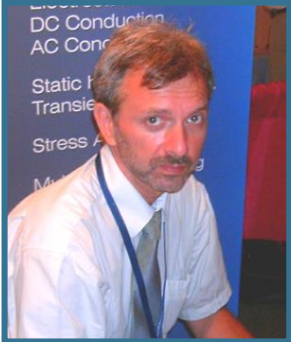




Introducing QuickField 6.3 SP2



**Vladimir Podnos,
Director of Marketing and Support,
Tera Analysis Ltd.**

QuickField features overview

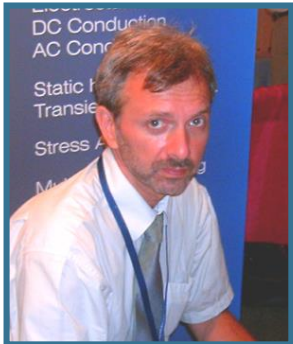


**Alexander Lyubimtsev
Support Engineer
Tera Analysis Ltd.**

Live presentation: QuickField simulation examples



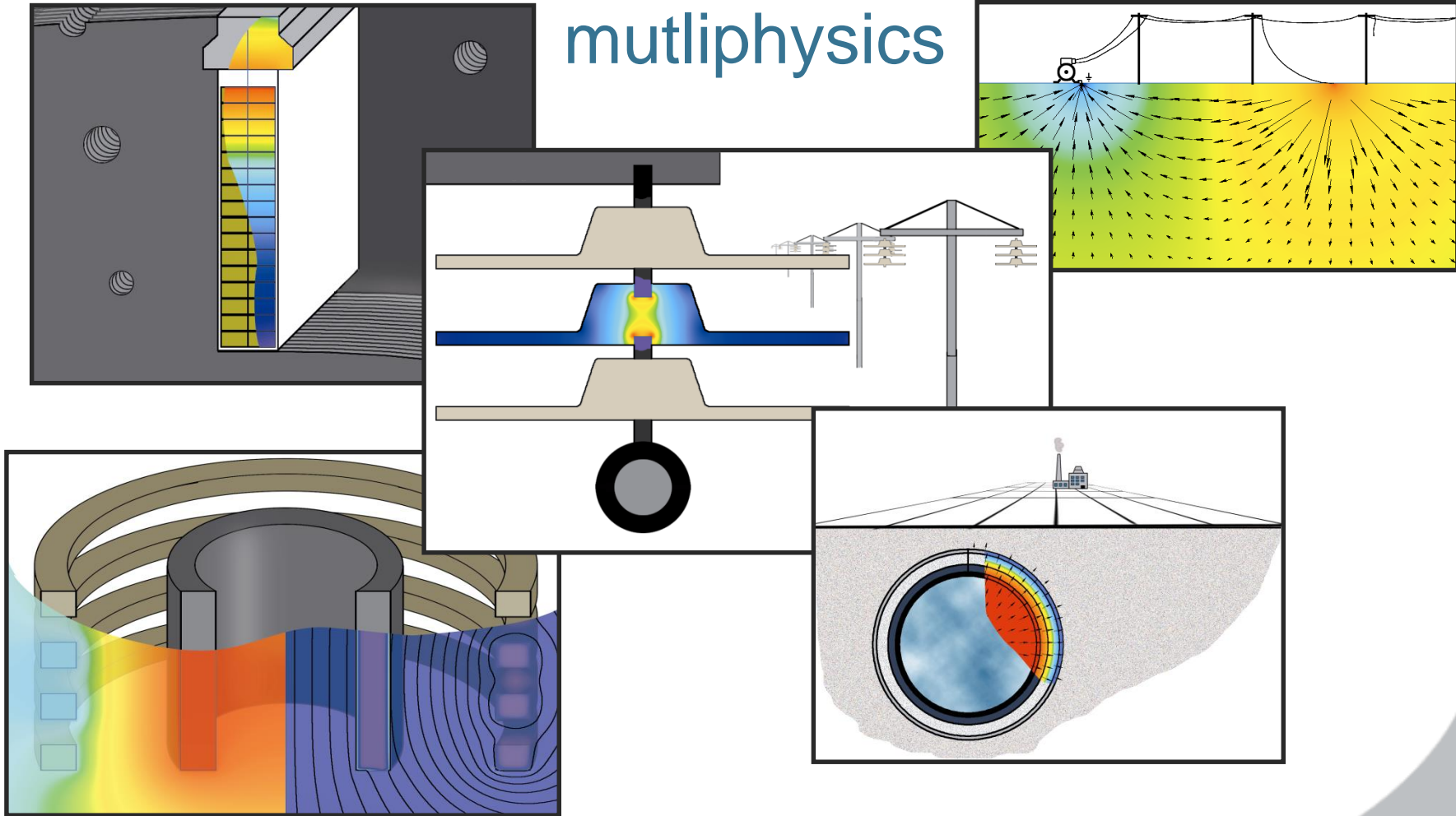
QuickField features overview



Vladimir Podnos,
Director of Marketing and Support,
Tera Analysis Ltd.



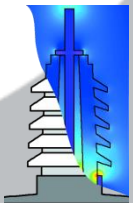
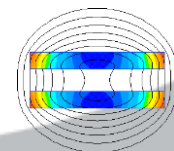
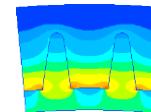
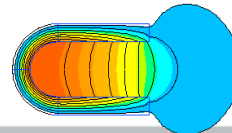
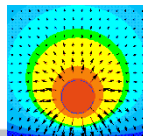
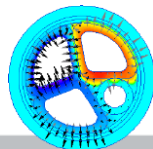
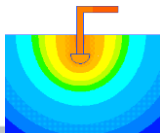
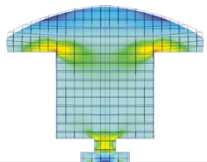
QuickField is FEA for EM, heat transfer, stress and mutliphysics





QuickField Analysis Options

Magnetic analysis suite	
Magnetic Problems	Magnetostatics
	AC Magnetics
	Transient Magnetic
Electric analysis suite	
Electric Problems	Electrostatics (2D,3D) and DC Conduction (2D,3D)
	AC Conduction
	Transient Electric field
Thermostructural analysis suite	
Thermal and mechanical problems	Steady-State Heat transfer (2D,3D)
	Transient Heat transfer
	Stress analysis

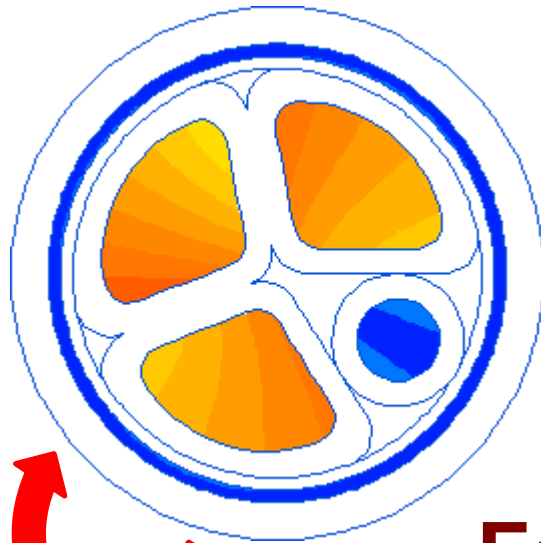




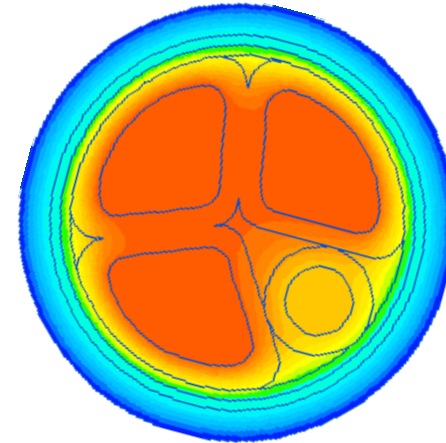
MultiPhysics

Temperature
Field

Electromagnetic
fields

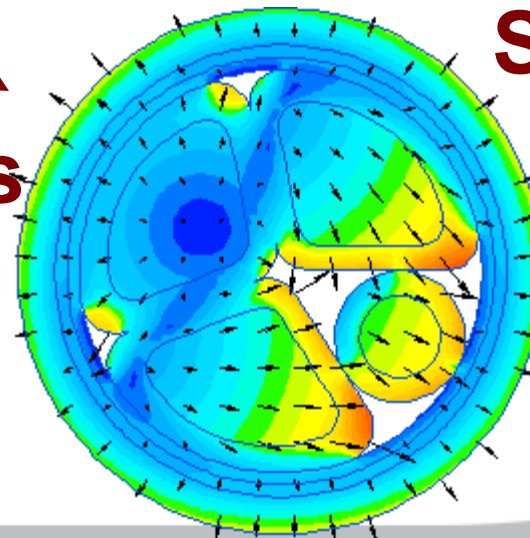


Losses



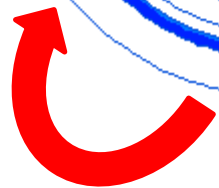
Thermal
Stresses

Forces



Stresses &
Deformations

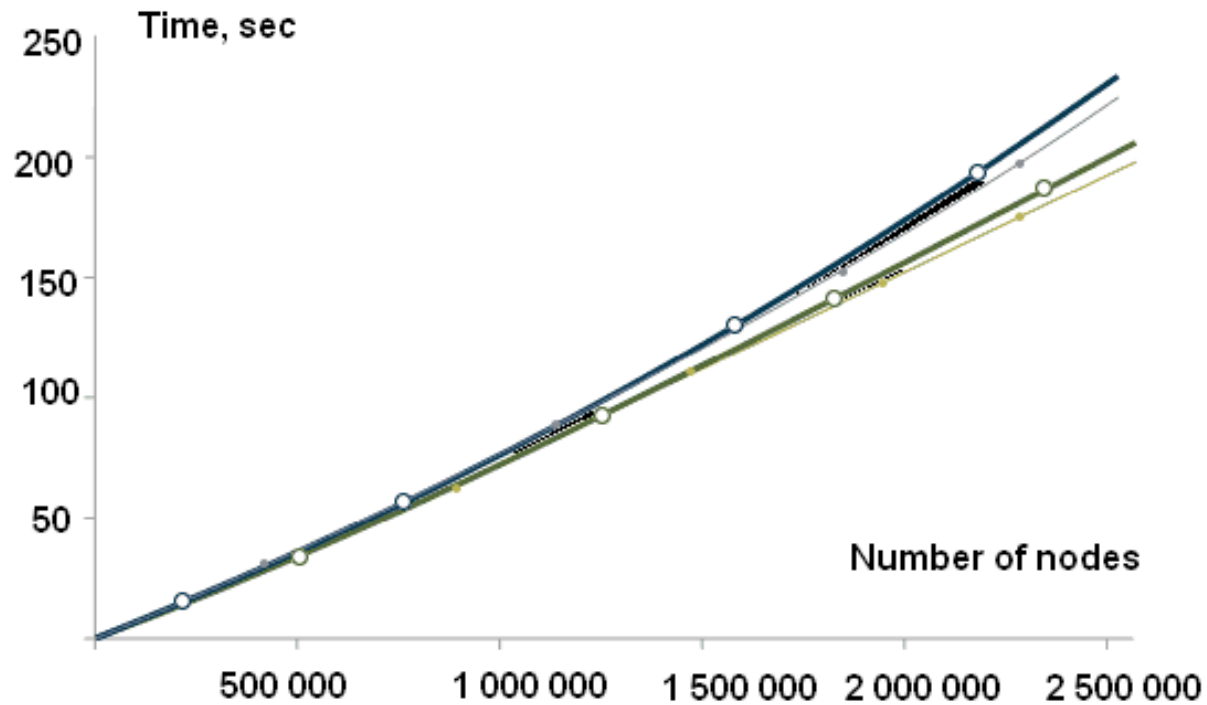
Magnetic state
import





QuickField solvers

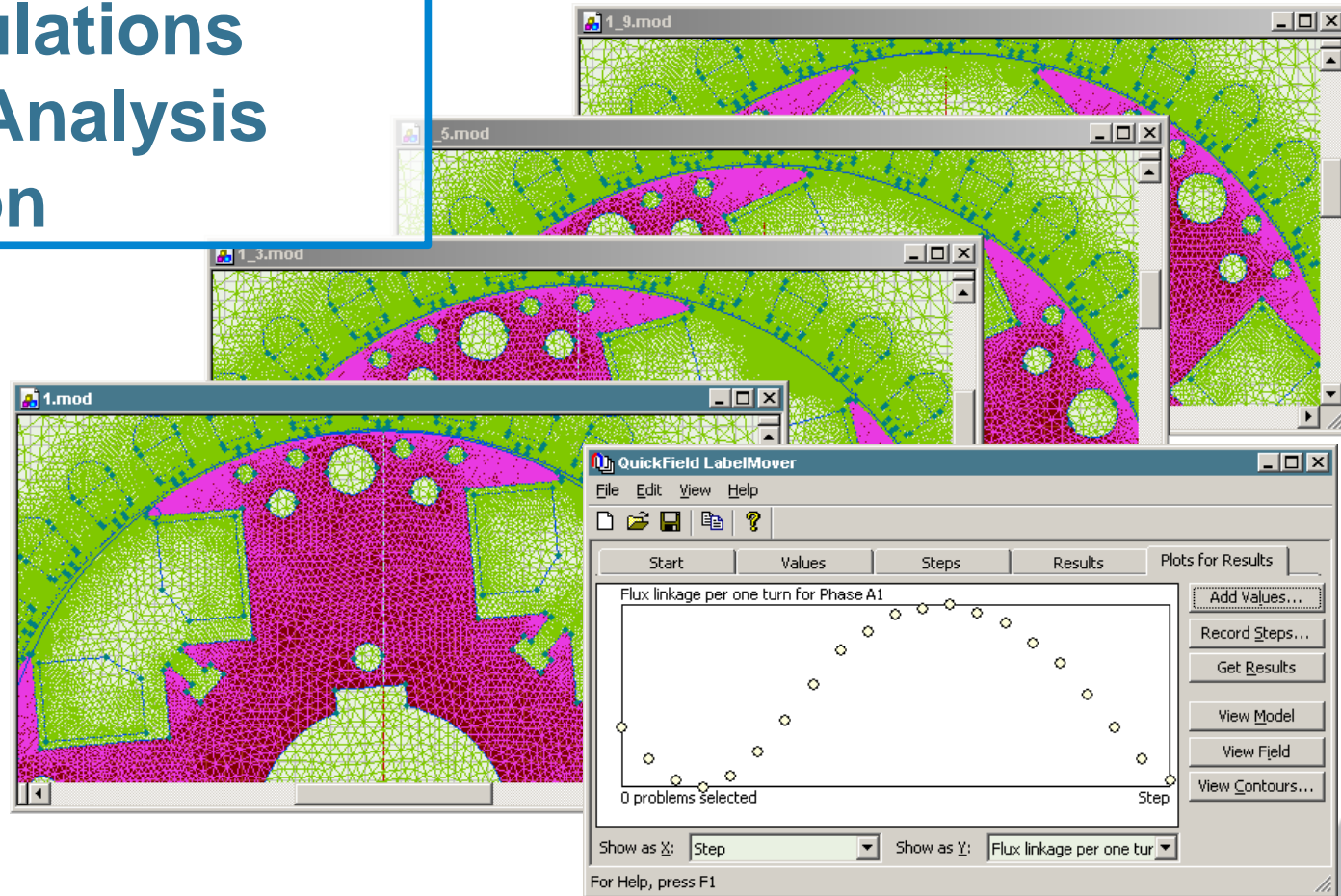
Solution time for various sizes of finite element mesh



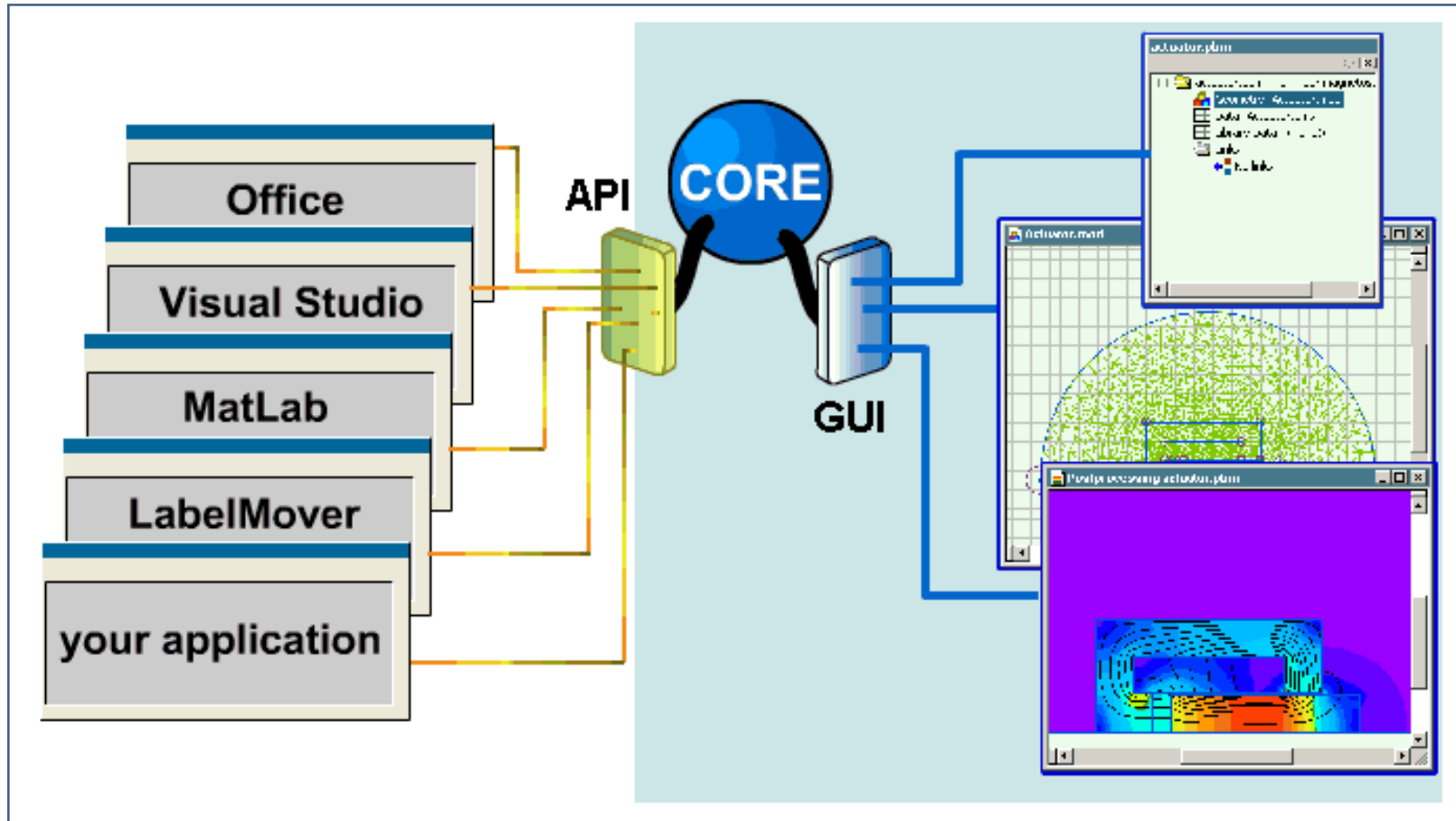


More....

Serial calculations
Tolerance Analysis
Optimization



Open object interface





Free utilities



Language:



- PRODUCT ▾
- APPLICATIONS ▾
- SUPPORT ▾
- DOWNLOAD ▾
- NEWS ▾
- CONTACTS ▾



[Main](#) >> [Downloads](#) >> [Free utilities to extend QuickField capabilities](#)

Free tools

free utilities

These tools are distributed in source codes on "as is" basis. They may be used for their specific tasks, or as examples and templates of [QuickField Programming](#). They are not necessarily production quality and have minimal, if any, documentation.

Depending on the used technology, tools may be run from within QuickField (like [Add-ins](#) included into QuickField distributive), run independently and then [interact with QuickField](#) on any Windows platform ([vbs](#) files) or even require some third party application to run (Microsoft Office for VBA). This is shown in the **Type** column of the table below.

Online tools

- [Harmonics analysis](#)
This script can perform harmonic analysis for input data of any nature. You can copy data from QuickField time-tables or LabelMover results and automatically calculate the magnitude and phase of any harmonic specified by its number.
- [QuickField formula plotter](#)
This simple tool helps construing QuickField formulas by plotting the corresponding 2D charts.
- [Natural convection coefficient calculator](#)
This calculator provides the natural convection coefficient for some predefined surface types.

QuickField Student Edition

User manual

Data Libraries

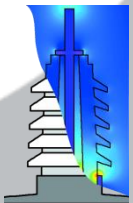
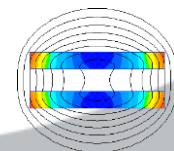
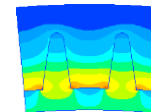
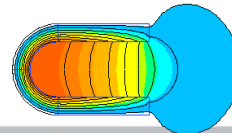
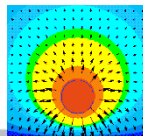
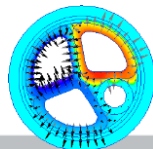
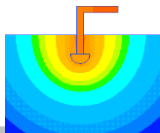
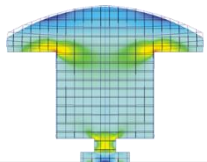
Video

Free tools

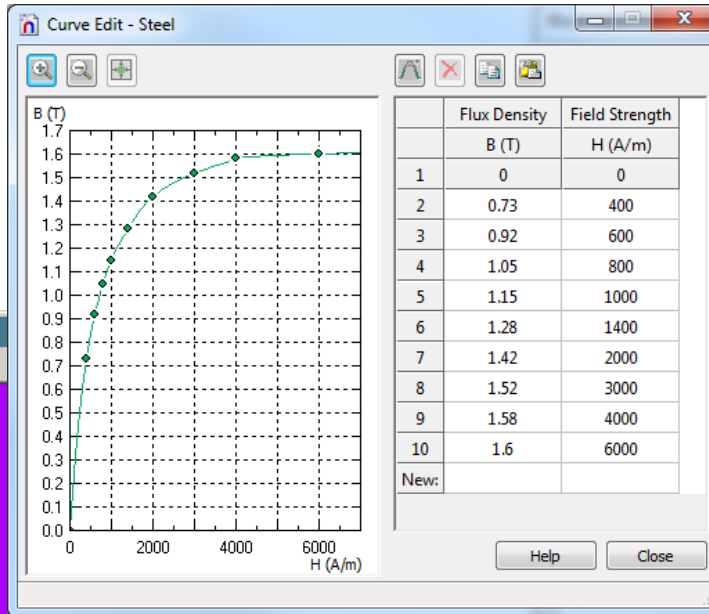
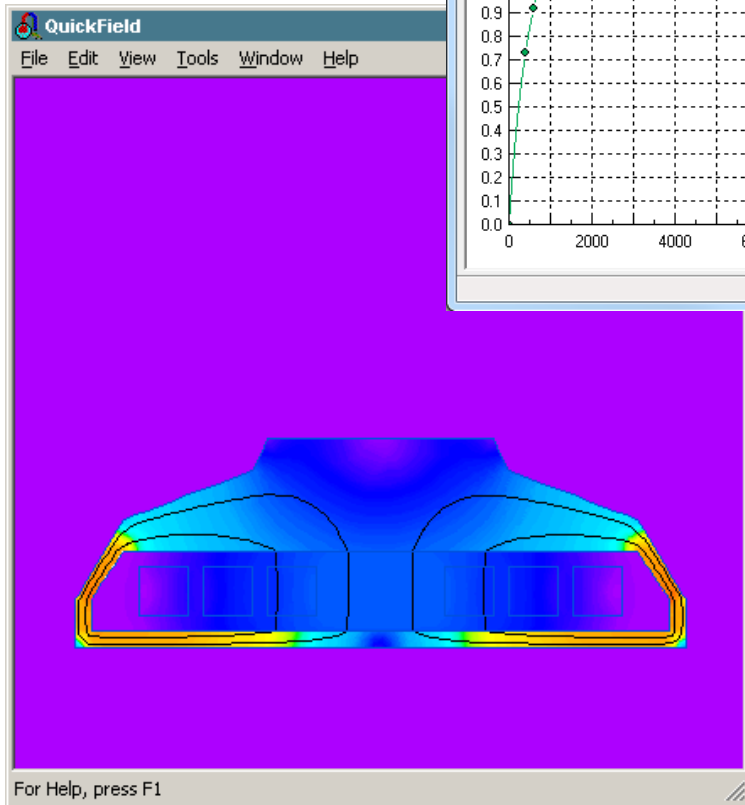


QuickField Analysis Options

Magnetic analysis suite	
Magnetic Problems	Magnetostatics
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Electric analysis suite	
Electric Problems	Electrostatics (2D,3D) and DC Conduction (2D,3D)
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Thermal and mechanical problems	Steady-State Heat transfer (2D,3D)
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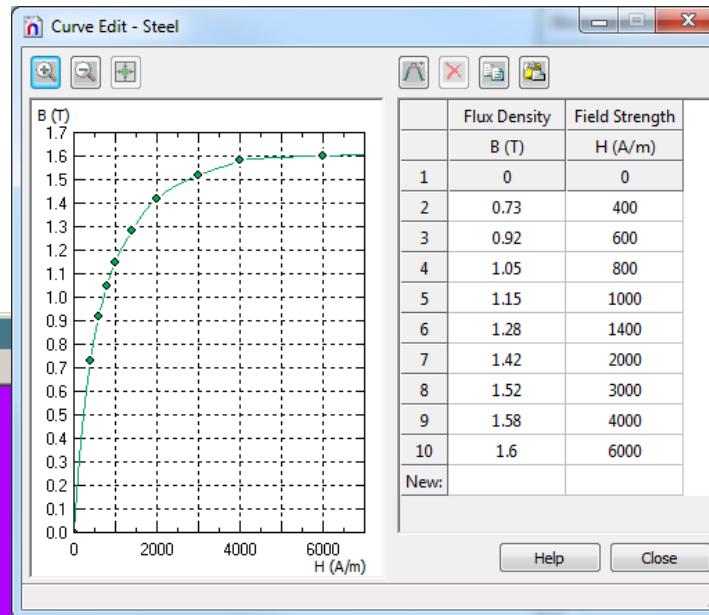
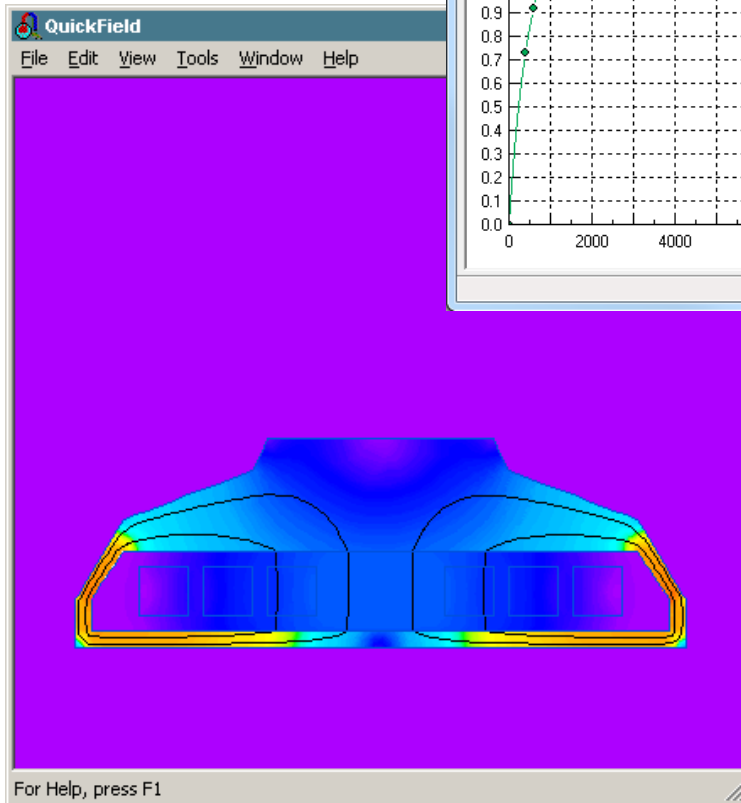
DC Magnetics



DC Magnetics

QuickField 6.3sp2:

Coercive force
formula





AC Magnetics

Problem Properties - HMagn2

General Links

Problem Type: AC Magnetics

Length Units: Millimeters

Model Class: Plane-parallel

Frequency: $f = 100$ Hz

Coordinate System: Cartesian

Precision: Normal

$L_z = 1000$ mm

Files

Geometry: Hmagn2.mod

Data: Hmagn2.dhe

Library Data:

Circuit:

Location: C:\Users\Public\Documents\QuickField 6.3 Examples

OK Cancel Help

Circuit3.qcr

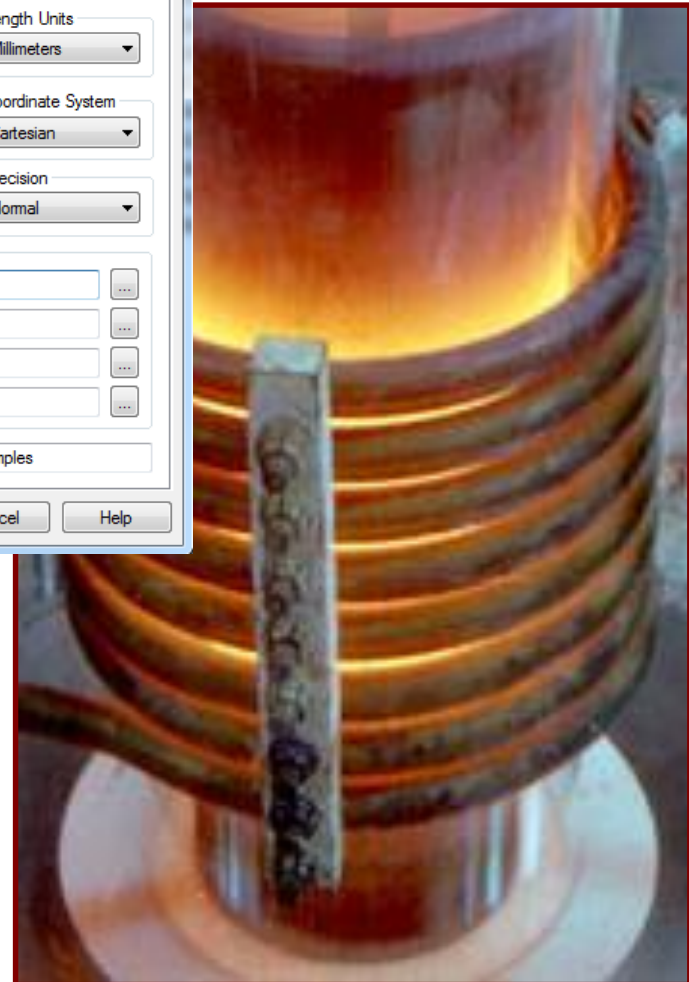
150 R1

$12.11e-3$ L1

$840e-12$ C1

$5 \cdot \sin(360 \cdot 50 \cdot t)$ U1 (1)

Winding





AC Magnetics

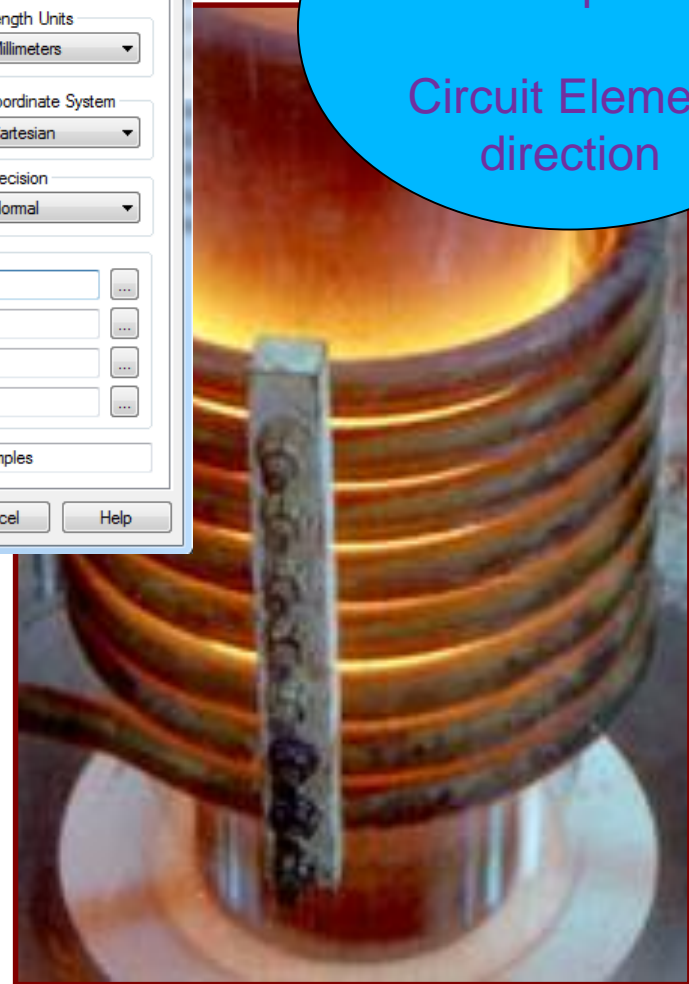


QuickField
6.3sp2:

Circuit Element
direction

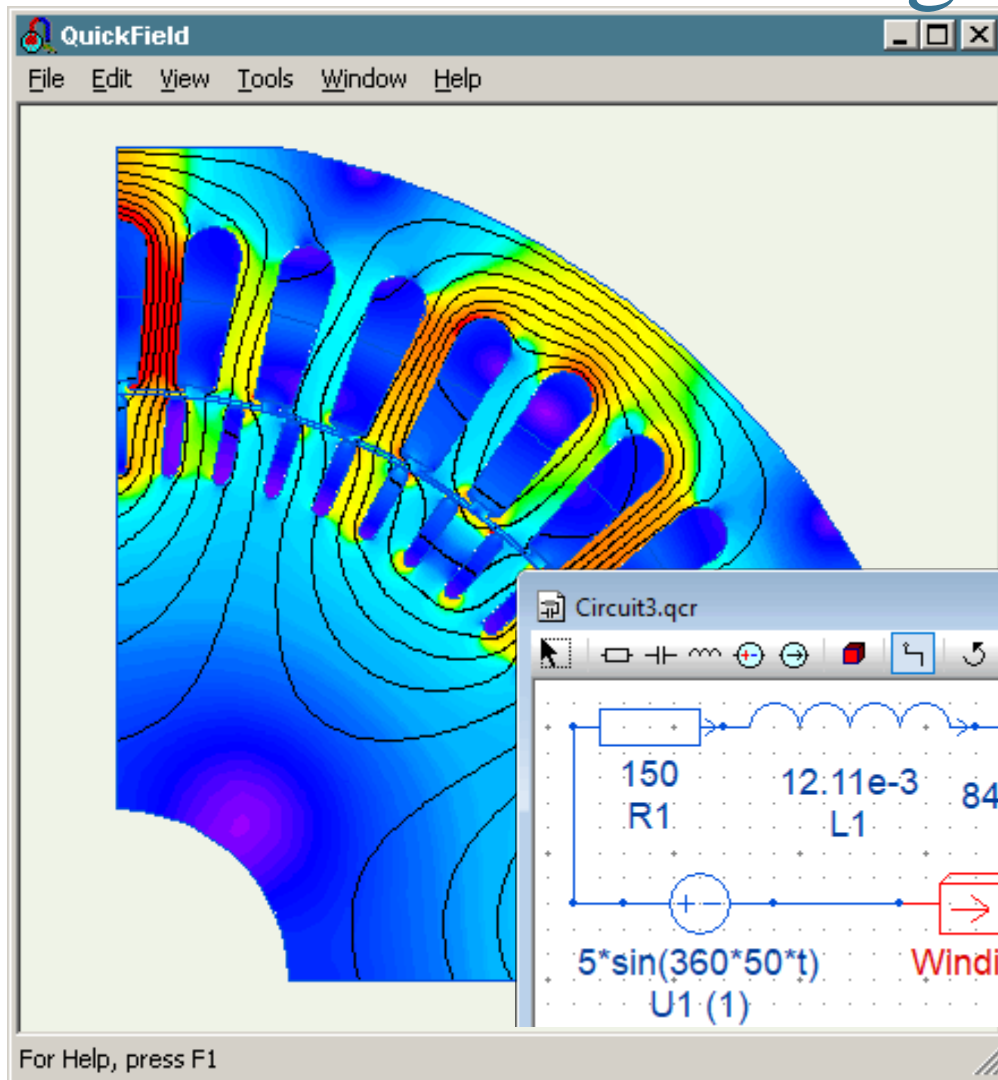
The image displays a magnetic field simulation on the left, showing field lines around a coil. In the center is the 'Problem Properties - HMagn2' dialog box. The 'General' tab is active, showing 'Problem Type: AC Magnetics', 'Length Units: Millimeters', 'Model Class: Plane-parallel', 'Frequency: f = 100 Hz' (circled in red), 'Coordinate System: Cartesian', and 'Precision: Normal'. The 'Files' section shows 'Geometry: Hmagn2.mod', 'Data: Hmagn2.dhe', and 'Location: C:\Users\Public\Documents\QuickField 6.3 Examples'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

Below the dialog box is a circuit diagram titled 'Circuit3.qcr'. It shows a series circuit with a resistor 'R1' (150), an inductor 'L1' (12.11e-3), and a capacitor 'C1' (840e-12). A voltage source 'U1 (1)' is defined by the equation $5 \cdot \sin(360 \cdot 50 \cdot t)$. A 'Winding' component is represented by a red box with a right-pointing arrow.



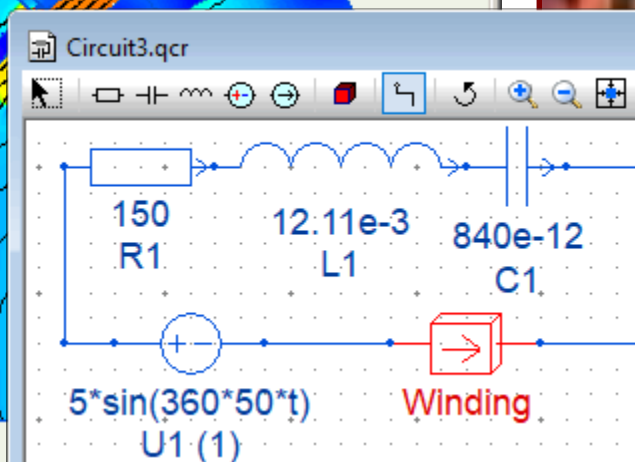
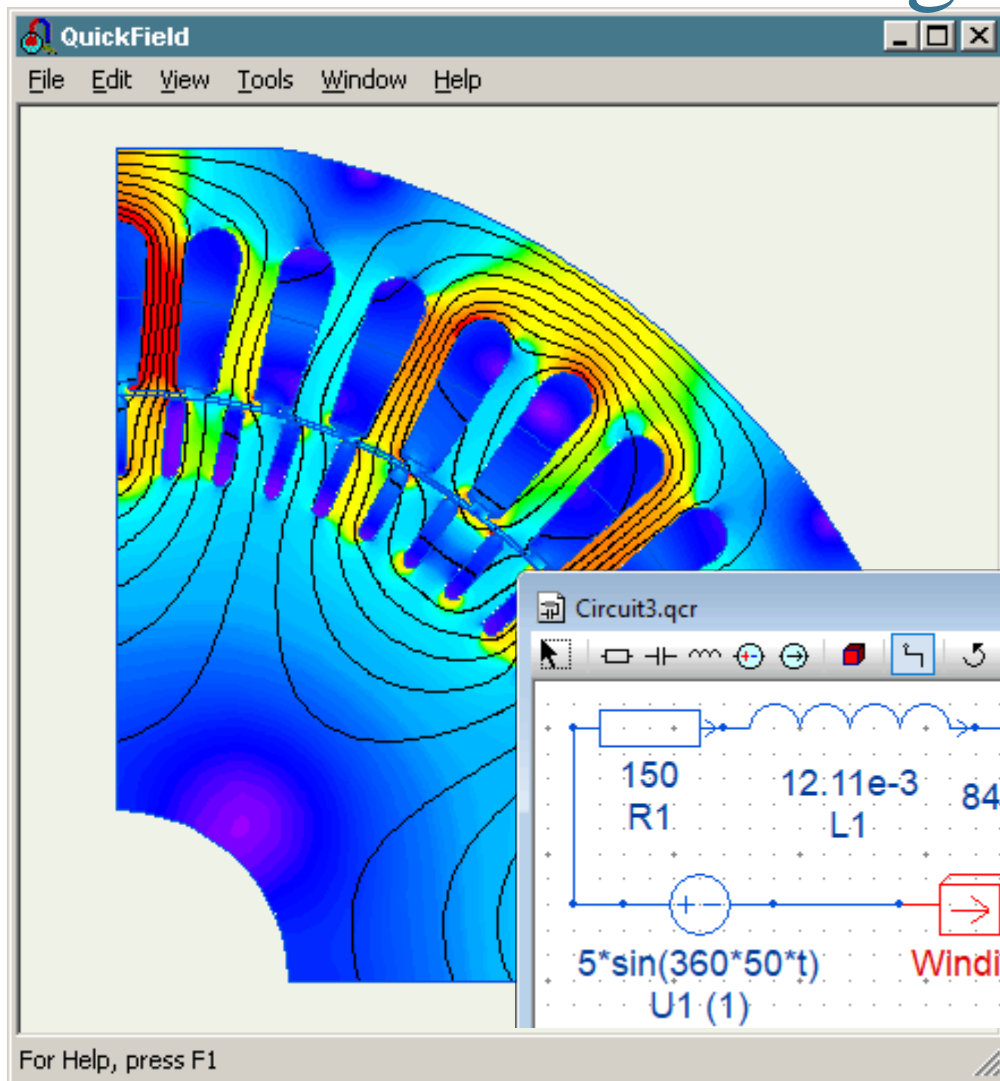


Transient magnetics

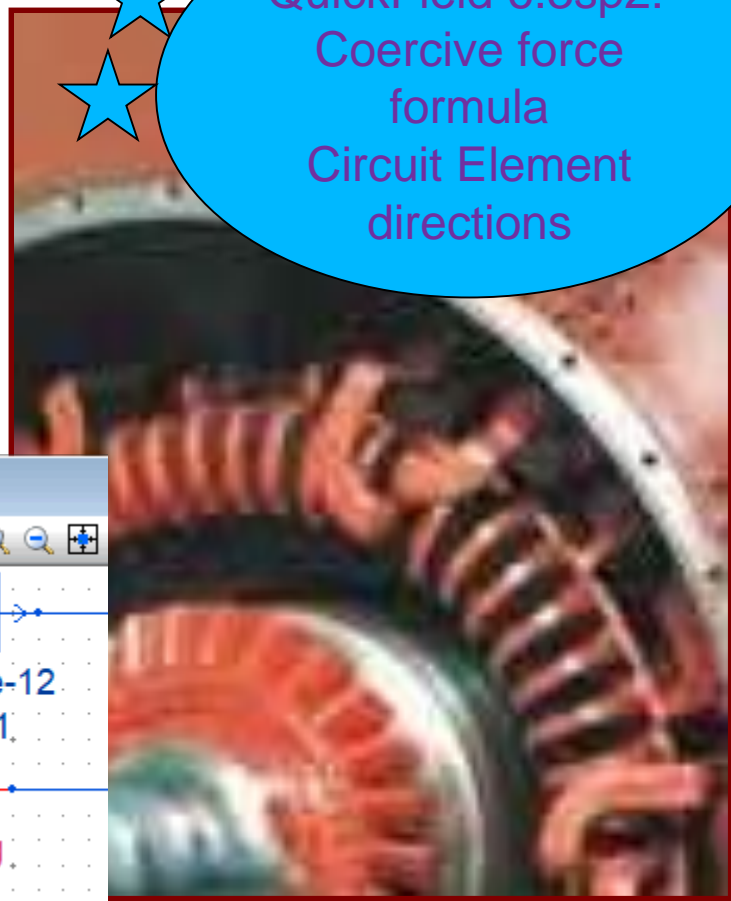




Transient magnetics

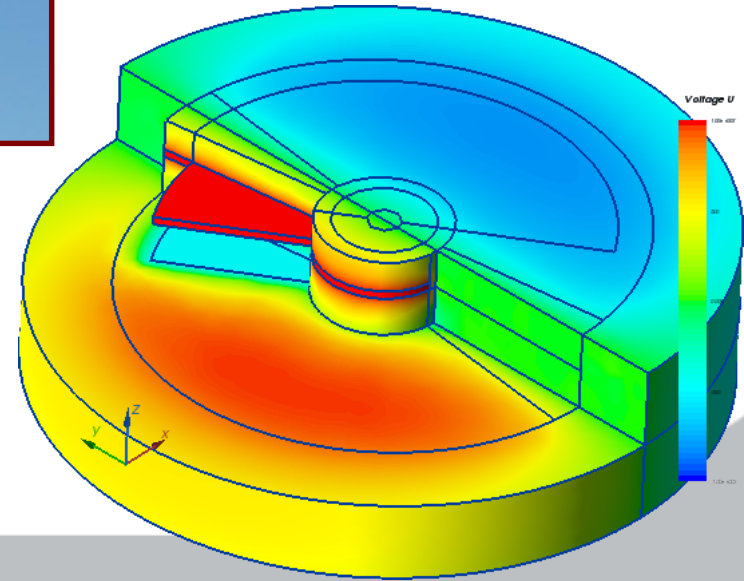
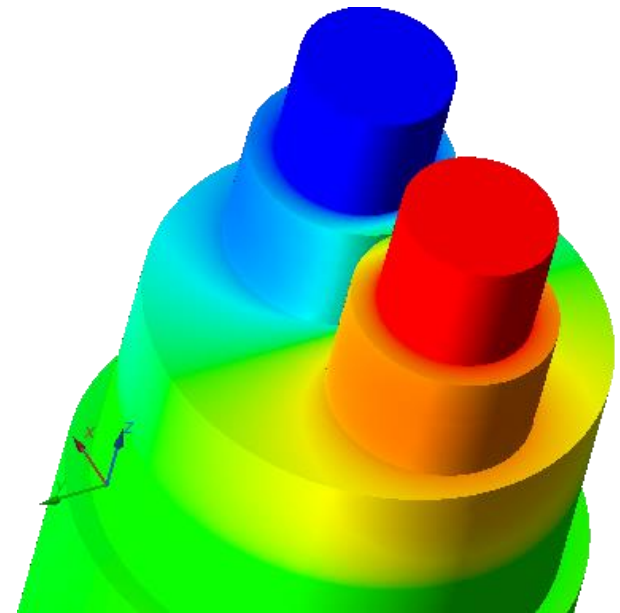
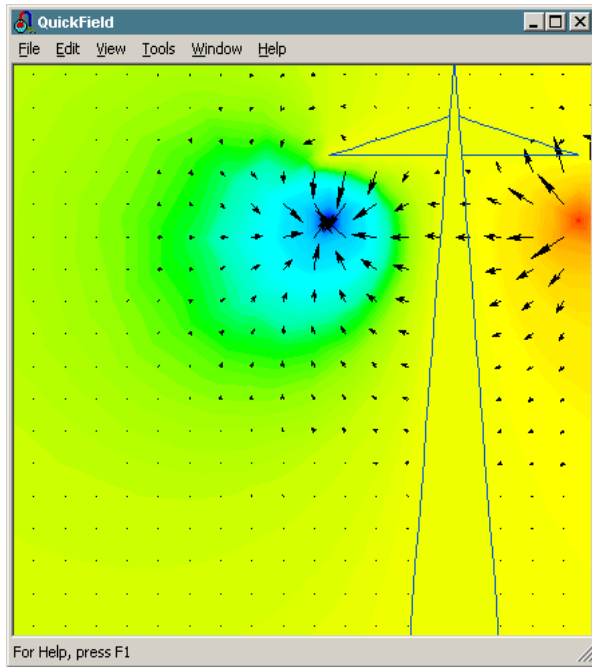


★
★
QuickField 6.3sp2:
Coercive force
formula
Circuit Element
directions



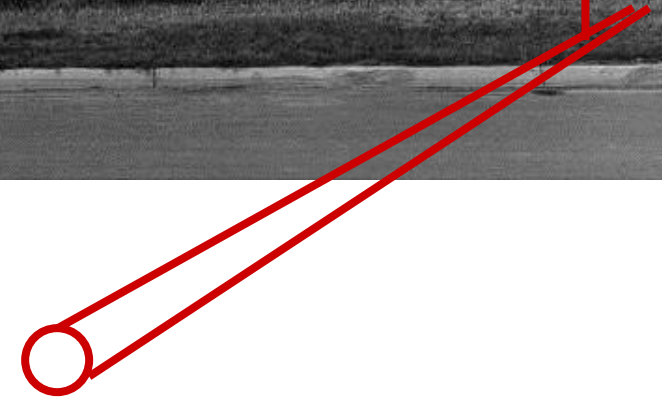
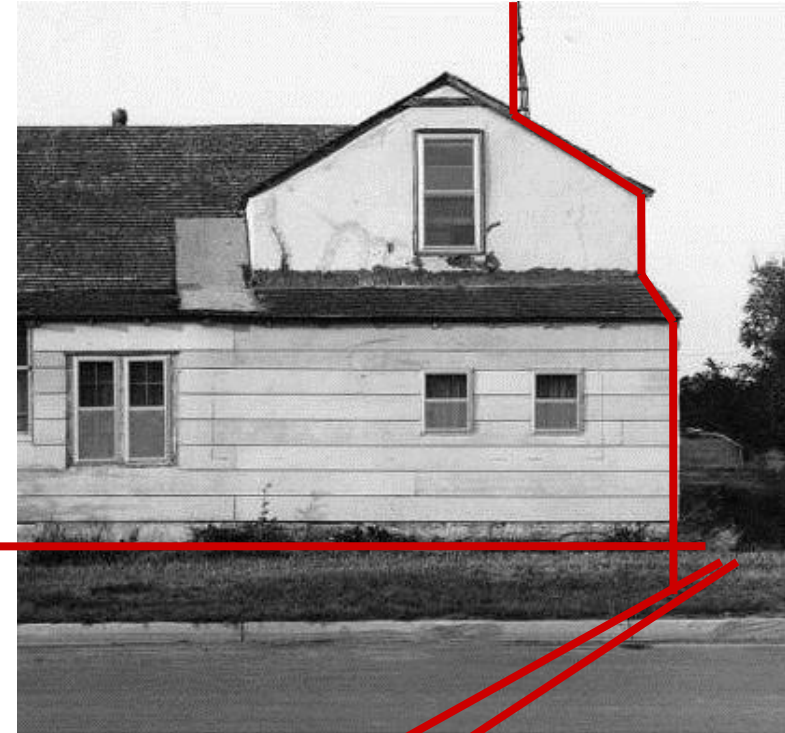
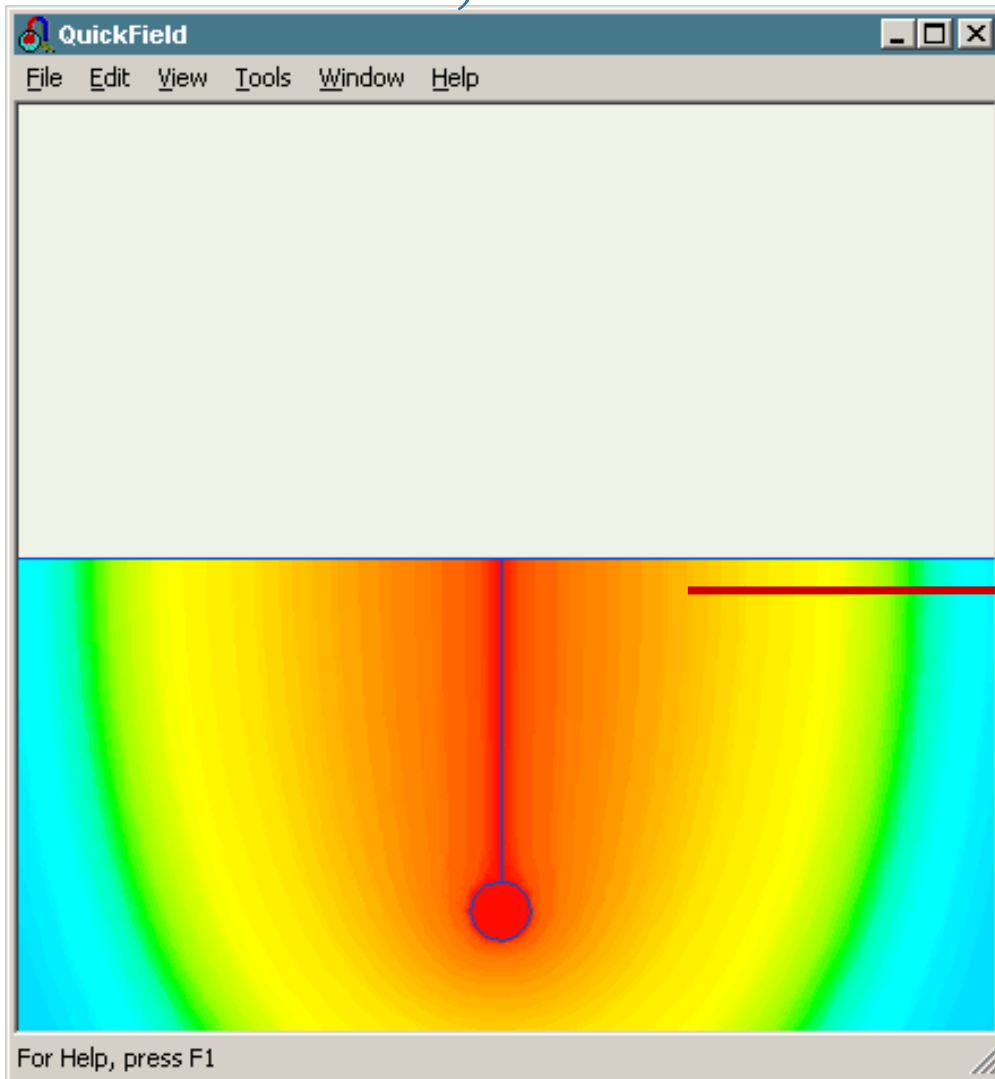


Electrostatics



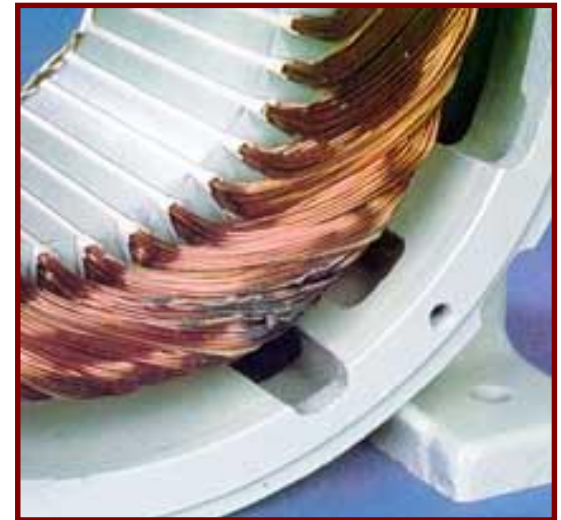
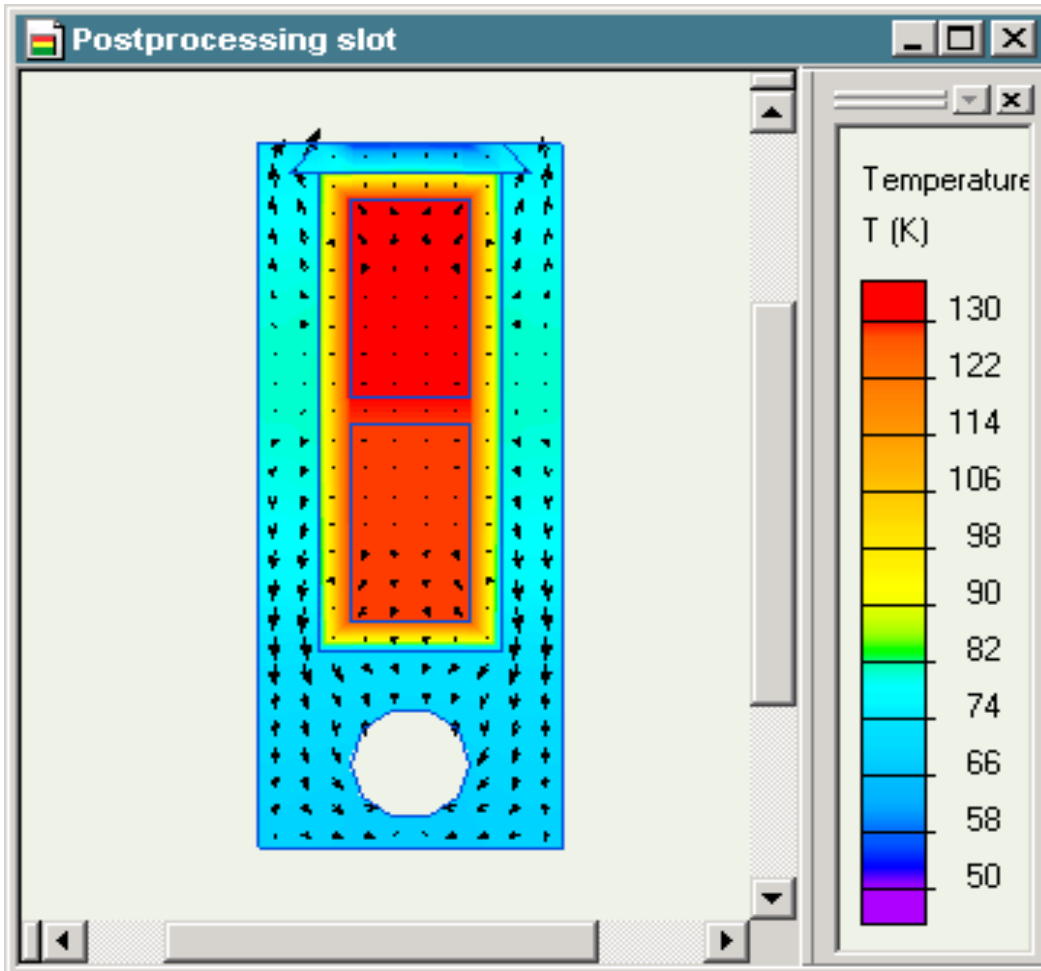


AC, DC and Transient electric



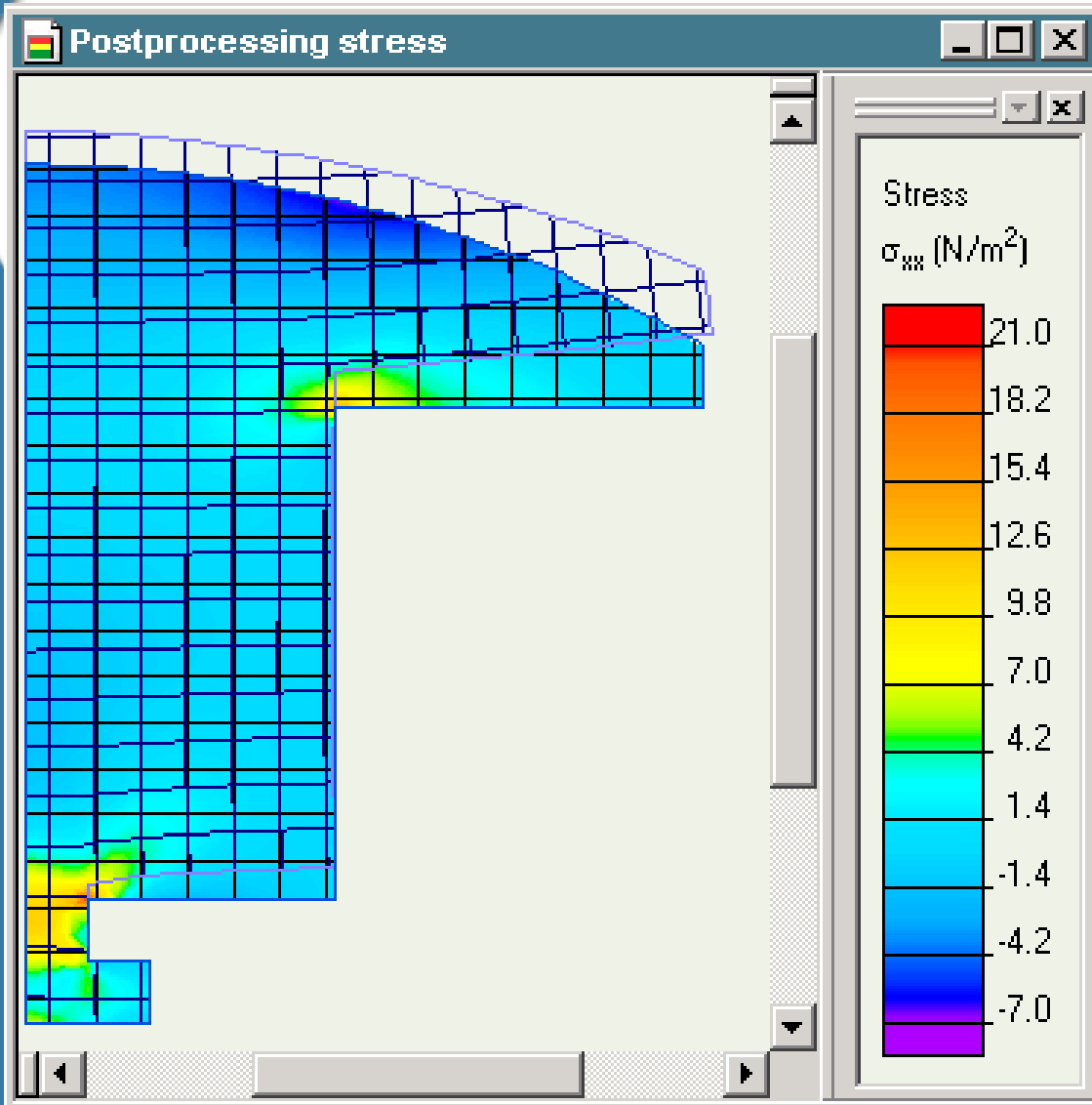


Heat transfer





Stress analysis

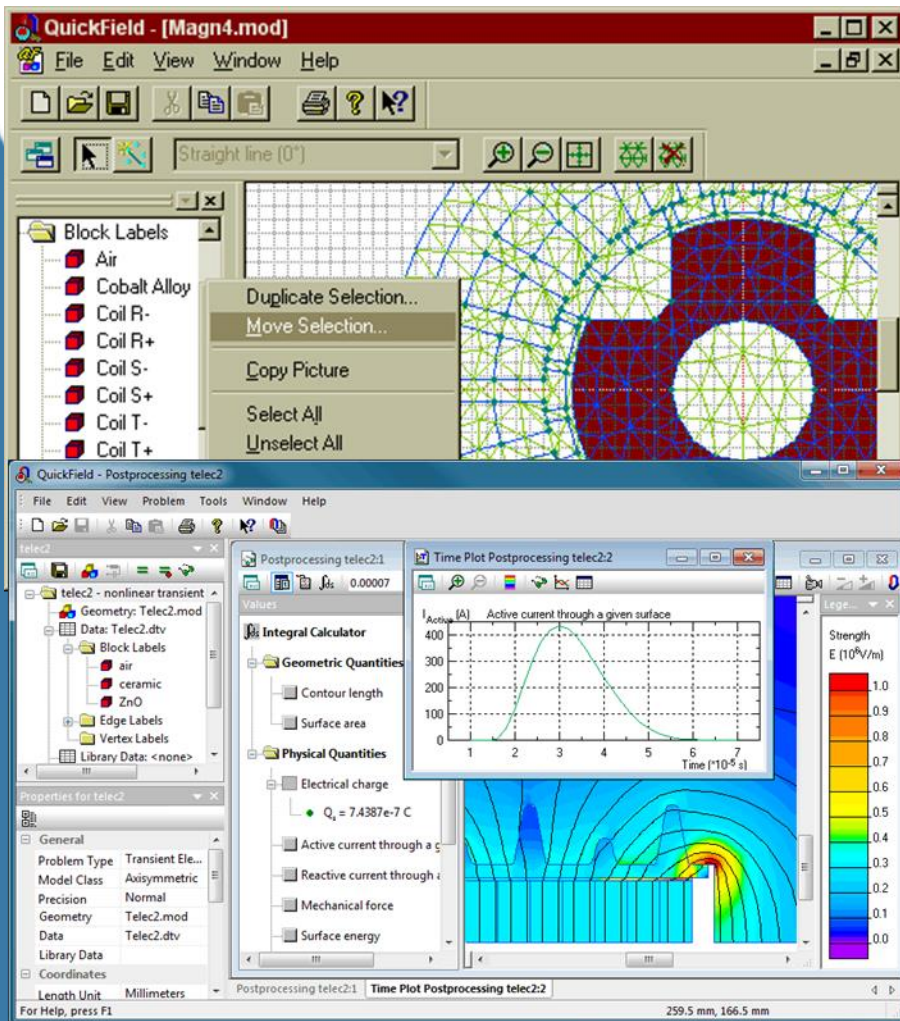




So many field simulation tools on a market.
QuickField is not just another one...



Common with major modern field simulation packages:



- FEM based
- Graphical User Interface
- Fully automated
- Works in Windows environment
- Compatible with CADs
- Large customer base
- Distributed and supported worldwide



Different from most modern field simulation packages:



- Does not require training or mathematical background
- Extremely fast
- Open Object architecture and COM-compatible API
- Flexible licensing options (freeware and commercial editions)



QuickField Difference





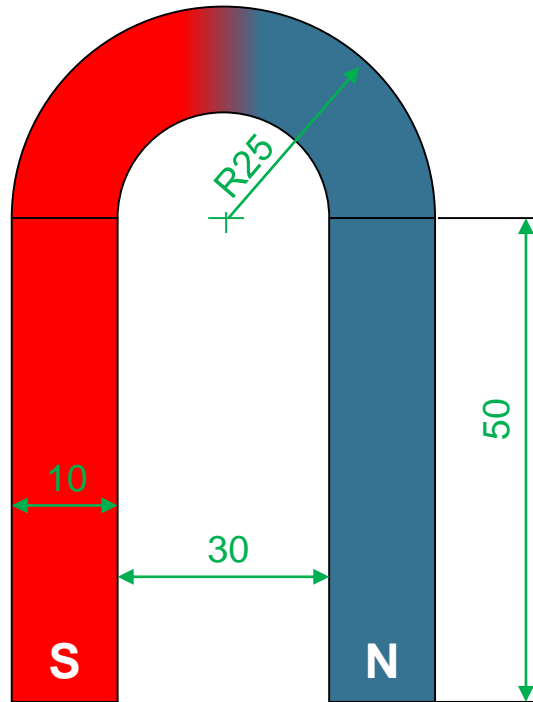
Live presentation: QuickField simulation examples



Alexander Lyubimtsev
Support Engineer
Tera Analysis Ltd.



Permanent C-shaped magnet



All dimensions in millimeters

Problem specification:

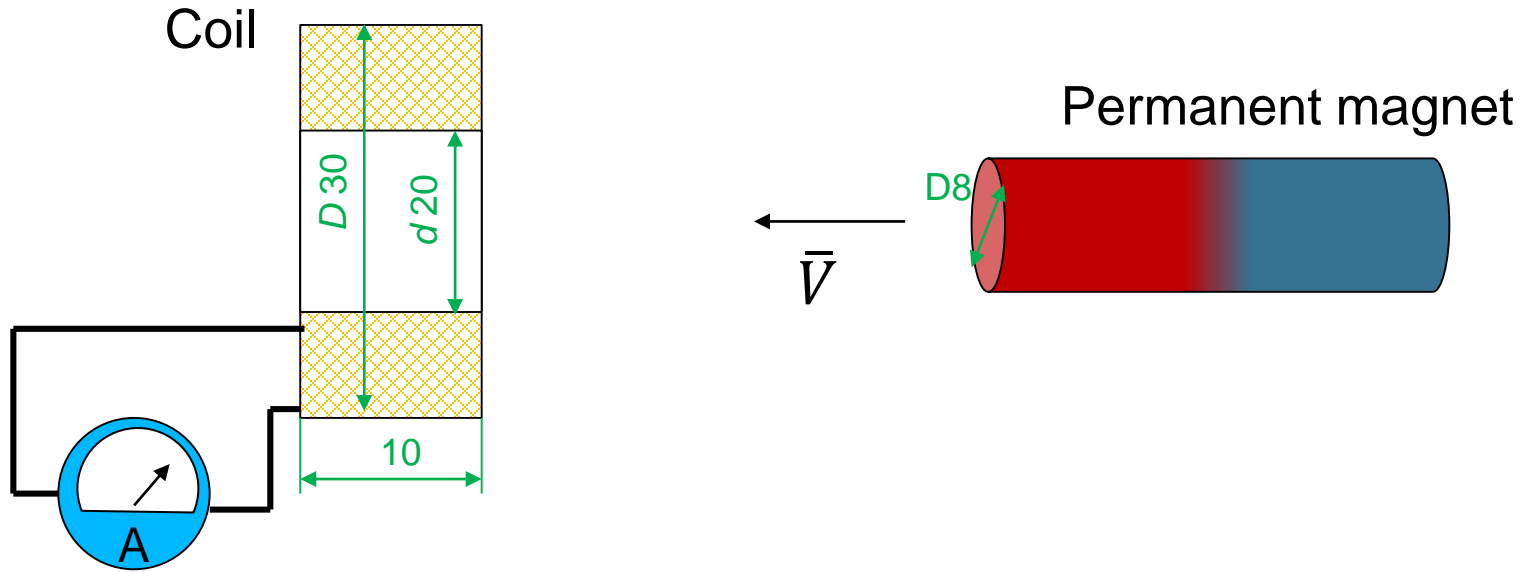
Coercive force 10 kA/m

Task:

Simulate the C-shaped magnet



Faraday's law of induction



Problem specification:

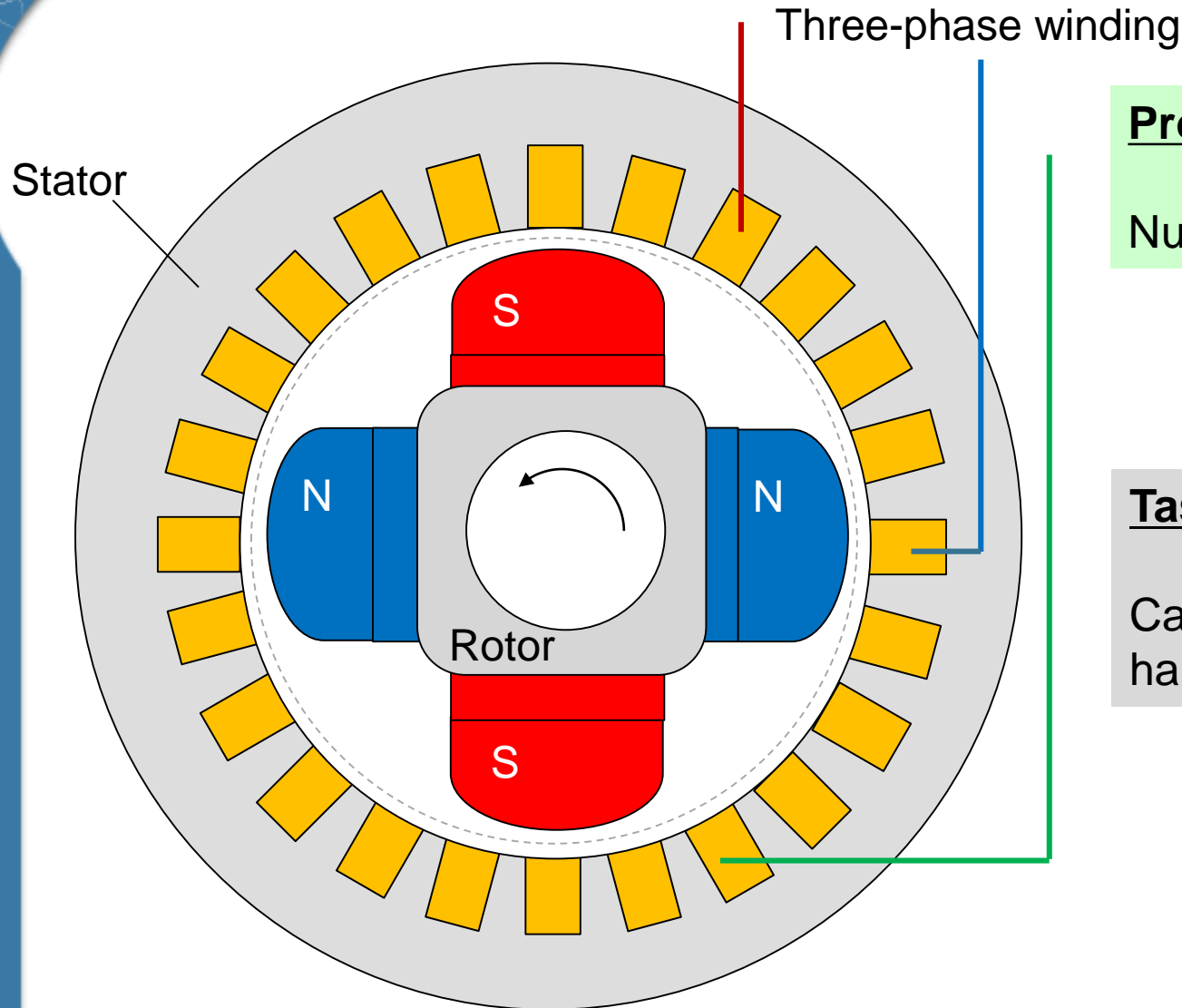
Coil number of turns: 200
PM speed $V = 10$ cm / sec
Sm-Co relative permeability 1.05

Task:

Calculate induced voltage in the coil



Synchronous generator



Problem specification:

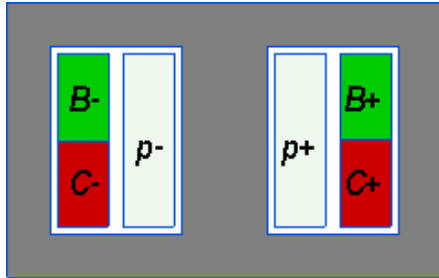
Number of slots: 24

Task:

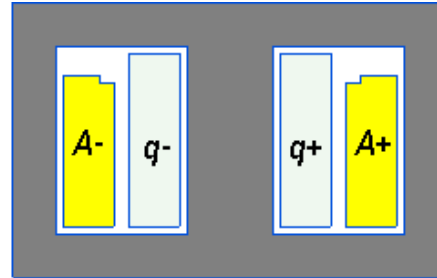
Calculate flux density harmonics in the air gap



Scott 'T' transformer



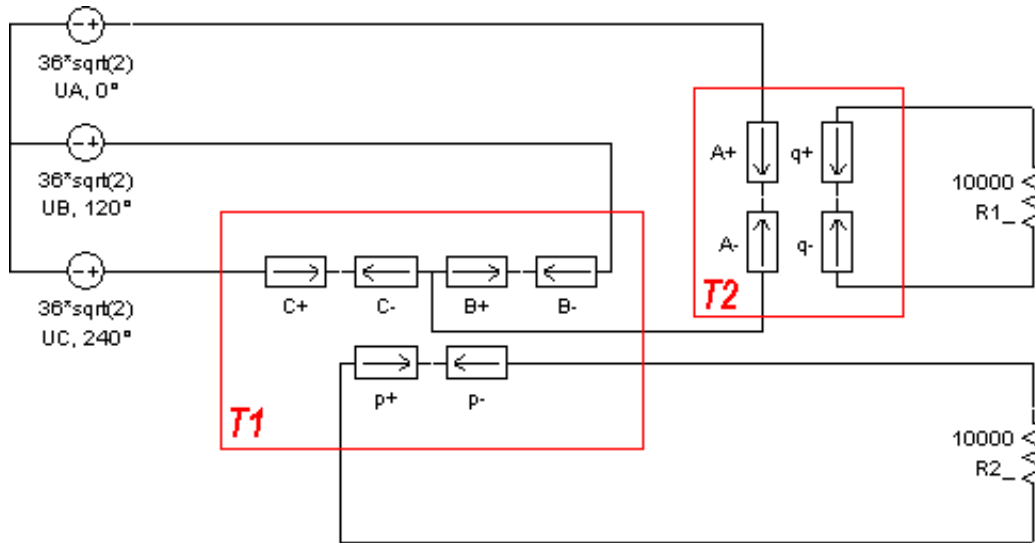
Transformer 1



Transformer 2

Problem specification:

Input voltage: three phase 36 V
Frequency 50 Hz



Task:

Convert 3-phase voltage to two single-phase voltages