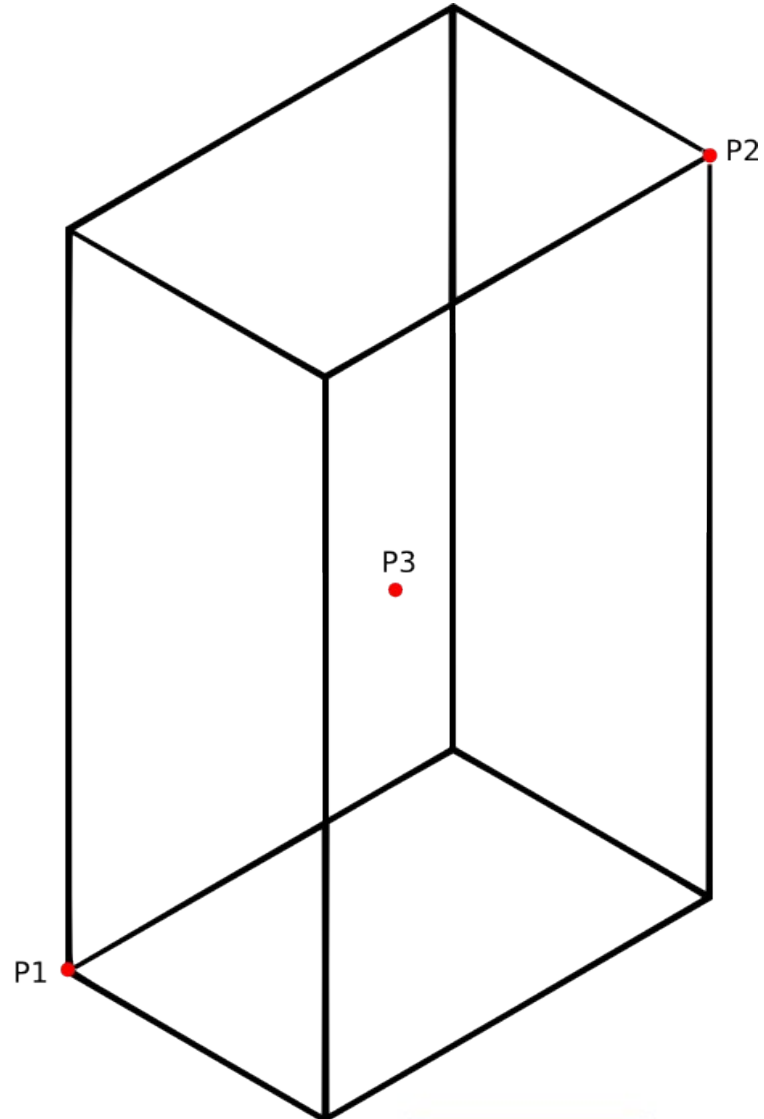


Electrostatics 3D

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).

Electrostatics 3D: Geometry

P1 = (-0.002 , -0.003 , -0.005)
P2 = (0.002 , 0.003 , 0.005)
P3 = (0 , 0 , 0)

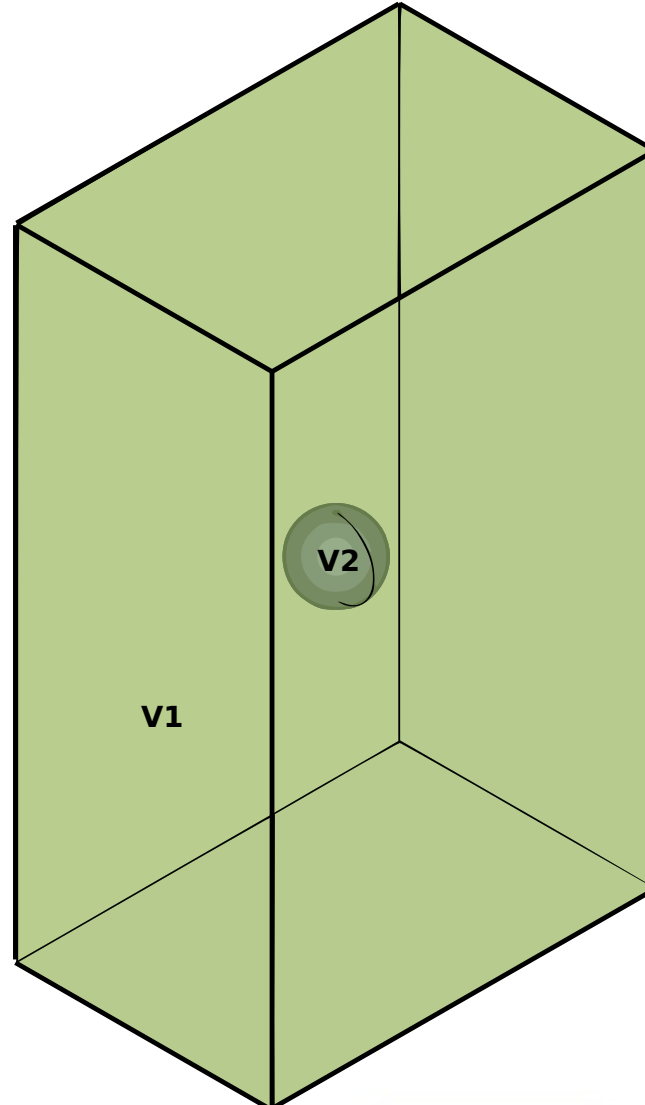


Electrostatics 3D: Geometry



RADIUS (R) = 0.0006

V1 = BOX(P1 , P2)

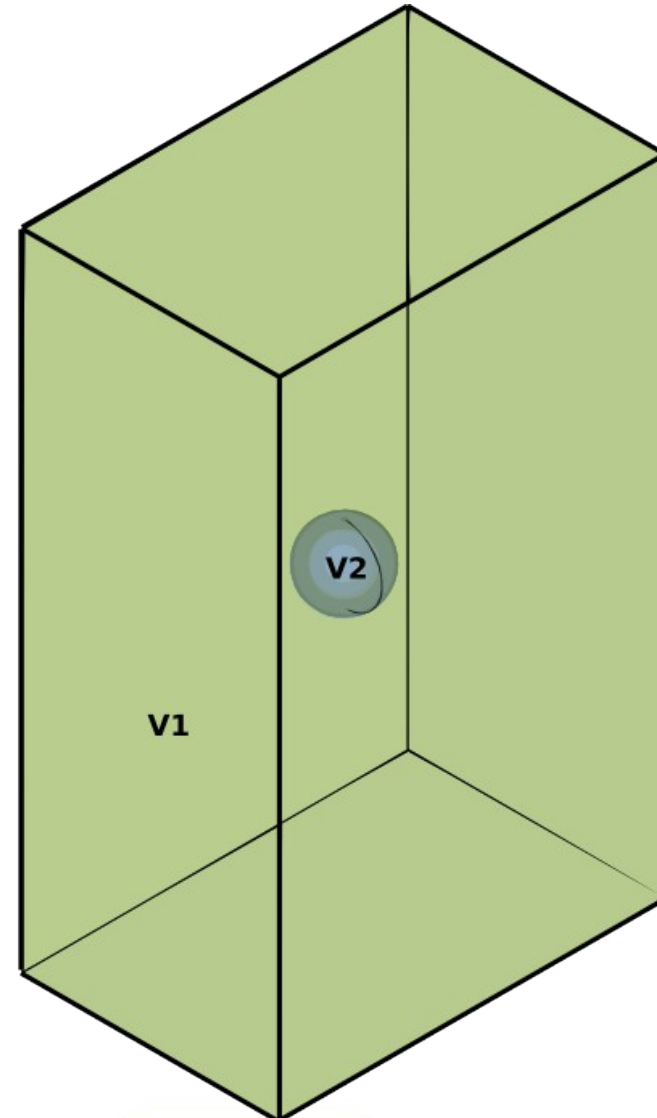
V2 = SPHERE(P3 , R)



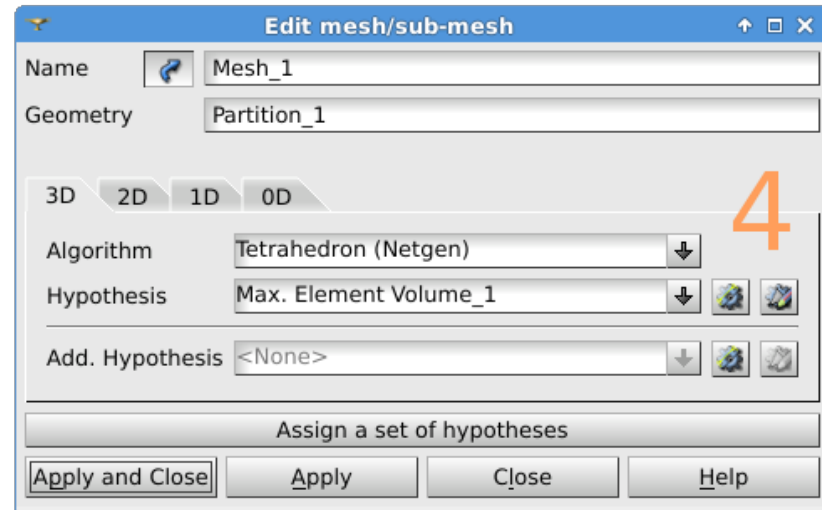
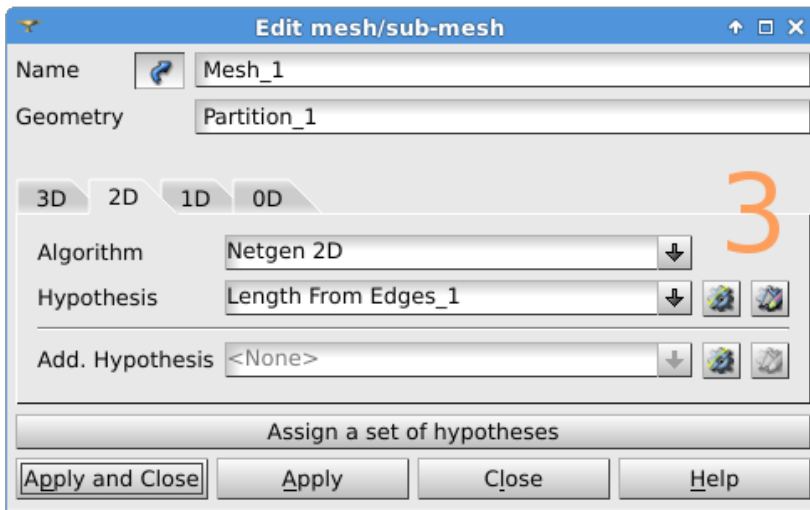
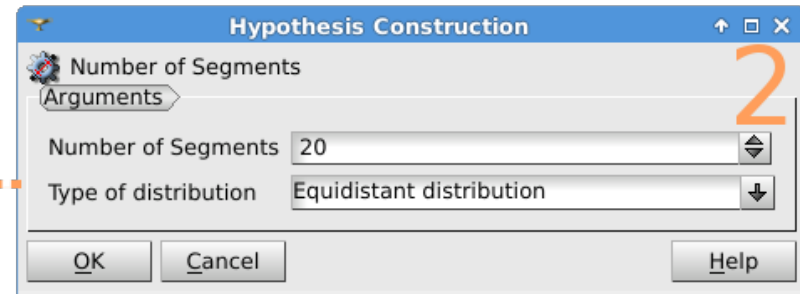
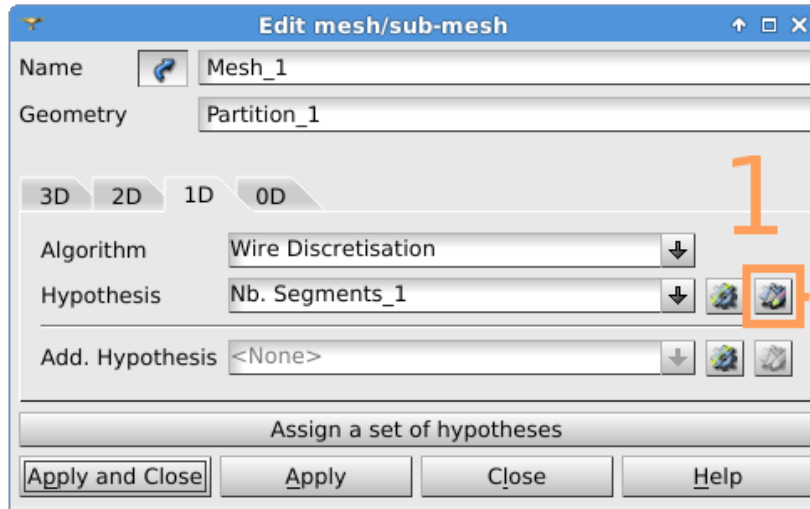
Electrostatics 3D: Geometry

Partition = { ,  }

Material	Relative permittivity
Air	1.000589
Mat2	200



Electrostatics 3D: Mesh



Electrostatics 3D: MaxFEM

Materials database

Open

Reset

Materials:

- Test Material 9
- Test Material 10
- Mat1
- Mat2

Add Del

Magnitudes (SI Units):

- Relative permittivity
- Electrical conductivity
- Magnetic properties

The magnitude is given by:

A constant

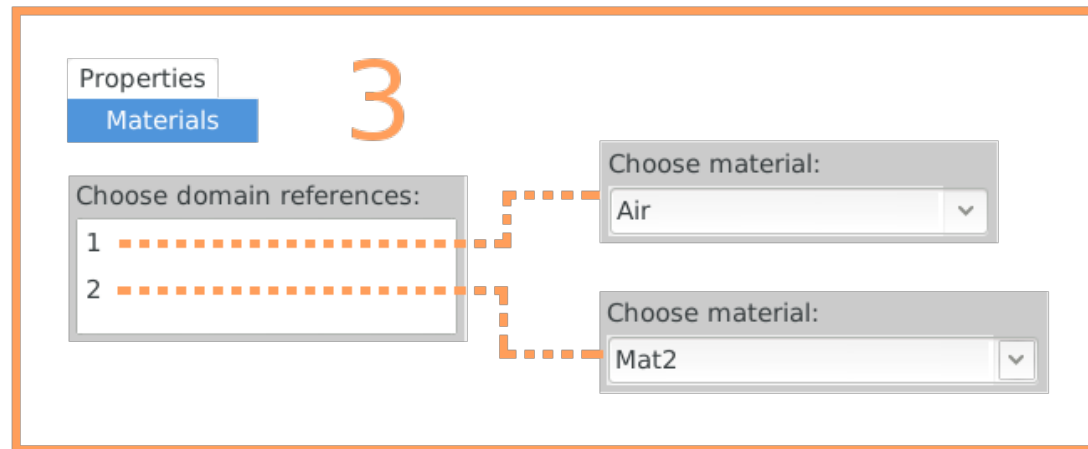
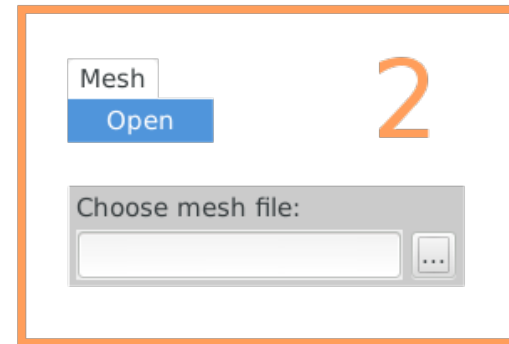
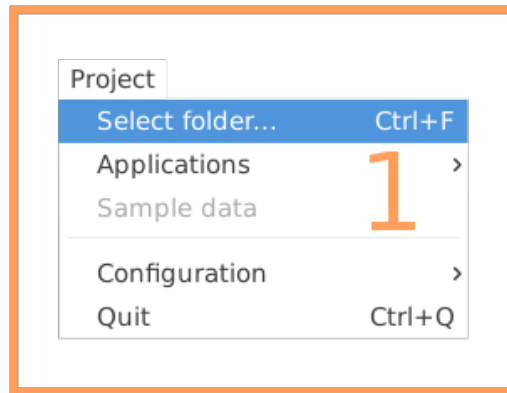
Behavior:

Isotropic

Value:

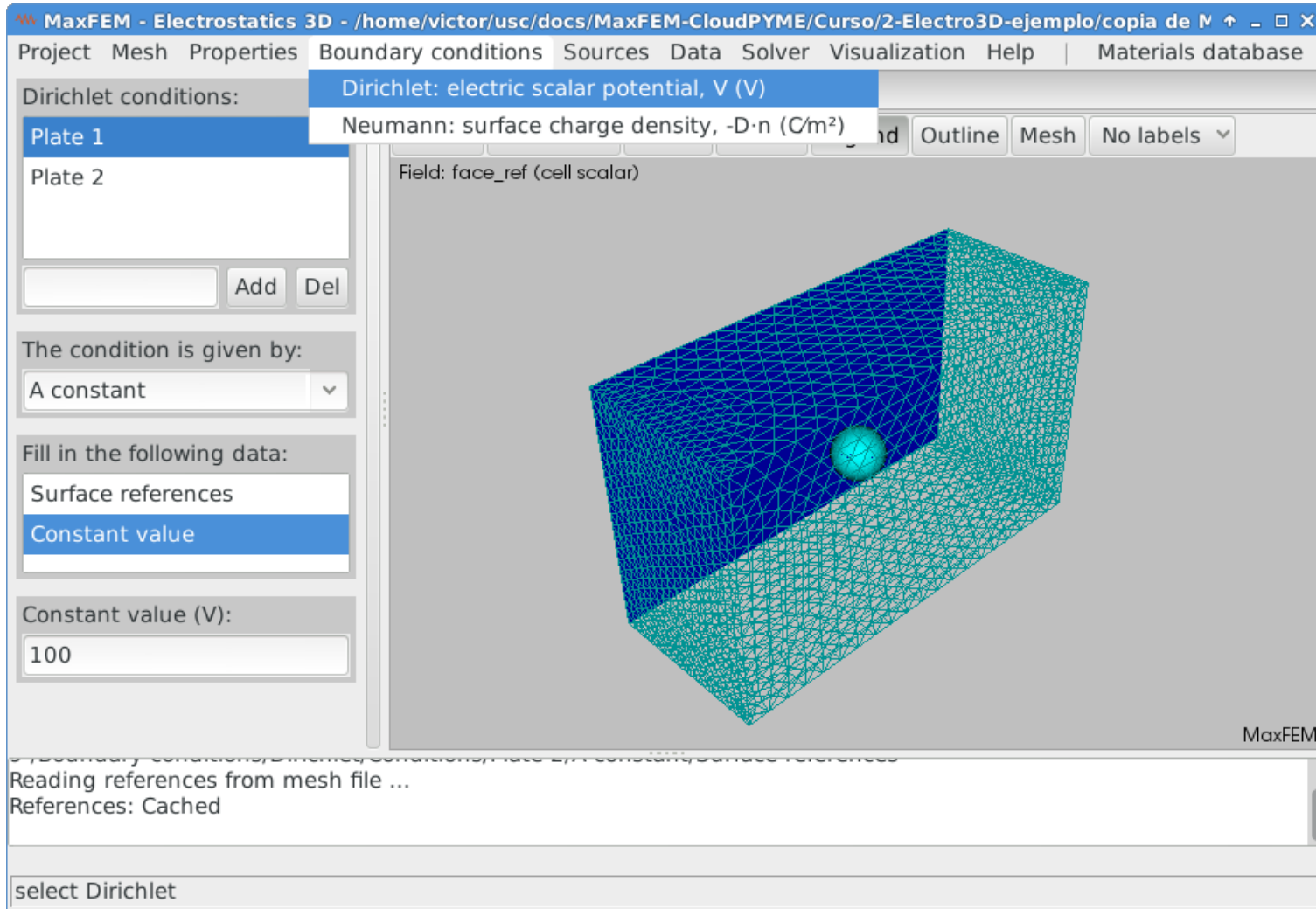
200

Electrostatics 3D: MaxFEM



Electrostatics 3D: MaxFEM

4



The screenshot shows the MaxFEM software interface. The title bar reads "MaxFEM - Electrostatics 3D - /home/victor/usc/docs/MaxFEM-CloudPYME/Curso/2-Electro3D-ejemplo/copia de M". The menu bar includes "Project", "Mesh", "Properties", "Boundary conditions", "Sources", "Data", "Solver", "Visualization", "Help", and "Materials database".

The "Boundary conditions" panel is active, showing "Dirichlet conditions:" with a list containing "Plate 1" and "Plate 2". A dropdown menu is open, showing "Dirichlet: electric scalar potential, V (V)" (selected) and "Neumann: surface charge density, -D·n (C/m²)". Below the list are "Add" and "Del" buttons.

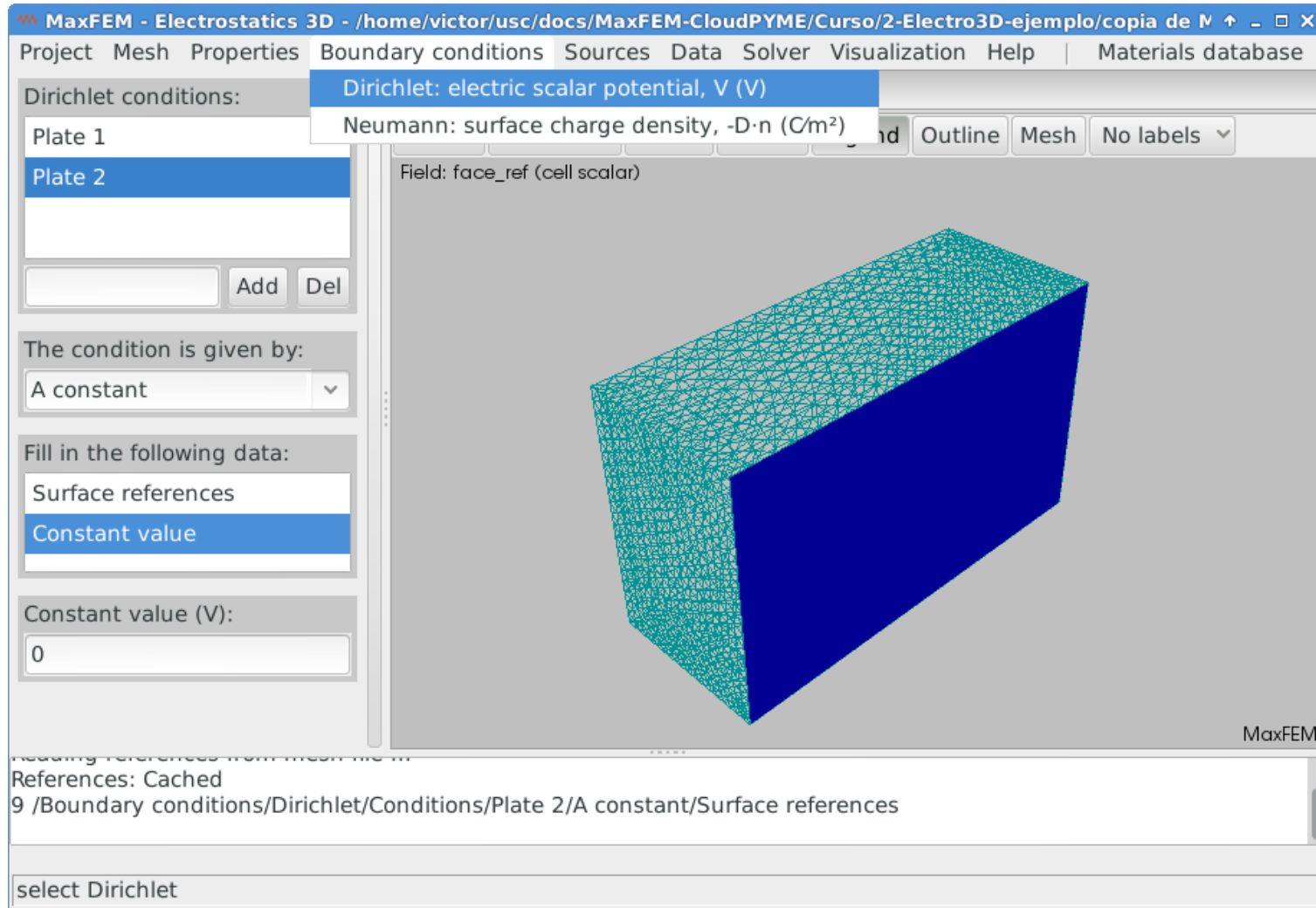
The "The condition is given by:" section has a dropdown set to "A constant". The "Fill in the following data:" section has "Surface references" and "Constant value" (selected). The "Constant value (V):" input field contains the value "100".

The main 3D view shows a rectangular domain with a fine mesh. A small sphere is visible on the top surface. The field is labeled "Field: face_ref (cell scalar)".

At the bottom, a console window shows the message "Reading references from mesh file ..." and "References: Cached". A command prompt at the very bottom contains the text "select Dirichlet".

Electrostatics 3D: MaxFEM

5



The screenshot shows the MaxFEM software interface for setting up a 3D electrostatics problem. The window title is "MaxFEM - Electrostatics 3D - /home/victor/usc/docs/MaxFEM-CloudPYME/Curso/2-Electro3D-ejemplo/copia de M". The menu bar includes Project, Mesh, Properties, Boundary conditions, Sources, Data, Solver, Visualization, Help, and Materials database.

The "Boundary conditions" panel is active, showing "Dirichlet conditions:" with a list containing "Plate 1" and "Plate 2". A dropdown menu is open, showing "Dirichlet: electric scalar potential, V (V)" (selected) and "Neumann: surface charge density, $-D \cdot n$ (C/m²)". Below the list are "Add" and "Del" buttons.

The "The condition is given by:" section has a dropdown set to "A constant". The "Fill in the following data:" section has "Surface references" and "Constant value" (selected). The "Constant value (V):" field contains "0".

The main visualization area shows a 3D rectangular domain with a mesh. The field is labeled "face_ref (cell scalar)". The domain is colored with a gradient from blue to cyan. The MaxFEM logo is visible in the bottom right corner of the visualization area.

At the bottom of the interface, there is a status bar with the text "References: Cached" and a file path: "9 /Boundary conditions/Dirichlet/Conditions/Plate 2/A constant/Surface references". A text input field at the very bottom contains "select Dirichlet".