

Joint Meeting of Comm.I, Comm.IV, Comm.XII and SG212

“Welding/joining and additive manufacturing technology”

Tuesday 9 July 2019, 8:15 -18:35 @ Room “CP London I & II”

Morning Session, 8:15-12:35

1. Opening: Prof. Asai, Chairman of Commission XII

2. Presentation of document

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

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| [J1] | Arc-welding based additive manufacturing for body reinforcement in automotive engineering
Ann-Christin Josten (Germany)
Doc. XII-2428-19/ I-1425-19/IV-1451-19/212-1641-19 |
| [J2] | Optimization of the controlled short circuit GMAW metal transfer process for the deposition rate increasing in Wire Arc Additive Manufacturing
D. Kurushkin, I. Mushnikov, A. Popovich, O. Panchenko (Russia)
Doc. XII-2352-19/ I-1426-19/IV-1452-19/212-1642-19 |
| [J3] | Increasing the manufacturing efficiency of WAAM by advanced cooling strategies
Uwe Reisgen, Rahul Sharma, Samuel Mann, Lukas Oster (Germany)
Doc. XII-2357-19/ I-1427-19/IV-1453-19/212-1643-19 |
| [J4] | Arc Characteristics and Metal Transfer Mode in Super-TIG Welding of Thick Wall Metal Additive Manufacturing
S.M. Cho, G.J. Seo, J.H. Park, M. Cheepu (Korea)
Doc. 212-1625-19/ I-1428-19/XII-2363-19/212-1644-19 |
| [J5] | Multi Signal Sensing, Monitoring and Control in Wire Arc Additive Manufacturing
S.F. Goecke, G.F. Gottschalk, A. Babu and M.J.M Hermans (Germany)
Doc. 212-1639-19/ I-1429-19/IV-1454-19 /XII-2364-19 |
| [J6] | Characterisation of heat transfer in wire arc additive manufacturing (WAAM)
Philipp Henckell, Yarop Ali, Jan Reimann, Jean Pierre Bergmann (Germany)
Doc. I-1417-19/IV-1455-19/XII-2365-19/212-1645-19 |

Coffee Break (10:15– 10:35)

(Session chairman: Dr. Kautz, Chairman of Commission I)

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| [J7] | Microstructural development during wire arc additive manufacturing of copper based components
Justin Baby, Murugaiyan Amirthalingam (India)
Doc.XII-2353-19/ I-1430-19/ IV-1456-19/212-1646-19 |
| [J8] | Wire arc additive manufacturing of high strength Al-Mg-Si aluminum alloys using similar filler wires with additional grain refiner
René Winterkorn, Andreas Pittner, Robert Lahnsteiner, Michael Rethmeier (Germany)
Doc. I-1410-19/IV-1457-19/XII-2366-19/212-1647 -19 |
| [J9] | Mechanical properties of Wire Arc Additive Manufactured Components of Ti-6Al-4V
H. Staufer, Grunwald R. (Austria)
Doc. IV-1434-19/ I-1431-19/ XII-2367-19/212-1648-19 |
| [J10] | In situ synthesis of a novel Si-containing FeCoCrNi high-entropy alloy fabricated by selective laser melting
Danyang Lina, Lianyong Xua, Hongyang Jinga, Yongdian Hana, Lei Zhaoa (China)
Doc. XII-2354-19/ I-1432-19/ IV-1458-19/212-1649-19 |



[J11]	Streamlining parameter development and minimizing material costs in laser powder bed fusion Colt Montgomery (USA) Doc. I-1403-19/IV-1459-19/XII-2368-19/212-1650-19
[J12]	Multifunctional Large-Scale Machine for Additive Manufacturing – LASIMM E. Assunção, F. Barros, D. Barbosa (Belgium) Doc. XII-2435-19/ I-1433-19 /IV-1460-19/212-1651-19

Afternoon Session, 14:00-18:35

(The current status and future plans regarding Welding in the World: Prof.Lippold)

(Session chairman: Dr. Staufer, Chairman of Commission IV)

[J13]	The effect of oxygen on the gas tungsten arc weldability of laser-powderbed fusion fabricated 304L stainless steel Devon S. Gonzales, Stephen Liu, Daniel Javernick, Matthew Johnson (USA) Doc. I-1405-19/IV-1461-19/XII-2369-19/212-1652-19
[J14]	Bridging the “valley of death” in laser based metal additive manufacturing R. Bola, E. Assuncao, L. Quintino (Portugal) Doc.IV-1432-19/ I-XXXX-19/ XII-2370-19/212-1653-19
[J15]	Innovative Laser Beam Joining Technology for Additive Manufactured Parts B. Gerhards (Germany) Doc. IV-1449-19/ I-1434-19/ XII-2371-19/212-1654-19
[J16]	Laserbeam-Hybrid-Welding – current results and prospect J. Brozek, S. Keitel (Germany) Doc. IV-1431-19/ I-1436-19/ XII-2373-19/212-1656-19
[J17]	Experimental and numerical study of the influence of the Laser hybrid parameters in partial penetration welding on the solidification cracking in the weld root N. Bakir, Ö. Üstündag, A. Gumenyuk, M. Rethmeier (Germany) Doc. IV-1441-19/ I-1437-19/ XII-2374-19/212-1657-19
[J18]	Laserbeam Submerged Arc Hybrid Welding – A novel hybrid welding technique for thick plate applications. Oliver Engels (Germany) Doc. IV-1446-19/ I-1438-19/ XII-2375-19/212-1658-19

Coffee Break (16:15– 16:35)

(Session chairman: Prof. Tanaka, Chairman of SG212)

[J19]	Assessment of thermal cycles by combining thermo-fluid dynamics and heat conduction in keyhole mode welding processes A. Artinov, V. Karkhin, P. Khomich, M. Bachmann, M. Rethmeier (Germany) Doc. 212-1607-19/ I-1439-19//IV-1461-19/XII-2376-19
[J20]	Numerical analysis of weld pool behavior in wire feed laser beam welding with oscillating magnetic field X. Meng, A. Artinov, M. Bachmann, M. Rethmeier (Germany) Doc. 212-1608-19/ I-1440-19/IV-1462-19/XII-2377-19
[J21]	Participatory Design of Laser Keyhole Welding Process using CFD-based Coupled Simulations of Thermal, Metallurgical and Mechanical Behavior S.W. Han, L.J. Zhang, J.X. Zhang, S.J. Na (China) Doc. 212-1612-19/ I-1441-19/IV-1463-19/XII-2378-19
[J22]	Effects of the Shielding Gas Flow on the Blowhole Generation for Aluminum Alloys Laser Welding T. Fujimoto, M. Hirano, E. Fujimoto, Y. Abe, M. Nakatani, M. Shigeta and M. Tanaka (Japan) Doc.212-1613-19/I-1442-19/IV-1464-19/XII-2379-19
[J23]	Numerical modeling of keyhole instability and porosity formation in deep-penetration laser welding on NiCrMoV steel Y. Suna, H.C. Cui, X.H. Tang, F.G. Lu (China) Doc. 212-1623-19/ I-1443-19/IV-1465-19/XII-2380-19
[J24]	The visualization of contamination phenomena and countermeasure performance on vacuum laser beam welding via experimental and numerical approaches Y.K. Lee, J. Cheon, B.K. Min, J.H. Cho and C.L. Kim (Korea) Doc. 212-1628-19/ I-1444-19/IV-1466-19/XII-2381-19

3. Closure: Dr. Kautz, Chairman of Commission I

