



Progress in Electrically Active Implants – Tissue and Functional Regeneration

Live Poster Session

A 10:45 – 11:15		Abstract #1-12
#1	Hans-E. Lange and Daniel Kluess	Piezoelectric energy harvesting concept for an orthopaedic implant - Simulation & Implant fatigue testing
#2	Anika Lüttig, Stefanie Perl, Maria Paap, Rüdiger Köhling, Markus Morawski and Angelika Richter	Immunohistochemical examinations of the effects of short-term deep brain stimulation on neuronal activity and components of perineuronal nets in the dtsz hamster
#3	Franziska Sahm, Vivica Freiin Grote, Thomas Kreller, Rainer Detsch, Rainer Bader and Anika Jonitz-Heincke	Long term stimulation of osteoblasts with low-frequency alternating electrical fields
#4	Maria Paap, Stefanie Perl, Anika Lüttig, Franz Plockstieß, Christoph Niemann, Dirk Timmermann, Christian Bahls, Ursula van Rienen, Denise Franz, Monique Zwar, Marco Rhode, Rüdiger Köhling and Angelika Richter	Deep brain stimulation as a therapeutic option in dystonia: effects of different frequencies in a phenotypic animal model by using an optimized stimulator
#5	Wenzuo Wei and Juergen F. Kolb	Analysis of Impedance Properties of Trabecular Bone Based on Cole-Cole Analysis, Linear Discriminant Analysis and Effective Medium Approximation
#7	Yogesh Deepak Bansod, Maeruan Kebbach, Daniel Kluess, Rainer Bader and Ursula van Rienen	Multiscale finite element analysis of strain-adaptive bone remodelling with considering bone piezoelectricity
#8	Simone Krüger, Rika Uphoff, Anika Jonitz-Heincke and Rainer Bader	Electrical stimulation leads to enhanced chondrogenic differentiation in co-cultured human mesenchymal stem cells and chondrocytes
#9	Jonathan Dawson, Ursula van Rienen and Revathi Appali	Theoretical framework to study the influence of electric field on the mesenchymal osteogenic differentiation and osteoblast migration
#10	Revathi Appali	Comparison of FitzHugh-Nagumo Model and Heimburg-Jackson Model of Nerve Pulse Propagation
#11	Julius Zimmermann and Ursula van Rienen	Uncertainty quantification for electromagnetic models of biological cells
#12	Kiran Kumar Sriperumbudur, Revathi Appali, Rainer Bader and Ursula van Rienen	Modeling Anisotropic Electric Conductivity of Porous Bone Tissue Using Image-Based Method
B 11:15 – 11:45		Abstract #14-34
#14	Poh Soo Lee, Revathi Appali, Aldo Boccaccini, Vera Hintze and Ursula van Rienen	Investigating the potential of electric field (EF) stimulations and bioactive glass nanoparticles (BGN) to enhance osteogenic differentiation of human mesenchymal stem cells (hMSC)
#15	Sven Neuber, Annekatrin Sill, Peter Nestler, Heiko Ahrens, Katja Fricke and Christiane A. Helm	Electrically conductive layer-by-layer assembled films using oxidized carbon nanotubes and polycations
#20	Jakob Heller, Pia Wilsdorf, Christoph Niemann, Franz Plocksties, Adelinde M. Uhrmacher, Christian Haubelt and Dirk Timmermann	Assisting Early Design Decision For Implantable Neurostimulators Through Virtual Prototyping
#22	Karthik Sridhar, Judith Evers and Madeleine Lowery	A computational study on the effect of chronic stimulation on the electrode-tissue interface of deep brain stimulation electrodes
#25	Imke Reich, Monique Zwar, Marco Rohde, Valentin Neubert, Stefanie Perl, Lüttig Anika, Franz Plocksties, Angelika Richter, Rüdiger Köhling and Denise Franz	Viability of striatal and pallidal parvalbumin-positive neurons after deep brain stimulation
#26	Konstantinos Spiliotis, Jens Starke, Denise Franz, Angelika Richter and Rüdiger Köhling	Basal Ganglia Network Dynamics in Deep Brain Stimulation - A Frequency Dependent Analysis
#29	Francia Molina, Mareike Fauser, Julius Zimmermann, Kai Budde, Adelinde M. Uhrmacher, Ursula van Rienen and Alexander Storch	In vitro effects of direct current electrical stimulation on forebrain adult mouse neural stem cells
#30	Nikolai Weis, Mareike Fauser and Franz Markert	Dopaminergic plasticity induced by deep brain stimulation in the subthalamic nucleus
#31	Vishnu Prathapan, Peter Eipert, Revathi Appali, Ursula van Rienen and Oliver Schmitt	Modeling and simulation of neural signal activity in a connectome for the study on Multiple Sclerosis
#33	Christian Polley, Caroline Scheufler, Fukun Shi, Thomas Distler, Rainer Detsch, Aldo R. Boccaccini, Jürgen Kolb and Hermann Seitz	Functionalization of 3D printed, piezoelectric barium titanate-hydroxyapatite composite scaffolds with bioactive glass
#34	Max Ulbrich, Christian Völkner, Issam Assi, Regina Lange, Martina Grüning, Barbara Nebe, Ingo Barke and Sylvia Speller	Mapping charge and current distributions on osteoblasts via Scanning Ion Conductance Microscopy

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C	11:45 – 12:15	Abstract #36-48
#36	Max Ulbrich, Christian Völkner, Regina Lange, Heiko Lemcke, Robert David, Martina Grüning, Barbara Nebe, Ingo Barke and Sylvia Speller	Local membrane height dynamics of live cells
#37	Christian Völkner, Issam Assi, Martina Grüning, Regina Lange, Barbara Nebe, Ingo Barke and Sylvia Speller	Nanoprobing of osteoblasts adhered to micro-contact printed dendrimer and protein layers
#38	Monique Zwar, Marco Heerdegen, Denise Franz, Valentin Neubert, Franz Plocksties, Christoph Niemann, Dirk Timmermann, Christian Bahls, Ursula van Rienen, Maria Paap, Stefanie Perl, Anika Lüttig, Angelika Richter and Rüdiger Köhling	Increase of striatal inhibitory tone by pallidal deep brain stimulation in awake dystonic hamsters
#39	Chengdong Yuan, Gunasheela Sadashivaiah, Dennis Hohlfeld and Tamara Bechtold	System-Level Modelling Approaches of a Miniaturized Thermoelectric Generator for Electrically Active Implants
#42	Valentin Neubert, Monique Zwar, Denise Franz, Marco Heerdegen, Lüttig Anika, Stefanie Perl, Jakob Heller, Christoph Niemann, Franz Plocksties, Frank Krüger, Sascha Spors, Dirk Timmermann, Angelika Richter and Rüdiger Köhling	Identification of Biomarkers for Progression and Amelioration of Disease in a Hamster Model of Dystonia
#43	Alexander Riess, Alina Weizel, Simone Krueger, Anika Jonitz-Heincke, Rainer Bader and Hermann Seitz	A novel device for combined electrical and mechanical stimulation of human cartilage cells
#45	Susanne Staehlke, Fiete Haack, Anna-Christin Waldner, Dirk Koczan, Caroline Moerke, Adelinde M. Uhrmacher and J. Barbara Nebe	Defined micro-topography regulates osteoblasts Wnt/ β -catenin transcriptional activation
#46	Sebastian Schick, Max Schröder, Antje Meuser, Frank Krüger and Sascha Spors	Data Management Planning in Large Collaborative Research Consortia
#47	Andrea Andree, Konstantin Butenko, Mareike Fauser, Maria Kober and Ursula van Rienen	In silico characterization of the electric field distribution of deep brain stimulation in a detailed volume conductor model
#48	Sascha Spors, Simon Adrian, Daniel Kluess and Lisa Krukewitt	Exploring the potential of electrical impedance tomography for monitoring of revision total hip replacements
#49	Mohamed Elhensheri, Michael Dau, Vivien Engel, Dirk Timmermann, Franz Plocksties, Rainer Bader, Bernhard Frerich, Peer W. Kämmerer	Electrical direct stimulation for induction of bone regeneration in critical-size mandibular Defects - a preliminary in vivo model

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