

CCIIW Visit Report – Philip Bates

9 October 2015

Subject: Annual Assembly of the IIW, 29-30 July to 1 Oct 2015, Helsinki USA

I had the pleasure of attending Commission XVI (Polymer joining and adhesive technology) sessions during the 2015 Annual Assembly of the IIW in Helsinki Finland. Approximately 20 representatives from Canada, Germany, United States, Croatia and Finland came to the three sessions. This level of attendance was slightly above average for Commission XVI. The three half-days of meetings were 50% longer than previous IIW meetings. The chair was Dr. Volker Schöppner of Kunststofftechnik Paderborn (D).

Days one and two were organized much like a conference with approximately five papers given per day. In addition to paper presentations, day three also involved a workshop/discussion on laser welding test specimens. This was new this year. The schedule is appended. Three papers were recommended for publication in welding in the world

Commission XVI is starting to move away from an all-conference format. Based on discussions initiated in Korea in 2014, Commission XVI would like to develop guidelines. We have decided to start with a guideline for contour laser transmission welding test-specimens. Currently, there are a number of geometries and testing conditions being used. In Helsinki, there were two presentations (one of which was mine) that provided background on this important problem. The talks generated discussion on a possible way forward and initiated an international study on test-reproducibility involving Germany and Canada. These discussions will continue next year when the results of the study will be presented.

Best regards,



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Commission XVI – Polymer Joining and Adhesive Technology

XVI-973-15

Preliminary Agenda for the Meeting of Commission XVI

68th International Institute of Welding Annual Assembly Helsinki

Author: V. Schöppner (Chairman)

Monday, June 29th, 2015, 08:30 – 12:30

1. Opening and welcome by the chairman
2. Registration of delegates, experts and observers
3. Approval of the Agenda (Doc. XVI-973-15)
4. Approval of the Meeting Minutes (Doc. XVI-971-14) for Seoul 2014
5. Presentation of papers
 - 5.1. XVI-975-15: “Crash modified two-component adhesives for fibre reinforced plastics in automotive body in white” by M. Kahlmeyer, St. Böhm from Department for Cutting and Joining (tff), Institute for Production Technologies and Logistics (IPL), University of Kassel, Germany 08:45 – 09:25
 - 5.2. XVI-976-15: “Stress and manufacturing specific adhesive bonding of fibre reinforced plastics in multi material design” by G. Meschut, D. Teutenberg, M. Wünsche, A. Matzenmiller, M. Schmerbauch from LWF, University of Paderborn and IfM, University of Kassel, Germany 09:25 – 10:05
 - 5.3. XVI-986-15: “Friction Spot Joining of MWCNT-PC Nanocomposites and Al 6082 hybrid joints” by W.S. Junior, U. A. Handge, J. F. dos Santos, V. Abetz, S. T. Amancio-Filho from Helmholtz-Zentrum Geesthacht, Germany 10:05 – 10:45
 - 5.4. XVI-978-15: “Finite Element Analysis of Steel-to-Composite Type of Joint for Maritime Industry” by M. Balunovic, D. Frank, T. Tomac, A. Milat, D. Burlovic from as2con, Zagreb, Croatia 11:10 – 11:50
 - 5.5. XVI-979-15: “Bonding of wood plastic composites (WPC) – material and surface modifications for special applications” by M. Hopp, E. Moritzer from KTP University of Paderborn, Germany 11:50 – 12:30

Tuesday, June 30th, 2015, 08:30 – 12:30

6. Presentation of papers
 - 6.1. XVI-977-15: “Laser-based joining of metals to thermoplastics: Impact of the temperature-time profile on melting layer and mechanical properties” by K.



- Schricker, M. Stambke, J.P. Bergmann from Technische Universität Ilmenau, Department of Production Technology, Germany 08:30 – 09:10
- 6.2. XVI-981-15: “Modelling of the heating process during the laser transmission welding of thermoplastics and calculation of the resulting stress distribution” by S. Sooriyapiragasam, Ch. Hopmann from IKV Aachen, Germany 09:10 – 09:50
- 6.3. XVI-982-15: “Process Parameters and Product Strength for Fused Deposition Modeling” by D. Grewell, S. Devlin from Iowa State University, United States 09:50 – 10:30
- 6.4. XVI-983-15: “On-site Volumetric Inspection of Butt Fusion and Electrofusion Joints in Polyethylene Pipes” by M. Troughton, F. Hagglund from TWI, United Kingdom 10:50 – 11:30
- 6.5. XVI-984-15: “Laser welding of short fiber reinforced Polyamide” by D. Spancken, J. Weis, Sascha Sedelmaier, A. Büter, T. Melz from Fraunhofer LBF, Darmstadt, Germany 11:30 – 12:10
7. Registration of delegates, experts and observers
8. Election of the chairman and the vice-chairman
9. Call for Papers for 69th IIW Annual Assembly – Melbourne, Australia (July 10-15, 2015, Doc. XVI-974-15)
- Wednesday, July 1st, 2015, 08:30 – 12:30
10. Registration of delegates, experts and observers
11. Presentation of papers
- 11.1. XVI-980-15: “Laser Transmission Welding of Automotive Headlamps without a Clamping Tool” by P. Lakemeyer, V. Schöppner from KTP, University of Paderborn, Germany 08:40 – 09:20
- 11.2. XVI-985-14: “„Fatigue assessment of multi axial loaded laser welds on Polymers – numerical calculation, testing and life time assessment“ by D. Spancken, J. Wacker, A. Büter, T. Melz from Fraunhofer LBF Darmstadt, Germany 09:20-10:00
- 11.3. XVI 987-14: "The influence of the cooling rate in the microstructural, physical-chemical and quasi-static mechanical performance of Friction Spot Joints" by J. V. Esteves, J. F. dos Santos, L. B. Canto, S. T. Amancio-Filho, Helmholtz-Zentrum Geesthacht, Germany 10:00 – 10:40
12. Workshop “Influence of testing method to the mechanical strength in laser transmission welding” with contributions from Germany and Canada
- 12.1. XVI-988-15: “Weld geometries used in laser transmission welding” by Ph. Bates, Royal Military College, Canada 11:00 – 11:30
- 12.2. XVI-989-15: “tbd” by P. Lakemeyer, V. Schöppner from KTP, University of Paderborn, Germany 11:30 – 12:00
13. Resolutions and Decisions



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14. Discussion about terms of reference and operational plan (Doc. XVI-969-14)