



Scientific Program
Thursday March 9, 2017

Track A – Auditorium: AM 2

Safety and Quality

Chair: PD Dr. Hauke Paulsen

- 10:00 24 *R. Kutlu, C. Rußmann, S. Wieneke*
Extension of a medical engineering laboratory course in consideration of the research environment at HAWK and UMG
- 10:15 11 *A. Flammiger, H. Paulsen*
Price-performance optimized hardware for molecular simulations
- 10:30 07 *F. Dietzel, W. Hanssen, P. Rostalski*
Evaluation and comparison of two different types of motor control for BiPAP and CPAP mode in non-invasive mechanical ventilation
- 10:45 44 *J. Stubbe, S. Fricke, P. Rostalski*
Advancement of a sensor-system simulation for sleep therapy and ventilation test benches

11:00 Coffee Break

Biomedical Engineering I

Chair: Dr. Thomas Friedrich

- 11:10 12 *T. Gano, A. Schrörs, P. Rostalski*
An Improved Procedure for Automated Testing of Dialysis Machines
- 11:25 35 *F. Rubin-Schwarz, W. Janik*
Determination of intradialytic electrolyte shifts in dialyzers
- 11:40 41 *M. L. Severin, U. J. Netz, R. Huber*
Tests with a new optical sensor for hematocrit and oxygen saturation at extracorporeal life support systems
- 11:55 39 *L. Schulz, H. Macher, D. Braun, P. Rostalski*
Endoscopic Suction – Evaluation and Comparison of Specialized Pump Technologies –

12:10 Lunch Break

Track B – Auditorium: AM 3

Image Processing III

Chair: Prof. Dr. Heinz Handels

- 32 *A. Pfahl, M. Wagner, A. Bieberle, T. M. Buzug*
Development of concepts for high quality image reconstruction based on adaptive grid sizes
- 71 *M. Constapel, T. Teubler, H. Hellbrück*
A syntactic approach to wreck pattern recognition in sonar images
- 34 *O. Rost, A. Brahm, P. Dietrich, I. Schmidt, P. Kühmstedt, G. Notni, R. Huber*
Object tracking for accurate irritation-free 3D shape measurements of human faces and body parts
- 72 *T. Kirchmann, M. Pelka, H. Hellbrück*
Evaluation of Bluetooth Positioning for Medical Device Tracking

Signal Processing I

Chair: Prof. Dr. Thorsten M. Buzug

- 59 *T. Jahner, T. Parbs, A. Mertins*
Compressing Vector Fields by Using K-SVD
- 54 *C. Baumgart*
A Comparison of RIDE and ICA for the Decomposition of ERPs in EEG-data
- 58 *S. Grosnick, L. Fiedler, J. Obleser*
A Neural Network for Single-Channel EEG Prediction and Encoding of Attention Selection
- 67 *I. Stechmann, A. Weng, P. Rostalski*
Structure the Noise! Machine Learning for Alarm Diagnosis



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Track A – Auditorium: AM 2

Biomedical Engineering II

Chair: Prof. Dr. Horst Hellbrück

- 13:10 23 *J. Kühne, E. Petersen*
Development of a surface electromyography-based mechanical ventilation procedure
- 13:25 20 *J. Kappel, C. Hübner*
Development of a stopped-flow apparatus for rapid mixing of small fluid volumes in reaction kinetic studies
- 13:40 47 *J. Tesche, S. Matthiensen, M. Horn, E. Stahlberg, J. P. Goltz, M. Schenk, D. Wendt, M. Kleemann*
Nav-CARS-EVAR: Comparison of patient individual vessel anatomies with an abdominal aortic aneurysm to their corresponding rapid prototyping printed 3D-models
- 13:55 16 *T. Hinz, A. Moeller, T. Parbs, A. Mertins*
Construction of an Elastic-Motion Phantom for MRI

14:10 Coffee Break

Biomedical Engineering III

Chair: Svenja Ipsen, M. Sc.

- 14:20 25 *T. Kutscher, R. Duden, I. Majoul*
A design to adapt a bleaching laser to a research microscope – An easy hardware extension to perform FRAP/FRED/photoswitching –
- 14:35 36 *M. Sasse, A. Behrends, T. M. Buzug*
Development of a variable gradiometer coil to determine the thermal properties of magnetic nanoparticles
- 14:50 37 *K. Schmidtke, R. von Elm, F. Reinholz*
Automated cavity-length optimization of a passively Q-switched microchip-laser by a piezo actuator control
- 15:05 43 *P. Strenge, A. Kyme, H. Handels*
Developing a Calibrated Setup to Investigate markerless Multi-View Reconstruction of Freely Moving Rodents

15:20 Poster Presentation – Conference Finalists

15:40 Farewell and Award Presentation

Track B – Auditorium: AM 3

Signal Processing II

Chair: Dr. Mandy Ahlborg

- 19 *F. Kanter, R. Wiemker, T. Brosch, T. Klinder, A. Mertins*
Classification of Solitary Pulmonary Nodules using Deep Learning Networks
- 13 *E. Hachgenei, U. Limper, P. Rostalski*
Design and implementation of a noise reducing filter solution for biosignals derived from phonocardiography and beat-to-beat finger plethysmography
- 33 *S. Rettmer, G. Männel, P. Rostalski*
Development of a Ball-Balancing Robot platform
- 17 *A. Ibbeken, G. Männel, P. Rostalski*
Development of a ball balancing robot –Modularity and control concept–

Medical Imaging

Chair: Prof. Dr. Martin A. Koch

- 66 *K. L. Soika, S. Melnik, M. P. Heinrich*
Simulated Monochromatic X-ray Images by Forward Projection Utilizing the Lambert-Beer Law
- 28 *M. Mecking, T. Hipp*
Failure detection of X-ray tubes for medical devices – a case study –
- 10 *M. Eulers, A. Cordes, J. Barkhausen*
Influence of patient motion on the depiction of microcalcifications in digital tomosynthesis
- 31 *K. Müller, C. J. Bateman, T. Kirkbride, A. P. Butler, P. H. Butler*
Discriminating breast microcalcifications with MARS