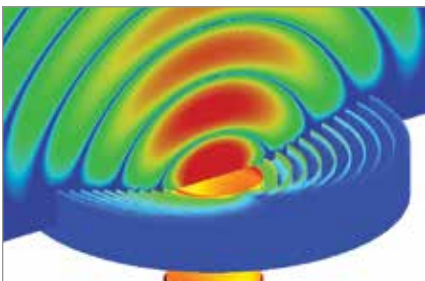
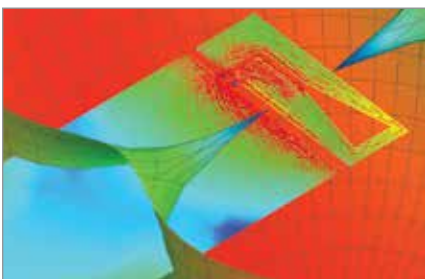


Product Highlights

- Several solution methods with true hybridization enables efficient results for a wide range of problems
- Multi-level fast multipole method accommodates electrically large problems
- Determine antenna design and placement, perform radiation hazard and bio-electromagnetic investigations and decide electromagnetic compatibility



Corrugated Horn Antenna Analysis



Reconfigurable Mobile Antenna Simulation

FEKO

Comprehensive Electromagnetic Solutions

FEKO is a proven electromagnetic field solver based on state-of-the-art computational electromagnetics techniques. It offers a rich suite of tools used for the analysis of diverse electromagnetic problems encountered by engineers across various industries worldwide.

Benefits

All-Encompassing Efficient Solution

- Includes several solvers in all versions
 - Methods can be applied separately or together to combine the strengths of the most applicable techniques
- Easy workflow covers all aspects from geometry modelling and solution setup to advanced post-processing, result visualization and report generation
- Comes with a fully parallelized solver with multi-core CPU and GPU support
- Supports high performance computing
- All CAD import modules included

Simulation Technology

Solvers

- **Method of moments (MoM)**
 - Ideal for radiation and coupling analysis
- **Multi-level fast multipole method (MLFMM)**
 - Ideal for full-wave analysis of electrically large structures
- **Finite element method (FEM)**
 - Ideal for problems containing inhomogeneous dielectrics and closed problems such as waveguides
- **Finite difference time domain (FDTD)**
 - Ideal for solving highly inhomogeneous materials and wideband problems
- **Physical optics (PO)**
 - Ideal for electrically very large radiation and scattering problems
- **Ray-launching geometrical optics (RL-GO)**
 - Ideal for electrically very large scattering analysis
- **Uniform theory of diffraction (UTD)**
 - Ideal for electrically huge perfectly electric conducting (PEC) structures

True Hybridization

No single numerical method can handle all types of electromagnetic problems efficiently. Hybridization empowers the user to solve problems that are both electrically large and geometrically complex by using

- MoM with FEM, PO, RL-GO or UTD,
- MLFMM with FEM or PO

Capabilities

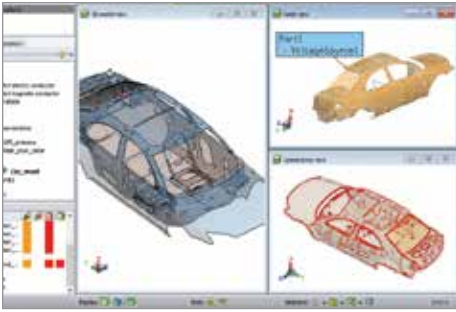
Solution Decomposition

EM problems can often be broken into smaller fundamental problems that simulate faster or more efficiently than the full problem. Various options include:

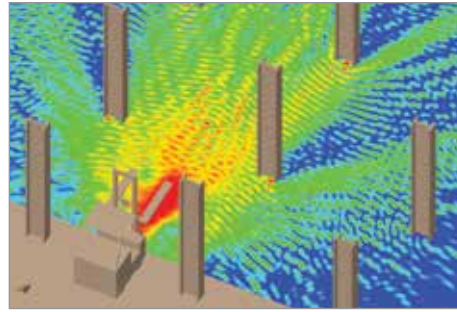
- Decomposing a model with equivalent sources or ideal receivers
- Re-using static parts of a solution
- Defining a unit cell with one or two dimensional boundary conditions for periodic analysis
- Defining a base antenna element, array layout and feed excitations for efficient antenna array analysis
- Including complex cable bundle networks in full-wave simulations

Cable Modeling

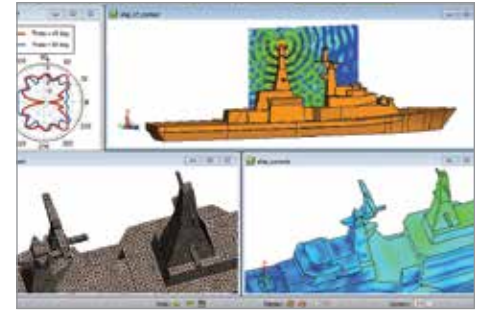
- Radiation, irradiation and bidirectional coupling
- Various cable types and shields
- Complex cable problems can be solved with the standard multi-conductor transmission line (MTL) technique or the unique and industry-leading combined MoM/MTL technology
- A 2D static FEM solver analyzes user-defined cable bundles, extracting per unit length cable parameters



Automotive Cable Coupling Problem Setup



Warehouse Environment RFID Study



Naval Antenna Placement Result Visualization

Characteristic Mode Analysis

A built-in solver calculates characteristic modes that can provide insight into the fundamental radiating properties of a structure.

Adaptive Frequency Sampling

Frequency sweeps are rapidly calculated. Sparse sampling with intelligent interpolation is used to yield continuous frequency response data.

Optimization

Parametric models can be optimized using several algorithms. The optimizer offers real-time monitoring of the optimization process.

- CAD healing functions for fixing inconsistencies, gashes, slivers, spikes and filling holes
- Media library with pre-defined and user-defined materials
- Powerful mesher
 - Automatic or custom
 - Surface or volume
 - Flat or curvilinear
 - Manual or adaptive refinement
- Scripting for advanced user-specified model creation and automation of model setup

Report Generation

FEKO allows the user to export the active POSTFEKO session to a PowerPoint, Word or PDF report. A quick reporting option requires minimal input from the user, while a template-based report may be generated where the user has full control over the content of the document. Various image, animation and data export options are available, including BMP, EMF, EPS, JPEG, PDF, PNG, TIF, AVI, MOV, GIF, Touchstone, text, data and FEKO formats for far fields, near fields, currents and charges.

CADFEKO Features

Set up the entire problem within the CADFEKO GUI. CADFEKO covers all aspects from geometry modelling to mesh generation.

- Large array of primitives for model creation (e.g. helix, cone, wire, paraboloid, hyperboloid, bezier curve)
- CAD import from various formats
 - Parasolid
 - AutoCAD DXF
 - IGES
 - STEP
 - Pro/ENGINEER®
 - Unigraphics
 - CATIA V4
 - CATIA V5
 - ACIS Exchange (SAT)
 - Gerber
 - 3Di
 - ODB++

POSTFEKO Features

Visualize and compare simulation results in the comprehensive POSTFEKO GUI. Besides the standard graph and result formats, POSTFEKO also offers advanced post-processing through scripting and automation. The following and more can be viewed:

- Model, mesh and solution setup
- Near and far fields (radiation patterns), currents, SAR
- Impedance, S-parameters
- Optimization data
- Animations
- Contours, iso-surfaces, ortho-slices
- Cartesian graphs, polar graphs, Smith charts
- Measurements and annotations
- Multiple models, multiple views
- Mathematical operations
- Imported data and measurements

Supported Platforms

- Windows (32 and 64)
 - XP, Vista, 7, 8, 8.1
 - Server 2003, 2008, 2008 R2, 2012
- Linux (32 and 64)



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