



CORPORATE

New .swiss domains

As of 23 July, 2018, IT'IS, SPEAG, and ZMT domains are being changed from www.itis.ethz.ch, www.speag.com, and www.zurichmedtech.com to **www.itis.swiss**, **www.speag.swiss**, and **www.zmt.swiss**. The three new .swiss-domains join our Zurich43 homepage z43.swiss. Lots of work has been done during the last few weeks to prepare for this moment – today, we are beginning the journey to our new homes. The sites will look and feel exactly the same – only the URLs will be different. Note that the move is happening gradually, and it may take some time for all URLs to migrate from the .ethz.ch/com domains to .swiss.

If you have links on your website that point to us, we recommend that you update them immediately. However, links and bookmarks to the IT'IS/SPEAG/ZMT old domain websites will still function for the next few months and automatically redirect to the new .swiss-addresses.

New .swiss email-addresses

The new domain means that our email addresses are changing to the format **name@itis.swiss**, **name@speag.swiss**, and **name@zmt.swiss**, and we recommend that you add these new email addresses to your contact books or saved lists as soon as possible. However, all incoming emails sent to our old addresses will continue to be received.



Dear Z43 Partners, Friends, and Followers

The future is now: it is with great pleasure that we announce the next evolutionary step in the history of Z43, namely the migration of all of our domain names to dot(.)swiss! For more than 20 years, our multiple teams have worked jointly, side-by-side within three independent identities with different missions but a single common vision: to provide the best science and solutions for reliable and safe information and medial technologies.

Our history (see below) proves that Z43 is well positioned to effectively respond to the diverse needs of society, governments, research, and industry, and that our collaborative efforts lead to sound knowledge and effective design, analysis, and evaluation tools. As the carrousel of global innovation continually accelerates, faster and ever more comprehensive responses are required, for which Z43 offers a unique spectrum of competencies. To express our single vision and our unbounded commitment to quality, on all levels, we unify our domain names to dot(.)swiss.

This edition covers all you need to know about the domain change, our history, and the latest news.

Enjoy the update!

CORPORATE

Brief History



In 1997, mobile phones were large and the research team was young: Niels and the members of the High Frequency Lab of ETH, who later on became better known as "the gang in black" Q Balzano

The story of Z43 began when Quirino Balzano, soon-to-be vice-president of Motorola Inc., visited the ETH Zurich in the fall of 1985 to give a talk about modern wireless communication. 'Q' pointed out that there was a scientific gap regarding how electromagnetic (EM) fields generated by transmitters operating at close proximity to the human body couple with living tissues. Soon thereafter, the High Frequency Lab of ETH and Motorola began a collaboration on that very topic, which resulted in the formulation of a mechanism for near-field coupling (IEEE TVT 1992, 41: 17–23). This mechanism provided the scientific basis for the deletion from safety guidelines of an exclusionary clause for low-power transmitters and led to a request from the German Radiation Protection Agency for a procedure to use to test the compliance of mobile phones with safety guidelines.

The lawsuit filed in 1992 against the mobile industry by David Reynard – alleging that his wife's fatal brain cancer was caused by cell-phone use – and the lack of knowledge on the part of the mobile industry about the users' exposure levels fueled growing pressure from the public for accelerated research into fact-based approaches to the assessment of risk associated

with cell-phone use. Niels Kuster, who became Assistant Professor in the ETH Department of Electrical Engineering in 1993, chose to dedicate the research efforts of his small team to investigations of the EM near-field. They developed the first versions of the dosimetric assessment system (DASY1 and DASY2), their first GPU accelerated EM simulation platform, and designed and installed the first exposure systems used for *in vitro*, *in vivo*, and human EM-provocation studies in laboratories in the US and Europe.

In 1994, Schmid & Partner Engineering AG (SPEAG) was founded as a spin-off with the goal to develop DASY3, the first commercially available scanner for compliance testing of mobile phones. In 1999, Niels – with support of the ETH and together with the mobile industry and government agencies – established the IT'IS Foundation as an independent non-profit research laboratory. Its tight links to the ETH enabled further growth of its research programs. The Foundation's national and international collaborations and network expanded quickly via participation in European-, US-, Japanese-, and Chinese-funded programs as well as in industry-financed projects. IT'IS research continued to widen, encompassing the fields of

magnetic resonance imaging safety, computational life sciences, and precision medicine.

The broadened scope led to the founding of ZMT Zurich MedTech AG in the fall of 2006 and of IT'IS USA in 2010 and to the establishment of commercial satellite operations in Korea, India, and England. Many of the over 20 PhD students throughout the years have continued their careers as project leaders or product heads in one of the three institutions at Z43. The total workforce has grown to well over 100 people – an outstanding crew of researchers, experts, engineers, and other co-workers – hailing from more than 30 nations.

Today, our international teams collaborate with over 100 research partners. We share PhD students and postdoctoral fellows with the ETH Zurich, the EPFL and the University of Zurich. We work with the most important industry players as well as many SMEs. We also share our knowledge with national regulators and international standards groups.

Hence, the time has come to recognize the broad competencies, networks of collaborations, and overall activities via a change in domain name to .swiss.

MEASUREMENT

DASY6 5G Module V1.2 and ISO 17025 Accreditation

While mobile handset and infrastructure manufacturers are working intensively towards the ambitious goal of operating the first large 5G networks during the 2020 Summer Olympics in Japan, SPEAG and IT'IS joined forces to provide a comprehensive set of measurement tools ahead of time. All of these tools meet the requirements of regulators for demonstrating compliance with the safety guidelines. The latest software release, Version 1.2, of SPEAG's 5G Module is the next step towards more automated and more versatile analysis and assessment of compliance at frequencies above 10 GHz. The evaluations are now also traceable, as our dedicated calibration laboratory received the ISO/IEC 17025 accreditation for up to 110 GHz in May 2018. Major regulatory agencies are currently testing our solution.

MEASUREMENT

POPEYE10



In response to market needs for testing the growing diversity of devices developed during the Internet of Things (IoT) revolution, SPEAG has released Version 10 of the POsable Phantom for Electromagnetic sYstems Evaluations (POPEYE10). The new POPEYE10 is even more versatile and flexible than previous versions. Importantly, the frequency range from 10 MHz to over 100 GHz is now covered! POPEYE10 is modular, i.e., purchase only the parts you need, and each part can be customized in shape. Better than a human and with high repeatability!

MEASUREMENT

Breakthrough in Phantom Material (3 GHz to over 100 GHz)



Shaping the future of 5G and the IoT: after more than two years of intense R&D, SPEAG developed a new phantom material that mimics the absorption and

reflection properties of human skin for exposure at frequencies from 3 GHz up to over 100 GHz. The first release is the hand phantom series SHO3TO110, which is as easy to use and even more robust than SPEAG's well-known SHO phantoms for testing frequencies below 3 GHz.

For more information, contact us at info@speag.swiss



RESEARCH

PUBLICATIONS

On the use of conformal models and methods in dosimetry for non-uniform field exposure

D. Poljak et al., 2018 IEEE Transactions on Electromagnetic Compatibility, 60: 328–337 (online 18 July 2017)

Total field reconstruction in the near-field using pseudo-vector E-field measurements

S. Pfeifer et al., 2018 IEEE Transactions on Electromagnetic Compatibility (online 19 June 2018)

Data-driven experimental evaluation method for the safety assessment of implants with respect to RF-induced heating during MRI

A Yao et al., 2018 Radio Science, 53:700–709

Mobile phone specific electromagnetic fields induce transient DNA damage and nucleotide excision repair in serum-deprived human glioblastoma cells

H. Al-Serori et al., 2018, PLoS One, 13:e0193677