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## **2061 IIW Assembly and Committee Report**

Patricio F. Mendez

### **1 SG-212**

List of talks is attached. Contributions from Canada were:

- Doc.212-1461-16 "Effect of Current on Metal Transfer in SAW," by Mendez, P.F. and Sengupta, V.
- Doc.212-1462-16: Effect of Welding Fluxes on Metal Transfer in SAW by V. Sengupta, P.F. Mendez
- Doc.212-1463-16: Experimental Measurements of Cathode and Anode Fall voltages in GMAW by C. McIntosh, P.F. Mendez

The above papers were also presented separately in C-XI by request of C-XI, Teresa Melfi.

### **2 C-XII**

List of talks is attached. As a delegate from Canada, the list of papers proposed for submission to WiW is attached.

### **3 CHAIR-TMB**

Thursday July 14, 16:00-18:00. Agenda is attached.

### **4 TG-YL**

Thursday July 14, 18:00-20:00.

I was invited to participate as an observer in TG-YL. The University of Alberta contributed the largest student delegation to IIW (4 students UofA, 3 students Ohio State, 2 students Colorado School of Mines). One of our students (Gentry Wood) was elected as spokesman for North America, and he was also invited to participate in this meeting. Two other Canadian presentations by Young Leaders were in C-II and C-IV:

- Doc.II-2011-16: Comparison of Residual Stresses in the WIC Weldability Test to Full-Scale Pipe Welds. Mitchell Grams, Patricio F. Mendez
- Doc.IV-1283-16. Prediction of Bead Width and Height in Coaxial Laser Cladding from Fundamental Principles. G. Wood, P.F. Mendez, Canada

### **5 TMB**

Friday 9:00-11:00.

SC Air seems to be inactive and a possible disbanding of it is considered because of inactivity. TMB Chair will discuss with SC Air Chair.



SC Micro is growing, and the possibility of converting into a Commission is discussed. SC Micro Chair has sent a proposal that is under consideration. John Lippold raised the issue that SC Micro has not submitted papers to WiW. I suggested that SC Micro is active and prolific, and that if there is an expectation of papers from SC Micro, the expectation should be clear, and it is likely to result in numerous submissions. This should not be an impediment for SC Micro to become a commission.

Proposal on the necessity of avoiding marketing-oriented papers (TMB-0374-16) / G Posch. There is a need to avoid conflicts with German anti-trust laws. It is important to avoid commercial, pricing, market information. Chairs must interrupt presentations that can be perceived as infringing anti-trust laws.

### **5.1 *Welding in the World***

There are 300 papers awaiting peer review. The peer review system is stretched to the limit. Peer review of open submissions requires approval of the appropriate commission chair. Occasionally chairs are unresponsive. J. Lippold proposed that if chairs are inactive, papers automatically shift to the open peer-review system.





## **Annual Assembly 2016**

**Doc. 212-XXXX-16**

### **Tentative Agenda**

**Study Group 212 "Physics of Welding"**

**July 11 - July 13, 2016**

**Melbourne Convention and Exhibition Centre (MCEC), Melbourne, Australia**

### **Monday 11 July 2016, 14:00 – 18:00 @Meeting Room 104**

1. Opening
2. Agenda
3. Minutes of previous meeting
4. Brief report on intermediate meeting in IIS, Genova, Italy on March, 2016
5. Presentation of documents:
  - [1] Why GTA models including the physics of the cathode interaction do underestimate the arc temperature and the authors are  
I. Choquet and A. Javidi Shirvan (Sweden)  
Doc. 212-1442-16
  - [2] Analysis of the power budget of TIG arc based on non-equilibrium modelling  
M. Baeva, D. Uhrlandt (Germany)  
Doc. 212-1425-16
  - [3] Numerical analysis of arc phenomena during TIG welding with a constricted nozzle by using a two-temperature model  
K. Konishi, S. Miki, M. Shigeta, A. Murata, T. Murata, M. Tanaka (Japan), A.B. Murhpy (Australia)  
Doc. 212-1433-16

[4] Numerical simulation about influence of pulse current in MIG welding process  
Y. Ogino, Y. Hirata and S. Asai (Japan)  
Doc. 212-1430-16

[5] Numerical simulation of new GMA welding process with duplex current feeding  
S. Tashiro, M. Seto, A. Aoki and M. Tanaka (Japan)  
Doc. 212-1434-16

**Coffee Break (16:00– 16:30)**

[6] Incompressible SPH simulation of molten metal droplet transfer and weld pool convection during GMA Welding  
H. Komen, M. Shigeta, M. Tanaka (Japan)  
Doc. 212-1431-16

[7] Numerical simulation of weld distortion by considering convective heat transfer in weld pools  
H. Tsuji, S. Okano, M. Tanaka and M. Mochizuki (Japan)  
Doc. 212-1441-16

[8] Coupling a self-consistent model of the arc and workpiece to calculations of residual stress and distortion  
A.B. Murphy, V. Nguyen, Y. Feng and D.G. Thomas (Australia)  
Doc. 212-1440-16

[9] Modelling for collective growth of fume primary particles with charge effect in arc welding  
M. Shigeta, S. Minami, M. Tanaka (Japan)  
Doc. 212-1432-16

**Tuesday 12 July 2016, 8:30 -18:00 @ Meeting Room 105 &106**  
**Joint Meeting of Comm.I, Comm.IV, Comm.XII and SG212**

**Morning Session 8:30 – 12:30**

Under consideration

**Coffee break (10:30 – 11:00)**

Under consideration

**Afternoon Session 14:00 – 18:00**

Under consideration

**Coffee Break (16:00– 16:30)**

Under consideration

## **Wednesday 13 July 2016, 14:00 – 18:00 @Meeting Room 104**

[10] Physical behavior and mechanism of arc in microplasma arc welding

J. He, X. Wang, S.L. Yang, F. Wang (China)

Doc. 212-1438-16

[11] Dynamic effect of weld torch attitude on geometry of weld pool surface in GTAW

D. Fan, G. Zhang, Y. Shi, M. Zhu (China)

Doc. 212-1426-16

[12] Activated flux TIG welding process with filler wire

V.J. Badheka (India)

Doc. 212-1454-16

[13] 3D measurement of temperature and metal vapor concentration in MIG arc plasma by multidirectional spectroscopic method

K. Nomura, K. Yoshii, K. Toda, K. Mimura, Y. Hirata and S. Asai (Japan)

Doc. 212-1429-16

[14] Effect of rare earth metal on plasma properties in GMAW using CO<sub>2</sub> shielding gas

T. Methong, T. Yamaguchi, M. Shigeta, M. Tanaka, R. Ikeda, M. Matsushita and T. Kataoka (Japan)

Doc. 212-1435-16

### **Coffee Break (16:00– 16:30)**

[15] Observation of weld pool in plasma keyhole arc welding

Nguyen Van Anh, S. Tashiro and M. Tanaka (Japan)

Doc. 212-1436-16

[16] Characterization of the arc behaviour and material transfer in SAW processes

G. Gött, A. Gericke, K.-M. Henkel, D. Uhrlandt (Germany)

Doc. 212-1443-16

[17] Characteristics of molten pool behavior in low current submerged arc welding process

D-W. Cho, T. Lee, S-J. Na (Korea)

Doc. 212-1437-16

6. Recommendation of publication for IIW Journal “Welding in the World”

7. Miscellaneous

8. Date and place of next meeting

9. Closure



Doc.XII-2307r2-16

**Annual Assembly 2016**

**Draft Agenda**

**Commission XII "Arc Welding Processes and Production Systems"**

**July 11 - 13, 2016**

**Convention Exhibition Centre, Melbourne, Australia**

**Monday 11 July 2016, 8.30h – 12.30 h @Room 106**

1. Opening
  2. Agenda
  3. Brief report on intermediate meeting in Italy in March, 2016
  4. WU visit by IIW CEO, Dr.C.Mayer
  5. Presentation of documents:
    - [1] Identification of synergetic system parameters by use of statistical process models for GMA-Welding  
U. Reisgen, S. Mann, G. Buchholz, P. Lozano, K. Willms (Germany)  
Doc.XII-2264-16
    - [2] An Assessment of using Mean or RMS Values to Represent Current in Arc Welding Bead Geometric Formation  
D. Costa, C. Silva, A. Scotti (Brazil)  
Doc.XII-2276-16
    - [3] Potential of error for arc welding processes - where can I make mistakes and how they affect the component?  
A. Hälsig, S. Pehle, M. Kusch, P. Mayr (Germany)  
Doc. XII-2285-16
    - [4] Data-Based Process Monitoring and Control in Narrow-Gap GMAW  
C. Fabry, A. Pittner, M. Rethmeier (Germany)  
Doc.XII-2294-16
- Coffee Break**
- [5] Wet underwater welding in the extreme conditions  
S.Yu. Maksimov, N.Yu. Kakhovsky, I.V. Lendel (Ukraine)  
Doc. XII-2288-16
  - [6] Near-net-shape Manufacturing of T-joint by Welding with Trailing Reverse-side Flame Line Heating: Report 2  
T. Tsuyama, Y. Kotani, S.Okano, M. Mochizuki (Japan)  
Doc. XII-2287-16

- [7] Towards Proactive Control of Weld Quality and Productivity  
P. Hammersberg, H. Olsson (Sweden)  
Doc.XII-2274-16
- [8] Shielding Gas for Offshore Pipeline Welding  
J-P. Planckaert, R. Derrien (France)  
Doc.XII-2266-16
- [9] Hybrid Welding of SA516 Gr70 carbon Steel Material using solid and cored wires  
P. Prajapati, V. J. Badheka (India)  
Doc.XII-2281-16

**Tuesday 12 July 2016, 8.30 h -17.00 h.**

**Joint Meeting of Comm.I, Comm.IV, Comm.XII and SG212 @Room105/106**

**Morning Session 8.30h-12.30h**

- [10] Hybrid Laser-Arc Welding of Thick High-Strength Quenched and Tempered Steel in Butt and T-Joints Configurations  
M. Mazar Atabaki, E. Levert, N. Yazdian, R. Kovacevic (USA)  
Doc. XII-2279-16/IV-1286-16/212-1448-16/I-1280-16
- [11] A comparative study of welding super high strength steel with MAG and EB processes  
M. Areskoug, P. Hansson (Sweden)  
Doc. XII-2300-16/IV-1298-16/I-1277-16/212-1450-16
- [12] Investigation of advanced Laser-MAG Tandem Hybrid Welding for joining gap flawed thin sheet metal parts  
S. Egerland, H. Staufer, M. Ruehrnoessl and M. Schorn (Austria)  
Doc. XII-2295-16/IV-1296-16/212-1444-16/I-1274-16
- [13] Effects of Laser Brazing Condition and Filler Metal Composition on Dissimilar Lap Fillet Joint Formation of Austenitic Stainless Steel and Pure Titanium  
M. Hadano, Y. Murai, T. Kobashi, K. Ueno, K. Kanno, K. Nakata, T. Suga (Japan)  
Doc.XII-2256-16/IV-1312-16/212-1458-16/I-1286-16
- [14] Arc-assisted Laser Welding-brazing of Aluminum to Steel  
D. Fan, C.L. Li, S.R. Yu, X.Q. Yu, B. Wang (China)  
Doc. XII-2282-16/IV-1296-16/212-1427-16/I-1271-16

**Coffee break**

- [15] Multiple reflections in laser keyhole welding and selective laser melting  
S.W. Han, S.J. Na (Korea)  
Doc. XII-2283-16/IV-1289-16/212-1428-16/I-1272-16
- [16] In situ investigation of the cathodic cleaning of aluminum surfaces in laser-plasma-processing  
T. Radel, F. Möller, P. Woizeschke, F. Vollertsen (Germany)  
Doc. XII-2284-16/IV-1306-16/212-1449-16/I-1281-16
- [17] Technologies, Developments and Prospects in Wire Arc Additive Manufacturing (WAAM): An Australia Perspective  
Z. Pan, D. Ding, H. Li, S. van Duin, J. Norrish (Australia)  
Doc. XII-2277-16/I-1282-16/IV-1304-16/212-1446-16

- [18] Investigation on parameter dependent melting losses in SAW and correlation with high speed images from the cavern  
A.Gericke, G.Gött, D.Uhrlandt, K.M.Henkel (Germany)  
Doc.XII-2293-16/IV-1313-16/212-1459-16/I-1287-16
- [19] Development of In-situ Monitoring system for Weld Quality Using Laser Ultrasonic Technique  
S. Asai, K. Nomura, Y. Mine, T. Ogawa, T. Hoshi, A. Sugawara (Japan)  
Doc.XII-2297-16/ IV-1314-16/212-1460-16/I-1288-16

**Afternoon Session 14.00h-18.00h**

- [20] Development of a robotized system for laser – arc hybrid welding of aluminium alloys  
E. Adile, G. Garbarino, M. Pedemonte (Italy)  
Doc. XII-2304-16/I-1283-16/IV-1309-16/212-1455-16
- [21] Continuous Welding Mechanism of Mesh Wire by Microplasma Arc Welding  
J. He, H. Liu, F. Wang (China)  
Doc. XII-2291-16/I-1284-16/IV-1310-16/212-1456-16
- [22] Formation criteria for root dropout in Laser- and Arc Hybrid Welding  
J. Frostevarg (Sweden)  
Doc. XII-2301-16/IV-1297-16/I-1278-16/212-1451-16
- [23] Microstructure and hardness of Nickel Aluminium Bronze deposited through wire arc additive manufacturing  
D. Ding, Z. Pan, H. Li, S. van Duin (Australia)  
Doc. XII-2263-16/I-1257-16/IV-1302-16/212-1453-16
- [24] Development of a Weldability Testing Protocol for the Powder-Feed Additive Manufacturing Process  
B. Kemerling and J. Lippold (USA)  
Doc. XII-2267-16/I-1258-16/IV-1303-16/212-1415-16

**Coffee break**

- [25] Ultraviolet Laser Joining of Metal and Ceramic Nanoparticles in Stereolithographic Additive Manufacturing  
S. Kirihara, S. Kisanuki, H. Nozaki and K. Nonaka (Japan)  
Doc. XII-2278-16/IV-1305-16/212-1447-16/I-1279-16
- [26] Large-scale Additive Manufacturing  
M. Purslow, A. Uziel (USA)  
Doc. XII-2296-16/IV-1299-16/212-1439-16/I-1275-16
- [27] Weld based large scale additive manufacture of structural engineering parts  
S. Williams, J. Ding, F. Martina, P. Colegrove, A. McAndrew (UK)  
Doc. XII-2299-16/I-1276-16/IV-1301-16/212-1445-16
- [28] About the Influence of powder properties on the Selective Laser Melting Process  
S. Matthes, R. Kahlenberg, S. Jahn, C. Straube  
Doc. XII-2302-16/I-1259-16/IV-1308-16/212-1452-16
- [29] Direct Laser Deposition - Method and Application Examples of Additive Manufacturing with Laser Cladding System Technology  
R. Dörfert, H. Freibe, M. Stroth, J. Vorholdt, P. Khazan, H. Köhler, T. Seefeld, C. Thomy, F.Vollertsen (Germany)



**Wednesday 13 July 2016, 8.30 h -12.30 h. @Room 106**

- [30] Automatic Narrow Gap GTAW System for On-site Welding of Thermal Power Generation Piping  
S. Nakamura, T. Ogawa, T. Kato, M. Otsuki, S. Asai (Japan)  
Doc.XII-2298-16
- [31] Design of gas trailing shields for TIG-welding of stainless steels  
S. Jäckel, M. Hertel, U. Füssel (Germany)  
Doc.XII-2290-16
- [32] Research and development on the welding process for reducing diffusible hydrogen content  
N. Mukai, T. Maruyama, R. Suzuki (Japan)  
Doc.XII-2271-16
- [33] Reduction of the Environmental Impacts of Gas Metal Arc Welding by an Energy Efficient Tandem Process  
G. Sproesser, A. Pittner, M. Rethmeier, Y. Chang, M. Finkbeine (Germany)  
Doc. XII-2292-16

**Coffee Break**

- [34] Single Pass Full Penetration Joining for Heavy Plate Steel Using High Current GMA Process  
H. Baba, T. Era, T. Ueyama, M. Tanaka (Japan)  
Doc.XII-2303-16
- [35] Automatic machine for deep underwater wet arc welding in the hard conditions of limited working space  
V.A. Lebedev, S.Yu. Maksimov, V.G. Pichak (Ukraine)  
Doc.XII-2289-16
- [36] Final Report; Implications of Recent GMAW Process Developments and Heat input research in relation to International fabrication standards.  
J. Norrish (Australia)  
Doc.XII-2306-16
6. Technical report on recent GMAW process developments and heat input research in relation to International fabrication standards prepared by Prof. Norrish and relevant experts
7. Recommendation of submission to IIW Journal “Welding in the World”
8. Miscellaneous
9. Date and place of next meeting
10. Closure

The best 5 documents presented at the IIW C-XII  
for recommendation to Welding in the World

Name: *Patricio F. Mendez*  
Country: *Canada*

	Document No.	Title	Authors
1	<i>x11-2303-16</i>	<i>single pass ...</i>	<i>Baba et. al</i>
2	<i>x11-2301-16</i>	<i>Formation Criteria ...</i>	<i>Frostevarg.</i>
3	<i>x11-2285-16</i>	<i>Potential for error ...</i>	<i>Hälsig et. al</i>
4	<i>x11-2306-16</i>	<i>Final Report ...</i>	<i>Norrish</i>
5	<i>x11-2271-16</i>	<i>Research &amp; Development ...</i>	<i>Mukai et. al.</i>

**Checking points for recommendation**

- Originality
- Technical quality
- Clarity of contents
- Importance in relevant field

Dear Chairmen and National Delegates for C-XII

Please give your suggestion to Prof.Norrish, vice-chairman of C-XII through this form before "Coffee Break" during C-XII regular meeting on 13th Wednesday, July, 2016.

You can send by e-mail or directly submit the form by hand written.

e-mail address of Prof.John Norrish: [johnn@uow.edu.au](mailto:johnn@uow.edu.au)

Y.Hirata  
Chairman of C-XII



INTERNATIONAL INSTITUTE OF WELDING

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*CHAIR-TMB*

*Draft Agenda – Chair-TMB – 14 July  
2016, Melbourne*

**CHAIR-0387-16**

**Author(s):** Noëlle FAURIOL

**Notes:** Meeting to be held in the Melbourne Convention Centre, Room 104, 16.00-18.00.

**Meeting:** Melbourne 2016

**Tags:** Agenda

## *Draft Agenda – Chair-TMB – 14 July 2016, Melbourne*

- 1 Welcome and apologies / L. Costa*
- 2 Adoption of the draft agenda (CHAIR-0387-16) / L. Costa*
- 3 Adoption of the draft minutes of the intermediate meeting held on 4 February 2016 in Villepinte (CHAIR-0386n-2016) / L. Costa*
- 4 Review of actions undertaken since February 2016 (CHAIR-388-16) / C. Mayer*
- 5 Report of the IIW Secretariat / C. Mayer (CHAIR-389-16)*
  - 5.1 Welding in the World / C. Mayer*
  - 5.2 Standardization activities / A. Davis*
- 6 IIW Website update / C. Mayer (CHAIR-390-16)*
  - 6.1 Update on the database and WU documents (scanning)*
  - 6.2 Situation of the new version of the IIW platform*
- 7 Election of Chairs of Working Units / L. Costa, C. Mayer*
- 8 Review of decisions made during the 2016 General Assembly / L. Costa*

**A first overview of decisions taken will be presented. Upon request of the TMB Chair, concerned Chairs will be requested to give additional information.**



*9 Review of the IIW Working Units / L. Costa, C. Mayer*

*9.1 Update of the list of WUs with Chairs (CHAIR-0350-n6-15 superseded by RD130)*

*9.2 Update of RDs*

*9.3 Update on the copyright policy review*

*9.4 Update on the revised Package for Chairs*

*9.5 Open submission and pre-screening / lists of pre-screeners and principal reviewers*

*9.5 Report on collaboration of Working Units on Additive Manufacturing*

*10 Future Assemblies, International Congresses and Associated Events / L. Costa*

*11 Miscellaneous / L. Costa*

*12 Date and place of the next meeting / L. Costa*



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## *Technical Management Board*

*Draft Agenda - Technical Management  
Board - 15 July 2016, Melbourne*

**TMB-0372-16**

**Author(s):** Noëlle FAURIOL

**Notes:** Meeting to be held in the Melbourne Convention Centre, Room 103, 9.00-11.00.

**Meeting:** Melbourne 2016

**Tags:** Agenda

## *Draft Agenda – Technical Management Board – 15 July 2016, Melbourne*

- 1 Welcome and apologies / L. Costa*
- 2 Adoption of the draft agenda (TMB-0372-16) / L. Costa*
- 3 Adoption of the draft minutes of the intermediate meeting held on 4 February 2016 in Villepinte (TMB-0371-1) / L. Costa*
- 4 Review of actions undertaken since February 2016 (TMB-0373-16) / C. Mayer*
- 5 Renewal of the Technical Management Board / L. Costa*
- 6 Management of Working Units / L. Costa, C. Mayer*
  - 6.1 Renewal of Chairs*
  - 6.2 Various issues (inactive working units, resignations of chairs)*
  - 6.3 Code of Conduct*
    - 6.3.1 Proposal on the necessity of avoiding marketing-oriented papers (TMB-0374-16) / G Posch**
  - 6.4 Review of Terms of Reference / L. Costa*
    - 6.4.1 Revised Terms of Reference of the Editorial Board (TMB-0375)**
- 7 Review of the IIW Business Plan and Operational Plan for the TMB / L. Costa, C. Mayer*



*8 Publication issues*

*8.1 Welding in the World Editorial Board issues / J. Lippold*

**8.1.1 Any matter not covered during the TMB-Chair meeting held on 14 July**

**8.1.2 Draft Terms of Reference of the Editorial Board**

*8.2 Status of pending publications / C. Mayer*

*8.3 General Publication agreement with Springer (TMB-0376-16) / L. Costa*

*8.4 Screening committee for documents recommended to be published as books or booklets / L. Costa*

*9 IIW Awards / L. Costa*

*9.1 Revised IIW Fellow Award rules and selection/decision criteria / J. Lippold*

*9.2 Revision of the Arata Award rules / C. Mayer*

*10 Miscellaneous / L. Costa*

*11 Date and place of the next meeting / L. Costa*