



INTERNATIONAL INSTITUTE OF WELDING

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Chair: Prof. Huaping Xiong
Delegation: China

Doc. XVII-0072-23
16th July, 2023

Commission XVII: Brazing, Diffusion Bonding and Soldering

Agenda for the 76th Annual Assembly and International Conference

MARINA BAY SANDS CONVENTION CENTRE, SINGAPORE, 16-21 July 2023

Program Summary

| Time | Meetings | Venue |
|------------------------------------|------------------------------|---------|
| July 17 (Monday) 14:00-17:50 | C-VII Workshop | Level 4 |
| July 18 (Tuesday) 8:30-12:30 | C-XVII & C-VII Joint Meeting | Level 4 |
| July 19 (Wednesday) 14:00-17:40 | C-VII Workshop | Level 4 |

76th IIW Annual Assembly, Commission XVII meeting

FIRST DAY, 17th July, 2023, 14:00pm — 17:50pm

- 1) Introduction to each other (14:00pm — 14:10pm)
- 2) Apologies/No response (14:10pm — 14:15pm)
- 3) Welcome speech by Huaping Xiong (14:15pm — 14:20pm)
- 4) Introduction to IIW & Commission XVII (esp. for the benefit of new members) (14:20pm — 14:25pm)
- 5) Work Program identification and Discussion for Commission XVII (14:25pm — 14:30pm)
- 6) Technical presentations (14:30pm-17:40pm)

Presentations, chaired by Huaping Xiong

(The presentation time of 20 minutes includes 15-min presentation and 5-min discussion)

- 6.1) Presentation 1: Doc XVIIIB-0064-23 “Simulation of compensation methods for diffusion bonding of multiple parts
- By Andreas Fey, IFW, Jena, Germany (14:30pm — 14:50pm)
- 6.2) Presentation 2: Doc XVIIIA-0268-23 “Brazing of surface modified C/C composites to Ni-based superalloy for high temperature applications ”
- By Yuanxun Shen, Zhengzhou Research Institute of Mechanical Engineering Co., Ltd., China (14:50pm — 15:10pm)
- 6.3) Presentation 3: Doc XVIIIA-0269-23 “New design of sapphire joints brazed with bismuth-borate glass”
- By Wei Guo, Northwestern Polytechnical University, China (15:10pm — 15:30pm)
- 6.4) Presentation 4: Doc XVIIIA-0270-23: “Towards a better understanding of the correlation between sandwich composite fillers and ceramic relaxation in a ceramic/metal joint ”
- By Peng He, Harbin Institute of Technology, China (15:30pm — 15:50pm)

[COFFEE/TEA BREAK, \(15:50pm – 16:20pm\)](#)

Presentations, chaired by Warren Miglietti

- 6.5) Presentation 5: Doc XVIIIA-0271-23 “Quantification of residual stresses in cemented carbide-maraging steel joints”
- By Tim Ulitzka, Dortmund University of Technology, Germany (16:20pm — 16:40pm)
- 6.6) Presentation 6: Doc XVIIIA-0272-23 “Effect of Pd, Zr addition into AgCuTi filler metal on the joining characteristics of Al₂O₃ ceramic”
- By Xiaomeng Huang, Beijing Engineering Technology Research Center of New Brazing Materials for Electronic Information, China (16:40pm — 17:00pm)
- 6.7) Presentation 7: Doc XVIIIA-0273-23 “Quality matters- Quality and brazing standards are there to be used not abused” (Pre-recorded)
- By Derek Davies, Flaming Brazing Services Corp., UK (17:00pm — 17:20pm)
- 6.8) Presentation 8: Doc XVIIIA-0274-23 “Research on AgCuTi paste for brazing Al₂O₃/AlN ceramic and copper”
- By Xue Peng, Nanjing University of Science and Technology, China (17:20pm — 17:40pm)
- 7) Closing Remarks(17:40pm —17:50pm) Huaping Xiong and Simon Jahn

SECOND DAY, **18th July**, 2023, 8:30am — 12:30am

JOINT MEETING:

- 1) Opening (8:30am-8:35am), Guisheng Zou and Huaping Xiong
 - Welcome and Introduction to Commissions VII and XVII
 - Review of the past joint meetings of C-VII and C-XVII

- 2) Technical presentations (8:35am-12:00am)

Chaired by Simon Jahn and Huaping Xiong

- 2.1) Presentation 8: Doc XVIIC-0066-23 (VII-0251-23) “Can nanojoining be an alternative for brazing?”
- By S. Hausner, Technische Universität Chemnitz, Germany (8:35am — 8:55am)
- 2.2) Presentation 9: Doc XVIIC-0067-23 (VII-0255-23) “Performance and sintering mechanism of photonic sintering Cu@Ag NWs conductive thin films”
- By Shuye Zhang, Harbin Institute of Technology, China (8:55am — 9:15am)
- 2.3) Presentation 10: Doc XVIIC-0068-23 (VII-0252-23) “Effect of bonding condition on joint strength using Sn-coated Cu particles for high-temperature applications”
- By Hiroshi Nishikawa, Osaka University, Japan (9:15am — 9:35am)
- 2.4) Presentation 11: Doc XVIIIA-0275-23 (VII-0256-23) “Synchrotron X-Ray diffraction on phase evolution in Ni-base superalloys brazed with a MPEA”
- By Zhenzhen Yu, Colorado School of Mines, USA (9:35am — 9:55am)
- 2.5) Presentation 12: Doc XVIIIA-0276-23 (VII-0253-23) “Joining of metal foils via reactive multilayer nanofolds”
- By Cheng Luo, Shanghai Jiao Tong University, China (9:55am — 10:15am)

COFFEE/TEA BREAK, (10:15am – 10:45am)

Chaired by Susann Hausner and Guisheng Zou

- 2.6) Presentation 13: Doc XVIIB-0065-23 (VII-0257-23) “Innovative joining concepts for diffusion bonding processes of aluminium alloy”
- By Segel, C, IFW, Jena, Germany (10:45am — 11:05am)
 - 2.7) Presentation 14: Doc XVIIC-0069-23 (VII-0254-23) “Study of the sintering mechanisms and physical properties of Ag nanopaste by multi-scale simulations”
- By Jiayun Feng, Harbin Institute of Technology, China (11:05am — 11:25am)
 - 2.8) Presentation 15: Doc XVIIIA-0277-23 (VII-0258-23) “Strengthening ceramic-aluminum alloy brazing joint by femto second laser surface treatment”
- By Peng Xue, Nanjing University of Science and Technology, China (11:25am — 11:45am)
- 3) Miscellaneous: Future joint meeting in IIW AA, International Conference on Brazing, Diffusion Bonding and Micro-Nano Joining, Intermediate meeting, etc. (11:45am — 12:00am)
 - 4) Special presentations from IIW Secretariat and Welding in the World (WiTW)
Elisabetta/Luca Costa (IIW Secretariat) and John Lippold (WiTW) (12:00am — 12:25am)
 - 5) Discussions and Closing Remarks (12:25am — 12:30am), Guisheng Zou and Huaping Xiong
 - Submission of documents, paper recommendations to WitW, etc

THIRD DAY, *19th July*, 2023, 14:00pm — 17:40pm

- 1) Visit by Mr. Stephan Egerland, TMB director of IIW, with a short speech (14:00-14:10 pm) (Flexible)
- 2) Technical presentations (14:10pm — 17:20pm)

Presentations, chaired by Lukas Wojarski

- 1.1) Presentation 16: Doc XVIIA-0278-23 “Brazing of stainless steel AISI 304 to high strength aluminum alloy AA6082 using Al-Ge-Si filler metal”
- By V. Fedorov, Chemnitz University of Technology, Germany (14:10pm — 14:30pm)
- 1.2) Presentation 17: Doc XVIIIC-0070-23 “Joining of 6063Al alloys by an interlayer of Zn-Sn hypereutectic alloy in air based on liquid and solid diffusion”
- By Pu Zhao, Harbin Institute of Technology, China (14:30pm — 14:50pm)
- 1.3) Presentation 18: Doc XVIIA-0279-23 “Effect of CoFeCuMnCr HEA/pure metal composite interlayer on alleviating residual stress of vacuum brazed Inconel718/SiC joints”
- By Hong Li, Beijing University of Technology, China (14:50pm — 15:10pm)
- 1.4) Presentation 19: Doc XVIIA-0280-23 “Microstructure and mechanical properties of TiAl joint brazed TiFeMn-based filler metal filler metal”
- By Haishui Ren, Beijing Institute of Aeronautical Materials, China (15:10pm — 15:30pm)
- 1.5) Presentation 20: Doc XVIIA-0281-23 “The grain refinements and TEM observation of SnBiInZn alloys for electronic application”
- By Shuye Zhang, Harbin Institute of Technology, China (15:30pm — 15:50pm)

COFFEE/TEA BREAK, (15:50pm – 16:20pm)

Presentations, chaired by Peng He

- 1.6) Presentation 21: Doc XVIIA-0282-23 “Investigation of the wetting behavior of nickel-based brazing alloy B-Ni5a on laser-melted Inconel 718”
- By Lukas Wojarski, Dortmund University of Technology, Germany (16:20pm — 16:40pm)
 - 1.7) Presentation 22: Doc XVIIA-0283-23 “The effect of iron on the structure and strength of the Kovar-stainless steel joints by using Cu-Mn-Co brazing filler metal” (Pre-recorded)
- By S. Maksymova, E.O. Paton Electric Welding Institute of the National Academy of Sciences of Ukraine (PWI), Ukraine (16:40pm — 17:00pm)
 - 1.8) Presentation 23: Doc XVIIA-0284-23 “Research on toughening design and wear resistance behavior of nickel-based diamond composite coating”
- By Quanbin Lu, Zhengzhou Research Institute of Mechanical Engineering Co., Ltd., China (17:00pm — 17:20pm)
- 2) Discussions and Closing Remarks (17:20pm — 17:40pm), Huaping Xiong and Simon Jahn
Next intermediate meeting of C-XVII, Information of several international conferences, Submission of documents, Recommendations of WitW, etc

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