In Silico Solutions for Advanced Electroceuticals

Sim4Life Workshop 2017

Visit us at Neuroscience 2017 Booth No. 416

Tuesday, November 14, 18.30 – 20.30
Marriott Marquis Hotel, Room Archives
901 Massachusetts Avenue NW, Washington, DC

Summary

Bioelectronic medicine is a game changer in the treatment of diseases, relieving conditions, and restoring lost sensory/motor functions. A powerful approach to personalize the design and assess the safety of devices such as electroceuticals is offered by computational tools, which are based on multi-physics modeling and realistic, neuro-functionalized anatomical models. Our experts will demonstrate how Sim4Life re-defines *in silico* device assessment through reliable prediction of neurophysiological responses, optimization of stimulation selectivity, and much more.

Agenda

18:30 – 18:40	Introduction to the Workshop & Sim4Life *Michael Oberle, ZMT Zurich MedTech AG, Zurich, Switzerland*
18:40 – 19:00	Bioelectronic Medicine, the NIH SPARC Initiative and ZMT's Solutions for *in silico* Device Development, Trials, and Precision Medicine *Esra Neufeld, ZMT Zurich MedTech AG & IT'IS Foundation, Zurich, Switzerland*
19:00 – 19:15	Neuro-Functionalized Anatomical Models: The Virtual Population & NEUROMAN *Bryn Lloyd, IT'IS Foundation, Zurich, Switzerland*
19:15 – 19:45	Assessing and Optimizing Electroceuticals and Neuromodulation with Sim4Life *Antonino Mario Cassarà, IT'IS Foundation, Zurich, Switzerland*
19:45 – 20:15	Verification, Validation, and Uncertainty Assessment for Electromagnetic-NEURO Modeling *Wolfgang Kainz, U.S. Food and Drug Administration*
20:15 – 20:30	Sim4Life Roadmap & Conclusions *Michael Oberle, ZMT Zurich MedTech AG, Zurich, Switzerland*
20:30	**Light Dinner**

To register, please send an email to s4l-sales@zurichmedtech.com

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ZMT zurich med tech

Background of ZMT and Zurich43

ZMT is a member of the Zurich43 family, which includes the non-profit research institution the IT'IS Foundation as well as other commercial units SPEAG and Zeugi43, and the joint venture companies SCALK and BNNSPEAG. All enterprises are dedicated to the mission to expand the boundaries of methodologies, instrumentation, and computational tools for the accurate evaluation of electromagnetic (EM) near- and far-fields from static to optical frequencies and of complex technical medical devices in validated biological and anatomical environments. The family was established starting with SPEAG more than 20 years ago and expanded with the addition of the various entities in specialized disciplines.

ZMT Zurich MedTech AG (www.zurichmedtech.com)

ZMT was founded in 2006 as a spin-off company of the ETH and the IT'IS Foundation with the mission to develop tools and best practices for targeted life sciences applications for simulation, analysis, and prediction of complex and dynamic biological processes and interactions.

ZMT's flagship product is Sim4Life, a revolutionary simulation platform that combines computable human phantoms with incredibly powerful physics solvers and the most advanced tissue models. Sim4Life is used to analyze real-world biological phenomena and complex technical devices in validated computational biological and anatomical environments. ZMT provides fully characterized and ISO17025 calibrated experimental systems for the validation of in silico based evaluations. All systems are user friendly and seamlessly integrated with Sim4Life.

Schmid & Partner Engineering AG – SPEAG (www.speag.com)

SPEAG was founded in 1994 to develop and manufacture electromagnetic systems and components as a spin-off company of the Bioelectromagnetics/EM Compatibility group of the ETH Zurich (which later became the IT'IS Foundation) .The cornerstone of SPEAG's success is its strong investment in R&D and its strategic alliances with leading research institutions to ensure the development of cutting-edge products. Key products are DASY6, cSAR3D, ICEy/TDS, DAK, EM Phantoms, EM Probes for measurements from DC to 100 GHz, and SEMCAD X.

To better serve its customers and those of ZMT and the IT'IS Foundation, a calibration laboratory certified by the Swiss Accreditation Service (SAS) for ISO/IEC 17025 Accredi-tation and multilaterally recognized by EA, IFA, and ILAC was established in 2001. The laboratory provides extensive calibration services to the entire Zurich43 family for systems, probes, antennas, dielectric probe kits, phantoms, materials, etc.

To bring services closer to SPEAG's global customer base, a number of satellite facilities were co-founded: the SPEAG Calibration Laboratory Korea together with DYMSTEC in 2011, and the BNNSPEAG Test & Calibration Laboratory India together with BNN Communication Engineers in 2012.

Foundation for Research on Information Technologies in Society – IT'IS Foundation (www.itis.ethz.ch)

The IT'IS Foundation was established in 1999 through the initiative and with the support of the ETH Zurich, the global wireless communications industry, together with several governmental agencies. It is the leading independent non-profit research foundation dedicated to improving and advancing the quality of people's lives by advancing personalized medicine and computational life sciences (IT'IS for Health) and beneficial applications of EM energy and wireless communications (EM Research). The IT'IS Foundation provides an innovative proactive and interdisciplinary research environ-ment for the cultivation of sound science and research and good education. Results are widely disseminated to the scientific community and the public through peer-reviewed journal articles, conference proceedings, television interviews, and white papers. IT'IS also supports the R&D efforts of industrial partners, in particular SME's such as SPEAG and ZMT, to advance precompetitive and noncompetitive research initiatives.

Zeugi43 AG

Zeugi43 AG was founded in 2009 with the objective to provide the best possible infrastructure for the members of the Zurich43 family at its headquarters in downtown Zurich.

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zmt zurich medtech ag · zeughausstrasse 43, 8004 zurich, switzerland · phone +41–44–245–9765
info@zurichmedtech.com · www.zurichmedtech.com

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