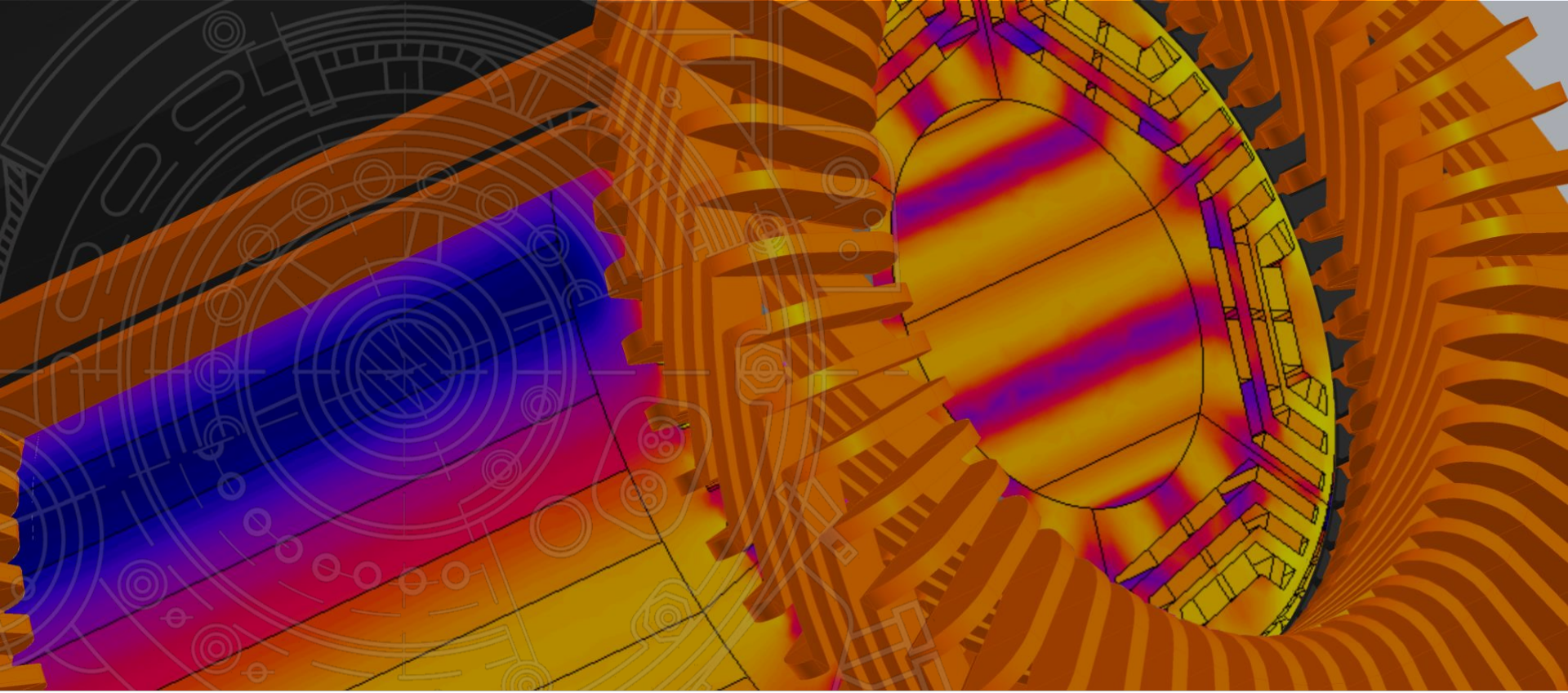


ALTAIR

LINEAR MOTOR

Flux 3D : project step by step

Summary

Create the 3D geometry from 2D project.

Physics.

Mesh.

Back EMF computation

Starting a new project : new project

Open Flux 12.1 supervisor

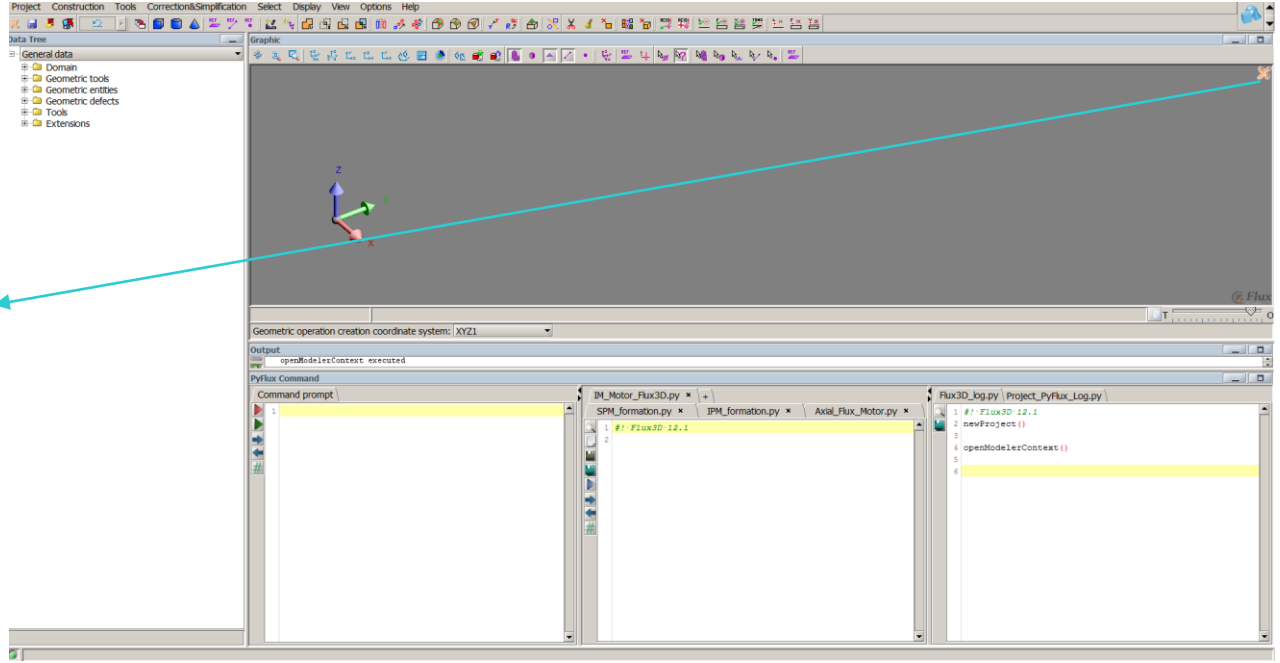
Start a new project

Start a new project

Starting a new project : new project

Leave the modeler context

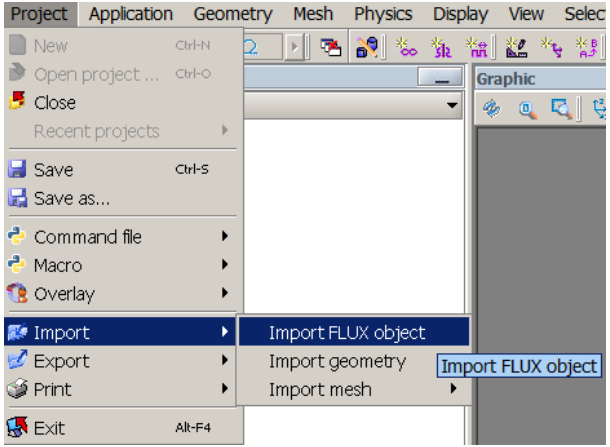
Leave the modeler

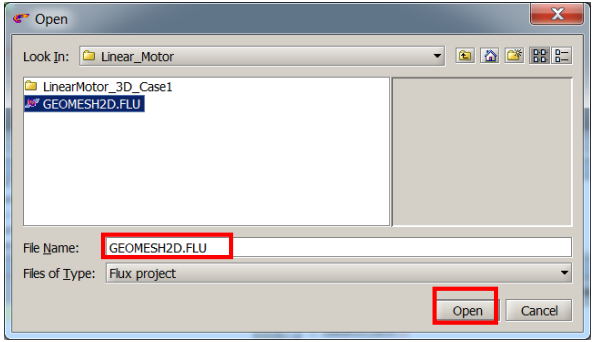


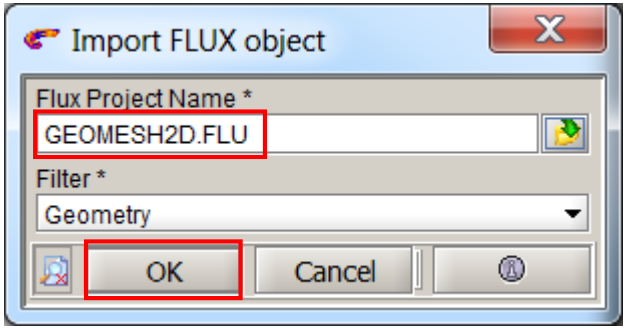
ALTAIR

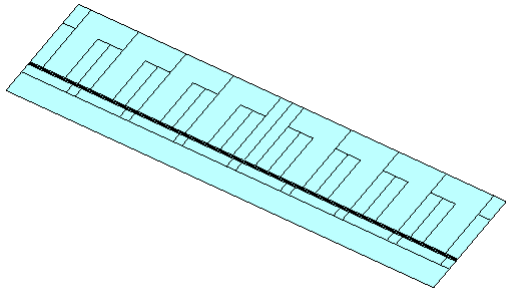
Create the geometry

Import the 2D geometry (in Flux 3D)







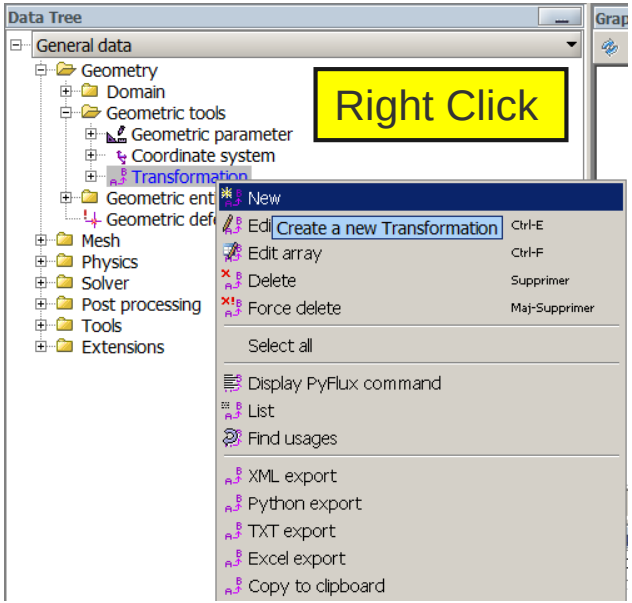


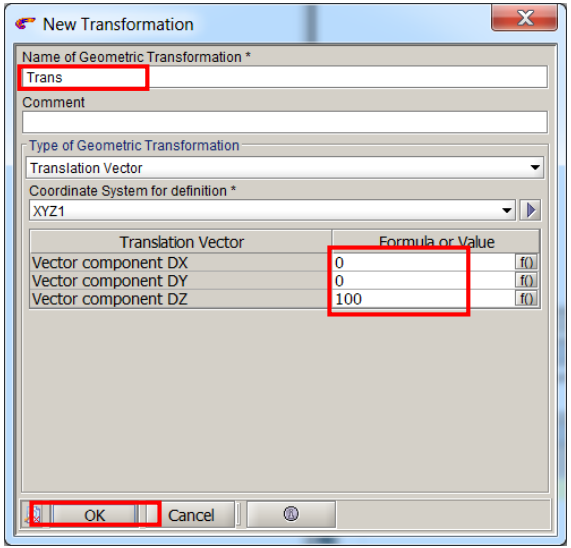
ALTAIR

Create the geometry

Extrude the face to create 3D project

- Create a transformation

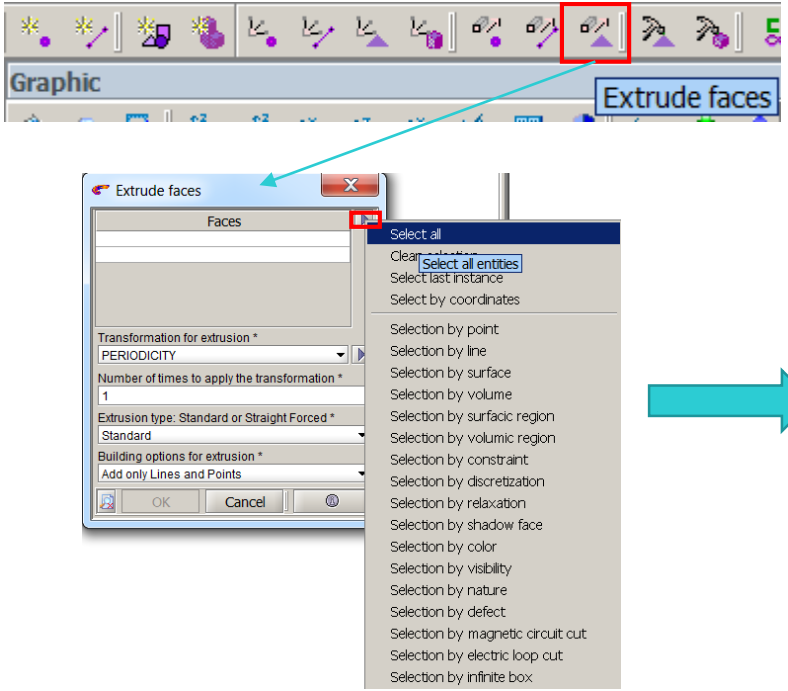


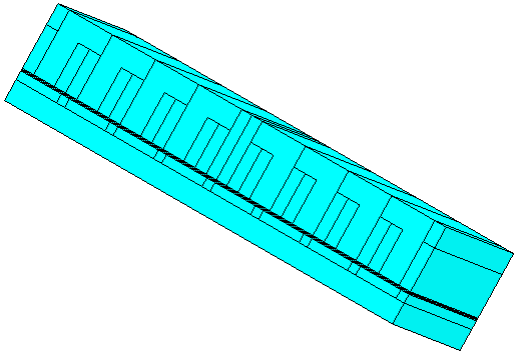


ALTAIR

Create the geometry

Extrude the face to create 3D project





Save the Project: GEMO.FLU

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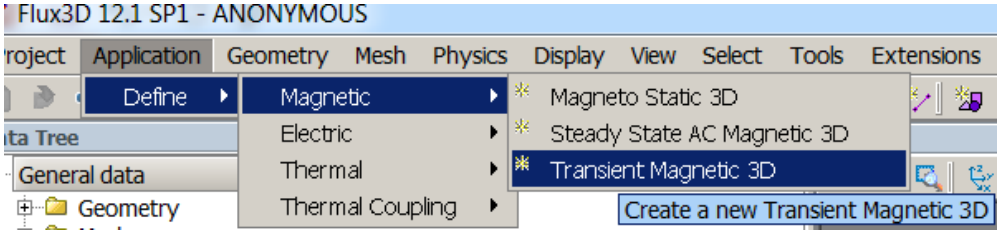
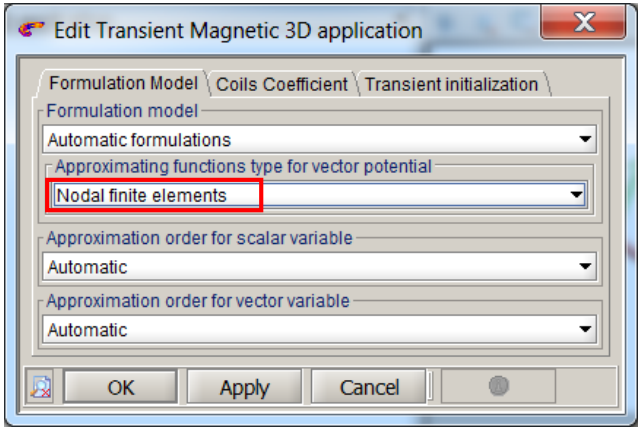
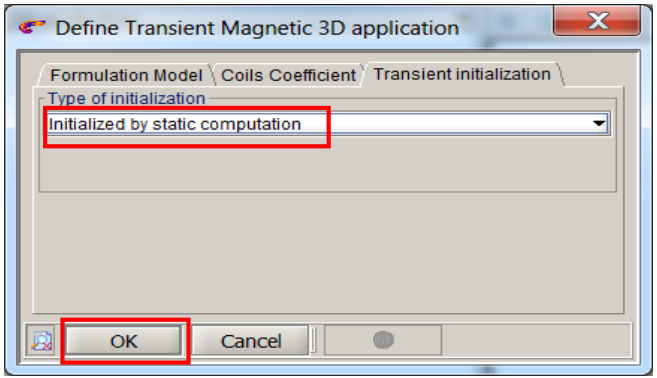
Physics: application

Create application







Click on OK

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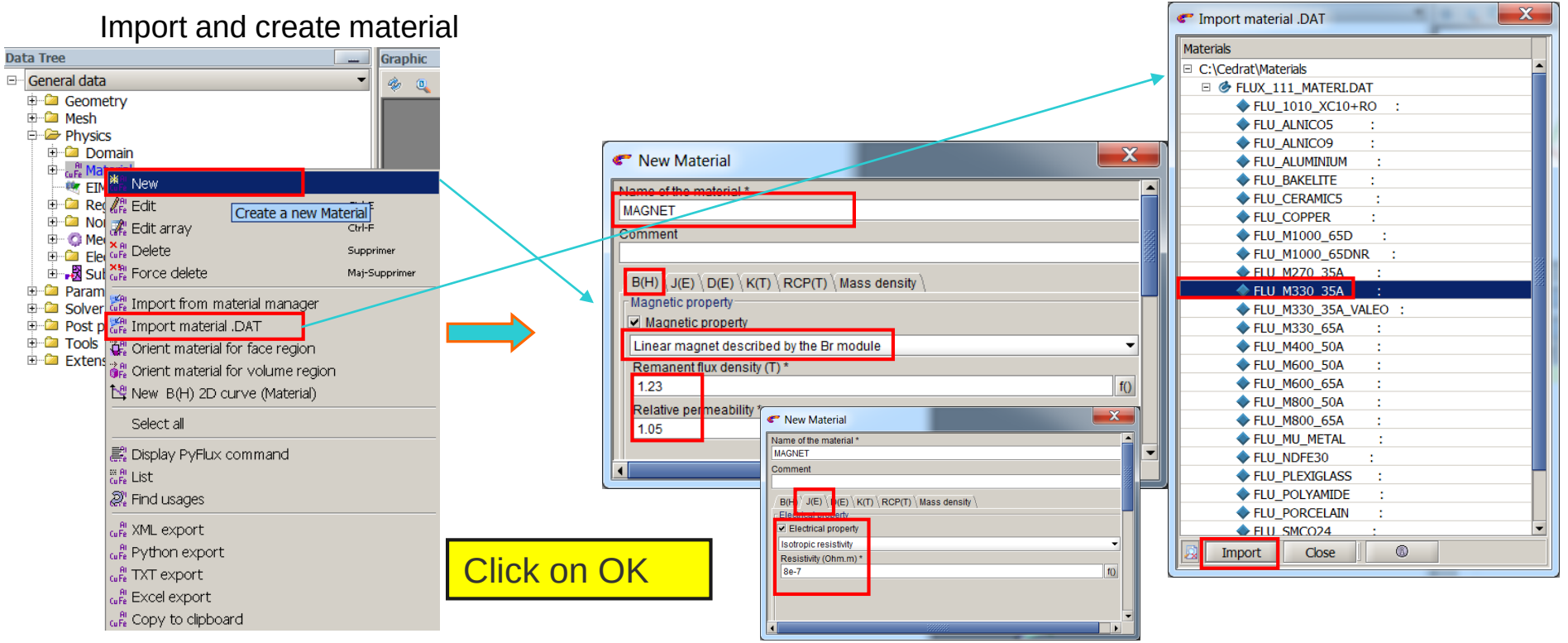
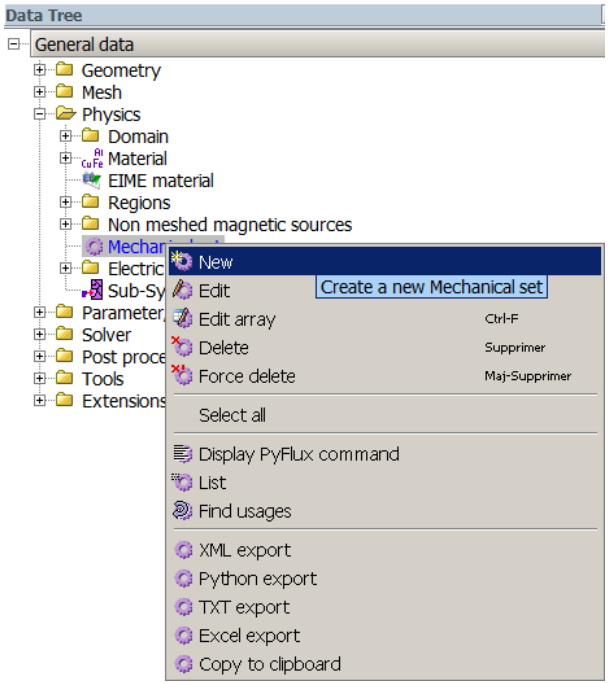
Physics : create magnetic materials

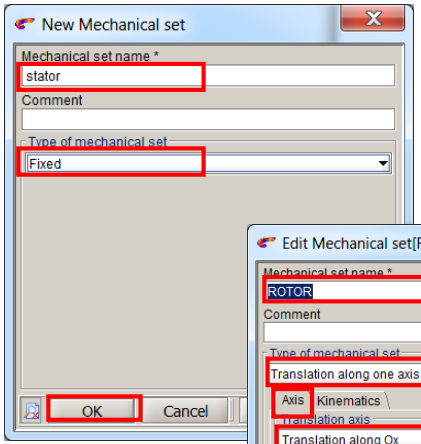
Import and create material

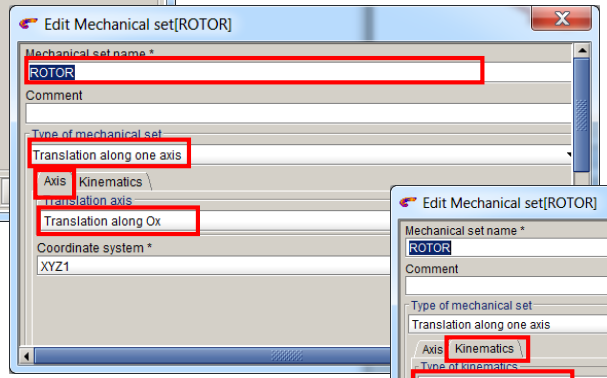


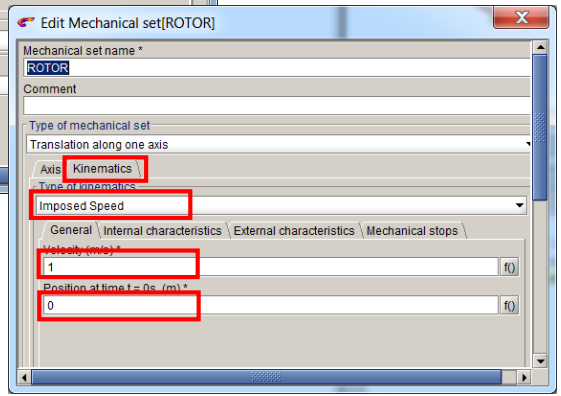
Physics : create mechanical sets

Stator and rotor









Click on OK

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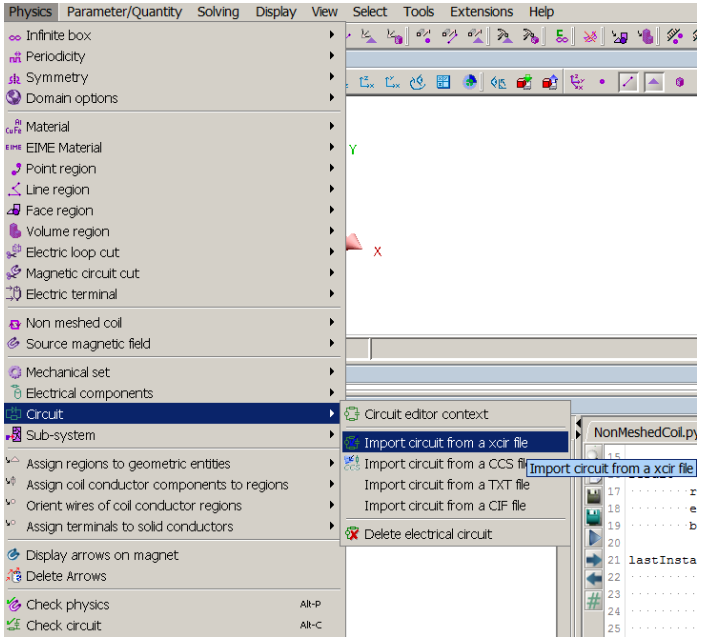
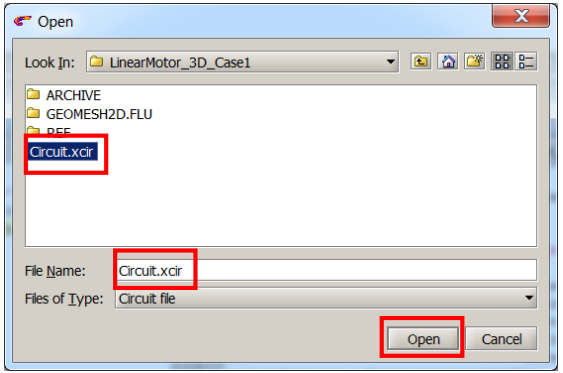
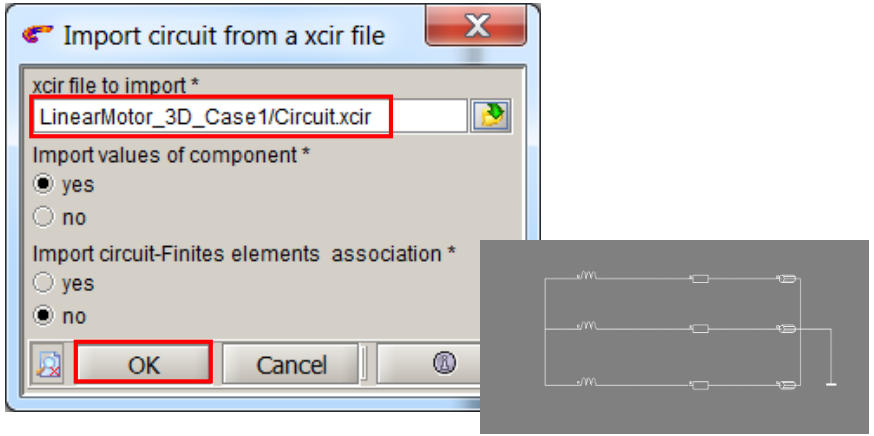
Physics : circuit

Create circuit

- Load the file: ‘Circuit.xcir’

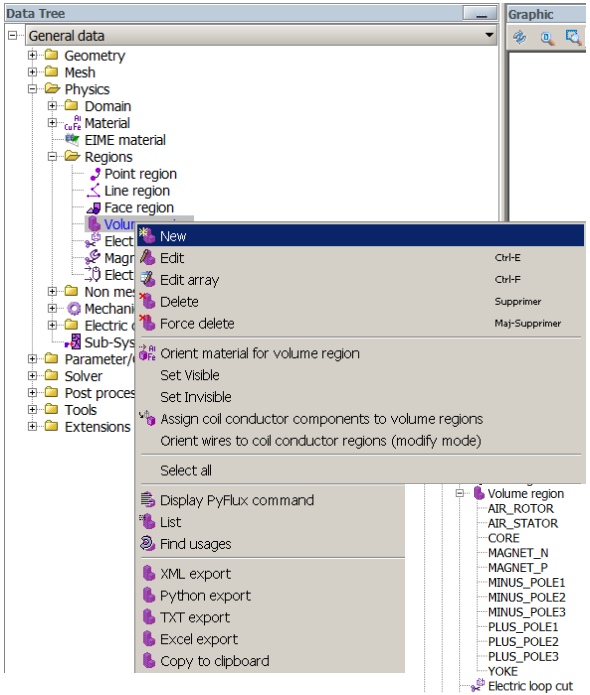






Physics : volume regions

Create volume regions



Volumes regions	Nature	Material	Mechanical sets
YOKE	Magnetic non conducting region	FLU_M330_35A	Rotor
AIR_Rotor	Air or Vacuum	Air or vacuum	Rotor
Magnet_P	Solid conductor	Magnet	Rotor
Magnet_N	Solid conductor	Magnet	Rotor
Core	Magnetic non conducting region	FLU_M330_35A	Stator
AIR_Stator	Air or vaccum	Air or vacuum	Stator

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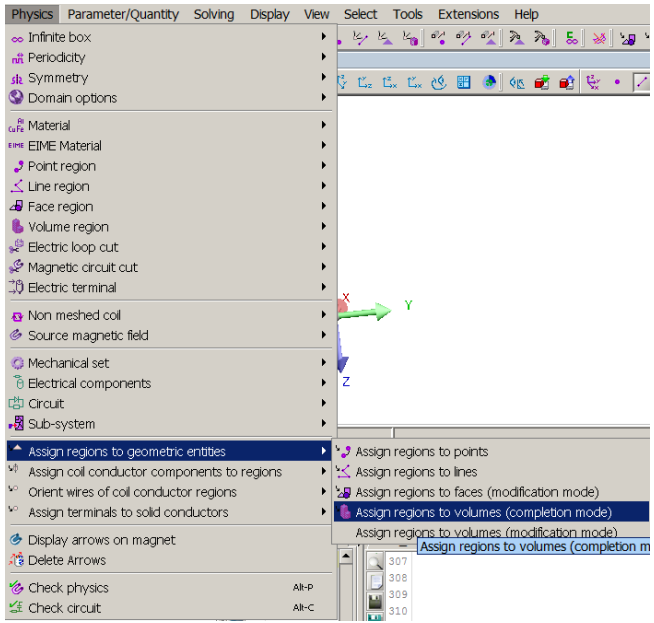
Physics : volume regions

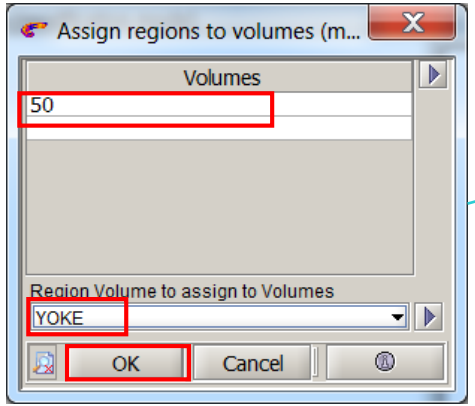
Create volume regions

Volumes regions	Nature		Mechanical sets
PLUS_POLE1	Coil conductor region	Component: BPA Number of turns: 1500	Stator
PLUS_POLE2	Coil conductor region	Component: BPB Number of turns: 1500	Stator
PLUS_POLE3	Coil conductor region	Component: BMC Number of turns: 1500	Stator
MINUS_POLE1	Coil conductor region	Component: BPA Number of turns: 1500	Stator
MINUS_POLE2	Coil conductor region	Component: BPB Number of turns: 1500	Stator
MINUS_POLE3	Coil conductor region	Component: BMC Number of turns: 1500	Stator

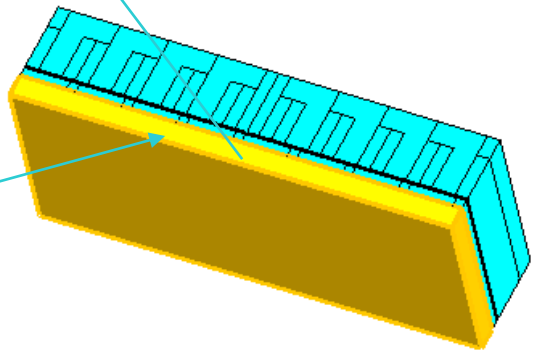
Physics : volume regions

Affectation of the volumes to the volume regions





Select the volume region

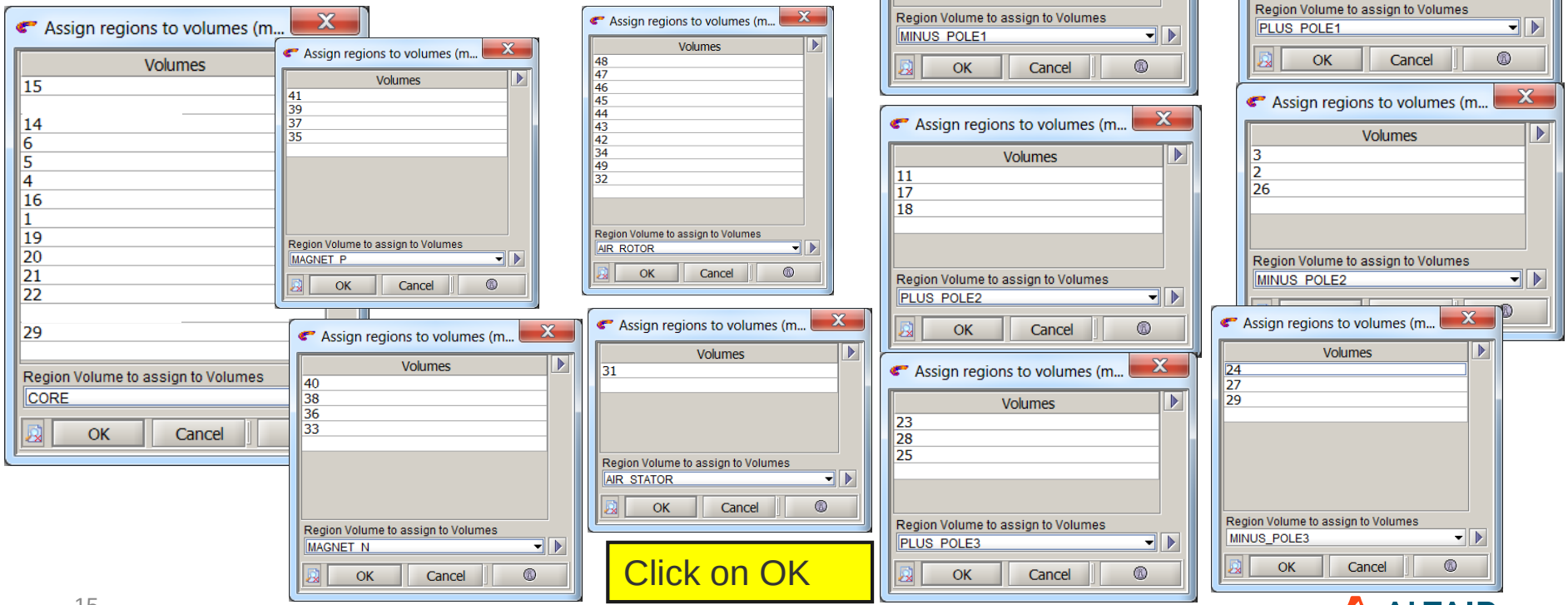


Click on OK

ALTAIR

Physics : volume regions

Affectation of the volumes to the volume regions



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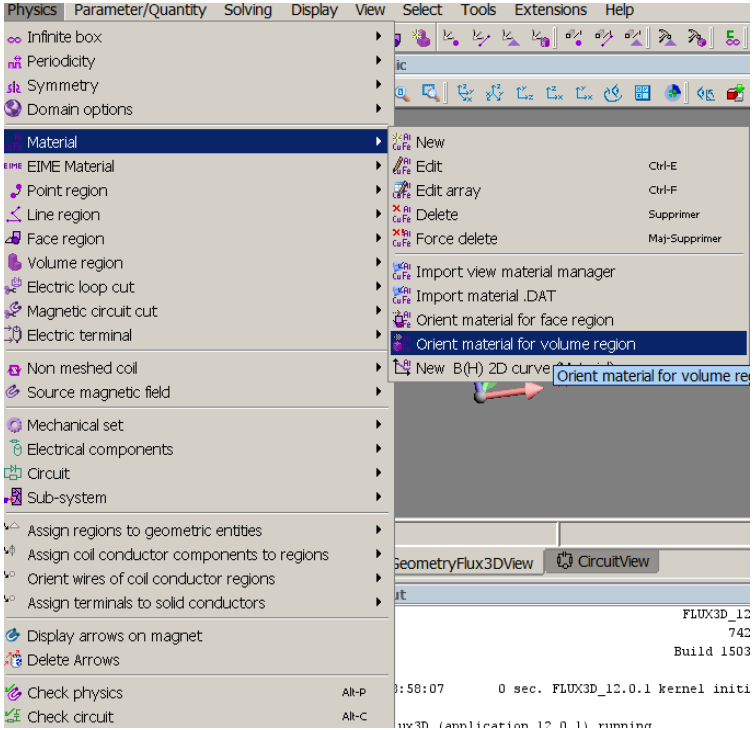
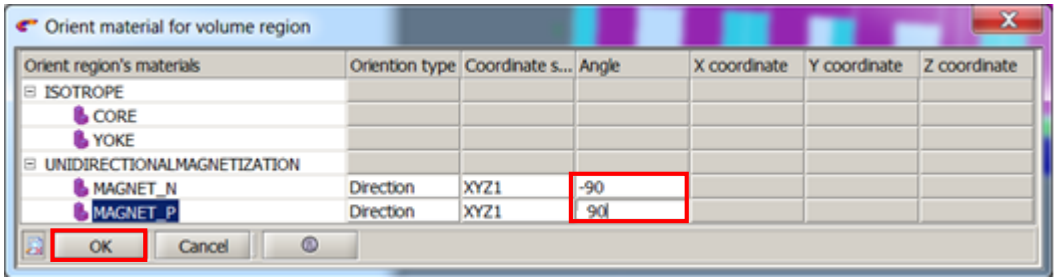
Physics : volume regions

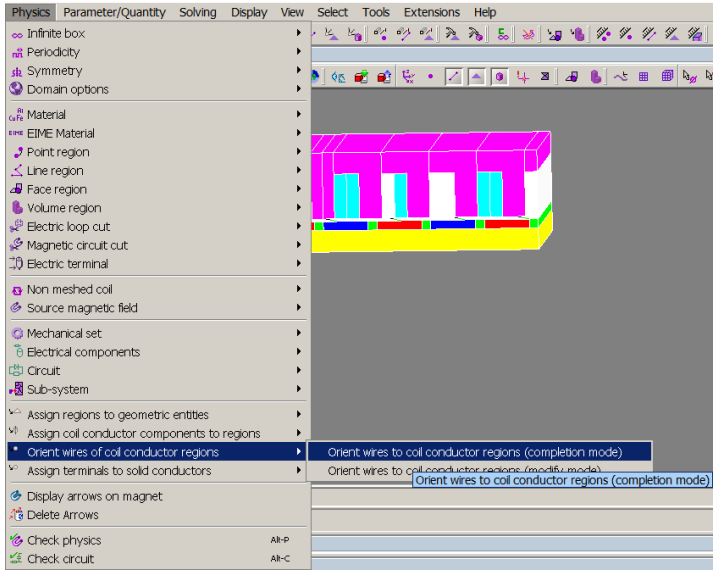
Magnets orientation

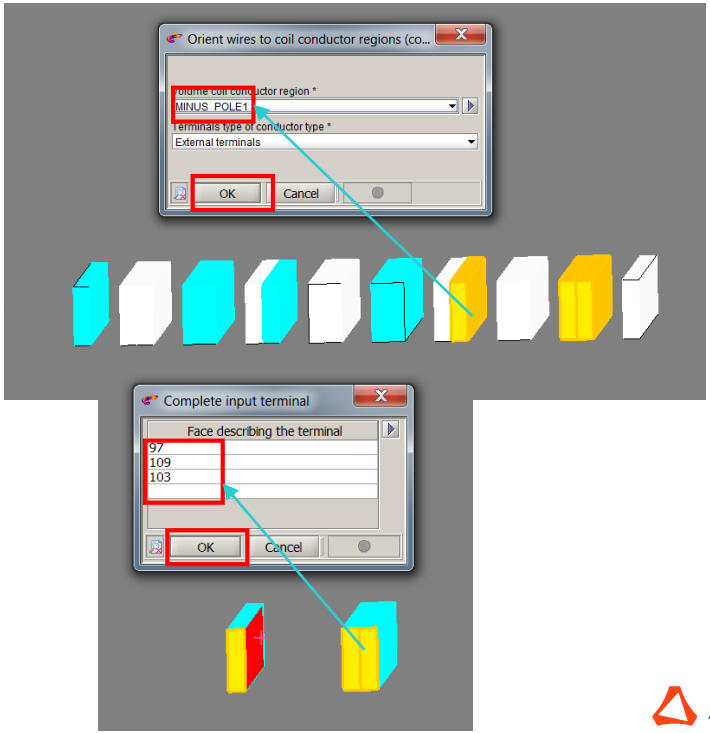




Physics : volume regions

Assign terminals to coil conductors region

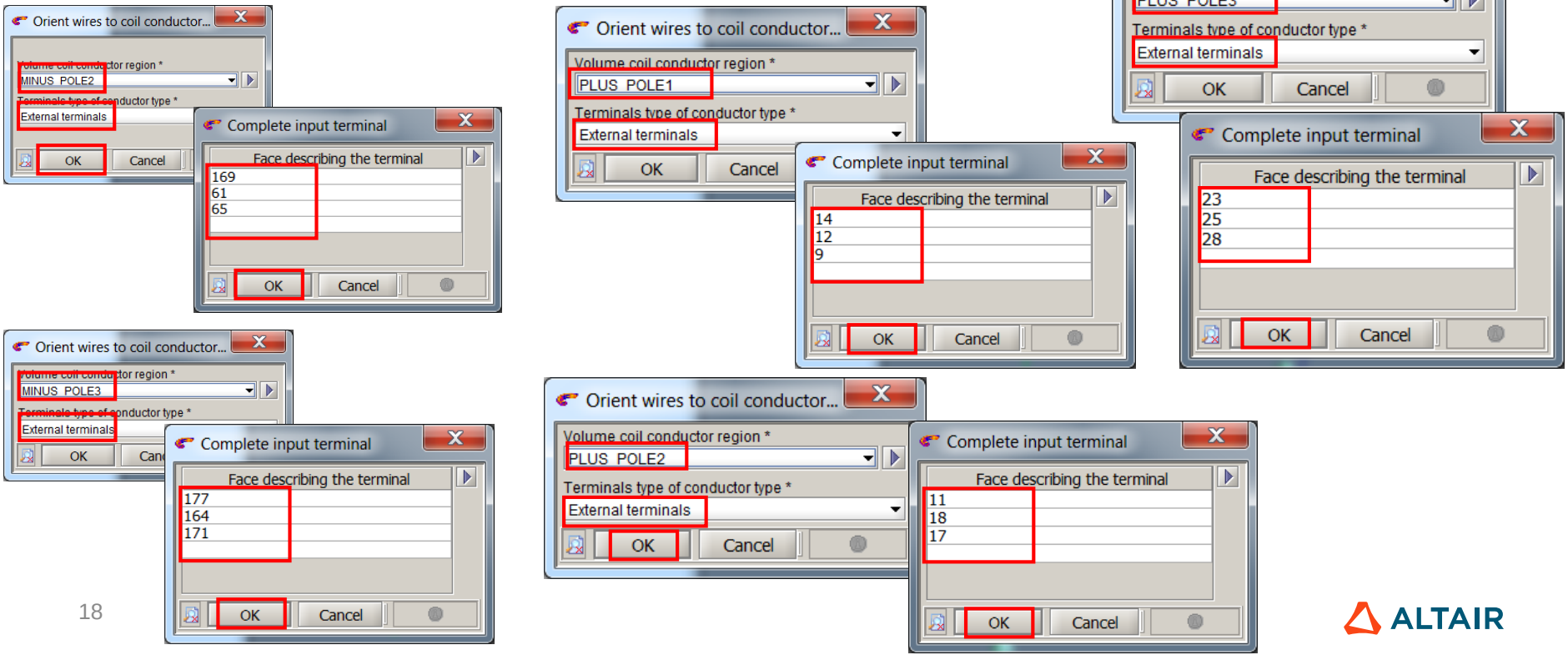




ALTAIR

Physics : volume regions

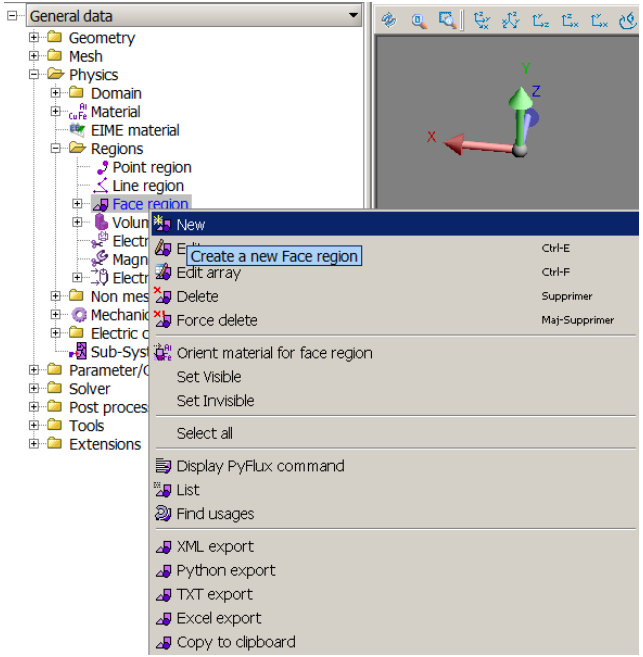
Assign terminals to coil conductors region

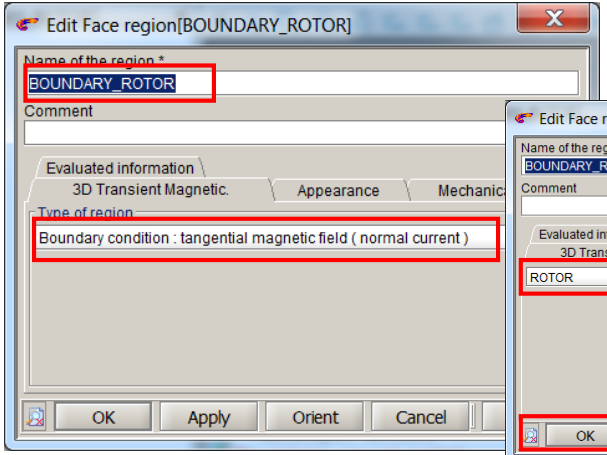


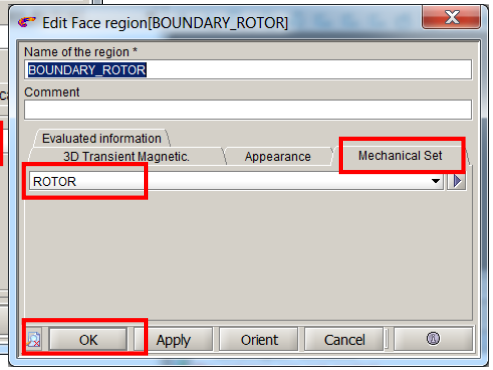
ALTAIR

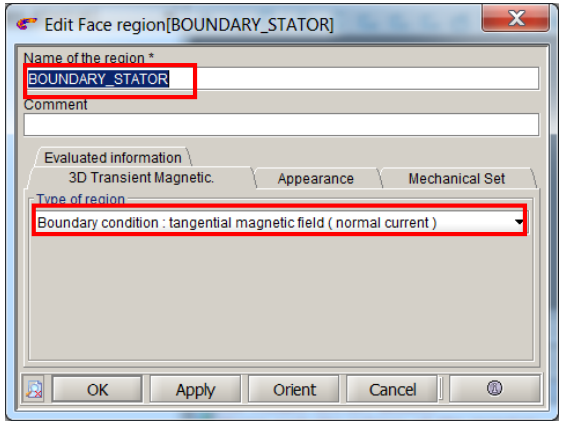
Physics : bondary condition

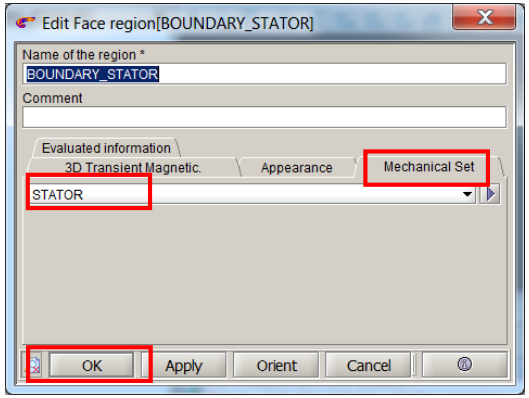
Create boundary condition







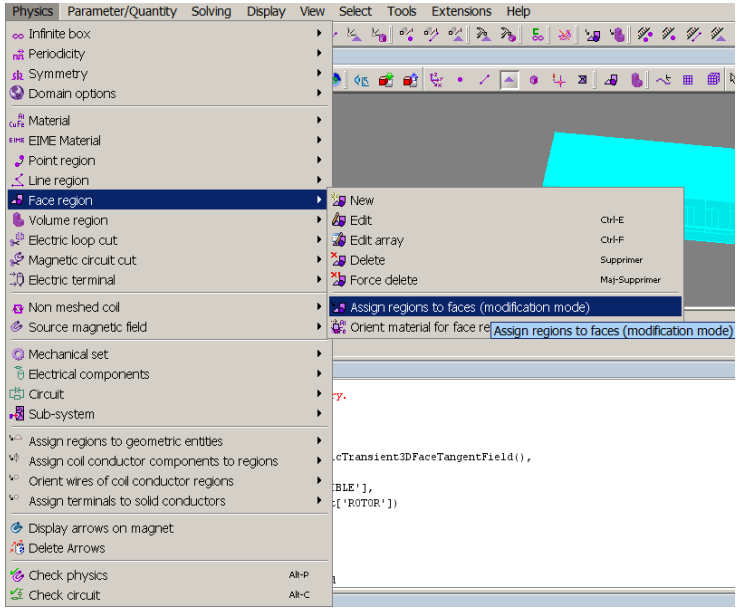


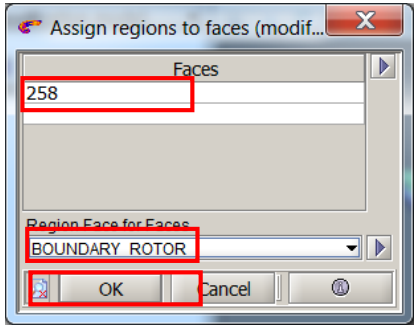


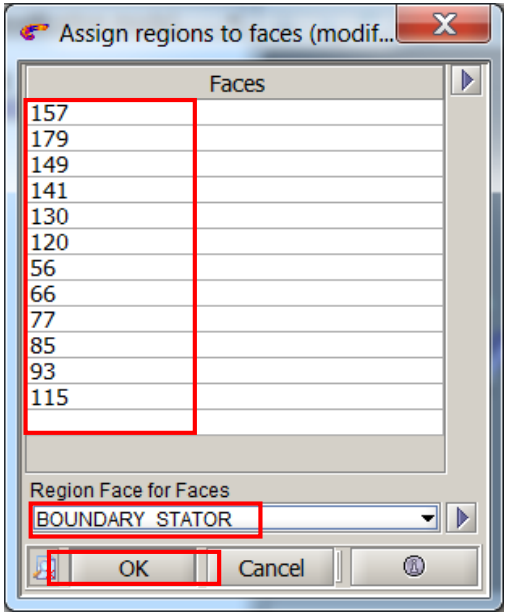
ALTAIR

Physics : bondary condition

Assign boundary condition







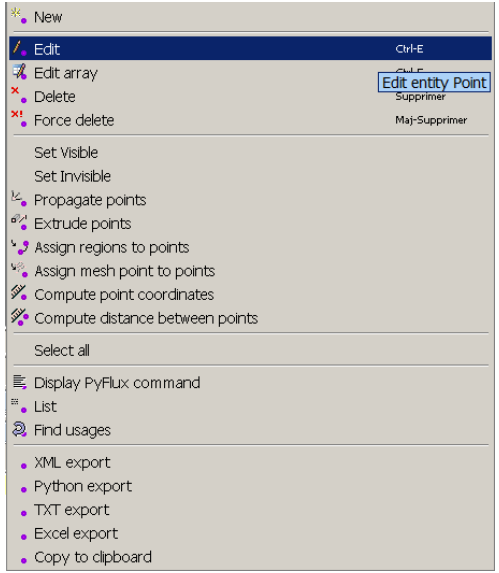
Save Project: GEOM.FLU

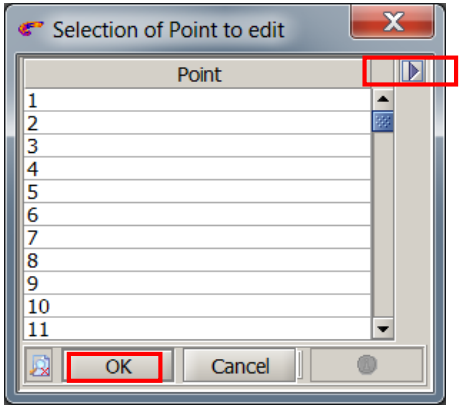
ALTAIR

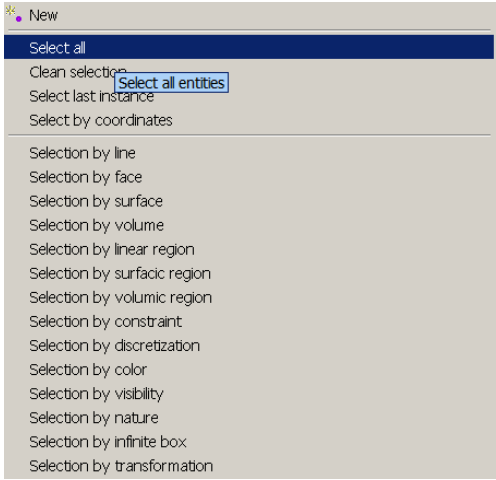
Mesh : mesh domain

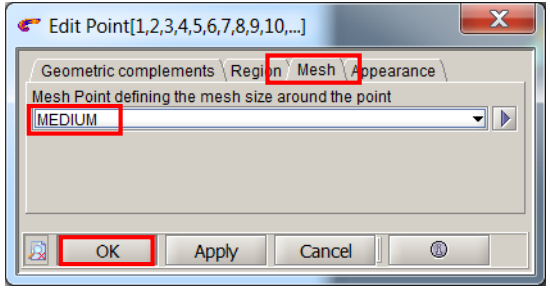
Mesh device

Right click on the window graphic







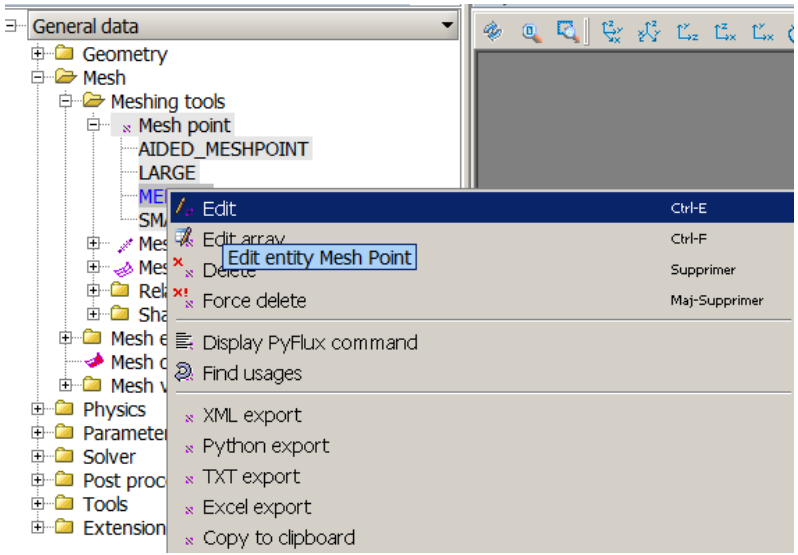


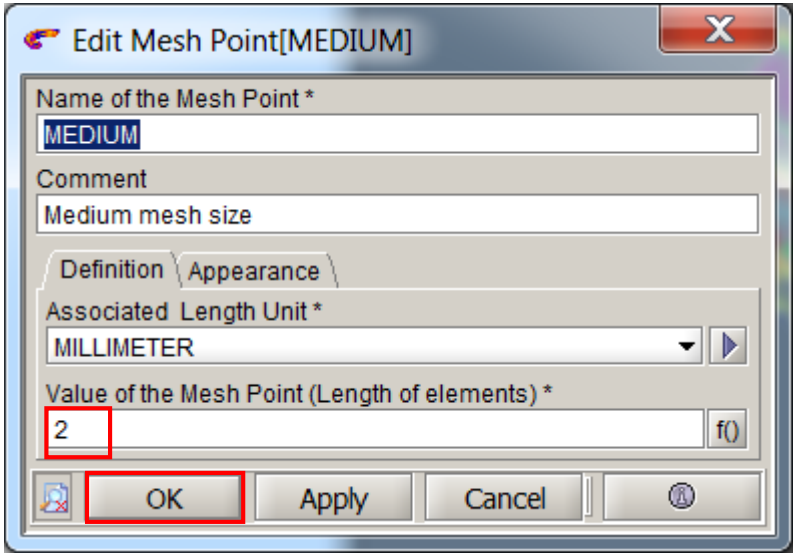
ALTAIR

Mesh : mesh domain

Mesh device

- Change mesh point (medium)

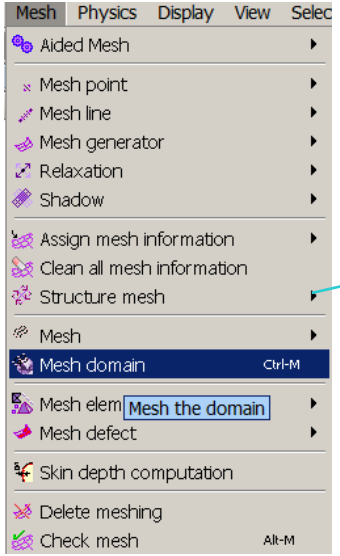


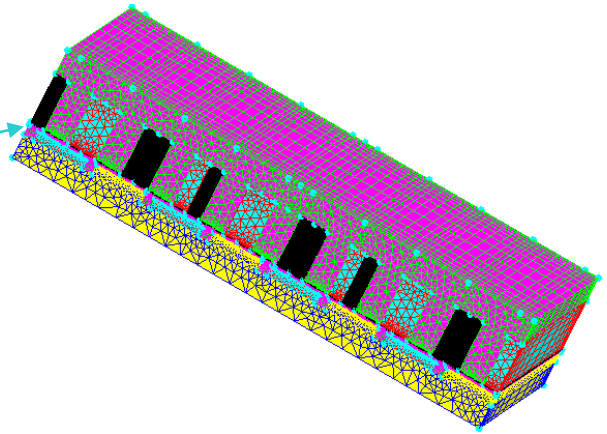


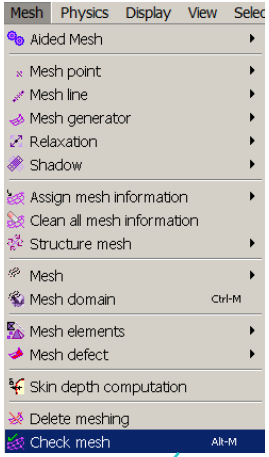
ALTAIR

Mesh : mesh domain

Mesh device







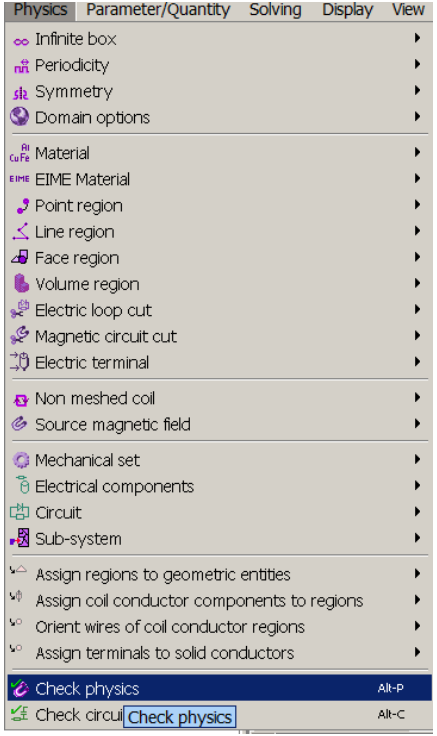

```
Volume elements :
   Number of elements not evaluated     : 100  %
   Number of excellent quality elements : 0  %
   Number of good quality elements      : 0  %
   Number of average quality elements   : 0  %
   Number of poor quality elements      : 0  %

Number of nodes : 79118
Number of line elements : 6842
Number of surface elements : 58824
Number of volume elements : 146368
Mesh order : 1st order
```


ALTAIR

Physics : check physic

Check physic

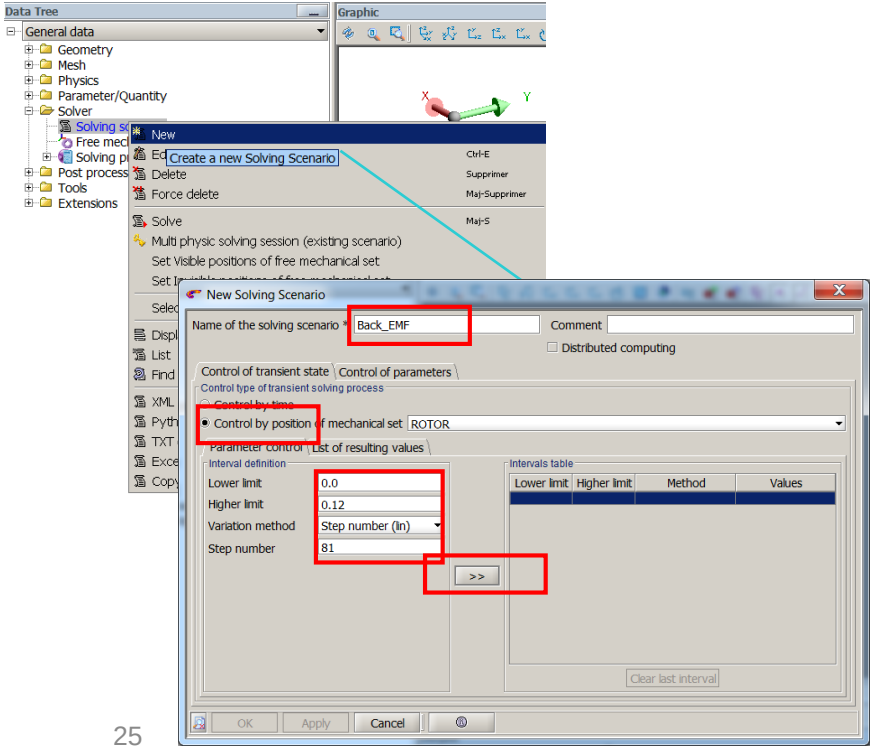


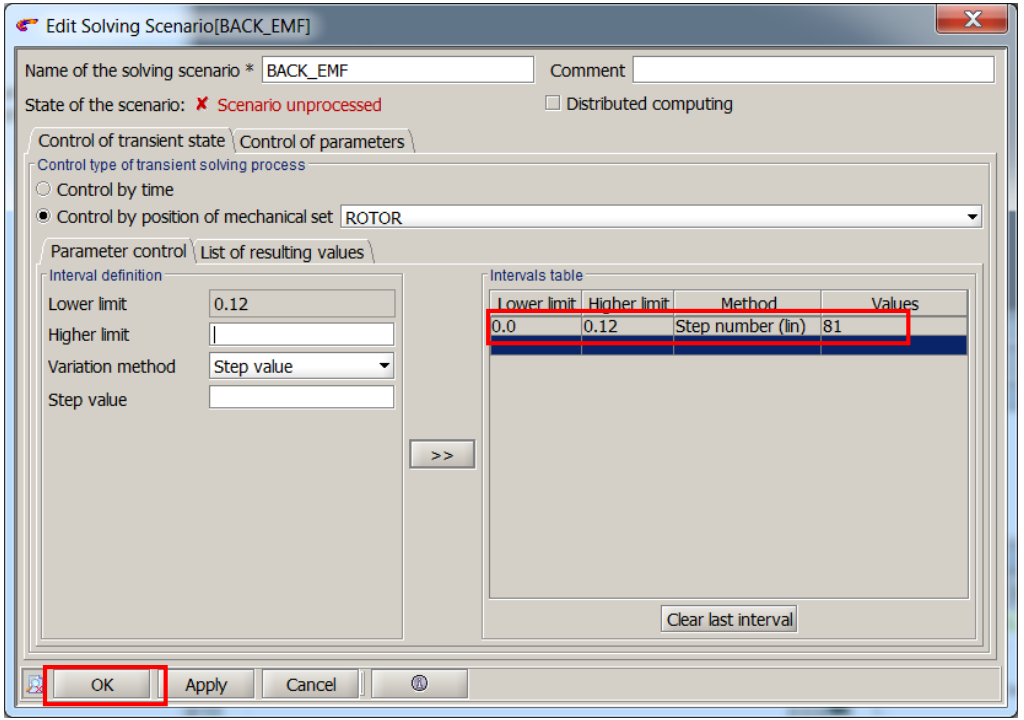
Save Project: GEOM_MESH.FLU

ALTAIR

Solving

Create solving scenario to compute back EMF



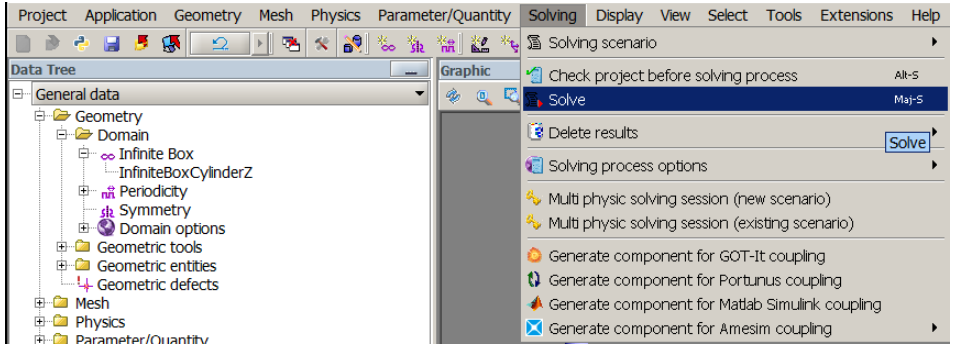


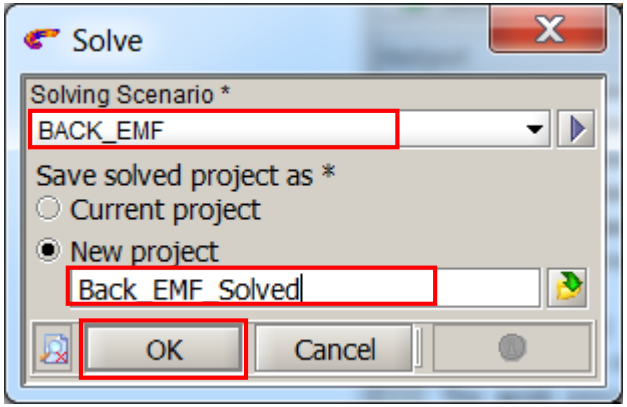
ALTAIR

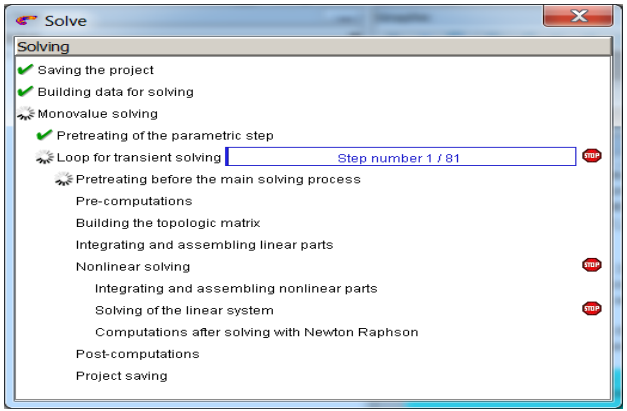
Solving

Create solving scenario to compute Back EMF

- Solving



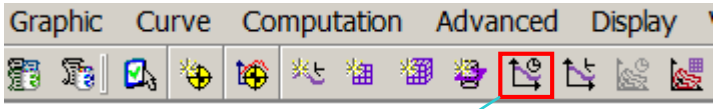


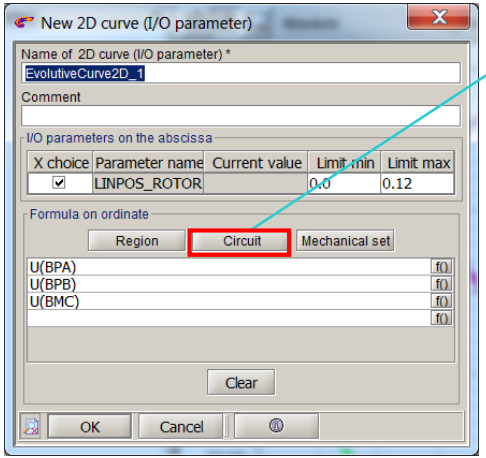


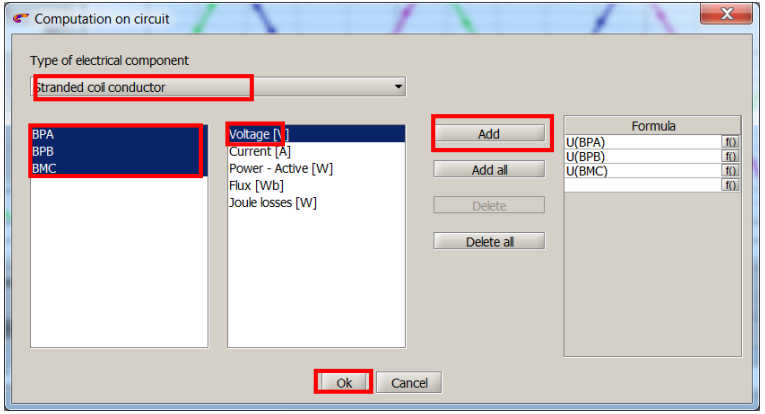
ALTAIR

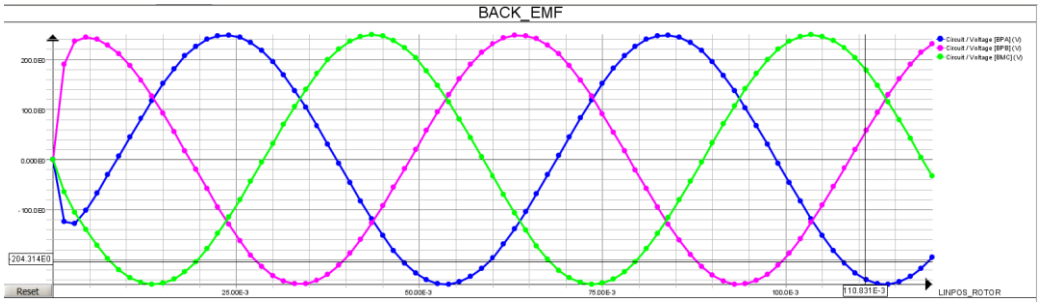
Post processing

Back EMF









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