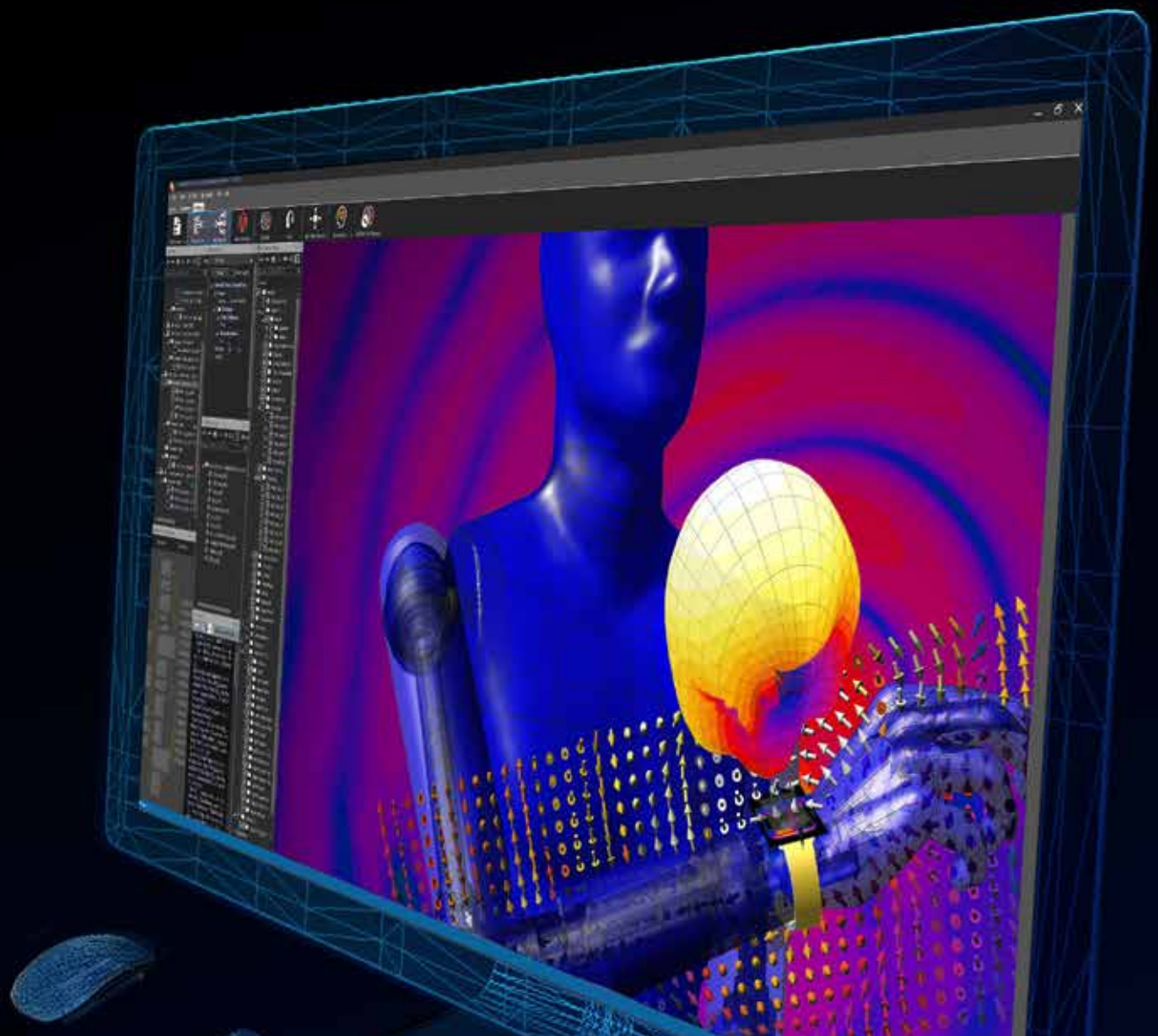
For Cutting-Edge and Most Effective EM Simulation

SEMCAD X Matterhorn

Based on the FDTD, FEM and MM Methods
Multiscale Simulation Realism in Complex Scenarios



What is SEMCAD X Matterhorn?

SEMCAD X Matterhorn is a full-wave 3D EM simulation software, offering a novel suite of seamlessly integrated solutions tailored to address a variety of engineering challenges. It is suitable for a wide range of applications allowing simulations from DC to light, such as safety assessment, EMI/EMC, antenna design & optimization, 5G, WPT, dosimetry, optics and design of microwave and mm-wave waveguide devices. SEMCAD X Matterhorn can be upgraded to Sim4Life, the leading computational life sciences platform.

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SWISS MADE

Key Applications

- virtual prototyping and optimization of on-/in-body wireless devices, mobile phones, handsets, net/notebooks, etc.
- compliant integration of WiBro, WiMAX, WiFi, Bluetooth
- 5G, indoor/outdoor wideband propagation
- Wireless Power Transfer (WPT) for mobile, automotive, etc.
- Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC)
- Over-The-Air-performance (OTA)
- EMI/EMC and ESD analysis & optimization (e.g., PCB)

New 3-D Kernels Offering Major Performance Boosts

- validated solvers and platforms, benchmarked against 'realworld' industrial applications & measurements
- 3-D EM FDTD kernel for highest speed & memory efficiency
- 64-bit kernels supporting >> 1 billion voxels, parallelization
- specialized FEM based kernels for effective LF simulations
- solvers (FDTD, FE) for Win, Linux (64 bit)
- real-time interactive gridder, reference speed mesh generator
- novel & unique FDTD/GPU subgridding scheme (structure-adaptive)
- meta, double-negative, non-linear materials

Modern GUI & Improved Modeling Environment

- integrated, advanced, and interactive CAD modeling (no preprocessor or live-link needed)
- fast import of various CAD formats (>>100,000 parts)), ODB++
- only platform offering Poser for CTIA hand phantoms
- only simulation software capable of handling triangle surface meshes & parameterized CAD models simultaneously

Enhanced Data Extraction and Postprocessing

- novel pipeline architecture, templates
- fast 3D OGL QTech or vtk based rendering/visualization of data
- volume rendering, maximum intensity projection, interpolation on arbitrary 3D structures, surface field rendering
- overlaid visualization of model/voxels/results
- interpolation, interactive cropping/masking, field calculator
- analysis Workbench (graphical, manipulation of outputs)
- import /display of external measurement data (SPEAG scanners)

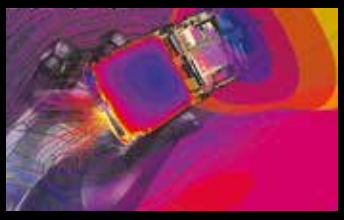
Specialized Tools/Algorithms & Python Scripting

- antenna Diversity: comprehensive analysis tool for diversity performance of multi-antenna systems
- MATCH: matching circuit application for multiport devices
- antenna array wizard, e.g., for 5G applications
- MBSAR: SAR evaluation tool for transmitters that simultaneously operate at different frequency bands
- ESD Tool: for current path analysis of electrostatic discharge
- HAC Tool: for Hearing Aid Compatibility analysis
- new engine for parametrization/sweeps
- only platform offering automation, analysis, and customization using a Python scripting environment (script generator)

High Performance Computing

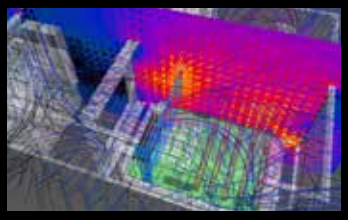
- exploit latest technologies: hybrid GPU/(multi-core) CPU (desktop, clusters) & cloud support/services (ARES)), AXE/CUDA
- support for NVIDIA Tesla systems, latest MAXWELL architectures (e.g., K80, Titan) and, e.g., GTX series
- smooth GUI workflow guaranteed (w/ power-threading)
- fully integrated centralized task manager

ANTENNA SOLUTION



For transceivers, remote sensing, human interaction, etc.

EMC SOLUTION

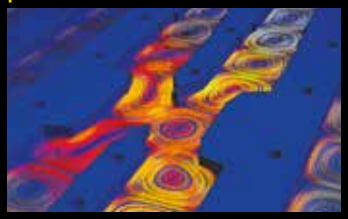


For signal integrity, interference, electrostatic discharge, etc.

ELF SOLUTION

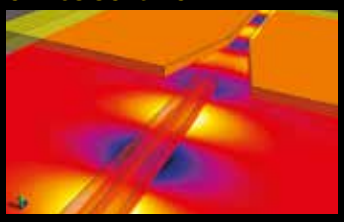
For static, low & intermittent frequencies, etc.

µWAVE SOLUTION

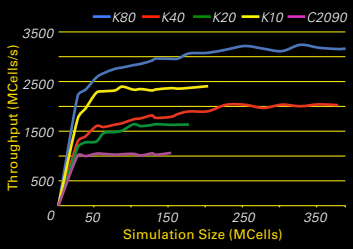


For radiofrequency circuits, interconnects, filters, packaging, etc.

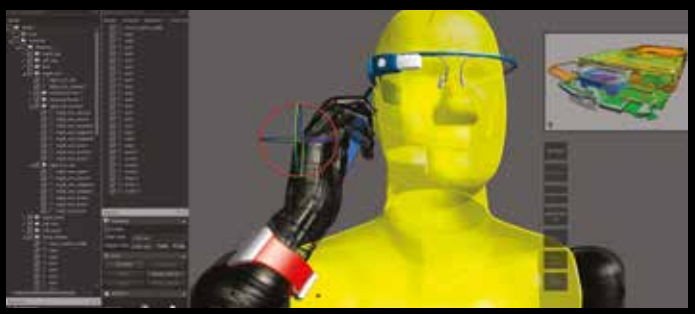
OPTICS SOLUTION



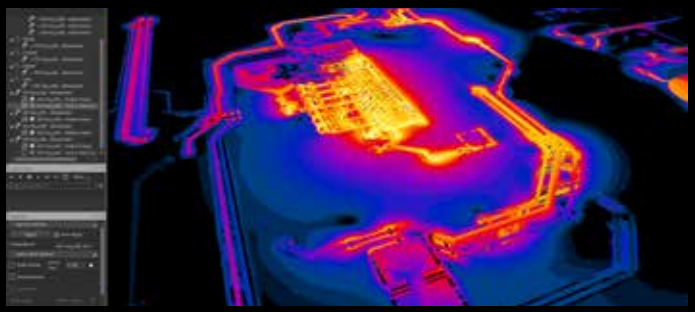
For non-/linear photonic crystals, switches, modulators, etc.



Fastest GPU HPC computing: simulation speed (GPU type, load)



The intuitive design flow allows for the efficient and rapid design and optimization of antennas (e.g., in-/on-body applications).



SEMCAD X Matterhorn represents the first leap into multiphysics, multiscale simulation realism in complex environments.

For further information and technical specifications, visit **www.semcad.com**

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