

Biennial Meeting

ViCEM – Vienna Center for Engineering in Medicine

November 14-15, 2019

Nov 14 | Medical University of Vienna | Van Swieten Saal
Van-Swieten-Gasse 1a, 1090 Wien

09:00 Registration & Coffee

10:00 Welcome Addresses
Christian Hellmich, ViCEM Coordinator (Technische Universität Wien)
Siegfried Trattnig, ViCEM Coordinator (Medizinische Universität Wien)
Michaela Fritz, Vice Rector Research & Innovation (Medizinische Universität Wien)
Johannes Fröhlich, Vice Rector Research & Innovation (Technische Universität Wien)

10:30 **Keynote Lecture Session**
Chair: Philipp Thurner (Technische Universität Wien)

10:30 *INBETWEEN - Coop. Projects with TU/MUW – Austrian Cluster for Tissue Regeneration*
Heinz Redl (Ludwig Boltzmann Institute for Experimental and Clinical Traumatology)

11:15 *Man-machine interfacing by decoding spinal motor neurons*
Dario Farina (Imperial College London)

12:00 Lunch Break

13:30 ViCEM Best PhD Award Session

Chair: Franz Kainberger (Medizinische Universität Wien)

13:30 *Fracture load prediction in patients with metastatic lesions in the femur using finite element analysis*

Emir Benca (Medizinische Universität Wien)

14:00 *Individualization and optimization of electrical impedance tomography and improvement of biosignal management and analysis in the clinical setting*

Florian Thürk (Technische Universität Wien)

14:30 *Development of a 3D-printing process for colored dental ceramics and selective modification of polymers*

Sonja Baumgartner (Technische Universität Wien)

15:00 Coffee Break

15:30 Rapid-fire PhD Project Presentations

of ongoing (joint) PhD projects accompanied by a poster

Chairs: Eugenijus Kaniusas (Technische Universität Wien) and **Wolfgang Weninger** (Medizinische Universität Wien)

15:30 *Development of thermoplastic elastomers for vascular tissue regeneration*
P. Schwarzl (TU Wien), K. Ehrmann, C. Grasl, S. Rohringer, T. Koch, H. Schima, H. Bergmeister, B. Podesser, R. Liska, S. Baudis

15:35 *The stiffer the better? Influence of matrix stiffness on chondrocyte redifferentiation*

B. Bachmann (LBI Trauma), S. Spitz, B. Schädler, H. Redl, S. Nürnberger, P. Ertl

15:40 *Tough photopolymers for bone tissue regeneration*

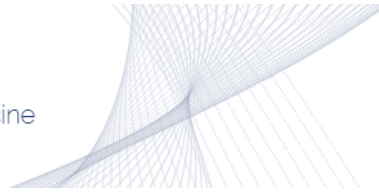
P. Steinbauer (TU Wien), S. Orman, C. Hofstetter, M. Schwentenwein, G. Russmüller, J. Stampfl, R. Liska, S. Baudis

15:45 *Biodegradable photopolymers based on acetal building blocks as artificial bone grafts*

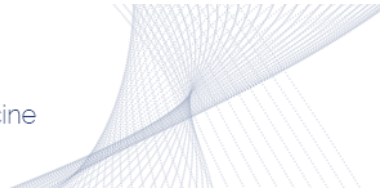
B. Dellago (TU Wien), R. Liska, S. Baudis

15:50 *Real time-NIR-photorheology: in situ characterization of the gelatin-methacryloyl hydrogel photocuring process*

R. Reichsöllner (TU Wien), L. Rebers, A. Southan, S. Baudis



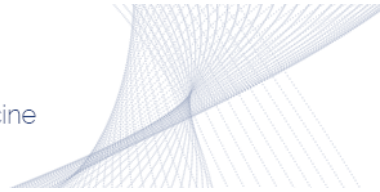
- 15:55 *Developing of Si₃N₄ ceramics using lithography-based additive manufacturing*
A.L. Kutsch (TU Wien), C. Hofstetter, S. Baudis, J. Stampfl
- 16:00 *Automatic control of an intra-corporeal membrane oxygenator*
M. Elenkov (TU Wien), C. Janeczek, B. Lukitsch, P. Ecker, T. Keck, M. Harasek, M. Gföhler
- 16:05 *Optimization of oxygenators using computational fluid dynamics*
B. Lukitsch (TU Wien), M. Elenkov, C. Janeczek, P. Ecker, T. Keck, M. Gföhler, M. Harasek
- 16:10 *Experimental development of functional units of intracorporeal assist devices*
C. Janeczek (TU Wien), M. Elenkov, P. Ecker, B. Lukitsch, M. Hinteregger, M. Harasek, R. Willinger, M. Gföhler
- 16:15 *Experimental and numerical investigation of an intracorporeal pumping unit*
P. Ecker (TU Wien), B. Lukitsch, M. Elenkov, C. Janeczek, T. Keck, M. Gföhler, M. Harasek
- 16:20 *A new approach to the mechanics of DNA: atoms-to-beam homogenization*
J. Kalliauer (TU Wien), G. Kahl, S. Scheiner, C. Hellmich
- 16:25 *T₂^{*} relaxation characteristics of tendons and their dependence on the magic angle effect – A MR microscopy study with histological correlation*
B. Hager (MedUni Wien), M.M. Schreiner, L. Hirtler, X. Deligianni, O. Bieri, A. Berg, S.M. Walzer, M. Zalaudek, R. Windhager, S. Trattnig, V. Juras
- 16:30 *Investigation of pump speed modulation and its timing on the risk of ventricular thrombosis*
T. Khienwad (MedUni Wien), A. Maure, M. Ghodrati, F. Moscato, H. Schima, P. Aigner
- 16:35 *Investigation of the left ventricle apical flow field under left ventricular assist device support*
M. Ghodrati (MedUni Wien), T. Khienwad, A. Maurer, T. Schlöglhofer, F. Moscato, F. Zonta, C. Gross, P. Aigner, H. Schima
- 16:40 *Progress in electrical-impedance tomography*
L. Taghizadeh (TU Wien), D. Pasterk, E. Kaniusas, W. Weninger, C. Heitzinger



- 16:45 *Integrating HREM in multimodal imaging pipelines*
A. Seyedian Moghaddam (MedUni Wien), S.H. Geyer, L.F. Reissig,
W.J. Weninger
- 16:50 *Fabrication of high-resolution scaffolds using 2-photon polymerization*
G. Weisgrab (TU Wien), O. Guillaume, Z.Guo, A. Poot, D. Grijpma,
A. Ovsianikov
- 16:55 *Imaging of Gadolinium accumulation in bone by XRF*
A. Turyanskaya (TU Wien), M. Rauwolf, V. Pichler, R. Simon,
M. Burghammer, O. Fox, K. Sawhney, J. Hofstaetter, A. Roschger,
P. Roschger, P. Wobrauschek, C. Strelt
- 17:00 *Engineered extracellular matrix enhances the bone regeneration potential
of aged human bone marrow stromal cells*
D. Hanetseder (LBI Trauma), T. Levstek, H. Redl, D. Marolt Presen
- 17:05 *Peripheral nerve regeneration and shockwave therapy*
D. Hercher (LBI Trauma), J. Ferguson, C.M.A.P. Schuh, J. Heinzl, L. Gal,
P. Heimel, R. Schmidhammer, H. Redl, A. Nógrádi, A. Hacopian
- 17:10 *Average of extracellular bone tissue composition is invariant across
mammalian femora tissues*
L. Zelaya-Lainez (TU Wien), H. Kariem, W. Nischkauer, A. Limbeck,
C. Hellmich
- 17:15 *Rehabilitation of patients with global brachial plexus injury receiving bionic
reconstruction*
A. Sturma (MedUni Wien), L.A. Hruby, D. Farina, O.C. Aszmann

17:20 – 19:00

Poster Presentations & Discussion
Networking & Snacks



Nov 15 | Technische Universität Wien | Festsaal

Karlsplatz 13, 1040 Wien

09:00 Registration & Coffee

10:00 Keynote Lecture Session

Chair: Dieter Pahr (Technische Universität Wien)

10:00 *Tissue regeneration in the name of time and energy*
Petros Koidis (University of Thessaloniki)

10:45 *Engineering meets medicine in biomedical imaging: laying the foundations for 3D X-ray histology*
Philipp Schneider (University of Southampton)

11:30 *What can local funders do to strengthen a research location?*
Michael Stampfer (W/WTF | Vienna Science and Technology Fund)

12:15 Lunch Break

13:30 Thematic Session "Additive Manufacturing"

Chairs: Jürgen Stampfl (Technische Universität Wien) and **Francesco Moscato** (Medizinische Universität Wien)

13:30 *Towards superior AM through tailored (bio)polymer design [Keynote]*
Sandra Vlierberghe (University of Ghent)

14:05 *Additive Manufacturing of dental glass ceramics*
Sonja Baumgartner (Technische Universität Wien)

14:25 *Control of the electrospinning process to manufacture scaffolds with definable fiber deposition*
Christian Grasl (Medizinische Universität Wien)

14:45 ViCEM Best PhD Award Ceremony

co-sponsored by



15:00-16:00

Networking & Farewell