

Inaugural Meeting

ViCEM – Vienna Center for Engineering in Medicine

November 9-10, 2017

Nov 9 | Medical University of Vienna | Van Swieten Saal

Van-Swieten-Gasse 1a, 1090 Wien

11:30 Registration & Snacks

12:30 Welcome Addresses

Siegfried Trattnig, ViCEM Coordinator (Medical University of Vienna)

Christian Hellmich, ViCEM Coordinator (Technische Universität Wien)

Michaela Fritz, Vice Rector Research & Innovation (Medical University of Vienna)

Johannes Fröhlich, Vice Rector Research & Innovation (Technische Universität Wien)

Thematic Cluster “Tissue and Organ Regeneration”

Chair: Jürgen Stampfl

13:00 *Re-engineering developmental processes for tissue regeneration*
(Keynote)

Ivan Martin (University Hospital Basel, Switzerland)

13:40 *Cardiovascular tissue regeneration- where do we stand in 2017*

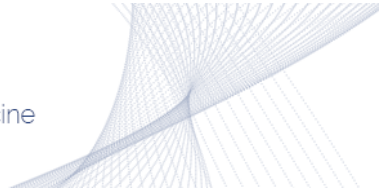
Bruno Podesser (Medical University of Vienna)

14:00 *Biological and methodical aspects of research in cartilage regeneration*

Sylvia Nürnberger (Medical University of Vienna)

14:20 Closing Discussion of Thematic Cluster “Tissue and Organ Regeneration”

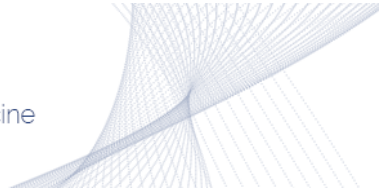
14:40 Coffee Break



Thematic Cluster “Imaging & Diagnostics”

Chair: Franz Kainberger

- 15:30 *Novel imaging methods for osteoarthritis - Where technology meets medicine (Keynote)*
Miika Nieminen (Oulu University Hospital, Finland)
- 16:10 *Mass Spectrometry based imaging - looking at biomolecules in their native environment*
Martina Marchetti-Deschmann (Technische Universität Wien)
- 16:30 *Imaging the eye and brain by optical coherence tomography*
Bernhard Baumann (Medical University of Vienna)
- 16:50 *Routine radiomics - big data as a tool for prognostic marker discovery*
Georg Langs (Medical University of Vienna)
- 17:10 Closing Discussion of Thematic Cluster “Imaging & Diagnostics”
- 17:30 Networking & Snacks



Nov 10 | Technische Universität Wien | TUtheSky

Getreidemarkt 9, 1060 Wien

Thematic Cluster "Biology & Cells"

Chair: Philipp Thurner

- 10:00 *Bone adaptation to microgravity in space: from skeleton to cytoskeleton (Keynote)*
Laurence Vico (INSERM Saint-Etienne, France)
- 10:40 *Imaging beyond the optical diffraction limit*
Gerhard Schütz (Technische Universität Wien)
- 11:00 *Broadband prosthetic interfaces: Combining nerve transfers and implantable multichannel EMG technology to decode spinal motor neuron activity*
Oskar Aszmann (Medical University of Vienna)
- 11:20 *High resolution episcopic microscopy (HREM): a tool for visualising the architecture of organic materials*
Wolfgang Weninger (Medical University of Vienna)
- 11:40 *3D printing and biofabrication*
Aleksandr Ovsianikov (Technische Universität Wien)
- 12:00 Closing Discussion of Thematic Cluster "Biology & Cells"
- 12:20 Lunch

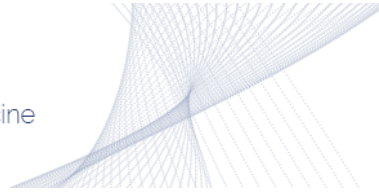
PhD Project Presentations

Chair: Heinz Redl

Oral Presentations

- 13:45 *Electrical impedance tomography: the new tool for individualized mechanical ventilation?*
Florian Thürk (Technische Universität Wien)
- 13:50 *Directed cell growth and alignment in 3D printed hydrogels*
Agnes Dobos (Technische Universität Wien)
- 13:55 *Spectral optimization of multiphoton polymerisation for tissue engineering*
Wolfgang Steiger (Technische Universität Wien)
- 14:00 *Fracture prediction in femora with metastatic lesions using QCT-based finite element analysis (also to be presented as poster)*
Emir Benca (Medical University of Vienna)

- 14:05 *The merit of highly accelerated T2 mapping of the intervertebral disc - stepping up to clinical feasibility*
Marcus Raudner (Medical University of Vienna)
- 14:10 *Mechanobiology on a chip*
Barbara Bachmann (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)
- 14:15 *Vascularization of multi-organ-chips*
Severin Mühleder (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)
- 14:15 *Inflammatory modulation of hemostasis in trauma-induced coagulopathy*
Johannes Zipperle (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)
- 14:20 *Low Level Light Therapy: The effects on cellular and subcellular mechanisms*
Sidrah Chaudary (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)
- 14:25 *A new molecular force sensor reveals pulling of T cell during antigen recognition (also to be presented as poster)*
Lukas Schrangl (Technische Universität Wien)
- 14:30 *Hyaluronic acid as a basis for the development of hydrogel networks and two-photon initiators (also to be presented as poster)*
Elise Zerobin (Technische Universität Wien)
- 14:35 *Christian Doppler Laboratory for photopolymers in digital and restorative dentistry (also to be presented as poster)*
Christoph Schnöll (Technische Universität Wien)
- 14:40 *Biodegradable thermoplastic polyurethane polymers for their application as electrospun artificial blood vessels (also to be presented as poster)*
Katharina Ehrmann (Technische Universität Wien)
- 14:45 *Additive manufactured biodegradable photopolymers for bone regeneration (also to be presented as poster)*
Christoph Hofstetter (Technische Universität Wien)
- 14:50 *Orientation dependence and decay characteristics of T2* relaxation in the human meniscus studied with 7 T microscopy and histology (also to be presented as poster)*
Benedikt Hager (Medical University of Vienna)



Poster Presentations & Discussion

14:55 – 15:30

Laser-based 3D printing of hydrogel barrier models for microfluidic applications

Denise Mandt (Technische Universität Wien)

Superresolution microscopy for studying the distribution of the T cell receptor at the T cell plasma membrane

Benedikt Rossboth (Technische Universität Wien)

Auricular vagus nerve stimulation: a new approach for personalized medicine

Stefan Kampusch (Technische Universität Wien)

Lithography-based ceramic manufacturing in digital dentistry

Sonja Baumgartner (Technische Universität Wien)

Photosensitive gelatine-methacrylamide in 3D cell culture

Katja Hölzl (Technische Universität Wien)

Finite element models of distal radius fracture osteosynthesis: Relevance of local bone density and anisotropy

Alexander Synek (Technische Universität Wien)

Amblyomma hebraeum: Analysis of tick attachment cement

Benedikt Engel (Technische Universität Wien)

Structural insights into tick attachment cement

Johannes Suppan (Medical University of Vienna)

Extracorporeal shockwave therapy accelerates motor axon regeneration despite a phenotypically mismatched environment

David Hercher (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)

Low Level Light Therapy in wound healing

Lisa Karner (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)

Ex-vivo and in situ activation of adipose-derived cells

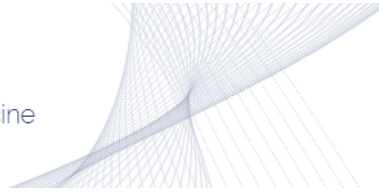
Julia Maier (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)

Factors regulating activation of stem cells with emphasis on mitochondria and reactive oxygen species

Sergiu Dumitrescu (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)

Biocompatible micro-patterning of o-nitrobenzyl crosslinked hydrogels by sensitized two-photon cleavage

Markus Lunzer (Technische Universität Wien)



Thematic Cluster “Theory & Modelling”

Chair: Winfried Mayr

- 15:30 *Engineering test-beds of cancer metastasis: using materials science and mechanobiological routes (Keynote)*
Kalpana Katti (North Dakota State University, USA)
- 16:10 *Predicting bone remodeling in health and disease - Theoretical foundations and numerical studies*
Stefan Scheiner (Technische Universität Wien)
- 16:30 *Biomedical engineering in the tensions between theoretical modelling and clinical application*
Heinrich Schima (Medical University of Vienna)
- 16:50 *Theranostics or how engineering and medicine complement each other*
Eugenijus Kaniusas (Technische Universität Wien)
- 17:10 Closing Discussion of Thematic Cluster “Theory & Modelling”
- 17:30 Coffee Break

Success Stories & Panel Discussion

- 18:00 Presentations of Success Stories (Spin offs) of previous successful cooperations

Additive Manufacturing: Interdisciplinary research between Technische Universität Wien and Medical University of Vienna

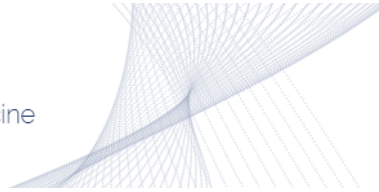
Jürgen Stampfl (Technische Universität Wien)

M3dRES - Additive Manufacturing for Medical Research

Francesco Moscato (Medical University of Vienna)

European Project RISE – from multi-disciplinary research to clinical application of a novel method and its associated technology

Winfried Mayr (Medical University of Vienna):



- 18:30 Panel Discussion
Siegfried Trattnig, ViCEM Coordinator (Medical University of Vienna)
Christian Hellmich, ViCEM Coordinator (Technische Universität Wien)
Michaela Fritz, Vice Rector Research & Innovation (Medical University of Vienna)
Johannes Fröhlich, Vice Rector Research & Innovation (Technische Universität Wien)
Donia Lasinger, Deputy Managing Director (Wiener Wissenschafts-, Forschungs- & Technologiefonds - WWTF)
Heinz Redl, Director (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)
Martin Reichel (Otto Bock Healthcare GmbH)
- 20:00 Networking & Snacks