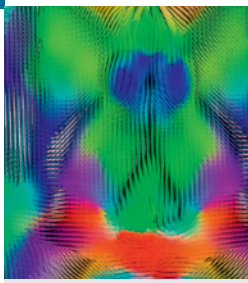
BMT – Biomedical Technology/
Biomedical Engineering

PROGRAMME



BMT 2015

49th DGBMT ANNUAL CONFERENCE
September 16-18, 2015

LÜBECK

BioMedTec Wissenschaftscampus
Universität zu Lübeck
Fachhochschule Lübeck

www.bmt2015.de

UNIVERSITÄT ZU LÜBECK

FACH HOCHSCHULE LÜBECK
University of Applied Sciences

UK SH UNIVERSITÄTSKLINIKUM Schleswig-Holstein

BioMedTec Wissenschaftscampus

Medisert

DGBMT GERMAN SOCIETY FOR BIOMEDICAL ENGINEERING WITHIN VDE

VDE

Sponsors and Exhibitors

Dräger

on campus

QUALITÄTSPLAN

ION-GAS GAS

LLS ROWIAK LaserLabSolutions

THORLABS

BioMedTec Wissenschaftscampus

RESPONSE

PreSens PRECISION SENSING

Adaptive Sensory Technolog

cor science cardiovascular innovations

CRS Clinical Research Services

Infinite Science Publishing

F.F.M. Forum für Medizintechnik e.V.

iccas UNIVERSITÄT LEIPZIG

Centifluidic Technologies

PHILIPS

VDE YoungNet

Kindly supported by

SH Schleswig-Holstein Ministerium für Wirtschaft, Arbeit, Verkehr und Technologie

LIFE SCIENCE NORD

Partner

TANDEM

Media Partner

DE G DE GRUYTER

The BioMedTec Science Campus Lübeck represents outstanding research on Biomedical Engineering, Biomedicine, and Biotechnology. The triangle of fundamental research at the University of Lübeck (UzL), application oriented research at the University of Applied Science Lübeck (FHL), and clinical research and medical application at the University Medical Center Schleswig-Holstein is complemented by the Fraunhofer Institute of Marine Biotechnology, the Fraunhofer MEVIS Research Group on Image Registration, the Leibniz Research Centre Borstel, and industrial partners at the Technology Centre Lübeck, all located on the BioMedTec Science Campus.

This alliance will be the host of the BMT 2015, the 49th annual conference of the German Society for Biomedical Engineering (DGBMT within VDE).

Research and education on medical engineering has been established in Lübeck for decades. The bachelor program on Biomedical Engineering at FHL and the bachelor and master program on Medical Engineering Science at UzL is complemented by a jointly offered international master degree course Biomedical Engineering. Further life-science oriented programs (Medical Computer Sciences, Mathematics in Medicine and Life Sciences, Molecular Life Science, Psychology and Medicine) contribute to the success of the Medical Engineering Science and Biomedical Engineering programs.

Main foci of the conference are imaging technology, image computing, and biophotonics, reflecting the main topics of the Schleswig-Holstein Competence Centre for Technology and Engineering in Medicine (TANDEM). Physicians, engineers and natural scientists are welcome to conduct an intensive dialogue on the exciting scientific achievements and to discover the best ways for translation from science to practice. Interdisciplinary communication, socializing and brainstorming are long standing traditions of these conferences.

As networking event BMT 2015 also offers the opportunity for building a BioMedTec bridge into the Baltic area.

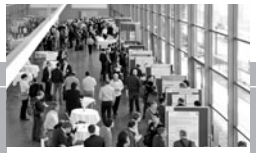
We look forward to seeing you at the BMT 2015 in Lübeck.

Prof. Dr. Thorsten M. Buzug

Director Institute of Medical Engineering, University of Lübeck;
Chair of the BMT 2015

Index

Organizers and Conference Venue



German Society for Biomedical Engineering within VDE e.V. (DGBMT)

The DGBMT promotes co-operation between scientists, engineers and physicians in the fields of research, development, application and teaching. It supports the exchange of knowledge between various disciplines of biomedical technology and seeks to accelerate the transfer of new technologies into medical application.

▸ www.vde.com/dgbmt

Universität zu Lübeck

Research and teaching at the Universität zu Lübeck started in the field of medicine, but our computer science, natural sciences, and engineering faculties today encompass much more. The common element among them is their emphasis on life sciences, also mirrored by our motto, Im Focus das Leben (Focus on Life).

We offer degree programmes in medicine, computer science, molecular life science, computational life science, and medical engineering science. We initiated a master's programme in biomedical engineering in collaboration with the University of Applied Sciences of Lübeck

The ubiquitous, intensive, interdisciplinary exchange at the university is the motor for superior, internationally outstanding, innovative and knowledge-oriented basic research marked by multifaceted applications. We strive to constantly raise the bar for the quality of our research and education and to master the challenges and opportunities of worldwide competition. We thus team-up with both national and international research institutions.

Our systematic and didactically well structured, multifaceted, research-based teaching forms the foundation of one of the best ranked universities in the German speaking world. The Centre for Development of Higher Education (CHE) ranked our faculty of medicine as the best, followed by the computer science and molecular life science faculties taking second place.

The Universität zu Lübeck is internationally distinguished for its research and the high quality of academic education.

Intensive transfer of knowledge and technology also distinguishes the Universität zu Lübeck. We ranked among the top five universities in Germany in the competition on Exchanges between Universities and Corporations. We work closely with regional and global businesses who specialise in this field, in order to optimise commercialisation of our research.

▸ www.uni-luebeck.de

Conference Organizing Committee and Programme Committee

Conference Organizing Committee

Thorsten Buzug, Lübeck (Conference Chair)
Stephan Klein, Lübeck
Hartmut Gehring, Lübeck
Erik Schkommodau, Basel
Cord Schlötelburg, Frankfurt

Programme Committee

Jörg Barkhausen, Lübeck
Henrik Botterweck, Lübeck
Martin Braecklein, München
Hartmut Dickhaus, Heidelberg
Olaf Dössel, Karlsruhe
Hartmut Gehring, Lübeck
Heinz Handels, Lübeck
Jens Haueisen, Ilmenau
Jörg Hauser, Essen
Klaus-Peter Hoffmann, St. Ingbert
Uvo Hölscher, Münster
Michael Imhoff, Dortmund
Harald Klaus, Berlin
Petra Knaup-Gregori, Heidelberg
Werner Kneist, Mainz
Werner Korb, Leipzig
Marc Kraft, Berlin
Charli Kruse, Lübeck
Wolfgang Lauer, Bonn
Thomas Lenarz, Hannover
Andreas Melzer, Dundee
Jan Modersitzki, Lübeck
Ute Morgenstern, Dresden
Jens Mühlsteff, Eindhoven
Wolfgang Niederlag, Dresden
Heinrich Martin Overhoff, Gelsenkirchen
Thomas Penzel, Berlin
Christina Rode-Schubert, Waiblingen
Steffen Rosahl, Erfurt
Frank Rothe, Berlin
Martin Ryschka, Lübeck
Gregor Schaefers, Gelsenkirchen
Thomas Schanze, Gießen
Thomas Schauer, Berlin
Georg Schmitz, Bochum
Thomas Schmitz-Rode, Aachen
Lothar Schöpe, Dortmund
Achim Schweikard, Lübeck
Olaf Simanski, Wismar
Katrin Sternberg, Rostock
Thomas Stieglitz, Freiburg
Gudrun Stockmanns, Krefeld
Jörg Subke, Gießen
Olaf Such, Best
Gerald Urban, Freiburg
Alfred Vogel, Lübeck
Hans-Jürgen Wildau, Berlin
Thomas Wittenberg, Erlangen
Walter Wrobel, Reutlingen

Opening Ceremony, Greeting and Main Speech

September 16, 2015, 18:15 – 19:50 h

18:15 h
OPENING
Prof. Dr. Thorsten M. Buzug
Director Institute of Medical Engineering, University of Lübeck;
Chair of the BMT 2015

18:25 h
GREETINGS
Prof. Prof. h.c. Dr. med. Thomas Lenarz
Chair of the DGBMT within VDE

18:35 h
GREETINGS
Bernd Saxe
Mayor of the Hanseatic City of Lübeck

18:45 h
GREETINGS
Prof. Dr. med. Dr. h.c. Hendrik Lehnert
President of University of Lübeck
and
Dr. Muriel Helbig,
President of Luebeck University of Applied Sciences

18:55 h
MAIN SPEECH:
TRANSFORMING HEALTH AND WELL-BEING
Gerrit Schick
Business Group Manager DACH,
Healthcare.Informatics.Solutions.Services
Philips GmbH Market DACH; Hamburg

19:25 h
AWARD OF THE KLEE-PRICE OF THE DGBMT
Prof. Dr. Olaf Dössel
Chairman of the Awards Committee

19:30 h
AWARD OF THE "PATIENTENSICHERHEIT IN DER MEDIZINTECHNIK" PRICE
Prof. Dr. Uvo Hölscher
Chairman of the Awards Committee

19:35 h
GREETINGS
Reinhard Meyer
Minister of Economic Affairs, Employment, Transport and Technology Schleswig-Holstein

19:50 h
GET TOGETHER

September 16, 2015, 08:30 h

KEYNOTE

Medical Image Computing

Ron Kikinis M.D.
Director of the Surgical Planning Laboratory, Department of Radiology, Brigham and Women›s Hospital, Harvard Medical School, Boston, MA

September 16, 2015, 15:30 h

KEYNOTE

Patentschutz für Innovationen im Bereich Biomedizintechnik

Cornelia Rudloff-Schäffer
President of the German Patent and Trademark Office

September 17, 2015, 08:30 h

KEYNOTE

Anforderungen an die medizinische und medizintechnische Versorgung unter Langzeitbedingungen im Weltraum

Prof. Dr. Hanns-Christian Gunga
Charité – Universitätsmedizin Berlin

September 17, 2015, 13:45 h

KEYNOTE

Solving Medical Problems with Photomedicine

Dr. Conor L. Evans
Massachusetts General Hospital
A Harvard Medical School affiliate

September 17, 2015, 20:00 h

KEYNOTE

Do we really understand what we can build?
A philosophical argument with Richard Feynman and Craig Venter about Synthetic Biology.

Prof. Dr.
Christoph Rehmann-Sutter
Institut für Medizingeschichte und Wissenschaftsforschung, Universität zu Lübeck

September 18, 2015, 08:30 h

KEYNOTE

Cocktail Parties and model-based Hearing aids: Towards a scalable binaural Hearing device

Prof. Dr. rer. nat. Dr.med.
Birger Kollmeier
Cluster of Excellence Hearing4All, Universität Oldenburg, HörTech gGmbH und Fraunhofer IDMT Projektgruppe für Hör-, Sprach- und Audiotechnologie, Oldenburg

September 18, 2015, 13:45 h

KEYNOTE

A new era for optical imaging: multispectral optoacoustic tomography (MSOT)

Prof. Vasilis Ntziachristos
Technische Universität München, Chair of Biological Imaging & Helmholtz Zentrum München, Institute of Biological and Medical Imaging

September 16, 2015, 12:45 – 13:45 h, MFC I

DGBMT members' meeting

Address
MFC I – Multifunktionszentrum
Maria-Goeppert-Str. 1, 23562 Lübeck

The technical and scientific work of the German Society for Biomedical Engineering (DGBMT) within VDE is carried out by its **technical committees and working groups.**

Here,

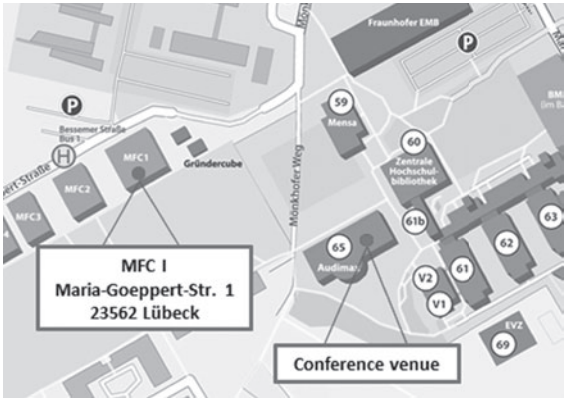
- doctors, engineers and scientists from
- hospitals, research institutes and companies

cooperate interdisciplinary and transdisciplinary. Work contents range from

- the exchange of knowledge and networking to
- planning and implementing events and
- drawing up studies and position papers.

Guests are cordially invited:
Take the opportunity to participate in an intensive technical dialogue at the meetings of the DGBMT Technical Committees taking place during the BMT 2015 in Lübeck.

The **dates** for the meetings of the technical committees are listed in the current overview in your conference documents.



September 18, 2015, 11:15 – 12:45 h
Session: "Junges Forum trifft Alte Hasen"

Während der BMT-Tagung am 18.09.2015, 11:15 - 12:45 Uhr findet eine Session »Junges Forum trifft Alte Hasen« zusammen mit dem Fachausschuss **„Aus- und Weiterbildung – Biomedizinische Technik im Studium"** zum Thema »Qualität im Wandel der Zeit« statt.

Eingeladene Gäste:

Prof. Dr. Hans-Peter Bruch
Emeritus der Klinik für Allgemeine Chirurgie, Campus Lübeck des Universitätsklinikums Schleswig-Holstein

Prof. Dr. rer. nat. Christoph Hornberger
Hochschule Wismar

Jens Jürgens
Möller-Wedel GmbH & Co. KG

Moderation:
Prof. Dr. Hartmut Gehring,
Dr.-Ing. Karsten Seidl

Eingeleitet wird die Diskussionsrunde durch kurze Impulsvorträge der Gäste, die die Sichtweise der Medizin, Wissenschaft und Industrie beleuchten.

Further Education Event for Doctors at the BMT 2015

Certification of the lecture programme of the BMT 2015 – 49th DGBMT annual conference is granted by the Medical Association of Schleswig-Holstein based on the current further training regulations of the Medical Association and the uniform assessment criteria.

According to **category B**, the conference is certified as an all-day or half-day event with parallel parts of event.

The following number of further **training points (FP)** can be awarded per day of the event:

September 16, 2015 – 6 FP
September 17, 2015 – 6 FP
September 18, 2015 – 3 FP

At the end of the respective conference day you will receive a **certificate of attendance**.

The organizer is responsible for the transmission of uniform numbers of further training for participants to the electronic information distribution list.
Participants are requested to independently register the further training points (FP) with the Medical Association of Schleswig-Holstein after the conference.

Track Title Overview

A	Biomaterials and Biocompatibility
B	Biophotonics
C	Biosensors and Bioanalytics
D	Biosignal Processing
E	Cellular, Tissue and Bioengineering
F	Clinical and Ambulatory Monitoring
G	Devices and Systems for Surgical
H	Home Health Care and AAL
I	Image Based Intervention
J	Image Processing
K	Imaging
L	Magnetic Methods in Medicine
M	Medical Information Systems, Telemedicine, eHealth, mHealth
N	Miscellaneous and Special Sessions
O	Modelling and Simulation
P	Prevention and Rehabilitation Engineering
Q	Education and Training for Engineers and Physicians
R	Prosthetics and Implants
S	Usability and Risk Management

Room: AM1

Keynote

08:30 **Medical Image Computing**
Ron Kikinis M.D., Director of the Surgical Planning Laboratory, Department of Radiology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

The presentation will provide an overview over the field of Medical Image Computing:

(1) What is Medical Image Computing (MIC)?
(2) Uses of MIC: Neuroimaging, Radiology, Interventions
(3) Technological foundations of MIC

Dr. Kikinis is the founding Director of the Surgical Planning Laboratory, Department of Radiology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, and a Professor of Radiology at Harvard Medical School. This laboratory was founded in 1990. In 2004 he was appointed Professor of Radiology at Harvard Medical School. In 2009 he was the inaugural recipient of the MICCAI Society „Enduring Impact Award". On February 24, 2010 he was appointed the Robert Greenes Distinguished Director of Biomedical Informatics in the Department of Radiology at Brigham and Women's Hospital. On January 1, 2014, he was appointed „Institutsleiter" of Fraunhofer MEVIS and Honorary Professor of Medical Image Computing at the University of Bremen.

Dr. Kikinis is the Principal Investigator of the National Alliance for Medical Image Computing (NA-MIC), a National Center for Biomedical Computing, an effort which is part of the NIH Roadmap Initiative), and of the Neuroimage Analysis Center (NAC), a Biomedical Technology Resource Center funded by (NIBIB). He is also the Director of Collaborations for the National Center for Image Guided Therapy (NCIGT), which is jointly sponsored by NIBIB. He has served and is serving as member of external advisory boards for a variety of centers and research efforts. He is the Principal Investigator of 3D Slicer, a software platform for single subject image analysis and visualization.

During the mid-80's, Dr. Kikinis developed a scientific interest in image processing algorithms and their use for extracting relevant information from medical imaging data. Since then, this topic has matured from a fairly exotic topic to a field of science. This is due to the explosive increase of both the quantity and complexity of imaging data. Dr. Kikinis has led and has participated in research in different areas of science. His activities include technological research

09:00 - 09:15 Break

Wednesday, September 16, 2015 • 08:30 - 09:00

(segmentation, registration, visualization, high performance computing), software system development, and biomedical research in a variety of biomedical specialties. The majority of his research is interdisciplinary in nature and is conducted by multidisciplinary teams. The results of his research have been reported in a variety of peer-reviewed journal articles. He is the author and co-author of more than 310 peer-reviewed articles.

Before joining Brigham & Women's Hospital in 1988, he trained as a resident in radiology at the University Hospital in Zurich, and as a researcher in computer vision at the ETH in Zurich, Switzerland. He received his M.D. degree from the University of Zurich, Switzerland, in 1982.

09:00 - 09:15 Break

Room: AM1 **Track E**

Tissue Engineering of Heart Valve Prosthesis

Chair: Birgit Glasmacher (Leibniz Universität Hannover, DE)

09:15 **A novel coaxial nozzle for in-process adjustment of electrospun scaffolds' fiber diameter**
Alexander Becker, Birgit Glasmacher, Holger Zernetsch, Marc Müller (Gottfried Wilhelm Leibniz Universität Hannover, DE)

09:30 **Processing of Membranes for Oxygenation Using the Bellhouse-Effect**
Christine Neußer, Christoph Bach, Janine Doeringer, Stefan Jockenhoevel (Institut für Textiltechnik der RWTH Aachen, DE)

09:45 **Self-Aligning Mold for Hydrogel Micro Casting**
Stefan Hanitsch, Martin Hoffmann (Technische Universität Ilmenau, DE)

10:00 **Determination of near-bottom flow conditions in a cone-and-plate system bioreactor**
Moritz Freiherr von Wrangel, Lutz Dreyer, Benjamin Krolitzki, Birgit Glasmacher (Leibniz Universität Hannover, DE)

10:15 **Inkjet printing of viable human dental follicle stem cells**
Robert Mau, Katja Kriebel, Hermann Lang, Hermann Seitz (University of Rostock, DE)

10:30 **Characterisation of native stomach tissue of swine by uniaxial tensile testing**
Michael Bauer, Hanno Müller-Deile (Leibniz Universität Hannover, DE); Tobias Schilling, Klaus Tim Kaufeld (Hannover Medical School, DE); Martin Weidling, Peter Wriggers (Leibniz Universität Hannover, DE); Axel Haverich (Medizinische Hochschule Hannover, DE); Hans Jürgen Maier, Thomas Hassel (Leibniz Universität Hannover, DE)

10:45 - 11:15 Coffee break

Wednesday, September 16, 2015 • 09:15 - 10:45

Room: AM2 **Track G**

FS: ICCAS Session on Model-guided Decision making in Surgery: Latest Research Results and Perspectives (1)

Chairs: Claire Chalopin (University of Leipzig, DE); Thomas Neumuth (ICCAS, DE)

09:15 **Workflow Management in the Operating Room**
Thomas Neumuth (Universität Leipzig, DE)

09:30 **Closed-loop approach for situation awareness of medical devices and operating room infrastructure**
Max Rockstroh (Innovation Center Computer Assisted Surgery, Universität Leipzig, DE); Stefan Franke, Thomas Neumuth (Universität Leipzig, DE)

09:45 **Towards a framework for standardized semantic workflow modeling and management in the surgical domain**
Juliane Neumann, Thomas Neumuth (Universität Leipzig, DE)

10:00 **Towards structuring contextual information for workflow-driven surgical assistance functionalities**
Stefan Franke, Thomas Neumuth (Universität Leipzig, DE)

10:15 **Computer Assisted Neurosurgery: Application of a surgical assistance system for cranial surface & cerebral ventricle navigation**
Richard Bieck (Innovation Center Computer Assisted Surgery, University of Leipzig, DE); Stefan Franke, Thomas Neumuth (Universität Leipzig, DE); Dirk Lindner (Universitätsklinikum Leipzig, DE)

10:30 **Experiences with Expert-based Probabilistic Modelling of Treatment Decisions using Bayesian Networks – with an Example of Chronic Rhinosinusitis**
Mario A. Cypko (University of Leipzig & ICCAS, DE); Matthaeus Stoehr (University Hospital of Leipzig, DE); Stefanie Schlinke, David Hirsch (University of Leipzig, DE); Susanne Modemann (International Reference and Development Centre for Surgical Technology, DE); Kerstin Denecke (University of Leipzig, DE)

10:45 - 11:15 Coffee break

Room: AM3 **Track K**

Imaging (1): MRI – Magnetic Resonance Imaging

Chairs: Martin A. Koch (University of Luebeck, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

09:15 **Influence of Pt/Ir electrode thickness on magnetic resonance imaging susceptibility artefacts**
Johannes B Erhardt (University of Freiburg, DE); Jochen Leupold (University Freiburg Medical Center, DE); Erwin Fuhrer and Oliver G. Gruschke (Universität Freiburg - IMTEK, DE); Matthias C Wapler (University of Freiburg, DE); Jürgen Hennig (University Freiburg Medical Center, DE); Jan Gerrit Korvink (Karlsruhe Institute of Technology, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

09:30 **MR-Imaging of model drug distribution in simulated vitreous**
Sandra Stein (University of Greifswald, DE); Christian Loch (Ernst-Moritz-Arndt-Universität Greifswald, DE); Sönke Langner (Universität Greifswald, DE); Stefan Hadlich (Greifswald University Hospital, DE); Oliver Stachs and Niels Grabow (Universität Rostock, DE); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE); W. Weitschies (Universität Greifswald, DE); Anne Seidlitz (Ernst-Moritz-Arndt-Universität Greifswald, DE)

09:45 **Studying the extracellular contribution to the double wave vector diffusion-weighted signal**
Patricia Ulloa (University of Lübeck, DE); Viktor Wottschel (University College London, UK); Martin A. Koch (University of Lübeck, DE)

10:00 **Analyzing the Impact of Different Path Termination Conditions in a Probabilistic Fiber Tracking Algorithm**
Schonlatis Ariyamitr (University of Lübeck, DE); Martin A. Koch (University of Luebeck, DE)

10:45 - 11:15 Coffee break

Wednesday, September 16, 2015 • 09:15 - 10:45

Room: AM4 **Track Z**

FS: Novel Developments in the Diagnosis and Treatment of Autoimmune Blistering Diseases

Chair: Enno Schmidt (Universität Lübeck, DE)

09:15 **Autoimmune blistering dermatoses**
Enno Schmidt (Universität Lübeck, DE)

09:30 **Development of specific adsorbers for therapeutic immunoapheresis in pemphigus and bullous pemphigoid**
Jana Langenhan, Michael Mersmann (Euroimmun AG, DE); Jenny Dworschak, Enno Schmidt (Universität Lübeck, DE); Christian Probst, Winfried Stöcker (Euroimmun AG, DE)

09:45 **Automated direct immunofluorescence microscopy in dermatology: EUROTide technology increases sensitivity and staining quality**
Susanne Lemcke (University of Lübeck, DE); Siegmar Sokolowski, Nicole Rieckhoff, Michael Buschtez (Euroimmun AG, DE); Antje Winter-Keil (University of Lübeck, DE); Christine Schaller, Norbert Rottmann, Winfried Stöcker (Euroimmun AG, DE); Detlef Zillikens (University of Lübeck, DE); Enno Schmidt (Universität Lübeck, DE)

10:00 **The Biochip® mosaic technology as valuable tool in the routine diagnosis of autoimmune blistering dermatoses**
Ingolf Karl (University of Luebeck & Luebeck Institute for *Experimental Dermatology, DE); Nina van Beek (University of Luebeck, DE); Kristin Rentzsch, Bianca Teegen, Christian Probst, Lars Komorowski (Euroimmun AG, DE); Michael Kasperkiewicz (University of Luebeck & Luebeck Institute for Experimental Dermatology, DE); Kai Fechner, Inga M. Dettmann (Euroimmun AG, DE); Detlef Zillikens (University of Lübeck, DE); Winfried Stöcker (Euroimmun AG, DE); Enno Schmidt (Universität Lübeck, DE)*

10:15 **Multivariant profile ELISA for sensitive and specific one-step diagnostics of autoimmune bullous dermatoses**
Cornelia Dähnrich (EUROIMMUN, DE); Nina van Beek (University of Luebeck, DE); Nora Hornig (EUROIMMUN, DE); Stephanie Goletz, Jenny Dworschak (University of Lübeck, DE); Wolfgang Schlumberger (EUROIMMUN, DE); Detlef Zillikens (University of Lübeck, DE); Enno Schmidt (Universität Lübeck, DE)

10:30 **IgE reactivity against the NC16A domain of BP180 in bullous pemphigoid: influence of total IgE serum levels**
Nina van Beek (University of Luebeck, DE); Nadine Schwemm, Franziska Schulze, Andreas Recke, Detlef Zillikens (University of Lübeck, DE); Enno Schmidt (Universität Lübeck, DE)

10:45 - 11:15 Coffee break

Room: AMS1 **Track A**

FA: Biomaterialien und medizinische Implantate: (1): Individualisierte Implantate

Chairs: Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE); Thomas Lenarz (Medizinische Hochschule Hannover, DE)

09:15 **Individualisierte Implantate: Medizinische Bedarfe und aktueller Stand**
Thomas Lenarz (Medizinische Hochschule Hannover, DE)

09:30 I**ndividualisierte Ohr-Implantate**
Omid Majdani (Hannover Medical School, DE)

09:45 **Individualisierung von Medizinischen Implantaten durch Biologisierung**
Katrin Sternberg (Aesculap AG, DE)

10:00 **Tissue Engineering of Heart Valve Prosthesis**
Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

10:15 **Neuroelektroden-Grenzflächen-Engineering mit Nanopartikeln**
Stephan Barcikowski (University of Duisburg-Essen, DE)

10:30 **Individualisierte Implantate in der Augenheilkunde**
Rolf Guthoff (Universität Rostock, DE)

10:45 - 11:15 Coffee break

Wednesday, September 16, 2015 • 09:15 - 10:45

Room: AMS2 **Track G**

Devices and Systems for Surgical Intervention (1)

Chairs: Achim Schweikard (Universität Lübeck, DE); Thomas Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

09:15 **A Single Port Robotic System for Transanal Surgery**
Sebastian Matich, Carsten Neupert, Helmut F. Schlaak, Peter Pott (Technische Universität Darmstadt, DE)

09:30 **Improving tactile sensation in laparoscopic surgery by overcoming size restrictions**
Carina Wiederer, Max Froehlich, Michael Strohmayr (Deutsches Zentrum für Luft- und Raumfahrt e. V., DE)

09:45 **Design and control of a 3-DOF hydraulic driven surgical instrument**
Timo Cuntz, Laura Comella (Fraunhofer IPA, DE)

10:00 **Evaluation of endourological tools to improve the diagnosis and therapy of ureteral tumors - from model development to clinical application**
David Wagner, Uwe-Bernd Liehr, Bertram Schmidt, Daniel Schindele, Johann Wendler, Markus Detert, Martin Schostak, Florian Bartel, Sandra Siedentopf, Anke Lux, Markus Porsch (Otto von Guericke University Magdeburg, DE)

10:15 **Frequency based Assessment of Surgical Activities**
Marianne Maktabi, Sascha Vinz, Thomas Neumuth (Universität Leipzig, DE)

10:30 **The practical benefit of an evaluation software for surgical dissection techniques**
Anna Rasche, Stefan Eick (Aesculap AG, Tuttlingen, DE); Olaf Hegemann (Aesculap AG & CO. KG, DE); Marc Kraft (Technische Universität Berlin, DE)

10:45 - 11:15 Coffee break

Room: AMS3 **Track I**

Image Based Intervention

Chairs: Jörg Barkhausen (Universitätsklinikum Schleswig-Holstein, DE); Alexander Schlaefer (Hamburg University of Technology, DE)

09:15 **A miniature guidance device for percutaneous CT-guided procedures - evaluation of an improved prototype in a swine cadaver model**
Christoph Wilkmann (RWTH Aachen University, DE); Nobutake Ito (Tokyo Medical Center, Japan); Catherine Disselhorst-Klug (RWTH Aachen University & Institute of Applied Medical Engineering, DE); Philipp Bruners (RWTH Aachen University Hospital, DE)

09:30 **Multi-segment Tracking for Bone Reconstruction in Craniomaxillofacial Surgery**
Sebastian Kallus, Igor Nova, Christoph Auer, Urs Eisenmann (University of Heidelberg, DE); Moritz Berger, Robin Seeberger (University Hospital Heidelberg, DE); Hartmut Dickhaus (University of Heidelberg, DE)

09:45 **Integrating Multimodal Information for Intraoperative Assistance in Neurosurgery**
Urs Eisenmann, Roland Metzner (University of Heidelberg, DE); Christian Rainer Wirtz (University Hospital Ulm, DE); Hartmut Dickhaus (University of Heidelberg, DE)

10:00 **Reduction of scattered radiation exposure in interventional surgery with an radiation protection cabin**
Matthias Köller (FH-Muenster, DE)

10:15 **Respiratory Motion Tracking using Microsoft's Kinect v2 Camera**
Floris Ernst, Philipp Saß (University of Lübeck, DE)

10:30 **Tracking of Liver Vessel Bifurcations in 3-D+t Ultrasound**
Sebastian Schmitt, Christian Sobotta, Heinrich M. Overhoff (Westphalian University of Applied Sciences, DE)

10:45 - 11:15 Coffee break

Room: AM1 **Track O**

Biomechanical Modeling

Chairs: Henrik Botterweck (FH Lübeck, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

11:15 **Multisegmental fusion of the lumbar spine a curse or a blessing? A MultiBodySimulation (MBS) Modeling**
Sabine Bauer, Dietrich Paulus (Universität Koblenz-Landau, DE)

11:30 **Load Distribution Between the Two Cephalic Screws in the EBA2 Intramedullary Femoral Nail**
Julia Henschel (BGU Murnau, DE); Peter Augat (Institute of Biomechanics Murnau, DE)

11:45 **Numerical analysis of the biomechanical complications accompanying the total hip replacement with NANOS-Prosthetic: bone remodelling and prosthesis migration**
Bernd-Arno Behrens, Anas Bouguecha (Leibniz Universität Hannover, DE); Stefanie Betancur Escobar (Leibniz Universitaet Hannover & Institute for Metal Forming, Metal Forming Machine, DE); Matthias Lerch, Christina Stukenborg-Colsman (Hannover Medical School, DE); Ingo Nolte, Karin Lucas (University of Veterinary Medicine Foundation Hannover, DE); Amer Almohallami (Leibniz Universität Hannover, DE)

12:00 **Simulation of varying femoral attachment sites of medial patellofemoral ligament using a musculoskeletal multi-body model**
Andreas Geier, Thomas Tischer (University Medicine Rostock, DE); Rainer Bader (Universität Rostock, DE)

12:15 **A Muscle Model for Hybrid Muscle Activation**
Christian Klauer, Maximilian Irmer (Technische Universität Berlin, DE); Thomas Schauer (Technische Universität Berlin, DE)

12:45 - 13:45 Lunch break

Room: AM2 **Track G**

FS: ICCAS Session on Model-guided Decision making in Surgery: Latest Research Results and Perspectives (2)

Chairs: Andreas Melzer (University of Dundee, UK); Thomas Neumuth (Universität Leipzig, DE)

11:15 **Temperature prediction model for bone drilling based on density distribution and in vivo validation experiments**
Arne Feldmann, Juan Anso, Brett Bell, Tom Williamson, Kate Gavaghan, Nicolas Gerber, Helene Rohrbach, Stefan Weber, Philippe Zysset (University of Bern, CH)

11:30 **A generic concept for the development of model-guided clinical decision support systems**
Kerstin Denecke, Claire Chalopin (University of Leipzig, DE)

11:45 **Model-based brain tumor segmentation in intra-operative ultrasound images**
Juan Camacho (Universität Leipzig, DE); Dirk Lindner (Universitätsklinikum Leipzig, DE); Felix Arlt, Andrea Müns, Claire Chalopin (University of Leipzig, DE)

12:00 **MRI-guided focused ultrasound: A computer-assisted theragnostic procedure**
Andreas Melzer (University of Dundee, UK)

12:45 - 13:45 Lunch break

Wednesday, September 16, 2015 • 11:15 - 12:45

Room: AM3 **Track K**

Imaging (2): MPI – Magnetic Particle Imaging

Chairs: Thorsten M. Buzug (Universität zu Lübeck, DE); Thomas Schmitz-Rode (RWTH Aachen University, DE)

11:15 **Real-valued least-squares reconstruction for magnetic particle imaging in frequency space**
Martin Hofmann (Hamburg University of Technology, DE); Martin Storath (Ecole Polytechnique Federale de Lausanne, CH); Alexander Weber (Bruker BioSpin MRI GmbH, DE); Tobias Knopp (Hamburg University of Technology, DE)

11:30 **Reusing System Matrices at different Focus Field Positions in Magnetic Particle Imaging**
Tobias Knopp, Kolja Them, Franziska Werner, Martin Hofmann (Hamburg University of Technology, DE)

11:45 **Artifacts in Field Free Line Magnetic Particle Imaging in the Presence of Inhomogeneous and Nonlinear Magnetic Fields**
Hanne Medimagh, Patrick Weissert, Gael Bringout, Klaas Bente, Matthias Weber, Ksenija Gräfe, Aileen Cordes, Thorsten M. Buzug (University of Luebeck, DE)

12:00 **The novel Berlin MPI-scanner facility**
Olaf Kosch, Frank Wiekhorst (Physikalisch-Technische Bundesanstalt, DE); Harald Kratz, Jörg Schnorr, Matthias Taupitz (Charité - Universitätsmedizin Berlin, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

12:15 **Introducing a frequency-tunable magnetic particle spectrometer**
André Behrends, Matthias Graeser, Thorsten M. Buzug (Universität zu Lübeck, DE)

12:45 - 13:45 Lunch break

Room: AM4 **Track D**

FS: New Developments in the Analysis and Modification of Central Nervous Rhythms

Chairs: Klaus Junghanns (Universität zu Lübeck, DE); Thomas Penzel (Charité - Universitätsmedizin Berlin, DE)

11:15 **Body Core Temperature assessment during sleep using a double-sensor technique**
Klaus Junghanns (University of Luebeck, DE); Jochim Koch (Drägerwerk AG & Co. KGaA, DE); Andreas Sprenger (University of Luebeck, DE)

11:30 **Sleep, Memory, and Weak Electric Stimulation**
Lisa Marshall, Sonja Binder, Ping Koo, Diana Campos-Beltran, Arne Weigenand, Thomas Martinetz (University of Luebeck, DE)

11:45 **Brain stimulation during sleep: Targeting EEG oscillations to investigate the memory function of sleep**
Matthias Mölle (Center of Brain, Behavior, Metabolism, University of Luebeck, DE)

12:00 **Transcranial direct current stimulation during sleep in patients with psychiatric disorders**
Robert Göder, Sarah Ahlich, Anna Nietzschmann, Manuel Munz (University Hospital Schleswig-Holstein, DE)

12:15 **Neurofeedback training in Clinical Application**
Maren Schütze, Klaus Junghanns (Universität zu Lübeck, DE)

12:30 **Deep Brain Stimulation in Obsessive-Compulsive Disorder: Effects and Mechanisms**
Bartosz Zurowski (University of Luebeck, DE); Christian Moll, Andreas Engel (Institute for Neurophysiology, Pathophysiology, DE); Volker Tronnier (University Hospital Schleswig-Holstein (UKSH), Campus Luebeck, DE); Till Schneider (Institute for Neurophysiology and Pathophysiology, DE)

12:45 - 13:45 Lunch break

Wednesday, September 16, 2015 • 11:15 - 12:45

Room: AMS1 **Track A**

FA: Biomaterialien und medizinische Implantate (2): Infektionsprophylaxe im Kontext mit Implantaten

Chairs: Katrin Sternberg (Aesculap AG, DE); Meike Stiesch (Medizinische Hochschule Hannover, DE)

11:15 **Prevention und Inhibition Biofilm-assoziierter Infektionen bei Dentalimplantaten**
Meike Stiesch (Medizinische Hochschule Hannover, DE)

11:30 **Antibiotisch wirksame Polymere**
Henning Menzel (Technische Universität Braunschweig, DE)

11:45 **Ionenfreisetzende, nanopartikelbeladene Implantate**
Stephan Barcikowski (University of Duisburg-Essen, DE)

12:00 **Antibakteriell wirksame Silica-Nanopartikel mit pH-responsiven Eigenschaften**
Peter Behrens (Leibniz Universität Hannover, DE)

12:15 **Beschichtung orthopädischer Implantate mit antimikrobiell wirkenden Metallen**
Rainer Bader (Universität Rostock, DE)

12:45 - 13:45 Lunch break

Room: AMS2 **Track P**

Prevention and Rehabilitation Engineering

Chairs: Martin Ryschka (Lübeck University of Applied Sciences, DE); Marc Kraft (Technische Universität Berlin, DE)

11:15 **Upper Body Game Controller for Physically Impaired Persons based on 3D Acceleration Data**
Andreas Huber, Robert Koch, Erik Haßlmeyer, Martin Rulsch, Christian Weigand, Matthias Struck, Christian Hofmann (Fraunhofer-Institut für Integrierte Schaltungen IIS, DE)

11:30 **3D-based visual physical activity assessment of children**
Sebastian Maile, Susanne Kobel (Ulm University - Medical Centre, DE); Michael Munz (Ulm University of Applied Sciences, DE); Thomas Engleder (University of Applied Sciences Ulm & Laboratory for Biomechanics, Product Development and Simulation, DE); Jürgen Steinacker (Ulm University - Medical Centre, DE); Felix Capanni (Ulm University of Applied Sciences, DE)

11:45 **A Smart Walking Aid for Visually Impaired Elderly People: Comparison of two Vibrotactile Feedback Systems**
Miguel Reyes Adame (Furtwangen University & Institute of Technical Medicine, DE); Johannes Kamperschroer (University of Applied Sciences Ravensburg-Weingarten & Institute of Applied Social and Health Research, DE); Maik Winter (Hochschule Ravensburg-Weingarten, DE); Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE)

12:00 **An electrical travel aid for visually impaired based on depth sensing and vibrotactile technology**
Jing Yu, Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE)

12:15 **BeMobil Research Cluster: Next steps for comprehensive mobile gait analysis with amputees**
Julius Thiele, Christina Schoellig, Peter Seufert, Marc Kraft (Technische Universität Berlin, DE)

12:30 **Realtime Assessment of Foot Orientation by Accelerometers and Gyroscopes**
Thomas Seel, David Graurock, Thomas Schauer (Technische Universität Berlin, DE)

12:45 - 13:45 Lunch break

Wednesday, September 16, 2015 • 11:15 - 12:45

Room: AMS3 **Track G**

FS: Enhanced Endoscopy

Chairs: Achim Schweikard (Universität Lübeck, DE); Thomas Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

11:15 **Image Based Reconstruction for Cystoscopy**
Matthias Brischwein, Thomas Wittenberg, Tobias Bergen (Fraunhofer Institute for Integrated Circuits IIS, DE)

11:30 **Stereo Reconstruction with a 3D-Endoscope**
Fatih Tanriverdi, Jörg Thiem, Dennis Schuldt (University of Applied Sciences and Arts Dortmund, DE)

11:45 **Advanced Sensing in Instruments for Minimally Invasive Surgery**
Simon Albrecht, Bastian Blase, Sebastian Schlegel (Technische Universität Berlin, DE)

12:00 **Towards New Dexterous Motorized Instruments in Laparoscopy**
Bastian Blase, Sebastian Schlegel, Simon Albrecht (Technische Universität Berlin, DE)

12:15 **Robotic Platform for Minimally Invasive Surgery**
Sebastian Schlegel, Simon Albrecht, Bastian Blase (Technische Universität Berlin, DE)

12:30 **3D-Reconstruction by Polarization Imaging in Endoscopy**
Jan Sandvoss, Arne Nowak, Thomas Wittenberg, Jürgen Ernst (Fraunhofer Institute for Integrated Circuits IIS, DE)

12:45 - 13:45 Lunch break

Room: AM1 **Track O**

Modeling Ventilation, Infusion and Flow

Chair: Knut Möller (Furtwangen University, DE)

13:45 **A Java Based Simulator with User Interface to Simulate Ventilated Patients**
Patrick Stehle (Furtwangen University, DE); Thomas Lehmann (Furtwangen University & Institute for Technical Medicine, DE); Daniel Redmond (University of Canterbury, New Zealand); Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE); Jörn Kretschmer (Furtwangen University, DE)

14:00 **Hierarchical identification in a three-parameter model of pulmonary gas exchange**
Axel Riedlinger, Jörn Kretschmer (Furtwangen University, DE); Knut Möller (Hochschule Furtwangen, DE)

14:15 **Evaluation of an algorithm to choose between competing models of respiratory mechanics**
Jörn Kretschmer, Axel Riedlinger, Knut Möller (Furtwangen University, DE)

14:30 **Numerical Simulations of Airflow in the Human Pharynx of OSAHS Patients**
Christina Kluck, Thorsten M. Buzug (Universität zu Lübeck, DE)

14:45 **Systematic assessment of physical factors causing dosing error in multi-infusion setups: theoretical modelling and experimental results**
Roland Snijder, Joris Radermacher, Maurits Konings (University Medical Center Utrecht, NL)

15:00 **Numerical simulation of low-pulsation gerotor pumps for use in the pharmaceutical industry and in biomedicine**
Vincent Klopsch, Tomas Germann, Hermann Seitz (University of Rostock, DE)

15:15 **Numerical and experimental flow analysis in centifluidic systems for rapid allergy screening tests**
Manuel Dethloff, Hermann Seitz (University of Rostock, DE); Marc Dangers, Boris Wilmes (DST Diagnostische Systeme & Technologien GmbH, DE)

15:15 - 15:30 Break

Wednesday, September 16, 2015 • 13:45 - 15:15

Room: AM2 **Track L**

Magnetic Methods in Medicine

Chairs: Jens Haueisen (Technical University Ilmenau, DE); Frank Ludwig (TU Braunschweig, DE)

13:45 **Characterizing the imaging performance of magnetic tracers by Magnetic Particle Spectroscopy in an offset field**
Daniel Schmidt, Florian Palmetshofer (Physikalisch-Technische Bundesanstalt, DE); David Heinke (Nanopet GmbH, DE); Dirk Gutkelch, Patricia Radon, Uwe Steinhoff (Physikalisch-Technische Bundesanstalt, DE)

14:00 **SPIO processing in macrophages for MPI – the breast cancer MPI-SNLB-concept**
Dominique Finas (University of Lübeck & Evangelical Hospital Bielefeld, DE); Janine Stegmann-Frehse, Benjamin Sauer, Gereon Hüttmann, Ksenija Gräfe, Achim Rody, Thorsten M. Buzug, Kerstin Lüdtke-Buzug (Universität zu Lübeck, DE)

14:15 **Recent progress on mobility-MPI (mMPI)**
Thilo Viereck, Christian Kuhlmann, Hilke Remmer, Meinhard Schilling, Frank Ludwig (TU Braunschweig, DE)

14:30 **Magnetic nanoparticle size separation analysis with temperature dependent magnetorelaxometry (TMRX)**
Christian Knopke (TU Berlin & Physikalisch-Technische Bundesanstalt, DE); Norbert Löwa (Physikalisch Technische Bundesanstalt, DE); Frank Wiekhorst, Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

14:45 **The Effects of Measurement Uncertainties on Quantitative Magnetorelaxometry Imaging of Magnetic Nanoparticles**
Peter Hömmen (Technische Universität Ilmenau, DE); Maik Liebl (Physikalisch-Technische Bundesanstalt, DE); Daniel Baumgarten (Technische Universität Ilmenau, DE)

15:00 **Direct neuronal current detection using ultra low field nuclear magnetic resonance (ULF NMR)**
Nora Hoefner, Rainer Körber, Martin Burghoff (Physikalisch-Technische Bundesanstalt, DE); Jens Haueisen (Technical University Ilmenau, DE)

15:15 - 15:30 Break

Room: AM3 **Track B**

FS: Optical Coherence Tomography, Digital Holography and Biophotonics

Chair: Gereon Hüttmann (Universität zu Lübeck, DE)

13:45 **Holoscopy: combining OCT with digital holography**
Gereon Hüttmann, Hendrik Spahr, Helge Sudkamp, Gesa Franke (University of Lübeck, DE); Dierck Hillmann (Thorlabs GmbH, DE)

14:00 **Retinal MHz-OCT with FDML-Lasers**
Jan Philip Kolb (Universität zu Lübeck, DE); Thomas Klein, Corinna L. Kufner, Wolfgang Wieser (University of Munich, DE); Robert Huber (University of Luebeck, DE)

14:15 **Imaging of aortic valve dynamics in 4D OCT**
Christian Schnabel, Anett Jannasch, Saskia Faak, Thomas Waldow, Edmund Koch (Technische Universität Dresden, DE)

14:30 **Intravascular optical coherence tomography (OCT) as an additional tool for the assessment of stent structures**
Thomas Hoffmann, Axel Boese, Sylvia Glaßer, Martin Skalej, Oliver Beuing (Otto-von Guericke University Magdeburg, DE)

14:45 **Investigating the electrical activity of cardiac tissue with complex ablation lesions using fluorescence-optical and electrical techniques**
Stefan Pollnow, Gunnar Seemann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

15:00 **IR and UV Vortex-beams for ultraprecise plasma-mediated eye surgery**
Sebastian Freidank, Norbert Linz, Alfred Vogel (Universität zu Lübeck, DE)

15:15 - 15:30 Break

Wednesday, September 16, 2015 • 13:45 - 15:15

Room: AM4 **Track H**

FS: Wearable Sensors

Chair: Christian Weigand (Fraunhofer Institute for Integrated Circuits IIS, DE)

13:45 **Football 4.0 - Increased training efficiency by using high tech**
Matthias Lochmann, Holger Eckhardt, F Bodem (University of Erlangen-Nuremberg, DE)

14:00 **Wearable computing systems for recreational and elite sports**
Bjoern M Eskofier (Friedrich-Alexander-Universität Erlangen-Nürnberg, DE)

14:15 **The ‚Leistungszentrum Elektroniksysteme (LZE)' – contents and aims of the project ‚Low Power Electronic Systems for Wearable Technologies in Sports and Fitness'**
Matthias Struck, Christian Hofmann, Nadine Lang, Christian Weigand (Fraunhofer IIS, DE)

14:30 **Ambiotex Shirt**
Klaus Bscheid (Ambiotex GmbH, DE); Christian Hofmann (Fraunhofer-Institut für Integrierte Schaltungen, DE); Thomas Claussen, Anastasija Brandt (Ambiotex GmbH, DE)

14:45 **Heart rate variability extraction based on mobile monitored, single-channel ECG data with focus on sports applications**
Nadine Lang, Daniel Tantinger, Alexander Duda, Christian Weigand, Matthias Struck (Fraunhofer Institute for Integrated Circuits, DE)

15:00 **Textile-integrated elastic Sensor for Foot Pressure Measurement**
Johannes Ziegler (Fraunhofer Institute for Silicate Research ISC, DE)

15:15 **ULPSEK - Ultra-Low-Power Sensor Evaluation Kit**
Andreas Tobola (Fraunhofer Institute for Integrated Circuits IIS & Tobola Engineering, DE); Ruslan Rybalko, Korpok Oliver, Franz Streit, Chris Espig, Christian Hofmann, Nadine Lang, Matthias Struck, Christian Weigand (Fraunhofer IIS, DE); Georg Fischer (University of Erlangen-Nuremberg, DE)

15:15 - 15:30 Break

Room: AMS1 **Track A**

Biomaterials and Biocompatibility (1)

Chairs: Jens Habermann, Timo Gemoll (University of Lübeck, DE)

13:45 **Encapsulation of an antimicrobial peptide**
Nicole Asendorf (Fachhochschule Luebeck, DE)

14:00 **In-vitro analysis of the antimicrobial properties of magnesium-coated titanium implants**
Sarah Zaatreh (University Medicine Rostock, DE); David Haffner (CAU Kiel, DE); Juliane Pasold, Bernd Kreikemeyer, Wolfram Mittelmeier, Andreas Podbielski (University Medicine Rostock, DE); Eckhard Quandt (CAU Kiel, DE); Rainer Bader (University Medicine Rostock, DE)

14:15 **Engineering of PLGA/PEG nanoparticles as a versatile platform for drug delivery**
Alexandros Repanas (Institute for Multiphase Processes, Leibniz University Hannover, DE); Varvara Karagkiozaki (Aristotle University of Thessaloniki, Greece); Dimitrios Fatouros (School of Pharmacy, Aristotle University of Thessaloniki, Greece); Stergios Logothetidis (Aristotle University of Thessaloniki, Greece); Birgit Glasmacher (Leibniz Universität Hannover, DE)

14:30 **Using an in vitro perfusion culture system to estimate the drug release behaviour of drug-eluting stents close to physiological conditions**
Andreas Rudolph (Rostock University Medical Center, DE); Niels Grabow, Klaus-Peter Schmitz (Universität Rostock, DE); Marina Hovakimyan, Thomas Eickner (Rostock University Medical Center, DE)

14:45 **Calcification detection of in-vitro calcified pericard patches with Fetuin-A**
Svenja van Geul, Anne Babler, Ulrich Steinseifer (RWTH Aachen, DE)

15:00 **Development and Characertization of Superparamagentic Coatings for new Applications in MPI**
Kerstin Lüdtke-Buzug, Inga Kuschnerus (Universität zu Lübeck, DE)

15:15 - 15:30 Break

Wednesday, September 16, 2015 • 13:45 - 15:15

Room: AMS2 **Track N**

FS: LUMEN - Luebeck Medical Engineering

Chairs: Thorsten M. Buzug, Stephan Klein (Lübeck University of Applied Sciences, DE)

13:45 **Methylene blue and copper(II) chloride as dyes to mimic R/IR ratios in pulse oxymetry**
Benjamin Weber, Marc Kösling (Luebeck University of Applied Sciences, DE); Bodo Nestler (Fachhochschule Lübeck, DE)

14:00 **Development of a measurement setup to determine the drug release through a hydrogel diffusion barrier**
Jan Krieger (Lübeck University of Applied Sciences & Medical Sensors, Devices Laboratory, DE); Christian Damiani, Stephan Klein (Luebeck University of Applied Sciences, DE)

14:15 **Wireless medical sensors – context, robustness and safety**
Christian Bollmeyer (Lübeck University of Applied Sciences & Graduate School for Computing in Medicine, Life Sciences, Universität zu Lübeck, DE); Mathias Pelka (Fachhochschule Lübeck, DE); Hartmut Gehring (University of Luebeck & Universitätsklinikum Schleswig-Holstein, DE); Horst Hellbrück (University of Applied Sciences Lübeck & CoSA Center of Excellence, DE)

14:30 **Sequences for real-time magnetic particle imaging**
Matthias Weber, Klaas Bente, Anselm von Gladiß, Matthias Graeser, Thorsten M. Buzug (Universität zu Lübeck, DE)

14:45 **Speckle-based off-axis holographic detection for non-contact photoacoustic tomography**
Christian Buj, Jens Horstmann, Michael Münter (Universität zu Lübeck, DE); Ralf Brinkmann (Medical Laser Centre Luebeck, DE)

15:00 **A machine learning approach for planning valve-sparing aortic root reconstruction**
Jannis Hagenah (University of Luebeck, DE); Michael Scharfschwerdt (Universitätsklinikum Schleswig-Holstein, DE); Alexander Schlaefer (Hamburg University of Technology, DE); Christoph Metzner (Universität zu Lübeck, DE)

15:15 **In vitro / in vivo measurements of protein dynamics at the endothelial surface layer**
Lars Kreutzburg, Vit Dolezal, Christian Hübner (Universität zu Lübeck, DE)

15:15 - 15:30 Break

Room: AMS3 **Track G**

Devices and Systems for Surgical Intervention (2)

Chairs: Achim Schweikard (Universität Lübeck, DE); Thomas Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

13:45 **A biomechatronic approach to support explantation of endoprostheses**
Hendrik Kohlhof (Universitätsklinikum Bonn, DE); Klaus Zimmermann (TU Ilmenau, DE); Uwe Marschner (Technische Universität Dresden, DE); Hartmut Witte (Technische Universität Ilmenau & Fachgebiet Biomechatronik, DE)

14:00 **Heat generation during cutting of bone**
Britta Hering, Andi Wippermann, Thilo Grove, Berend Denkena (Leibniz Universität Hannover, DE)

14:15 **A new method for determination of the deflation time of balloon catheters**
Christoph Brandt, Sarah Borowski (University of Rostock, DE); Frank Kamke (University Medical Center Rostock, DE); Klaus-Peter Schmitz, Wolfram Schmidt (Universität Rostock, DE)

14:30 **Stone/Tissue Differentiation for Holmium Laser Lithotripsy using Autofluorescence**
Birgit Lange, Ralf Brinkmann (Medical Laser Centre Luebeck, DE); Jens Cordes (Universitätsklinikum Schleswig-Holstein, DE)

14:45 **In Vitro Investigation of Percutaneous Aortic Valve Laser Resection**
Ingo Rohde (Universität zu Lübeck, DE); Ralf Brinkmann (Medical Laser Centre Luebeck, DE); Georg Lutter (Universitätsklinikum Schleswig-Holstein, DE); Dirk Theisen-Kunde (Medical Laser Centre Luebeck, DE); Dominik Brunnhuber, Alexander Engel (Universitätsklinikum Schleswig-Holstein, DE)

15:00 **Are there unmet needs of pediatric medical devices and surgical instruments?**
Ludger Tüshaus, Lutz Wünsch (University of Lübeck, DE)

15:15 - 15:30 Break

Wednesday, September 16, 2015 • 13:45 - 15:15

Room: MFC I **Track N**

Joint-Session der DGBMT & DGCH (1)

Chairs: Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE); Matthias Wilhelmi (Medizinische Hochschule Hannover, DE)

13:45 **Begrüßung**

14:00 **Einführung**
Katrin Sternberg (Aesculap AG, DE)

14:15 **Cochlear Implant**
Thomas Lenarz (Medizinische Hochschule Hannover, DE)

14:30 **Coupling Device**
Axel Haverich (Medizinische Hochschule Hannover, DE); Nicolin Heister (Corlife oHG, DE)

14:45 **Catheter-based Mechanical Circulatory Support**
Thorsten Siess (Abiomed Europe); Thomas Schmitz-Rode (RWTH Aachen University & University Hospital Aachen, DE)

15:00 **Antimikrobielle Oberflächen auf SMAMPs-Basis**
Ali Al-Ahmad (Universitätsklinikum Freiburg, DE)

15:15 - 15:30 Break

Room: AM1

Keynote

15:30 **Patentschutz für Innovationen im Bereich Biomedizintechnik**
Cornelia Rudloff-Schäffer, President of the German Patent and Trade Mark Office, DE

In 2009, Cornelia Rudloff-Schäffer, who has a law degree, became President of the German Patent and Trade Mark Office in Munich. From 2001, she held various leading positions at the office. Prior to this, Cornelia Rudloff-Schäffer was Head of Section of "Trade Mark Law, Law Against Unfair Competition" at the Federal Ministry of Justice in Bonn and Berlin. Her earlier career included spells at a legal Max Planck Institute and at the Department of Industrial Property Law of Ludwig-Maximilians-Universität in Munich.

16:00 - 16:30 Break

Room: AM1 **Track O**

Modeling in Audiology and Neurology

Chair: Jens Haueisen (Technical University Ilmenau, DE)

16:30 **Development of a model of the electrically stimulated auditory nerve**
Waldo Nogueira (Medical University Hannover, DE); Go Ashida (University of Oldenburg, DE); Richard Penninger, Andreas Buechner (Medical University of Hannover, DE)

16:45 **Simulation used for Feasibility Study of fluid-actuated Cochlear Implant Electrodes**
Silke Hügl (Hannover Medical School (MHH) & VIANNA - Institute for Audioneurotechnology, DE); Stefan Griebel, Mirna Issa, Clemens Wystup, Lena Zentner (Ilmenau University of Technology, DE); Thomas Lenarz, Omid Majdani, Thomas S. Rau (Hannover Medical School, DE)

17:00 **A Cochlea Test Rig for the Analysis of Basilar Membrane Oscillations**
Daniel Schurzig, Thomas S. Rau, Thomas Lenarz, Omid Majdani (Hannover Medical School, DE)

17:15 **Optimized stimulation protocols in transcranial current stimulation**
Sven Wagner, Simon Homölle, Martin Burger (University of Münster, DE); Carsten H. Wolters (Institute for Biomagnetism, Biosignalanalysis, DE)

17:30 **Transcranial Direct Current Stimulation Establishes Additional Functional Links in a Computational Brain Network Model**
Tim Kunze (Ilmenau University of Technology & Max Planck Institute for Human Cognitive, Brain Sciences, DE); Alexander Hunold (Ilmenau University of Technology, DE); Jens Haueisen (Technical University Ilmenau, DE); Viktor Jirsa, Andreas Spiegler (Aix-Marseille Université, FR)

17:45 **A model of K-complexes and slow oscillations of NREM sleep**
Arne Weigenand, Michael Schellenberger Costa (University of Luebeck, DE); Hong-Viet Ngo (University of Tuebingen, DE); Matthias Mölle (Center of Brain, Behavior and Metabolism, University of Luebeck, DE); Lisa Marshall, Jens Christian Claussen, Thomas Martinetz (University of Luebeck, DE)

18:15-19:50 Conference Opening • 19:50-22:00 Get Together

Room: AM2 **Track D**

Biosignal Processing (1)

Chairs: Karin Schicke (Friedrich Schiller University of Jena, DE); Thomas Schanze (Technische Hochschule Mittelhessen, DE)

16:30 **Frequency-selective analysis of spatially high-resolved neural information transfer**
Britta Pester (Jena University Hospital, DE); Lutz Leistritz (Jena University Hospital & Friedrich Schiller University Jena, DE); Herbert Witte (Friedrich Schiller University of Jena, DE)

16:45 **Seizure prediction in epilepsy: Level crossing analysis**
Vanessa Senger, Ronald Tetzlaff (Technical University of Dresden, DE)

17:00 **Detecting phase singularities and rotor center trajectories based on the Hilbert transform of intraatrial electrograms in an atrial voxel model**
Laura Anna Unger (Karlsruhe Institute of Technology, DE); Markus Rottmann (Karlsruher Institut für Technologie (KIT), DE); Gunnar Seemann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

17:15 **Spike Sorting: The overlapping spikes challenge**
Inga Sauer, Christopher Doerr, Thomas Schanze (Technische Hochschule Mittelhessen, DE)

17:30 **Improving ECG Reconstruction using Automatic Posture Recognition**
Steffen Mann (Technische Universität Berlin, DE); Julian Dierkes (TU-Berlin, DE); Reinhold Orglmeister (Technische Universität Berlin, DE)

17:45 **Separating the effect of respiration from the Heart Rate Variability for cases of constant harmonic breathing**
Michael Kircher, Gustavo Lenis, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

18:15-19:50 Conference Opening • 19:50-22:00 Get Together

Wednesday, September 16, 2015 • 16:30 - 18:00

Room: AM3 **Track K**

FS: Ultrasound

Chair: Steffen Tretbar (Fraunhofer IBMT, DE)

16:30 **US-tracked steered FUS in a respiratory ex vivo ovine liver phantom**
Jan Strehlow (Fraunhofer MEVIS, DE); Xu Xiao (University of Dundee, UK); Markus Domschke (Johann Wolfgang Goethe-Universität, DE); Michael Schwenke (Fraunhofer MEVIS, DE); Ioannis Karakitsios, Senay Mihcin (University of Dundee, UK); Julia Schwaab (Mediri GmbH, DE); Yoav Levy (InSightec Ltd., Israel); Tobias Preusser (Jacobs University of Bremen, DE); Andreas Melzer (University of Dundee, UK)

16:45 **Patient Specific Model for FUS of the Liver and other moving organs**
Tobias Preusser (Fraunhofer MEVIS, DE); Mario Bezzi (Universita Degli Studi Di Roma La Sapienza, Italy); Jürgen W Jenne (Fraunhofer MEVIS & Mediri GmbH, DE); Thomas Langø (SINTEF, Norway); Yoav Levy (InSightec Ltd., Israel); Michael Müller (IBSMM Engineering spol s. r. o., DE); Giora Sat (GE Healthcare, Israel); Christine Tanner (Computer Vision Laboratory, ETH Zurich, DE); Stephan Zangos (Johann Wolfgang Goethe University Frankfurt/ Main, DE); Matthias Günther (Fraunhofer Mevis, Bremen, DE); Andreas Melzer (University of Dundee, UK)

17:00 **Novel ultrasound research platform for biomedical applications**
Steffen Tretbar, Hans Joachim Welsch, Heinrich Fonfara, Christoph Risser, Steffen Weber, Holger J Hewener (Fraunhofer IBMT, DE)

17:15 **Optoacoustic systems and applications**
Marc Fournelle, Wolfgang Bos, Steffen Tretbar (Fraunhofer IBMT, DE)

17:30 **Motion Tracking Landmark Monitoring for HIFU**
Sven Rothlübbers (University of Bremen & MEDIRI, DE); Julia Schwaab (Mediri GmbH, DE); Matthias Günther (Fraunhofer MEVIS, Bremen, DE) Jürgen W Jenne (Fraunhofer MEVIS & Mediri GmbH, DE)

18:15-19:50 Conference Opening • 19:50-22:00 Get Together

Room: AM4 **Track R**

Prosthetics and Implants (1): Structures and Design

Chairs: Ulrich Hofmann (Uniklinik Freiburg, DE); Arndt P Schulz, MRCS (University Medical Centre Schleswig Holstein & Biomechatronics Lübeck, DE)

16:30 **Tubular Manipulators: A new concept for intracochlear positioning of an auditory prosthesis**
Thomas S. Rau (Hannover Medical School, DE); Josephine Granna (Leibniz Universität Hannover, DE); Thomas Lenarz (Medizinische Hochschule Hannover, DE); Omid Majdani (Hannover Medical School, DE); Jessica Burgner-Kahrs (Leibniz Universität Hannover, DE)

16:45 **Vascular diameter determined by Quantitative Coronary Angiography (QCA) for optimum stent implantation regime**
Wolfram Schmidt, Sammy Zreik, Blaz Mrevlje, Tim Rehders (Rostock University, DE); Christoph Brandt (University of Rostock, DE); Klaus-Peter Schmitz, Niels Grabow (Universität Rostock, DE)

17:00 **Dynamic Design of a Sensor-Actuator-System for a fully implantable Middle Ear Hearing Aid**
Martin Krause, Eric Starke, Günther Pfeifer (Technische Universität Dresden, DE); Daniel Steinert (ETH Zürich, CH); Uwe Marschner (Technische Universität Dresden, DE); Martin Koch (Universitätsklinikum Carl Gustav Carus Dresden an der TU Dresden, DE); Matthias Bornitz, Thomas Zahnert (University of Technology Dresden, DE)

17:15 **Investigation of the dynamic diameter deformation of vascular stents during fatigue testing with radial loading**
Maria Boeck (University of Rostock, DE); Frank Kamke (University Medical Center Rostock, DE); Niels Grabow, Wolfram Schmidt (University of Rostock, DE)

17:30 **Patient-specific Hip Prostheses designed by Surgeons**
Florian Coigny (University of Applied Sciences Northwestern Switzerland, CH); Adrian Todor, Horatiu Rotaru (Iuliu Hatieganu University of Medicine and Pharmacy, RO); Ralf Schumacher, Erik Schkommodau (University of Applied Sciences Northwestern Switzerland, CH)

17:45 **Retinal implants: analysis of movements in the subretinal space**
Walter-G. Wrobel, Udo Greppmaier, Sebastian Schleehauf (Retina Implant AG, DE)

Wednesday, September 16, 2015 • 16:30 - 18:00

Room: AMS1 **Track A**

Biomaterials and Biocompatibility (2)

Chairs: Timo Gemoll, Jens Habermann (University of Lübeck, DE)

16:30 **Cell adhesive finishing of implant surfaces by plasma polymerized allylamine – PPAAm**
Birgit Finke (Leibniz-Institute for Plasma Science and Technology Greifswald, DE); Henrike Rebl, Barbara Nebe, Carmen Zietz, Rainer Bader (Rostock University Medical Center, DE); Uwe Walschus, Michael Schlosser (University Greifswald, DE); Klaus-Dieter Weltmann, Martin Polak (Leibniz-Institute for Plasma Science and Technology Greifswald, DE)

16:45 **Effect of different solvents on morphology and properties of piezoelectric PVDF scaffolds for nerve regeneration**
Fedaa AL Halabi (Institute for Multiphase Processes, Leibniz University Hannover, DE); Lena Freund (Institute of Neuroanatomy, Hannover Medical School, DE); Alexandros Repanas, Peter Behrens, Sara Knigge (Institute for Multiphase Processes, Leibniz University Hannover, DE); Kirsten Haastert-Talini (Hannover Medical School, DE); Birgit Glasmacher (Leibniz Universität Hannover, DE)

17:00 **Electrophoretic deposition of ligand-free nanoparticles affects electrode impedance**
Svilen Angelov (Medizinische Hochschule Hannover, DE); Sven Koenen, Jurij Jakobi (Universität Duisburg-Essen, DE); Hans E. Heissler, Mesbah Alam, Kerstin Schwabe (Medizinische Hochschule Hannover, DE); Stephan Barcikowski (University of Duisburg-Essen, DE); Joachim Krauss (Medizinische Hochschule Hannover, DE)

17:15 **Degradation of implant surfaces described by roughness and spatial frequency analysis**
Olaf Specht, Nina Hennicke, Jan Konasch, Wolfram Schmidt, Klaus-Peter Schmitz, Niels Grabow (Universität Rostock, DE)

17:30 **Carbon Nanotube Coatings for Neural Interface Electrodes**
Niklas Burblies (Leibniz Universität Hannover, DE); Jennifer Schulze (Hannover Medical School, DE); Hans-Christoph Schwarz, Kim Dana Kreisköther (Leibniz Universität Hannover, DE); Katharina Kranz, Kirsten Wissel, Athanasia Warnecke (Hannover Medical School, DE); Peter Behrens (Leibniz Universität Hannover, DE)

17:45 **Covalent linkage of Bone morphogenetic protein (rhBMP-2) on self-assembled monolayers does not preclude leakage of a soluble species**
Herbert Jennissen (Universität Duisbur-Essen, DE); Julia Holtkamp (Universität Duisburg-Essen, DE)

18:15-19:50 Conference Opening • 19:50-22:00 Get Together

Room: AMS2 **Track N**

FS: Low Liquid Flows in Medical Technology

Chairs: Stephan Klein (Luebeck University of Applied Sciences, DE); Hermann Seitz (University of Rostock, DE)

16:30 **Calibration services for health care**
Peter Lucas (VSL B V Dutch Metrology Institute, NL); Hugo Bissig (Federal Institute of Metrology METAS, CH); Harm Petter (VSL B V Dutch Metrology Institute, NL); Elsa Batista (Portuguese Institute for Quality IPQ, PT); Florestan Ogheard (CETIAT, FR); Anders Koustrup Niemann (Danish Technological Institute DTI, Denmark); Martin Ahrens (Luebeck University of Applied Sciences & Fachhochschule Lübeck, DE)

16:45 **A portable primary standard for very low flow applications**
Hugo Bissig, Martin Tschannen, Marc de Huu (Federal Institute of Metrology METAS, CH)

17:00 **Analysis of the release kinetics of surface-bound proteins via laser-induced fluorescence**
Thomas Pollack (University of Rostock, DE); Marc Dangers (DST Diagnostische Systeme & Technologien GmbH, DE); Hermann Seitz (University of Rostock, DE)

17:15 **On-Chip-Imaging Flow Cytometry and Cell Sorting**
Thomas Henkel (Institute of Photonic Technology e.V. (IPHT), DE)

17:30 **Tomographic Particle Image Velocimetry of a water-jet for low volume harvesting of fat tissue for regenerative medicine**
Christoph Drobek, Robert Mau, Hermann Seitz (University of Rostock, DE)

17:45 **Optical methods to measure fast changing liquid micro flow**
Joerg Schroeter, Birhanu Alemayehu, Stephan Klein, Bodo Nestler (Luebeck University of Applied Sciences, DE)

18:15-19:50 Conference Opening • 19:50-22:00 Get Together

Wednesday, September 16, 2015 • 16:30 - 18:00

Room: AMS3 **Track M**

FS: Closed loop control in medical technology

Chairs: Michael Imhoff (Ruhr-University Bochum, DE); Thomas Schauer (Technische Universität Berlin, DE); Olaf Simanski (Hochschule Wismar - University of Applied Sciences: Technology, Business and Design, DE)

16:30 **Closed-loops in medical application - challenges and limitations**
Olaf Simanski (Hochschule Wismar - University of Applied Sciences: Technology, Business and Design, DE); Thomas Schauer (Technische Universität Berlin, DE); Michael Imhoff (Ruhr-University Bochum, DE); Berno J.E. Misgeld (RWTH Aachen University, DE)

16:45 **Concept of a Robotic Training System to Enhance Safety of Knee Joint Structures During Rehabilitative Strength Training**
Melanie Kolditz (RWTH Aachen University, DE); Kirsten Albracht, Alessandro Fasse (German Sports University Cologne, DE); Thivaharan Albin (RWTH Aachen University, DE); Brüggemann Gert-Peter (German Sport University Cologne, DE); Dirk Abel (RWTH Aachen University, DE)

17:00 **Modelling and Control of the pneumatic part of a CPAP-Device**
Mathias Scheel (Hoffrichter GmbH / Hochschule Wismar, DE); Andreas Berndt (Hoffrichter GmbH, DE); Olaf Simanski (Hochschule Wismar - University of Applied Sciences: Technology, Business and Design, DE)

17:15 **Artificial bi-hormonal closed-loop blood glucose control**
Thomas Schauer (Technische Universität Berlin, DE)

17:30 **Multichannel FES Parameterization for Controlling Foot Motion in Paretic Gait**
Thomas Seel, Mirjana Ruppel, Markus Valtin, Thomas Schauer (Technische Universität Berlin, DE)

17:45 **Performance Testing and Validation of PCLC**
Michael Imhoff (Ruhr-University Bochum, DE)

18:15-19:50 Conference Opening • 19:50-22:00 Get Together

Room: MFC I **Track N**

Joint-Session der DGBMT & DGCH (2)

Chairs: Ernst Klar (Universität Rostock, DE); Thomas Lenarz (Medizinische Hochschule Hannover, DE)

16:30 **Trilaterale Roundtable Diskussion zur Notwendigkeit der trilateralen Kommunikation zwischen Wissenschaft, Industrie und Klinik**

Room: AM1

Opening: Main Speech

18:55 **Transforming Health and Well-Being**
Gerrit Schick, Dipl.-Inform., Business Group Manager Healthcare.Informatics.Solutions.Services for DACH Philips – Healthcare, Hamburg, DE

Gerrit Schick, Business Group Manager Healthcare.Informatics. Solutions.Services (HISS) for DACH (Germany, Austria and Switzerland), holds a masters degree in Computer Science from Stuttgart University in Germany. After assignments in the United States from 2001 to 2006, Mr. Schick is located in Hamburg, Germany since 2007, at the "Philips DACH" market headquarters.

Mr. Schick held various positions in Information Technology, Engineering, Marketing, Customer Services, and Sales over the past 19 years. Most of his career he spent in the healthcare businesses of Hewlett-Packard and Philips Electronics. Mr. Schick held various functions in which he was responsible for both, the definition of strategic initiatives, as well as the implementation of business development and operational improvement Programs.

On July 1st 2015, Mr. Schick started in his current role as Business Group Leader DACH for Healthcare informatics solutions and services, a fairly new Business Group within Philips, launched in 2014. The HISS organization addresses opportunities arising from rapid changes in the healthcare industry and the increasing importance of technologies such as mobile devices, the Cloud, social media, big data and the Internet of Things.

18:15 - 19:50 Conference Opening • 19:50-22:00 Get Together

Room: AM1

Keynote

08:30 **Anforderungen an die medizinische und medizintechnische Versorgung unter Langzeitbedingungen im Weltraum**
Prof. Dr. Hanns-Christian Gunga, Charité – Universitätsmedizin Berlin, DE

Professor Hanns-Christian Gunga studied geology and palaeontology at the Westphalian Wilhelm University in Münster and then medicine in Münster and at the Freie Universität Berlin (FU Berlin). He joined the FU Berlin in 1987 as assistant in the applied physiology group at the Department of Physiology, headed by Prof. Dr. Karl Kirsch, became assistant lecturer in 1992 and finished his habilitation at FU Berlin in 1997.

In 2004, he became Full Professor at Charité - Universitätsmedizin Berlin, at the Department of Physiology, headed by him since 2015. The research of Hanns-Christian Gunga is focussed on space medicine, on blood, cardiovascular and renal physiology as well as on comparative physiology in extreme environments. Since 2000, he is speaker of the Center for Space Medicine and Extreme Environments Berlin (www.charite-in-space.de).

09:00 - 09:15 Break

Room: AM1 **Track O**

Cardio-Vascular Modeling (1)

Chairs: Henrik Botterweck (FH Lübeck, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

09:15 **Contracting silicone ventricles and an anatomical aorta in an anatomical mock heart circulation loop**
So-Hyun Jansen-Park, Indra Müller, Daniel Miesel, Jens von den Berken, Moritz Lommel, Simon Sonntag (Institute of Applied Medical Engineering, Helmholtz Institute, RWTH Aachen, DE); Ulrich Steinseifer (RWTH Aachen University, DE)

09:30 **Mathematical, numerical and in-vitro investigation of cooling performance of an intra-carotid catheter for selective brain hypothermia**
Julia Wolfertz (Acandis GmbH, DE); Stephan Meckel (University Hospital Freiburg, DE); Andreas Guber (KIT - Karlsruher Institut für Technologie, DE); Giorgio FM Cattaneo (Acandis GmbH & Co. KG, DE)

09:45 **Lagrangian approach for simulation of thrombus formation in a stented vessel**
Michael Stiehm (University of Rostock, DE); Daniel Quosdorf (Technische Universität München, DE); Alfred Leder, Niels Grabow, Klaus-Peter Schmitz (University of Rostock, DE)

10:00 **3D-printed Kidney Model Based on Medical Imaging Data**
Fabian Adams (Max Planck Institute for Intelligent Systems & Uni Medical Centre Freiburg, DE); Tian Qiu (Max Planck Institute for Intelligent Systems & Institute of Bioengineering, EPFL, DE); Bram Stieltjes (University Medical Centre Basel, DE); Arkadiusz Miernik, Ulrich Wetterauer (University Medical Centre Freiburg, DE); Peer Fischer (Max Planck Institute for Intelligent Systems & Universität Stuttgart, DE)

10:15 **Method of fundamental solutions in the inverse problem of ECG**
Danila Potyagaylo, Walther H W Schulze, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

10:30 **An ideally parameterized unscented Kalman filter for the inverse problem of electrocardiography**
Christian Ritter, Walther H. W. Schulze, Danila Potyagaylo, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

10:45 - 11:15 Coffee break

Thursday, September 17, 2015 • 09:15 - 10:45

Room: AM2 **Track D**

FS: Medical and Therapeutic Needs with Adapted Signal Processing Solutions

Chairs: Thomas Felderhoff (Dortmund University of Applied Sciences and Arts, DE); Gerhard Staude (University FAF Munich, DE)

09:15 **Pulse wave analysis in clinical and scientific practice: State of the art and possible future scenario**
Niklas Müller (Medical University of Vienna, Austria); Joachim Streis (GfG Gesellschaft für Gerätebau, DE); Stefan Reuter, Hermann Pavenstädt (Westfälische Wilhelms Universität Münster, DE); Thomas Felderhoff (Dortmund University of Applied Sciences and Arts, DE); Veit Busch (Jakob Henle Haus, DE)

09:30 **Determination of Arterial Pulse Wave Characteristics: The Limitations of Numerical Differentiation**
Michael Wulf (University of Applied Sciences and Arts Dortmund, DE); Gerhard Staude (University FAF Munich, DE); Andreas Knopp (Munich University of the Bundeswehr, DE); Thomas Felderhoff (Dortmund University of Applied Sciences and Arts, DE)

09:45 **Obstructive impact of a cannula on blood flow in the Vena Cava during VV-ECMO application**
Markus Bongert, Marius Geller (Fachhochschule Dortmund, DE); Justus Strauch, Dirk Buchwald (Universitätsklinikum Bergmannsheil Bochum, DE); Ulf Aschenbrenner (Universitätsklinikum Dresden, DE)

10:00 **Spatial Analysis of Hemoglobin Concentration with Hyperspectral Imaging Techniques**
Jörg Thiem, Heiko Schroeder, Dennis Schuldt (University of Applied Sciences and Arts, Dortmund, DE)

10:15 **The use of motion analysis technology to evaluate the individual functional benefit in transfemoral prosthetics**
Ann-Kathrin Hömme, Burkhard Drerup, Bernd Sibbel, Stefan Bieringer (Bundesfachschule für Orthopädie Technik, DE)

10:30 **Quaternion-based Estimation of a Person‘s Head Posture and Movement Using Inertial and Magnetic Sensors**
Puian Tadayon, Thomas Felderhoff (Dortmund University of Applied Sciences and Arts, DE); Andreas Knopp (Munich University of the Bundeswehr, DE); Gerhard Staude (University FAF Munich, DE)

10:45 - 11:15 Coffee break

Room: AM3 **Track K**

Imaging (3): Opt Optical Imaging

Chairs: Edmund Koch (Technische Universität Dresden, DE); Thomas Schmitz-Rode (RWTH Aachen University, DE)

09:15 **Simple concept for a wide-field lensless digital holographic microscope using a laser diode**
Adamou Adinda-Ougba (Ruhr-University Bochum, DE); Nektarios Koukourakis (TU Dresden, DE); Nils Gerhardt, Martin Hofmann (Ruhr-University Bochum, DE)

09:30 **Evaluation Of Drug Distribution In Polymer-Based Local Drug Delivery Systems By Means Of Raman Microscopy**
Thomas Reske (Universität Rostock, DE); Thomas Eickner (University of Rostock, DE); Rudolf Guthoff (Universität Rostock, DE)

09:45 **Intraoperative Identification of somato-sensory brain areas using Optical Imaging and standard RGB camera equipment - a feasibility study**
Martin Oelschlägel, Tobias Meyer (Technische Universität Dresden, Institut für Biomedizinische Technik, DE); Stephan Sobottka, Matthias Kirsch, Gabriele Schackert (Universitätsklinikum Carl Gustav Carus Dresden, Klinik und Poliklinik für Neurochirurgie, DE); Ute Morgenstern (Technische Universität Dresden, Institut für Biomedizinische Technik, DE)

10:00 **Contrast-enhanced imaging of magnetically labeled cells using magnetomotive optical coherence tomography**
Peter Cimalla, Theresa Werner, Kai Winkler, Claudia Müller (Technische Universität Dresden, DE); Sebastian Wicht (IFW Dresden, DE); Maria Gaertner (Technische Universität Dresden, DE); Mirko Mehner (University of Technology Dresden & Medical Faculty, DE); Julia Walther (University of Technology Dresden, DE); Bernd Rellinghaus (IFW Dresden, DE); Dierk Wittig (University of Technology Dresden, DE); Mike O. Karl (German Center for Neurodegenerative Diseases (DZNE) & TU Dresden, Center for Regenerative Therapies Dresden (CTRD), DE); Marius Ader (Center for Regenerative Therapies Dresden, DE); Richard Funk (University of Technology Dresden, DE); Michael Brand (CRTD Dresden University of Technology, DE); Edmund Koch (Technische Universität Dresden, DE)

Continue Track K next page

10:45 - 11:15 Coffee break

Thursday, September 17, 2015 • 09:15 - 10:45

Continue Track K

10:15 **Image formation in intravital microscopy studies of lung tissue and its impact on quantification results**
Maria Gaertner (Technische Universität Dresden, DE); Kerstin Schirrmann (Charité - Universitätsmedizin Berlin, DE); Christian Schnabel, Sven Meissner (Technische Universität Dresden, DE); Ulrich Kertzscher (Charité - Universitätsmedizin Berlin, DE); Lars Kirsten, Edmund Koch (Technische Universität Dresden, DE)

10:30 **Respiratory surface motion measurement by Microsoft Kinect: implementation and evaluation of a clinical setup**
Jonas Ortmüller (University Medical Center Hamburg-Eppendorf & Universität zu Lübeck, DE); Tobias Gauer (University Medical Center Hamburg-Eppendorf, DE); Matthias Wilms, Heinz Handels (University of Lübeck, DE); René Werner (University Medical Center Hamburg-Eppendorf, DE)

10:45 - 11:15 Coffee break

Room: AM4 **Track R**

Prosthetics and Implants (2): Materials

Chairs: Ulrich Hofmann (Uniklinik Freiburg, DE); Arndt P Schulz, MRCS (University Medical Centre Schleswig Holstein & Biomechatronics Lübeck, DE)

09:15 **Accelerated Active Implant Degradation in Proteinated Artificial Body Fluids**
Friederike Benjamin, Felix Riedel, Nina Sendler (Medical School Hannover, DE); Gerhard Pohlmann, Clemens Dasenbrock (Fraunhofer-Institut für Toxikologie und Experimentelle Medizin, DE); Thomas Lenarz (Medizinische Hochschule Hannover, DE); Birgit Glasmacher (Leibniz Universität Hannover, DE); Theodor Doll (Medizinische Hochschule Hannover, DE)

09:30 **Deposition of bioactive and bioinert ceramic coatings on magnesium using detonation**
Oleksandr Gryshkov (Leibniz Universität Hannover, DE); Nikolai Klyui, Volodymyr Temchenko (National Academy of Sciences of Ukraine, UA); Birgit Glasmacher (Leibniz Universität Hannover, DE)

09:45 **Electrospun vascular grafts with anti-kinking properties**
Michael Bode (Institute for Multiphase Processes & Leibniz Universitaet Hannover, DE); Marc Müller (Gottfried Wilhelm Leibniz Universität Hannover, DE); Holger Zernetsch, Birgit Glasmacher (Leibniz Universität Hannover, DE)

10:00 **Anterior cruciate ligament prosthesis using a fiber composite approach**
Florian Eggert, Daniel Kaltbeitzel (RWTH Aachen University, DE); Miguel Pishnamaz (University Hospital RWTH Aachen, DE); Christian Hopmann (RWTH Aachen University, DE); Hans-Christoph Pape (Orthopaedic Trauma Department, University Hospital Aachen, DE); Thomas Gries (RWTH Aachen University, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

10:15 **Integration of temperature sensors in polyimide-based thin-film electrode arrays**
Maria Porto Cruz (University of Freiburg & Laboratory for Biomedical Microtechnology, DE); Eva Fiedler (University of Freiburg, DE); Oscar Cota (Laboratory for Biomedical Microtechnology - University of Freiburg - IMTEK, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

10:30 **Absorbable poly(L-lactide) stent structure for regenerative percutaneous heart valve replacement – Mechanical feasibility in vitro**
Niels Grabow, Sylvia Pfensig, Christoph Brandt, Daniela Arbeiter, Frank Luderer, Klaus-Peter Schmitz (Universität Rostock, DE)

10:45 - 11:15 Coffee break

Thursday, September 17, 2015 • 09:15 - 10:45

Room: AMS1 **Track C**

Nano- and Physikalisch-chemische Systeme

Chair: Gerald Urban (University of Freiburg, DE); Kerstin Lüdtke-Buzug (University of Lübeck, DE)

09:15 **Energy Harvesting for Active Implants: Powering a Ruminal pH-Monitoring System**
Rene Machts (TU Ilmenau, DE); Thomas Reuter (fzmb GmbH - Forschungszentrum für Medizintechnik und Biotechnologie, DE); Petra Prokop, Olga Schewtschenko (fzmb GmbH, DE); Mike Stubenrauch, Cornelius Schilling (Ilmenau University of Technology, DE); Hartmut Witte (Technische Universität Ilmenau & Fachgebiet Biomechatronik, DE)

09:30 **High sensitive and fast magnetic characterization of magnetic nanoparticles in liquid flow**
Norbert Löwa, Frank Wiekhorst, Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

09:45 **New type of fluxgate magnetometer for the heart's magnetic fields detection**
Ruslan Rybalko (Fraunhofer-Institute for Integrated Circuits, DE); Jens Haueisen (Technical University Ilmenau, DE); Christian Hofmann (Fraunhofer-Institut für Integrierte Schaltungen, DE)

10:00 **Field mapping of ballistic pressure pulse sources**
Abtin Jamshidi Rad, Friedrich K.W. Ueberle (University of Applied Sciences, Hamburg, DE)

10:15 **Noise properties of textile, capacitive EEG electrodes**
Sara Nazari Asl, Frank Ludwig, Meinhard Schilling (TU Braunschweig, DE)

10:45 - 11:15 Coffee break

Room: AMS2 **Track M**

FS: Biomedical Engineering Meets Medical Informatics: Systematic Informationmanagement for a Better Health Care

Chair: Petra Knaup (Universität Heidelberg, DE)

09:15 **Managing the Data Exchange Between a Service-Oriented Medical Device Architecture and Hospital Information Systems**
Josef Ingenerf, Björn Andersen (Universität zu Lübeck, DE)

09:30 **Systematic Management of Pharmaceuticals in Hospitals and Social Care: The Cooperative Project iMediMan**
René Hempel, Holger Zipper (ifak e. V. Magdeburg, DE)

09:45 **Systematic Planning of Mobile Applications for Palliative Care Patients**
Petra Knaup (Universität Heidelberg, DE); Miriam Spies, Matthias Ganzinger (University of Heidelberg, DE)

10:00 **Telehealth: Remote Patient Management based on systematic information management**
Martin Braecklein (DGBMT Fachausschuss Mobile Diagnose- und Therapiesysteme - mHealth & Linde Healthcare, DE)

10:45 - 11:15 Coffee break

Thursday, September 17, 2015 • 09:15 - 10:45

Room: AMS3 **Track D**

FS: Signal Artifact Handling in Clinical Applications

Chair: Jens Muehlsteff (Philips Research, NL)

09:15 **Robust signal processing - the importance from a medical perspective**
Michael Imhoff (Ruhr-University Bochum, DE); Roland Fried (Technical University Dortmund, DE)

09:30 **Detection of a spontaneous pulse by photoplethysmography during experimental automated cardiopulmonary resuscitation**
Ralph Wijshoff (Philips Research & Eindhoven University of Technology, NL); Wouter Peeters (Philips Research, NL); Gerrit Jan Noordergraaf (St. Elisabeth Hospital, Tilburg, NL); Massimo Mischi (Eindhoven University of Technology, NL); Ronald Aarts (Eindhoven University of Technology and Philips Research, NL)

09:45 **Pulse reliability analysis in ambulatory measurement settings**
Maik Pflugradt (TU Berlin, DE); Reinhold Orglmeister (Technische Universität Berlin, DE)

10:00 **Turning failure into virtue - Motion artifact based classification of motion and posture in magnetic induction measurements**
Daniel Teichmann (RWTH Aachen University, DE); Andreas Kuhn (Euro Engineering AG, Karlsruhe, DE); Steffen Leonhardt, Marian Walter (RWTH Aachen, DE)

10:15 **Metal Artifact Reduction by Projection Replacements and Non-local Prior Image Integration**
Maik Stille, Thorsten M. Buzug (University of Lübeck, DE)

10:30 **Patient monitoring on general wards – Needs, challenges and opportunities for monitoring respiration rate**
Lars Schmitt, Jens Muehlsteff (Philips Research, NL)

10:45 **Control charts for biosignals based on robust two-sample tests**
Sermad Abbas, R. Fried (TU Dortmund University, DE)

10:45 - 11:15 Coffee break

Room: AM2 **Track A**

Poster Presentation: Biomaterials and Biocompatibility

PA.01
11:15 **Isolation and Characterization of Oat Spelt Arabinoxylan**
Ann-Katrin Lehmann (Fachhochschule Luebeck, DE)

PA.02
11:19 **Wear simulator study of total knee replacement with different load scenarios derived from telemetric in vivo data**
Rebecca Dammer (University Medicine Rostock, DE); Carmen Zietz, Henry Dempwolf, Mario Jackszis (University of Rostock, DE); Enrico Mick (Department of Orthopaedics, University Medicine Rostock, DE); Rainer Bader (Universität Rostock, DE)

PA.03
11:23 **Structural and biochemical characterization of the exopolysaccharide of Staphylococcus epidermidis 1457**
Christian Grünewald (University of Applied Science Lübeck, DE)

PA.04
11:27 **Additive Manufacturing of magnesium-based biodegradable implants**
Matthias Gieseke (Laser Zentrum Hannover e. V., DE); Julia Matena (TiHo Hannover, DE); Andreas Kampmann (Medizinische Hochschule Hannover, DE); Michael Grau, Laura Roland (TiHo Hannover, DE); Andreas Grunewald, Christian Nölke, Stefan Kaierle (Laser Zentrum Hannover e. V., DE); Hans Jürgen Maier (Leibniz Universität Hannover, DE); Hugo Murua Escobar (Universität Rostock, DE); Ingo Nolte (Tierärztliche Hochschule Hannover, DE); Nils-Claudius Gellrich (Medizinische Hochschule Hannover, DE); Heinz Haferkamp (Leibniz Universität Hannover & Laser Zentrum Hannover e. V., DE)

PA.05
11:31 **Investigations on fracture behaviour of dental restoratives and tooth material under impact load**
Mareike Warkentin, Janine Stark, Olaf Specht, Valerie-Sophie Polster, Detlef Behrend, Heinrich von Schwanewede (Universität Rostock, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

PA.06
11:35 **Fabrication of electrospun microfibers for cardiovascular tissue engineering**
Alexandros Repanas (Institute for Multiphase Processes, Leibniz University Hannover, DE); Dimosthenis Mavrilas (University of Patras, DE); Willem Wolkers, Marc Müller, Birgit Glasmacher (Institute for Multiphase Processes, Leibniz University Hannover, DE)

PA.07
11:39 **Coaxial electrospinning as a technology to fabricate scaffolds for sustained delivery of hydrophilic drugs**
Alexandros Repanas, Fedaa AL Halabi, Marc Müller, Birgit Glasmacher (Institute for Multiphase Processes, Leibniz University Hannover, DE)

PA.08
11:43 **The differentiation of human monocytes into osteoclasts is upregulated after phagocytosis of metallic and ceramic wear particles**
Jana Markhoff, Juliane Pasold (University Medicine Rostock, DE); Jenny Tillmann (University of Rostock, DE); Rainer Bader (University Medicine Rostock, DE)

PA.09
11:47 **Comparison of MgF2-coated and uncoated MgNd2 alloys in contact with nasal mucosal tissue - in vivo approach**
Martin Durisin (Medical University of Hannover, DE); Constantin Weber (Medical University Hannover, DE); Janin Reifenrath (University of Veterinary Medicine Hannover, DE); Jan-Marten Seitz, Rainer Eifler, Hans Jürgen Maier (Leibniz University Hannover, DE); Thomas Lenarz (Medizinische Hochschule Hannover, DE)

PA.10
11:51 **Low-Temperature Extrusion of Equal Channel Angular Pressed Ti6Al4V**
Maciej Krystian (AIT Austrian Institute of Technology GmbH, Austria); Kai Ullenbaum (Märkisches Werk GmbH, DE); Bernhard Mingler, Manfred Bammer (AIT Austrian Institute of Technology GmbH, Austria)

PA.11
11:55 **Improved lubricity of biomedical implants with a biocompatible hyaluronic acid-based coating: in vitro investigation of coating parameters, morphology and friction forces**
Sebastian Kaule, Sebastian Helm, Svea Petersen, Klaus-Peter Schmitz, Niels Grabow (University of Rostock, DE)

12:45 - 13:45 Lunch break

PA.12
11:59 **The influence of mechanical stress on drug release from PLLA/PDLLA implant coatings**
Daniela Arbeiter, Thomas Eickner, Thomas Reske, Monique Tzschoppe, Niels Grabow (University of Rostock, DE)

PA.13
12:03 **Multifunctional Hydroxyapatite-Composites for Biomedical Applications**
Nina Ehlert, Richard Hinterding (Leibniz Universität Hannover, DE)

PA.14
12:07 **Elastic textile structures for novel vascular prostheses**
Klas-Moritz Kossel, Tim Bolle (Institut für Textiltechnik der RWTH Aachen University, DE); Florian Eggert, Thomas Gries (RWTH Aachen University, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

PA.15
12:11 **Synthesis of Superparamagnetic Iron Oxide Nanoparticles under Ultrasound Control**
Christina Debbeler, Kerstin Lüdtke-Buzug (Universität zu Lübeck, DE)

PA.16
12:15 **In-vitro Stability of Hybrid Deep Brain Stimulation (DBS) Probe**
Danesh Ashouri Vajari (University of Freiburg, DE)

PA.17
12:19 **The development of an experimental setup to measure acousto-electric interaction signal**
Kristin Inga Gunnlaugsdottir (Reykjavik University, Iceland)

PA.18
12:23 **Stability Analysis of Ferrofluids**
Kerstin Lüdtke-Buzug, Katharina Duda (Universität zu Lübeck, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

Room: AM2 **Track C**

Poster Presentation: Biosensors and Bioanalytics

PC.01
12:27 **Rapid-prototyped Microswimmers for Navigation in Bodily Fluids**
Tian Qiu (Max Planck Institute for Intelligent Systems & Institute of Bioengineering, EPFL, DE); Stefano Palagi (Max Planck Institute for Intelligent Systems, DE); Debora Walker, Peer Fischer (Max Planck Institute for Intelligent Systems & Universität Stuttgart, DE)

Room: AM2 **Track Q**

Poster Presentation:
Education and Training for Engineers and Physicians

PQ.01
12:31 **An interactive app for training and qualification in differentiating blood cells**
Sebastian Krappe, Yesim Sahin, Thomas Bindl, Thomas Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE); Christian Münzenmayer (Fraunhofer IIS, DE)

12:45 - 13:45 Lunch break

Room: AM3 **Track D**

Poster Presentation: Biosignal Processing

PD.01
11:15 **Automated Classification of Stages of Anaesthesia by Populations of Evolutionary optimized Fuzzy Rules**
Christian Walther (University of Applied Sciences Schmalkalden & Fraunhofer IOSB, Advanced System Technology, DE); Andreas Wenzel (Fraunhofer IOSB-AST, DE); Manuel Schneider, Maria Trommer (University of Applied Sciences Schmalkalden, DE); Klaus-Peter Sturm (Hospital of Schmalkalden, DE); Uwe Jaeger (Medical Practice of Steinbach-Hallenberg, DE)

PD.02
11:19 **Effects of Sampling Rate on Automated Fatigue Recognition in Surface EMG Signals**
Lorenz Kahl, Marcus Eger (Drägerwerk AG & Co. KGaA, DE); Ulrich Hofmann (Uniklinik Freiburg, DE)

PD.03
11:23 **Prominent Feature Extraction for Brain Computer Interface**
Basant Agarwal (Swami Kesvanand Institute of Technology Jaipur, India)

PD.04
11:27 **Separating goal-oriented from artefactual movement related signals in mobile EEG during soccer penalty shooting**
Tino Schmidt, Dietmar Henrich (Brandenburg University of Technology, DE)

PD.05
11:31 **Scanning Electrical Impedance on the Palm of the Hand**
Johannes Port (University of Stuttgart, DE); Christoph Joppek (Universität Stuttgart, DE); Joachim H. Nagel (University of Stuttgart, DE)

PD.06
11:35 **i-VITAL - Assistance System to Motorcyclists for Health Monitoring and Accident Detection**
Schmitz Björn (Fraunhofer Institute for Integrated Circuits IIS, DE); Andreas Tobola (Fraunhofer Institute for Integrated Circuits IIS & Tobola Engineering, DE); Rafael Maestre (Centre of Furniture, Wood of the Region of Murcia, Spain); Christian Hofmann (Fraunhofer-Institut für Integrierte Schaltungen, DE); Andrés Lorenzo Bleda (Technologic Centre of Furniture and Wood of the Region of Murcia, Spain); Christian Weigand, Andreas Huber, Ruslan Rybalko (Fraunhofer-Institute for Integrated Circuits IIS, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

PD.07
11:39 **Closed-Loop Transcranial Alternating Current Stimulation of Slow Oscillations**
Christian Wilde, Ralf Bruder, Sonja Binder, Lisa Marshall (University of Luebeck, DE); Achim Schweikard (Universität Lübeck, DE)

PD.08
11:43 **Cardiac index in atrio- and interventricular delay optimized cardiac resynchronization therapy and cardiac contractility modulation**
Jonas Tumampos (University of Applied Sciences Offenburg, DE); Matthias Heinke (University of Applied Sciences Offenburg & Department of Electrical Engineering and Information Technology, DE); Norbert Wulf (Impulse Dynamics GmbH, DE); Olaf Solbrig, Jürgen Querengässer (Medis GmbH Ilmenau, DE); Helmut Kühnert (University of Jena, DE)

PD.09
11:47 **The role of expert evaluation for microsleep detection**
Martin Golz, Adolf Schenka, David Sommer (University of Applied Sciences Schmalkalden, DE); Britta Geissler, Axel Muttray (Johannes Gutenberg University of Mainz, DE)

PD.10
11:51 **The impact of baseline wander removal techniques on the ST segment in simulated ischemic 12-lead ECGs**
Nicolas Pilia (Karlsruhe Institute of Technology (KIT) & Institute of Biomedical Engineering, DE); Gustavo Lenis, Axel Loewe, Walther H W Schulze, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

Room: AM3 **Track E**

Poster Presentation: Cellular, Tissue and Bioengineering

PE.01
11:55 **Effect of electric field on tumor cell growth**
Lilia Hafner, Martin Brischwein, Bernhard Wolf (Technische Universität München, DE)

PE.02
11:59 **The use of an ice-binding-protein out of the snowflea Hypogastrura harveyi as a cryoprotectant in the cryopreservation of mesenchymal stem cells**
Marlene Vierthaler (Westfaelische Wilhelms Universitaet Muenster, DE); Nicola Hofmann (Leibniz Universitaet Hannover & Institute for Multiphase Processes, DE); Thomas Reinard, Birgit Glasmacher (Leibniz Universität Hannover, DE)

12:45 - 13:45 Lunch break

PE.03

12:03 **Introduction of a novel in vitro system for electrical stimulation of bacteria**
Thomas Dauben (University Medicine Rostock, DE); Josefin Ziebart, Rainer Bader (University of Rostock, DE); Bernd Kreikemeyer (University Medicine Rostock, DE)

PE.04

12:07 **Fabrication and characterization of two-layered electrospun vascular grafts with varying pore sizes and fiber diameters**
Stefanie Borchert (Institute for Multiphase Processes, Leibniz University Hannover, DE); Marc Müller (Gottfried Wilhelm Leibniz Universität Hannover, DE); Birgit Glasmacher (Leibniz Universität Hannover, DE)

PE.05

12:11 **Influence of antioxidant N-Acetylcysteine on radical oxygen species (ROS) resistance and endothelial cells' morphology in the establishment of an endothelialized membrane oxygenator**
Tobias Plein, Nicole Finocchiaro (RWTH Aachen University, DE); Christian Cornelissen (Helmoholtz Institute for Biomedical Engineering, RWTH Aachen, DE)

PE.06

12:15 **New NIR spectroscopy based method to determine ischemia in vivo in liver - a first study on rats**
Matthias Lange (fzmb GmbH, DE); Stephanie Liebold (FZMB Bad Langensalza, DE); Chunyi Kan, Uta Dahmen (University Hospital Jena, DE)

PE.07

12:19 **Electromagnetic stimulation of human osteoblasts result in an enhanced cell viability and osteogenic differentiation**
Bettina Hiemer, Josefin Ziebart, Anika Jonitz-Heincke, Philipp Grunert, Yukun Su (University Medicine Rostock, DE); Doris Hansmann, Rainer Bader (University of Rostock, DE)

PE.08

12:23 **Establishment of a novel in vitro system for electric stimulation of human osteoblasts**
Josefin Ziebart, Thomas Dauben, Yukun Su, Anika Jonitz-Heincke (University Medicine Rostock, DE); Volker Weißmann (An-Institute of University of Wismar, DE); Bernd Kreikemeyer (University Medicine Rostock, DE); Barbara Nebe (Universität Rostock & Biomedical Res. Center, DE); Rainer Bader (Universität Rostock, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

Room: AM3 **Track P**

Poster Presentation: Prevention and Rehabilitation Engineering

PP.01

12:27 **Use of hyperpolarizing pre-pulses to reduce the current density requirements during transcutaneous electrical stimulation**
José Luis Vargas Luna (Reykjavik University & Tecnológico de Monterrey, Iceland); Jorge Cortés Ramírez (Tecnológico de Monterrey, Mexico); Thordur Helgason (Landspitali - University Hospital, Iceland)

PP.02

12:31 **Powered Active Knee-Ankle-Foot-Orthosis**
Juergen Hielscher, Roman Müller, Thorsten Meiss, Andreas Horn (Technische Universität Darmstadt, DE); Julia Block, Stefan van Drongelen (Heidelberg University Clinics, DE); Ulrich Konigorski, Helmut F. Schlaak, Peter Pott, Roland Werthschützky (Technische Universität Darmstadt, DE)

PP.03

12:35 **Impact of Electrode Geometry on Force Generation during Functional Electrical Stimulation**
Jan Loitz, Aljoscha Reinert, Dietmar Schroeder, Wolfgang Krautschneider (Hamburg University of Technology, DE)

PP.04

12:39 **A system for live feedback on body postures to improve ergonomy in manufacturing processes**
Patrick Frenzel, Franz Mätzold, Mirco Fuchs, Gerold Bausch (HTWK Leipzig, University of Applied Sciences, DE)

Room: AM4 **Track F**

Poster Presentation: New developments in monitoring

PF.01

11:15 **Methods to reduce the light scattering for spectral analysis of blood components**
Felix Fiedler, Christian Stark, Stefan Mueller (Luebeck University of Applied Sciences, DE)

PF.02

11:19 **Evaluation of a multi-wavelength NIR system to determine lactate in human plasma**
Christian Stark, Felix Fiedler, Stefan Mueller (Luebeck University of Applied Sciences, DE)

PF.03

11:23 **Development of a new homecare sleep monitor using body sounds and motion tracking**
Christoph Kalkbrenner, Manuel Eichenlaub (University of Applied Sciences Ulm, DE); Rainer Brucher (Hochschule Ulm, DE)

12:45 - 13:45 Lunch break

PF.04

11:27 **Implementation of a Graphical User Interface (GUI) for patient-individualized, semi-automated PEEP-titration in injured lungs: a study in mechanically ventilated pigs**
Sara Lozano-Zahonero, Sarah Bühler, Hanna Runck, Steffen Wirth, Christin Wenzel, Marlene Mahn (University Medical Center Freiburg, DE); Stefan Schumann (University Medical Center of Freiburg, DE)

PF.05

11:31 **Assessment of local lung inhomogeneity via electrical impedance tomography (EIT)**
Sarah Bühler, Krishen Ray, Sara Lozano-Zahonero (University Medical Center Freiburg, DE); Hanna Runck (Universitätsklinikum Freiburg, DE); Christin Wenzel, Marlene Mahn, Steffen Wirth, Stefan Schumann (University Medical Center of Freiburg, DE)

PF.06

11:35 **Development of a cuvette for an optical measurement setup to determine the concentration of blood components**
Felix Fiedler, Christian Stark, Nikolai Schmidt, Stefan Mueller (Luebeck University of Applied Sciences, DE)

PF.07

11:39 **Adopting oculopressure tonometry as a transient in vivo rabbit glaucoma model**
Thomas Stahnke (Rostock University Medical Center & Institute for Biomedical Engineering, DE); Stefan Siewert (Universität Rostock, DE); Eleonore Walther (Rostock University Medical Center, DE); Wolfram Schmidt, Oliver Stachs, Klaus-Peter Schmitz, Rudolf Guthoff (Universität Rostock, DE)

PF.08

11:43 **Scattering and its influencing parameters at the measurement of hemoglobin derivatives in non-hemolyzed human blood**
Benjamin Redmer (University of Applied Sciences Luebeck, DE); Bodo Nestler (Fachhochschule Lübeck, DE)

PF.09

11:47 **Prototypical Implementation of a Novel Tagging System for Safe Localization of Devices in Medical Environments**
Kutaiba Saleh, Rudi Jäger, Danny Ammon, Martin Specht, Andreas Henkel (Jena University Hospital, DE); Daniel Laqua, Peter Husar, Mike Wolf, Kurt Gerd Blau, Sher Ali Cheema, Martin Haardt (Technische Universität Ilmenau, DE); Joerg Pospiech (AVT GmbH, DE); Vincenz Busch, Thorsten Linnert (CE-SYS Engineering GmbH, DE); Michael Nass (CE-LAB GmbH, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

PF.10

11:51 **Next-generation vision testing: the quick CSF**
Michael Dorr, Manuel Wille, Tiberiu Viulet, Edward Sanchez, Peter Bex, Zhong-Lin Lu, Luis Lesmes (Adaptive Sensory Technology, USA)

Room: AM4 **Track G**

Poster Presentation:
Devices and Systems for Surgical Intervention

PG.01

11:55 **„Hands free for intervention", a new approach for transoral endoscopic surgery**
Axel Boese, Markus Detert (Otto-von-Guericke University Magdeburg, DE); Christian Stibbe, Michael Thiele (InKraft GmbH, Magdeburg, DE); Christoph Arens (Otto-von-Guericke-University, Magdeburg, DE)

PG.02

11:59 **New antimicrobial surfaces - Studies for activity and durability**
Sebastian Buhl (Ostbayerische Technische Hochschule Amberg-Weiden, DE); Josef Guggenbichler (Amistec GmbH&CoKG, Austria); Clemens Bulitta (Ostbayerische Technische Hochschule (OTH), DE)

PG.03

12:03 **Impact of floor-mounted versus ceiling-mounted angiography system installation on the laminar air flow in the hybrid OR**
Simon Woppert, Sebastian Buhl, Franz Magerl, Benjamin Russwurm, Clemens Bulitta (Ostbayerische Technische Hochschule (OTH), DE)

PG.04

12:07 **Bionic Exoskeleton for Orthopaedic Surgery - Kinematic Structure**
Markus Hessinger, Roman Müller, Peter Pott, Roland Werthschützky (Technische Universität Darmstadt, DE)

PG.05

12:11 **Pseudo-Haptic Feedback in Medical Teleoperation**
Carsten Neupert, Sebastian Matich, Peter Pott, Christian Hatzfeld, Roland Werthschützky (Technische Universität Darmstadt, DE)

PG.06

12:15 **Haptic User Interface for a Telerobotic Surgery System**
Carsten Neupert, Sebastian Matich, Peter Pott, Roland Werthschützky (Technische Universität Darmstadt, DE)

12:45 - 13:45 Lunch break

PG.07
12:19 **Development of a novel medical guide wire with a force sensing tip**
Nataliya Stefanova (Technische Universität Darmstadt, DE)

PG.08
12:23 **Feasibility of interactive gesture control of a robotic microscope**
Sven-Thomas Antoni, Christian Sonnenburg, Thore Saathoff, Alexander Schlaefer (Hamburg University of Technology, DE)

PG.09
12:27 **Endoscopic Electrospray: Enabling minimal invasive gene therapy**
David Hradetzky, Stephan Böhringer (University of Applied Sciences Northwestern Switzerland, CH); Paulius Ruzgys, Thomas Geiser, Amiq Gazdhar (University Hospital Bern, CH)

PG.10
12:31 **Characteristic curves of normothermic kidney machine perfusion**
Florian Tetschke, Marian Gransow (TU Dresden, DE); Wenke Markgraf (Universitätsklinikum Dresden, DE); Susanne Koch (TU Dresden, DE); Ulf Aschenbrenner (Universitätsklinikum Dresden, DE); Martin Janssen (Universitätsklinikum des Saarlandes, DE); Christine Thiele, Hagen Malberg (Technische Universität Dresden, DE)

PG.11
12:35 **Accuracy assessment of an electromagnetic navigation approach in orthognathic surgery**
Igor Nova, Sebastian Kallus, Christoph Auer, Urs Eisenmann (University of Heidelberg, DE); Moritz Berger, Robin Seeberger (University Hospital Heidelberg, DE); Hartmut Dickhaus (University of Heidelberg, DE)

PG.12
12:39 **New minimally invasive epicardial pacemaker lead implantation technique utilizing an innovative steerable catheter system**
Marco Bartosch, Heiner Peters, Boris Schmitt, Felix Berger, Björn Peters (Deutsches Herzzentrum Berlin, DE)

PG.13
12:43 **Is it action painting or an operation? An in-vitro study to quantify the contamination of the surgeon during orthopaedic procedures**
Robert Wendlandt, Maria Thomas (University Medical Center Schleswig-Holstein, DE); Benjamin Kienast (BG Trauma Hospital Hamburg, DE); Arndt P Schulz, MRCS (University Medical Centre Schleswig Holstein & Biomechatronics Lübeck, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

Room: AMS1 **Track I**

Poster Presentation: Image Based Intervention

PI.01
11:15 **Evaluation of the human corneal subbasal nerve plexus using surface parallel femtosecond laser cut corneal tissue**
Bhavani Kowtharapu (Institut für Biomedizinische Technik & University of Rostock, DE); Marina Hovakimyan (Rostock University Medical Center, DE); Fabian Will, Heiko Richter (Rowiak LaserLabSolutions GmbH, DE); Andreas Wree, Rudolf Guthoff (Universität Rostock, DE)

PI.02
11:19 **Using Smart Glasses for Ultrasound Diagnostics**
Stefan Maas, Marvin Ingler, Heinrich M. Overhoff (Westphalian University of Applied Sciences, DE)

PI.03
11:23 **Design of a novel individualized stereotactic frame for minimally invasive Cochlear Implant Surgery**
Omid Majdani (Hannover Medical School, DE)

PI.04
11:27 **A novel individualized stereotactic frame for minimally invasive Cochlear Implant Surgery**
Omid Majdani, Samuel John (Hannover Medical School, DE); Jan-Philipp Kobler (Leibniz Universität Hannover, DE); Jakob Lexow (Hannover Medical School, DE); Johannes Gaa, Samuel Müller (Leibniz University Hannover, DE); Lüder A. Kahrs, Tobias Ortmaier (Leibniz Universität Hannover, DE); Thomas Lenarz (Medizinische Hochschule Hannover, DE); Thomas S. Rau (Hannover Medical School, DE)

PI.05
11:31 **Measurement of Needle Susceptibility Artifacts in Magnetic Resonance Images**
Sebastian Schmitt (Westphalian University of Applied Sciences, DE); Katharina Skopnik (MR:comp GmbH, DE); Heinrich M. Overhoff (Westphalian University of Applied Sciences, DE)

PI.06
11:35 **Using Optical Coherence Tomography for Experimental Visualisation of decalcified petrous bone**
Saleh Mohebbi (TUMS & MHH, DE); Jesus Díaz Díaz (Leibniz Universität Hannover, DE); Marjan Mirsalehi (Tehran University of Medical Sciences & Hannover Medical School, DE); Lüder A. Kahrs, Tobias Ortmaier (Leibniz Universität Hannover, DE); Thomas Lenarz (Hannover Medical school, DE); Thomas S. Rau, Omid Majdani (Hannover Medical School, DE)

12:45 - 13:45 Lunch break

Room: AMS1 **Track J**

Poster Presentation: Image Processing

PJ.01
11:39 **Development and implementation of algorithms for automatic and robust measurement of the 2D:4D digit ratio using image data**
Robert Koch, Erik Haßlmeyer, Daniel Tantinger, Martin Rulsch, Christian Weigand, Matthias Struck (Fraunhofer Institute for Integrated Circuits IIS, DE)

PJ.02
11:43 **Automated high-throughput analysis of B cell spreading on immobilized antibodies with whole slide image data**
Veit Wiesmann (Fraunhofer Institute for Integrated Circuits IIS, DE); Dorothea Reimer (Friedrich-Alexander University Erlangen-Nuremberg, DE); Daniela Franz (Fraunhofer IIS & University of Erlangen-Nueremberg, DE); Hanna Hüttmayer (Fraunhofer Institute for Integrated Circuits IIS, DE); Dirk Mielenz (Friedrich-Alexander University Erlangen-Nuremberg, DE); Thomas Wittenberg (Fraunhofer Institute for Integrated Circuits IIS, DE)

PJ.03
11:47 **Tissue Segmentation from Head MRI: A Ground Truth Validation for Feature-Enhanced Tracking**
Tobias Wissel, Patrick Stüber, Benjamin Wagner (University of Luebeck, DE); Achim Schweikard (Universität Lübeck, DE); Floris Ernst (University of Lübeck, DE)

PJ.04
11:51 **Comparison of different algorithms for automated detection and tracking of fluorescence-labeled subviral particles**
Dennis Müller, Thomas Schanze (Technische Hochschule Mittelhessen, DE)

PJ.05
11:55 **Video tracking of swimming rodents on a reflective water surface**
Olaf Christ (Albert-Ludwigs-University, DE); Ulrich Hofmann (Uniklinik Freiburg, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

Room: AMS1 **Track K**

Poster Presentation: Imaging

PK.01
11:59 **Novel Flexible X-ray Waveguides**
Christian Wendt, Jörn Wochnowski (Fachhochschule Luebeck, DE); Bjoern Schmekel (Harvard University, DE)

PK.02
12:03 **Verification of phantom materials and comparison with simulations based on literature data**
Jochen Schmid, Natalie Bauer, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

PK.03
12:07 **Doppler optical coherence tomography imaging of the human tympanic membrane and its potential for the diagnosis of middle ear pathologies**
Lars Kirsten, Simon Baumgärtner, Anke Burkhardt, Jonas Golde, Julia Walther, Thomas Stoppe, Max Kemper, Matthias Bornitz, Thomas Zahnert, Edmund Koch (Technische Universität Dresden, DE)

PK.04
12:11 **GPU-based Real-Time Generation of Large Ultrasound Volumes from Freehand 3D Sweeps**
Philipp Jauer (University of Lübeck, DE); Franziska Hainer (University Hospital Schleswig-Holstein, DE); Floris Ernst (University of Lübeck, DE)

PK.05
12:15 **Optical coherence tomography (OCT) aids paediatric burn assessment**
Vasileios Vasileiadis (University of Lübeck, DE); Lutz Wünsch (University of Lübeck, DE)

PK.06
12:19 **O2, pH or CO2 Imaging Using Optical Chemical Sensors for Online Monitoring of Metabolic Activity**
Gregor Liebsch, Andreas Tegel, Thomas Gareis (PreSens GmbH, DE)

PK.07
12:23 **Experimental computer tomograph - Investigation and implementation of iterative reconstruction techniques and modern computer technology**
David Heinemann, Andreas Keller, Dunja Jannek (Ilmenau University of Technology, DE)

12:45 - 13:45 Lunch break

Room: AMS1 **Track L**

Poster Presentation: Magnetic Methods in Medicine

PL.01
12:27 **Intracellular heating of magnetoliposomes in pancreatic tumor cells**
Ulrich M Engelmann (RWTH Aachen University, DE); Anjali Röth (RWTH Aachen University Hospital, DE); Martin Baumann, Thomas Schmitz-Rode (RWTH Aachen University, DE); Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE); Ioana Slabu (RWTH Aachen University, DE)

PL.02
12:31 **Real-time quantification of magnetic nanoparticles in a flow phantom for magnetic targeting experiments using magnetic particle spectroscopy**
Patricia Radon, Norbert Löwa, Frank Wiekhorst, Dirk Gutkelch, Lutz Trahms (Physikalisch-Technische Bundesanstalt, DE)

PL.03
12:35 **X-space MPI (1D) using atomic magnetometry**
Victor Lebedev, Simone Colombo, Vladimir Dolgovskiy, Zoran Grujic, Antoine Weis (University of Fribourg, CH)

PL.04
12:39 **Contribution of Brownian Rotation and Particle Assembly Polarisation to the Particle Response in Magnetic Particle Spectrometry**
Anselm von Gladiß, Matthias Graeser, Kerstin Lüdtke-Buzug, Thorsten M. Buzug (University of Lübeck, DE)

PL.05
12:43 **Preliminary investigations of magnetic modulated nanoparticles for microwave breast cancer detection**
Sebastian Ley, Marko Helbig, Jürgen Sachs (Ilmenau University of Technology, DE)

PL.06
12:47 **Construction of a Device for Magnetic Separation of Superparamagnetic Iron Oxide Nanoparticles (SPIONs)**
Kerstin Lüdtke-Buzug, Kerstin Kläser, Matthias Graeser (University of Lübeck, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

Room: AMS2 **Track M**

Poster Presentation: eHealth, mHealth and Telemedicine

PM.01
11:15 **A Concept for Linking Biological Models with Clinical Data for Decision Support**
Kerstin Denecke (Universität Leipzig, DE)

PM.02
11:19 **Smart Diabetic Insole - Towards home feet health monitoring in order to prevent diabetic foot ulcer**
Jens Grützner, Thorsten Szczepanski (ifak System GmbH, DE); Juliane Kellersmann, Jan Malanowski, Silke Klose, Peter Mertens (Otto-von-Guericke-University Magdeburg, DE)

PM.03
11:23 **Telemedical concept for a nationwide malaria indication using the example of Cameroon**
Simon Hofmann, Carlos Fonseca, Claudius Noeh, Dupleix Takoulegha Fouellefack, Susanne Tran (Technische Hochschule Mittelhessen, DE); Keywan Sohrabi (Technische Hochschule Mittelhessen – University of Applied Sciences, DE)

PM.04
11:27 **An IHE-conform telecooperation platform supporting the treatment of dementia patients**
Kutaiba Saleh (Jena University Hospital, DE); Danny Ammon, Steffen Lehnert, Sebastian Roehr, Vesselin Detschew (Technische Universität Ilmenau, DE); Martin Specht, Andreas Henkel (Jena University Hospital, DE); André Kaeding (GMC Systems mbH, DE)

PM.05
11:31 **Domestic Longterm Monitoring of COPD-Patients via Mobile Devices**
Andreas Haller, Sebastian Schuerg, Florian Schudt (Technische Hochschule Mittelhessen – University of Applied Sciences, DE); Ljudmila Mursina (Technische Hochschule Mittelhessen, DE); Andreas Koczulla (Philipps-University Marburg, DE); Volker Gross, Keywan Sohrabi (Technische Hochschule Mittelhessen, DE)

PM.06
11:35 **An Open Web Interface Based Interoperability Systems Platform for Live Point of Care Surgical Applications**
Jörg-Uwe Meyer (University of Luebeck, DE)

12:45 - 13:45 Lunch break

PM.07

11:39 **Kinect Based Physiotherapy System for Home Use**
Dominik Haas, Somphong Phommahavong (Furtwangen University, DE); Jing Yu (Furtwangen University & Institute of Technical Medicine (ITeM), DE); Sabine Krüger-Ziolek , Knut Möller, Jörn Kretschmer (Furtwangen University, DE)

PM.08

11:43 **Evaluating the Microsoft Kinect Skeleton Joint Tracking as a Tool for Home-Based Physiotherapy**
Somphong Phommahavong, Dominik Haas (Furtwangen University, DE); Jing Yu (Furtwangen University & Institute of Technical Medicine (ITeM), DE); Sabine Krüger-Ziolek , Knut Möller, Jörn Kretschmer (Furtwangen University, DE)

Room: AMS2 **Track N**

Poster Presentation: Miscellaneous

PN.01

11:47 **Influence of short-term fixation with mixed formalin or ethanol solution on the mechanical properties of human cortical bone**
Enrico Mick (University Medicine Rostock, DE); Hanno Steinke, Thomas Wolfskämpf (University of Leipzig, DE); Jan Wieding (University of Rostock, DE); Niels Hammer (University of Leipzig, DE); Marko Schulze (University Medicine Rostock, DE); Robert Souffrant, Rainer Bader (University of Rostock, DE)

PN.02

11:51 **Advanced short-pulsed high-field electromagnetic dipoles for laser-based proton therapy**
Michael Schürer (OncoRay - National Center for Radiation Research in Oncology, Dresden, DE); Thomas Herrmannsdörfer (Helmholtz-Zentrum Dresden - Rossendorf, DE); Leonhard Karsch (OncoRay - National Center for Radiation Research in Oncology, Dresden, DE); Florian Kroll (Helmholtz-Zentrum Dresden - Rossendorf, DE); Umar Masood, Jörg Pawelke (OncoRay - National Center for Radiation Research in Oncology, Dresden, DE)

PN.03

11:55 **Beyond Science: The commercialization of a good idea**
Eckard Glaser (Corscience GmbH & Co. KG, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

PN.04

11:59 **A non-invasive technique for the determination of temperature changes using optoacoustics and optical coherence tomography**
Meike Lawin (University of Luebeck & Medical Laser Center Luebeck GmbH, DE); Alexander Baade (University of Luebeck, DE); Kerstin Schlott (Institute for Biomedical Optics, DE); Ralf Brinkmann (Medical Laser Centre Luebeck, DE)

PN.05

12:03 **QRS and QT ventricular conduction times and permanent pacemaker therapy after transcatheter aortic valve implantation**
Pierre Christian Takam (University of Applied Sciences Offenburg, DE); Dietmar Höfflin (Universitätsherzzentrum Freiburg-Bad Krozingen, DE); Matthias Heinke (University of Applied Sciences Offenburg & Department of Electrical Engineering, Information Technology, DE)

PN.06

12:07 **Different ECG Lead I Placement for Daily Heart Monitoring**
Aulia Iskandar (Julius-Maximilians-Universität Würzburg, DE); Wolfram Voelker (Unversitaetsiklinikum Wuerzburg, DE); Klaus Schilling (University of Würzburg, DE)

PN.07

12:11 **Development of nanoparticle formulations for ultrasound triggered drug delivery to tumour tissue**
Alexander Grebner (University of Erlangen-Nuremberg, DE)

Room: AMS2 **Track O**

Poster Presentation: Modeling

PO.01

12:15 **Biomechanical parameter determination of scaffold-free cartilage constructs (SFCCs) with the hyperelastic material models Yeoh, Ogden and Demiray**
Thomas Reuter, Igor Ponomarev (fzmb GmbH - Forschungszentrum für Medizintechnik und Biotechnologie, DE)

PO.02

12:19 **Quasi-static hyperelastic parameter identification of the passive human biceps in vivo**
Christof Clemen, Andreas Schmidt, Christophe Then, Günther Benderoth, Gerhard Silber (Frankfurt University of Applied Sciences, DE)

12:45 - 13:45 Lunch break

PO.03
12:23 **Method for the determination of Euler-Cauchy stresses in tensile tests of semi-crystalline thermoplastic polymers**
Kerstin Schuemann,Udo Röhr ,Heiner Martin, Klaus-Peter Schmitz, Niels Grabow (University of Rostock, DE)

PO.04
12:27 **Patient based tissue attenuation curves simulated at a perfusion phantom**
Sebastian Gugel, Pascal Mier (Otto-von-Guericke-University Magdeburg, DE); Georg Rose (OVGU, DE)

PO.05
12:31 **FPGA controlled artificial vascular system**
Daniel Laqua (Technische Universität Ilmenau & Institute for Biomedical Engineering, Informatics, DE); Carina Brieskorn, Jan Hannes Koch, Markus Rothmayer, Steve Zeiske, Marcel Böttrich, Sebastian Ley, Peter Husar (Technische Universiät Ilmenau, DE)

PO.06
12:35 **Simulation based investigation of source-detector configurations for non-invasive fetal pulse oximetry**
Marcel Böttrich, Sebastian Ley, Peter Husar (Technische Universiät Ilmenau, DE)

PO.07
12:39 **Test setup for characterizing the efficacy of embolic protection devices**
Jörn-Bo Matthies, Anja Kurzhals (Universitätsmedizin Rostock - Institut für Biomedizinische Technik, DE); Wolfram Schmidt (Universität Rostock, DE); Reimer Andresen (Institut f. Diagnostische u. Interventionelle Radiologie / Neuroradiologie Heide, DE); Klaus-Peter Schmitz, Niels Grabow (Universität Rostock, DE)

PO.08
12:43 **Limits and abilities of a fluorescence lifetime based approach to separate two fluorescent layers**
Matthias Klemm (Technical University Ilmenau, DE); Dietrich Schweitzer (University of Jena, DE); Jens Haueisen (Technical University Ilmenau, DE)

PO.09
12:47 **An approach to model the catheter deformation in virtual cardiac anatomies for simulation of intraatrial electrogram recordings**
Tobias Oesterlein (Karlsruher Institut für Technologie (KIT), DE); Daniel Frisch (Institut für Biomedizinische Technik (IBT) & Karlsruher Institut für Technologie (KIT), DE); Armin Luik, Claus Schmitt (Städtisches Klinikum Karlsruhe, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

Room: AMS3 **Track N**

Poster Presentation:
FS: LUMEN - Luebeck Medical Engineering

PN.08
11:15 **Quantification of contrast agent transport in a porous scaffold using µ-CT**
Tobias F. Klepsch, Mathias R Steffner, Henrik Botterweck (Lübeck University of Applied Sciences, DE)

PN.09
11:19 **An In-Ear Pulse Wave Velocity Measurement System Using Heart Sounds as Time Reference**
Roman Kusche (Lübeck University of Applied Sciences & Laboratory of Medical Electronics, DE); Paula Klimach (Lübeck University of Applied Sciences, DE); Ankit Malhotra (University of Lübeck, DE); Steffen Kaufmann, Martin Ryschka (Lübeck University of Applied Sciences, DE)

PN.10
11:23 **Measuring different oxygenation levels in a blood perfusion model simulating the human head using NIRS - Preliminary results of model evaluation measurements**
Klaas Rackebrandt (University of Lübeck, DE); Hartmut Gehring (University of Luebeck & Universitätsklinikum Schleswig-Holstein, DE)

Room: AMS3 **Track R**

Poster Presentation: Prosthetics and Implants

PR.01
11:27 **MRI-induced heating of pacemaker electrodes – toward a realistic in vitro test model**
Marco Bartosch, Heiner Peters, Cornelius Klas, Christian Rackwitz, Boris Schmitt, Felix Berger, Björn Peters (Deutsches Herzzentrum Berlin, DE)

PR.02
11:31 **Smartphone supported upper limb prosthesis**
Dominik Hepp, Jan Kirsch, Felix Capanni (Ulm University of Applied Sciences, DE)

PR.03
11:35 **Use of quantitative tremor evaluation to enhance target selection during deep brain stimulation surgery for essential tremor**
Ashesh Shah (University of Applied Sciences, Arts Northwestern Switzerland, CH); Jérôme Coste, Jean-Jacques Lemaire (CHU Clermont-Ferrand, Hôpital Gabriel Montpied, Clermont-Ferrand, FR); Erik Schkommodau, Simone Hemm-Ode (University of Applied Sciences Northwestern Switzerland & School of Life Sciences, CH)

12:45 - 13:45 Lunch break

PR.04

11:39 **Deformation of thin-film platinum induced by electrical stimulation**
Juan S. Ordonez, Linda Rudmann, Paul Cvancara, Christian Bentler, Thomas Stieglitz (University of Freiburg, DE)

PR.05

11:43 **Evaluation of adhesion promoters for Parylene C on gold metallization**
Victoria Radun (Natural and Medical Sciences Institute (NMI), DE); Rene P. von Metzen (NMI Natural and Medical Sciences Institute, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE); Volker Bucher (Hochschule Furtwangen University, DE); Alfred Stett (NMI Naturwissenschaftliches und Medizinisches Institut, DE)

PR.06

11:47 **Material removal mechanisms of new zirconia-based materials for medical applications**
Andi Wippermann, Britta Hering, Thito Grove, Lukas Gottwik, Berend Denkena, Tim Göttsching (Leibniz Universität Hannover, DE)

PR.07

11:51 **Investigations for Wafer-level Integration of Thin Glass for Waveguides in Long-Term Stable Implants**
Marie Alt (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

PR.08

11:55 **Heat treatment of photoresist to fabricate customized microlenses for implantable hermetic micropackages**
Linda Rudmann, Sebastian Huber, Juan S. Ordonez (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

PR.09

11:59 **Analysis of Mechanical Properties of Braided Self-Expandable Airway Stents**
Kathrin Kurtenbach (RWTH Aachen University & Institut für Textiltechnik, DE); Florian Eggert, Thomas Gries (RWTH Aachen University, DE); Stefan Jockenhoevel (RWTH Aachen & Helmholtz Institute for Biomedical Engineering, DE)

PR.10

12:03 **PDMS-based Laser-structured Optical Waveguides for Neural Probe**
Eva Fiedler, Frank Rehberger (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

12:45 - 13:45 Lunch break

Thursday, September 17, 2015 • 11:15 - 12:45

PR.11

12:07 **Surface morphology of commercial and novel experimental glaucoma drainage devices**
Stefan Siewert, Yasin Yassin, Wolfram Schmidt, Thomas Stahnke (Universität Rostock, DE); Reto Allemann (Augenarzt FMH & FEBO, Zufikon, CH, DE); Rudolf Guthoff (Universität Rostock & Universitätsaugenklinik Rostock, DE); Klaus-Peter Schmitz (Universität Rostock, DE)

PR.12

12:11 **Concept of a bidirectional high channel count neural implant electronics using off-the-shelf components**
Christian Bentler, Tobias Volk (University of Freiburg, DE); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

PR.13

12:15 **Process development for picosecond laser fabricated nerve electrode arrays for intrafascicular implantation**
Matthias Mueller (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE); Miguel A Ulloa (CorTec GmbH, DE)

PR.14

12:19 **Non-hermetic implant encapsulation based on epoxy**
Fabian Boeser, Juan S. Ordonez, Martin Schuettler (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE); Dennis Plachta (Laboratory for Biomedical Microtechnology University of Freiburg - IMTEK, DE)

PR.15

12:23 **The influence of metallic ions from CoCr28Mo6 on the osteogenic differentiation and cytokine release of human osteoblasts**
Anika Jonitz-Heincke (University Medicine Rostock, DE); Mark Schröder, Doris Hansmann (University of Rostock, DE); Sandra Utzschneider (Ludwig Maximilian University, Grosshadern Medical Center Munich, DE); Jan Philippe Kretzer (University of Heidelberg, DE); Rainer Bader (Universität Rostock, DE)

PR.16

12:27 **In-vivo investigation on the improvement of thin-film metallization adhesion in neural electrodes**
Paul Cvancara (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE); Víctor López (Universitat Autonoma de Barcelona, Spain); Xavier Navarro (Universitat Autonoma de Barcelona, DE)

12:45 - 13:45 Lunch break

PR.17

12:31 **Increasing the visibility of thin NITINOL vascular implants**
Axel Boese, Georg Rose, Michael Friebe, Thomas Hoffmann, Steffen Serowy, Martin Skalej (Otto-von-Guericke-University Magdeburg, DE); Werner Mailänder, Giorgio FM Cattaneo (Acandis GmbH & Co. KG, DE)

PR.18

12:35 **Possible reasons for early artificial bone failure in biomechanical tests of ankle arthrodesis systems**
Heiner Martin (Universität Rostock, DE); Natalia Gutteck (Martin Luther University Halle Wittenberg, DE); Jörn-Bo Matthies (Institut für Biomedizinische Technik, Universität Rostock, DE); Thomas Hanke (Fraunhofer IWM Halle, DE); Georg Gradl (Hospital Harlaching, München, DE); David Wohlrab (Martin Luther University Halle Wittenberg, DE); Thomas Mittlmeier, Niels Grabow (Universität Rostock, DE)

PR.19

12:39 **Development of a Bending Test Procedure for the Characterization of Flexible ECoG Electrode Arrays**
Fabian Kohler (University of Freiburg & IMTEK, DE); Rebecca Michiels, Martin Schuettler (University of Freiburg, DE); Thomas Stieglitz (Albert-Ludwigs-Universität Freiburg & Institut für Mikrosystemtechnik, DE)

PR.20

12:43 **Automatic detection of charge injection capacity in platinum electrodes based on the shape of the electrode potential**
Tomasz Moszkowski (Fraunhofer Institute for Biomedical Engineering & AGH - University of Science and Technology, DE); Wigand Poppendieck (Fraunhofer Institute for Biomedical Engineering, DE); Klaus-Peter Hoffmann (Fraunhofer Institute for Biomedical Engineering & IBMT, DE)

PR.21

12:47 **Additive manufacturing for Cochlear Implants**
Ronny Hagemann (Laser Zentrum Hannover e. V., DE)

12:45 - 13:45 Lunch break

Room: AM1

Keynote

13:45 **Solving Medical Problems with Photomedicine**
Dr. Conor L. Evans, Massachusetts General Hospital, A Harvard Medical School affiliate, USA

Dr. Conor L. Evans received his degrees from Brown University (BS in Physical Chemistry) and Harvard University (PhD in Chemistry). He carried out his postdoctoral training research under the supervision of both Tayyaba Hasan and Johannes de Boer in the application of advanced microscopy to cancer research. He now serves as an Assistant Professor at the Wellman Center for Photomedicine of Harvard Medical School at the Massachusetts General Hospital. The Evans lab's research is focused on the development and clinical translation of optical microscopy and spectroscopy tools, with specific interests in ultrasensitive detection of molecular markers, label-free imaging of tissues, and the imaging and quantification of tissue oxygenation. Dr. Evans has led the use of coherent Raman imaging technologies in biomedicine, and was the first to apply this imaging toolkit for the real-time visualization of lipids in skin in vivo. He has developed a number of imaging devices and methods, including coherent Raman imaging, time-lapse Optical Coherence Tomography, hyperspectral confocal microscopy, tissue clearing methods, and "smart" sensing bandages. He currently holds 9 patents and patent applications and has more than 30 peer-reviewed publications. A recipient of the NIH Director's New Innovator Award, his recent efforts in the synthesis of bright oxygen sensors has resulted in the creation of four new porphyrin molecules that are currently being translated for clinical use. He is a Royce Fellow of Brown University and has been honored with several awards, including the Goldwater Scholarship, NASA Space Grants, and the National Science Foundation Graduate Fellowship. Dr. Evans has taught Physical Chemistry Laboratory at Harvard University, is a faculty member for the Madrid-MIT M+Visión Consortium, is a planning group member of the Harvard Ludwig Center, and an affiliate faculty member of the Harvard Biophysics Program.

14:30 - 16:00 Poster Session - Room: Geb. 61 - V1+V2

16:00 - 16:30 Coffee break

Room: AM1 **Track O**

Cardio-Vascular Modeling (2)

Chairs: Henrik Botterweck (FH Lübeck, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

16:30 **Interactive visualization of cardiac anatomy and atrial excitation for medical diagnosis and research**
Silvio Bauer, Tobias Oesterlein, Jochen Schmid (Karlsruher Institut für Technologie (KIT), DE); Armin Luik, Claus Schmitt (Städtisches Klinikum Karlsruhe, DE)

16:45 **Virtualizing clinical cases of atrial flutter in a fast marching simulation including conduction velocity and ablation scars**
Julia Trächtler, Tobias Oesterlein, Axel Loewe, Emanuel Poremba (Karlsruhe Institute of Technology, DE); Armin Luik, Claus Schmitt (Städtisches Klinikum Karlsruhe, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

17:00 **Analysis of characteristic signal morphologies of double potentials near block lines in an atrial simulation model**
Markus Rottmann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

17:15 **Mesh structure-independent modeling of patient-specific atrial fiber orientation**
Andreas Wachter, Axel Loewe, Martin W Krueger, Olaf Doessel, Gunnar Seemann (Karlsruhe Institute of Technology (KIT), DE)

17:30 **Accelerating mono-domain cardiac electrophysiology simulations using OpenCL**
Eike M Wülfers, Zhasur Zhamoliddinov, Gunnar Seemann, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

17:45 **Understanding the cellular mode of action of vernakalant using a computational model: answers and new questions**
Axel Loewe, Yan Xu (Karlsruher Institut für Technologie (KIT), DE); Eberhard P. Scholz (Medical University Hospital Heidelberg, DE); Olaf Doessel, Gunnar Seemann (Karlsruhe Institute of Technology (KIT), DE)

18:45/19:15 Social Event at Dräger

Thursday, September 17, 2015 • 16:30 - 18:00

Room: AM2 **Track D**

Biosignal Processing (2)

Chairs: Jens Haueisen (Technical University Ilmenau, DE); Martin Ryschka (Fachhochschule Lübeck, DE)

16:30 **Locating regions of arrhythmogenic substrate by analyzing the duration of triggered atrial activities**
Bhawna Verma and Tobias Oesterlein (Karlsruher Institut für Technologie (KIT), DE); Armin Luik, Claus Schmitt (Städtisches Klinikum Karlsruhe, DE); Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

16:45 **Impaired cardiorespiratory coupling in patients with schizophrenia and their healthy first-degree relatives**
Steffen Schulz (University of Applied Sciences Jena, DE); Jens Haueisen (Technical University Ilmenau, DE); Karl Jürgen Bär (University Hospital, Jena, DE); Andreas Voss (University of Applied Sciences Jena, DE)

17:00 **Combining different ECG derived respiration tracking methods to create an optimal reconstruction of the breathing pattern**
Gustavo Lenis, Felix Conz, Olaf Doessel (Karlsruhe Institute of Technology (KIT), DE)

17:15 **Atrial and ventricular signal averaging electrocardiography in pacemaker and cardiac resynchronization therapy**
Cyrus Haschemi (University of Applied Sciences Offenburg, DE); Matthias Heinke (University of Applied Sciences Offenburg & Department of Electrical Engineering and Information Technology, DE)

17:30 **Cardiorespiratory Coordination and Ensemble Symbolic Coupling Traces during Sleep**
Andreas Mueller, Maik Riedl, Jan F Kraemer (Humboldt-Universität zu Berlin, DE); Thomas Penzel (Charité - Universitätsmedizin Berlin, DE); Juergen Kurths (Humboldt University, DE); Niels Wessel (HU Berlin, DE)

17:45 **Diagnosis of Defects in Human Joints by Acoustic Emission Analysis (AEA)**
Jörg Subke, Judith Schmale, Andreas Kellotat, Burkhard Ziegler (Technische Hochschule Mittelhessen, DE); Udo Wolf (University of Applied Sciences Fulda, DE); Hans-Joachim Schwalbe (Technische Hochschule Mittelhessen, DE); Ralf Franke, Peter Dörner (BoneDias, DE)

18:45/19:15 Social Event at Dräger

Room: AM3 **Track K**

Imaging (4): EIT/Xray Electrical Impedance Tomography/X-Ray

Chairs: Martin A. Koch (University of Luebeck, DE); Knut Möller (Furtwangen University, DE)

16:30 **Improving Image Quality in EIT Imaging by Measurement of Thorax Excursion**
Benjamin Schullcke, Bo Gong, Sabine Krueger-Ziolek (Furtwangen University, DE); Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE)

16:45 **Lung imaging for quantification of ventilator induced lung injury**
Anja Braune, Andreas Gueldner, Andreef Michael, Liane Oehme (University Hospital Carl Gustav Carus, DE); Thea Koch (Technische Universität Dresden, DE); Jörg Kotzerke (University Hospital Carl Gustav Carus, DE); Marcelo Gama de Abreu (University Hospital Dresden, DE)

17:00 **Investigation of ventilation and perfusion related impedance changes of the lung as a function of heart rate**
Sabine Krüger-Ziolek, Zhanqi Zhao, Benjamin Schullcke, Bo Gong (Furtwangen University, DE); Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE)

17:15 **A clustering based dual model framework for EIT imaging: first experimental results**
Bo Gong, Benjamin Schullcke, Sabine Krüger-Ziolek (Furtwangen University, DE); Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE)

17:30 **Three-dimensional anisotropic regularization for limited angle tomography**
Fabian Isernhagen (University of Lübeck, DE); Dirk Schäfer (Philips, DE); Michael Grass (Philips Research Europe, DE); Thorsten M. Buzug (Universität zu Lübeck, DE)

18:45/19:15 Social Event at Dräger

Thursday, September 17, 2015 • 16:30 - 18:00

Room: AM4 **Track D**

FS: DGBMT and GMDS/GI Workshop „Biomedical Image and Signal Computing - BISC 2015“

Chairs: Christoph Palm (Ostbayerische Technische Hochschule Regensburg (OTH Regensburg); DE); Thomas Schanze (Technische Hochschule Mittelhessen, DE)

16:30 **Image-based Modeling of Respiratory Motion of Inner Organs**
Heinz Handels, Jan Ehrhardt, Matthias Wilms, Dirk Fortmeier, Andre Mastmeyer (University of Lübeck, DE)

16:45 **Advancement in magnetorelaxometry tomography of magnetic nanoparticles by optimized activation sequences and excitation setups**
Daniel Baumgarten, Roland Eichardt (Technische Universität Ilmenau, DE); Maik Liebl, Uwe Steinhoff (Physikalisch-Technische Bundesanstalt, DE)

17:00 **Analysis of initial subcellular Ca2+ signals in fluorescence microscopy data from the perspective of image and signal processing**
René Werner, Daniel Schetelig, Dennis Säring (University Medical Center Hamburg-Eppendorf, DE); Sven-Thomas Antoni, Adam Dabrowski (Hamburg University of Technology, DE); Björn-Philipp Diercks, Ralf Fliegert, Andreas Guse (University Medical Center Hamburg-Eppendorf, DE); Alexander Schlaefer (Hamburg University of Technology, DE); Insa Wolf (University Medical Center Hamburg-Eppendorf, DE)

17:15 **Echtzeitanalyse von EKG Holter-Signalen**
Stephan Jonas (RWTH Aachen University, DE); Nikolaus Marx (Uniklinik RWTH Aachen, DE); Thomas M Deserno (née Lehmann) (RWTH Aachen University, DE)

17:30 **Image Processing with Schrödinger‘s Equation**
Thomas Schanze (Technische Hochschule Mittelhessen, DE)

18:45/19:15 Social Event at Dräger

Room: AMS1 **Track C**

Chemo-Biosensor

Chair: Gerald Urban (University of Freiburg, DE)

16:30 **Microfluidic multiplexed electrochemical biosensor platform**
Andre Kling, Can Dincer, Lucas Armbrecht, Josef Horak, Jochen Kieninger, Gerald Urban (University of Freiburg, DE)

16:45 **Point of care detection of infectious diseases using an electrical biochip cartridge**
Lars Blohm, Eric Nebling (Fraunhofer Institute for Silicon Technology, ISIT, DE)

17:00 **Smelling bladder cancer via an electronic nose: First results of a pilot study**
Andreas Voss, Claudia Fischer (University of Applied Sciences Jena, DE); Daniel Steinbach, Marcus Horstmann, Marc-Oliver Grimm (University Hospital of Jena, DE)

17:15 **Investigation of endothelial growth using a sensors-integrated microfluidic system to simulate physiological barriers**
Taleieh Rajabi, Ralf Ahrens (Karlsruhe Institute of Technology, DE); Volker Huck, Martin März (Heidelberg University & Medical Faculty Mannheim, DE); Hanna Gantenbein (Karlsruhe Institute of Technology, DE); Stefan W. Schneider, Horst Schroten (Heidelberg University & Medical Faculty Mannheim, DE); Andreas Guber (KIT - Karlsruher Institut für Technologie, DE)

17:30 **Surface Treatments that allow for the Controlled Propulsion of Microstructures in Biological Fluids and Tissues**
Debora Walker (Max Planck Institute for Intelligent Systems & Universität Stuttgart, DE); Tian Qiu (Max Planck Institute for Intelligent Systems & Institute of Bioengineering, EPFL, DE); Stefano Palagi (Max Planck Institute for Intelligent Systems, DE); Peer Fischer (Max Planck Institute for Intelligent Systems & Universität Stuttgart, DE)

18:45/19:15 Social Event at Dräger

Thursday, September 17, 2015 • 16:30 - 18:00

Room: AMS2 **Track N**

FS: Innovation Management in Medical Engineering

Chair: Robert Farkas (RWTH Aachen University & Institute of Applied Medical Engineering AME, DE)

16:30 **Systems Engineering for innovative systems development**
Martin Rabe (Fraunhofer Institute for Production Technology IPT - Project Group Mechatronic Systems Design, DE); Christian Tschirner (Fraunhofer Institute for Production Technology IPT & Project Group Mechatronic Systems Design, DE)

17:00 **HTA - Knowledge networking for improved development processes**
Hans-Peter Dauben (German Institute for Medical Documentation and Information, DE)

17:15 **Open Innovation in Philips Research**
Timo Paulus (Philips Technologie GmbH Innovative Technologies, DE)

17:30 **Mapping german patent applications to next generation technologies in biomedical engineering**
Patrick Jüptner (RWTH Aachen, DE); Frederik Klöckner (Institute of Applied Medical Engineering, RWTH Aachen, DE); Mark Bukowski, Robert Farkas (RWTH Aachen University & Institute of Applied Medical Engineering AME, DE)

17:45 **Can we shortcut medical product development processes?**
Wolfgang Weber, Stephan Blab (EXCO GmbH, DE)

18:45/19:15 Social Event at Dräger

Room: AMS3 **Track F**

New Developments in Monitoring

Chairs: Michael Imhoff (Ruhr-University Bochum, DE); Philipp Rostalski (University of Lübeck & Institute for Electrical Engineering in Medicine, DE)

16:30 **Real-time heart rate measurement from video recordings using different Kalman filter models**
Sebastian Zaunseder, Fernando Andreotti, Alexander Trumpp, Daniel Wedekind (TU Dresden, DE); Hagen Malberg (Technische Universität Dresden, DE)

16:45 **Bland-Altman analysis of differences to assess the eligibility of non-invasive continuous blood pressure monitors for perioperative application**
Robert Huhle, Joachim Siegert (Technische Universität Dresden, DE); Fred Wonka (Medical Faculty TU Dresden, DE); Ute Morgenstern (Technische Universität Dresden, DE); Marcelo Gama de Abreu (University Hospital Dresden, DE); Hermann Theilen (University Hospital Carl Gustav Carus, DE)

17:00 **Detection and Identification of Human Metabolites using Ion Mobility Spectrometry**
Wolfgang Vautz (Institute for Analytical Sciences Dortmund, DE)

17:15 **Monitoring of Hemodialysis Shunt Reflow**
Nils Ossenbrink (University of Applied Sciences Münster, DE); Uvo M. Hölscher (Münster University of Applied Sciences, DE)

17:30 **Integrity Monitoring of Infusion Systems**
David Grosse-Wentrup, Uvo M. Hölscher (Münster University of Applied Sciences, DE)

17:45 **Continuous pulse rate monitoring of newborns using remote imaging photoplethysmography (riPPG)**
Daniel Matthes (HTWK Leipzig, University of Applied Sciences, DE); Christoph Mönch (HTWK Leipzig, University of Applied Sciences & Hochschule Koblenz, University of Applied Sciences, DE); Fabian Schrumpf, Mirco Fuchs, Gerold Bausch (HTWK Leipzig, University of Applied Sciences, DE)

18:45/19:15 Social Event at Dräger

Room: Dräger Atrium

Keynote

18:00 - 22:30 **Do we really understand what we can build? A philosophical argument with Richard Feynman and Craig Venter about Synthetic Biology**
Prof. Dr. Christoph Rehmann-Sutter, Institut für Medizingeschichte und Wissenschaftsforschung Universität zu Lübeck, DE

Christoph Rehmann-Sutter is Professor for Theory and Ethics in the Biosciences at the University of Lübeck.

Born in 1959 in Laufenburg/Switzerland, Christoph Rehmann-Sutter first studied Molecular Biology with a Diploma from the Biocenter at the University of Basel (Switzerland) and then also Philosophy and Sociology at the Universities of Basel and Freiburg im Breisgau. From 1989–1996 he worked as a research assistant for bioethics in the group of Prof. Werner Arber at the Department of Microbiology, Biocenter of the University of Basel. In 1996 he established a Unit for Ethics in the Biosciences at the University of Basel, where he did systematic bioethical research and teaching. In collaboration with Jackie Leach Scully he worked on the ethics of gene therapy, genetic testing and embryo donation for stem cell research, with Eva Neumann-Held on the philosophy of genomics. 1997–1998 he was research fellow at the Department of Environmental Science, Policy and Management (ESPM) of the University of California at Berkeley. In 2001 he has been elected by the Swiss Government Chairman of the Swiss National Advisory Commission on Biomedical Ethics. Diverse visiting professorships: Policy, Ethics and Life Sciences (PEALS) Research Centre, Newcastle University (2008), London School of Economics (2009–2011), Department of Social Science, Health and Medicine, King's College London (since 2012).

18:45/19:15 Social Event at Dräger

Room: AM3

Keynote

08:30 - **Cocktail Parties and model-based Hearing aids: Towards a scalable binaural Hearing device**
Prof. Dr. rer. nat. Dr. med. Birger Kollmeier, Cluster of Excellence Hearing4All, Universität Oldenburg, HörTech gGmbH und Fraunhofer IDMT Projektgruppe für Hör-, Sprach- und Audiotechnologie, Oldenburg, DE

Birger Kollmeier obtained his Ph.D. in physics 1986 and his M.D. -Ph.D. in medicine in Göttingen/DE. Subsequent to his „Habilitation" in physics 1991 he was appointed as full professor in physics at the Universität Oldenburg and head of the medical physics group in 1993. He is the scientific director of the Hörzentrum Oldenburg, the speaker of the center of competence "Hearing Aid system technology (HörTech)", since 2008 head of the Fraunhofer IDMT project group "Hearing, Speech and Audio Technology", and since 2012 speaker of the Cluster of Excellence "Hearing4all". He supervised more than 50 Ph.D. theses and was awarded several scientific prizes, including the Alcatel-SEL research prize for technical communication and the German Presidents prize for technology and innovation (Deutscher Zukunftspreis) in 2012.

09:00 - 09:15 Break

Room: AM2 **Track M**

Telemedicine, eHealth, mHealth

Chairs: Martin Braecklein (DGBMT Fachausschuss Mobile Diagnose- und Therapiesysteme - mHealth & Linde Healthcare, DE); Josef Ingenerf (Universität Lübeck, DE)

09:15 **Motivational strategies for children with orthosis supply**
Laura Doria, Susanne Dannehl (Technische Universität Berlin, DE); Volker Kohl (nova motum Services & Consulting GmbH, DE); Guido Körber (Code Mercenaries Hard- und Software GmbH, DE); Michael Cassel (Universität Potsdam, DE); Stefan Wilke, Holger Mellerowicz (HELIOS Klinikum Emil von Behring, DE); Ralf Sage, Klaus Nahr (CCTEC Deutsches Korsettzentrum GBR, DE); Marc Kraft (Technische Universität Berlin, DE)

09:30 **Automated Respiratory Therapy System Based on the ARDSNet Protocol with Systemic Perfusion Control**
Anake Pomprapa, Marian Walter (RWTH Aachen University, DE); Wolfgang Braun (Fritz Stephan GmbH, DE); Burkhard Lachmann (Charité – Universitätsmedizin Berlin, DE); Steffen Leonhardt ((RWTH Aachen University, DE)

09:45 **Comprehensive mHealth assessment of visual function**
Michael Dorr (Technische Universität München; Adaptive Sensory Technology, DE); Emily Wiecek (Adaptive Sensory Technology, USA); Kameran Lashkari (Advanced Eye Centers Inc., USA); Zhong-Lin Lu (Ohio State University; Adaptive Sensory Technology, USA); Luis Lesmes (Adaptive Sensory Technology, USA); Peter Bex (Northeastern University; Adaptive Sensory Technology, USA)

10:00 **Identification of surgical instruments using UHF-RFID Technology**
Mohamed Bourouah (Institut für Mikro- und Informationstechnik der Hahn-Schickard-Gesellschaft, DE)

10:15 **An adaptive fuzzy inference system used in diabetic management**
Ioana Tripa, Cosmin Cernazanu, Doru Todinca (Politehnica University of Timisoara, RO)

10:30 **Automated quantification of IMU-data according to UPDRS for Parkinson's disease**
Roland Götzfried (Ulm University of Applied Sciences, DE); Lennart K. Piro (Ludwig-Maximilians-University Munich, DE); Neltje E. Piro, Ronald A. Blechschmidt-Trapp (Ulm University of Applied Sciences, DE)

10:45 - 11:15 Coffee break

Room: AM3 **Track D**

Biosignal Processing (3)

Chairs: Reinhold Orglmeister (Technische Universität Berlin, DE); Thomas Schanze (Technische Hochschule Mittelhessen, DE)

09:15 **Estimation of a respiratory signal from a single-lead ECG using 4th order central moments**
Marcus Schmidt (Otto-von-Guericke University Magdeburg, DE); Andy Schumann, Karl Jürgen Bär (University Hospital, Jena, DE); Johannes W Krug, Georg Rose (Otto-von-Guericke University of Magdeburg, DE)

09:30 **Effects of pulsed anodal transcranial electrical stimulation at the eye**
Stefanie Freitag, Alexander Hunold, Matthias Klemm (Technische Universität Ilmenau, DE); Gernot Enders (OphthalmoInnovation GmbH, DE); Edgar Nagel, Jens Haueisen (Technical University Ilmenau, DE)

09:45 **Spatial filtering of EEG data using SPHARA**
Uwe Graichen (Institute of Biomedical Engineering and Informatics (BMTI), TU Ilmenau, DE); Patrique Fiedler, Daniel Strohmeier, Jens Haueisen (Technical University Ilmenau, DE)

10:00 **Development of electrode and neuron models for a neuronal position estimation algorithm**
Martin Nguyen, Christopher Doerr, Thomas Schanze (Technische Hochschule Mittelhessen, DE)

10:15 **Spatial interpolation of EEG by source space projection**
Melanie Knorr (Max Planck Institute for Human Cognitive, Brain Sciences, DE); Thomas Knösche (MPI Leipzig, DE)

10:30 **Compressed Sensing of Multi-Lead ECG Signals by Compressive Multiplexing**
Timo Tigges, Janis Sarikas, Michael Klum, Reinhold Orglmeister (Technische Universität Berlin, DE)

10:45 - 11:15 Coffee break

Friday, September 18, 2015 • 09:15 - 10:45

Room: AM4 **Track J**

Image Processing

Chair: Heinz Handels (University of Lübeck, DE)

09:15 **Dimensionality reduction of medical image descriptors for multimodal image registration**
Johanna Degen (University of Lübeck, DE); Mattias Heinrich (Institute of Medical Informatics, DE); Jan Modersitzki (Universität Lübeck, DE)

09:30 **Experimental Evaluation of Different Weighting Schemes in Magnetic Particle Imaging Reconstruction**
Patryk Szwargulski (University of Lübeck, DE); Juergen Rahmer (Philips Technology GmbH, DE); Mandy Ahlborg (Insitute of Medical Engineering University of Lübeck DE, DE); Christian Kaethner, Thorsten M. Buzug (University of Lübeck, DE)

09:45 **Evaluation of CT capability for the detection of thin bone structures**
Halla Gudfinnsdottir (Reykjavik University, Iceland); Thordur Helgason (Landspitali - University Hospital, Iceland)

10:00 **A Study of Gaussian Noise Effects on Skin Thickness Measurement**
Jirapong Manit, Tobias Wissel, Patrick Stüber, Achim Schweikard, Floris Ernst (University of Lübeck, DE)

10:15 **An ex vivo investigation of different brain tumors using Optical Coherence Tomography**
Marcel Lenz (Ruhr-Universität Bochum, DE); Robin Krug, Kirsten Schmieder (University Hospital Knappschaftskrankenhaus Bochum-Langendreer, DE); Martin Hofmann (Ruhr-Universität Bochum, DE)

10:30 **Towards contactless optical coherence elastography with acoustic tissue excitation**
Dino Düwel, Christoph Otte, Kevin Schulz, Thore Saathoff, Alexander Schlaefer (Hamburg University of Technology, DE)

10:45 - 11:15 Coffee break

Room: AMS1 **Track Q**

Education and Training for Engineers and Physicians

Chairs: Stephan Klein (FH Lübeck, DE); Ute Morgenstern (Technische Universität Dresden, DE)

09:15 **Novel Master Course Micromedical Engineering**
Volker Bucher (Hochschule Furtwangen University, DE)

09:30 **Does enhancing consciousness for strategic planning processes support the effectiveness of problem-based learning concepts in biomedical education?**
Viktoria Arling, Jens Knispel, Andreas Ritter, Martin Baumann (RWTH Aachen University, DE)

09:45 **Practical testing in oral exams using e-assessment devices**
Mazdak Karami, Martin Baumann (RWTH Aachen University, DE)

10:00 **Image Guided Surgery Innovation with Graduate Students - a new lecture format**
Michael Friebe (Otto-von-Guericke-Universität, DE); Jörg Traub (Technische Universität München, DE)

10:15 **Online teaching of „Regulatory Affairs" - experiences and plannings concerning a study-program**
Stephan Klein (Luebeck University of Applied Sciences, DE); Heike Wachenhausen (Forum fuer Medizintechnik, DE); Farina Steinert, Rolf Granow (FH Luebeck, DE); Kanina Botterweck, Thorsten M. Buzug (University of Lübeck, DE)

10:30 **Project-oriented learning in medical engineering education - Evaluation of a novel teaching approach**
Sabine Krüger-Ziolek, Zhanqi Zhao (Furtwangen University, DE); Knut Moeller (Furtwangen University & Institute of Technical Medicine (ITeM), DE)

10:45 - 11:15 Coffee break

Friday, September 18, 2015 • 09:15 - 10:45

Room: AMS2 **Track S**

Usability and Risk Management for Medical Devices

Chairs: Michael Herczeg (University of Luebeck, DE); Wolfgang Lauer (Federal Institute for Drugs and Medical Devices (BfArM), DE)

09:15 **Corrective actions concerning implants and instruments for bone surgery - Changes of product information**
Miriam Nowak, Kathrin Lange, Wolfgang Lauer (Federal Institute for Drugs and Medical Devices (BfArM), DE)

09:30 **Use Cases and Usability Challenges for Head-Mounted Displays in Healthcare**
Tilo Mentler, Christian Wolters, Michael Herczeg (University of Luebeck, DE)

09:45 **What Happens in Postmarket Surveillance - Results of a Cross Sectional Study among German Medical Device Manufacturers**
Claus Zippel, Sabine Bohnet-Joschko (Witten/Herdecke University, DE)

10:00 **Device- and Service Profiles for Integrated OR Systems Based on Open Standards**
Alexander Mildner (UniTransferKlinik Lübeck & Institute for Software Engineering and Programming Languages, University of Lübeck, DE); Armin Janß (RWTH Aachen University, DE); Jasmin Dell'Anna, Paul Merz (RWTH Aachen University, DE); Martin Leucker (University of Lübeck, DE); Klaus Radermacher (RWTH Aachen, DE)

10:15 **Risk Management for Medical Devices in Research Projects**
Christian U. Sauter, Marion Heinloth, Andreas Tobola (Fraunhofer Institute for Integrated Circuits IIS & Tobola Engineering, DE); Nadine Pensky, Christian Weigand (Fraunhofer IIS, DE)

10:45 - 11:15 Coffee break

Room: AMS3 **Track N**

Miscellaneous and Special Sessions

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

09:15 **Evaluation of local alterations in femoral bone mineral density measured via quantitative CT**
Annette Sitzer, Linda Aulmann, Robert Wendlandt (University Medical Center Schleswig-Holstein, DE); Heinz Handels, Imke Weyers (University of Lübeck, DE); Arndt P Schulz, MRCS (University Medical Centre Schleswig Holstein & Biomechatronics Lübeck, DE); Thorsten M. Buzug (University of Lübeck, DE)

09:30 **Pressure transducer for medical applications**
Sabrina Kartmann, Peter Koltay (University of Freiburg - IMTEK, DE); Andreas Ernst (University of Freiburg & BioFluidix GmbH, DE)

09:45 **Improved automated blood gas control during extracorporeal life support**
Marian Gransow, Florian Tetschke (TU Dresden, DE); Wenke Markgraf (Universitätsklinikum Dresden, DE); Susanne Koch (TU Dresden, DE); Ulf Aschenbrenner (Universitätsklinikum Dresden, DE); Christine Thiele, Hagen Malberg (TU Dresden, DE)

10:00 **Creating 3D Gelatin Phantoms for Experimental Evaluation in Biomedicine**
Nils Stein, Thore Saathoff, Sven-Thomas Antoni, Alexander Schlaefer (Hamburg University of Technology, DE)

10:15 **Development of a Neural Recording Mixed Signal Integrated Circuit for Biomedical Signal Acquisition**
Andreas Bahr, Lait Abu Saleh, Dietmar Schroeder, Wolfgang Krautschneider (Hamburg University of Technology, DE)

10:30 **Effects of periodic tidal volume variation on gas exchange in experimental acute respiratory distress syndrome**
Robert Huhle (Technische Universität Dresden, DE); Andreas Gueldner (University Hospital Carl Gustav Carus, DE); Thea Koch (Technische Universität Dresden, DE); Spieth Peter, Marcelo Gama de Abreu (University Hospital Dresden, DE)

10:45 - 11:15 Coffee break

Room: AM2 **Track M**

FS: Open, secure, and dynamic networking in clinical environments

Chairs: Stefan Fischer, Franziska Kühn (University of Lübeck, DE)

11:15 **Opportunities and challenges of open networking in clinical environments**
Stefan Fischer, Timm Bußhaus, Franziska Kühn, Martin Leucker (University of Lübeck, DE); Alexander Mildner (UniTransferKlinik Lübeck & Institute for Software Engineering and Programming Languages, DE); Malte Schmitz (University of Lübeck, DE)

11:30 **An architecture for distributed systems of medical devices in high acuity environments**
Stefan Schlichting (Drägerwerk AG & Co. KGaA, DE); Stephan Pöhlsen, David Gregorczyk (Dräger Medical GmbH, DE)

11:45 **Standardisation for Plug and Play of Medical Devices**
Johannes Dehm (VDE Verband der Elektrotechnik Elektronik Informationstechnik e. V., DE); Heike Moser (DIN Deutsches Institut für Normung e. V., DE); Björn Andersen (Universität zu Lübeck, DE)

12:00 **Regulatory approval route and strategy for open networked medical devices**
Peter Knipp (qcmed GmbH, DE); Armin Janß (RWTH Aachen University, DE)

12:15 **Application of Medical Device User Interface Profiles for Human-Risk Analysis of Open Integrated OR Systems**
Armin Janß, Paul Merz, Jasmin Dell'Anna, Klaus Radermacher (RWTH Aachen University, DE)

12:45 - 13:45 Lunch break

Room: AM3 **Track D**

Biosignal Processing (4)

Chairs: Alfred Mertins (Institute for Signal and Image Processing, University of Luebeck, DE); Thomas Schanze (Technische Hochschule Mittelhessen, DE)

11:15 **Influence of age and gender on the short-term heart rate variability in KORA S4 healthy subjects**
Andreas Voss, Rico Schroeder (University of Applied Sciences Jena, DE); Siegfried Perz (GSF- Research Center for Environment and Health, DE); Annette Peters (Helmholtz Zentrum München, DE)

11:30 **Heart rate monitoring in ultra-high-field MRI using frequency information obtained from video signals of the human skin compared to electrocardiography and pulse oximetry**
Nicolai Spicher (University of Applied Sciences and Arts Dortmund, DE); Stefan Maderwald (Erwin L. Hahn Institute for Magnetic Resonance Imaging, DE); Mark Ladd (German Cancer Research Center, DE); Markus Kukuk (University of Applied Sciences and Arts Dortmund, DE)

11:45 **Synchronization in wireless biomedical-sensor networks with Bluetooth Low Energy**
André Bideaux, Bernd Zimmermann, Stefan Hey, Wilhelm Stork (Karlsruhe Institute of Technology, DE)

12:00 **Development of a HMM based posture recognition system to derive patient activity from a force sensor functionalized nursing bed**
Andreas Kitzig, Alexander Micheel, Gudrun Stockmanns (Niederrhein University of Applied Sciences, DE); Reinhard Viga, Anton Grabmaier (University of Duisburg-Essen, DE)

12:15 **Pulse Wave Analysis of Minuscule Ear Movements by Video Signal Processing**
Esther Scherer (University of Applied Sciences Luebeck, DE); Roman Kusche (Lübeck University of Applied Sciences & Laboratory of Medical Electronics, DE); Paula Klimach, Martin Ryschka (Lübeck University of Applied Sciences, DE)

12:30 **Investigation of the perception of very low frequency sound and infra-sound using magnetoencephalography and functional magnetic resonance imaging**
Martin Bauer, Robert Kuehler (Physikalisch Technische Bundesanstalt, DE); Markus Weichenberger (Max Planck Institut Berlin, DE); Johannes Hensel (Physikalisch Technische Bundesanstalt, DE); Simone Kuehn (Max Planck Institut Berlin, DE); Bernd Ittermann (PTB Berlin, DE); Lutz Trahms, Christian Koch, Tilmann Sander-Thoemmes (Physikalisch-Technische Bundesanstalt, DE)

12:45 - 13:45 Lunch break

Friday, September 18, 2015 • 11:15 - 12:45

Room: AM4

Presentations of the Awards Winners

Chairs: Olaf Doessel (Karlsruhe Institute of Technology (KIT) DE); Hans Haindl (Sachverständiger für Medizintechnik)

11:15 **Theranostic Tissue Engineering: Magnetic Resonance Imaging of Biohybrid Vascular Grafts**
Dr. Marianne Mertens (München, DE)

11:30 **Optimierung der Insertion von Cochlea-Implantaten unter Berücksichtigung des Verformungsverhaltens der Elektrodenträger. Mechatoronik-gestützte, minimal-traumatische CI-Chirurgie**
Dipl.-Ing. Thomas Rau (MH Hannover, DE)

11:45 **Verlässliches medizinisches Monitoring in Bereichen niederiger Überwachungsstufe mit erhöhtem Komfortanspruch**
Tobias Wartzek (RWTH Aachen, DE)

12:00 **Individualisierte drei-dimensionale (3D) Online-Dosisverifikation in der intensitätsmodulierten Strahlentherapie zur Steigerung der Patientensicherheit**
Johannes Thölking (Universitätsmedizin Mannheim, DE)

12:15 **Prospektiv nutzergerechte Softwaregestaltung in integrierten OP-Sälen**
Anna-Maria von Saucken (vorm. TU Berlin, DE)

12:45 - 13:45 Lunch break

Room: AMS1 **Track Q**

Junges Forum trifft Alte Hasen

11:15 **Qualität im Wandel der Zeit**
Veranstaltung zusammen mit dem Fachausschuss „Aus und Weiterbildung – Biomedizinische Technik im Studium“

11:15 **Sichtweise der Medizin**
Prof. Dr. Hans-Peter Bruch
(Emeritus der Klinik für Allgemeine Chirurgie, Campus Lübeck des Universitätsklinikums Schleswig-Holstein, DE)

11:35 **Sichtweise der Wissenschaft/Medizintechnik**
Prof. Dr. rer. nat. Christoph Hornberger
(Hochschule Wismar, DE)

11:50 **Sichtweise der Industrie**
Jens Jürgens
(Möller-Wedel GmbH & Co. KG, DE)

12:05 **Podiumsdiskussion**
Moderation:
Prof. Dr. Hartmut Gehring
Dr.-Ing. Karsten Seidl

12:45 - 13:45 Lunch break

Room: AM3

Keynote

13:45 **A new era for optical imaging: multispectral opto-acoustic tomography (MSOT)**
Prof. Vasilis Ntziachristos, Technische Universität München, Chair of Biological Imaging & Helmholtz Zentrum München, Institute of Biological and Medical Imaging, DE

Prof. Vasilis Ntziachristos holds the chair for Biological Imaging at Technische Universität München and is the director of the Institute of Biological and Medical Imaging at Helmholtz Zentrum München, both in Munich / Germany. Prior to this appointment he was faculty at Harvard University and the Massachusetts General Hospital. He received his masters and doctorate degrees from the Bioengineering Department of the University of Pennsylvania and the Diploma in Electrical Engineering from the Aristotle University of Thessaloniki, Greece. Professor Ntziachristos serves as chair in international meetings and councils and in the editorial boards of several scientific journals. He has received numerous awards and distinctions, including the Leibniz Prize 2013 and the Erwin Schrödinger Prize 2012, and he was named one of the world's top innovators by the Massachusetts Institute of Technology (MIT) Technology Review in 2004. His main research interests involve the development of optical and opto-acoustic methodologies for probing physiological and molecular events in tissues using non-invasive methods.

14:20 - 15:05 Awards and Closing Ceremony - AM3

Notes

Notes

Adaptive Sensory Technology GmbH

Spun out of Harvard Medical School and with offices in Boston and Luebeck, Adaptive Sensory Technology is developing new tools to rapidly and precisely assess visual function. AST's solutions utilize digital displays, advances in computing power, and adaptive algorithms to quickly measure a subject's contrast sensitivity function both in the clinic and at home. The contrast sensitivity function is more sensitive to clinically relevant change and provides a more comprehensive description of visual performance than visual acuity, the current gold standard in clinical care and research. Our products therefore will improve ophthalmic devices and interventions by better monitoring of neurodegenerative ocular diseases.

▸ www.adaptivesensorytech.com

BioMedTec Wissenschaftscampus – Medisert GmbH

Being the regional Lübeck network of the major local research facilities [namely Universität zu Lübeck, Fachhochschule Lübeck, Universitätsklinikum, Leibniz-Zentrum Borstel, Fraunhofer EMB and Fraunhofer MEVIS] and of notable north german companies, the BioMedTec Wissenschaftscampus forms an outstanding infrastructure for the support of cutting-edge research, product engineering, spin-offs and marketing. Goal is to boost local research and development activities and to strengthen the economic power of the Lübeck region. The BioMedTec Wissenschaftscampus is a regional focus within the Life Science Nord cluster.

The Medisert GmbH, a joint spin-off and central service facility of Universität zu Lübeck and Lübeck University of Applied Sciences, serves as the central contact point and head office of the BioMedTec Wissenschaftscampus. .

▸ www.bio-med-tec.de

Centifluidic Technologies
Excellence in Fluid Handling

Fluid Technology and Microfluidics

Joint research project between science and industry

The growth core 'Centifluidic Technologies' is a research association which was esta-blished by eight highly innovative small and medium-sized companies from Mecklenburg-Vorpommern and Brandenburg that have previously already provided excellent results in certain areas of centifluidics. Research partners are institutes of the Universities of Rostock and Greifswald, the Leibniz Institute for Plasma Science and Technology in Greifswald, as well as the BECKMANN-INSTITUT für Technologieentwicklung in Oelsnitz/Erzgeb.

The partners of the grow core 'Centifluidic Technologies' are working on the development of technologies and systems for the transport, mixing and dosing of fluids.

▸ www.centifluidic-technologies.de

cor science
cardiovascular innovations

Corscience GmbH & Co. KG

"CORSCIENCE is represented at the BMT conference with an exhibition booth. You are cordially invited to visit us and learn more about our services, developments and products referring to cardiovascular medical engineering. Our topics this year will be monitoring systems for blood pressure, ECG and oxygen saturation, defibrillators and modules in sensor technology such as our new CAP201 capnography module. Please stop by our booth and get informed about the innovative product solutions of CORSCIENCE!"

▸ www.corscience.de

CRS Clinical Research Services

CRS Clinical Research Services

CRS is the leading Early Phase CRO in Europe with a total capacity of more than 300 beds in 6 Clinical Units in Germany and with more than 35 years of experience in clinical research. Besides the standard Early Phase pharmacological studies, CRS conducts patient trials and offers Clinical Investigations of Medical Devices.

Developers of Medical Devices profit from the comprehensive service portfolio provided by CRS: Clinical Investigation, Monitoring, Consultancy, Medical Writing, Clinical Data Management and Biometrics. Additionally to the conduct of Clinical Investigations in CRS´s own research units and/or external clinical sites, CRS offers fast and cost-efficient provision of human blood and / or tissue samples for in-vitro diagnostic device assessments.

The strategic location of the various CRS clinics in densely populated areas enables fast recruitment of both healthy volunteers and patients in diverse therapeutic areas. In Lübeck, CRS holds a clinic inside the University Hospital that combines high CRO standards with access to rare patient populations and to medical experts as well as to the comprehensive hospital infrastructure.

▸ www.crs-group.de

DE G DE GRUYTER

De Gruyter

The independent academic publisher De Gruyter can look back at an over 260 year history. The De Gruyter Group publishes over 1,300 new titles each year in the humanities, medicine, natural sciences, and law, more than 1,000 journals, and a variety of digital media. Due to distribution agreements De Gruyter provides all Columbia University Press, Harvard University Press, Penn Press, and Princeton University Press eBooks.

▸ www.degruyter.com

DGBMT VDE YoungNet

German Society for Biomedical Engineering (DGBMT) within VDE

The DGBMT promotes co-operation between scientists, engineers and physicians in the fields of research, development, application and teaching. It supports the exchange of knowledge between various disciplines of biomedical technology and seeks to accelerate the transfer of new technologies into medical application. The DGBMT is a society of the VDE Association for Electrical, Electronic & Information Technologies.

▸ www.vde.com/dgbmt_en

Dräger

Dräger is an international leader in the fields of medical and safety technology. The family-owned company was founded in Lübeck, Germany, in 1889. Over the past five generations, Dräger has evolved into a publicly traded, worldwide group. The company's long-term success is based on the four key strengths of its value-driven culture: customer intimacy, professional employees, continuous innovation and a commitment to outstanding quality.

"Technology for Life" is the guiding philosophy. Whether in the operating room, in intensive care or emergency response services, Dräger products protect, support and save lives.

Dräger offers its customers anaesthesia workstations, medical ventilation, patient monitoring as well as neonatal care for premature babies and newborns. With ceiling supply units, IT solutions for the OR, and gas management systems the company is at the customer's side throughout the entire hospital.

Emergency response services, law and regulatory enforcement and the industry trust in Dräger's integrated hazard management, in particular for personal protection and plant safety. This includes: respiratory protection equipment, stationary and portable gas detection systems, professional diving equipment and systems, as well as alcohol and drug impairment detection. In collaboration with its customers Dräger develops customized solutions, such as entire fire training systems, training concepts and workshops.

Dräger has about 13,500 employees worldwide and is currently present in more than 190 countries. The company has sales and service subsidiaries in over 50 countries. Its development and production facilities are based in Germany, Great Britain, Sweden, South Africa, the USA, Brazil, the Czech Republic and China.

▸ www.draeger.com

F.F.M.
Forum für
Medizintechnik e.V.

Forum für Medizintechnik e.V.

The „Forum fuer Medizintechnik" is an association with members from academia as well as industry. The association is engaged in further training, related to medical technology. Its purpose is the development of seminars and the organization of lectures. These are mostly focused on the applicants of medical devices. More than 4,000 participants in clinics all over Germany took part in these seminars since 1999.

In addition, the association is an open platform to share knowledge and experiences between developers and users, industry and clinics.

Some examples of its activities are:

- seminars for users and operators of medical products
- online-Course "Manager Regulatory Affairs"
- organization of the annual Luebeck Summer School ob Medical Technology
- trainings for surgeons
- in-house seminars upon request

▸ www.ffm-luebeck.com

BioMedTec Wissenschaftsverlag

Embedded in a dynamic campus environment, Infinite Science Publishing provides a publication platform for excellent Bachelor, Master and PhD Theses as well as scientific monographies and conference proceedings for reasonable costs. These publications enable researchers and research organizations to reach the maximum attention for their research. The service of Infinite Science Publishing comprises the entire range from the publication of camera ready documents up to cover design as well as copy-editing of single articles.

Infinite Science Publishing is an imprint of the Infinite Science GmbH, a University of Lübeck spin-off and service partner of the BioMedTec Science Campus.

▸ www.infinite-science.de

ION-GAS GmbH

G.A.S. manufactures customized gas analytical instruments to measure VOCs within complex matrices at lowest concentrations using ion mobility spectrometry coupled to gas chromatography with versatile sampling systems.

ION-GAS is a unique company for the development of tailor made analytical devices for the customer's needs – we are focused on method development.

▸ www.ion-gas.de

Innovation center for computer-assisted surgery ICCAS

The Innovation center for computer-assisted surgery ICCAS is the core of the medical technology cluster Leipzig. Surgeons and interventionists from various disciplines as well as engineers and computer scientists collaborate on the development of the 'Digital Patient Model' and 'Surgical Cockpit', a state-of-the-art technology for the operating room of the future.

▸ www.iccas.de

Life Science Nord Management GmbH

Life Science Nord strengthens the value chain in the region and has established itself as one of the leading life science networks in Europe. In over 500 biotech/pharma and medical technology companies and numerous research institutes, 20,000 highly qualified professionals develop innovative medicines, medical products and services in Hamburg and Schleswig-Holstein.

With a complete value chain – from basic and applied research, to clinical tests, to the market-ready end product – the Life Science Nord cluster offers a unique infrastructure: practically oriented researchers and clinical staff cooperate closely with partners in the industry to help innovative products and technologies make the breakthrough.

This engagement for the region is actively supported by Hamburg and Schleswig-Holstein; both states are involved in the Life Science Nord Management GmbH with a 40% share each. This cluster agency coordinates a variety of activities, organises and participates in events, informs about news within the cluster, offers advice and initiates strategic projects for the development of innovative medicine. Furthermore, it brings together economy, research and politics in the north, activating expert knowledge from universities and research institutions as well as their close contacts with companies.

In addition, about 200 companies and organizations in biomedicine and related industries have organized themselves into the research and industry association Life Science Nord e.V. The association retains a 20% share in the cluster management and pools the interests of its members. In cooperation with the cluster management, the association offers its members additional advantages by means of a partner programme.

▸ www.lifesciencenord.de

LLS ROWIAK LaserLabSolutions GmbH

LLS ROWIAK LaserLabSolutions GmbH offers innovative laser instruments for tissue and material processing, imaging, and cell manipulation. It also provides services in tissue and material histological sample preparation, and is your expert partner for laser application research in Life and Material Sciences.

Basic technology of all instruments is three dimensional, non-contact cutting, which was first realized by the laser microtome TissueSurgeon, thus enabling serial thin sectioning even of nondecalcified hard tissue or implant containing tissue. Supplied with OCT imaging technique the TissueSurgeon emerges to a 'Seeing Knife' for advanced quality control of thin sectioning and 3D-applications.

Adapted to a microscope and enhanced with spatial resolution, the CellSurgeon entered the world of nano cutting to manipulate single cells or cell organelles. The manipulation can be controlled by high resolution imaging techniques, e.g. Multi Photon Microscopy.

▸ www.lls-rowiak.de

Medical Laser Center Lübeck (MLL)

The Medical Laser Center Lübeck (MLL) is a nonprofit, noncommercially oriented technology transfer company for Optical Technologies at the University of Luebeck. In close cooperation with the Institute of Biomedical Optics (BMO) a bridge between academic research to industrial application is build implementing industry-relevant research results into new products. For the last 25 years our team of scientists and engineers developed innovative technologies in cooperation with the optical industry in the field of biophotonics:

- Development of optical measuring and diagnostic procedures
- Automated monitoring of medical therapy
- Prototype development with approval for clinical trials
- Clinical and preclinical trials with medical partners
- Laser development
- Product improvement through scientific analysis
- Micromachining

▸ www.mll-luebeck.de

Oncampus GmbH

Study online – with a formal academic graduation at University of Applied Sciences

oncampus offers you – or your employees – the opportunity to take up online correspondence courses or online training courses at selected public Universities of Applied Sciences. With a team of over 70 people, we produce, run and bring to market extra-occupational correspondence courses and academical online upgrade training courses at our site in Lübeck. The study programs bundle the competence of over 150 professors, enterprises and institutions in cooperation with the colleges of "Virtuelle Fachhochschule".

The core of our digital strategy is the opening of the colleges for new target groups and new forms of cooperation. Our specially trained mentors grant professional online supervision. Collaborative didactical methods motivate and support self-dependent learning. Open formats like MOOCS open practical, application-oriented postgraduate education especially for extra-occupational learners. The course system based on ECTS makes continuing education creditable for later wishes to study.

For corporate clients we offer planning, building and hosting high-quality e-Learning courses and web based training. Integrated e-learning services cover content production and learning environment, marketing services and participant administration complete the spectrum.

▸ www.oncampus.de

PHILIPS

Philips GmbH Market DACH HealthTec

About Royal Philips

Royal Philips (NYSE: PHG, AEX: PHIA) is a diversified health and well-being company, focused on improving people's lives through meaningful innovation in the areas of Healthcare, Consumer Lifestyle and Lighting. Headquartered in the Netherlands, Philips posted 2014 sales of EUR 21.4 billion and employs approximately 106,000 employees with sales and services in more than 100 countries. The company is a leader in cardiac care, acute care and home healthcare, energy efficient lighting solutions and new lighting applications, as well as male shaving and grooming and oral healthcare.

▸ www.philips.com

PreSens
PRECISION SENSING

PreSens Precision Sensing GmbH

PreSens is a world leading supplier of chemical-optical sensors. The products focus on oxygen, pH, CO2 and biomass. Various applications such as respirometry, biology, or tissue engineering benefit from our 2D-imaging solutions, special microsensors and non-invasive systems. Customers are end users in Bioprocess Control and Biological & Environmental Research. PreSens also offers sensor engineering.

▸ www.presens.de

QUALITÄTSPLAN

Qualitätsplan 24 GmbH

We serve customers from 3-people-start-up to multinational enterprises in medical technology and support them in:

setting up CE files, providing
- e.g. risk management,
- verification planning,
- determination of critical components or
- usability files.

Testing medical devices and systems for
- Compliance with IEC 60601-1,
- The corresponding particular standards or
- Device specific performance requirements in our own test lab.

Our customers benefit from long term, wide experience, a huge number of successful projects and international expertise. If you need experienced support for your project, contact us!

▸ www.qualitaetsplan.net

RESPONSE
Partnerschaft für Innovation in der Implantattechnologie

Universitätsmedizin Rostock

"RESPONSE - Partnership for Innovation in Implant Technology", Twenty20 – Partnership for Innovation

By cooperation between partners from science and industry the consortium "RESPONSE – Partnership for Innovation in Implant Technology" offers the chance to put developments of medical products efficiently into practice within the entire translation chain and to accelerate the innovation processes.

Clinically relevant therapies with innovative implants leading to a relief of the health care system are aspired with the therapy of widespread diseases like cardiovascular diseases, cataract and glaucoma, amblyacousia and deafness and which are suitable to give a tissue and implant specific answer for the treatment of multimorbide patients.

RESPONSE develops implants especially considering their target tissue within the implant region. At the same time, the increase of the implant life time has to be considered by advanced biomaterials and designs that facilitate repeated interventions and reduce implant replacements.

RESPONSE is funded by the Federal Ministry of Education and Research within the Programme "Twenty20 – Partnership for Innovation".

▸ www.response.uni-rostock.de/

TANDEM

TANDEM – The Centre of Excellence for Medical Technology in Northern Germany

TANDEM is the Center of Excellence for Technology and Engineering in Medicine in Northern Germany, located on Lübeck campus. The center integrates research and development activities of Universität zu Lübeck, Lübeck University of Applied Sciences and Universitätsklinikum in the field of medicine and medical technology. TANDEM combines basic research with a strong application focus, accompanied by valuable clinical expertise. More than 20 Institutes, laboratories and medical departments are involved.

Its mission is to make scientific results and products accessible to companies in order to strengthen the economic potential of Life Science-related research conducted by the local research facilities, and to generate new industry-academy partnerships.

In 2012 TANDEM was granted funding by the German Ministry for Education and Research for establishing the cooperative research group LUMEN (Luebeck Medical Engineering). In LUMEN professors of Universität zu Lübeck und Lübeck University of Applied Sciences supervise ten doctoral students in joint supervision teams. The ten research projects address topics at the interface between engineering and medicine.

TANDEM pioneered in the field of interdisciplinary research and multi-institutional co-operations and has established one of the most solid and productive partnerships between Universität zu Lübeck and Lübeck University of Applied Sciences. By succeeding with its innovative approach, it served as a model for the BioMedTec Wissenschaftscampus infrastructure, into which TANDEM today is perfectly embedded.

▸ www.bio-med-tec.de/tandem

THORLABS

Thorlabs GmbH
OCT Imaging

Thorlabs provides solutions for the field of Optical Coherence Tomography (OCT) imaging on the system, subsystem, and component level. Our drive for innovation is shaping our entire rapidly expanding product line. Complete Spectral Domain OCT and Swept Source OCT systems are available that are out-of-the-box ready for biological, industrial, and research applications. Next to the classical 2D and 3D tomography our systems are capable of Speckle Variance and Phase Sensitive Doppler OCT for angiography and the visualization of blood flow, respectively. In addition to the growing portfolio of standard OCT systems, Thorlabs is dedicated to providing OCT solutions to meet specific applications. This includes a thorough evaluation of the customer's needs covering the range from individual test measurements and feasibility studies to the development of tailor-made systems. Please contact us to discuss how our OCT technologies can be applied to meet your unique requirements.

About Thorlabs: Thorlabs, a vertically integrated photonics products manufacturer, was founded in 1989 to serve the laser and electro-optics research market. As that market has spawned a multitude of technical innovations, Thorlabs has extended its core competencies in an effort to play an ever increasing role serving the Photonics Industry at the research end, as well as the industrial, life science, medical, and defense segments.

▸ www.thorlabs.com

Klee-Prize 2015 and Prize for Patient Safety in Medical Technology

Once again this year, the DGBMT awards the DGBMT prize of the Klee family foundation endowed with EUR 5000 for the promotion of young scientists.

The winner of the DGBMT prize of the Klee family foundation in 2015 is:

Dr. Marianne Mertens
„Theranostic Tissue Engineering: Magnetic Resonance Imaging of Biohybrid Vascular Grafts"

The prize will be awarded by Prof. Dr. Olaf Dössel, chairman of the DGBMT prize committee.

This year again, the DGBMT also awards the Prize for Patient Safety in Medical Technology together with the Aktionsbündnis Patientensicherheit (APS). The prize is endowed with EUR 6500 and founded by Dr. med. Hans Heindl.

The winner of the prize in 2015 is:

Dipl.-Ing. Tobias Wartzek,
RWTH Aachen
„Verlässliches medizinisches Monitoring in Bereichen niedriger Überwachungsstufe mit erhöhtem Komfortanspruch"

The prize will be awarded by Prof. Dr. Uvo Hölscher, member of the DGBMT prize committee.

The **prize-giving ceremony and the laudatory speech** for the winners will take place on the occasion of the opening event in the Audimax of the University of Lübeck on **September 16, 2015 at 19:25 h**.

DGBMT Students Competition 2015

The BMT 2015 is taken as an occasion to host the DGBMT student competition.

This year 62 students have participated. The best three papers – submitted as posters or oral presentations – will receive certificates and prizes.

The assessment at the conference is based on the following criteria:

- Scientific content of the paper
- Scientific content of the presentation
- Quality of the presentation
- Timing in the presentation
- Demonstration of competence in the discussion

Prizes will be as follows:
1st prize: EUR 1 000
2nd prize: EUR 600
3rd prize: EUR 400

The announcement of the winners and the award of certificates takes place at the closing event of the conference on **September 18, 2015 from 14:30 h** (Room AM3).

The awards are published after the conference both in the DGBMT members' magazine "Health Technologies" and on the DGBMT homepage.

▸ www.vde.com/dgbmt

Conference documents
You will receive your personal conference badge and the conference documents during the opening hours of the conference counter.

Conference language
The conference languages are German and English.

Poster session
Posters will be displayed from September 16, 2015, 9:00 h until September 18, 2015, 15:00 h.

BMT Proceedings – online access

- All accepted abstracts will be published online as a supplement to the journal 'Biomedical Engineering' by de Gruyter in the regular volume. Published structured abstracts will be available online on the de Gruyter's homepage (free access).
- The accepted conference papers will be published online in the newly established open access journal "Current Directions in Biomedical Engineering" by de Gruyter. Accepted conference papers will be prepared for listing by PubMed Central and will be available online on the de Gruyter's homepage.

Conference secretariat
VDE Conference Service
Stresemannallee 15
60596 Frankfurt/Main
Tel.: +49 (0) 69 6308-477
Fax: +49 (0) 69 6308-144
E-mail: vde-conferences@vde.com

Conference counter (AUDIMAX)
University of Lübeck, Gebäude 65, Audimax
Mönkhofer Weg 245, 23562 Lübeck, Germany
Tel.: +49 (0)451-500 5751

Opening hours of the conference counter

Tuesday, September 15, 2015	16:00 – 18:00 h
Wednesday, September 16, 2015	07:30 – 18:00 h
Thursday, September 17, 2015	07:30 – 18:00 h
Friday, September 18, 2015	07:30 – 15:00 h

You can register via our Online-Registration system on www.bmt2015.de

The conference fee includes:

- free online access to abstracts, the printed conference programme, the daily coffee breaks and lunches, get-together on September 16, 2015 in the foyer.

As a social event of the BMT 2015, we offer a special evening on September 17, 2015 at Dräger in Lübeck. Price: EUR 60,- per person.
All the conference materials will be handed out at the conference registration desk to the participants.

Registration fees:

Registration fees	Member	Non-Member
Institute, University, Clinic	EUR 380,-	EUR 460,-
Student**	EUR 140,-	EUR 160,-
PhD Student**	EUR 250,-	EUR 330,-
Physicians in further Education***	EUR 250,-	EUR 330,-
Personal Member	EUR 480,-	
Non-Member		EUR 560,-
Social event at Dräger Forum	EUR 60,-	EUR 60,-

* Participants applying for the VDE membership fee must include the membership number in the registration form. (ÖGBMT and SGBT members can also appply for VDE Membership conditions).
** For students up to 28 years / PhD students up to 35 years: a photocopy of the student card / certificate must be sent to: vde-conferences@vde.com.
*** a confirmation letter from the medical faculty is required!
Take advantage of the VDE/DGBMT membership by getting reduced participation fees. The membership is for new members free in the first year.

Cancellation:
In case of cancellation, provided that written notice is received at the VDE-Conference Services before July 15, 2015 (except authors registration), the registration fee will be fully refunded less a handling fee of EURO 50,00. From July 30, 2015 no refund will be made.
The prices are VAT free.

September 16, 19:30 h, Exhibition Area

Get-Together

After the formal opening of the conference we would like to welcome you with a selected buffet and drinks starting from 19:30 h.

Participants of the BMT 2015 can conclude the first conference day in a relaxed atmosphere.
Participation is included in the conference fee. We hope you enjoy the evening and have interesting talks.

September 17, 19:15 h, Dräger

Social Event at Dräger (separate registration required)

18:20: Departure in front of the Audimax (University of Lübeck) by bus shuttle

18:45 –
19:45: Guided tours: registered participants for this event will have the opportunity to participate in a guided tour offering insights into the Dräger company exhibition, the Dräger Design Center as well as the Dräger Test Center.

19:15: Welcome drink in the Dräger Atrium

20:00: Greetings

20:18: Gala Speech from Prof. Rehmann-Sutter

20:30: Buffet opening

22:30: end of the social event

Venue address
University of Lübeck, Gebäude 65, Audimax
Mönkhofer Weg 245
23562 Lübeck
Germany

Hotel Infomation
The agency TCH Top Conference Hotels GmbH offers accommodation in different categories.

For viewing the hotels list and booking please check the conference website: www.bmt2015.de

For special request, you can also contact:

TCH Top Conference Hotels GmbH
Thiemendorfer Mark 2
D-06796 Leipzig/Brehna
Deutschland
Telefon: +49 (0) 34954 903 - 201
Fax: +49 (0) 34954 903 - 499
E-Mail: veranstaltung@tch-hotels.de
Internet: www.tch-hotels.de

Map of the Area

Wednesday, September 16, 2015

	AM1	AM2	AM3	AM4	AMS1	AMS2	AMS3
8:30	KEYNOTE (Room AM1) Medical Image Computing (Ron Kikinis M.D.)						
9:00	BREAK – TRADE EXHIBITION (Exhibition Area)						
9:15	Tissue Engineering of Heart Valve Prosthesis E 18	FS: ICCAS session (1) G 19	Imaging (1): MRI Magnetic Resonance Imaging K 20	FS: Novel developments in the diagnosis and treatment of autoimmune blistering diseases E 21	FA: Biomaterialien und medizinische Implantate (1): Individualisierte Implantate A 22	Devices and Systems for Surgical Intervention (1) G 23	Image Based Intervention I 24
10:45	COFFEE BREAK – TRADE EXHIBITION (Exhibition Area)						
11:15	Biomechanical Modeling O 25	FS: ICCAS session (2) G 26	Imaging (2): MPI Magnetic Particle Imaging K 27	FS: New developments in the analysis and modification of central nervous rhythms D 28	FA: Biomaterialien und medizinische Implantate (2): Infektionsprophylaxe im Kontext mit Implantaten A 29	Prevention and Rehabilitation Engineering P 30	FS: Enhanced Endoscopy G 31
12:45	LUNCH BREAK (Mensa) – TRADE EXHIBITION (Exhibition Area)						DGBMT Members' Meeting (MFC I)
13:45							

	AM1	AM2	AM3	AM4	AMS1	AMS2	AMS3	MFC I
13:45	Modeling Ventilation, Infusion and Flow O 32	Magnetic Methods in Medicine L 33	Optical coherence tomography, digital holography and biophotonics B 34	FS: Wearable Sensors H 35	Biomaterials and Biocompatibility (1) A 36	FS: LUMEN - Luebeck Medical Engineering N 37	Devices and Systems for Surgical Intervention (2) G 38	DGBMT & DGCH (1) Joint-Session N 39
15:15								
15:30	KEYNOTE (Room AM1) Patentschutz für Innovationen im Bereich Biomedizintechnik (Cornelia Rudloff-Schäffer)							
16:00	COFFEE BREAK – TRADE EXHIBITION (Exhibition Area)							
16:30	Modeling in Audiology and Neurology O 41	Biosignal Processing (1) D 42	FS: Ultrasound K 43	Prosthetics and Implants (1): Structures and Design R 44	Biomaterials and Biocompatibility (2) A 45	FS: Low Liquid Flows in Medical Technology N 46	FS: Closed loop control in medical technology M 47	DGBMT & DGCH (2) Joint-Session N 48
18:00								
18:15	CONFERENCE OPENING (Room AM1) Transforming Health and Well-Being (Gerrit Schick)							
19:30	GET TOGETHER (Exhibition Area)							
22:00								

	AM1	AM2	AM3	AM4	AMS1	AMS2	AMS3
8:30	KEYNOTE (Room AM1) Anforderungen an die medizinische und medizintechnische Versorgung unter Langzeitbedingungen im Weltraum (Prof. Dr. Hanns-Christian Gunga)						
9:00	BREAK – TRADE EXHIBITION (Exhibition Area)						
9:15	Cardio-vascular Modeling (1) 50	FS: Medical and therapeutic needs with adapted signal processing solutions 51	Imaging (3): Opt Optical Imaging 52	Prosthetics and Implants (2): Materials 54	Nano- and Physikalisch-chemische Systeme 55	FS: Biomedical Engineering Meets Medical Informatics: Systematic Informationmanagement ... 56	FS: Signal Artifact Handling in Clinical Applications 57
10:45	COFFEE BREAK – TRADE EXHIBITION (Exhibition Area)						
11:15	POSTER SHORT ORAL PRESENTATIONS						
		Track A, C, Q 58 – 61	Track D, E, P 62 – 65	Track F, G 65 – 68	Track I, J, K, L 69 – 72	Track M, N, O 73 – 76	Track N, R 77 – 80
12:45	LUNCH BREAK (Mensa) – TRADE EXHIBITION (Exhibition Area)						
13:45							

128

	AM1	AM2	AM3	AM4	AMS1	AMS2	AMS3
13:45	KEYNOTE (Room AM1) Solving Medical Problems with Photomedicine (Dr. Conor L. Evans)						
14:15							
14:30	POSTER SESSIONS (V1 and V2 - Geb. 61, Foyer V1/ V2)						
16:00	COFFEE BREAK – TRADE EXHIBITION (Exhibition Area)						
16:30	Cardio-vascular Modeling (2) 82	Biosignal Processing (2) 83	Imaging (4): EIT/ Xray Electrical Impedance Tomography / X-Ray 84	FS: DGBMT and GMDS/GI Workshop „Biomedical Image and Signal Computing - BISC 2015“ 85	Chemo-Biosensor 86	FS: Innovation Management in Medical Engineering 87	New developments in monitoring 88
18:00	SOCIAL EVENT & KEYNOTE (Dräger) Do we really understand what we can build? A philosophical argument with Richard Feynman and Craig Venter about Synthetic Biology (Prof. Dr. Christoph Rehmann-Sutter)						
22:30							

129

Friday, September 18, 2015

	AM1	AM2	AM3	AM4	AMS1	AMS2	AMS3
8:30	KEYNOTE (Room AM3) Cocktail Parties and model-based Hearing aids: Towards a scalable binaural Hearing device (Prof. Dr. rer. nat. Dr. med. Birger Kollmeier)						
9:00	BREAK – TRADE EXHIBITION (Exhibition Area)						
9:15		Telemedicine, eHealth, mHealth M 91	Biosignal Processing (3) D 92	Image Processing J 93	Education and Training for Engineers and Physicians Q 94	Usability and Risk Management for Medical Devices S 95	Miscellaneous and Special Sessions N 96
10:45	COFFEE BREAK – TRADE EXHIBITION (Exhibition Area)						
11:15		FS: Open, secure, and dynamic networking in clinical environments M 97	Biosignal Processing (4) D 98	Awards Winner Session 99	Junges Forum trifft Alte Hasen: Qualität im Wandel der Zeit Q 100		
12:45	LUNCH BREAK (Mensa) – TRADE EXHIBITION (Exhibition Area)						
13:45							

	AM1	AM2	AM3	AM4	AMS1	AMS2	AMS3
13:45	KEYNOTE (Room AM3) A new era for optical imaging: multispectral optoacoustic tomography (MSOT) (Prof. Vasilis Ntziachristos)						
14:15							
14:20	AWARDS AND CLOSING CEREMONY (Room AM3)						
15:05							

111 page number

- A Biomaterials and Biocompatibility
- B Biophotonics
- C Biosensors and Bioanalytics
- D Biosignal Processing
- E Cellular, Tissue and Bioengineering
- F Clinical and Ambulatory Monitoring
- G Devices and Systems for Surgical
- H Home Health Care and AAL
- I Image Based Intervention
- J Image Processing
- K Imaging
- L Magnetic Methods in Medicine
- M Medical Information Systems, Telemedicine, eHealth, mHealth
- N Miscellaneous and Special Sessions
- O Modelling and Simulation
- P Prevention and Rehabilitation Engineering
- Q Education and Training for Engineers and Physicians
- R Prosthetics and Implants
- S Usability and Risk Management

FS: Focus session

- Z Special Focus session

Track Title Overview

A	Biomaterials and Biocompatibility
B	Biophotonics
C	Biosensors and Bioanalytics
D	Biosignal Processing
E	Cellular, Tissue and Bioengineering
F	Clinical and Ambulatory Monitoring
G	Devices and Systems for Surgical
H	Home Health Care and AAL
I	Image Based Intervention
J	Image Processing
K	Imaging
L	Magnetic Methods in Medicine
M	Medical Information Systems, Telemedicine, eHealth, mHealth
N	Miscellaneous and Special Sessions
O	Modelling and Simulation
P	Prevention and Rehabilitation Engineering
Q	Education and Training for Engineers and Physicians
R	Prosthetics and Implants
S	Usability and Risk Management

DGBMT GERMAN SOCIETY FOR BIOMEDICAL ENGINEERING WITHIN VDE

DGBMT within VDE
Stresemannallee 15
D - 60596 Frankfurt am Main
Tel.: +49 (0)69 6308-348
E-Mail: dgbmt@vde.com
www.vde.com/dgbmt