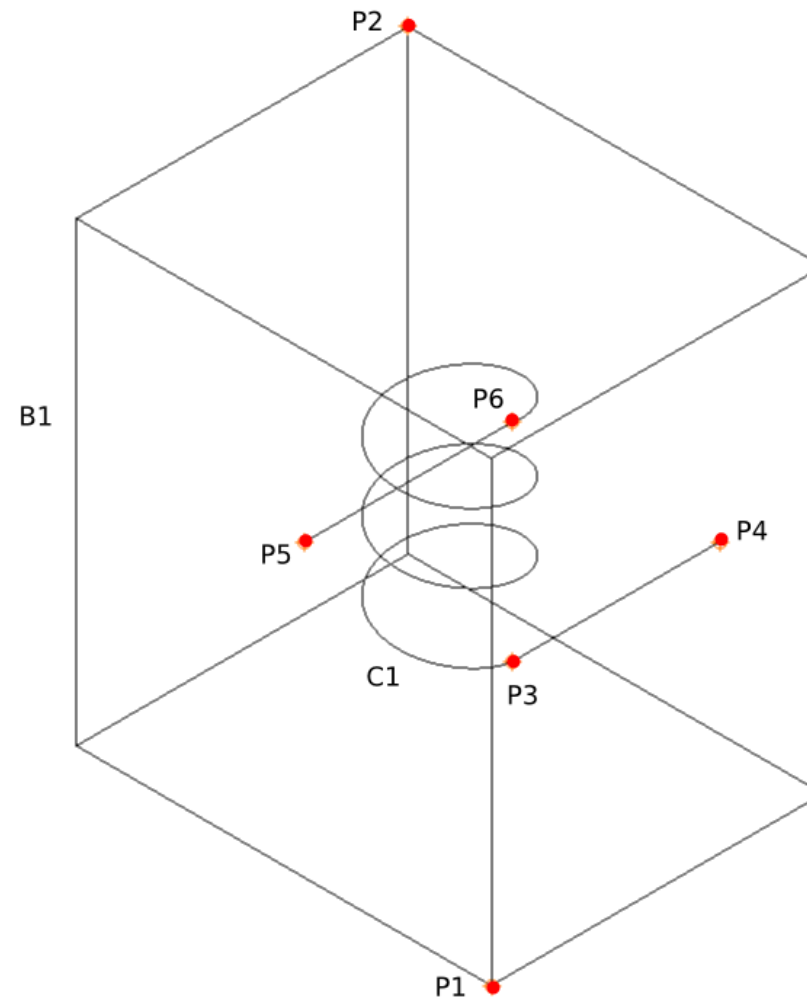


# Eddy Currents 3D

*El proyecto CloudPYME (id: 0682\_CLOUDPYME2\_1\_E) está cofinanciado por la Comisión Europea a través de el Fondo Europeo de Desarrollo Regional (FEDER), dentro de la tercera convocatoria de proyectos del Programa Operativo de Cooperación Transfronteriza España-Portugal 2007-2013 (POCTEP).*

# Eddy Currents 3D: Geometry

P1 = POINT(0.5 , -0.4 , -0.3)  
P2 = POINT(-0.5 , 0.4 , 0.8)  
P3 = POINT(0.15 , 0 , 0)  
P4 = POINT(0.15 , 0.5 , 0)  
P5 = POINT(0.15 , 0 , 0.5)  
P6 = POINT(0.15 , -0.5 , 0.5)

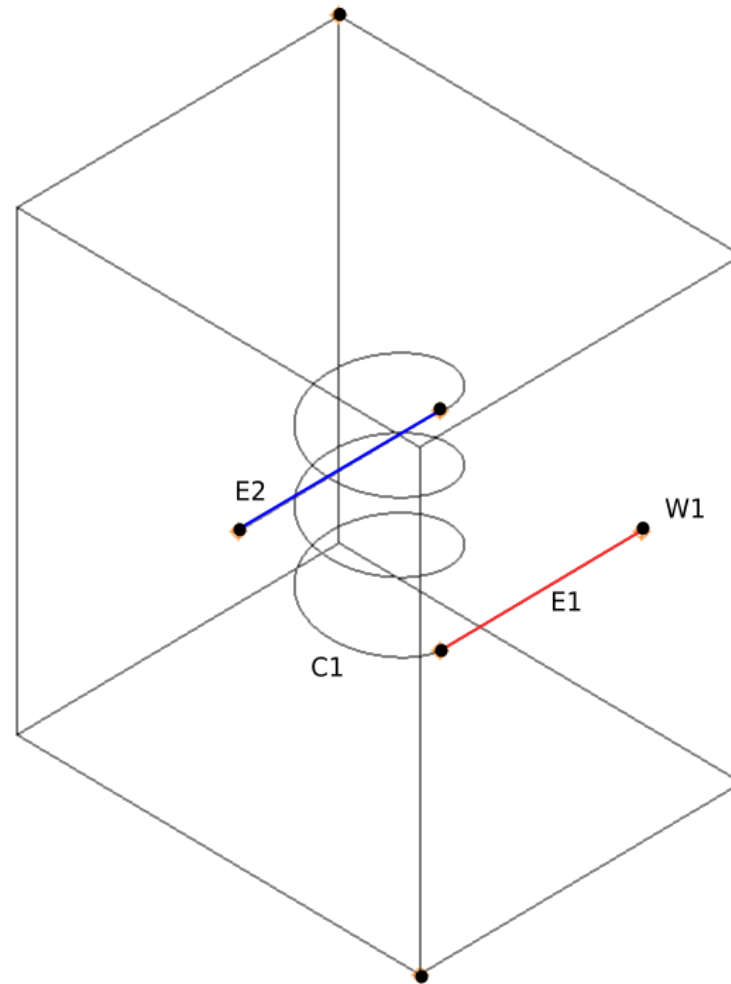


# Eddy Currents 3D: Geometry

```
E1 = LINE( P1 , P2 )
E2 = LINE( P3 , P4 )
```

```
C1 = CURVE(
  Type = Interpolation ,
  x(t) = 0.15*cos(pi/2*t) ,
  y(t) = 0.15*sin(pi/2*t) ,
  z(t) = 0.005*t) ,
  min(t) = 0 ,
  max(t) = 100 ,
  steps = 28
)
```

```
W1 = WIRE(
  Type = Edge ,
  Objects = (E1+E2+C1)
)
```



# Eddy Currents 3D: Geometry

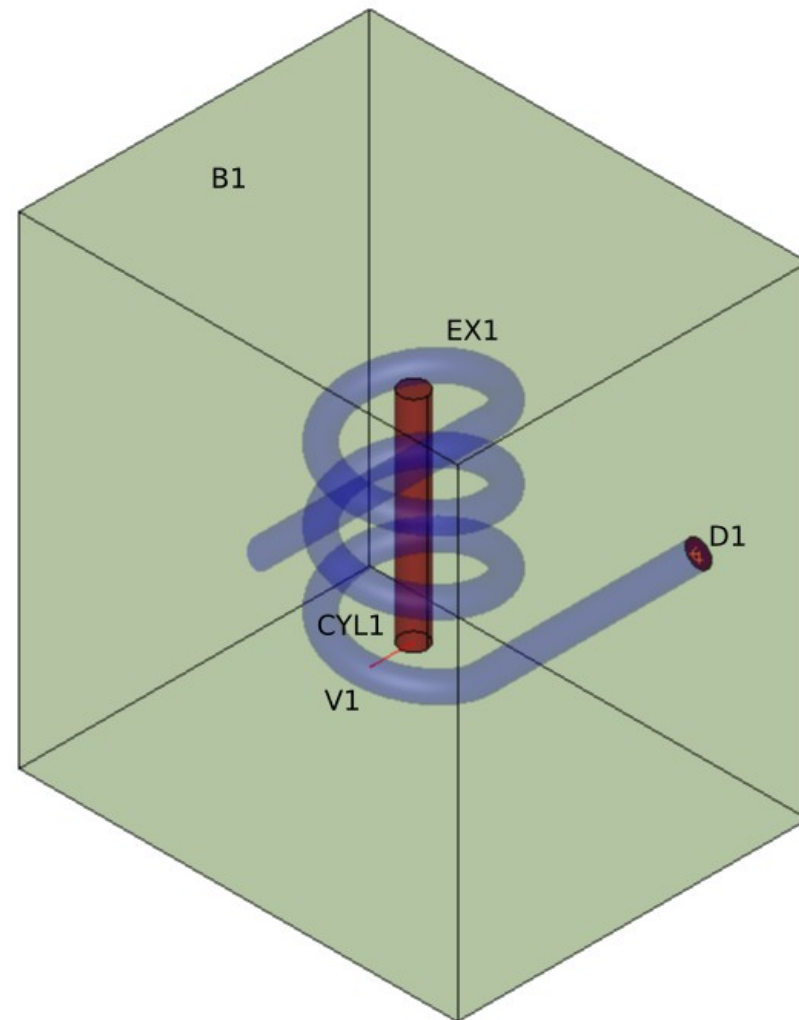
B1 = BOX( P1 , P2 )

V1 = VECTOR(DX=0 , DY=-0.1 , DZ=0)

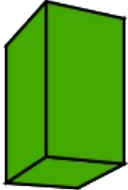

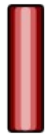
D1 = DISC( POINT=P4 , VECTOR=V1 )

EX1 = PIPE ( BASE=D1 , PATH=W1 )

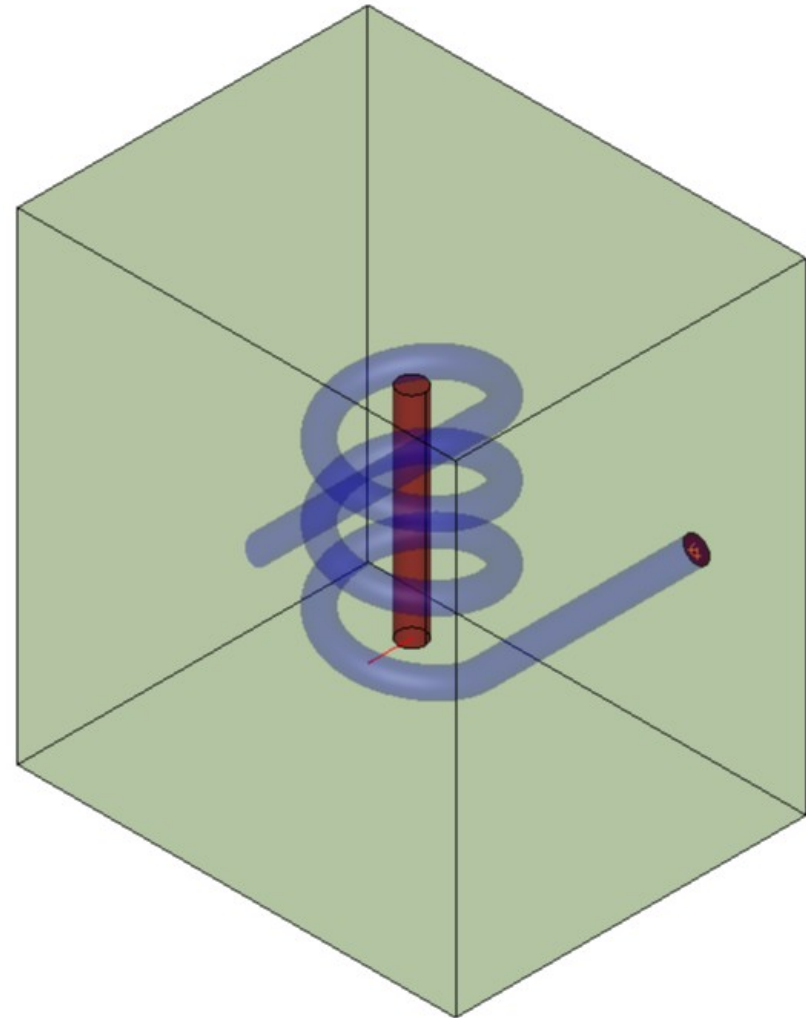
CYL1 = CYLINDER( R=0.003 , H=0.5 )



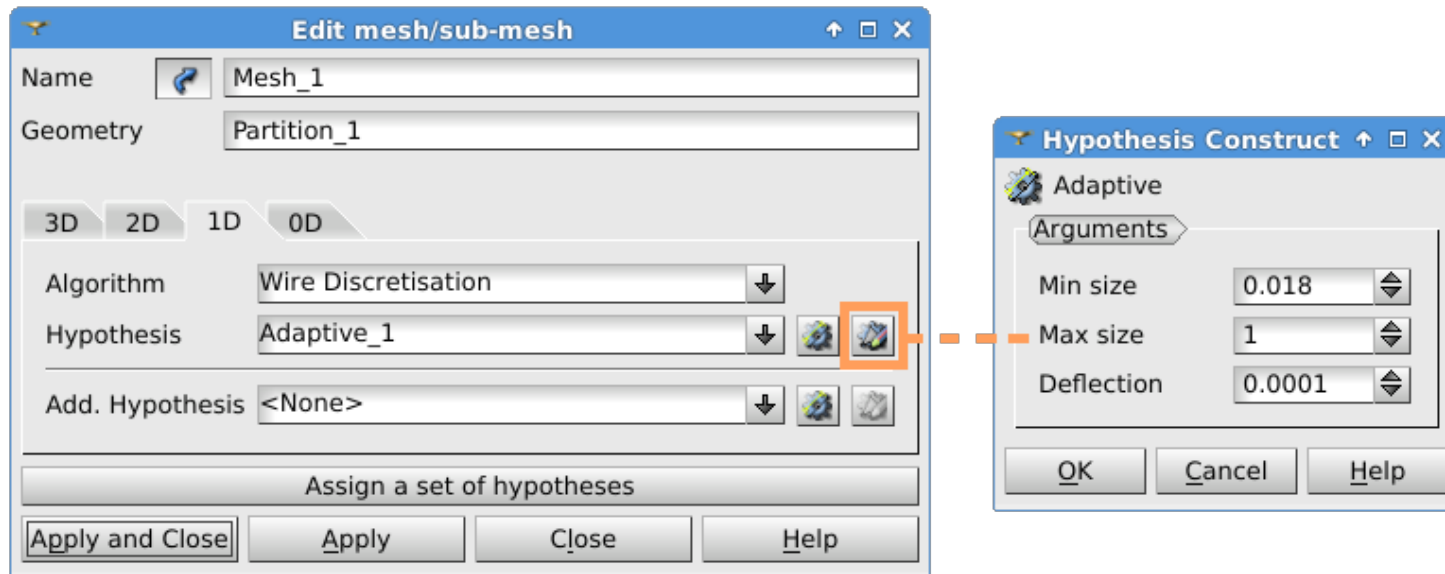
# Eddy Currents 3D: Geometry

PARTITION = {  ,  ,  }

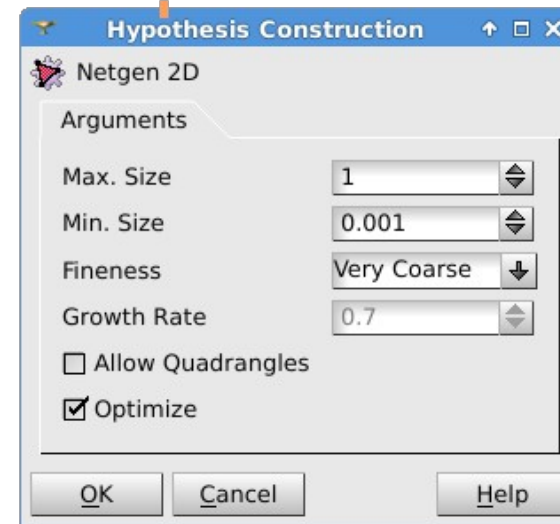
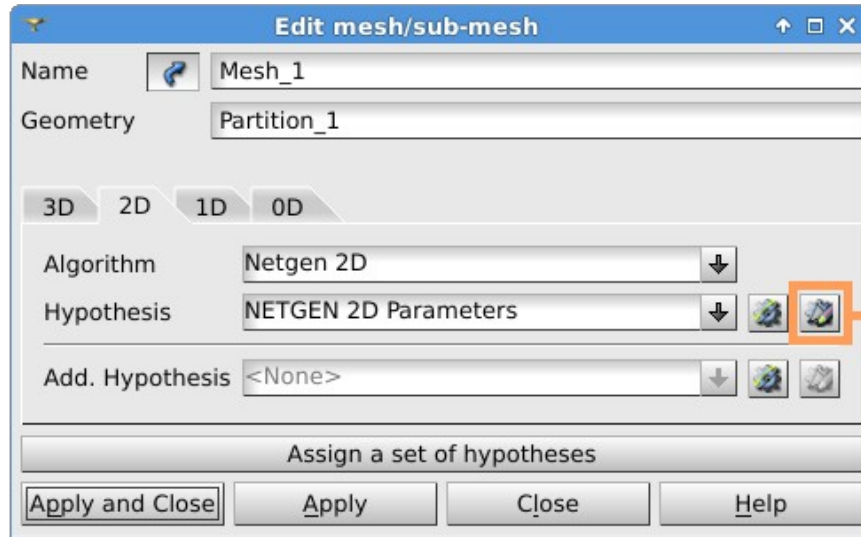
Material	Relative permeability	Electrical conductivity
Air	1	0
Copper	1	58.e6
Carbon paste	1	10000



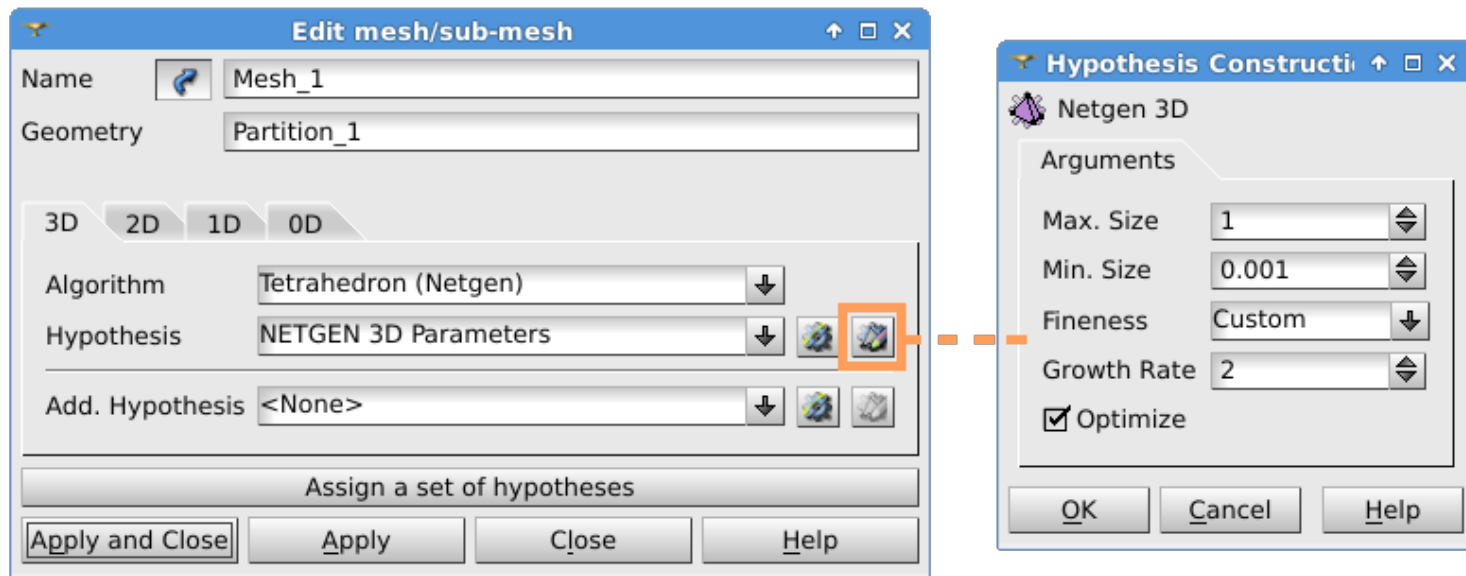
# Eddy Currents 3D: Mesh



# Eddy Currents 3D: Mesh



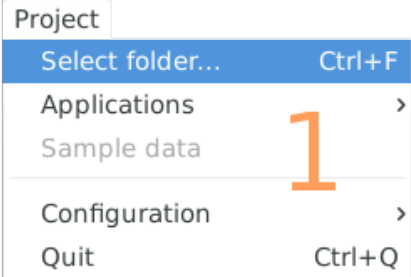
# Eddy Currents 3D: Mesh





# Eddy Currents 3D: MaxFEM

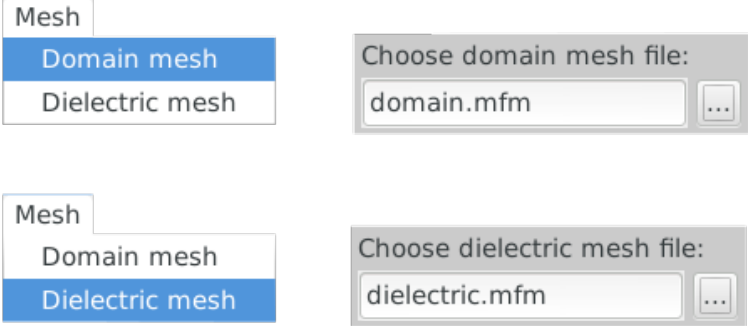
1



Project

- Select folder... Ctrl+F
- Applications >
- Sample data
- Configuration >
- Quit Ctrl+Q

2



Mesh

- Domain mesh
- Dielectric mesh

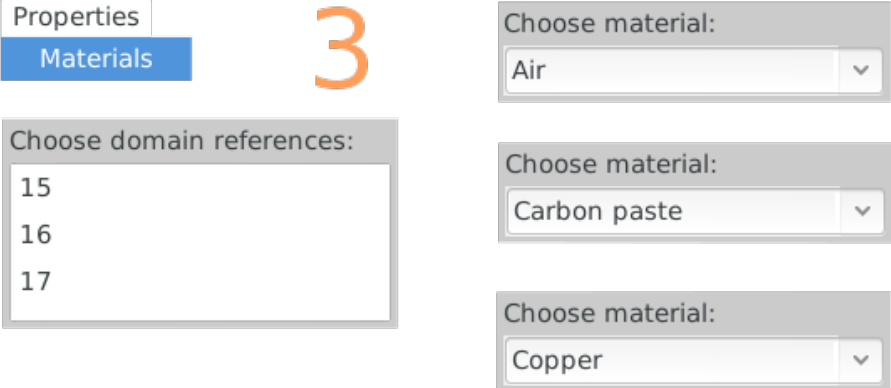
Choose domain mesh file:  
domain.mfm

Mesh

- Domain mesh
- Dielectric mesh

Choose dielectric mesh file:  
dielectric.mfm

3



Properties

- Materials

Choose domain references:

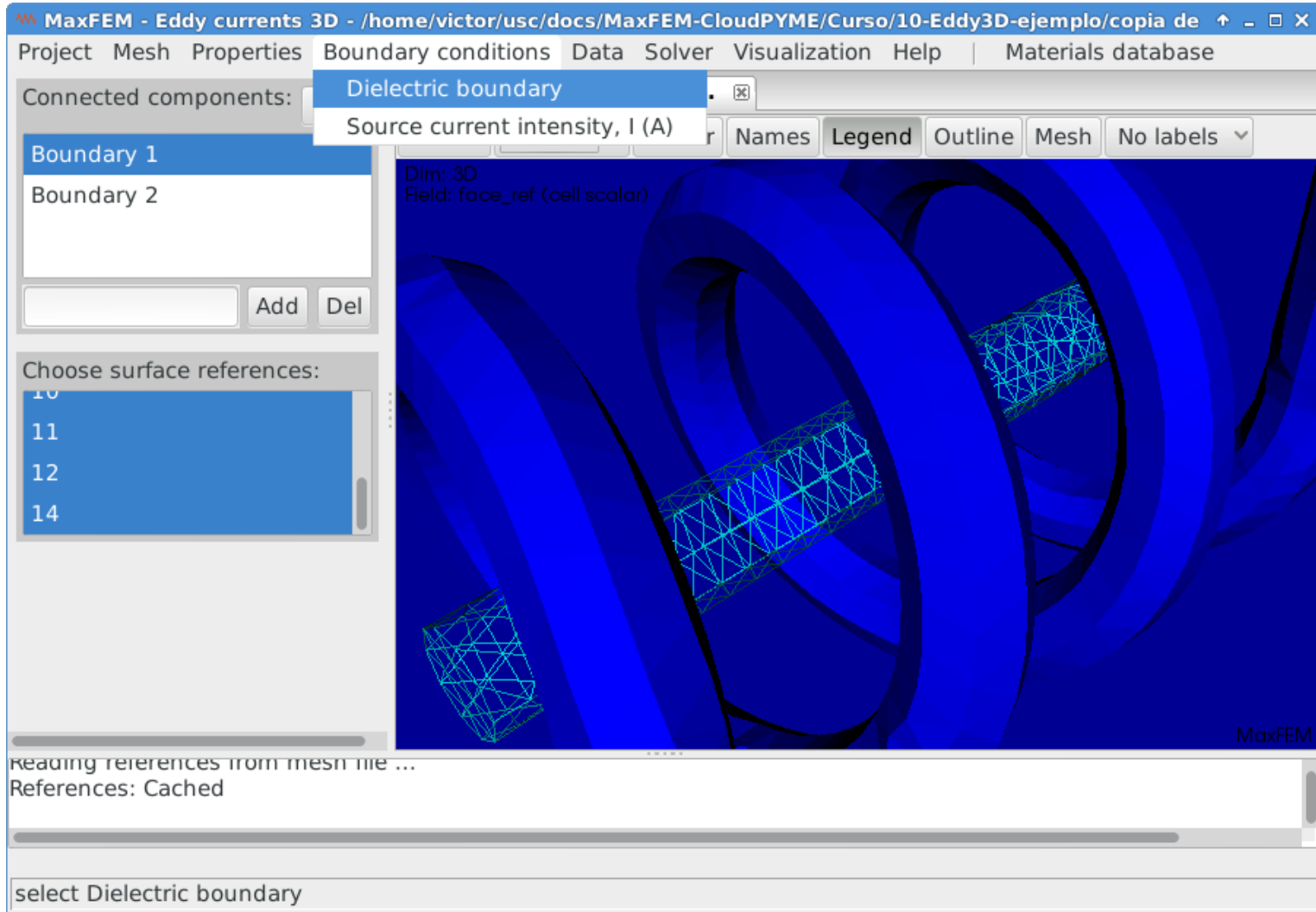
- 15
- 16
- 17

Choose material:  
Air

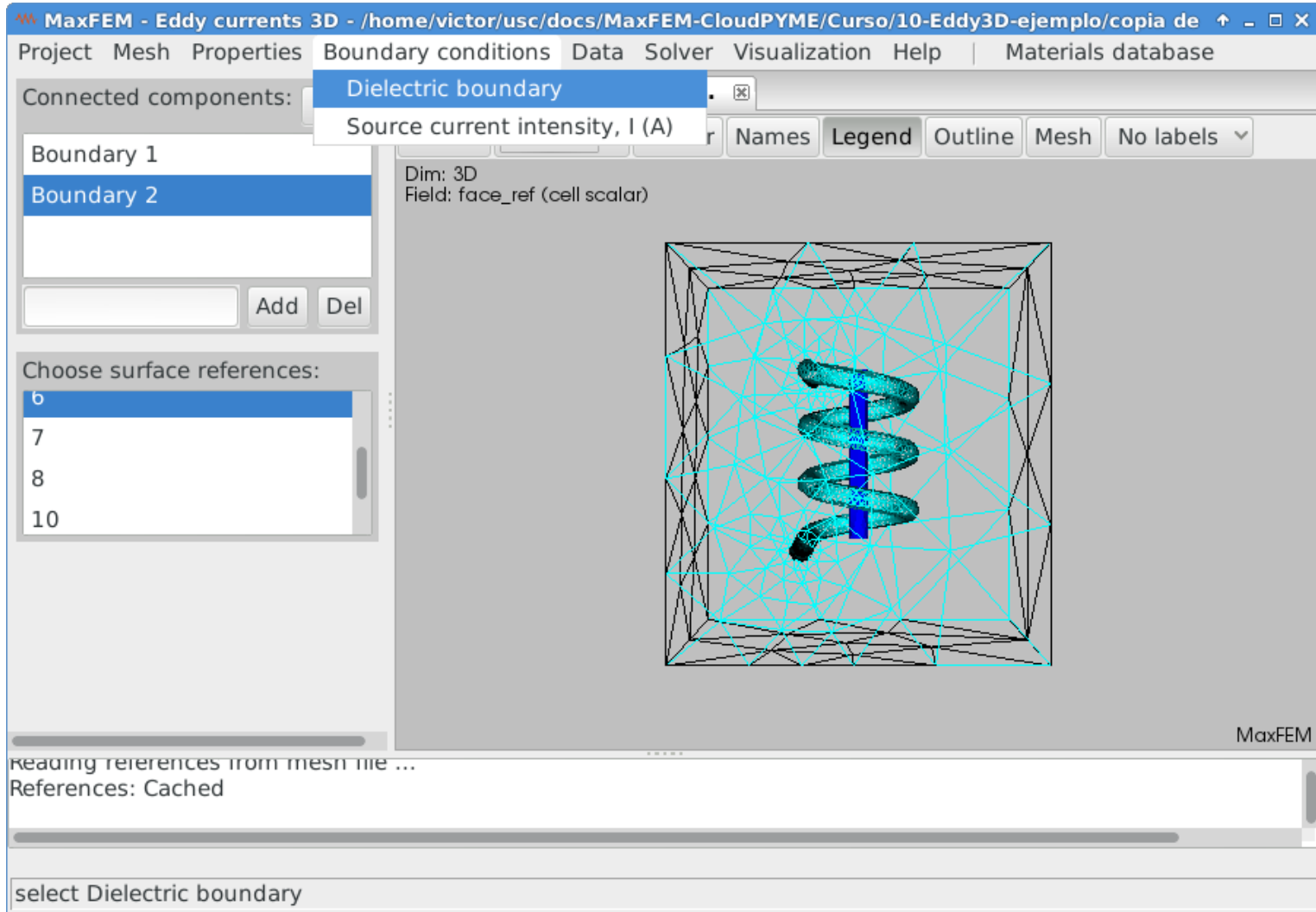
Choose material:  
Carbon paste

Choose material:  
Copper

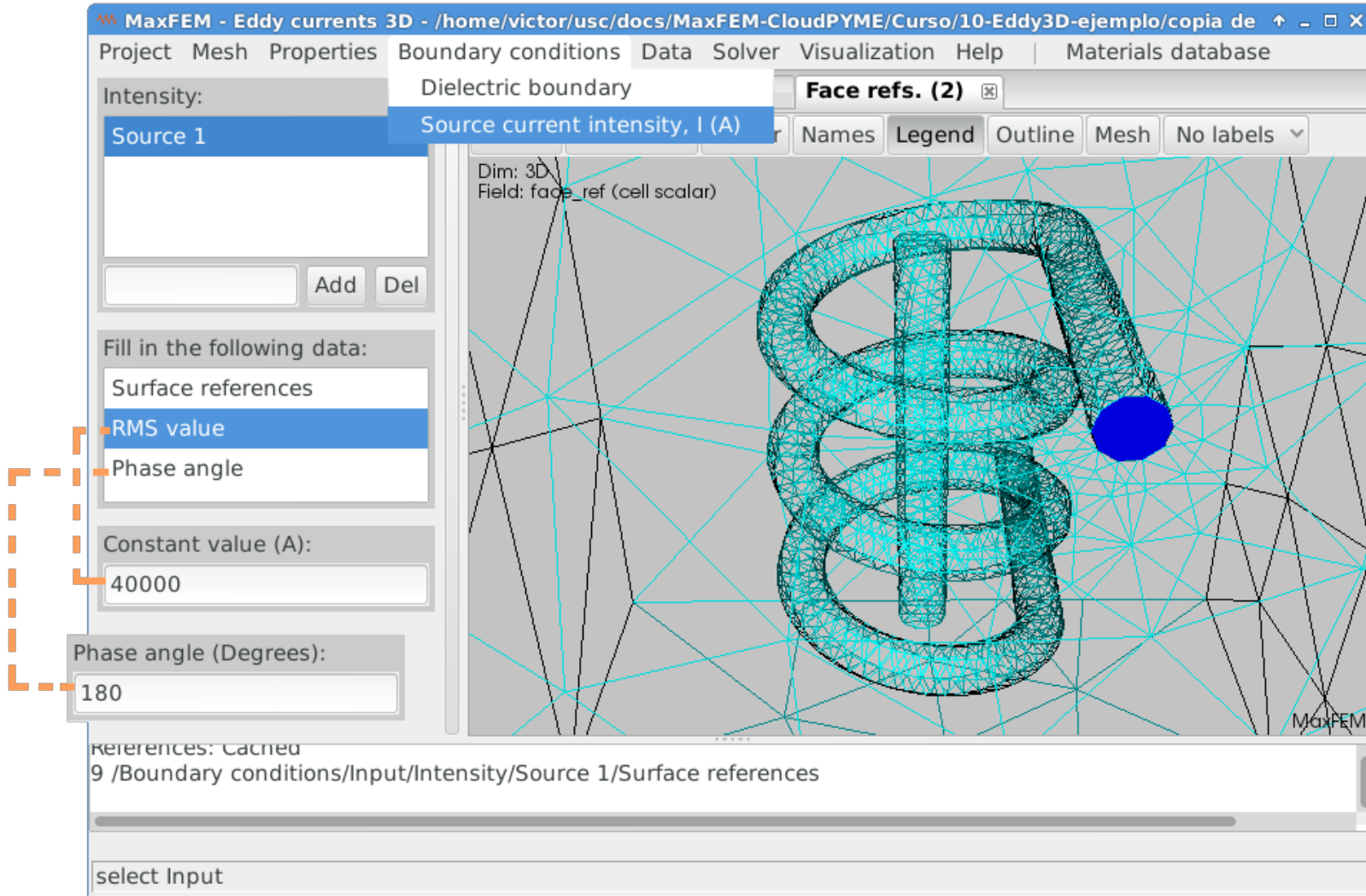
# Eddy Currents 3D: MaxFEM



# Eddy Currents 3D: MaxFEM



# Eddy Currents 3D: MaxFEM



MaxFEM - Eddy currents 3D - /home/victor/usc/docs/MaxFEM-CloudPYME/Curso/10-Eddy3D-ejemplo/copia de

Project Mesh Properties Boundary conditions Data Solver Visualization Help Materials database

Intensity: Dielectric boundary **Face refs. (2)**

Source 1 Source current intensity, I (A) Names Legend Outline Mesh No labels

Dim: 3D  
Field: face\_ref (cell scalar)

Fill in the following data:

- Surface references
- RMS value**
- Phase angle

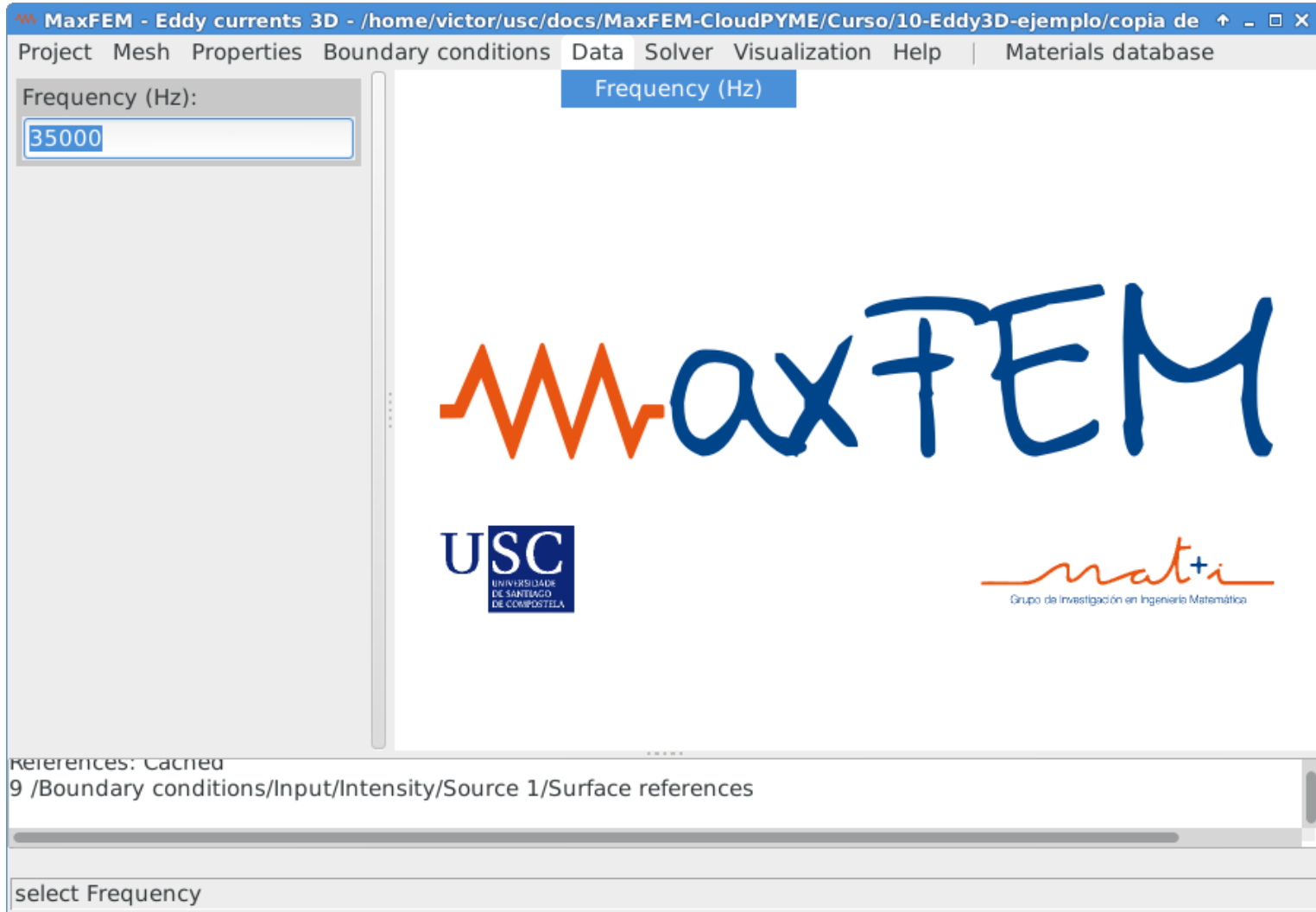
Constant value (A): 40000

Phase angle (Degrees): 180

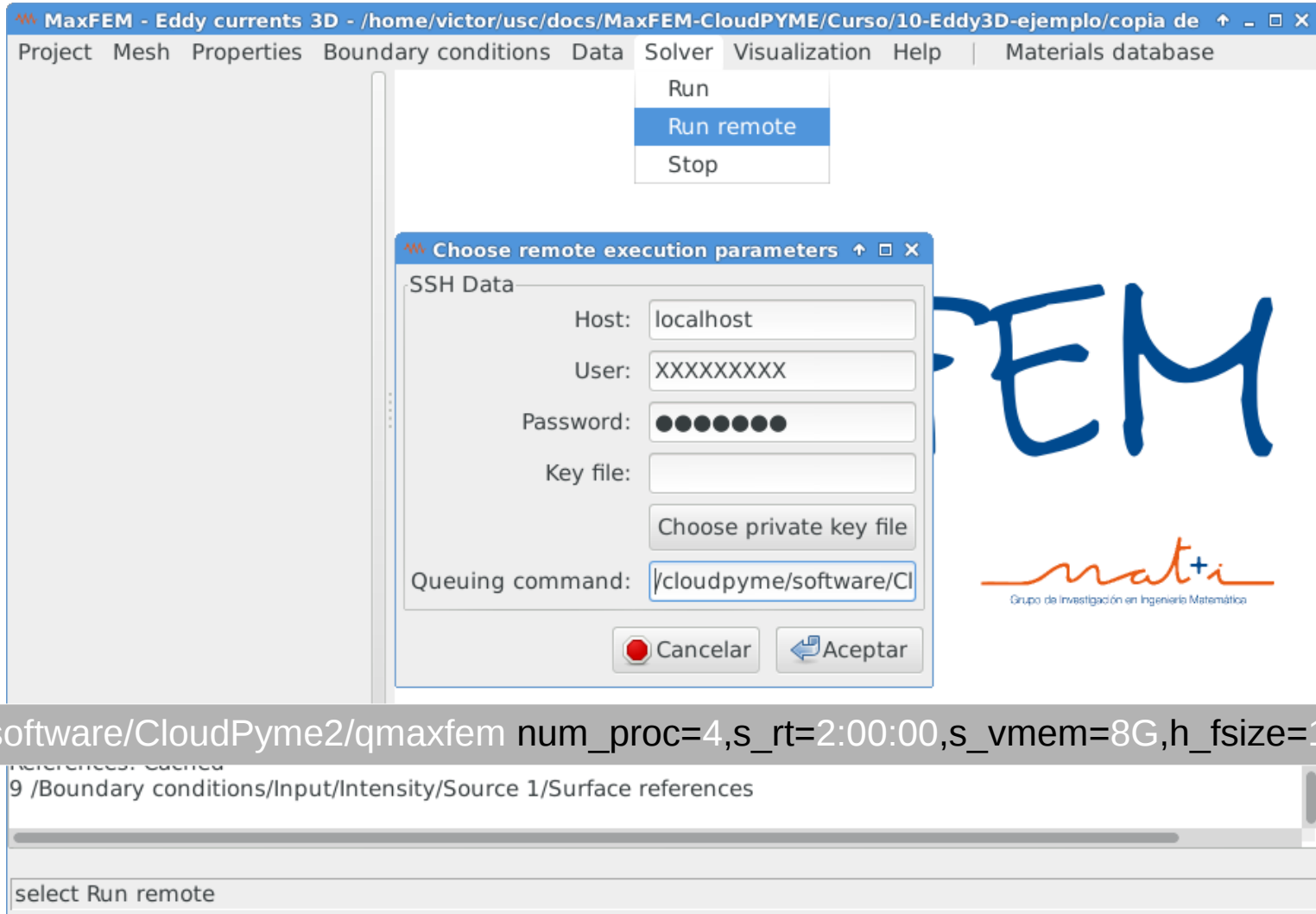
References: C:\neu  
9 /Boundary conditions/Input/Intensity/Source 1/Surface references

select Input

# Eddy Currents 3D: MaxFEM



# Eddy Currents 3D: MaxFEM



MaxFEM - Eddy currents 3D - /home/victor/usc/docs/MaxFEM-CloudPYME/Curso/10-Eddy3D-ejemplo/copia de

Project Mesh Properties Boundary conditions Data Solver Visualization Help | Materials database

Run  
Run remote  
Stop

Choose remote execution parameters

SSH Data

Host: localhost

User: XXXXXXXXXX

Password: ●●●●●●●●

Key file:

Choose private key file

Queuing command: /cloudpyme/software/Cl

Cancelar Aceptar

References: Cuchera

9 /Boundary conditions/Input/Intensity/Source 1/Surface references

select Run remote

/cloudpyme/software/CloudPyme2/qmaxfem num\_proc=4,s\_rt=2:00:00,s\_vmem=8G,h\_fsize=1G,arch=amd