

Program

November 14, 2019

- 08.00 - 09.00 **Registration and Coffee**
- 09.00 - 09.30 **Opening**
Manfred Schmitt
President of Saarland University
Dirk Bähre
Head of Institute of Production Engineering, Saarland University
- Session 1 – Fundamentals**
Chairman: Andreas Schubert
- 09.30 - 09.50 Oxygen Evolution as a Side Reaction – Useless and Mysterious?
Lohrengel, M. M.
- 09.50 - 10.10 Investigation of the oxide film formed on solid state silicon carbide ceramics
at high anodic potentials
Schneider, M.; Simunkova, L.; Michaelis, A.; Noeske, M.; Aniol, J.; Thiel, K.
- 10.10 - 10.30 ECM flow-channel cell experiments of molybdenum in NaNO₃ electrolyte
Hoogsteen, W.
- 10.30 - 10.50 An insight into anodic dissolution processes of carbides obtained by product
analysis
Simunkova, L.; Schneider, M.; Michaelis, A.
- 11.00 - 11.25 **Coffee break**
- Session 2 – Processing/Process Monitoring I**
Chairman: Manuel Lohrengel
- 11.25 - 11.45 Hole widening by a static cathode arrangement by means of ECM with
several equally or differently powered cathodes
Schulze, H.-P.; Herzig, M.; Schätzing, W.; Kröning, O.
- 11.45 - 12.05 Safety Adaptations of the ECM Process and Associated Processes for
Industrial Application
Wilhelm, L.; Leese, R.
- 12.05 - 12.25 Visualization of ECM phenomena in stationary electrolyte using stamp
flushing method
Nakamura, M.; Kunieda, M.

- 12.25 - 12.45 Influence of initial geometric deviations on the shaping accuracy during electrochemical machining
Bergs, T.; Rommes, B.; Harst, S.; Herrig, T.; Klink, A.
- 12.55 - 14.00 **Lunch break**
- Session 3 – New Methods I**
Chairman: Matthias Hackert-Oschätzchen
- 14.00 - 14.20 Surface finish of AM copper parts by Plasma electrolytic Polishing
Zeidler, H.; Helm, A.
- 14.20 - 14.40 Investigation on material removal characteristics of a novel hybrid laser-electrochemical micromachining process
Kumar Saxena, K.; Qian, J.; Reynaerts, D.
- 14.40 - 15.00 Ultrasonic-assisted Plasma-electrolytic Polishing
Zeidler, H.; Böttger-Hiller, F.
- 15.10 - 15.35 **Coffee break**
- Session 4 – Materials**
Chairman: Henning Zeidler
- 15.35 - 15.55 Electrochemical dressing of hard tools for abrasive precision machining
Ernst, A.; Klein, S.; Hall, T.; Avila, L.; Bähre, D.
- 15.55 - 16.15 Investigating characteristics of tungsten cemented carbide machining by desktop micro-ECM with NaOH Solution
Wu, Y.-Y.; Sheu, D.-Y.
- 16.15 - 16.35 Microstructuring of Inconel 718 via Pulse Electrochemical Machining
Ernst, A.; Hall, T.; Frank, A.; Derouach, H.; Bähre, D.
- 17.00 - 17.30 **Bus transfer to Saarbrücken Castle**
- 17.45 - 18.45 **Sightseeing Saarbrücken Castle**
- 19.00 **Conference Dinner at “Ratskeller” Saarbrücken**

November 15, 2019

08.30 - 09.00

Coffee

Session 5 – New Methods II

Chairman: Michael Schneider

09.00 - 09.20

Process Design for Jet Plasma electrolytic Polishing of Stainless Steel
Quitze, S.; Martin, A.; Hackert-Oschätzchen, M.; Zeidler, H.; Schubert, A.

09.20 - 09.40

Enhancing dimensional accuracy of electrochemical microtexturing process using triangular pulsed voltage
Patel, D.; Sharma, V.; Jain, V. K.; Ramkumar, J.

09.40 - 10.00

Removal rate and surface roughness in plasma-electrolytic polishing of 1.4441 stainless steel
Schröder, S.; Martin, A.; Kahle, V.; Hackert-Oschätzchen, M.; Schubert, A.

10.00 - 10.20

Wire Electrochemical Turning: A novel approach for the machining of cylindrical surfaces
Sharma, V.; Patel, D.; Ramkumar J.

10.20 - 10.40

Classification and evaluation of optical phenomena in Jet-PeP with respect to the characteristic of plasma electrolytic polishing
Kranhold, C.; Schulze, H.-P.; Kröning, O.; Zeidler, H.

10.50 - 11.10

Coffee break

Session 6 – Processing/Process Monitoring II

Chairman: Masanori Kunieda

11.10 - 11.30

Investigation of the electrolyte behaviour in the working gap of Mechano-Electrochemical Milling
Van Camp, D.; Qian, J.; Vetrano, M. R.; Vleugels, J.; Lauwers, B.

11.30 - 11.50

Mechanism-based classification of electrochemical machining processes
Klink, A.; Rommes, B.; Zander, D.; Schupp, A.; Vollertsen, F.; Eckert, S.

11.50 - 12.10

Deburring and Edge Shaping by Electrochemical Machining with Differentially Switched Currents
Petzold, T.; Hackert-Oschätzchen, M.; Martin, A.; Schubert, A.

12.10 - 12.30

Fabrication and Application of Micro Structured Tools for Pulsed Electrochemical Machining
Mankeekar, T.; Bähre, D.; Durneata, D.; Engelmann, E.; Hall, T.; Natter, H.; Saumer, M.

12.40 - 13.40

Lunch break



Session 7 – Simulation and Modelling

Chairman: Andreas Klink

- 13.40 - 14.00 Masked jet electrochemical micromachining (Jet- μ ECM) of micro-slit array:
Numerical simulation and experiments
Chen, X.; Saxena, K. K.; Qian, J.; Reynaerts, D.
- 14.00 - 14.20 Modelling of Precise Electrochemical Machining for Nickel-based
Centrifugal Impellers
*Loebel, S.; Hackert-Oschätzchen, M.; Meichsner, G.; Petzold, T.; Zinecker,
M.; Schubert, A.*
- 14.30 - 14.40 **Announcement INSECT 2020**
- 14.40 - 14.50 **Closing Remarks INSECT 2019**
Dirk Bähre
Head of Institute of Production Engineering, Saarland University