

**International Symposium on Electrochemical Machining Technology
INSECT – 27.-28.11.2018 – Aachen**

27.11.2018 – Day 1

8:00 Registration

Session 1 – Materials

Chairman: Dr.-Ing. Andreas Klink

8:30 Opening

Dr.-Ing. Andreas Klink

8:50 Effects of Electrochemical Postprocessing on Ground Ti-6Al-4V Parts

Ernst, A.; Hall, T.; Daneshi, A.; Azarhoushang, B.; Bähre, D.

9:10 Oxygen development during the ECM on SiC

Simunkova, L.; Junker, N.; Schneider, M.; Michaelis, A.

9:30 Experimental comparison of electrochemical machining of selective laser melted and conventionally produced specimens

Herter, F.; Hall, T.; Bergmann, A.; Bähre, D.

9:50 Investigation on the Electrochemical Machinability of High Entropy Alloys

Harst, S.; Su, J.; Li, Z.; Klink, A.; Klocke, F.; Bergs, T.

10:10 Coffee Break

Session 2 – New ECM Methods

Chairman: Prof. Dr. Masanori Kunieda

10:50 Hybrid process of electrochemical machining and mechanical grinding for cast nickel-base Superalloys

Ge, Y.; Zhu, Z.; Zhu, D.; Wang, D.; Ma, Z.

11:10 Removal Characteristics of High-Speed Steel in Laser Chemical Machining

Messaoudi, H.; Brand, B.; Vollertsen, F.

11:30 High speed wire EDM flushing approach for wire electrochemical machining

Herrig, T.; Oßwald, K.; Lochmahr, I.; Klink, A.; Klocke, F.; Bergs, T.

11:50 Design of a Test Rig for Local Surface Modification by Jet Plasma Electrolytic Polishing

Quitze, S.; Kröning, O.; Martin, A.; Hackert-Oschätzchen, M.; Schulze, H.-P.; Kranhold, C.; Zeidler, H.; Schubert, A.

12:10 Surface Finish of AM parts by Plasma Electrolytic Polishing

Zeidler, H.; Parenti, P.; Annoni, M.; Böttger-Hiller, F.

12:30 Lunch

Session 3 – Processing / Process Monitoring

Chairman: Prof. Dr.-Ing. Henning Zeidler

13:30 Quality and Cost Improvements in Precise Electrochemical Machining through Process Data Management

Zeis, M.; Fritzke, S.; Redich, H.; Feiling, N.; Niegl, M.

13:50 Function and Formation of PECM-Process Energy Source for specific applications

Schulze, H.-P.; Kröning, O.; Herzig, M.

14:10 Characterization of the Lateral Working Distance in Precise Electrochemical Machining of Differently Heat Treated Steel

Meichsner, G.; Hackert-Oschätzchen, M.; Loebel, S.; Boenig, L.; Schubert, A.; Putz, M.

14:30 Coffee Break

15:20 Experimental Research on the Bipolar Pulse Precise Electrochemical Machining Technology

Li, H.Y.; Zhang, M.Q.; Cheng, X.Y.

15:40 Experimental Derivation of Process Input Parameters for Electrochemical Machining with Differentially Switched Currents

Martin, A.; Petzold, T.; Hackert-Oschätzchen, M.; Meichsner, G.; Schubert, A.

16:00 End of first day

18:30 Conference Dinner

**International Symposium on Electrochemical Machining Technology
INSECT – 27.-28.11.2018 – Aachen**

28.11.2018 – Day 2

8:30 Coffee

Session 4 – Simulation

Chairman: Prof. Dr.-Ing. Thomas Bergs

9:00 Opening of the second day

Prof. Dr.-Ing. Thomas Bergs

9:10 Comparison of laser induced thermal heat impact on 42CrMo4 in gaseous and liquid ambient

Eckert, S.; Brito Gadeschi, G.; Meinke, M.; Vollertsen, F.; Schröder, W.

9:30 Evaluation of different short-cut methods for the simulation of PECM processes

Bergs, T.; Heidemanns, L.; Harst, S.; Klink, A.; Klocke, F.

9:50 Analysis of the suitability of frontal gap experiments as a basis for the simulation of complex shaped parts in ECM

Karges, F.; Zeis, M.; Hoffmeister, F.; Feiling, N.; Niegl, M.

10:10 Simulation-based Design of Electrochemical Machining Processes for Microstructuring of High-strength Materials

Loebel, S.; Hackert-Oschätzchen, M.; Meichsner, G.; Zinecker, M.; Schubert, A.

10:30 Coffee Break

Session 5 – Fundamentals

Chairman: Dr.-Ing. Hans-Peter Schulze

11:10 Heat development during the ECM of tungsten carbide

Schneider, M.; Junker, N.

11:30 Study of Precision ECM in Stationary Electrolyte using Jump of Electrode

Nakamura, M.; Kunieda, M.

11:50 Flow-channel cell experiments of X32Cr14 stainless steel in NaNO₃ based electrolyte: the behavior of product films

Hoogsteen, W.

12:10 Potentials of Additives for Electrolytes in ECM processes

Metzner, M.; dos Santos, C.; Schmid, K.; Mock, C.; Boonyongmaneerat, Y.

12:30 Lunch

Session 6 – Application

Chairman: Prof. Dr.-Ing. Dirk Bähre

13:30 Analysis of side gap phenomena in ECM manufacturing for gear geometries in turbine shafts

Bergs, T.; Smeets, G.; Harst, S.; Petzoldt, A.; Klink, A.

13:50 Controlling hydrophobicity via electrochemical jet processing

Bisterov, I.; Mitchell-Smith, J.; Speidel, A.; Choi, K.-S.; Hou, X.; Clare, A.T.

14:10 Investigation of intermittent anodic dissolution process in counter-rotating electrochemical machining

Wang, D.; Li, T.; He, B.; Zhu, Z.

14:30 Coffee Break

15:00 Electrochemical jet processing for skeletal implant surfaces demonstrating enhanced stem cell differentiation

Mitchell-Smith, J.; Goriainov, V.; Speidel, A.; Bisterov, I.; Clare, A.T.

15:20 Implementation of a PECM application for the processing of functional surfaces

Hall, T.; Ernst, A.; Jen, T.; Zäh, R.-K.; Bähre, D.

15:40 Final discussion and closure

16:00 Shop Floor Visit