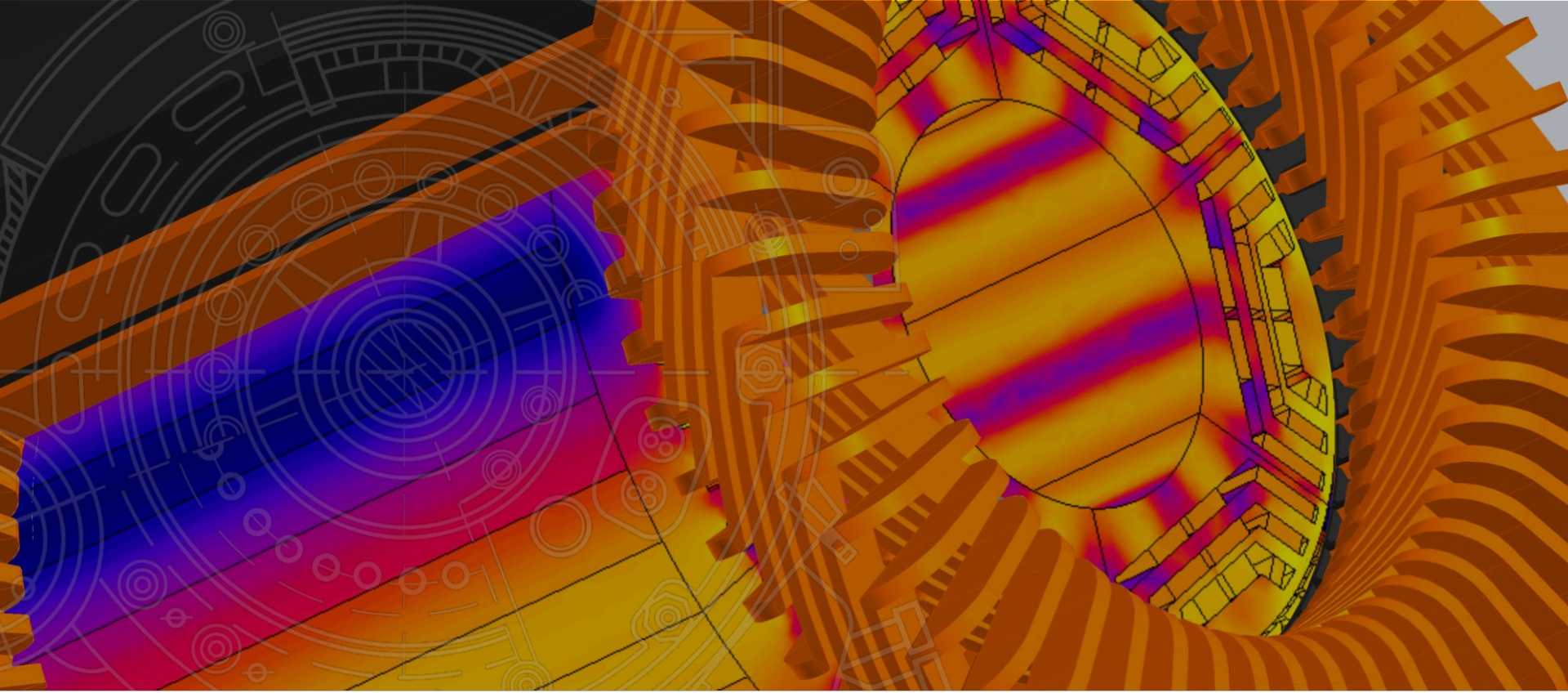


ALTAIR

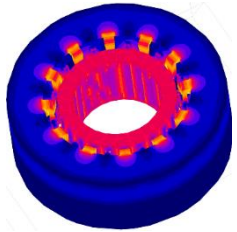
CALCULATION OF ELECTRODYNAMIC FORCE WITH WINDINGS SHORT-CIRCUIT IN POWER TRANSFORMER

Flux 3D

© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

THE BEST-IN-CLASS TOOL FOR ELECTROMAGNETIC SIMULATION

Altair Flux™



Analyze, Create, Optimize
Getting accurate results in a fast way
Used in industry worldwide for more than 30 years

Leveraging the best simulation technologies in EM field simulation
To innovate and design energy efficient components and processes

ALTAIR

© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

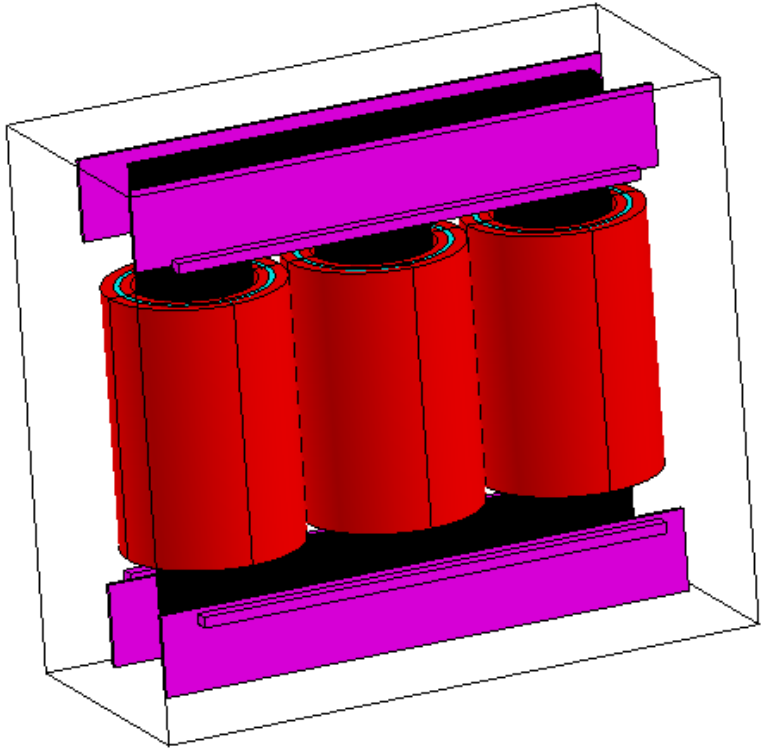
Summary

Geometry and physics

Solving

Post processing

- Force computation

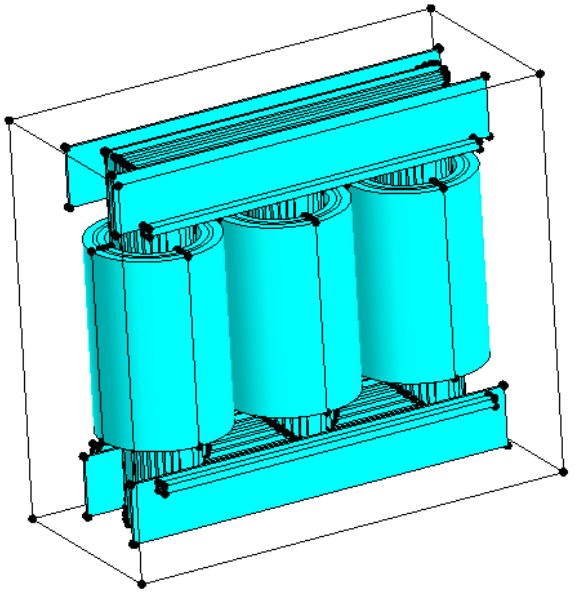


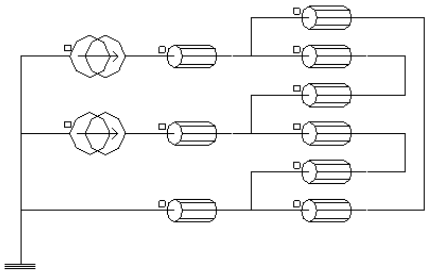
© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

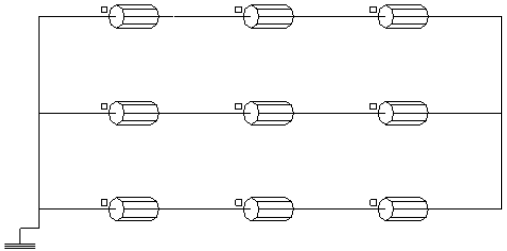
Geometry and physics

Execute the python script:

- buildGeomesh.py
- buildPhys.py







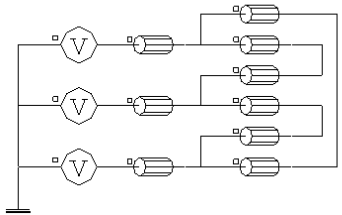
ALTAIR

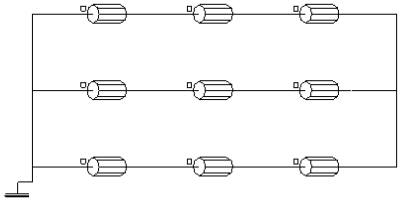
© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

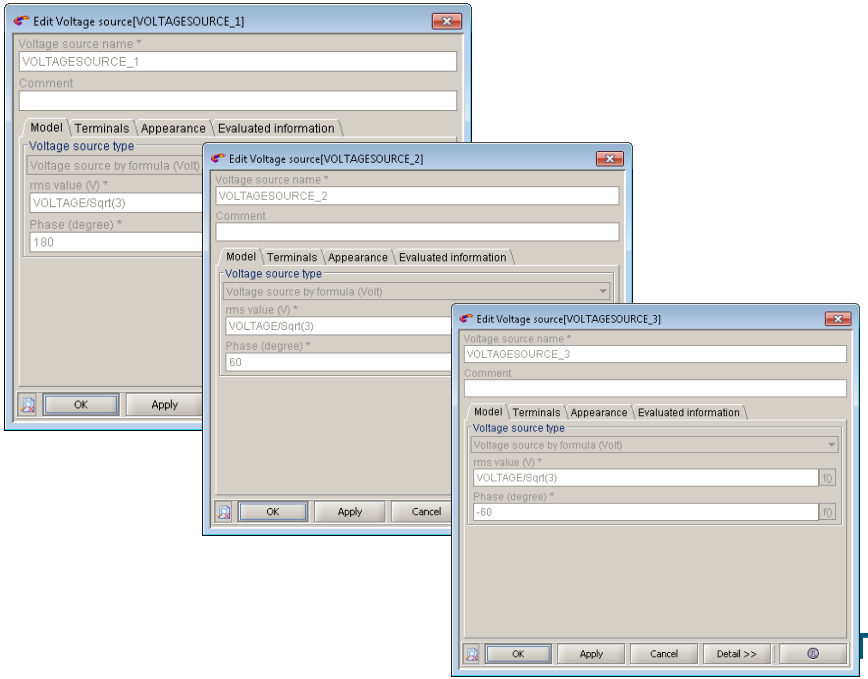
Geometry and physics

To make the short circuit test we impose the nominal voltage and let Flux compute the short circuit current

To do it we need to modify the circuit



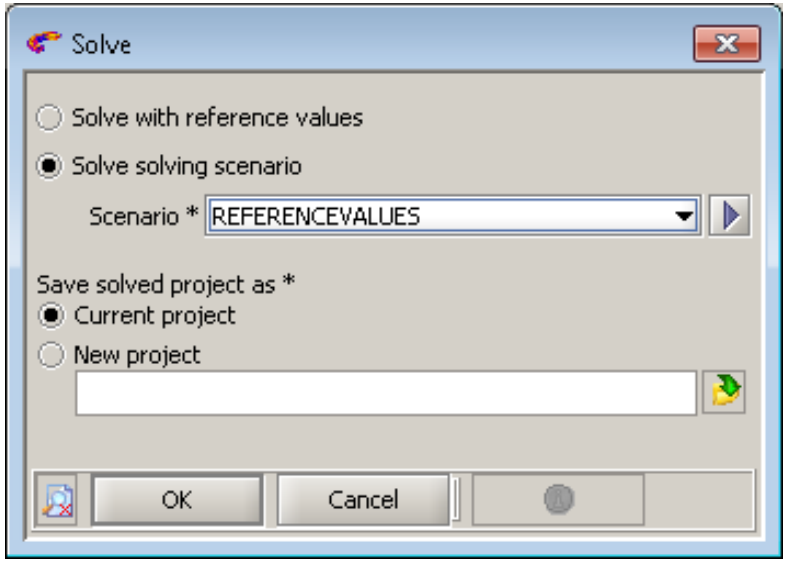




© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

Solving

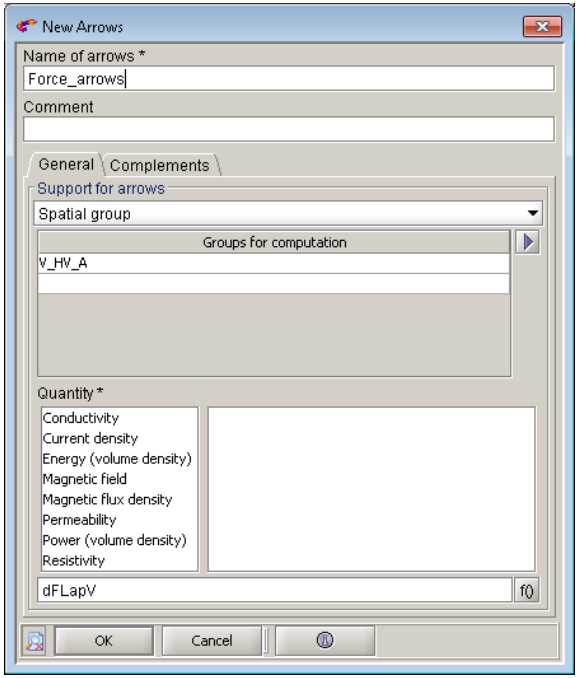
We solve the project with the reference value

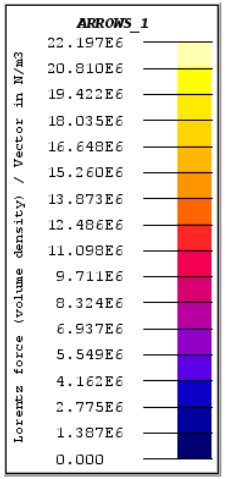


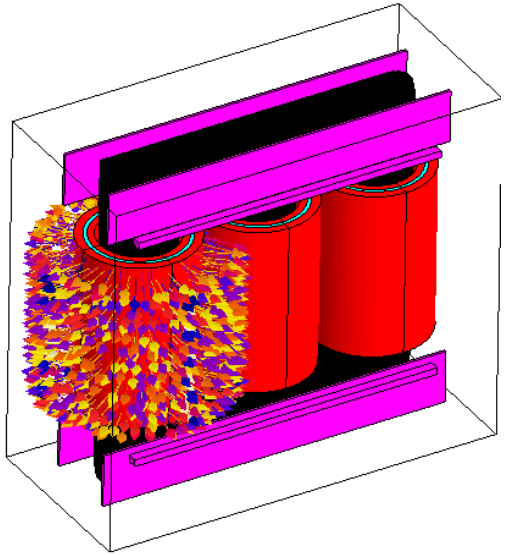
ALTAIR

© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

Post processing





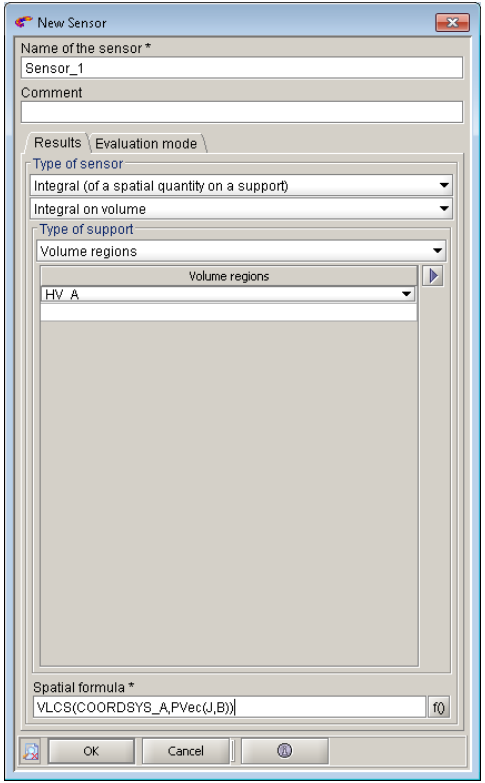


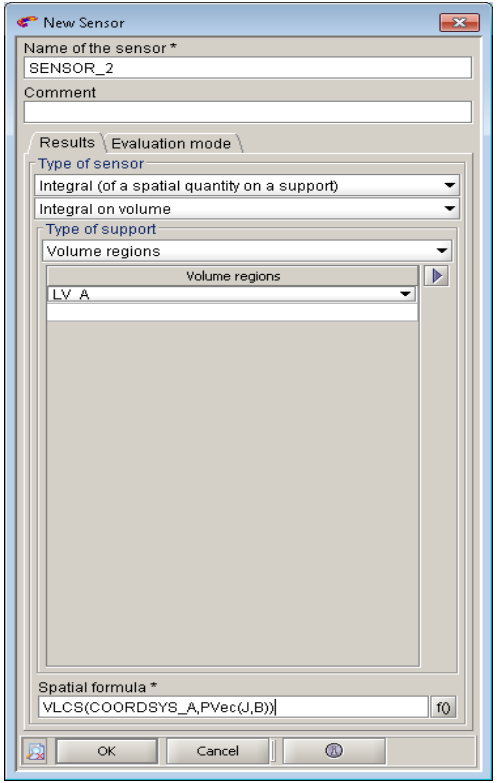
© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

Post processing

To compute the electromagnetic force:

- Create sensors
- We use a cylindrical coordinate system





- Evaluate sensors

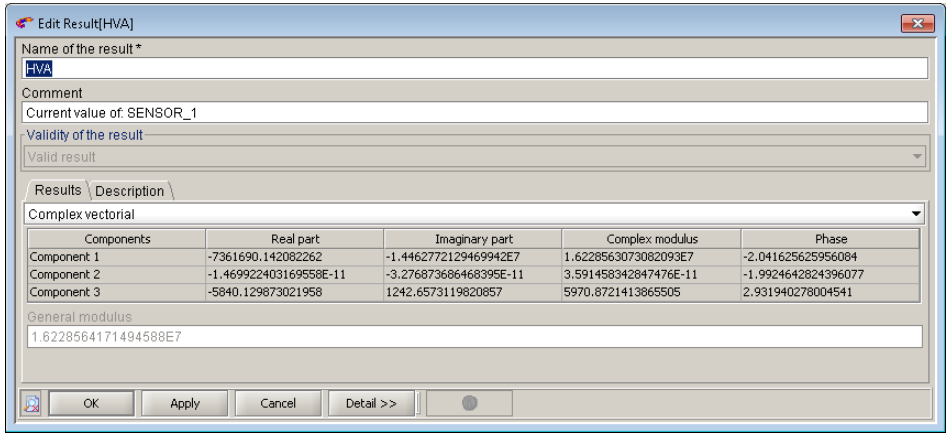
ALTAIR

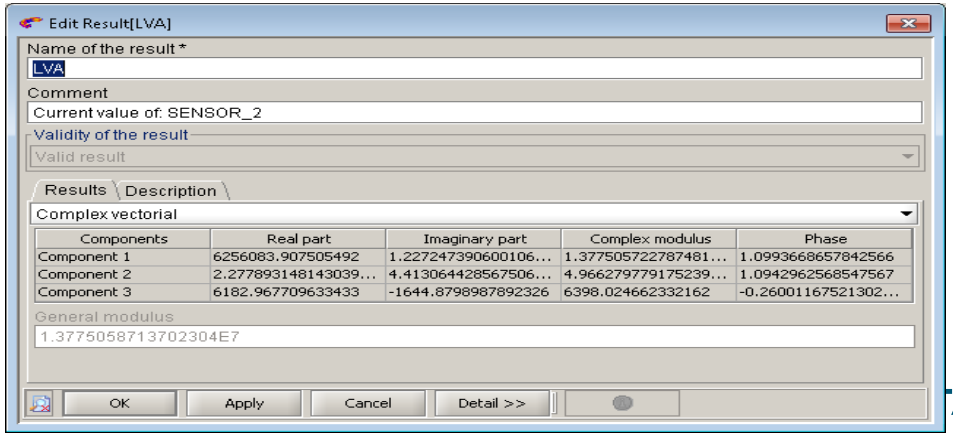
© Altair Engineering, Inc. Proprietary and Confidential. All rights reserved.

Post processing

Electromagnetic force:

- Component1: radial force
- Component 2: tangential force
- Component 3: force in Z axis





THANK YOU

altair.com

#ONLYFORWARD

ALTAIR