electrodes and rods for gas shielded and nongas shielded metal arc welding of stainless and heat-resisting steels — Classification
 - ISO 544:2017 Welding consumables — Technical delivery conditions for filler materials and fluxes — Type of product, dimensions, tolerances and markings
 - ISO 636:2017 Welding consumables — Rods, wires and deposits for tungsten inert gas welding of nonalloy and fine-grain steels — Classification
 - ISO 3580:2017 Welding consumables — Covered electrodes for manual metal arc welding of creep resisting steels — Classification



- ISO 14343:2017 Welding consumables — Wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat resisting steels — Classification
- ISO 18276:2017 Welding consumables — Tubular cored electrodes for gas-shielded and non-gas shielded metal arc welding of high strength steels — Classification
- ISO 21952:2012 Welding consumables — Wire electrodes, wires, rods and deposits for gas shielded arc welding of creep-resisting steels — Classification
- ISO 16834:2012 Welding consumables — Wire electrodes, wires, rods and deposits for gas shielded arc welding of high strength steels — Classification
- ISO 20378:2017 Welding consumables — Rods for gas welding of non-alloy and creep-resisting steels— Classification

5. Matrix filler metal classification standards

- II-2235-2022 (II-E-833-2022): "Matrix of Filler Metal Classifications", by D. Kotecki

6. Working program of Sub commission II-E

- II-2236-2022 (II-E-834-2022): "SC II-E Working Program for 2022/23", by D. Fink

7. Date and venue of next CII-E meetings

- Spring Meeting 2023: March 7-9, 2023, Munich.

8. Closing CII-Annual Assembly Meetings

- Résumé of the CII AA 2022 meetings by Z. Zhang
- Acknowledgments to the organizers by Z. Zhang



IIW Commissions II, VIII JOINT MEETING

Agenda

Chair C-II: Zhuyao Zhang (United Kingdom)
Chair C-VIII: Geoff Melton (United Kingdom) Retired

Thursday, 21st July 2022, 11:00-12:30 Tokyo Time
Venue: Grand Nikko Tokyo Daiba, Tokyo, Japan
Room Ginga / Virtual Hybrid Meeting

1. Welcome and opening remarks

- Welcome and general information about the meetings by C-II: Zhuyao Zhang and C-VIII: David Werba
- II-2243r4-2022 / VIII-2343-2022: Review and approval of the agenda
- IIW Antitrust policy by Z. Zhang

2. Warnings for welding consumables

- II-2247-2022 / VIII-2352-2022: "Warnings for welding consumables - proposals for an international standard", by Mauro Carabelli

3. Welding fumes

- II-2248-2022 / VIII-2351-2022: "Reducing fume exposures in gas metal arc welding - sustainable integrative approach in Germany", by Wolfgang Zschiesche and Simon Weidhaas

4. Closure of the meeting (David Werba and Zhuyao Zhang)