



INTERNATIONAL INSTITUTE OF WELDING
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Doc.IV-1573-2023

Annual Assembly Meeting, 2023

**Agenda Commission IV "Power Beam Processes"
July 17 - 19, 2023**

Singapore

Chairman: Dr. Herbert Staufer (Austria)

Monday 17 July, 0830h – 1230h

1. Opening the Meeting
2. Request volunteer to write the Minutes of Meeting
3. Adoption and Agreement of Agenda (Doc. IV-1573-2023)
4. Brief report on Joint Intermediate Meeting (Germany) in March 2023
5. Presentation of documents

(Session chairman: Dr. Patrick Hochanadel, Vice Chairman C-IV)

[1] Synchrotron diffraction residual stresses studies of electron beam welded high strength structural steels
Raghawendra P. S. Sisodia¹, Lara Gigli, Jasper Plaisier, Marek Weglowski, Piotr Sliwinski, Hungary
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[2] Hand-held electron beam tool for technological work in outer space.
Serhii Hlushak, Ukraine
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[3] Welding of thin stainless-steel sheets using a QCW green laser source
E. Haddad, F. Poggenburg, Häusler¹, A. Olowinsky, Germany
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[4] Comparison of welding characteristics using various high-brightness laser systems for non-ferrous metals
Su-Jin Lee, Heeshin Kang, Soon-Jae Lee, Jeong Suh, Dongsig Shin, Korea
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[5] Material properties of Plastic Direct Joining using Diode Laser
Su-Jin Lee, Jung-Lo Yoon, Danbi Song, Ryoohan Kim, Wooyong Chung, Dongsig Shin, Korea
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[6] In-situ x-ray phase contrast observation on the melt and vapor capillary behaviour during the welding regime transition on aluminium with limited material thickness
W.-S. Chung, M. Hummel, C. Spurk, A. Häusler, C. Häfner, F. Beckmann, J. Moosmann, Germany
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Coffee break

(Session chairman: Chris Punshon, Delgate UK)

[7] Effect of laser cleaning of corroded austenitic stainless steel
Jeng o Kim, Jiyeon Choi, Soojin Choi, Dongsig Shin, Korea
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[8] Keyhole instabilities in thick sheet laser beam welding
Joerg Volpp, Yuji Sato, Masahiro Tsukamoto, Sweden, Japan
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[9] Laser joining of zinc-coated steels with hermetic seal quality
Justin Dakka, Hui-Ping Wang, Junjie Ma, Blair Carlson, Jay Oswald, USA
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[10] Control of meltpool shape in laser welding
Wojciech Suder, Xin Chen, David Rico Sierra, Stewart Williams, UK
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[11] Effect of local and global gas atmosphere on surface-driven phenomena in deep penetration laser welding with high welding speeds
Leander Schmidt, Klaus Schrickler, Florian Sachs, Andrea Knauer, Henry Romanus, Herwig Requardt, Yunhui Chen, Alexander Rack, Jean Pierre Bergmann, Germany
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[12] Understanding the Formation of False Friends in Laser Beam Welding by means of in High-Speed Synchrotron X-ray Imaging
Klaus Schrickler, Christian Diegel, Leander Schmidt, Marc Seibold, Hannes Friedmann, Fabian Föhlich, Stefan Eichler¹, Herwig Requardt, Yunhui Chen, Alexander Rack, Jean Pierre Bergmann, Germany
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Tuesday 18 July 2023, 0830 -1800: Joint Meeting of C-I, C-IV and C-XII
“Welding/joining and additive manufacturing technology”

Wednesday 19 July, 0830h – 1230

(Session chairman: Dr. Peer Woizeschke, Chairman Sub-Comm. IV-A)

[13] Process comparison of laser deep penetration welding in pure nickel using blue and infrared wavelengths

Möbus, Marcel; Pordzik, Ronald; Krämer, Andreas; Mattulat, Thorsten, Germany

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[14] Frontal pyrometric snapshot measurements of the keyhole wall temperature in laser welding of pure aluminum

Pordzik, Ronald; Mattulat, Thorsten; Woizeschke, Peer, Germany

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[15] Weldability of PBF-LB/M Inconel 718 lattice structures by laser beam

Juan Simón-Muzás, Christian Brunner-Schwer, Kai Hilgenberg, Michael Rethmeier, Germany

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[16] Effect of dynamic beam oscillation behaviour on microstructural and mechanical properties of the electron beam welded S1100M high strength structural steel

Raghavendra P. S. Sisodia¹, Marcell Gáspár¹, Sumit Ghosh, Erika Hodúlová, Hungary.

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[17] Development of spatter suppression in deep penetration welding of pure copper plate using blue-IR hybrid laser

Shumpei Fujio, Mao Sudo, Keisuke Takenaka, Yuji Sato, Timotius Pasang, Masahiro Tsukamoto, Japan

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Coffee break

10:30 Meeting of the Secretariat and Election of new chairman

(Session chairman: Prof. Masahiro Tsukamoto, Delegate Japan)

[18] Experimental investigation of spatter free welding with high power laser beam welding of stainless steel

Yuji Sato, Yoshiaki Kurita, Masahiro Tsukamoto, Japan

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[19] Elucidation of dissimilar material joining phenomena on steel and Aluminum alloy using hot-wire laser brazing

Tamaki Ito, Kai Tomita, Koichi Taniguchi, Satoshi Igi, Motomichi Yamamoto, Japan

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[20] Quantifying Particulate Generation of Laser Coupling-in Window Protection Systems in Laser in Vacuum Welding

Max Nentwich, UK

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[21] Development, Qualification and Production Analysis of Local Vacuum Power Beam Welding in Heavy Fabrication for Low Carbon Energy Application

Chris Punshon, Robert Nicolson, James McArthur, Carol Johnsonc, Arben Ferhati, Bart Theunissen, William Lafleur, UK

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(Closing session chairman: Dr. Herbert Staufer Austria)

6. Special Presentation: EBW of the Orion Space Vehicle Launch Abort System
Ernest Levert, USA
7. Words from the new elected chairman C-IV
8. Election of new sub-chair C-IV-B (electron beam processes)
9. Recommendation of publication for IIW Journal “Welding in the World”
9. Date and place of the next Annual Assembly (77th Annual Assembly, July 2024)
10. Closure the meeting