IT'IS FOUNDATION
s p e a g
ZMT zurich med tech
TI Solutions

SIMULATIONS

Sim4Life V8.0 Web and Desktop – Fully Compatible

Mid-March, just about 1 year after the release of the free student version S4L*lite* for scientific use, ZMT announced their latest breakthrough: the release of the fully web-based Sim4Life.web V8.0, made possible by the use of base technologies developed within the IT'IS o²S²PARC platform!

The Sim4Life V8.0 web and desktop versions are identical twins that offer seamless compatibility, excellent responsiveness, and a unified user experience. While the desktop version offers lower costs for groups with large simulation volumes and for situations where all data is required to be maintained within its own firewall, the web version excels in flexibility and scalability, making it an ideal choice for collaborative R&D efforts. ZMT has also released Sim4Life.science, which has a much lower cost-per-use for universities than for commercial identities, fulfilling Z43's mission to support science. Check out Sim4Life.web here.

MEASUREMENTS

WPT Compliance Testing: Regulator Ready

DASY8/6 Module WPT V2.4 is undoubtedly the most accurate method for demonstration of compliance of wireless power transfer (WPT) systems, and it is also the most straightforward approach; MAGPy V2.4 is simply the most convenient way to demonstrate WPT compliance *in situ.* In response to discussions we have had with regulators over the past few months regarding how these tools can meet all regulatory requirements, we have issued WPT application notes, which are now available on our website.

TEMPORAL INTERFERENCE

EEG Recording during TI Stimulation

New EEG Filters for Closed-Loop TI Stimulation

IT'IS has developed a new filter solution that enables uncompromised high-density electro-encephalography (EEG) recording during temporal interference (TI) stimulations with the TIBS-R system from our partner TI Solutions AG. The filters prevent interference during EEG recording and provide much-needed insight into brain function response to stimulation, as well as opportunities for state-synchronized stimulation and closed-loop control. Filters are available for 128- and 256-channel Electrical Geodesics, Inc. (EGI) EEG systems, and 32-channel modules are available for the systems of BrainProducts. For more information on the new filter solution, contact IT'IS info@itis.swiss. For more information on the TIBS-R device, please contact TI Solutions eap@temporalinterference.com.

2024 Call for Applications: Katja Poković Research Fellowship

The Katja Poković
Research Fellowship

Call for Applications

In February, IT'IS announced the call for proposals for our fellowship program to support **female** scientists in the field of electromagnetics and information technology. The application deadline is **April 30, 2024, 23:59h Swiss local time** (kpresearchfund@itis.swiss). Please spread the news!

Exhibit and Presentations at NANS 2024

Z43 exhibited and presented posters and oral talks at the North American Neuromodulation Society 27th Annual Meeting (NANS) in Las Vegas, USA, January 18 – 21, 2024! We were excited to have the opportunity to present some of our ongoing projects and (re)connect with old and new customers at the premier meeting for neuromodulation research and to showcase our latest tools for optimized and targeted neuromodulation, as well as for evaluation of magnetic resonance imaging (MRI) implant safety.
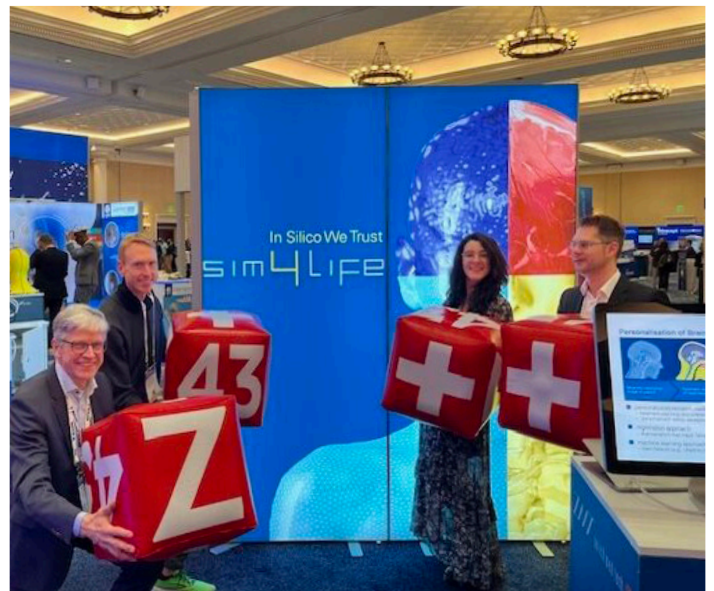
TIP IT'IS

TIP V2.2
Enhanced Precision More Targets

TIP V2.2

Advanced targeted TI planning with TIP V2.2: the latest release of our TI planning tool includes refinements in the brain atlases, particularly for the MIDA head model, thus expanding the range of plausible target regions. TIP V2.2 also ensures accurate registration of MRI data to the calculated field distributions for co-visualization and interpretation and has adopted the right-anterior-superior (RAS) convention for slice viewers. In addition, enhanced access is ensured by adding more machines to our internal TIP cluster.

MEASUREMENTS

DASY8 Module SENS

DASY8 Module SENS
Testing Time-Averaged Proximity Sensors
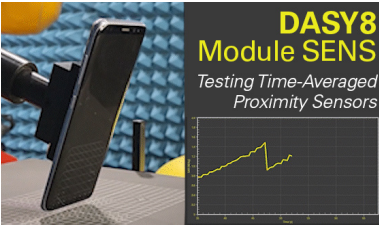
For 2 years, IT'IS and Semtech, the market leader in proximity sensors, joined forces to develop a regulatory-approved testing system for demonstration of compliance of wireless devices with proximity sensors. Based on the results of this successful collaboration that was co-financed by Innosuisse, SPEAG announced the release of DASY8 Module SENS for time-averaged proximity sensor performance evaluations, which is planned for June of this year.

INTERNATIONAL PROJECTS

SEAWave Project Meeting

On February 6–7, the 4th consortium meeting of the SEAWave project – "Scientific-based Exposure and risk Assessment of radiofrequency and mm-Wave systems from children to elderly (5G and Beyond)" – took place in Rome, Italy. The meeting, with about 50 participants on site and about a dozen online, was hosted by our partners from the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA). The meeting included lots of discussion as well as a tour of the laboratories at the ENEA site, with a review of the recently installed millimeter wave (27.5 GHz) reverberation chamber system from IT'IS. A big thank you to ENEA for hosting this meeting!

Z43 SOCIAL

Z43 Retreat 2024: Demarcation of Tolerance

In mid-February, the annual Z43 retreat was held at the Hotel Pilatus Kulm to discuss the timely topic of "Demarcation of Tolerance in Science, Society and the Individual" with the goal to better understand the importance and limitations of tolerance. What defines tolerance and how does it vary across contexts? What are the benefits, challenges, and boundaries of tolerance? Is there tolerance in science? Drawing from presentations based on books, scientific literature, internet research, and other sources, the discussions at the retreat included self-reflection on tolerance and culture at Z43, workplace stereotypes, and how to foster tolerance in daily life.

RESEARCH

PUBLICATIONS

Causal Phase-Dependent Control of Non-Spatial Attention in Human Prefrontal Cortex
J. Brus, *et al.* 2024, Nature Human Behaviour,
doi: 10.1038/s41562-024-01820-z (online 16 February 2024)

A Gaussian Process Based Approach for Validation of Multi-Variable Measurement Systems: Application to SAR Measurement Systems
C. Bujard, *et al.* 2024, submitted

A Novel CNN-Based Image Segmentation Pipeline for Individualized Feline Spinal Cord Stimulation Modeling
A. Fasse, *et al.* 2024, submitted

Efficient Fourier Base Fitting on Masked or Incomplete Structured Data
F. Karimi, *et al.* 2024, submitted

Noninvasive Modulation of the Hippocampal-Entorhinal Complex during Spatial Navigation in Humans
F. Hummel, *et al.* 2024, submitted

Peroxynitrite: A Tale of Two Radicals
P. L. Bounds and W. H. Koppenol 2024, submitted