



**INTERNATIONAL INSTITUTE OF WELDING**  
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Doc.XII-2486-2021r2

**IIW Annual Assembly 2021**

**Agenda Commission XII  
"Arc Welding Processes and Production Systems"  
July 15 - 17, 2021  
ON-LINE**

**Thursday 15 July 2021, 13:00 – 16:00 CEST @ Room 4**

1. Opening
2. Agenda (Doc.XII-2486-2021)
3. Minutes of previous meeting (Doc. XII-2455-2020)
4. Brief report on Joint Intermediate ON-LINE Meeting on March 2021
5. Direction of C-XII
  - New C-XII Sub-Commission: Physics of Welding
  - Election of the Chair
6. Presentation of documents:

**(Session chairman: Dr. Pan, Chairman of Sub-Comm. A)**

- [1] 13:20-13:40  
Weld pool Image Recognition and Welding wire Design for Automatic Penetration Bead Welding in Horizontal Position  
K. Ozaki, N. Furukawa, A. Okamoto, K. Ishizaki, Y. Kimura, T. Koike (Japan)  
Doc. XII-2471-2021
- [2] 13:40-14:00  
Study on blow hole detection technology using image sensing method with deep learning  
KASANO Kazuki, OGINO Yosuke, SANO Tomokazu, ASAI Satoru (Japan)  
Doc. XII-2473-2021
- [3] 14:00-14:20  
Qualification of GMAW thick-wire welding on fine grain structural steels  
M. Neumann, A. Hälsig, M. Kusch (Germany)  
Doc. XII-2470-2021

**Coffee Break (14:20– 14:35)**

**(Session chairman: Dr. Egerland, Chairman of Sub-Comm. B)**

- [4] 14:35-14:55  
Selection of welding conditions for achieving both high efficiency and low heat input on hot-wire GMAW  
Keita Marumoto, Hajime Tamata, Akira Fujinga, Takeshi Takahashi, Hikaru Yamamoto, Jeong-Won Choi, Motomichi Yamamoto (Japan)  
Doc. XII-2472-2021
- [5] 14:55-15:15  
WelDX – progress report on the welding data exchange format  
Cagtay Fabry, Volker Hirthammer, Martin Scherer, Andreas Pittner, Michael Rethmeier (Germany)  
Doc. XII-2476-2021

**Friday 16 July 2021, 13:00 – 16:00 CEST @Room 4**

**(Session chairman: Dr.Hermans, Vice-chairman of Comm. XII)**

- [6] 13:00-13:20  
Study of microstructure evolution during wire arc additive manufacturing HSLA steel  
Oleg Panchenko, Dmitry Kurushkin, Kladov Ivan, Leonid Zhabrev, Eugeni Rylkov (Russia)  
Doc. XII-2474-2021
- [7] 13:20-13:40  
Data-driven modelling of complex current-voltage waveform controlled gas metal arc based wire arc additive manufacturing processes  
Pradeep N, Prakash S, Saravana Kumar G and Murugaiyan Amirthalingam (India)  
Doc. XII-2475-2021
- [8] 13:40-14:00  
Development and implementation of a software for wire arc additive manufacturing pre-processing  
Planning: Trajectory planning and machine code generation  
Rafael Pereira Ferreira, Louriel Oliveira Vilarinho, Américo Scotti (Brasil)  
Doc. XII-2481-2021

**Coffee Break (14:00– 14:15)**

**(Session chairman: Prof. Wu, Chairman of Sub-Comm. E)**

**14:15-14:30 Visit from the WitW Editors (Video)**

- [9] 14:30-14:50  
Alloying Element Addition to the Titanium Aluminide fabricated using the Twin-Wire Plasma Arc Additive Manufacturing (TW-PAAM)  
Chen Shen , Wenlu Zhou, Jianwen Xin, Lin Wang, Xueming Hua , Yuelong Zhang, Ting Zhang, Peilei Zhang (China)  
Doc. XII-2477-2021
- [10] 14:50-15:10  
Analysis of Arc Characteristics in Oxide Active TIG Welding Based on Emission Spectroscopy Diagnostics  
Gu Yufen, Li Chunkai , Ding Bin, Shi Yu (China)  
Doc. XII-2483-2021

## **Saturday 17 July 2021, 13:00 – 16:00 CEST @Room 4**

**(Session chairman: Prof. Goecke, Chairman of Sub-Comm. C)**

- [11] 13:00-13:20  
Numerical simulation of the pulsed-MAG welding process from the heat source properties to the weld pool formation  
Yosuke Ogino, Satoru Asai, Tomokazu Sano (Japan)  
Doc. XII-2482-2021
- [12] 13:20-13:40  
Effects of alkaline elements on the metal transfer behavior in metal cored arc welding  
Ngoc Quang Trinh, Shinichi Tashiro, Keigo Tanaka, Tetsuo Suga, Tomonori Kakizaki, Kei Yamazaki, Tomozaku Morimoto, Hiroyuki Shimizu, Ackadech Lersvanichkool, Anthony B. Murphy, Hanh Van Bui, Manabu Tanaka (Japan)  
Doc. XII-2479-2021,
- [13] 13:40-14:00  
A Numerical Analysis on the Effect of Zinc Evaporation at the Joint Interface in Hot-dip Galvanized Steel to Aluminum Alloy Joining by AC Pulse GMAW  
Seong Min Hong, Shinichi Tashiro, Hee-Seon Bang, Manabu Tanaka (Japan)  
Doc. XII-2481-2021

## **Coffee Break (14:00– 14:15)**

**(Session chairman: Prof. Asai, Chairman of Comm. XII)**

- [14] 14:15-14:35  
Effect of ultrasonic vibration on keyholing/penetrating capability in waveform-controlled plasma arc welding  
Junnan Qiao, Shuoshuo Tian, ChuanSong Wu (China)  
Doc. XII-2487-2021
- [15] 14:35-14:55  
The improvement of joint strength directional dependency on the Al-Fe FSW overlap joint through the tool probe shape driven hook shape control  
Jin Young Yoon and Jason Cheon  
Doc. XII-2485-2021
- [16] 14:55-15:15  
3D spectroscopic measurement of plasma temperature and metal vapor concentration in plasma-MIG hybrid welding process  
Kazuya Ishida, Shinichi Tashiro, Kazufumi Nomura, Dongsheng Wu, Manabu Tanaka (Japan)  
Doc. XII-2478-2021

7. Recommendation of submission to IIW Journal “Welding in the World”

8. Miscellaneous

9. Date and place of the next Annual Assembly (75th Annual Assembly, July 17-22, 2022, Tokyo, Japan)

10. Closure