

Manulight2014 conference program

THURSDAY, 3 April 2014, Dortmunder U

08.15 **Foyer (Dortmunder U): REGISTRATION**

09.00 **RWE Forum / U Cinema: Welcome**

09.15 Industrial Keynote: Automotive Materials and Manufacturing Processes for sustainable Lightweight Design
Dr. M. B. Helm (Volkswagen)

09.55 Extrusion of aluminum tubes with axially graded wall thickness and mechanical characterization
M. Negendank*, S. Müller, W. Reimers

10.15 Micro- and Macro- Mechanical Properties of Pinless Friction Stir Welded Joints in AA5754 Aluminium Thin Sheets
M. Simoncini*, D. Ciccarelli, A. Forcellese, M. Perialisi

10.35 **Coffee break (Foyer & Moog)**

10.55 Industrial Keynote: The Challenge of Hybrid CFRP/Metal Assembly in Aerospace
Dr. C. Dalle Donne (EADS)

11.35 Extrusion of Profiles with Variable Wall Thickness
A. Selvaggio*, M. Haase, N. Ben Khalifa, A. E. Tekkaya

11.55 Robot-based guiding of extrusion profiles - Increase of guiding accuracy by considering the temperature-dependent effects
J. Fleischer, V. Schulze, J. Burtscher*, S. Dosch

12.15 Investigation, optimal design and uncertainty analysis of crash-absorbing, extruded aluminum structures
E.J. Wehrle*, Q. Xu, H. Baier

12.35 **Lunch break (Foyer & Moog)**

Parallel session „TU-Etage“

Cryogenic Shear Cutting of Fiber Reinforced Plastics (FRP)
J. Watzke*, M. Schomäcker, A. Brosius

Machining of Lightweight Frame Structures
S. Hannich*, T. Brüggemann, M. Tiffe, D. Biermann, A. Zabel

Coffee break (Foyer & Moog)

Numerical Computation of Component Shape Distortion Manufactured by Selective Laser Melting

L. Papadakis*, A. Loizou, J. Risse, J. Schrage

Computer Aided Blanking Die Design using CATIA

H. M. A. Hussein

Manufacturing and Characterization of Interpenetrating SiC Lightweight Composites

M. Merzkirch*, Ch. Blümel, R. Rössler, K. G. Schell, E. C. Bucharsky, K. A. Weidenmann

Lunch break (Foyer & Moog)

Thursday afternoon RWE Forum / U Cinema

- 14.00 Industrial Keynote: Lightweight challenges and structural material trends in high-speed trains
Dr. H. Vogelsang (Siemens AG)
- 14.40 Extending the Flexibility in the Composite Extrusion Process
C. Dahnke*, D. Pietzka, M. Haase, A. E. Tekkaya
- 15.00 Automatically Controlled (Cold-) Forging Processes
M. Liewald, T. Schiemann*, C. Mletzko
- 15.20 Rubber Assisted Compression Beading of Tubes
L.M. Alves, P.A.F. Martins*

15.40 Coffee break (Foyer & Moog)

- 16.00 Manufacturing of Innovative Self-Supporting Sheet-Metal Structures Representing Freeform Surfaces
D. Bailly*, M. Bambach, G. Hirt, T. Pofahl, R. Herkrath, H. Heyden, M. Trautz
- 16.20 Upgrading in Mechanical Properties of High Performance Aluminum Alloys by Compressive Torsion Process
N. Kanetake*, Y. Kume, S. Ota, R. Morimoto
- 16.40 Electrically Driven Plasma via Vaporization of Metallic Conductors: A Novel Tool for Joining Tubular Workpieces
A. Vivek*, C. Weddeling, M. Hahn, G. S. Daehn, A. E. Tekkaya
- 17.00 Effect of Solubilisation on the High-Temperature Formability of AA6016 Sheets
P.F. Bariani, S. Bruschi*, A. Ghiotti, F. Michieletto
- 17.20 Investigations on the Manufacturability of Thin Press Hardened Steel Components
G. Georgiadis*, A. E. Tekkaya, P. Weigert, J. Weiher, H. Kurz

17.40 End of Session

- 19.00 **View (Dortmunder U):** CONFERENCE DINNER incl. award presentation ceremony for the students' contest "Stahl fliegt 2013" (Steel Flies 2013)

Parallel session „TU-Etage“

- Influence of a regression heat treatment on the material properties of a copper-free 7xxx series aluminum alloy
N. Jaburek*, M. Merklein
- Characterization of unreinforced and steel wire reinforced magnesium alloy AZ31 under mechanical-corrosive loading
A. Reeb*, L. Schweizer, K. A. Weidenmann, V. Schulze
- A Comparison of FSW, BHLW and TIG Joints for Al-Si-Mg alloy (EN AW-6082 T6)
V. Walter*, K. A. Weidenmann, V. Schulze

Coffee break (Foyer & Moog)

- Residual stresses in continuously reinforced composite profiles with symmetric cross sections
M. Schwane*, T. Kloppenborg, M. Haase, N. Ben Khalifa, A. E. Tekkaya
- Simulation Based Process Optimization for the Milling of Light Weight Components
D. Freiburg, S. Odendahl, T. Siebrecht, M. Steiner, T. Wagner, A. Zabel*
- A Method for the Prediction of Process Parameters for minimal Distortion in Welded Frame Structures using a FE-Simulation
A. Belitzki*, M. Schweier, M. F. Zaeh
- Thermo-mechanical behavior and material failure of steel wire reinforced aluminum
A. Morasch*, M. Wedekind, D. Matias, H. Baier
- Establishing manufacturing effort models to be used in optimization of extruded aluminum profiles under structural and manufacturing criteria
R. Wehrle*, H. Baier

End of Session

FRIDAY, 4 April 2014, Dortmunder U

- RWE Forum / U Cinema**
- 09.00 Welcome
- 09.15 Scientific Keynote: "Mixed lightweight joints design through Friction Stir Welding of aluminum, magnesium and titanium alloys" by G. Buffa, S. Pellegrino and L. Fratini
Prof. L. Fratini
- 10.00 Uniform Pressure Electromagnetic Actuator – An innovative tool for magnetic pulse welding
C. Weddeling*, M. Hahn, G. S. Daehn, A. E. Tekkaya
- 10.20 Friction based solid state welding techniques for transportation industry applications
D. Baffari, G. Buffa*, D. Campanella, L. Fratini, F. Micari
- 10.40 Coffee break (**Foyer & Moog**)
- 11.00 Scientific Keynote: Aluminum components in advanced automobile design
Prof. J. Hirsch
- 11.45 Modelling and Optimization of Lightweight-Sandwich-Sheets with an Adhesive Interlayer for the Forming Process Die Bending
B. Engel, J. Buhl*, C. Heftrich
- 12.05 Solid State Friction Stir Welding Using Dovetail Groove Butt Joint
S. Thamizhmanii* and Sulaiman Hasan
- 12.25 Lunch break (**Foyer & Moog**)

Parallel session "TU-Etage"

- Investigate the Possibility of Using Carbon Onion Nanolubrication with DLC Cutting Tool to Reduce the Machining Power Consumption
M. Sayuti, M. E. Ooi, Ahmed. A. D. Sarhan*, M. Hamdi
- Innovative Flow Drilling on Magnesium Wrought Alloy AZ31
D. Biermann, Y. Liu*

Coffee break (**Foyer & Moog**)

- Analysis of the Bonding Behavior and Joining Mechanism during Friction Press Joining of Aluminum Alloys with Thermoplastics
F. X. Wirth*, M. F. Zaeh, M. Krutzlinger, J. Silvanus
- Fixtureless alignment of joining partners within the assembly of aluminum space frame structures
J. Fleischer, G. Lanza, S. Dosch, J. Elser, W. Pangboonyanon*

Lunch break (**Foyer & Moog**)

Friday afternoon RWE Forum / U Cinema

- 14.00 Adhesive Bonding of Attachments on Alternate Car Shell Surfaces in Automotive Final Assembly Lines
L. Papadakis*, M. Schiel, V. Vassilou, A. Loizou, K. Dilger
- 14.20 Evaluation of Damage to Carbon-Fibre Composites Induced by Self-Pierce Riveting
G. Meschut, M. Gude, F. Augenthaler*, V. Geske
- 14.40 Self-pierce riveting and hybrid joining of boron steels in multi-material and multi-sheet joints
O. Hahn, G. Meschut, M. Bergau, M. Matzke*

15.00 Coffee break (**Foyer & Moog**)

- 15.20 An analytical approach of modelling friction stir welding
A. Roth*, T. Hake, M. F. Zaeh
- 15.40 Laser Welding of High-Strength Aluminium Alloys for the Sheet Metal Forming Process
J. Enz, S. Riekehr, V. Ventzke, N. Sotirov, N. Kashaev

16.00 End

Parallel session „TU-Etage“

- Small Batch Assembly of Space-Frame-Structures with Production Related Deviations of Individual Components
J. Fleischer, G. Lanza, M. Otter, W. Pangboonyanon*
- Numerical Modelling of Manufacturing of Lightweight Components – Selected Issues
L. Madej*, J. Szyndler, L. Trębacz, M. Pietrzyk
- A Feature Recognition System using Geometric Reasoning
E. S. Abouel Nasr, A. A. Khan*, A. M. Alahmari, H. M. A. Hussein

Coffee break (**Foyer & Moog**)

- A Hybrid Flexible Sheet Forming Approach Towards Uniform Thickness Distribution
B. Lu*, H. Zhang, D.K. Xu, J. Chen
- Material modelling of short fiber reinforced thermoplastic for FEA of a clinching test
B.-A. Behrens, R. Rolfes, M. Vucetic, J. Reinoso, M. Vogler, N. Grbic*

End