A	Bildgebung und Bildverarbeitung
B	Bildgestützte Eingriffe
C	Chirurgie, Endoskopie und Robotik
D	Biomechanik und Implantate
E	Rehabilitationstechnik
F	Intelligente Implantate und Neuroprothetik
G	Biomaterialien
H	Cellular-, Tissue- und Bioengineering
I	Biomedizinische Mikro- und Nanosysteme
J	Sensorik und Monitoring
K	Biosignalverarbeitung
L	Modellbildung und Simulation
M	Telemedizin, eHealth und medizinische Informationssysteme
N	AAL – Ambient Assisted Living
O	Ergonomie und Patientensicherheit
P	Aus- und Weiterbildung
Q	Personalisierte Medizintechnik

Rolf Böhme Saal **Track Q**

Plenarsitzung (1)

8:00 **Warum ist die Hemodialyse das ideale Modellsystem für die personalisierte Medizintechnik von heute?**
Jörg Vienken (Fresenius Medical Care Deutschland GmbH, DE)

08:30 - 08:45 Fachausstellung

Runder Saal **Track I**

FS EUCOR (1): Nanomedizin
FS EUCOR (1): Nanomedicine

Sitzungsleitung: Patrick Hunziker (University Hospital Basel and European Society for Nanomedicine, CH), Beat Löffler (European Foundation for Clinical Nanomedicine, CH)

08:45 **With Nanomedicine towards Personalized Medicine – Now and Future**
Patrick Hunziker (University Hospital Basel and European Society for Nanomedicine, CH)

09:15 **Ethics of Long-term Developments and Sustainability in Nanomedicine**
Beat Löffler (European Foundation for Clinical Nanomedicine, CH)

09:30 **Smart Nanostructured Active Implants for Tissue Engineering Applications**
Nadja Jessel (INSERM - French National Institute for Health and Medical Research, FR)

09:45 **Protein-decorated Membranes**
Wolfgang Meier (University of Basel, CH)

10:00 **Transbuccal delivery of bioactive peptides mediated by gold nanoparticles**
Jan Mous (PharMida AG, CH)

10:15 **Immunostimulatory Nanoparticles for the Treatment of Allergic Asthma**
Wolfgang Renner (Cytos Biotechnology AG, CH)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K9 **Track J**

Kardiovaskuläre Sensoren und Monitoringsysteme
Cardiovascular Sensors & Monitoring Systems

Sitzungsleitung:

08:45 **Measurement of arterial blood pressure and hemoglobin derivatives with an implantable photoplethysmographic sensor**
Jens Fiala, Philipp Bingger (University of Freiburg, DE); Katharina Foerster, Claudia Heilmann, Friedhelm Beyersdorf (University Hospital Freiburg, DE); Hans Zappe, Andreas Seifert (University of Freiburg, DE)

09:00 **Monitoring of patients with valvular heart disease by accelerometer**
Dirk Tenholte (Technische Universität Chemnitz & Fakultät für Elektrotechnik und Informationstechnik, DE); Axel Müller, Wolfgang Och, Johannes Schweizer (Klinikum Chemnitz gGmbH, DE); Jan Mehner (Technische Universität Chemnitz, DE)

09:15 **A novel, non-invasive sensor system for detection of respiration and pulse – the evaluation of the CPR|Check**
Marc Jaeger (Neocor GmbH, DE); Daniel Wettach (Universität Karlsruhe (TH), DE); Joachim Schmidt (University Hospital Erlangen, DE); Stefan Fernsner (Karlsruhe Institute of Technology, DE); Torsten Birkholz (University Hospital Erlangen, DE)

09:30 **High Resolution Esophageal Long-Term ECG Recorder**
Thomas Niederhauser, Thanks Marisa, Andreas Haeberlin, Josef Goette, Marcel Jacomet, Rolf Vogel (Bern University of Applied Sciences, CH)

09:45 **Testing and Improvement of a long-term Monitoring System for Hypertension Patients**
Nina Cleven (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE); Anna Woitok (Institute for Laboratory Animal Science, University Hospital Aachen, DE); Michael Görtz (Fraunhofer IMS, DE); Thorsten Goettsche (OSYPKA AG, DE); Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE); Thomas Schmitz-Rode (RWTH Aachen, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

10:00 **Cardiogenic oscillations reflect mechanical properties of the respiratory system**
Stefan Schumann (University Medical Center of Freiburg, DE); Laszlo Vimlati, Rafael Kawati, Michael Lichtwarck-Aschoff (Uppsala University, Sweden); Josef Guttmann (University Hospital Freiburg, DE)

10:15 **Influence of tissue blood content on non-invasive measurements of hemoglobin concentration**
Benno Doemer (Fachhochschule Heidelberg, DE); Benno Kotterba (iAQ Institut für Automatisierungstechnik und Qualitätssicherung e.V. & SRH Hochschule Heidelberg, DE); Bernd Schöller (MCC GmbH & Co. KG, DE); Armin Bolz (University of Karlsruhe, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K2-4 **Track A**

Ultraschall- und MR-Imaging
Ultrasonics and MR-Imaging

Sitzungsleitung: Georg Schmitz (Ruhr-University Bochum, DE)

08:45 **A Reconstructive Approach for Small Animals Imaging using High Frequency Ultrasound**
Joern Opretzka, Michael Vogt (Ruhr-University Bochum & High Frequency Engineering Research Group, DE); Simone Maschauer, Olaf Prante (Nuclear Medicine, DE); Dr Helmut Ermert (Ruhr-University Bochum, DE)

09:00 **Evaluation of Numerical Ray-Tracing Methods in Ultrasound Computed Tomography**
Andreas Koch (Ruhr-Universität Bochum, DE); Reinhard Lerch (University Erlangen-Nürnberg, DE); Dr Helmut Ermert (Ruhr-University Bochum, DE)

09:15 **Calibration of a high frequency ultrasound scanner for tooth digitization based on the levenberg-marquardt algorithm**
Daniel Habor, Fabrice Chuembou Pekam, Thorsten Vollborn, Klaus Radermacher, Stefan Heger (RWTH Aachen University, DE)

09:30 **Preliminary Investigation of Ultrasound-based teeth geometry detection using Monostatic Synthetic Aperture Focusing**
Fabrice Chuembou Pekam, Thorsten Vollborn, Pierre Kengne, Klaus Radermacher Stefan Heger (RWTH Aachen University, DE)

09:45 **High resolution ultrasound and optoacoustic imaging for in-vivo imaging of glioma**
Wolfgang Bost, Marc Fournelle (Fraunhofer Institut für Biomedizinische Technik, DE); Axel Heimann (Institut für Neurochirurgische Pathophysiologie, Universität Mainz, DE); Konstantin Mpoukouvalas (Institut für Mikrotechnik Mainz GmbH, DE); Cleopatra Charalampaki (Klinikum d. Johannes Gutenberg-Universität, DE); Robert Lemor (Fraunhofer Institut für Biomedizinische Technik, DE)

10:00 **Quality-assurance in functional MR-imaging**
Christina Morgenstern (University of Applied Sciences Gelsenkirchen, DE); Arthur Felipe N. G. Borgonovi (Hospital das Clínicas, University of São Paulo & HCor - Hospital do Coração, Brazil); Maria Concepción García Otaduy (InRad-Hospital das Clínicas, University of São Paulo, Brazil); Waldemar Zylka (University of Applied Sciences Gelsenkirchen, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

10:15 **Segmentation of the Femur and Tibia Bone from Optimized MRI for Patient Specific Templating Technique in Total Knee Replacement**
Ghaith Al Hares, Hank Donker, Tobias Penzkofer, Klaus Radermacher (RWTH Aachen, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K5-7 **Track G**

FS EUCOR (2): Biomaterialien – Bioengineering
FS EUCOR (2): Biomaterials – Bioengineering

Sitzungsleitung: Pierre Schaaf (Université de Strasbourg, FR)

08:45 **Mechano-transductive film**
Pierre Schaaf (Université de Strasbourg, FR)

09:00 **Mesoporous Calcium Phosphate Carriers for Controlled Release of TGFbeta and VEGF for Bone Regeneration Application**
Karine Anselme (Université de Haute-Alsace, FR)

09:15 **Dendronized iron oxides as smart nanoobjects for multimodal imaging**
Sylvie Bégin-Colin (Institut de Physique et Chimie des Matériaux, FR)

09:30 **Vascular tissue engineering and polyelectrolyte multilayer films**
Halima Kerdjoudj (INSERM U-926, FR)

09:45 **Hybrid titanium/biodegradable polymer implants**
Philippe Lavalle (INSERM, FR)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K1 **Track J**

FS Unaufdringliche Überwachung
FS Unobtrusive Monitoring

Sitzungsleitung: Jens Mühlsteff (Philips Research Europe, DE), Steffen Leonhardt (RWTH Aachen, DE)

08:45 **Human vital signs monitoring outside clinical settings**
Jens Krauss, Olivier Chetelat, Andreas Hutter, Marc Correvon, Josep Maria Sola i Caros; Olivier Grossenbacher (CSEM - Swiss Center for Electronic and MicroTechnology, CH)

09:00 **Clinical Relevance of Unobtrusive Monitoring**
Michael Imhoff (Ruhr-University Bochum, DE)

09:15 **The Revival of Ballistocardiography: A Critical Review**
Christoph Brüser, Steffen Leonhardt (RWTH Aachen University, DE)

09:30 **Radar-based Vital Sign Monitoring**
Jens Muehlsteff (Philips Research, DE)

09:45 **Applications of Non-contact ECG Monitoring**
Steffen Leonhardt (RWTH Aachen, DE)

10:00 **Breath Analysis – Technologies and Applications**
Maximilian Fleischer (Siemens AG, DE)

10:15 **Opportunities in monitoring using functional textiles**
Harald Reiter (Philips Research Europe, The Netherlands)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K8 **Track A**

FS Bildgebung und Quantifizierung magnetischer Nanopartikel für die Medizin
FS Imaging and Quantification of Magnetic Nanoparticles in Medicine

Sitzungsleitung: Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

08:45 **Fundamentals of Magnetic Particle Imaging**
Joern Borgert, Bernhard Gleich, (Philips Technology GmbH, DE); Juergen Weizenecker (Karlsruhe University of Applied Sciences, DE); Juergen Kanzenbach, Joachim Schmidt, Ingo Schmale, Juergen Rahmer, Claas Bontus, Bernd David, Rainer Eckart, (Philips Technology GmbH, DE); Oliver Woywode, Jonas Jockram, Oliver Mende, Michael Kuhn (Philips Healthcare, DE)

09:00 **Magnetic Particle Imaging: Novel Field Generating Devices for Optimized Imaging**
Thorsten M. Buzug, Timo F Sattel, Marlitt Erbe, Sven Biederer, Matthias Graeser, Mandy Gruettner, Wiebke Tenner, Hanne Wojtczyk, (University of Luebeck, DE); Joern Borgert (Philips Technology GmbH, DE); Dominique Finas (University of Lübeck & University Clinic of Schleswig-Holstein, DE); Joerg Barkhausen (University Hospital Schleswig-Holstein, DE); Kerstin Lüdtke-Buzug, Tobias Knopp (Universität zu Lübeck, DE)

09:15 **Three-dimensional scanner for magnetic particle imaging**
Thilo Wawrzik, Frank Ludwig, Meinhard Schilling (Technische Universität Braunschweig, DE)

09:30 **Advancements in the imaging of magnetic nanoparticles using magnetorelaxometry with sequential activation of inhomogeneous excitation fields**
Daniel Baumgarten (Technische Universität Ilmenau, DE); Guillaume Crevecoeur, Luc Dupré (Ghent University, Belgium); Jens Haueisen (Technical University Ilmenau, DE)

09:45 **Experimental progress in spatially resolved quantification of magnetic nanoparticles based on linear susceptibility measurements**
Uwe Steinhoff, Maik Liebl, Frank Wiekhorst (Physikalisch-Technische Bundesanstalt, DE); Jens Haueisen (Technical University Ilmenau, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

10:00 **Semi-quantification of polychromatic tomographic data sets of biological tissue samples after magnetically supported local cancer treatment**
Helene Rahn, Stefan Odenbach (TU Dresden, DE)

10:15 **Imaging of micro field distortions allows definite cell detection by MRI**
Eyk Schellenberger, Randall Lindquist (Charité - Universitätsmedizin Berlin, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Runder Saal **Track I**

Nanopartikel (1)
Nanoparticles (1)

Sitzungsleitung: Andreas Jordan (MagForce AG, DE)

11:00 **NanoTherm® Therapy**
Andreas Jordan (MagForce AG, DE)

11:30 **In-vivo determination of magnetic nanoparticle content after magnetic drug targeting**
Frank Wiekhorst, Uwe Steinhoff, Maik Liebl, Peter Zirpel, Kay Schwarz (Pysikalisch-Technische Bundesanstalt, DE); Stefan Lyer (University Hospital Erlangen, DE); Christoph Alexiou (University Hospital Erlangen & University Hospital Erlangen, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

11:45 **Sentinel lymph node detection in breast cancer through superparamagnetic nanoparticles for magnetic particle imaging**
Dominique Finas (University of Lübeck & University Clinic of Schleswig-Holstein, DE); Kristin Baumann, Britta Ruhland, Katja Heinrich, Kerstin Lüdtke-Buzug, Thorsten M. Buzug (Universität zu Lübeck, DE)

12:00 **Cellular uptake of magnetic nanoparticles quantified by non-linear ac-susceptometry**
Frank Wiekhorst (Physikalisch-Technische Bundesanstalt, DE); Ines Gemeinhardtm, Jörg Schnorr, Matthias Taupitz (Charité - Universitätsmedizin Berlin, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

12:15 **Magnetic Particle Imaging using Ferromagnetic Magnetization**
Stephan Euting (University of Applied Sciences Gelsenkirchen, DE); Fernando M. Araujo-Moreira (Federal University of Sao Carlos / UFSCar, Brazil); Waldemar Zylka (University of Applied Sciences Gelsenkirchen, DE)

12:30 **Investigation of the Relation between NMR-performance and Structural as well as Magnetic Properties of Iron Oxide Nanoparticles**
Norbert Löwa, Dietmar Eberbeck (Physikalisch-Technische Bundesanstalt, DE); Matthias Taupitz (Charité - Universitätsmedizin Berlin, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Saal K9 **Track J**

In Vivo Neuro Monitoring
In Vivo Neuro Monitoring

Sitzungsleitung: Steffen K. Rosahl (HELIOS Klinikum Erfurt,DE); Thomas Schanze (Technische Hochschule Mittelhessen, DE)

11:00 **Quantitative Analysis of Sleep for postsurgical Delirium**
Thomas Penzel, Friederike Hofmann, Claudia Spies (Charité - Universitätsmedizin Berlin, DE); Niels Wessel (Humboldt University Berlin, DE); Martin Glos, Christoph Schoebel, Ingo Fietze, (Charité - Universitätsmedizin Berlin, DE)

11:15 **Intra-operative monitoring – why wait for far-field auditory evoked potentials?**
Steffen K. Rosahl, Andreas Langbein, Ruediger Gerlach (HELIOS Klinikum Erfurt, DE); Rudi Mattmüller (inomed Medizintechnik GmbH Teningen, DE)

11:30 **Intraoperative Neuromonitoring of Nerves Innervating the Detrusor Vesicae by Pressure Measuring**
Karin H Somerlik, Thilo Krueger (Inomed Medizintechnik GmbH, DE); Daniel W Kauff (University Medical Center of the Johannes Gutenberg University, DE); Rudi Mattmüller (inomed Medizintechnik GmbH Teningen, DE); Werner Kneist (University Medical Center of the Johannes Gutenberg University, DE)

11:45 **Intraoperative Neuromonitoring for Controlled Pedicle Screw Placement**
Thilo Krueger, Karin H Somerlik, Peggy Boehm (Inomed Medizintechnik GmbH, DE); Damir Pfau (University of Freiburg & INOMED Medizintechnik GmbH, DE); Rudi Mattmüller (inomed Medizintechnik GmbH Teningen, DE)

12:00 **A Novel, Inexpensive Electrode and Cap System for Dry Multichannel EEG**
Patrique Fiedler, Daniel Strohmeier, Stefan Griebel (Ilmenau University of Technology, DE); Frank Zanow (Eemagine Medical Imaging Solutions GmbH, DE); Jens Haueisen (Technical University Ilmenau, DE)

12:15 **Novel concept of a dynamically adaptive EEG cap for dry electrodes**
Stefan Griebel, Patrique Fiedler, Sascha Klee, Patrick Bessler, Lena Zentner, Jens Haueisen (Technical University Ilmenau, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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12:30 **Development of a long-term management system for sleep-related breathing disorders including snoring**
Dan Hofsøy (TU München, DE); Johannes F. Clauss (Technische Universität München & Sense Inside GmbH im Innovationszentrum Medizinische Elektronik, München, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Saal K2-4 **Track A**

Computertomographie
Computer Tomography

Sitzungsleitung:

11:00 **Experimental Evaluation of a Conic Image Recording Trajectory for 3-D X-ray Imaging**
Fabian Stopp (Charité - Universitätsmedizin Berlin, DE); Marc Käseberg, Christian Winne (Fraunhofer-Institut für Produktionsanlagen und Konstruktionstechnik IPK, DE); Erwin Keeve (Charité - Universitätsmedizin Berlin, DE)

11:15 **No-Reference Quality Assessment for CT-Images**
Christian Kaethner, Baerbel Kratz, Svitlana Ens, Thorsten M. Buzug (Universität zu Lübeck, DE)

11:30 **Using CBCT to measure speed of movement of impacted teeth**
Markus Puchinger (Medical University of Graz, AT); Rolf Kuehnert (Image Instruments GmbH, DE); Georg Stuecklschweiger, Helmuth Guss, Elisabeth Santigli (Medical University of Graz, AT)

11:45 **Mandible Segmentation in Low-Dose Cone-Beam CT Using an Optimal Statistical Shape Model**
Sebastian T Gollmer, Adriane Curi, Thorsten M. Buzug (Universität zu Lübeck, DE)

12:00 **Automatic Image Processing in Biodosimetry**
Matthias Dümpelmann (University Hospital Freiburg, DE); Marcela Lemos-Pinto, Mariel Matta, Thiago Fernandes, Ademir Amaral (Universidade Federal de Pernambuco, Brazil)

12:15 **Development of a 10-bit Viewing Module for Radiological Imaging**
Christoph Auer, Urs Eisenmann, Roland Metzner, Hartmut Dickhaus (University of Heidelberg, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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Saal K5-7 **Track G**

Biomaterialien (1)
Biomaterials (1)

Sitzungsleitung: Marian Löbler (Universität Rostock, DE); Ben Fabry (Universität Erlangen-Nürnberg, DE)

11:00 **Biocompatibility and particle release of porous nikkel-titanium produced by selective laser melting**
Tim Habijan (Ruhr-Universität Bochum, BG Kliniken Bergmannsheil, DE); Christoph Haberland, Horst Meier, Jan Frenzel, Charlotte Wuwer (Ruhr-Universität Bochum, DE); Thomas A Schildhauer (Berufsgenossenschaftliches Universitätsklinikum Bergmannsheil Bochum, DE); Manfred Köller (Ruhr-Universität Bochum, DE)

11:15 **Simulation of Al-Mg Interdiffusion Including the Kirkendall Effect**
Florian Seperant, Bernhard Hensel (Friedrich-Alexander-Universität Erlangen-Nürnberg, DE)

11:30 **Critical Evaluation of Electrochemical Noise Analysis as Magnesium Alloy Corrosion Test Method in Simulated Body Fluids**
Hermann Kalb (University of Erlangen-Nuremberg, DE); Alexander Rzany (Max Schaldach-Stiftungsprofessur für Biomedizinische Technik, DE); Bernhard Hensel (Friedrich-Alexander-Universität Erlangen-Nürnberg, DE)

11:45 **Combination of metal nanoparticles in bio-functional polymers and their effect on metal ion release**
Anne Hahn, Andreas Schwenke, Philipp Wagener, Csaba Sajti, Stephan Barcikowski, Sebastian Günther (Laser Zentrum Hannover eV, DE)

12:00 **Sensor Coatings for Enzyme Based Biosensors by means of Magnetron Enhanced Plasma-Polymerization**
Gregory Dame (University of Freiburg, DE)

12:15 **A microsensor-assay to monitor tissue response towards biomaterial coatings in vivo**
Massimo Kubon, Meike Moschallski, Tobias Ensslen, Gorden Link, Simon Werner, Claus Burkhardt, Hanna Hartmann, Burkhard Schlosshauer (NMI Natural and Medical Sciences Institute at the University of Tuebingen, DE); Gerald Urban (University of Freiburg, DE); Martin Stelzle (NMI Natural and Medical Sciences Institute at the University of Tuebingen, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

12:30 **Strategies for the oriented immobilization of antibodies – Novel approach to polymeric implant surfaces with improved endothelialization**
Svea Petersen, Katharina Wulf, Klaus-Peter Schmitz, Katrin Sternberg (Universität Rostock, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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Saal K1 **Track B**

FS Interventionelle MR/MRgFUS
FS Interventional MR and MR guided Focused Ultrasound

Sitzungsleitung: Arno Bücker (Universität Homburg, DE), Andreas Melzer (University of Dundee, United Kingdom)

11:00 **MRgFUS mediated blood-brain barrier disruption**
Jürgen W Jenne (Mediri GmbH & German Cancer Research Center, DE)

11:15 **Visualization of Implants and Devices in MRI**
Erwin Immel, Andreas Melzer (University of Dundee, United Kingdom)

11:30 **Open MR-guided Procedures**
Ulf Teichgräber (Universitätsklinikum Jena, DE)

11:45 **MR-guided Robotics**
Michael Bock, Florian Maier, Axel J Krafft (German Cancer Research Center (DKFZ), DE)

12:00 **Guidance and tracking of devices for MR image-assisted procedures**
Harald Busse, Thomas Kahn, Michael Moche (Leipzig University Hospital, DE)

12:15 **Bildesteuerte Navigation in der Chirurgie**
Hubertus Feussner (Klinikum rechts der Isar, TU München, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Saal K8 **Track ?**

VDE MedTech Tutorial
VDE MedTech Tutorial

Sitzungsleitung: Cord Schlötelburg (VDE Verband der Elektrotechnik Elektronik Informationstechnik e.V. & DGBMT Deutsche Gesellschaft für Biomedizinische Technik im VDE, DE)

11:00 **Klinische Forschung in der Medizintechnik**
Rüdiger Rupp (Universitätsklinikum Heidelberg, DE)

11:20 **Forschungsförderung in der Medizintechnik"**
Thomas Becks (VDE e.V.,DE)

11:40 **Risikomanagement in der Medizintechnik"**
Johannes Dehm (IMM im VDE e. V.,DE)

12:00 **Standardisierung und Normung in der Medizintechnik**
Klaus Neuder (DKE im DIN und VDE e.V., DE)

12:20 **Medizinprodukteprüfung und Zertifizierung**
Michael Bothe (VDE Institut, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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Saal Libresso **Track D**

Lunge & Beatmung
Lung & Ventilation

Sitzungsleitung:

11:00 **An in vitro model for muscle contraction force measurements of entire rat diaphragms**
Caroline Armbruster, Constanze Dassow, (Universitätsklinikum Freiburg, DE); Katharina Gamerdinger (University Medical Center, DE); Josef Guttmann, Matthias Schneider (University Hospital Freiburg, DE); Stefan Schumann (University Medical Center of Freiburg, DE)

11:15 **New model for the analysis of lung tissue mechanics in-vitro**
Katharina Gamerdinger, Stefan Schumann, Eva Fähnrich, (University Medical Center, Freiburg, DE); Oliver Pack (RWTH Aachen University, DE); Josef Guttmann (University Hospital Freiburg, DE)

11:30 **A new technique of Flow-Balanced Expiration in a porcine ARDS model**
Constanze Dassow, Stefan Schumann, Ulrich Goebel, Jörg Haberstroh, Katharina Foerster, Josef Guttmann (University Hospital Freiburg, DE)

11:45 **Developing a Pumpless Extracorporeal Lung Support for Premature Neonates (NeonatOx)**
Jutta Arens (RWTH Aachen University, DE); Mark Schoberer, Anne Lohr, Thorsten Orlikowsky (University Hospital, RWTH Aachen University, DE); Matthias Seehase, Reint Jellema (School of Oncology & Developmental Biology, Maastricht University Medical Center, The Netherlands); Jennifer Collins, Boris Kramer (School of Oncology & Developmental Biology, Maastricht University Medical Center, The Netherlands); Thomas Schmitz-Rode (RWTH Aachen, DE); Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE)

12:00 **Patient orientated automation of the therapy with the Extracorporeal Membrane Oxygenation (ECMO)**
Christian Brendle (RWTH Aachen & Helmoholtz Institute for Biomedical Engineering, DE); Ralf Bensberg (Aachen University Hospital, DE); Andre Stollenwerk (RWTH Aachen University & Embedded Software Laboratory, DE); Jutta Arens, Marian Walter (RWTH Aachen University, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

12:15 **Experimental and numerical results of a neonatal oxygenator with integrated pulsatile pump and heat exchanger**
Ralf Borchardt, Peter Schlanstein, Ilona Mager, Jutta Arens, Thomas Schmitz-Rode (RWTH Aachen University, DE); Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE)

12:30 **An EIT evaluation software for physicians**
Zhanqi Zhao, Knut Moeller (Furtwangen University, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Rolf Böhme Saal **Track I**

Plenarsitzung (2)

13:45 **New Technologies for MR-Imaging**
Jürgen Hennig (University Freiburg Medical Center, DE)

14:15 - 14:30 Fachausstellung

Runder Saal **Track I**

Nanopartikel (2)
Nanoparticles (2)

Sitzungsleitung:

14:30 **Bio-functionalization of laser-generated gold nanoparticles: synthesis of novel nano-scaled labeling agents and drug delivery vehicles from the lab-scale to industrial scale**
Annette Barchanski, Csaba Sajti (Laser Zentrum Hannover e. V., DE); Svea Petersen (Universität Rostock, DE); Stephan Barcikowski, Boris Chichkov (Laser Zentrum Hannover e.V., DE)

14:45 **The use of zinc finger in molecular diagnostics**
Dirk Kuhlmeier, Andreas Naumann, Susann Allelein (Fraunhofer IZI, DE)

15:00 **Optical detection of nanoparticle rotational dynamics for application in homogeneous biosensing**
Stefan Schrittwieser, Joerg Schotter (AIT Austrian Institute of Technology, AT); Katerina Soulantica, Guillaume Viau, Lise-Marie Lacroix, Sergio Lentijo, Rym Boubekri (LPCNO (INSA / CNRS/UPS), FR); Frank Ludwig, Jan Dieckhoff (TU Braunschweig, DE); Andreas Huetten (University of Bielefeld, DE); Hubert Brueckl (AIT Austrian Institute of Technology, AT)

15:15 **Characterization of nanoparticles functionalized with a chemotherapeutic substance in cell culture – basic investigations for Magnetic Drug Targeting**
Stephan Dürr, Stefan Lyer, Jenny Mann (University Medical Center Erlangen, DE); Dagmar-Ulrike Richter (Universität Rostock, DE); Rainer Tietze, Eveline Schreiber (University Hospital Erlangen, DE); Christoph Alexiou (University Hospital Erlangen & University Hospital Erlangen, DE)

15:30 **A Compensation Unit for a Magnetic Particle Spectrometer to Measure the Full Magnetization Spectrum of Superparamagnetic Iron Oxide Nanoparticles**
Sven Biederer, Timo F Sattel, Marlitt Erbe, Tobias Knopp, Thorsten M. Buzug (Universität zu Lübeck, DE)

15:45 **Distribution of magnetic nanoparticles within MR-visible meshes**
Ioana Slabu, Gernot Güntherodt, Thomas Schmitz-Rode, Michael AJ Hodenius, Nils Krämer, Hank Donker, Jens Otto, Christiane Kuhl, Uwe Klinge, Martin Baumann (RWTH Aachen University, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

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16:00 **Magnetic Particle Spectrometer with Enlarged Excitation Field Strength**
Timo F Sattel, Sven Biederer, Marlitt Erbe, Tobias Knopp, Thorsten M. Buzug (Universität zu Lübeck, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

Saal K9 **Track J**

Zell- & Gewebe Monitoring
Cell & Tissue Monitoring

Sitzungsleitung:

14:30 **An Iridium-oxide pH sensor for cell based assays**
Joachim Wiest (CELLASYS GmbH, DE); Uwe Schnakenberg, Christian Koch, (RWTH Aachen, DE); Walter Wirths (Technische Universiät München, DE); Florian Stadler, Timotheus Bachinger (CELLASYS GmbH, DE); Helmut Grothe, Bernhard Wolf (Technische Universität München, DE)

14:45 **Metabolic pathways in tumor cell culture: Enhancement of the Sensing Cell Culture Flask with biosensors**
Jochen Kieninger, Barbara Enderle, Yaara Tamari (University of Freiburg, DE); Joe Sandvik, Erik Pettersen (University of Oslo, Norway); Gerald Urban (University of Freiburg, DE)

15:00 **Processing and characterization of a cell culture monitoring system and application in tumor cell lines for cancer research**
Yaara Tamari (University of Freiburg, DE)

15:15 **Vis spectroscopic imaging of retina cell degeneration**
Julia Hollmach, Julia Schweizer (Dresden University of Technology, DE); Gerald Steiner (Clinical Sensoring and Monitoring, DE); Lilla Knels, Richard Funk, Edmund Koch (Technische Universität Dresden, DE)

15:30 **Non invasive spectroscopic imaging of the eye background**
Julia Schweizer, Julia Hollmach (Dresden University of Technology, DE); Gerald Steiner (Clinical Sensoring and Monitoring, DE); Lilla Knels, Richard Funk, Edmund Koch (Technische Universität Dresden, DE)

15:45 **Microsensors for multiparametric in vivo monitoring in brain tissue**
Andreas Weltin (University of Freiburg - IMTEK, DE); Brita Fritsch (University Medical Center Freiburg, DE); Jochen Kieninger, Barbara Enderle (University of Freiburg, DE); Holger Kaube, Cornelius Weiller (Universitätsklinik Freiburg, DE); Gerald Urban (University of Freiburg, DE)

16:00 **A novel transillumination device allows improved resolution in reconstruction of surface electrode positions with cardiac tissue topology**
Ernst Hofer, Thomas Wiener, Robert Arnold (Medical University of Graz, AT)

16:15 - 16:45 Kaffeepause, Fachausstellung

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Saal K2-4 **Track F**

Intelligente Implantate (1)
Intelligent Implants (1)

Sitzungsleitung: Hans-Jürgen Wildau (Biotronik GmbH & Co. KG, DE); Omid Majdani (Hannover Medical School, DE)

14:30 **INTELLITUM – an approach to applications of implantable closed-loop systems in diagnostics and therapy**
Sven Becker (Technische Universität München, DE)

14:45 **Development of a Minimally Invasive Implantation and Fixation Strategy for a Cardiac Output Monitoring System in the Pulmonary Artery (COMPASS)**
Michael Pfennig, Renate Hartmann (RWTH Aachen University, DE); Sonja Meine, Erhard Flach, Albrecht Urbaszek (Biotronik SE & Co. KG, DE); Ulrich Steinseifer, Thomas Schmitz-Rode (RWTH Aachen, DE)

15:00 **Implantable Sensor for Continuous Pulmonary Artery Hemodynamic Monitoring in Heart Failure Patients (COMPASS)**
Albrecht Urbaszek (Biotronik SE & Co. KG, DE); Michael Görtz (Fraunhofer IMS, DE); Tim Traulsen (LITRONIK Batterietechnologie GmbH, DE); Wilfried Mokwa, Thomas Schmitz-Rode (RWTH Aachen, DE)

15:15 Flexible hybrid Micro-Implant for intracranial EEG recording
Volker Bucher (NMI Natural and Medical Sciences Institute at University of Tuebingen, DE); Karl-Heinz Boven (Multi Channel Systems MCS GmbH, DE); Jochen Held, Alfred Stett, Wilfried Nisch (NMI Natural and Medical Sciences Institute at the University of Tuebingen, DE); Rainer Mohrlok (Multi Channel Systems, DE); Ali Teker (NMI Natural and Medical Sciences Institute at University of Tuebingen, DE); Andreas Moeller (Multi Channel Systems MCS GmbH, DE)

15:30 **Integrated Front-end for a Highly Parallel Universal Functional Electrical Stimulation Platform**
Kriangkrai Sooksood, Emilia Noorsal (University of Ulm, DE); Ralf Hornig (IMI Intelligent Medical Implants GmbH, DE); Joachim Becker, Maurits Ortmanns (University of Ulm, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

15:45 **An AC-Powered Optical Receiver Consuming 270 µW for Transcutaneous 2Mb/s Data Transfer**
Hongcheng Xu (University of Ulm, DE); Steffen Lange, C Lang, Holger Pless (Institute for Microelectronic and Mechatronics Systems, DE); Joachim Becker (University of Ulm, DE); Ralf Hornig (IMI Intelligent Medical Implants GmbH, DE); Eckhard Hennig (Institute for Microelectronic and Mechatronics Systems, DE); Maurits Ortmanns (University of Ulm, DE)

16:00 **Optimum position of a subretinal implant**
Alex Harscher, Andre Dahms, Walter-G. Wrobel (Retina Implant AG, DE); Eberhart Zrenner (University of Tuebingen & Centre for Ophthalmology, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

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Saal K5-7 **Track G**

Biomaterialien (2)
Biomaterials (2)

Sitzungsleitung: Ben Fabry (Universität Erlangen-Nürnberg, DE)

14:30 **Histological and histomorphometric investigation on bone integration of a microporous beta-tricalciumphosphat scaffolds**
Anke Bernstein, Norbert Südkamp (University of Freiburg, DE); Marc Bohner (RMS Foundation, CH); Hermann Mayr (University of Freiburg, DE)

14:45 **Dynamic culture of endothelial cells on thioheparin and RGDC functionalized polyacrylates for vascular tissue engineering**
Esther Novosel (University of Stuttgart & Fraunhofer IGB, DE); Nadine Klechowitz (Fraunhofer IGB, DE); Wolfdietrich Meyer (Fraunhofer IAP, DE); Christian Schuh, Kirsten Borchers (Fraunhofer IGB, DE); Michael Wegener, Hartmut Krüger (Fraunhofer IAP, DE); Heike Walles (University of Würzburg, DE); Günter Tovar, Thomas Hirth, Petra J Kluger (Fraunhofer IGB, DE)

15:00 **Influence of surface-bound ligands on cellular adhesion at the implant-endothelial interface**
Thilo Storm, Katharina Wulf, Marian Löbler (Universität Rostock, DE); Stefan Theiler, Helmut Keul (RWTH Aachen, DE); Katrin Sternberg, Klaus-Peter Schmitz (Universität Rostock, DE)

15:15 **Suture materials and their influence on the growth behavior of tumor and normal cell lines**
Dagmar-Ulrike Richter, Bernd Gerber (Universität Rostock, DE); Claudia Richter (Max-Planck-Institute for Dynamics and Self-Organization, DE); Wolfgang Labs, Michael Laue, Volker Briese (Universität Rostock, DE); Christoph Alexiou (University Hospital Erlangen & University Hospital Erlangen, DE)

15:30 **Plasma-functionalization of polystyrene and bone substitute material- better adhesion and proliferation conditions for human mesenchymal stem cells**
Claudia Kleinhans (University of Stuttgart, DE); Stefanie Schneider, Jakob Barz, Thomas Schiestel, Michael Müller (Fraunhofer IGB, DE); Heike Walles (University of Würzburg, DE); Thomas Hirth, Petra J Kluger, (Fraunhofer IGB, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

15:45 **Cold gasplasma surface-modification of allogenic bone substitutes – a promising technique to improve their biointegrity and vascularization**
Jörg Hauser, Andrej Ring, Angela Schaffran, Hans-Ulrich Steinau (BG-University Hospital Bergmannsheil, DE)

16:00 **Specific surface modification of silicone-based cochlear implant electrode carriers for fibrosis prevention and spiral ganglion cell enhancement**
Anne Roock (University of Rostock, DE); Anne Hahn, Stephan Barcikowski (Laser Zentrum Hannover e.V., DE); Katharina Wulf (Universität Rostock, DE); Piera Ceschi, Gerrit Paasche, Thomas Lenarz (Medizinische Hochschule Hannover, DE); Klaus-Peter Schmitz, Katrin Sternberg (Universität Rostock, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

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Saal K1 **Track A**

Partikelvermittelte Bildgebung
Particle Mediated Imaging

Sitzungsleitung:

14:30 **MPI-based blood flow examination along a stenosis phantom**
Ingo Schmale (Philips Technology GmbH, DE)

14:45 **An optimized field free line scanning device for magnetic particle imaging**
Marlitt Erbe, Timo F Sattel, Tobias Knopp, Sven Biederer, Thorsten M. Buzug (Universität zu Lübeck, DE)

15:00 **Molecular Imaging of Inflammations at Implant Interfaces (M4I) - Part of Molecular Imaging North Competence Center (MOIN CC)**
Julia Hamer, Matthias Kleine (Universität zu Lübeck & Graduate School for Computing in Medicine and Life Sciences, DE); Sven Barendt (Universität zu Lübeck, DE); Jochen Krajewski, Jens Konitzer, Elisabeth Gáspár (University Hospital Schleswig-Holstein, DE); Birgit Meller (University Hospital Halle, DE); Johannes Knobloch, Martin Russlies, Inga Buchmann, Joerg Barkhausen (University Hospital Schleswig-Holstein, DE); Jan Modersitzki (Universität zu Lübeck, DE); Gernot Ebel (Scivis GmbH, DE); Thorsten M. Buzug (Universität zu Lübeck, DE)

15:15 **SimInterface – A dedicated software interface to Monte-Carlo simulations for particle therapy**
Daniel Unholtz, Florian Sommerer, Julia Bauer, Christian Lampe, Thomas Haberer, Jürgen Debus, Katia Parodi (Heidelberger Ionenstrahl-Therapie Centrum (HIT), DE)

15:30 **Ein Messaufbau zur nicht-invasiven Quantifizierung von multiplen Nanopartikelanreicherungen für die Krebstherapie**
Maik Liebl (Physikalisch-Technische Bundesanstalt, DE)

15:45 **Determination of a 1D-MPI-System-Function using a Magnetic Particle Spectroscope**
Matthias Graeser, Sven Biederer, Mandy Gruettner, Hanne Wojtczyk, Wiebke Tenner, Timo F Sattel (Universität zu Lübeck, DE); Bernhard Gleich, Joern Borgert (Philips Technology GmbH, DE); Tobias Knopp, Thorsten M. Buzug (Universität zu Lübeck, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

Saal K8 **Track K**

Biosignalverarbeitung - Zentrales Nervensystem
Biosignal Processing - Central Nervous System

Sitzungsleitung: Jens Haueisen (Technical University Ilmenau, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

14:30 **Quantifying Tendency to Epileptic Activity in Rat Kainate Model**
Karin H Somerlik (Inomed Medizintechnik GmbH Emmendingen, DE); Delphine Cosandier-Rimélé (Bernstein Center Freiburg, DE); Joacir G. Cordeiro (University Hospital Freiburg & Federal University of Paraná, DE); Thilo Krueger, Rudi Mattmüller (inomed Medizintechnik GmbH Teningen, DE); Thomas Stieglitz, Ad Aertsen (Universität Freiburg, DE); Andreas Schulze-Bonhage (University Hospital Freiburg, DE)

14:45 **Detection of Activity Levels in High-Density Intracortical Neural Recordings Using a Machine Learning Approach**
Hernando Ramirez, Karsten Seidl (University of Freiburg, DE); Istvan Ulbert (Hungarian Academy of Sciences, Hungary); Oliver Paul, Patrick Ruther, Andreas Karwath (University of Freiburg, DE)

15:00 **A P300-based Brain-Computer Interface in noisy environments: Influences on the accuracy**
Rupert Ortner, Markus Bruckner, Armin Schnürer (Guger Technologies OG, AT); Robert Prückl (g.tec medical engineering GmbH, AT); Christoph Guger (Guger Technologies OEG, AT)

15:15 **Comparison between randomisation testing and time shift PCA for the validation of coherence**
Tilmann Sander-Thoemmes (Physikalisch-Technische Bundesanstalt, DE); Antje Bock, Andrea Kühn (Charite, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

15:30 **MEG/EEG source localization based on structured sparsity in the time-frequency domain**
Daniel Strohmeier (Ilmenau University of Technology, DE); Alexandre Gramfort (Martinos Center for Biomedical Imaging, MGH, Harvard Medical School, Boston, USA); Jens Haueisen (Technical University Ilmenau, DE); Matti S Hämäläinen (MGH Hospital, USA); Matthieu Kowalski (Université Paris-Sud, Orsay, FR)

16:15 - 16:45 Kaffeepause, Fachausstellung

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15:45 **Hierarchical Bayesian Models for EEG Inversion: Depth Localization and Source Separation for Focal Sources in Realistic FE Head Models**
Felix Lucka (University of Münster, DE); Sampsa Pursiainen (Aalto University, Finland); Martin Burger (University of Münster, DE); Carsten H. Wolters (Institute for Biomagnetism and Biosignalanalysis, DE)

16:00 **A validation of two measurement principles in order to detect neuronal currents directly by means of low-field nuclear magnetic resonance performing a phantom study**
Nora Hoefner (Physikalisch-Technische Bundesanstalt, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

Saal Libresso **Track P**

Aus- und Weiterbildung
Training and Further Education

Sitzungsleitung: Ute Morgenstern (Technische Universität Dresden, DE)

14:30 **Physikalisch-Technische Medizin (PTM) – E-Learning Konzept eines technischen Master-Online Studiengangs für Mediziner**
Josef Guttmann (University Hospital Freiburg, DE); Knut Moeller (Furtwangen University, DE); Markus Lassmann (University Medical Center Freiburg, DE); Stefan Schumann (University Medical Center of Freiburg, DE); Thomas Jechle (Hochschule Furtwangen, DE)

14:45 **Physikalisch-Technische Medizin (PTM) – ein technischer Master-Online Studiengang für Mediziner**
Josef Guttmann (University Hospital Freiburg, DE); Knut Moeller (Furtwangen University, DE); Markus Lassmann (University Medical Center Freiburg, DE); Stefan Schumann (University Medical Center of Freiburg, DE)

15:00 **Problemorientiertes Lernen einen Schritt weiter gedacht: Wie bringt man praktische Fertigkeiten strukturiert in ein selbstbestimmtes Lernen?**
Martin Baumann, Anja Brunberg, Dirk Abel, Stefan Gründer, Andreas Ritter (RWTH Aachen University, DE)

15:15 **Kontextbasierte und dynamische elektronische Prüfungen in der biomedizinischen Ausbildung**
Martin Baumann, Volker Perlitz (RWTH Aachen University, DE)

15:30 **Aus- und Weiterbildung Biomedizinische Technik. Ein Positionspapier des VDE**
Thomas Schmitt (Staatliche Studienakademie Bautzen, DE); Anja Abdel-Haq (Technische Universität Dresden, DE); Sabine Fincke (Bildungsportal Thüringen, Erfurt); Marc Kraft (Technische Universität Berlin, DE); Ute Morgenstern (Technische Universität Dresden, DE); Maria Zellerhoff (Forum MedTech Pharma e.V. Nürnberg, DE)

15:45 **Übersicht Weiterbildung Biomedizinische Technik**
Maria Zellerhoff (Forum MedTech Pharma e.V. Nürnberg, DE)

16:00 **Übersicht und Perspektive: Studienangebote, Lehrbuchreihe und eLearning**
Ute Morgenstern (Technische Universität Dresden, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

Runder Saal **Track I**

Nanosensoren
Nanosensors

Sitzungsleitung:

16:45 **Integration of a silicon sensor for application in biomedical analytics**
Lars Naegele, Andreas Schoth, Claas Müller, Holger Reinecke (University of Freiburg, DE)

17:00 **A Neural Electrode Coated by Platinum Nanowires**
Young-Hyun Jin, Patrick Daubinger, Bernd Fiebich, Thomas Stieglitz (Universität Freiburg, DE)

17:15 **Osteosynthesis Plate Monitoring using a Wireless Bending Sensor**
Uwe Marschner, Sebastian Sauer, Holger Neubert, Wolf-Joachim Fischer (Technische Universität Dresden, DE); Bernhard Clasbrummel (Zollernalb-Klinikum, DE)

17:30 **Lab-on-a-Chip solutions designed for being operated on standard laboratory instruments**
Daniel Mark (HSG-IMIT, DE); Oliver Strohmeier (University of Freiburg, DE)

17:45 **Sepsis diagnostic with TIRF based biochips**
Kemmler (Fraunhofer Institute of Physical Measurement Techniques, DE)

18:00 **Magnetic properties of tissue in magnetic targeting and fluid hyperthermia**
Ioana Slabu, (RWTH Aachen University, DE); Anjali Röth, Joachim Conze, Ulf Neumann, Maximilian Schmeding (RWTH Aachen University Hospital, DE); Thomas Schmitz-Rode, Gernot Güntherodt, Martin Baumann (RWTH Aachen University, DE)

18:15 **Inkjet Printing of Nanomaterials for Microsensors**
Bernd Neumann, Nada Mzoughi, Helmut Grothe, Bernhard Wolf (Technische Universität München, DE)

19:00 Eröffnung • 20:30 Get Together

Saal K9 **Track Q**

FS High-Tech in der Strahlentherapie, Fortschritte in der nichtinvasiven Tumorbehandlung
FS High-Tech in Radiotherapie, Advancement in Non Invasive Tumor Treatment

Sitzungsleitung: Anca Grosu (Universtitätsklinikum Freiburg, DE)

16:45 **Einführung: High-Tech in der Strahlentherapie, Fortschritte in der nichtinvasiven Tumorbehandlung**
Anca Grosu (Universtitätsklinikum Freiburg, DE)

17:00 **Moderne Bildgebung und Strahlentherapie**
Ursula Nestle (Universitätsklinikum Freiburg, DE)

17:30 **Stereotaktische Strahlentherapie**
Felix Momm (Universitätsklinikum Freiburg, DE)

18:00 **Modernes Klinikmanagement Klinische and Administrative Informatik in der Radioonkologie**
Felix Heinemann (Universität Freiburg, DE)

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Saal K2-4 **Track F**

Intelligente Implantate (2)
Intelligent Implants (2)

Sitzungsleitung: Georg Bretthauer (Karlsruhe Institute of Technology, DE); Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

16:45 **Adjustable flow restrictor for an implantable infusion pump**
Yavuz Selim Mutlu, Holger Jannsen, Stephan Klein, Bodo Nestler (Fachhochschule Lübeck, DE)

17:00 **Development of new Cochlear Implant electrodes for minimally traumatic insertion**
Omid Majdani (Hannover Medical School, DE)

17:15 **Detection of arm movement from EMG signals recorded with fully implanted electrodes: A case study in a rhesus macaque**
Sören Lewis (Vienna University of Technology & Otto Bock Healthcare Products GmbH, AT); Michael Russold, (Otto Bock Healthcare Products GmbH, AT); Hans Dietl (Otto Bock HealthCare GmbH, DE); Thomas Dörge, Roman Ruff, Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

17:30 **Synchronisation Requirements for Binocular Sensor Data Acquisition in the Artificial Accommodation System**
Christoph Beck, Helmut Guth, Ulrich Gengenbach, Georg Bretthauer (Karlsruhe Institute of Technology, DE); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE)

17:45 **First Circuit Design for the Artificial Accommodation System**
Liane Rheinschmitt, Jörg Nagel, Ulrich Gengenbach, Georg Bretthauer (Karlsruhe Institute of Technology, DE)

18:00 **Simulation of the Power Output of Electro Mechanic Energy Harvesting Inside the Artificial Accommodation System**
Jörg Nagel, Laszlo Godard (Karlsruhe Institute of Technology, DE); Heiner Martin (Universität Rostock, DE); Ulrich Gengenbach, Helmut Guth, Georg Bretthauer (Karlsruhe Institute of Technology, DE); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE)

19:00 Eröffnung • 20:30 Get Together

18:15 **Biocompatible piezoelectric microstructures utilizing eye motion for self-sufficient IOP-sensor devices**
Nicola Heidrich (Fraunhofer Institut für Angewandte Festkörperphysik, DE); Stefan Hampl (Technische Universität Ilmenau & Institut für Mikro- & Nanotechnologien, DE); Daniel Laqua (Ilmenau University of Technology, DE); Volker Cimalla (Fraunhofer Institut für Angewandte Festkörperphysik, DE); Martin Hoffmann, Peter Husar (Technische Universiät Ilmenau, DE)

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Saal K5-7 **Track I**

FS Segmented-Flow-Technik für biomedizinische Anwendungen
FS Segmented- Flow-Technique for Biomedical Applications

Sitzungsleitung: Johann Michael Köhler (Technical University Ilmenau, DE), Josef Metze (Institut für Bioprozess- und Analysenmesstechnik, DE)

16:45 **Droplet-based Lab-on-a-Chip-System for Quantifying Drug Metabolites by Surface Enhanced Raman Spectroscopy (SERS)**
Thomas Henkel (Institute of Photonic Technology e.V. (IPHT), DE); Anne März; Falk Liebold (Analytik-Jena AG, DE); Petra Rösch (Friedrich-Schiller-University, DE); Michael Kiehntopf (Jena University Hospital, DE); Jürgen Popp (Institut of Photonic Technology, DE)

17:00 **Investigation of different microfluidic structures for the "Segmented-flow technique" in the life sciences sector**
Stefan Wiedemeier, Andreas Grodrian, Gunter Gastrock, Jörg Schemberg, Karen Lemke, Robert Römer, Josef Metze (Institut für Bioprozess- und Analysenmesstechnik, DE)

17:15 **Practical applications of segmented flow microfluidics in biomedicine**
Friederike Ehrhart, Stefan Wiedemeier, (Fraunhofer IBMT, DE); Esther Mettler (Universitätsmedizin Mainz, DE); Mathias M Weber (Universitätsklinikum der Johannes Gutenberg Universität, DE); Josef Metze (Institut für Bioprozess- und Analysenmesstechnik, DE); Heiko Zimmermann (Fraunhofer Insitute for Biomedical Engineering, DE)

17:30 **Living droplets: Cell-based assays on a miniaturized scale**
Christoph Merten (European Molecular Biology Laboratory, DE)

17:45 **Development of segmented-flow microfluidic operations for single-cell nucleic acid analysis**
Fabian Stumpf (HSG-IMIT, DE); Junichi Miwa (IMTEK Freiburg, DE); Nils Paust (HSG-IMIT, DE); Felix von Stetten, Roland Zengerle, Günter Roth (Universität Freiburg – IMTEK, DE)

18:00 **Segment-based microfluidic systems for developmental biology, gene expression and toxicological studies**
Anette Funfak (Ecole Polytechnique, FR)

19:00 Eröffnung • 20:30 Get Together

Saal K1 **Track A**

Bildgebung und Bildverarbeitung
Imaging and Image Processing

Sitzungsleitung:

16:45 **Clutter reduction – a quantitative in vivo image contrast analysis**
Jochen Matthias Deibele, Svein Måsøy (Norwegian University of Science and Technology, Norway); Torbjørn Dahl (St. Olavs Hospital Trondheim, Norway); Thor Andreas Tangen (Norwegian University of Science and Technology, Norway); Rune Hansen (SINTEF Technology and Society, Trondheim, Norway); Tonni Johansen, Øyvind Krøvel-Velle Standal, Bjorn Angelsen (Norwegian University of Science and Technology, Norway)

17:00 **Breathing Detection for Enhanced Medical Imaging Using Tri-Axial Acceleration Sensors**
Sylvie von Werder, Andreas H. Mahnken (RWTH Aachen, DE); Catherine Disselhorst-Klug (RWTH Aachen University & Institute of Applied Medical Engineering, DE)

17:15 **Intraoperative optical imaging of stimulated brain areas in comparison to electrophysiological measurements**
Tobias Meyer, Stephan Sobottka (Dresden University of Technology, DE); Matthias Kirsch (Universitätsklinikum Dresden, DE); Edmund Koch, Gabriele Schackert (Dresden University of Technology, DE); Ralf Steinmeier (Klinikum Chemnitz gGmbH, DE); Ute Morgenstern (Technische Universität Dresden, DE)

17:30 **Simultaneous recording of cortical spreading depolarisations and cortical blood volume changes in a gyrencephalic animal model**
Michael Schöll, Edgar Santos, Renan Sanchez-Porras (Heidelberg University Hospital, DE); Yoichi Uozumi (National Defense Medical College, Japan); Modar Kentar, Berk Orakcioglu, Oliver Sakowitz (Heidelberg University Hospital, DE); Hartmut Dickhaus (University of Heidelberg, DE)

17:45 **Generating extended images of the corneal subbasal nerve plexus in vivo**
Stephan Allgeier, Bernd Köhler, Georg Bretthauer (Karlsruhe Institute of Technology, DE); Oliver Stachs (Universität Rostock, DE)

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18:00 **Non-Invasive Reconstruction of Myocardial Activation: A Wavefront-Based Tikhonov Approach with Tolerance Operator**
Biao Wang, Walther H W Schulze, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

18:15 **Non-Invasive Imaging of Activation Times in the Atria – Can Excitation Patterns be Reconstructed?**
Walther H W Schulze, Martin W Krueger (Karlsruhe Institute of Technology (KIT), DE); Kawal Rhode, Reza Razavi (King's College London, United Kingdom); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

19:00 Eröffnung • 20:30 Get Together

Saal K8 **Track K**

Biosignalverarbeitung – Verschiedenes
Biosignal Processing – Miscellaneous topics

Sitzungsleitung: Werner Wolf (Universität der Bundeswehr München, DE); Niels Wessel (Humboldt-Universität zu Berlin, DE)

16:45 **Estimating cardiac output from pulmonary arterial pressure**
Jens Kirchner (Biotronik SE & Co. KG, DE); André van Ooyen, Michael Pfennig, Thomas Schmitz-Rode (RWTH Aachen, DE); Albrecht Urbaszek (Biotronik SE & Co. KG, DE)

17:00 **A new oculomotor sleepiness test**
Thomas Schnupp, Adolf Schenka (University of Applied Sciences Schmalkalden, DE); Niels Galley (University of Cologne, DE); Martin Golz (University of Applied Sciences Schmalkalden, DE)

17:15 **Quantification of the Amount of Microsleep and its Relation to Accidents**
Martin Golz, David Sommer (University of Applied Sciences Schmalkalden, DE); Udo Trutschel (Circadian Technologies, Inc., USA); Jarek Krajewski (Institute of Work and Organizational Psychology, University of Wuppertal, DE)

17:30 **Swallowing detection based on combined EMG and bioimpedance measurements**
Holger Nahrstaedt, Thomas Schauer (Technische Universität Berlin, DE); Rainer Seidl, Corinna Schultheiss (Unfallkrankenhaus Berlin, DE)

17:45 **Chewing Sound Classification Using Algorithms of Speech Recognition**
Sebastian Päßler (Fraunhofer IPMS & Dresden University of Technology, DE); Matthias Wolff (Technische Universität Dresden, DE); Wolf-Joachim Fischer (Fraunhofer IPMS, DE)

18:00 **Enhanced spectral analysis of blood flow during post-occlusive reactive hyperaemia test reveals gender differences**
Andrea Seeck (University of Applied Sciences Jena, DE); Anna-Karoline Israel (University Hospital Jena, DE); Karl-Jürgen Bär (Friedrich-Schiller-University, Jena, DE); Andreas Voss (University of Applied Sciences Jena, DE)

18:15 **Realtime gait phase detection with an inertial measurement unit for lower limb prostheses**
Harald von Rosenberg, Bernhard Budaker, Marc Barho (Fraunhofer IPA, DE)

19:00 Eröffnung • 20:30 Get Together

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Saal Libresso **Track P**

FS Fachausschuss BMT-Aus- und -Weiterbildung gemeinsam mit dem Jungen Forum BMT im VDE „Junges Forum trifft Alte Hasen“ – ein Erfahrungsaustausch am Beispiel der Herzschrittmachertechnik
FS Training and Further Education

Sitzungsleitung: Ute Morgenstern (Technische Universität Dresden, DE)

16:45 **Einführung in die Thematik: Unterstützung der elektrischen Herzfunktion mit Schrittmachern, demonstriert am Interaktionsmodell unter Matlab/Simulink**
Karl Schmidt (ABX-CRO, DE)

17:00 **Historie der Herzschrittmachertechnik**
Werner Irnich (Justus-Liebig-University, DE)

17:20 **Prozess der Produktentwicklung und Trend im Bereich der aktiven Implantate**
Hans-Jürgen Wildau (Biotronik GmbH & Co. KG, DE)

17:35 **Herausforderungen und Hürden aus der Sicht des Berufseinsteigers**
Emanuel Wehrle (Biotronik Se. & Co. KG, DE)

17:50 **Podiumsdiskussion zum Erfahrungsaustausch**
Moderation: *André Henning (Siemens AG Forchheim und Technische Universität Dresden, DE)*

Teilnehmer:
Werner Irnich (Justus-Liebig-Universität Gießen, DE); Hans-Jürgen Wildau (Biotronik GmbH & Co. KG Berlin, DE); Karl Schmidt (ABX-CRO Dresden, DE); Emanuel Wehrle (Biotronik Se. & Co. KG Berlin, DE)

19:00 Eröffnung • 20:30 Get Together

Rolf Böhme Saal

Plenarsitzung (3)

08:00 **Therapeutic targeting of murine mammary cancer and its microenvironment with ferri-liposomes containing a cysteine cathepsin inhibitor**

Christoph Peters (Institut für Molekulare Medizin und Zellforschung, DE)

08:30 - 08:45 Fachausstellung

Runder Saal **Track I**

FS Biosensorik Point-of-Care
FS Biosensors Point-of-Care

Sitzungsleitung: Gerald Urban (University of Freiburg, DE)

08:45 **Impact and Challenges of Point-of-Care Testing**
Norbert Oranth (Roche, DE)

09:15 **Point-of-Care Testing: Current Status and Diagnostic Perspectives**
Peter Luppa (TU München, DE)

09:30 **Calibration free biosensor arrays with integrated microfluidics for biomedical monitoring**
Isabella Moser, Magdalena Förg, Gerhard Jobst (Jobst Technologies GmbH, DE)

09:45 **Microengineering based point of care diagnostics. Next generation technology for rapid mobile diagnosis of infectious diseases**
Frank T. Hufert (University Medical Center Goettingen, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K9 **Track D**

Biomechanik und Implantate (1)
Biomechanics and Implants (1)

Sitzungsleitung:

08:45 **Development of a polymeric vascular prosthesis with an integrated heart valve for right ventricular outflow tract (RVOT) reconstruction**
Yara Safi (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE); Jörg S Sachweh (University Hospital Aachen, DE); Ingo Nadzeyka, In Seong Yoo, Maximilian Kütting, Jan Roggenkamp (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen, DE); Ute Urban, Thomas Schmitz-Rode (RWTH Aachen, DE); Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE)

09:00 **ASTAI-Assistance system for transcatheter aortic valve implantation**
Mohamed E Karar (Universität Leipzig & ICCAS, DE); David Holzhey (Universität Leipzig, DE); Volkmar Falk (Klinik für Herz- und Gefässchirurgie Universitätsspital Zürich, CH); Friedrich-Wilhelm Mohr, Oliver Burgert (Universität Leipzig, DE)

09:15 **In Vitro Microfluidic Measurements of the Velocity Distribution and Wall Shear Stress in Stented Artery Models, Regarding the Non-Newtonian Behaviour of Blood**
Daniel Quosdorf, Martin Brede, Alfred Leder, Heiner Martin, Klaus-Peter Schmitz (Universität Rostock, DE)

09:30 **Stabilizing structures for the aorta replacement – Static and dynamic testing**
Nicole Hinte, Christian Biskup, Thomas Hassel (Leibniz Universität Hannover, DE); Tobias Schilling, Tanja Meyer, Axel Haverich (Medizinische Hochschule Hannover, DE); Friedrich-Wilhelm Bach (Leibniz Universität Hannover, DE)

09:45 **Development of a tissue culture model for investigating drug absorption and distribution within the blood vessel wall after drug-eluting stent implantation**
Jana Brietzke (University of Rostock & Institute for Biomedical Engineering, DE); Marian Löbler, Niels Grabow, Katrin Sternberg, Klaus-Peter Schmitz (Universität Rostock, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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10:00 **Fatigue testing of stents for peripheral vasculature with axial, bending and torsion loading**
Wolfram Schmidt, Lena Schmitt, Peter Behrens, Heiner Martin, Udo Röhr, Klaus-Peter Schmitz (Universität Rostock, DE)

10:15 **In vitro dissolution testing of drug-eluting stents: Development of modified calcium alginate matrices for a vessel-simulating flow-through cell apparatus**
Beatrice Semmling, Anne Seidlitz, Stefan Nagel (Ernst-Moritz-Arndt-Universität Greifswald, DE); Niels Grabow, Katrin Sternberg (Universität Rostock, DE); Werner Weitschies (Ernst-Moritz-Arndt-Universität Greifswald, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K2-4 **Track Q**

FS Personalisierte Medizintechnik (1)
XFS Personalized Biomedical Engineering (1)

Sitzungsleitung: Wolfgang Niederlag (Krankenhaus Dresden-Friedrichstadt, DE), Heinz U. Lemke (Technische Universität Berlin, DE)

08:45 **Personalisierte Medizin und individuelle Gesundheitsversorgung – Medizin- und Informationstechnische Aspekte**
Wolfgang Niederlag (Krankenhaus Dresden-Friedrichstadt, DE)

09:15 **Technologien für die personalisierte Medizin**
Thomas Schmitz-Rode (RWTH Aachen, DE)

09:30 **Personalized Healthcare- a Method to Individualized Pharmaco-Therapy**
Frank Deickert (Roche Diagnostics, DE)

09:45 **Patientenmodelle und modellgestützte Therapie im Rahmen der personalisierten Medizin**
Heinz U. Lemke (Technische Universität Berlin, DE)

10:00 **Personalisierte Medizin und Informationstechnologie**
Otto Rienhoff (Universitätsmedizin Göttingen, DE)

10:15 **Bioimplantate im Rahmen der personalisierten Medizin**
Axel Haverich (Medizinische Hochschule Hannover, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K5-7 **Track J**

FS Temperaturmessung – Herausforderungen und Lösungen
FS Temperature Measurement – Challenges and Approaches

Sitzungsleitung: Hartmut Gehring (University of Luebeck & Universitätsklinikum Schleswig-Holstein, DE), Michael Imhoff (Ruhr-University Bochum, DE)

08:45 **Applied Temperature Measurement from a Physician's Perspective**
Oliver Kimberger (Medizinische Universität Wien, AT)

09:00 **Requirements and limitations of core temperature measurement and core temperature monitoring in medical applications**
Anselm Bräuer (University of Göttingen, DE)

09:15 **Requirements for Temperature Monitoring in Non-Medical Applications**
Jochim Koch (Drägerwerk AG & Co. KGaA, DE); Michael Imhoff (Ruhr-University Bochum, DE)

09:30 **Methods for Body Temperature Measurement**
Hanns-Christian Gunga (Charité - Universitätsmedizin Berlin, DE)

09:45 **Thermography**
Steffen Leonhardt (RWTH Aachen, DE)

10:00 **Need for Further Research in Temperature Monitoring**
Michael Imhoff (Ruhr-University Bochum, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K1 Track L

Modellbildung & Simulation (1) – Cardiology
Modelling & Simulation (1) – Cadiology

Sitzungsleitung: Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

08:45 **Building Hierarchical Model Families: A Cardiovascular Example**
Jörn Kretschmer, Christoph Schranz, Knut Moeller (Hochschule Furtwangen, DE)

09:00 **Personalizing Anatomical and Electrophysiological Models of the Human Atria**
Martin W Krueger , Frank M Weber, Gunnar Seemann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

09:15 **Finite Element Based Electromechanical Modeling of the Heart Dynamics with Left Ventricular Transmural Infarction**
Thomas Fritz, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

09:30 **Effects of Simulated Acute Cardiac Ischemia on the Electrocardiogram**
Mathias Wilhelms, Olaf Doessel, Gunnar Seemann (Karlsruhe Institute of Technology (KIT), DE)

09:45 **Computing Arrival Times of the Cardiac Depolarization Front on Tetrahedral Volume Meshes Using Fast Marching Methods**
Birgit Stender, Hamid Hadjar, Alexander Schlaefer (University of Lübeck, DE)

10:00 **In-Silico Modeling of the Effects of Drugs on the Human Cardiac Electrophysiology**
Gunnar Seemann, Mathias Wilhelms, Alexander Kurz (Karlsruhe Institute of Technology (KIT), DE); Eberhard P. Scholz (Medical University Hospital Heidelberg, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

10:15 **A model-based safety concept for a rotary blood pump**
Andre Stollenwerk (RWTH Aachen University & Embedded Software Laboratory, DE); Felix Gathmann (RWTH Aachen University, DE); Ralf Bensberg (Aachen University Hospital, DE); Marian Walter, Jutta Arens (RWTH Aachen University, DE); Rüdger Kopp (UK Aachen, DE); Stefan Kowalewski (RWTH Aachen University, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K8 Track C

Chirurgie, Endoskopie und Robotik (1)
Surgery, Endoscopy and Robotics (1)

Sitzungsleitung: Thomas M. Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

08:45 **A novel approach for reliable optical localization in Image Guided Surgery using two-part reference bodies**
Thomas Kerstein (Zentrum für Sensorsysteme - University of Siegen, DE)

09:00 **Comparing accuracies of a RFID-based and an optical tracking system for medical navigation purposes**
Magdalena Broll (Ruhr-Universität Bochum, DE); Andreas Wille (Ruhr-Universität Bochum, DE); Volker Troesken, Laszlo P. Hasenau (Amedo Smart Tracking Solutions GmbH, DE); Susanne Winter (Ruhr-Universität Bochum, DE)

09:15 **A handheld haptic device for minimally invasive surgery**
Sebastian Kassner, Roland Werthschützky (Technische Universität Darmstadt, DE)

09:30 **Non-stick bipolar forceps for keyhole approaches in microsurgery**
Steffen K. Rosahl, Ruediger Gerlach (HELIOS Klinikum Erfurt, DE); Dirk Weitkamp, Bert Sutter (Sutter Medizintechnik GmbH, DE)

09:45 **Soft, self-propelled endoscope for minimally invasive interventions**
Quirin Hamp, Leonhard M Reindl (University of Freiburg, DE)

10:00 **Optical fluorescence diagnosis as an additional safety measure in stereotactic interventions**
Marcus Götz (MRC Systems GmbH, DE); David Brucker (LMU München, DE); André Ehrhardt (Karl Storz GmbH & Co. KG, European Union); Stefan Fischer (MRC Systems GmbH, DE); Werner Göbel (Karl Storz GmbH & Co. KG, European Union); Georg Hennig (University Hospital of Munich, DE); Jochen Herms (Ludwig-Maximilians-Universität München, DE); Klaus-Martin Irion (KARL STORZ GmbH & Co. KG, DE); Ann Johansson, Gesa Palte, Adrian Rühm, Sabine Sandner, Herbert Stepp (University Hospital of Munich, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

10:15 **Computer Assisted Surgery in fluorescence endoscopy**
Andreas Kage, Michaela Benz, Christian Münzenmayer (Fraunhofer IIS, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal Libresso **Track O**

Ergonomie und Patientensicherheit (1)
Ergonomics and Patient Safety (1)

Sitzungsleitung:

08:45 **Communication and team work in the operating room**
Anke Hoffmeier, Inka El Khaoua (HTWK Leipzig - University of Applied Sciences, DE); Werner Korb (University of Applied Sciences Leipzig, DE); Ardawan Rastan (Herzzentrum Leipzig, DE)

09:00 **A method to evaluate graphical man-machine interfaces of medical devices with regard to integrated OR-systems**
Julia Benzko, Bastian Ibach, Klaus Radermacher (RWTH Aachen, DE); Wolfgang Lauer (Helmholtz-Institute, RWTH Aachen University, DE)

09:15 **Software-Ergonomic Problems In Integrated Surgery Rooms**
Anna-Maria Seyffert (TU Berlin & prometei Graduiertenkolleg, DE); Marc Kraft (Technische Universität Berlin, DE); Jochen Prümper (HTW Berlin, DE)

09:30 **Training system for operative neuromonitoring**
Peter Haupt, Gerold Bausch (HTWK Leipzig, University of Applied Sciences, DE); Markus Krabbes, Matthias Sturm Sturm (Leipzig University of Applied Sciences, DE); Gero Strauss (Universitätsklinik Leipzig, DE); Werner Korb (University of Applied Sciences Leipzig, DE)

09:45 **Use-Oriented Risk Analysis of the Zero-Dose-C-Arm-Navigation (ZDCAN) System for Application in Lumbar Interventions**
Armin Janß (RWTH Aachen University, DE); Andreas Ladenburger (University Hospital Aachen, DE); Wolfgang Lauer (Helmholtz-Institute, RWTH Aachen University, DE); Matias de la Fuente, Kirsa Dannenberg, Klaus Radermacher (RWTH Aachen, DE)

10:00 **The application of usability guidelines by medical device manufacturers**
Norman Geissler (HTWK Leipzig, DE); Uvo M. Hölscher (Münster University of Applied Sciences, DE); Wolfgang Lauer (Helmholtz-Institute, RWTH Aachen University, DE); Werner Korb (University of Applied Sciences Leipzig, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

10:15 **Use errors and ergonomic deficiencies collected by Critical Incident Reporting Systems (CIRS)**
Mirja Geelvink, Uvo M. Hölscher (Münster University of Applied Sciences, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Runder Saal **Track K**

FS Biosignale - vom Labor bis zum häuslichen Umfeld
FS Biosignals - From Laboratory to Domestic Surrounding

Sitzungsleitung: Thomas Schanze (Technische Hochschule Mittelhessen, DE), Gerhard Staude (University FAF Munich, DE)

11:00 **Sensors for Vital Data Monitoring in an AAL setting**
Erik Jung (Fraunhofer-IZM & SIIT, DE); Reiner Wichert (Fraunhofer-Institut fuer Graphische Datenverarbeitung, DE); Michael John (Fraunhofer FIRST, DE); Thomas Norgall (Fraunhofer IIS, DE)

11:15 **Polygraphic data collection and evaluation**
Volker Gross (FH Giessen-Friedberg, DE)

11:30 **Phase based Methods for Data Fusion**
Michael Schiek (Forschungszentrum Jülich, DE)

11:45 **Analysis of physiological rhythms at different time scales**
Niels Wessel (Humboldt University Berlin, DE)

12:00 **Dimension reduction of biological signals with radial basis functions**
Thomas Schanze (Technische Hochschule Mittelhessen, DE); Martin Buhmann (Justus-Liebig-Universität, DE)

12:15 **Alarms in Intensive Care and Out-of-Hospital Care Settings**
Olaf Such (Philips Research, DE)

12:30 **actibelt®: A 3D accelerometer platform to capture and analyse human motion data in clinic and home environment**
Martin Daumer (Sylvia Lawry Centre for MS Research, DE); Michaela Schimpl (Trium Analysis Online GmbH, DE); Cristina Soaz-Gonzalez, Anneke Neuhaus (Sylvia Lawry Centre – The Human Motion Institute, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Saal K9 **Track D**

Biomechanik und Implantate (2)
Biomechanics and Implants (2)

Sitzungsleitung:

11:00 **Loosening detection of a hip endoprosthesis with an implanted wireless vibration analysis system comparing different methods for the excitation of vibrations**
Birger Jettkant, Uwe Dambrowski (Berufsgenossenschaftliches Universitätsklinikum Bergmannsheil GmbH, DE)

11:15 **Orientation of the hip joint resultant force R – A comparison of different biomechanical models**
Jörg Eschweiler, Lorenz Fieten, Frauke Schmidt (RWTH Aachen University, DE); Koroush Kabir, Sascha Gravius (University Hospital Bonn, DE); Matias de la Fuente, Klaus Radermacher (RWTH Aachen, DE)

11:30 **Multi-Body Simulation of prosthesis migration in human hip joint**
Bernd-Arno Behrens, Anas Bouguecha, Nelly Weigel (Leibniz Universität Hannover, DE); Patrick Wefstaedt, Ingo Nolte (Tierärztliche Hochschule Hannover, DE); Stefanie Betancur Escobar (Leibniz Universitaet Hannover & Institute for Metal Forming and Metal Forming Machine, DE)

11:45 **Wear Analysis of simplified Bioceramic Knee Implant Components including Machining Parameters**
Berna Richter (Medical School Hannover, DE); Anke Turger, Marijke van der Meer, Berend Denkena (Leibniz Universität Hannover, DE); Sven Ostermeier, Christof Hurschler (Medizinische Hochschule Hannover & Laboratory for Biomechanics and Biomaterials, DE)

12:00 **Contactless adaption of mechanical properties of shape-memory implants**
Ronny Pfeifer, Stephan Barcikowski, Volker Wesling (Laser Zentrum Hannover e. V., DE); Christian Müller, Thomas Gösling, Gavin Olender, Christof Hurschler (Medizinische Hochschule Hannover & Laboratory for Biomechanics and Biomaterials, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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12:15 **Evaluation of a cochlear implant electrode array's traumatic behaviour with a three dimensional force measurement system**
Tim Nauwelaers, Volkmar Hamacher (Advanced Bionics ERC GmbH, DE); Downing Mark (Advanced Bionics LLC, USA)

12:30 **Specific design of bone grafts according to Hounsfield units**
Ralf Schumacher, Florian Coigny, Thomas Mueller, Matthias Naef, Erik Schkommodau (University of Applied Sciences Northwestern Switzerland, CH)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Saal K2-4 Track Q

Personalisierte Medizintechnik (2)
Personalized Biomedical Engineering (2)

Sitzungsleitung: Bernhard Wolf (Technische Universität München, DE)

11:00 **Real-time screening of the chemosensitivity of human tumor slices to chemotherapeutical drug treatment**
Regina Kleinhans, Franz Demmel, Bernhard Becker, Tobias Schwarzenberger, Martin Brischwein (Technische Universität München, DE); Peter Wolf (HP Medizintechnik GmbH, DE); Bernhard Wolf (Technische Universität München, DE)

11:15 **A cartridge for teletherapeutically assisted drug administration from the denture**
Simon Herrlich, Thomas Lorenz, Michael Marker, Christoph Axthelm, Simon Weisser, Sven Spieth, Stephan Messner, Roland Zengerle (HSG-IMIT, DE)

11:30 **Consolidation of HLM and ECLS – The Modular Concept of I3-Assist**
Georg Wagner, Peter Schlanstein, Jutta Arens, Daniel Pedraza (RWTH Aachen University, DE); Rüdger Kopp (UK Aachen, DE); Ralf Bensberg, Rolf Rossaint (Universitätsklinikum Aachen, DE); Thomas Schmitz-Rode (RWTH Aachen, DE); Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE)

11:45 **Patient-Specific Virtual Stent-Fitting Approach Applied to Cardiovascular Pathologies**
Dilana Hazer (Materialise GmbH, DE); Jan Maes (Materialise NV, Belgium); Michael Kostrzewa, Steffen Diehl (University Hospital Mannheim, DE); Peter Verschueren (Materialise NV, Belgium)

12:00 **Field-effect transistors as modern tool in individual cancer therapy**
Dieter Koppenhöfer, Anna Susloparova, Tanja Martin, Sven Ingebrandt (Fachhochschule Kaiserslautern, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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Saal K5-7 Track A

Optische Bildgebung
Optical Imaging

Sitzungsleitung:

11:00 **High-speed OCT imaging of subpleural lung tissue**
Lars Kirsten, Julia Walther, Peter Cimalla, Maria Gaertner, Christian Schnabel (Dresden University of Technology, DE); Sven Meissner (University of Technology Dresden & Medical Faculty Carl Gustav Carus, DE); Edmund Koch (Technische Universität Dresden, DE)

11:15 **OCT-scanner head for dermatological applications**
Mirko Mehner (University of Technology Dresden & Medical Faculty, DE); Stefan Geissler, Peter Knuschke, Edmund Koch (Technische Universität Dresden, DE)

11:30 **Thin layer finger print fake detection by Optical Coherence Tomography**
Sven Meissner (University of Technology Dresden & Medical Faculty Carl Gustav Carus, DE); Simon Schulz, Günther Mull (Dermalog Identification Systems, Hamburg, DE); Ralph Breithaupt (Federal Office for Information Security, Bonn, DE); Edmund Koch (Technische Universität Dresden, DE)

11:45 **Optical system analysis and optimization in spectroscopic optical coherence tomography**
Volker Jaedicke (Ruhr Universität Bochum, DE); Helge Wiethoff (Technische Fachhochschule Georg Agricola Bochum, DE); Nils Gerhardt (Ruhr-Universität Bochum, DE); Hubert Welp (Technische Fachhochschule Georg Agricola Bochum, DE); Martin Hofmann (Ruhr-Universität Bochum, DE)

12:00 **Pattern recognition in optical coherence tomography**
Semih Agcaer (Technische Fachhochschule Georg Agricola Bochum, DE); Volker Jaedicke (Ruhr Universität Bochum, DE); Hubert Welp (Technische Fachhochschule Georg Agricola Bochum, DE); Nils Gerhardt (Ruhr-Universität Bochum, DE); Martin Hofmann (Ruhr-Universität Bochum, DE)

12:15 **Categorization of 2-photon microscopy images of human articular cartilage into states of arthritis**
Thorsten Bergmann (Technische Hochschule Mittelhessen, DE); Martin Fiebich (Fachhochschule Giessen-Friedberg, DE); Tim W Nattkemper (Biodata Mining Group, Bielefeld University, DE); Dario Anselmetti (Universität Bielefeld, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

12:30 **Imaging the micro-structure of cardiac tissue by fluorescence confocal microscopy based on quadruple labelling**
Maren Arp (Karlsruhe Institute of Technology, DE); Richard Lasher (University of Utah, USA); Gunnar Seemann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE); Robert Hitchcock, Frank B Sachse (University of Utah, USA)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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Saal K1 **Track L**

Modellbildung & Simulation (2)
Modelling and Simulation (2)

Sitzungsleitung: Thorsten M. Buzug (Universität zu Lübeck, DE)

11:00 **A continuous model of tumour progression and radiotherapy**
Anna Heye, Stefan Becker, Andreas Mang, Tina Anne Schütz, Alina Toma, Thorsten M. Buzug (Universität zu Lübeck, DE)

11:15 **A Novel Hybrid Chemotaxis-Haptotaxis Model to Simulate Glioma Growth**
Alina Toma, Tina Anne Schütz, Andreas Mang, Stefan Becker, Thorsten M. Buzug (Universität zu Lübeck, DE)

11:30 **Modeling Tumor Growth and Treatment using Imaging Data**
Nina Rudigkeit (University of Applied Sciences Gelsenkirchen, DE); Bruno Gouvêa Santos (Federal University of São Carlos, Brazil); Thaís Roque (University of Applied Sciences Gelsenkirchen, DE); Waldemar Zylka (University of Applied Sciences Gelsenkirchen, DE)

11:45 **Computermodel of the Lumbar Spine**
Sabine Bauer, Karin Gruber (Universität Koblenz-Landau, DE)

12:00 **Simulation and experimental verification of a combined femur hip prosthesis model to support early loosening detection**
Sebastian Sauer, Uwe Marschner, Wolf-Joachim Fischer (Technische Universität Dresden, DE); Bernhard Clasbrummel (Zollernalb-Klinikum, DE)

12:15 **Numerische Untersuchungen zum beanspruchungsadaptiven Knochenumbau nach OSG-Arthroplastik**
Nelly Weigel, Anas Bouguecha (Leibniz Universität Hannover, DE); Christina Stukenborg-Colsman, Hazibullah Waizy (Medizinische Hochschule Hannover, DE); Bernd-Arno Behrens (Leibniz Universität Hannover, DE)

12:30 **Reendothelialization of cardiovascular stents coated with polymer**
Andreas Rudolph, Marian Löbler, Katrin Sternberg, Klaus-Peter Schmitz (Universität Rostock, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Saal K8 **Track C**

FS Computer basierte Chirurgie
FS Computer Integrated Surgery

Sitzungsleitung: Thomas M. Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

11:00 **Computer-integrierte Endoskopie**
Hubertus Feussner (Klinikum rechts der Isar, TU München, DE)

11:30 **Registration of Structured-Light 3D Scan Data with CT Skin Information for Patient Positioning**
Reimar Tausch, Michael Burisch (Fraunhofer IGD, DE); Klaus Drechsler (Fraunhofer Institute for Computer Graphics Research, DE)

11:45 **Extracting Anatomical Landmarks of the Liver Vasculature Using Tree Matching**
Cristina Oyarzun Laura, Klaus Drechsler (Fraunhofer Institute for Computer Graphics Research, DE)

12:00 **Three dimensional Doppler ultrasound for liver surgery navigation**
Tobias Bergen, Christian Winter, Thomas M. Wittenberg, Christian Münzenmayer (Fraunhofer IIS, DE)

12:15 **Multi-Robot Manipulator System for Minimally-Invasive Closed-Loop Surgery**
Axel Wechsler, Sebastian Schoening (Fraunhofer Institute for Manufacturing Engineering & Automation, DE)

12:30 **Instrument Exchange System (IES) for robot assisted laparoscopic surgery**
Dominik Kaltenbacher, Timo Cuntz (Fraunhofer IPA, DE); Alexej Domnich (Fraunhofer Institute for Manufacturing Engineering & Automation, DE); Adrien Pfaud, Jan Stallkamp (Fraunhofer IPA, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

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Saal Libresso **Track O**

FS Medizinprodukt-assoziierte Patientensicherheit: Podiumsdiskussion
FS Medical Device associated Patient Safety
(Panel Discussion)

Diskussionsleitung: Cord Schlötelburg (VDE Verband der Elektrotechnik Elektronik Informationstechnik e.V. & DGBMT Deutsche Gesellschaft für Biomedizinische Technik im VDE, DE) Uvo M. Hölscher (Münster University of Applied Sciences, DE)

Teilnehmer:

Jan Havel (TÜV SÜD Product Service GmbH)

Dr. Lauer (Bundesinstitut für Arzneimittel und Medizinprodukte, DE)

Markus Rall (Universitätsklinikum Tübingen, Klinik für Anästhesiologie und Transfusionsmedizin Tübinger Patientensicherheits- und Simulationszentrum, DE)

Ulrich M. Gassner (Universität Augsburg, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

Rolf Böhme Saal Q

Plenarsitzung (4)

13:45 **Mit innovativen Medizinprodukten zur individualisierten Intensivmedizin**
Hans-Otto Maier (B. Braun Melsungen AG - Automated Infusion Systems, DE)

14:15 - 14:30 Fachausstellung

Runder Saal **Track J**

Sensorik – Monitoring Mechanik
Sensors – Monitoring Machanics

Sitzungsleitung:

14:30 **A new method to estimate energy expenditure using accelerometry and barometry-based energy models**
Panagiota Anastasopoulou, Layal Shammas, Jürgen Stumpp, Birte von Haaren, Stefan Hey (Karlsruhe Institut of Technology, DE)

14:45 **A primary standard to measure flow rates down to 10 nl/min**
Martin Ahrens, (Luebeck University of Applied Sciences & Fachhochschule Lübeck, DE); Christian Damiani, Manuel Altherr, Stephan Klein, Bodo Nestler (Fachhochschule Lübeck, DE)

15:00 **A new approach for objective non-invasive diagnosis of an imminent compartment syndrome**
Sabine Jeromin, Ingrid Bubb, Moritz Hübner, Frauke Schmidt, Klaus Radermacher (RWTH Aachen, DE); Hans-Christoph Pape, Richard Sellei (Orthopaedic Trauma Department, University Hospital Aachen, DE)

15:15 **Flow-Balanced Expiration enables compliance measurement separately for inspiration and expiration**
Stefan Schumann (University Medical Center of Freiburg, DE); Laszlo Vimlati (Uppsala University, Sweden); Matthias Schneider (University Hospital Freiburg, DE); Michael Lichtwarck-Aschoff (Uppsala University, Sweden); Josef Guttmann (University Hospital Freiburg, DE)

15:30 **Fluid compartment estimation in dialysis patients by use of regional and continuous bioimpedance spectroscopy**
Dennis Trebbels (HSG-IMIT & University of Freiburg, DE)

15:45 **Long-term monitoring device for multiple vital signs**
Timo Klingeberg, Meinhard Schilling (TU Braunschweig, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

16:00 **Multi-parameter activity monitoring system to support patients with multiple sclerosis**
Layal Shammas (Karlsruhe Institut of Technology, DE); Tom Zentek (FZI Forschungszentum Informatik, DE); Panagiota Anastasopoulou (Karlsruhe Institut of Technology, DE); Asarnusch Rashid (FZI Forschungszentrum Informatik, DE); Stefan Hey (Karlsruhe Institut of Technology, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

Donnerstag, 29. September 2011 • 14:30 - 16:15

Saal K9 **Track D**

FS Bioresorbierbare Implantate
FS Bioabsorbable Implants

Sitzungsleitung: Klaus-Peter Schmitz (Universität Rostock, DE), Boris Warnack (BIOTRONIK AG, CH)

14:30 **Novel bioabsorbable polymers with tailored functionalization for medical applications as bioartificial vessel prostheses**
Katrin Sternberg, Katharina Wulf, Marian Löbler (Universität Rostock, DE); Stefan Theiler, Helmut Keul, Martin Möller (RWTH Aachen, DE); Matthias Wilhelmi, Axel Haverich (Medizinische Hochschule Hannover, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE); Boris Chichkov (Laser Zentrum Hannover e.V., DE); Klaus-Peter Schmitz (Universität Rostock, DE)

15:00 **Bioabsorbable magnesium scaffold: from experimental results to clinics (BIOTRONIK's AMS program)**
Boris Warnack (BIOTRONIK AG, CH)

15:15 **Coronary bioabsorbable polymeric stents**
Christine Schultze, Niels Grabow, Wolfram Schmidt, Hüseyin Ince, Katrin Sternberg, Klaus-Peter Schmitz (Universität Rostock, DE)

15:30 **Interventional Applicability of Biodegradable Polymeric Stents in a Porcine Model**
Carsten Bünger (University of Rostock, DE)

15:45 **Evaluation of critical size bone defect healing in mice implanted with vitalized bioresorbable PLGA scaffolds**
Patrick Wefstaedt (Tierärztliche Hochschule Hannover, DE); Andreas Schwenke (Laser Zentrum Hannover e.V., DE); Hugo Murua Escobar (Tierärztliche Hochschule Hannover, DE); Jutta Fuhlrott, Martin Rücker (Medizinische Hochschule Hannover, DE); Csaba Sajti (Laser Zentrum Hannover e. V., DE); Andreas Kampmann (Medizinische Hochschule Hannover, DE); Ahmed Abdelbasit Ismail (Stiftung Tierärztliche Hochschule Hannover, DE); Anneke Loos, Nils-Claudius Gellrich (Medizinische Hochschule Hannover, DE); Ingo Nolte (Tierärztliche Hochschule Hannover, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

16:00 **Three-dimensional structuring, functionalization, and vitalization of the newly synthesized polymer sPCL-A for the generation of bioartificial vascular prostheses**
Matthias Wilhelmi (Medizinische Hochschule Hannover, DE); Boris Chichkov (Laser Zentrum Hannover e.V., DE); Katrin Sternberg (Universität Rostock, DE); Helmut Keul (RWTH Aachen, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE); Axel Haverich (Medizinische Hochschule Hannover, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

Donnerstag, 29. September 2011 • 14:30 - 16:15

Saal K2-4 **Track M**

Telemedizin
Telemedicine

Sitzungsleitung: Gerald Czygan (Biotronic SE & Co. KG, DE); Christian Weigand (Fraunhofer IIS, DE)

14:30 **A telemedicine system for continuous real time monitoring of cardiological parameters for outpatients**
Kai Krupka, Rainer Linnemann, Thomas Hilbel, Hugo Katus, Hartmut Dickhaus (University of Heidelberg, DE)

14:45 **End-to-end clinical process monitoring based on event logs**
Eva Gattnar, Okan Ekinci (Siemens Healthcare, DE); Vesselin Detschew (Ilmenau Technical University, DE)

15:00 **Smartphone-based Training and Monitoring of Cognitive Abilities**
Thomas Maiwald (TIKANIS GmbH, DE); Kathrin Wagner (University Hospital Freiburg, DE); Oliver Eberhardt (TIKANIS GmbH, DE); Matthias Dümpelmann (University Hospital Freiburg, DE); David Liffmann (TIKANIS GmbH, DE); Lars Frings (University Hospital of Freiburg, DE); Julie Blumberg (TIKANIS GmbH, DE); Andreas Schulze-Bonhage (University Hospital Freiburg, DE)

15:15 **Monitoring Movement Disorders Using Smartphones**
Igor Fischer (University of Duesseldorf, DE); Hans-Jakob Steiger (University Hospital Duesseldorf, DE)

15:30 **Radio Frequency Identification (RFID) in medical environment: A novel modulation technique with minimal interference properties**
Marie Rieche (Ilmenau University of Technology, DE); Peter Husar (Technische Universiät Ilmenau, DE)

15:45 **Energy Efficient Optimization of Body Sensor Network Data Quality**
Saim Kim, Andreas Peters (RWTH Aachen University, DE); Christian Brendle (RWTH Aachen & Helmoholtz Institute for Biomedical Engineering, DE); Christoph Brüser, Steffen Leonhardt (RWTH Aachen University, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

Saal K5-7 **Track A**

FS Biomagnetische Messverfahren und ihre Auswertung
FS Biomagnetical Measurement Methods and their Interpretation

Sitzungsleitung: Tilmann Sander-Thoemmes (Physikalisch-Technische Bundesanstalt, DE), Gudrun Stockmanns (Hochschule Niederrhein, DE)

14:30 **Nonlinear analysis of the electroencephalogram**
Denis Jordan (Technische Universität München, DE); Gudrun Stockmanns (Hochschule Niederrhein, DE); Eberhard F. Kochs (Technische Universität München, DE); Gerhard Schneider (Universität Witten/Herdecke, DE)

14:45 **Noninvasive combined DC-magnetoencephalography and near-infrared spectroscopy in the subacute phase of ischemic stroke**
Stefanie Leistner (Charite, Campus Benjamin Franklin, DE); Tilmann Sander-Thoemmes (Physikalisch-Technische Bundesanstalt, DE); Heidrun Wabnitz (Physikalisch-technische Bundesanstalt, Berlin, DE); Gabriel Curio (Charité-Universitätsmedizin Berlin, DE); Bruno-Marcel Mackert (Vivantes Auguste-Viktoria-Klinikum, Berlin, DE); Rainer Macdonald, Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

15:00 **Spatio-temporal changes in magnetic field maps in acute myocardial infarction**
Peter Van Leeuwen (Grönemeyer Institute of Microtherapy, DE); Birgit Hailer (Philippusstift, DE); Dietrich Grönemeyer (Grönemeyer Institute of Microtherapy, DE)

15:15 **Biomagnetism by Nuclear Magnetic Resonance – How brain currents can by measured by low field NMR**
Martin Burghoff, Hans-Helge Albrecht, Stefan Hartwig, Ingo Hilschenz, Nora Hoefner, Rainer Körber, Hans-Juergen Scheer, Jens Voigt (Physikalisch-Technische Bundesanstalt, DE); Gabriel Curio (Charité-Universitätsmedizin Berlin, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

15:30 **Identification of brain responses utilizing cross trial phase statistics**
Jürgen Dammers, Michael Schiek (Forschungszentrum Jülich, DE)

15:45 **State space approach to artefact suppression for EEG recorded inside MRI scanner**
Andreas Galka, Hiltrud Muhle, Ulrich Stephani, Michael Siniatchkin (University of Kiel, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

Donnerstag, 29. September 2011 • 14:30 - 16:15

Saal K1 **Track L**

Modelbildung & Simulation (3)
Modelling and Simulation (3)

Sitzungsleitung: Knut Moeller (Hochschule Furtwangen University, DE)

14:30 **An Examination on Different Computing Approaches for Simulation of Complex Model Systems**
Jörn Kretschmer, Knut Moeller (Hochschule Furtwangen University, DE)

14:45 **Online Adaptive Physiological Models for Dialysis Therapy**
Lukas Pielawa, Melina Brell (OFFIS, DE); Andreas Hein (Universität Oldenburg, DE)

15:00 **Identification of Models of Respiratory Mechanics – Influence of Parameter Estimation Techniques**
Christian Knoebel (Hochschule Furtwangen University & Institute for Technical Medicine, DE); Christoph Schranz, Knut Moeller (Hochschule Furtwangen University, DE)

15:15 **Model-based design of a nonlinear transmission line for simulation of soliton motion on nerve fibres**
Thomas Felderhoff (University of Applied Sciences and Arts Dortmund, DE)

15:30 **3D source localisation in epilepsy based on invasive recordings: From simulation to clinical practice**
Matthias Dümpelmann (University Hospital Freiburg, DE); Tonio Ball (Epilepsiezentrum am Universitätsklinikum Freiburg, DE); Georgia Ramantani, Andreas Schulze-Bonhage (University Hospital Freiburg, DE)

15:45 **Experimental Thresholds for Magnetic Stimulation via a Figure-8-Coil at Frequencies up to 25 kHz**
Julia Bohnert, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

16:00 **Temperature elevation in children exposed to plane** waves at the ICNIRP reference levels
Florian Niedermayr, Norbert Leitgeb (Graz University of Technology, AT)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

Saal K8 **Track C**

Chirurgie, Endoskopie und Robotik (2)
Surgery, Endoscopy and Robotics (2)

Sitzungsleitung: Thomas M. Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

14:30 **First clinical application of an open standards based OR integration system**
Stefan Bohn, Stefan Franke, Oliver Burgert (Universität Leipzig, DE); Jürgen Meixensberger, Dirk Lindner (Universitätsklinikum Leipzig, DE)

14:45 **Service-oriented concepts for an OR integration**
Stephan Pöhlsen (UniTransferKlinik Lübeck GmbH, DE)

15:00 **A lifelike rectal phantom based on CT imaging as an alternative to animal experiments in surgery for research and training**
Martin Wagner, Hannes Kenngott, Felix Nickel (University of Heidelberg, DE); Julien Dinkel (German Cancer Research Center, DE); Josephin Wünscher (University of Heidelberg, DE); Anna-Laura Wekerle (University Hospital Heidelberg, DE); Laura Eckert (University of Applied Sciences Jena, DE); Stefan Suwelack, Stefanie Speidel (Karlsruhe Institute of Technology, DE); Beat Müller-Stich (University of Heidelberg, DE)

15:15 **Bipolar Radiofrequency-induced Thermofusion of rat colon – an ex vivo study**
Matthias Kröger, Annika Jaenicke, Hanno Winter (Technische Universität Berlin, DE); Christoph Holmer, Alexandra Nagel, Jörg-Peter Ritz (Charité - Universitätsmedizin Berlin, DE); Roland Lauster, Marc Kraft (Technische Universität Berlin, DE); Heinz-Johannes Buhr (Charité - Universitätsmedizin Berlin, DE)

15:30 **Actuators in medical endoscopy**
Philipp Abel, Stephan Klein (Fachhochschule Lübeck, DE)

15:45 **Essential Technical Aspects of Stereoscopy in Endoscopy**
Tobias Giering (University of Tuebingen, DE); Wolfgang Juergen Kunert (University of Tuebingen & Workgroup Experimental Minimally Invasive Surgery and Training, DE); Pirmin Storz, Andreas Kirschniak (University of Tuebingen, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

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16:00 **Miniaturized Chip-in-the-Tip Camera for endoscopic Applications**
Erik Beckert, Frank Wippermann, Ramona Eberhardt, Andreas Tünnermann, (Fraunhofer IOF, DE); Thomas Burkhardt (Fraunhofer IOF Friedrich-Schiller University Jena (IAP), DE); Sarah Walther (Fraunhofer IOF, DE); Bernhard Messerschmidt (GRINTECH GmbH, DE); Thomas Bartnitzek (VIA Electronic GmbH, DE); Daniel Gäbler (X-FAB Semiconductor Foundries AG, DE); Torsten Vahrenkamp (FiconTEC Service GmbH, DE)

16:15 - 16:45 Kaffeepause, Fachausstellung

16:45 - 18:30 Posterausstellung • 20:00 Abendveranstaltung

Rolf Böhme Saal

Plenarsitzung (5)

08:00 **Wo steht und wohin geht die neurologische Rehabilitation in Klinik und Forschung**
Christoph Maurer (Neurologische Universitätsklinik Freiburg, DE)

08:30 - 08:45 Fachausstellung

Runder Saal **Track J**

Sensorik Chemo/Bio
Sensors Chemical/Biological

Sitzungsleitung:

08:45 **An innovative external ventricular drainage system for the treatment of hydrocephalus**
Christine Goffin (RWTH Aachen University & Chair of Medical Engineering, DE); Inga Elixmann (Helmholtz-Institute, DE); Sabine Jeromin (RWTH Aachen University, DE); Michael Kiefer, Regina Eymann (Saarland University, Medical School, DE); Klaus Radermacher, Steffen Leonhardt (RWTH Aachen, DE)

09:00 **Electronic nose detects cannabis use at the skin surface**
Andreas Voss, Katharina Witt, Tobias Kaschowitz (University of Applied Sciences Jena, DE); Karl-Jürgen Bär (Friedrich-Schiller-University, Jena, DE)

09:15 **Absorption, Elastic Scattering, Raman Scattering and Autofluorescence by Non-invasive Monitoring of Glucose**
Omar Abdallah, Qasem Qananwah, Armin Bolz (University of Karlsruhe, DE); Jan Hansmann (Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, DE); Heike Walles (University of Stuttgart, DE)

09:30 **Inkjet printed electrodes on PET substrate for bio-sensing applications**
Nada Mzoughi, Bernd Neumann, Helmut Grothe, Bernhard Wolf (Technische Universität München, DE)

09:45 **Integrated optical sensor array for biochemical multiparameter analysis**
Daniel Pergande, Peter Lützow, Helmut Heidrich (Fraunhofer Institut für Nachrichtentechnik, Heinrich-Hertz-Institut, DE)

10:00 **Establishment of electrochemotherapy for interstitial application by developing and optimizing an electrode**
Andreas Ritter, Martin Baumann, Philipp Bruners, Thomas Schmitz-Rode, Andreas H. Mahnken (RWTH Aachen, DE)

10:15 **warm machine perfusion**
Ralf Zeckay (Technische Universität Dresden, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K9 **Track K**

Biosignalverarbeitung Kardiovaskuläres System (1)
Biosignal Processing – Cardiovascular System (1)

Sitzungsleitung: Hartmut Dickhaus (University of Heidelberg, DE); Gudrun Stockmanns (Hochschule Niederrhein, DE)

08:45 **Automatic Analysis of the T-Wave in Holter-ECG to Detect Small Drug Induced Repolarisation Changes of the Ventricles**
Tobias Baas, Ksenja Gräfe, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

09:00 **Real-time ischaemia detection for ambulatory monitoring applications**
Sebastian Zaunseder (Technische Universität Dresden & Institut für Biomedizinische Technik, DE); Andreas Heinig (Fraunhofer Institut für Photonische Mikrosysteme & Gruppe Medizintechnik, DE); Hagen Malberg, Rüdiger Poll (Technische Universität Dresden, DE)

09:15 **Multivariate AR Model Parameter Estimation on Time Series extracted from the ECG of Myocarditis Patients**
Tobias Oesterlein, Tobias Baas (Karlsruhe Institute of Technology (KIT), DE); Hagen Malberg (Technische Universität Dresden, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

09:30 **Influence of endocardial catheter contact on properties of the atrial signal and comparison with simulated electrograms**
Stefan Ponto, Christopher Schilling, Martin W Krueger, Frank M Weber, Gunnar Seemann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

09:45 **An Active Electrode system for Electrical Impedance Tomography**
Steffen Kaufmann (FH Lübeck & FHL Forschungs-GmbH, DE); Rodrigo Marquina-Sánchez, Martin Ryschka (FH Lübeck, DE)

10:00 **Usability of transesophageal electrical intra-left ventricular and inter-ventricular conduction delay to improve patient selection for cardiac resynchronization therapy**
Matthias Heinke (University of Jena, DE); Bruno Ismer (University of Rostock, DE); Helmut Kuehnert (University of Jena, DE); Tobias Heinke (Siemens AG Healthcare Sector, Rudolstadt, DE); Ralf Surber, Friedhelm Kuethe, Anna Haltenberger, Martin Lorenz, Daniela Eisentraeger, Dirk Prochnau, Hans Reiner Figulla (University of Jena, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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10:15 **Different impedance cardiographic parameters in atrioventricular and interventricular delay optimized biventricular pacing versus right ventricular pacing**
Matthias Heinke (University of Jena, DE); Bruno Ismer (University of Rostock, DE); Helmut Kuehnert (University of Jena, DE); Olaf Solbrig (Medis GmbH Ilmenau, DE); Ralf Surber, Anna Haltenberger (University of Jena, DE); Jürgen Querengässer (Medis GmbH Ilmenau, DE); Dirk Prochnau, Hans Reiner Figulla (University of Jena, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K2-4 **Track H**

Cellular-, Tissue-, Bioengineering (1)
Cellular-, Tissue-, Bioengineering (1)

Sitzungsleitung: Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

08:45 **Selection of scaffold materials for heart valve tissue engineering**
Adela Neagoie , Trixi Hollweck, Ulrike Haas (Ludwig-Maximilian-University Munich, DE); Fabian Koenig (Technical University of Munich, DE); Rene Bombien (Ludwig-Maximilian-University Munich, DE); Cornelia Fano, Martin Dauner (ITV-Denkendorf, DE); Genoveva Aleksieva, Christoph Schmitz, Bruno Reichart, Bassil Akra (Ludwig-Maximilian-University Munich, DE)

09:00 **The feasibility of using synthetic scaffolds for the development of transapical valves by tissue engineering**
Magdalena Scheuer, Ulrike Haas, Rene Bombien (Ludwig-Maximilian-University Munich, DE); Cornelia Fano, Martin Dauner (ITV-Denkendorf, DE); Christoph Schmitz, Bruno Reichart, Bassil Akra (Ludwig-Maximilian-University Munich, DE)

09:15 **3D-Braided BioStent**
Lisanne Rongen (Department of Applied Medical Engineering, RWTH Aachen University, DE); Christoph Bach (Institut für Textiltechnik der RWTH Aachen University, DE)

09:30 **Aortic Valve Tissue Engineering – Synthetic vs. Natural Scaffolds**
Nikolaus Thierfelder, Genoveva Aleksieva, Antje Uhlig, Ulrike Haas (Ludwig-Maximilian-University Munich, DE); Fabian Koenig (Technical University of Munich, DE); Rene Bombien (Ludwig-Maximilian-University Munich, DE); Cornelia Fano, Martin Dauner (ITV-Denkendorf, DE); Christoph Schmitz, Bruno Reichart, Bassil Akra (Ludwig-Maximilian-University Munich, DE)

09:45 **Vascular Tissue Engineering – Textile Enhanced Implants**
Julia Frese (RWTH Aachen University, DE); Sabine Koch (Helmoholtz Institute for Biomedical Engineering, RWTH Aachen, DE); Philipp Schuster, Thomas Gries, Thomas Schmitz-Rode (RWTH Aachen, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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10:00 **Generation of small diameter, branched vascular systems by a combination of inkjet printing and multiphoton polymerization**
Petra J Kluger (Fraunhofer Institute for Interfacial Engineering and Biotechnology, DE); Kirsten Borchers (Fraunhofer IGB, DE); Oliver Refle (Fraunhofer Institute for Manufacturing Engineering and Automation, DE); Sascha Engelhard (Fraunhofer Institute for Laser Technology, DE); Wolfdietrich Meyer (Fraunhofer IAP, DE); Esther Novosel (University of Stuttgart & Fraunhofer IGB, DE); Careen Graf (Fraunhofer Institute for Manufacturing Engineering and Automation, DE); Claas Bierwisch (Fraunhofer Institute for Mechanics of Materials, DE); Christian Schuh (Fraunhofer IGB, DE); Nadine Seiler (Fraunhofer Institut für Lasertechnik, DE); Michael Wegener, Hartmut Krüger (Fraunhofer IAP, DE); Raimund Jaeger (Fraunhofer Institute for Mechanics of Materials, DE); Thomas Hirth (Fraunhofer IGB, DE); Arnold Gillner (Fraunhofer Institute for Laser Technology, DE); Günter Tovar (Fraunhofer IGB, DE)

10:15 **Methods of heart valve tissue engineering: static cultivation in comparison to dynamic cultivation**
Genoveva Aleksieva, Nikolaus Thierfelder, Antje Uhlig, Ulrike Haas (Ludwig-Maximilian-University Munich, DE); Fabian Koenig (Technical University of Munich, DE); Rene Bombien (Ludwig-Maximilian-University Munich, DE); Cornelia Fano, Martin Dauner (ITV-Denkendorf, DE); Christoph Schmitz, Bruno Reichart, Bassil Akra (Ludwig-Maximilian-University Munich, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K5-7 **Track F**

Neuronale Implantate & Schnittstellen
Neural Implants & Interfaces

Sitzungsleitung: Martin Schuettler, Patrick Ruther (University of Freiburg, DE)

08:45 **Development of a novel thin-film ECoG array for cortical recording and stimulation**
Benjamin Townsend (University of Freiburg & Department of Microsystems Engineering, DE); Gerhard Engler, Florian Pieper, Edgar Galindo-Leon, Andreas Engel (Institute for Neurophysiology and Pathophysiology, DE); Thomas Stieglitz (Universität Freiburg, DE)

09:00 **Assembly Method for 3D Neural Probe Arrays Utilizing SU-8-based Thermal Actuators**
Stanislav Herwik, Tobias Holzhammer, Oliver Paul, Patrick Ruther (University of Freiburg, DE)

09:15 **Validation of Electronic Depth Control Using CMOS-Based High-Density Silicon Microprobe Arrays**
Karsten Seidl (University of Freiburg, DE); Istvan Ulbert (Hungarian Academy of Sciences, Hungary); Oliver Paul, Patrick Ruther (University of Freiburg, DE)

09:30 **Integration of Microelectronics into Laser-Fabricated Neural Electrode Arrays**
Martin Schuettler (University of Freiburg, DE); Anne Vanhoestenberghe, Nooshin Saeidi, Xiao Liu, Joe Evans (University College London, United Kingdom); Cindy Colinge (Tyndall National Institute, Ireland); Andreas Demosthenous, Nick Donaldson (University College London, United Kingdom)

09:45 **A Hermetic Implant Housing with Large Number of Electrical Feedthroughs, Transparent to Infrared Light and Magnetic Fields**
Martin Schuettler, Juan Ordonez, Andreas Schatz, Thomas Stieglitz (Universität Freiburg, DE)

10:00 **Compact Wireless Silicon-based Recording System for Small Animals**
Tobias Holzhammer (University of Freiburg, DE); Tahl Holtzman (University of Cambridge, United Kingdom); Stanislav Herwik (University of Freiburg, DE); P. Rich, Jeff Dalley (University of Cambridge, United Kingdom); Oliver Paul, Patrick Ruther (University of Freiburg, DE)

10:15 **Wireless recording of neuronal activity**
Lutz Rafflenbeul, Roland Werthschützky (Technische Universität Darmstadt, DE); Alexander Gail (German Primate Center, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal K1 **Track F**

Analyse & Stimulation von Neuronen
Recording & Stimulation Of Neurons

Sitzungsleitung: Walter-G. Wrobel (Retina Implant AG, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg, DE)

08:45 **Therapy System to treat Retinal Degeneration**
Walter-G. Wrobel (Retina Implant AG, DE)

09:00 **Comparing electrode sizes in epicortical local field potential recording**
Birthe Rubehn (University of Freiburg, DE); Ingmar Schneider, Ueli Rutishauser, Gilles Laurent (Max-Planck-Institute for Brain Research, DE); Thomas Stieglitz (Universität Freiburg, DE)

09:15 **An experimental setup for evaluation of strategies for nerve fibre diameter selective stimulation**
Pawel Maciejasz, Christine Azevedo-Coste (DEMAR, LIRMM/INRIA, Montpellier, FR); David Guiraud (INRIA & LIRMM, FR); David Andreu (University of Montpellier 2, FR)

09:30 **On the optimization of charge-balanced bipolar rectangular current pulses for low-threshold neuronal stimulation in Hodgkin-Huxley models**
Thomas Schanze (Technische Hochschule Mittelhessen, DE)

09:45 **Biocompatibility of intracortical microstimulation (ICMS)**
Christos Pantazis (Klinikum Braunschweig gGmbH, DE); Steffen K. Rosahl (HELIOS Kliniken & University of Freiburg, DE)

10:00 **Neuronal network activity state modulates the efficacy of electrical stimulation in generic networks in vitro**
Oliver Weihberger, Samora Okujeni, Steffen Kandler, Ulrich Egert (Universität Freiburg, DE)

10:15 **Validation framework for coding strategies in cochlear implants**
Michele Nicoletti (Technische Universität München & Fachgebiet Bioanaloge Informationsverarbeitung, DE); Werner Hemmert (Technische Universität München, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Saal K8 Track F

FS Neurowissenschaft trifft Neurotechnologie BCF/BFNT (1)
FS Computational Neuroscience meets Neurotechnology – BCF/BFNT (1)

Sitzungsleitung: Stefan Rotter (Bernstein Center Computational Neuroscience, DE)

08:45 **Neurotechnology at the Bernstein Center Freiburg**
Ulrich Egert (Universität Freiburg, DE)

09:15 **Multisite Electrode Arrays for Simultaneous LFP and Spike Recording in Freely Behaving Epileptic Mice**
Ulrich Froriep (University of Freiburg & Department of Microsystems Engineering, DE); Tobias Holzhammer, Stanislav Herwik (University of Freiburg, DE); Antje Kilias (Department of Microsystem Engineering, DE); Oliver Paul, Patrick Ruther, Ulrich Egert (Universität Freiburg, DE)

09:30 **Bridging the gap between microscopic and mesoscopic scale neural network activity**
Delphine Cosandier-Rimélé (Bernstein Center Freiburg, DE); Julian Gehring (Institute of Physics, University of Freiburg, DE); Ad Aertsen, Arvind Kumar (University of Freiburg, DE)

09:45 **High-resolution mapping of single neuron electrical fields**
Patrick Dini, Maxime Ambard (Albert-Ludwigs-University Freiburg, DE); Ulrich Egert (Universität Freiburg, DE)

10:00 **Control of oscillations in neural networks**
Stefano Cardanobile, Arvind Kumar (University of Freiburg, DE)

10:15 **Neural mechanisms underlying the functioning of deep brain stimulation**
Arvind Kumar (University of Freiburg, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

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Saal Libresso Track F

Effektivere Kardiale Resynchronisationstherapie (CRT) _ Was versprechen neue medizintechnische Ansätze? (1): Optimale Patientenauswahl
FS More Effective Cardiac Resynchronization Therapy (CRT) – What promise the new biomedical engineering approaches (1): Optimal Patient Selection

Sitzungsleitung: Bruno Ismer (Offenburg University of Applied Sciences, DE), Matthias Heinke (University of Jena, DE), Juraj Melichercik (MediClin Herzzentrum Lahr, DE)

08:45 **Nonresponders of Cardiac Resynchronization Therapy – Where is the Problem?**
Juraj Melichercik (MediClin Herzzentrum Lahr, DE)

09:00 **Significance of new electrocardiographic parameters to improve cardiac resynchronization therapy**
Bruno Ismer (Offenburg University of Applied Sciences, DE); Frank Kleimenhagen (University of Rostock, DE); Matthias Heinke (University of Jena, DE); Lena Roesch, Kirsten Rotter (University of Rostock, DE); Christoph Melzer (Charité Berlin, DE); Frank Weber (Frankenwaldklinik Kronach, DE)

09:15 **Semi-invasive left cardiac pacing and electrocardiography – cardiac resynchronization therapy improvement can be predicted by pacing?**
Matthias Heinke (University of Jena, DE); Bruno Ismer (University of Rostock, DE); Ingolf Wehsener (Medtronic, DE); Helmut Kuehnert (University of Jena, DE); Tobias Heinke (Siemens AG Healthcare Sector, Rudolstadt, DE); Ralf Surber, Gudrun Dannberg, Hans Reiner Figulla (University of Jena, DE)

09:30 **Leads for semi-invasive electrogram recording and pacing – features to be highlighted**
Thorsten Goettsche, Peter Osypka (OSYPKA AG, DE)

09:45 **Analysing-software for electrocardiographic desynchronization – which parameters needs the physician?**
Daniela Eisentraeger, Anna Haltenberger (University of Jena, DE); Bruno Ismer (University of Rostock, DE); Martin Lorenz (University of Jena, DE); Kerstin Straube (C. R. Bard GmbH, DE); Anja Töpfer, Jakob Allmann, Hans Reiner Figulla, Matthias Heinke (University of Jena, DE)

10:00 **Digital Esophageal Pocket Format ECG Analyzer and Stimulator**
Andreas Kreker, Dirk Jansen (Offenburg University of Applied Sciences, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

10:15 **Programmer feature to quantify interventricular desynchronization and interatrial conduction intervals**
Kirsten Rotter, Lena Roesch (University of Rostock, DE); Matthias Heinke (University of Jena, DE); Frank Kleimenhagen (University of Rostock, DE); Frank Weber (Frankenwaldklinik Kronach, DE); Ralf Peters (Biotronik SE & Co. KG, DE); Christoph Nienaber (University of Rostock, DE); Bruno Ismer (Offenburg University of Applied Sciences, DE)

10:30 - 11:00 Kaffeepause, Fachausstellung

Runder Saal **Track H**

FS Organunterstützung
FS Organ Support

Sitzungsleitung: Friedhelm Beyersdorf (University Hospital Freiburg, DE), Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE)

11:00 **Mechanische Unterstützung von Herz und Lunge: Technologien und Trends**
Ulrich Steinseifer (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen University, DE)

11:30 **Extrakorporaler Gasaustausch bei akutem Lungenversagen**
Alois Philipp (University Hospital Regensburg, DE)

11:45 **Patient monitoring and physiologically responsive control using rotary blood pumps**
Francesco Moscato, Marcus Granegger, Michael Vollkron, Georg Wieselthaler (Medical University of Vienna, AT); Heinrich Schima (Allgemeines Krankenhaus Wien, AT)

12:00 **3D magnetic resonance flow analysis in ventricular assist devices**
Christoph Benk (Universitätsklinikum Freiburg, DE)

12:15 **Scherbelastung des Blutes: Modelle und Methoden**
Ulrich Kertzscher (Charité - Universitätsmedizin Berlin, DE)

12:30 **Shear stress related complications of mechanical cardiac support**
Claudia Heilmann (University Hospital Freiburg, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

Saal K9 **Track K**

Biosignalverarbeitung Kardiovaskuläres System (2)
Biosignal Processing – Cardiovascular System (2)

Sitzungsleitung: Andreas Voss (University of Applied Sciences Jena, DE); Peter van Leeuven (Universität Witten/Herdecke, DE)

11:00 **Assessing the Severity of Congestive Heart Failure by new Parameters of Circadian variation**
Christian Rockstroh (Friedrich Alexander University Erlangen-Nuremberg, DE); Jens Kirchner, Thomas Krämer (Biotronik SE & Co. KG, DE); Bernhard Hensel (Friedrich-Alexander-Universität Erlangen-Nürnberg, DE)

11:15 **Intraindividual fetal heart rate variability: stability and variation**
Peter Van Leeuwen (Grönemeyer Institute of Microtherapy, DE); Dirk Cysarz, Friedrich Edelhäuser (University of Witten/Herdecke, DE); Dietrich Grönemeyer (Grönemeyer Institute of Microtherapy, DE)

11:30 **Performance of Different Time-Frequency Estimators for the Assess-ment of Severity of Congestive Heart Failure during Day and Night Periods**
Christian Rockstroh, Annette Rosanka, Bernhard Hensel (Friedrich-Alexander-Universität Erlangen-Nürnberg, DE)

11:45 **Multivariate short-term heart rate variability: a screening tool for heart diseases?**
Andreas Heitmann (University of Applied Sciences Jena, DE); Siegfried Perz (GSF- Research Center for Environment and Health, DE); Andreas Voss (University of Applied Sciences Jena, DE)

12:00 **Comparison of univariate and bivariate linear and nonlinear indices of autonomic regulation in healthy first-degree relatives of patients with schizophrenia**
Steffen Schulz (University of Applied Sciences Jena, DE); Karl-Jürgen Bär (Friedrich-Schiller-University, Jena, DE); Andreas Voss (University of Applied Sciences Jena, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

Freitag, 30. September 2011 • 11:00 - 12:45

Saal K2-4 **Track H**

Cellular-, Tissue-, Bioengineering (2)
Cellular-, Tissue-, Bioengineering (2)

Sitzungsleitung:

11:00 **New Nonwoven-based Scaffold Structures for Mesenchymal Stem Cells**
Annahit Arshi, Robin Roß, Anne Schellenberg, Philipp Schuster, Wolfgang Wagner, Nina Laar, Thomas Gries (RWTH Aachen University, DE)

11:15 **Fibrin gel – a new scaffold for respiratory Tissue Engineering**
Christian Cornelissen (Helmoholtz Institute for Biomedical Engineering, RWTH Aachen, DE); Stefan Krüger (University Hospital, RWTH Aachen, DE); Jan Spillner (RWTH Aachen, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

11:30 **A Study of UVA-TiO2-inducted photocatalysis on glass surface under different parameters**
Linchao Ye, Sonia Giraldez Martinez, Melanie Weigert, Knut Moeller (Furtwangen University, DE)

11:45 **Therapeutic ultrasound and sonoporation**
Spiros Kotopoulis (The University of Hull, United Kingdom); Michiel Postema (University of Bergen, Norway)

12:00 **Automatic Single Cell Printing for Tissue Engineering and Stem Cell Research**
André Gross (University of Freiburg, DE); Jonas Schöndube (University of Freiburg - IMTEK, DE); Stefanie Rubenwolf, Azmi Yusof, Günter Roth, (Universität Freiburg – IMTEK, DE); Roland Zengerle (Universität Freiburg - IMTEK & HSG-IMIT, DE); Peter Koltay (Universität Freiburg - IMTEK, DE)

12:15 **Internal coating of plastic bags for biomedical applications**
Kristina Lachmann, Antje Dohse, Michael Thomas (Fraunhofer-Institut für Schicht- und Oberflächentechnik IST, DE); Claus-Peter Klages (Technische Universität Braunschweig, DE)

12:30 **Utilization of Raman spectroscopy for the non-invasive identification of stem cell fate**
Anne Knopf (Fraunhofer Institut IGB, DE); Steffen Koch (Fraunhofer Institute, DE); Kajta Schenke-Layland (Universität Tübingen, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

Saal K5-7 **Track J**

FS Apparative Diagnostik und Therapie von Schlafstörungen
FS Instrumental Diagnostics of Sleep Disorder

Sitzungsleitung: Thomas Penzel (Charité - Universitätsmedizin Berlin, DE)

11:00 **Introduction to sleep disorders**
Dieter Riemann (University of Freiburg, DE)

11:30 **Neurostimulation for the treatment of insomnia**
Thomas Penzel, Isabella von Mengden, Carmen I Garcia, Boris Wagenseil, Christoph Schoebel, Ingo Fietze (Charité - Universitätsmedizin Berlin, DE)

11:45 **Signal Processing Methods for Detection of Sleep Related Breathing Disorders from the ECG**
Christoph Maier (Heilbronn University, DE); Heinrich Wenz, Hartmut Dickhaus (University of Heidelberg, DE)

12:00 **Pulse wave analysis as a tool for automated analysis of sleep disorders**
Dirk Sommermeyer, Matthias Schwaibold (MCC GmbH & Co. KG, DE); Ludger Grote, Jan Hedner (Sleep Lab., University of Gothenburg, Sweden)

12:15 **Hypoglossus Nerve Stimulation: Physiologic and Clinical Requirements for Treating Obstructive Sleep Apnea**
Hartmut Schneider (Johns Hopkins University, USA)

12:30 **New Algorithms of Positive Airway Pressure treatment in Sleep Apnea**
Winfried J. Randerath (Krankenhaus Bethanien gGmbH, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

Freitag, 30. September 2011 • 11:00 - 12:45

Saal K1 **Track E**

Innovative Rehabilitationstechnik
Innovative Rehabilitation Technology

Sitzungsleitung: Marc Kraft (Technische Universität Berlin, DE)

11:00 **Comparison of a Commercial Step Counter System to a Mobile Gait Analysis System**
Anne Dobat, Simone Oehler, Marc Kraft (Technische Universität Berlin, DE)

11:15 **A novel robotic device enables gait-like movements with foot loading during fMRI**
Christoph Hollnagel, Lukas Jäger (ETH Zurich, CH); Mike Brügger (University Hospital Zurich, CH); Heike Vallery, Laura Marchal-Crespo, Peter Wolf (ETH Zurich, CH); Dietz Volker (University Hospital Balgrist, CH); Spyros Kollias (University Hospital of Zurich, CH); Robert Riener (ETH and University of Zurich, CH)

11:30 **Bio-Cooperative Control in Robot-Assisted Gait Rehabilitation after Stroke**
Alexander Koenig, Ximena Omlin (ETH Zurich, CH); Lukas Zimmerli (Hocoma AG, CH); Marc Bolliger (ETH Zurich, CH); Jeannine Bergmann, Carmen Krewer (Schoen Klinik Bad Aibling, DE); Friedemann Müller (Neurologische Klinik Bad Aibling, DE); Domen Novak (University of Ljubljana, Slovenia); Robert Riener (ETH and University of Zurich, CH)

11:45 **Control of the Cardiovascular System via Posture and Movement**
Martin Wieser (ETH and University of Zurich, CH); Tobias Kupke (ETH and University of Zurich, CH); Lilith Buetler (ETH Zurich and HELIOS Clinic Zihlschlacht, CH); Heike Vallery (ETH Zürich, CH); Josef Ludwig Schoenberger (HELIOS Clinic Zihlschlacht, CH); Clemens Gutknecht (Maternus Clinic for Rehabilitation, DE); Robert Riener (ETH and University of Zurich, CH)

12:00 **Substitute feedback to improve balance control of transfemoral amputees**
Anna Pagel (SMS Lab, ETH Zürich, CH); Robert Riener (ETH and University of Zurich, CH); Heike Vallery (ETH Zürich, CH)

12:15 **Pressure minimisation of the ischium region through the modified construction of the standard wheelchair**
Dirk Krüger, Gerd Janßen, Walter Laabs (Jade University of Applied Sciences, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

12:30 **Finger Muscle Density Changes after Electrical Stimulation Therapy, a Case Report**
Thordur Helgason (Landspitali - University Hospital, Iceland); Drofn Svanbjornsdottir, Arna Óskarsdóttir, Haraldur Sigthorsson, (Reykjavik University, Iceland); Paolo Gargiulo, Vilborg Gudmundsdottir, Pall Ingvarsson (Landspitali - University Hospital, Iceland)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

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Saal K8 **Track F**

FS Neurowissenschaft trifft Neurotechnologie BCF/BFNT (2)
FS Computational Neuroscience meets Neurotechnology – BCF/BFNT (2)

Sitzungsleitung: Ulrich Egert (Universität Freiburg, DE)

11:00 **The Anatomical Microstructure of Neuronal Networks Affects Spike Train Correlations and Mass Signals**
Stefan Rotter (Bernstein Center Computational Neuroscience, DE)

11:30 **Layer-resolved inputs on large pyramidal cells in the neocortex**
Clemens Boucsein (University of Freiburg, DE)

11:45 **Single unit recordings in human with improved neurosurgical implanation technique**
Stefan Hefft (Laboratory of Cellular neurophysiology II at the Department of Neurosurgery, DE)

12:00 **A high-resolution FEM volume conductor head model based on 7T MRI data**
Lukas Fiederer (University of Freiburg, DE)

12:15 **µECoG Recordings for Brain Mapping and Brain-Machine Interfaces BMIs**
Tonio Ball (Epilepsiezentrum am Universitätsklinikum Freiburg, DE)

12:30 **Neural coding of arm movement direction under different behavioral contexts**
Jörn Rickert (Uni Freiburg, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

Saal Libresso **Track F**

Effektivere Kardiale Resynchronisationstherapie (CRT) _ Was versprechen neue medizintechnische Ansätze? (2): Optimale Patientenauswahl
FS More Effective Cardiac Resynchronization Therapy (CRT) – What promise the new biomedical engineering approaches (2): Optimal Patient Selection

Sitzungsleitung: Matthias Heinke (University of Jena, DE), Bruno Ismer (Offenburg University of Applied Sciences, DE), Juraj Melichercik (MediClin Herzzentrum Lahr, DE)

11:00 **Does Differential Left Ventricular Pacing via a Quadripolar Electrode Impact Hemodynamics in Cardiac Resynchronization Therapy?**
Juergen Biermann , Tobias Wengenmayer, Thomas S. Faber, Christoph Bode, Stefan Asbach (Medizinische Universitätsklinik Freiburg, DE)

11:15 **Transesophageal left cardiac electrocardiography for evaluation of interventricular and interatrial conduction delay before and after premature ventricular contraction in heart failure patients**
Anna Haltenberger, Matthias Heinke (University of Jena, DE); Bruno Ismer (University of Rostock, DE); Helmut Kuehnert, Friedhelm Kuethe, Daniela Eisentraeger, Ralf Surber, Dirk Prochnau, Martin Lorenz, Hans Reiner Figulla (University of Jena, DE)

11:30 **In-vivo and in-vitro comparison of implant-based CRT optimization - What provide new algorithms?**
Bjoern Riedel (University of Luebeck, DE); Matthias Heinke (University of Jena, DE); Frank Weber (Frankenwaldklinik Kronach, DE); Christoph Nienaber (University of Rostock, DE); Bruno Ismer (Offenburg University of Applied Sciences, DE)

11:45 **Can the accuracy of intracardiac electrogram based CRT optimization be improved?**
Lena Roesch (University of Rostock, DE); Matthias Heinke (University of Jena, DE); Frank Kleimenhagen (University of Rostock, DE); Christoph Melzer (Charité Berlin, DE); Rudiger Fink (Medtronic GmbH, DE); Frank Weber (Frankenwaldklinik Kronach, DE); Bruno Ismer (Offenburg University of Applied Sciences, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

Freitag, 30. September 2011 • 11:00 - 12:45

12:00 **Improvement of impedance cardiographic cardiac output and acceleration index in atrioventricular and interventricular delay optimized biventricular pacing**
Matthias Heinke (University of Jena, DE); Bruno Ismer (Offenburg University of Applied Sciences, DE); Helmut Kuehnert (University of Jena, DE); Olaf Solbrig (Medis GmbH Ilmenau, DE); Ralf Surber, Anna Haltenberger (University of Jena, DE); Jürgen Querengässer (Medis GmbH Ilmenau, DE); Dirk Prochnau, Hans Reiner Figulla (University of Jena, DE)

12:15 **Analysing-software for impedance and electrocardiography – what is currently possible?**
Anna Haltenberger (University of Jena, DE); Daniela Eisentraeger (University of Jena, DE); Bruno Ismer (University of Rostock, DE); Olaf Solbrig, Jürgen Querengässer (Medis GmbH Ilmenau, DE); Andreas Winkler (Boston Scientific GmbH, DE); Jakob Allmann, Anja Töpfer, Hans Reiner Figulla, Matthias Heinke (University of Jena, DE)

12:30 **Electrical velocimetry to optimize VV delay in biventricular VVIR and DDD pacing for heart failure**
Bruno Ismer (Offenburg University of Applied Sciences, DE); Matthias Heinke (University of Jena, DE); Kirsten Rotter, Lena Roesch, Frank Kleimenhagen (University of Rostock, DE); Peter Osypka (OSYPKA AG, DE)

12:45 - 13:45 Mittagspause, Recruiting, Fachausstellung

13:45 - 14:45 Abschlusssitzung, Preisverleihung Studentenwettbewerb, Schlussworte

P01 **Graphical user interface for ultrasound image guided brachytherapy of floor of the mouth and tongue cancer: Concept and first results**
Heinrich M. Overhoff (University of Applied Sciences Gelsenkirchen, DE)

P02 **Regional obstruction map with EIT in cystic fibrosis patients**
Zhanqi Zhao (Furtwangen University, DE); Rainald Fischer, Ullrich Müller-Lisse (University of Munich, DE); Knut Moeller (Furtwangen University, DE)

P03 **Segmentation of the Thoracic Aorta Using a 3D Intensity Vessel Model and Elastic Image Registration**
Andreas Biesdorf, Karl Rohr (University of Heidelberg, BIOQUANT, IPMP, and DKFZ Heidelberg, DE); Hendrik von Tengg-Kobligk (University Hospital Heidelberg and DKFZ Heidelberg, DE); Stefan Wörz (University of Heidelberg, BIOQUANT, IPMP, and DKFZ Heidelberg, DE)

P04 **New Robotic Phantom: Evaluation of Performance for 4D Positron Emission Tomography**
Henry Arenbeck (RWTH Aachen University, DE); Oliver Winz (University Hospital Aachen, DE); Michael Perkuhn (Philips Research Laboratories, DE); Richard Holy, Michael Eble, Felix Mottaghy (University Hospital Aachen, DE); Dirk Abel (RWTH Aachen University, DE)

P05 **Determination of core- and hydrodynamic size distribution by magnetic particle spectroscopy**
Thilo Wawrzik, Hilke Remmer, Frank Ludwig, Meinhard Schilling (TU Braunschweig, DE)

P06 **A combined optical coherence tomography and two photon microscopy system using fiber guided ultrashort femtosecond pulses**
Maria Gaertner, Stefan Geissler, Peter Cimalla (Technische Universität Dresden, DE); Sven Meissner (University of Technology Dresden & Medical Faculty Carl Gustav Carus, DE); Christian Schnabel (Dresden University of Technology, DE); Wolfgang M Kübler (Charite - Universitätsmedizin Berlin, DE); Edmund Koch (Technische Universität Dresden, DE)

P07 **Control of Complex Spatiotemporal Dynamics in Cardiac Cell Cultures**
Claudia Richter, Stefan Luther (Max Planck Institute for Dynamics and Self-Organization, DE)

Posterausstellung • Donnerstag, 29. September 2011

P08 **Virtual Cardiac Biopsy by Optical Coherence Tomography**
Lukas Boesch (University Bern & Bern University of Applied Sciences, CH); Christoph Meier, Volker M Koch (Bern University of Applied Sciences, CH); Rolf Vogel (University Bern, CH)

P09 **Imaging of Compton-scattered photons from a microfocus X-ray tube using a gamma camera**
Elisabeth Röhl, Mohamed Ould Brahim, Henrik Botterweck (Luebeck University of Applied Sciences, DE); Thorsten M. Buzug (Universität zu Lübeck, DE)

P10 **Quantitative flow measurement by lateral resonant Doppler spectral domain optical coherence tomography**
Julia Walther, Lars Kirsten, Edmund Koch (Technische Universität Dresden, DE)

P11 **Simultaneous dual-band optical coherence tomography for high resolution depth-enhanced in vivo imaging of the rodent retina**
Peter Cimalla, Anke Burkhardt, Julia Walther, Aline Hoefer, Dierk Wittig, Julia Schweizer, Julia Hollmach, Richard Funk, Edmund Koch (Technische Universität Dresden, DE)

P12 **Catheter detection by means of analysis of ultrasound raw data**
Anke Poelstra, Heinrich M. Overhoff (University of Applied Sciences Gelsenkirchen, DE)

P13 **Total liquid ventilation for improved 3D Optical Coherence Tomography of alveolar structures**
Christian Schnabel (Dresden University of Technology, DE); Sven Meissner (University of Technology Dresden & Medical Faculty Carl Gustav Carus, DE); Maria Gaertner, Edmund Koch (Technische Universität Dresden, DE)

P14 **Metric-Based Estimation of Movement Positions in Cone-Beam CT**
Svitlana Ens; Baerbel Kratz, Thorsten M. Buzug (Universität zu Lübeck, DE)

P15 **Towards simultaneous optical and electrical characterization of the electrode tissue interface in catheter measurements of atrial electrophysiology**
Matthias W. Keller, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

P16 **Endoscopic optical coherence tomography for the detection of eardrum diseases**
Anke Burkhardt, Mirko Mehner, (University of Technology Dresden & Medical Faculty, DE); Julia Walther, Edmund Koch (Technische Universität Dresden, DE)

P17 **Exploiting Analytical Derivatives for Volume-Constrained Parametric Non-Rigid Image Registration**
Andreas Mang, Alina Toma, Stefan Becker (Universität zu Lübeck, DE); Tina Anne Schütz (Universität zu Lübeck & Graduate School for Computing in Medicine and Life Sciences, University of Lübeck, DE); Thorsten M. Buzug (Universität zu Lübeck, DE)

P18 **Interactive centerline extraction of great blood vessels in PC-MRI images**
Yoo-Jin Jeong, Roland Unterhinninghofen, Ruediger Dillmann (Karlsruhe Institute of Technology (KIT), DE)

P19 **Evaluation of input modalities for the interactive image segmentation of fluorescent micrographs**
Claudia Dach (Fraunhofer IIS, DE); Christian Held (Fraunhofer Institute for Integrated Circuits, DE); Ralf Palmisano (University Erlangen, DE); Thomas M. Wittenberg, Sven Friedl (Fraunhofer IIS, DE)

P20 **Conditioning diamond-nanoparticles to increase the fluorescence signal for biomedical applications**
Jan Michael Burg (Fachhochschule Giessen-Friedberg, DE); Thorsten Bergmann, Maria Lilholt, Sebastian Beer (Technische Hochschule Mittelhessen, DE); Ulf Maeder, Martin Fiebich (Fachhochschule Giessen-Friedberg, DE)

P21 **Evaluation of multiple emulsion based drug carrier systems using CARS microscopy**
Sebastian Beer, Dorota Dobler, Alexander Groß, (Technische Hochschule Mittelhessen, DE); Ulf Maeder (Fachhochschule Giessen-Friedberg, DE); Thorsten Bergmann (Technische Hochschule Mittelhessen, DE); Martin Fiebich (Fachhochschule Giessen-Friedberg, DE)

P22 **3D-Analysis of Cochlear Fluid Chambers by Industrial Computed Micro Tomography**
Björn Fischer (Fraunhofer-IZFP, Institute for Non-Destructive Testing, Dresden, DE)

P23 **A projection access scheme for iterative reconstruction algorithms based on a reconstruction quality function**
Marc Käseberg (Fraunhofer-Institut für Produktionsanlagen und Konstruktionstechnik IPK, DE); Fabian Stopp (Charité - Universitätsmedizin Berlin, DE); Christian Winne (Fraunhofer-Institut für Produktionsanlagen und Konstruktionstechnik IPK, DE); Erwin Keeve (Charité - Universitätsmedizin Berlin, DE)

P24 **Synchronization techniques of contrast media injectors and imaging devices**
Michael Schweigmann (MEDTRON AG, DE)

P25 **Evaluation of the implant-bone-interface of total hip stems using computerized tomography scans**
Robert Souffrant (Universität Rostock, DE); Wolfram Steens (Orthopädisch-Neurochirurgischen Zentrum, DE); Paul Oldorf (Universität Rostock, DE); Alexander Katzer (Orthoclinic Hamburg, DE); Karlheinz Hauenstein, Daniel Kluess, Rainer Bader (Universität Rostock, DE)

P26 **Wave front-based Colour Reduction for Colour Segmentation**
Raphael Maas, Thilo Pionteck, Erik Maehle (University of Lubeck, DE)

P27 **Spalteholz technique for microscopic analysis of the lung's bronchial structure**
David Schwenninger, Constanze Dassow, (Universitätsklinikum Freiburg, DE); Stefan Schumann (University Medical Center of Freiburg, DE); Josef Guttmann (University Hospital Freiburg, DE)

P28 **Feature extraction and plausibility check of spots in small-molecule microarray images**
Sophie von Borstel, Ralf Mikut, Katja Schmitz, Markus Reischl (Karlsruhe Institute of Technology, DE)

P29 **Bionische Entwicklung eines selbstregulierenden Doppelklappenventils nach Vorbild der laryngealen Doppelventilfunktion**
Wiebke Kelterer (Hochschule Bremen, DE); Thomas Dörge (Fraunhofer Institute for Biomedical Engineering, DE); Marc Dupré (Fachhochschule Bochum, DE); Claus Eckermann (Phonation and Psychoacoustics Dorsten, DE); Fridun Nazaradeh (Katholische Kliniken Essen-Nord-West gGmbH, DE); Wigand Poppendieck (Fraunhofer Institute for Biomedical Engineering, DE); Siegfried Steltenkamp (Forschungszentrum Caesar, DE); Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

P30 **Integration of Shape Memory Alloy into a Pedicle Screw for Increasing the Pullout Strength**
Andrea Böhm, Felix Hemmann, Holger Kunze, Christian Rotsch, Sandra Scherer, Björn Senf, Michael Werner (Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik, DE)

P31 **Measurement of the blood volume flow in arteria femoralis based on pathologic changes of the cardiovascular system**
Eberhard Engelien (University of Duisburg-Essen, DE)

P32 **Investigation of structural properties of dental tissues after irradiation**
Wolfgang Fränzel (Martin-Luther-University Halle-Wittenberg, DE)

P33 **Calculation of spine loads in patients' transfers for the optimization of care-furniture**
Jörg Subke, Lars Prange (Technische Hochschule Mittelhessen, DE)

P34 **Development of a CAPD Catheter with Infection Proof Exit-Site**
Johannes Großhauser, Klaus Affeld, Katja Reiter, Christian Grosse-Siestrup, Ulrich Kertzscher (Charité - Universitätsmedizin Berlin, DE)

P35 **First analysis for efficiency study of sensomotoric inlays on habitual toe-walkers using gait analysis**
Pascal Wettmann (University of Applied Sciences Northwestern Switzerland, CH); Marie Freslier (Universitäts Kinderspital Beider Basel, CH); Michael Stanimirov, Erik Schkommodau (University of Applied Sciences Northwestern Switzerland, CH); Reinald Brunner (Universitäts Kinderspital Beider Basel, CH)

P36 **Finite Element Investigations of the Compliance of Stent-Stenosis Systems**
Heiner Martin, Alfred Leder, Daniel Quosdorf (Universität Rostock, DE); Daniel Lootz (Cortronik GmbH, DE); Klaus-Peter Schmitz (Universität Rostock, DE)

P37 **Development of a test bench for simulating inner body movements**
Stefan Grumbein (Luebeck University of Applied Sciences, DE); Joerg Schroeter (Research Assisstant, DE); Bodo Nestler (Fachhochschule Lübeck, DE)

P38 **A LOw-COst and MObile SYstem for marker based motion analysis (LoCoMoSy)**
Immanuel Weber, Matthias Kohl-Bareis, Ulrich Hartmann (Koblenz University of Applied Sciences, DE)

P39 **The Influence of Polymer/Drug Coating on the Mechanical Properties of Drug-Eluting Nitinol Stents – A Numerical Investigation**
Lena Schmitt, Kerstin Schuemann, Niels Grabow, Heiner Martin, Klaus-Peter Schmitz (Universität Rostock, DE)

P40 **A new force measurement technique for the diagnosis of hand rheumatism**
Jörg Subke, Jost Griesemann (Technische Hochschule Mittelhessen, DE); Ulrich Käßer (Internistisches Praxiszentrum, Balserische Stiftung, DE); Jürgen Steinmeyer (Universitätsklinikum Gießen-Marburg, DE)

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P42 **The influence of sterilization on the deformation behavior of coronary bioabsorbable polymeric stents**
Christine Schultze, Niels Grabow, Henning W Rohm, Katrin Sternberg, Klaus-Peter Schmitz (Universität Rostock, DE)

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Anne Seidlitz, Monika Wentzlaff, Stefan Nagel, Beatrice Semmling (Ernst-Moritz-Arndt-Universität Greifswald, DE); Claus Harder (Biotronik SE und Co. KG, DE); Niels Grabow, Katrin Sternberg (Universität Rostock, DE); Werner Weitschies (Ernst-Moritz-Arndt-Universität Greifswald, DE)

P45 **Determination of permeability coefficients of ophthalmic drugs through different layers of porcine eyes**
Christian Loch (Ernst-Moritz-Arndt-Universität Greifswald & Institute of Pharmacy, DE); Simon Zakelj, Albin Kristl (University of Ljubljana, Slovenia); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE); Werner Weitschies, Anne Seidlitz, Monika Wentzlaff (Ernst-Moritz-Arndt-Universität Greifswald, DE)

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Thomas Martin, Ulrich Gengenbach, Helmut Guth (Karlsruhe Institute of Technology, DE); Patrick Ruther, Oliver Paul (University of Freiburg, DE); Georg Bretthauer (Karlsruhe Institute of Technology, DE)

P47 **Algorithm for AV delay optimization in cardiac resynchronization based on individual interatrial conduction and ejection fraction**
Bruno Ismer (Offenburg University of Applied Sciences, DE); Matthias Heinke (University of Jena, DE); Lena Roesch, Kirsten Rotter, Frank Kleimenhagen (University of Rostock, DE); Christoph Melzer (Charité Berlin, DE); Frank Weber (Frankenwaldklinik Kronach, DE)

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Cathérine Ruther, Ulrich Timm, Hartmut Ewald, Wolfram Mittelmeier, Rainer Bader, Daniel Kluess (Universität Rostock, DE)

P49 **Preliminary Study on Invasive Application for Therapeutic Electrical Stimulation of Denervated Muscles: Energy Requirements**
Thordur Helgason, Paolo Gargiulo (University Hospital of Iceland Landspitali, Iceland); Drofn Svanbjornsdottir (Reykjavik University, Iceland)

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Christina Hassler (University of Freiburg, DE); Julien Guy (University of Goettingen, DE); Max Nietzschmann (University of Freiburg, DE); Jochen Staiger (University of Goettingen, DE); Thomas Stieglitz (Universität Freiburg, DE)

P51 **A flexible ECoG-Electrode with high resolution for BRAINCON – a wireless implantable system for long-term recording and stimulation**
Christian Henle (University of Freiburg, DE); Jörg Fischer (Albert-Ludwigs-University Freiburg & CorTec GmbH, DE); Wolfgang Meier , Jörn Rickert, Martin Schuettler, Thomas Stieglitz (Universität Freiburg, DE)

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Oscar Cota, Matthias Kuhl (University of Freiburg & IMTEK, DE); Thomas Stieglitz (Universität Freiburg, DE); Yiannos Manoli, Dennis Plachta (University of Freiburg - IMTEK, DE)

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Christian Murschall, Bernd Matthias Pohl, Ulrich G. Hofmann (University of Luebeck, DE)

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Jörg Fischer (Albert-Ludwigs-University Freiburg & CorTec GmbH, DE); Christian Henle (University of Freiburg, DE); Jens Paetzold, Rainer Mohrlok (Multi Channel Systems, DE); Markus Raab (Albert-Ludwigs-University Freiburg, DE); Andreas Moeller (Multi Channel Systems MCS GmbH, DE); Jörn Rickert, Martin Schuettler (University of Freiburg, DE)

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Sonja Karg, Werner Hemmert (Technische Universität München, DE)

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Birthe Rubehn (University of Freiburg, DE); Steffen Wolff, Philip Tovote, Andreas Lüthi (Friedrich Miescher Institute for Biomedical Research, CH); Thomas Stieglitz (Universität Freiburg, DE)

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Xi Wang (University of Freiburg, DE); Mortimer Gierthmuehlen (University Hospital Freiburg, DE); Christian Henle (University of Freiburg, DE); Markus Raab (Albert-Ludwigs-University Freiburg, DE); Ad Aertsen, (Universität Freiburg, DE); Andreas Schulze-Bonhage (University Hospital Freiburg, DE); Jan Kaminsky (Neurosurgery, University of Freiburg, DE); Thomas Stieglitz (Universität Freiburg, DE); Tonio Ball (Epilepsiezentrum am Universitätsklinikum Freiburg, DE)

P61 **Implantable polyimide mapping cuff electrode**
Dennis Plachta, Oscar Cota (Laboratory for Biomedical Microtechnology - University of Freiburg - IMTEK, DE); Thomas Stieglitz (Universität Freiburg, DE)

P62 **Raney-platinum electrodes for functional electrical stimulation**
Tim Boretius (University of Freiburg, DE); Tilman Jurzinsky (Laboratory for Biomedical Microtechnology, DE); Christian Köhler, Sven Kerzenmacher (University of Freiburg - IMTEK, DE); Thomas Stieglitz (Universität Freiburg, DE)

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Boris Stamm (NMI Natural and Medical Sciences Institute at the University of Tuebingen, DE); Kerstin Schneider (University of Tübingen, DE); Lars Pastewka, Andreas Klemenz (Fraunhofer Institute for Mechanics of Materials IWM, DE); Claus Burkhardt, Wilfried Nisch (NMI Natural and Medical Sciences Institute at the University of Tuebingen, DE); Monika Fleischer (University of Tübingen, DE); Michael Moseler (Fraunhofer Institute for Mechanics of Materials IWM, DE); Simone Di Giovanni (Hertie Institute for Clinical Neuroscience, DE); Dieter Kern (University of Tübingen, DE); Alfred Stett (NMI Naturwissenschaftliches und Medizinisches Institut, DE)

P64 **A EUROPEAN database for EEG based applications**
Matthias Ihle (Universitätsklinikum Freiburg, DE); Francisco Sales (University Hospital of Coimbra, Portugal); Michel Le Van Quyen (Pitie-Salpetriere Hospital, FR); Antonio Dourado (University of Coimbra, Portugal); Hinnerk Feldwisch-Drentrup (University of Freiburg, DE); Björn Schelter, Jens Timmer (Center for Data Analysis and Modeling, University of Freiburg, DE); Andreas Schulze-Bonhage (University Hospital Freiburg, DE)

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Christoph Schranz, Knut Moeller (Furtwangen University, DE)

P66 **Finite element simulation of strain-adaptive bone remodelling in the pelvis after total hip replacement for two different load cases**
Bernd-Arno Behrens, Nelly Weigel, Stefanie Betancur Escobar (Leibniz Universitaet Hannover & Institute for Metal Forming and Metal Forming Machine, DE); Ingo Nolte, Patrick Wefstaedt (Tierärztliche Hochschule Hannover, DE); Christina Stukenborg-Colsman (Medizinische Hochschule Hannover, DE); Anas Bouguecha (Leibniz Universität Hannover, DE)

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Paul Schlett, Andreas Brensing (Hochschule RheinMain, DE); Stefan Bernhard (Freie Universität Berlin, DE)

P68 **Multiscale Modelling of Brain Tumour Growth: The Influence of EGFR on the Molecular and Cellular Level**
Tina Anne Schütz (Universität zu Lübeck & Graduate School for Computing in Medicine and Life Sciences, University of Lübeck, DE); Alina Toma, Stefan Becker, Andreas Mang, Thorsten M. Buzug (Universität zu Lübeck, DE)

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Linda Sommerlade (University of Freiburg, DE); Jens Timmer, Björn Schelter (Center for Data Analysis, University of Freiburg, DE)

P70 **A Basic Evaluation of Multi-electrode Array Based Biomimetic Catheter Sensor for Atherosclerosis**
*Kavita Mayekar (Universität Bonn & Forschungszentrum Jülich, DE); Deepak Damalla, Hebert Bousack (Forschungszentrum Jülich, DE); Gerhard von der Emde (Universiät Bonn, D*E)

P71 **Blood pressure simulator for noninvasive blood pressure measurement method**
Sarah Weber, Ulrich Kertzscher, Klaus Affeld (Charité - Universitätsmedizin Berlin, DE)

P72 **Blood model for capillary blood flow**
Kerstin Schirrmann, Ulrich Kertzscher, Klaus Affeld (Charité - Universitätsmedizin Berlin, DE)

P73 **Novel approach for measuring the intraocular pressure considering the cornea biomechanical properties**
Volkmar Unger, Kutaiba Saleh, Alexander Dietzel, Jens Haueisen (Technical University Ilmenau, DE)

P74 **Influence of the electric double layer on the field distribution in Deep Brain Stimulation**
Christian Schmidt (University of Rostock, DE)

P75 **The United Airways Project: Fluid Flow Simulations in the Human Respiratory System**
Thomas Gengenbach, Mathias Krause, Vincent Heuveline (Karlsruhe Institute of Technology (KIT), DE)

P76 **A Cellular Model of Brain Tumour Growth and the Effects of Radiotherapy**
Yannik Schröder, Alina Toma, Stefan Becker, Andreas Mang, Tina Anne Schütz, Thorsten M. Buzug (Universität zu Lübeck, DE)

P77 **Optimization of stent designs to minimize the effect of increasing the blood flow velocity: An evaluation using computational fluid dynamics (CFD)**
Britta Koenig, Udo Jorczyk, Gerrit Schönwald (University of Applied Sciences, Gelsenkirchen, DE)

P78 **Magnetic Methods for Separation and Purification of Superparamagnetic Iron Oxide Nanoparticles**
Kerstin Lüdtke-Buzug, Ulrike Kalapis (Universität zu Lübeck, DE)

P79 **Multilayer Water Vapour Barrier Coatings for Flexible Implants**
Michael Weinmann, Volker Bucher, Wilfried Nisch (NMI Natural and Medical Sciences Institute at the University of Tuebingen, DE); Gerald Urban (University of Freiburg, DE); Alfred Stett (NMI Naturwissenschaftliches und Medizinisches Institut, DE)

P80 **Direct detection of E-coli bacteria using SiNW arrays**
Xuan Thang Vu, Pascal Geschwill, Marc Sauer (Fachhochschule Kaiserslautern, DE); Yinxi Huang, Peng Chen (Nanyang Technological University, Singapore); Sven Ingebrandt (Fachhochschule Kaiserslautern, DE)

P81 **Sample pre-treatment microchip for extraction of small nucleic acids for pathogen detection**
Hakenberg (Albert-Ludwigs-Universität Freiburg, DE); Paul Vulto (Netherlands Metabolomics Centre, The Netherlands); Gregory Dame (University of Freiburg, DE); Gerald Urban (Albert-Ludwigs-Universität Freiburg, DE)

P82 **Microfluidic enrichment of viable bacteria by electrophoretic deflection in a chip for pathogen detection**
Hakenberg, Susann Podszun (Albert-Ludwigs-Universität Freiburg, DE); Dietmar Puchberger-Enengl (Institute of Sensor and Actuator Systems, AT); Paul Vulto (Netherlands Metabolomics Centre, The Netherlands); Helene Heinz (Albert-Ludwigs-Universität Freiburg, DE); Carsten Hermann, Gregory Dame (University of Freiburg, DE); Gerald Urban (Albert-Ludwigs-Universität Freiburg, DE)

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P84 **ASIC for Neurostimulation with Different Waveforms**
Mario Meza, Lait Abu Saleh, Dietmar Schroeder, Wolfgang Krautschneider (Hamburg University of Technology, DE)

P85 **Microfabrication of parylene coated tracks for neural electrode arrays – preliminary results using a Nd:YAG laser**
Fabian Kohler (University of Freiburg & IMTEK, DE); Martin Schuettler, Thomas Stieglitz (Universität Freiburg, DE)

P86 **Nano patterned surfaces and their influence of living cells**
Mario Baum, Jan Besser (Fraunhofer ENAS, DE); Christian Vetter (Chemnitz University of Technology, DE); Maik Wiemer, Thomas Geßner (Fraunhofer-Einrichtung Elektronische Nanosysteme, DE); Samuel Sanchez Ordonez, Oliver Schmidt, Wang Xi, Stefan Harazim (IfW Dresden, DE)

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Stefan Siewert, Christine Schultze, Wolfram Schmidt (Universität Rostock, DE); Ulf Hinze, Boris Chichkov (Laser Zentrum Hannover e.V., DE); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE); Klaus-Peter Schmitz (Universität Rostock, DE)

P88 **Stability Evaluation of Superparamagnetic Iron Oxide Nanoparticles in Different Media for Magnetic Particle Imaging**
Kerstin Lüdtke-Buzug, Celine Borchers (Universität zu Lübeck, DE)

P89 **Tailor Made Micro Parts in Small Series and Mass Production**
Peter Bloß, Steffen Jacob, Zwicker Thomas, Gábor Jüttner (Kunststoff-Zentrum in Leipzig gGmbH (KuZ), DE); Björn Dormann, Christian Decker (Klöckner Desma Schuhmaschinen GmbH, DE)

P90 **Transfer function measurements with field-effect transistors**
Anna Susloparova, Dieter Koppenhöfer, Xuan Thang Vu, Sven Ingebrandt (Fachhochschule Kaiserslautern, DE)

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Linchao Ye, Paola Belloni; Knut Moeller (Furtwangen University, DE)

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Alexander Suhrbier (Forschungszentrum Karlsruhe GmbH, DE); Jens Ziegler, Markus Graube, Leon Urbas (Technische Universität Dresden, DE); Niels Wessel (Humboldt University Berlin, DE); Hagen Malberg (Technische Universität Dresden, DE)

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Britta Loutfi-Krauß, Alexander Stern (Hochschule RheinMain, DE); Christoph Fleckenstein, Carsten Nalenz (GPR Klinikum Rüsselsheim, DE); Cornelius Oster (Hochschule RheinMain, DE); Hans-Jürgen Rupprecht (GPR Klinikum Rüsselsheim, DE); Dirk Fritzsche (Herzzentrum Cottbus, DE); Andreas Brensing (Hochschule RheinMain, DE)

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Frank Wiekhorst (Physikalisch-Technische Bundesanstalt, DE); Daniel Baumgarten (Technische Universität Ilmenau, DE); Wolfgang Haberkorn, Uwe Steinhoff (Physikalisch-Technische Bundesanstalt, DE); Jens Haueisen (Technical University Ilmenau, DE); Markus Baer, Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

P95 **Parameters influencing noninvasive blood pressure monitoring**
Christian U Sauter (Fraunhofer Institute for Integrated Circuits, DE); Jose Angel Pineda Pardo (Center for Biomedical Technology, Spain); Christian Douniama, Christian Hofmann, Christian Weigand (Fraunhofer IIS, DE)

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Sarah Dierk, Sinan Ünlübayir (Fraunhofer IMS, DE); Hoc Khiem Trieu (TU Hamburg-Harburg, DE); Holger Vogt (Fraunhofer IMS, DE); Ingo Köper (Flinders University Adelaide, Australia)

P97 **New method for estimation of respiratory flow using tracheal sound analysis**
Keywan Ali Sohrabi (ThoraTech GmbH, DE); Denise Basu (Philipps-University Marburg, DE); Florian Schudt (TH Mittelhessen, DE); Michael Scholtes (Fachhochschule Giessen Friedberg, DE); Ulrich Koehler (Philipps-Universität Marburg, DE); Volker Gross (FH Giessen-Friedberg, DE)

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Denis Jordan (Technische Universität München, DE); Sabine Paprotny (Schön Klinik Harthausen, DE); Gudrun Stockmanns (Hochschule Niederrhein, DE); Gerhard Schneider (Universität Witten/Herdecke, DE); Eberhard F. Kochs (Technische Universität München, DE)

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Christopher Schilling (Karlsruhe Institute of Technology (KIT), DE); Armin Luik, Claus Schmitt (Städtisches Klinikum Karlsruhe, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

P100 **Real-time multichannel recording and processing using a mobile recording system and a CUDA enabled laptop**
Taliana Herrera (Pontificia Universidad Catolica del Peru, Peru); Dennis Plachta, Oscar Cota (Laboratory for Biomedical Microtechnology - University of Freiburg - IMTEK, DE)

P101 **Development of a pediatric ECG reference system for the assessment of arrhythmia detection algorithms in Automated External Defibrillators**
Patricia Radon, Uwe Steinhoff (Physikalisch-Technische Bundesanstalt, DE); Gero von Wagner, Norbert Kraft (Metrax GmbH, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

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Anna Voß (Universität Witten / Herdecke, DE); Peter Van Leeuwen (Grönemeyer Institute of Microtherapy, DE); Dirk Cysarz, Friedrich Edelhäuser (University of Witten/Herdecke, DE); Dietrich Grönemeyer (Grönemeyer Institute of Microtherapy, DE)

P103 **Arterial Stiffness Analysis based on Gaussian Pressure Pulse Wave Decomposition**
Ying Zhao, Walter Kullmann (University of Applied Sciences Wuerzburg-Schweinfurt, DE)

P104 **Development of a method for long-term blood pressure surveillance based on the detection of pulse transit time**
Rainer Sus, Arne Rossbach (TH Mittelhessen, DE); Michael Scholtes (Fachhochschule Giessen Friedberg, DE); Keywan Ali Sohrabi (ThoraTech GmbH, DE); Volker Gross (FH Giessen-Friedberg, DE)

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Claudia Fischer, Andreas Voss (University of Applied Sciences Jena, DE)

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Jens Voigt, Silvia Knappe-Grüneberg, Allard Schnabel, Martin Burghoff (Physikalisch-Technische Bundesanstalt, DE)

P107 **BCI applications based on capacitive EEG**
Marianne Gerloff, Stefan Mitschke, Meinhard Schilling (TU Braunschweig, DE)

P108 **Test of a Generator for the Energy Supply of Biosensors for the Application on Human and Animal Subjects**
Thomas Reuter, Martin Hoffmann (fzmb GmbH - Forschungszentrum für Medizintechnik und Biotechnologie, DE)

P109 **High load current source for bioimpedance applications**
Benjamin Eilebrecht, Steffen Leonhardt (RWTH Aachen University, DE)

P110 **Calibration of optical sensors for patient monitoring - A novel approach**
Benjamin Weber (Fachhochschule Lübeck / Luebeck University of Applied Sciences, DE); Bodo Nestler (Fachhochschule Lübeck, DE); Jian-Feng Zhang (East China University of Science and Technology, P.R. China); Hartmut Gehring (University of Luebeck & Universitätsklinikum Schleswig-Holstein, DE)

P111 **A setup for capnography-based determination of physiological dead space in premature neonates**
Constanze Dassow (Universitätsklinikum Freiburg, DE); David Schwenninger, Stefan Schumann (University Medical Center of Freiburg, DE); Josef Guttmann (University Hospital Freiburg, DE)

P112 **Evaluation, Validation and Optimization of a self-sufficient medical Wireless Sensor Network**
Kai Becher (Fraunhofer Institut für Biomedizinische Technik, DE); Sven Dussa (Karlsruhe Institute of Technology, DE); Richard George (Hamburg University of Applied Sciences, DE); Roman Ruff, Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

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Fred Wonka (Medical Faculty TU Dresden, DE); Stephan Mieke (Physikalisch Technische Bundesanstalt Berlin, DE); Karl Wenzelewski (DIN Deutsches Institut für Normung, DE)

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Sebastian Sauer (Technical University of Dresden, DE); Wolf-Joachim Fischer (Fraunhofer IPMS, DE); Uwe Marschner (Technische Universität Dresden, DE)

P115 **Diagnosis of coronary plaques by active electrolocation – a bionic approach**
Martin Gottwald (University of Bonn, DE); Kavita Mayekar (Universität Bonn & Forschungszentrum Jülich, DE); Gerhard von der Emde (Universiät Bonn, DE)

P116 **Method and modeling for the determination of peripheral blood flow**
Volker Gross (FH Giessen-Friedberg, DE); Marcel Brunzendorf, Rainer Sus (TH Mittelhessen, DE); Sascha Moellenbeck (FH Giessen Friedberg, DE); Keywan Ali Sohrabi (ThoraTech GmbH, DE)

P117 **Silicone hydrogels as matrices for enzyme based biosensors**
Stephan Meskath, Juergen Heinze, Gerald Urban (University of Freiburg, DE)

P118 **Development of a Multimodal Assistive System by Providing an Additional Acoustic Signal as Extension for a Haptic Assistive System for Heart Catheterizations**
Thomas Opitz, Thorsten Meiss, Tim Rossner, Roland Werthschützky (Technische Universität Darmstadt, DE)

P119 **Dual core microcomputer and FPGA based multi channel data collector**
Michael Fink, Marek Zelazny, Ulrich G. Hofmann (University of Luebeck, DE)

P120 **A concept of an inductively powered wireless sensor node for use in orthodontia**
Jan Lotichius, Ingmar Stöhr, Roland Werthschützky (Technische Universität Darmstadt, DE)

P121 **A new approach to monitor the therapy of Parkinson's Disease**
Julia Weißhaar, Ute Blechschmidt-Trapp, Ronald Blechschmidt-Trapp (University of Applied Sciences Ulm, DE)

P122 **A test setup for the validation of a method to determine respiratory mechanics in spontaneously breathing patients**
Kristel Lopez-Navas (University of Applied Sciences Lübeck, DE); Hartmut Gehring (University of Luebeck & Universitätsklinikum Schleswig-Holstein, DE); Ullrich Wenkebach (University of Applied Sciences Lübeck, DE)

P123 **Full-PDMS Strain gauges for the measurement of large elongations**
Alain Hinzen, Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

P124 **Monitoring charge propagation processes at PEDOT sensing layers on Pt microelectrodes using Scanning Electrochemical Microscopy (SECM)**
Elmar Laubender, Gerald Urban, Juergen Heinze (University of Freiburg, DE)

P125 **In vivo application of multiparametric microsensors in intraabdominal tissue and improvement of biocompatibility**
Andreas Weltin (University of Freiburg - IMTEK, DE); Jochen Kieninger, Barbara Enderle, Loïc Ledernez, Fethi Olcaytug (University of Freiburg, DE); Olaf Sommer, Dirk Jargon, Sebastian Meyer, Ulrich Hopt (University Medical Center Freiburg, DE); Gerald Urban (University of Freiburg, DE)

P126 **Non-invasive measurement of respiratory impedance in conscious laboratory rodents using Impulse Oscillometry System (IOS**)
Carmen Klein, Jens Thomas, Martin Hoffmann (fzmb GmbH - Forschungszentrum für Medizintechnik und Biotechnologie, DE); Norbert Mieskes, Hans Smith (CareFusion Germany 234 GmbH, DE)

P127 **Telemedicine Support for Hypersonic Passengers**
Darius Kornetka, Timo Frett (German Aerospace Center, DE)

P128 **Web Service-Based IT Architecture for a Textile-Integrated System With Security and Safety Components**
Horst Meier, Holger Flick, Björn Krückhans (Ruhr-Universität Bochum, DE)

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Timo Frett, Darius Kornetka (German Aerospace Center, DE)

P130 **Intelligent workflow guidance for information extraction in preclinical tumor research**
Daniel Pollig (RWTH Aachen University, DE); Catherine Disselhorst-Klug (RWTH Aachen University & Institute of Applied Medical Engineering, DE)

P131 **Optimisation of Medical Processes With Smart Phone Apps**
Horst Meier, Bjoern Krueckhans, Holger Flick (Ruhr-Universität Bochum, DE)

P132 **Fall Detection Using Android Smart Phones**
Eckhard Schmittendorf, Frank Wallhoff (Jade University of Applied Science, DE); Joerg Bitzer (University of Applied Science Oldenburg, DE)

P133 **Determination of mechanical properties of pliant biomaterial substitutes in a biaxial stress-strain setup**
Caroline Armbruster, Constanze Dassow (Universitätsklinikum Freiburg, DE); Katharina Gamerdinger (University Medical Center, DE); Yasmin Korth (Freiburger Materialforschungszentrum, DE); Stefan Schumann (University Medical Center of Freiburg, DE); Christian Friedrich (Freiburger Materialforschungszentrum, DE); Josef Guttmann (University Hospital Freiburg, DE)

P134 **Vancomycin Release Behaviour of Prefabricated Solid Beta-Tricalcium Phosphate Scaffolds**
Michael Seidenstuecker (University of Freiburg Medical Center, DE)

P135 **Antibacterial Plasma Nanofilm For Different Materials Commonly Used In Medical Applications**
Michael Bergmann (Albert-Ludwigs-Universität Freiburg, DE); Fethi Olcaytug (University of Freiburg, DE); Gregory Dame (University of Freiburg, DE); Gerald Urban (Albert-Ludwigs-Universität Freiburg, DE)

P136 **Antimicrobial Glow-Discharge Coatings for Contact Lenses**
Andreas Marx, Michael Bergmann (Albert-Ludwigs-Universität Freiburg, DE); Fethi Olcaytug, Gregory Dame (University of Freiburg, DE); Gerald Urban (Albert-Ludwigs-Universität Freiburg, DE)

P137 **Characterization of Protein-Surface Interactions of Tailored Plasma Nanofilms**
Michael Bergmann, Andreas Marx (Albert-Ludwigs-Universität Freiburg, DE); Fethi Olcaytug (University of Freiburg, DE); Gerald Urban (Albert-Ludwigs-Universität Freiburg, DE); Gregory Dame (University of Freiburg, DE)

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Tobias Wenzel, Christian Damiani, Stephan Klein (Fachhochschule Lübeck, DE)

P139 **PerMX dry-resist as a capable alternative to SU8 for BioMEMS applications**
Robert Meier, Vlad Badilita (Universität Freiburg - IMTEK, DE); Ulrike Wallrabe (University of Freiburg, DE); Jan G. Korvink (Universität Freiburg - IMTEK, DE)

P140 **Analysing Artificial Joint Cartilage Tissue Using NIR- Spectroscopy: First Results**
Martin Hoffmann (fzmb GmbH - Forschungszentrum für Medizintechnik und Biotechnologie, DE)

P141 **Quantification of intracellular structures as a tool for the correlation of material vs. cellular parameters**
Claudia Matschegewski, Harald Birkholz, Susanne Staehlke (University of Rostock, DE); Ronny Loeffler, Dieter Kern (University of Tübingen, DE); Konrad Engel (Universität Rostock, DE); Barbara Nebe (Universität Rostock & Biomedical Res. Center, DE)

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David Hradetzky (University of Applied Sciences Northwestern Switzerland & School of Life Sciences, CH); Dominik Messerli (Messerli & Partner GmbH, CH); Matthias Jeker, Stephan Böhringer, Erik Schkommodau (University of Applied Sciences Northwestern Switzerland, CH)

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Anna-Laura Wekerle (University Hospital Heidelberg, DE); Darko Katic (Karlsruhe Institute of Technology, DE); Hannes Kenngott (University of Heidelberg, DE); Stefanie Speidel (Karlsruhe Institute of Technology, DE); Beat Müller-Stich (University of Heidelberg, DE)

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Michael Heinlein (MEDNOVO Medical Software Solutions GmbH, DE)

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Klaus H. Fritzsche (Deutsches Krebsforschungszentrum, DE)

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Andreas Wille, Mathaeus Muzalewski, Susanne Winter (Ruhr-Universität Bochum, DE)

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Ramesh Thoranaghatte (University of Applied Sciences Northwestern Switzerland, CH); Stephan Zimmerer (University Hospital Basel, CH); Matthias Naef, Erik Schkommodau (University of Applied Sciences Northwestern Switzerland, CH)

P154 **Mechanical Properties of Pork Liver as a Model for Human Tissue**
Anne Dobat (Technische Universität Berlin, DE); Sylvia Donner (Technische Universität Berlin & Graduiertenkolleg prometei, DE); Marc Kraft (Technische Universität Berlin, DE)

P155 **Experimentelle Evaluation von Einflussfaktoren auf die Ergebnisse der Berstdruckuntersuchung am Beispiel von Schweinedickdarm**
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Tobias Hospach, Hanno Winter, Marc Kraft (Technische Universität Berlin, DE)

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Damir Pfau, Thilo Krueger, Karin H Somerlik, Rudi Mattmüller (inomed Medizintechnik GmbH Teningen, DE); Thomas Stieglitz (Universität Freiburg, DE)

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Christian Kastner (University of Rostock, Institute for Biomedical Engineering, DE); Diana Buss (Universität Rostock, DE); Uwe Völker, Georg Homuth, Jörg Mostertz (Ernst-Moritz-Arndt-Universität Greifswald, DE); Marian Löbler (Universität Rostock, DE); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE); Klaus-Peter Schmitz (Universität Rostock, DE)

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P160 **Signal Distortions In ECG Caused By Linear Digital Filtering**
Andreas Hülsmann, Peter Husar (Technische Universiät Ilmenau, DE)

P161 **Automatic detection and classification of ectopic beats in the ECG using a Support Vector Machine**
Gustavo Lenis, Tobias Baas, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

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Rico Schroeder (University of Applied Sciences Jena, DE); Caminal Pere, Vallverdu Montserrat, Helena Brunel (Biomedical Engineering Research Centre, Technical University of Catalonia Barcelona, Spain); Cygankiewicz Iwona (Institute of Cardiology, Medical University of Lodz, Poland); Rafael Vázquez García (Hospital Universitario Puerta del Mar, Spain); Antonio Bayés de Luna (Hospital Sant Pau, Spain); Andreas Voss (University of Applied Sciences Jena, DE)

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Thomas Schnupp, Mark Alexander, Christian Heinze (University of Applied Sciences Schmalkalden, DE); Leif Walther (Centre of Otorhinolaryngology, Sulzbach, DE); Martin Golz (University of Applied Sciences Schmalkalden, DE)

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Christian Heinze (University of Applied Sciences Schmalkalden, DE); Udo Trutschel (Circadian Technologies, Inc., USA); Robert Dick (SOMNOmedics GmbH, DE); Martin Golz (University of Applied Sciences Schmalkalden, DE)

P165 **Nonlinear Discriminant Analysis of the Pupillographic Sleepiness Test**
David Sommer, Thomas Schnupp (University of Applied Sciences Schmalkalden, DE); Herbert Helmle (AMTech Pupilknowlogy GmbH, DE); Udo Trutschel (Circadian Technologies, Inc., USA); Martin Golz (University of Applied Sciences Schmalkalden, DE)

P166 **Security Solutions of a Wireless Sensor Network for Health Monitoring**
Kai Becher (Fraunhofer Institut für Biomedizinische Technik, DE); Jarmo Kemppainen (Aalto University School of Science and Technology, Finland); Roman Ruff, Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

P167 **Analysis of the Heart Rate Variability for Sleep Stage Classification**
Dana Kowaltschik (Dresden University of Technology, DE); Alexander Suhrbier (Forschungszentrum Karlsruhe GmbH, DE); Niels Wessel (Humboldt University Berlin, DE); Thomas Penzel (Charité - Universitätsmedizin Berlin, DE); Hagen Malberg (Technische Universität Dresden, DE)