

Dear Z43 Partners, Friends, and Followers

2022 has flown by in a flash! With that in mind, we send you a summary of our latest achievements and activities so that you can see what we've been up to during the last 3 months.

With this edition, we sign off for this year. See you in 2023!

MEASUREMENT

Release of MITS-TableTop

The MITS has slimmed down! MITS-TT, the Medical Implant Test System-TableTop, is an important step towards routine and accurate demonstration of the magnetic resonance imaging (MRI) safety of active and passive implants. Watch an informational [video](#) and visit the product [website](#) to see the system specifications.



MEASUREMENT

DASY8^{3D} V1.2 and Module mmWave V3.2



SPEAG released two new versions of DASY that significantly improve the automation of specific absorption rate (SAR) testing (DASY8^{3D}) and that of the assessment of the incident power for distances smaller than $\lambda/5$ (Module mmWave). The latter has already been adopted by regulators. Learn about the main new DASY8^{3D} features in this short user [video](#).

INTERNATIONAL PROJECTS

Kick-Off of Projects STASIS and MEWS



Standardization and collaboration with metrological laboratories remain areas of focus at Z43. We are excited to be part of two new EURAMET projects – STASIS and MEWS – both of which were kicked off in October! The aim of STASIS is to support standardization for safety assessment of medical implants in MRI scanners so as to leverage the outcomes from the previous 3-year EURAMET project [MIMAS: Medical Implant Manufacturers' Safety](#), which ended successfully in 2021. For MEWS, SPEAG will develop novel near-field probe linearization methods for the highly dynamic 5G New Radio signal as well as traceable calibration methods for absorbed power density (APD) measurements. We are looking forward to these exciting collaborations!

WORKSHOPS & EVENTS

Successful Taiwan Workshop

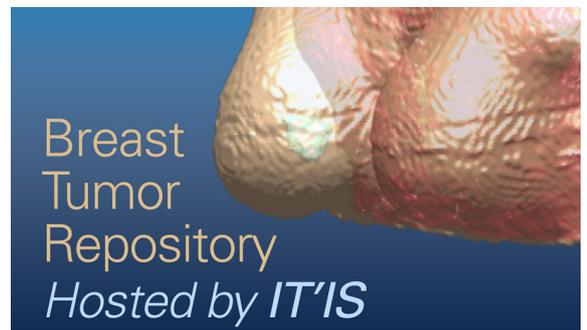


At the end of October, AUDEN Technology Corporation, together with Z43, hosted the popular hardware and software workshop series in Taiwan – for the first time in 3 years – with nearly 200 participants from leading universities, industry, and government agencies. We also presented our future visions at the full-day AUDEN Technical Seminar, titled “Toward 6G Era – Bridging Key Innovative Technologies”, with about 350 attendees. A big thank you to the whole AUDEN team for the very warm welcome and for hosting these great events. We are looking forward to the next time!

VIRTUAL POPULATION

Breast Patient Model Repository

IT'IS is pleased to host a new repository developed at the Erasmus MC Cancer Institute of the University Medical Center in Rotterdam. The [Breast Tumor Patient Models Repository](#) consists of 22 unique breast models, each of which is segmented into six tissues, plus a tumor tissue from contrast enhanced MRI data of breast cancer patients undergoing neoadjuvant chemotherapy. The models include important variations in terms of tumor size, location, and depth and are ideal for rapid development and evaluation of new therapies.



RESEARCH FELLOWSHIPS

Katja Poković Research Fund

On December 15, we commemorated the first anniversary of the passing of Katja Poković. To continue Katja's commitment to science and engineering, Katja's mother, Marija Poković, recently established the “Katja Poković Research Fund” at the IT'IS Foundation with a very generous donation. Two funding instruments are available: [research fellowship positions](#) specifically for incoming female applicants, and funding to support [research projects](#) of project leaders, postdoctoral fellows, or Ph.D. students employed by the IT'IS Foundation. Details about the Katja Poković Research Fund can be found [here](#).



SIMULATION

Sim4Life V7.2 and SEMCAD X V20.2



ZMT's latest release of Sim4Life is here! Sim4Life V7.2 is packed with important new features: JupyterLab for powerful and flexible scripting, efficient handling of pulsed/modulated exposures, >50x faster thermal simulations, optimized IMAnalytics Suite, fully automated generation of image-based head models for personalized simulations, three new ultra-obese morphed ViP models, and support for the latest and upcoming IEEE/IEC mmWave APD and SAR standards. Find out more about Sim4Life V7.2 [here](#). SEMCAD users: check out SPEAG's specialized subpackage, SEMCAD X Matterhorn V20.2, [here](#).

RESEARCH

Research Highlights

Our latest paper on electromagnetic mechanisms of close near-field capacitive coupling, provides important knowledge for compliance testing of modern wireless devices tested at 0 mm distance from the body. You can access the publication [here](#).

RESEARCH

PUBLICATIONS

Mechanism of Capacitive Coupling of Proximal Electromagnetic Sources with Biological Bodies A. Christ, *et al.* 2022, Bioelectromagnetics, Volume 43, Issue 7, pp. 404-412, doi: [10.1002/bem.22422](#) (online: 06 November 2022)

Theory for a Non-invasive Diagnostic Biomarker for Craniospinal Diseases F. Karimi, *et al.* 2022, NeuroImage Journal, Volume 37, Issue 2023, 103280, doi: [10.1016/j.neuroimage.2022.103280](#) (online: 08 December 2022)

A Study of Flex Miniaturized Coils for Focal Nerve Magnetic Stimulation M. Colella, *et al.* 2022, Medical Physics, doi: [10.1002/mp.16148](#), (online: 11 December 2022)

Coverage Factors for Efficient Demonstration of Compliance of Low-Frequency Magnetic Near-Field Exposures with Basic Restrictions J. Xi, *et al.* 2022, Physics in Medicine & Biology, doi: [10.1088/1361-6560/aca875](#), (online: 02 December 2022)