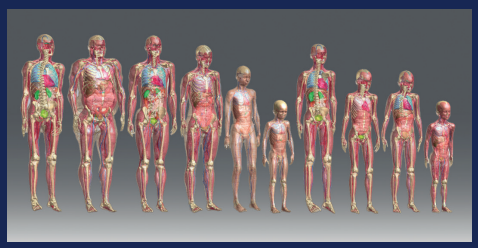
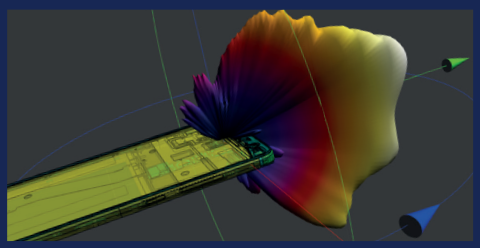
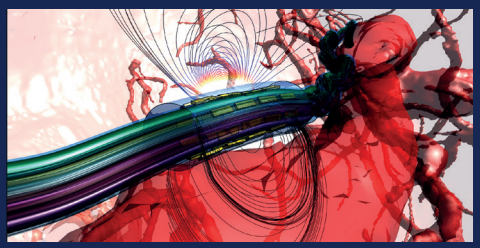
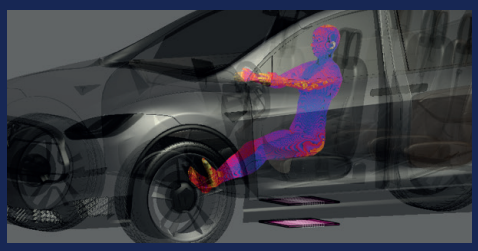
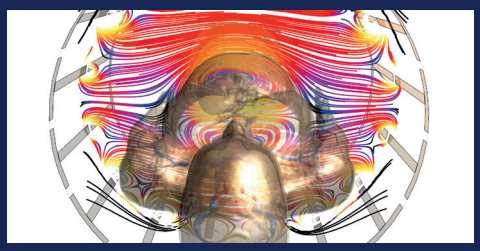
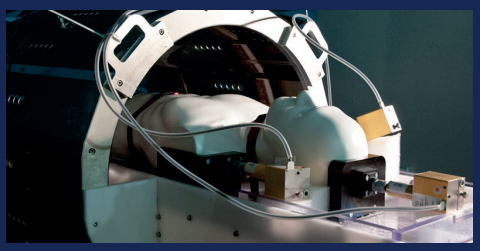
Custom R&D

Our Research to Support Your Innovation

IT'IS FOUNDATION

The IT'IS Foundation offers in-house research, development, safety evaluation, and regulatory compliance capabilities to facilitate the translation of scientific discoveries and engineering concepts into solutions for partners in industry and government, as well as academia and regulatory bodies. We provide a broad spectrum of customized research, ranging from complex engineering design/ analysis tasks and product compliance certification/ pre-certification to multi-scale, multi-physics and physiological simulations.

Functionalized Human and Animal Models

IT'IS developed the Virtual Population (ViP), the gold standard high-resolution whole-body computational anatomical models for biomedical modelling and safety assessment. The ViP can be extended and augmented with detailed regions and advanced functionalities to support customized applications.

MRI Implant Safety

IT'IS performs safety evaluations of passive and active implants for patients undergoing magnetic resonance imaging (MRI) scans, and provides customized solutions for mitigation of patient risk from radiofrequency (RF) and gradient fields.

Neuronal Stimulation

IT'IS performs computational modeling of neuronal stimulation for evaluation of active implantable medical devices and electroceuticals. Our neuron models, anisotropic tissue models, and personalized stimulation treatment tools enable the development of effective and selective neurostimulation solutions in research and industry.

MRI System Safety

IT'IS performs customized evaluations of RF and gradient field exposure scenarios for patients undergoing MRI scans at 1.5T, 3T, and beyond.

Experimental Phantoms

IT'IS leads phantom development for new technologies such as GPS and 5G, as well as functionalized multi-layer phantoms for evaluation of over-the-air (OTA) device performance, specific absorption rate (SAR) and temperature rise, and optimization of on-body and implanted transceivers.

EMF Exposure Systems

IT'IS designs and develops customized exposure systems for *in vitro, in vivo,* and human studies on interactions of electromagnetic fields (EMF) with living tissue (e.g., cell phone radiation).

5G Safety Evaluation

IT'IS supports 5G platform development from device design to regulatory approval. We are involved in compliance standards development and can extend standardized procedures to the 6 – 100 GHz range, validate modifications with simulations and measurements, and communicate the changes to regulators.

SAR Evaluation

IT'IS is the preeminent independent institute for dosimetric specific absorption rate (SAR) evaluation. We perform EMF exposure assessment and support regulatory approval of novel technologies.

Wireless Power Transfer

IT'IS develops dosimetric probes and performs numerical and experimental safety evaluations to test compliance of wireless power transfer (WPT) technologies with safety guidelines.

In- and On-Body Antennas

IT'IS designs and validates electrically small, resonant and non-resonant antennas with optimized link budgets in complex environments, which can accommodate anatomical variations while respecting current safety regulations.

Precision Medicine

IT'IS designs RF applicators and ultrasonic transducers for therapeutic applications. We also support processing of patient image data, characterization of incident fields, focusing and tuning, and modeling and assessment of the treatment effects.

Computational Life Sciences

IT'IS supports diverse medical diagnostic and therapeutic applications through multi-scale and multi-physics simulations. We contribute our expertise in computational engineering, functionalized anatomical modeling, and regulatory approval.

IT'IS FOUNDATION

www.itis.ethz.ch

IT'IS Foundation · Zeughausstrasse 43 · 8004 Zurich · Switzerland
Phone +41 44 245 9696 · Fax +41 44 245 9699 · Email customized@itis.ethz.ch

IT'IS Foundation is a member of

18/03