TITLE : EM SIMULATION PROJECT

SUBJECT:ELECTRONICS MATERIALS – BEE201L
SLOT : C2+TC2 – TT415

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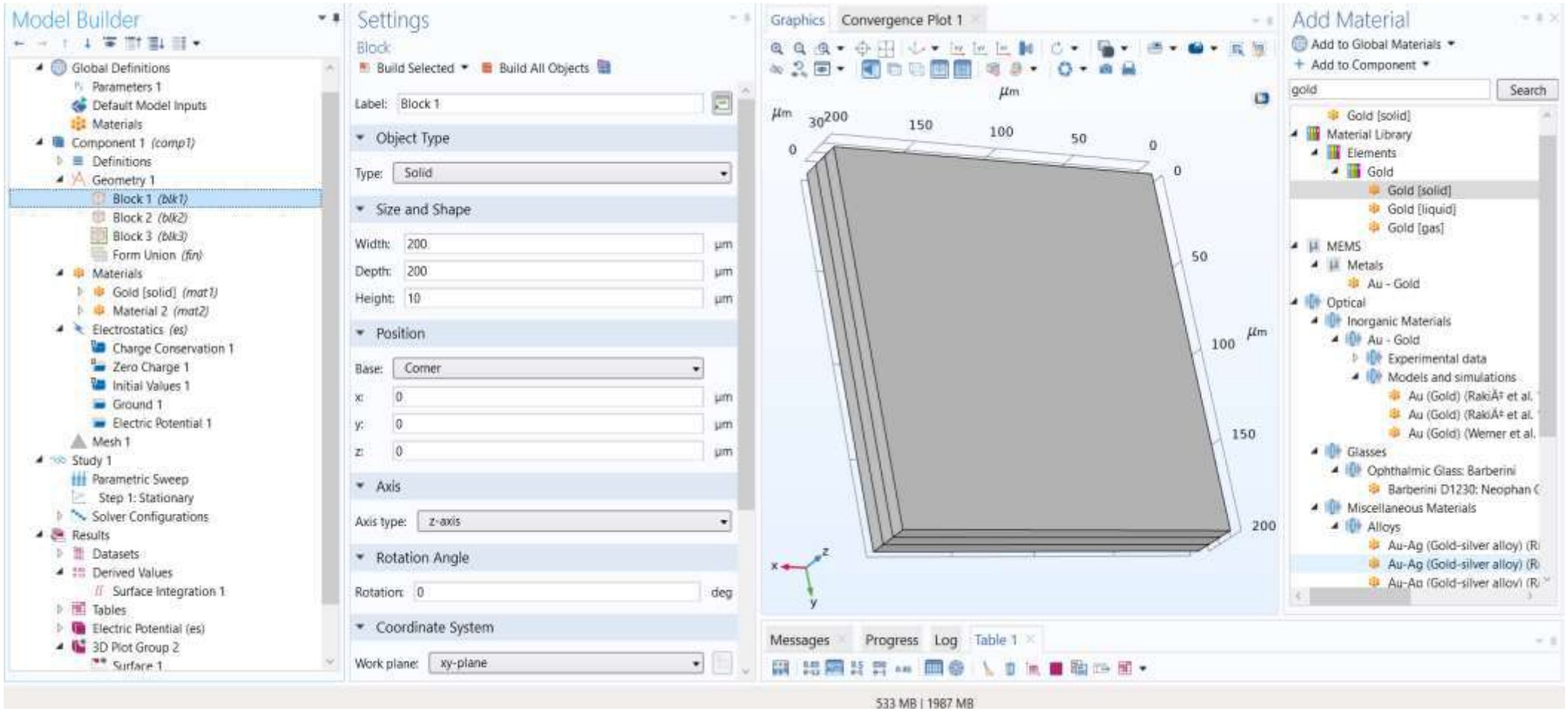
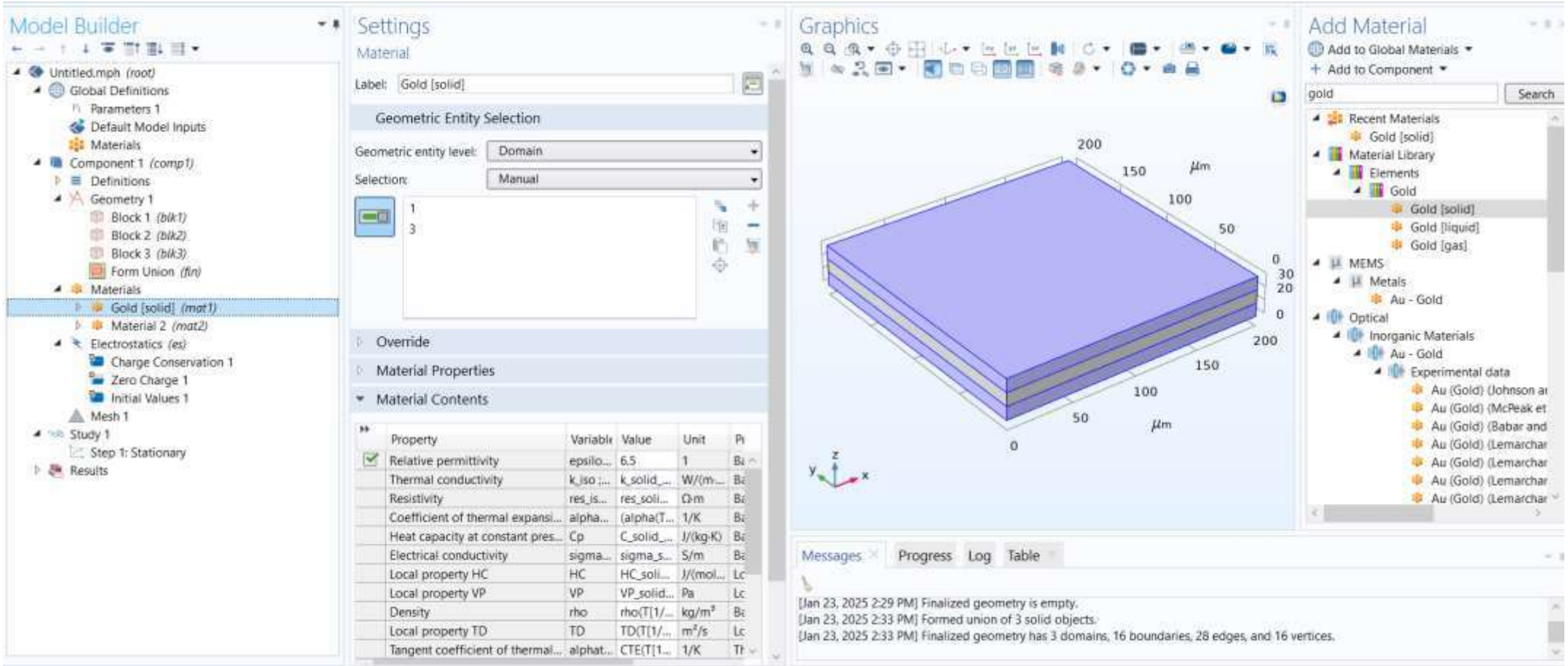
BRANCH: BTECH
COURSE: ELECTRONICS AND ELECTRICAL ENGENEERING
REGISTRATION NO:24BEE0241
FACULTY : SIR UMA SATHYAKAM P

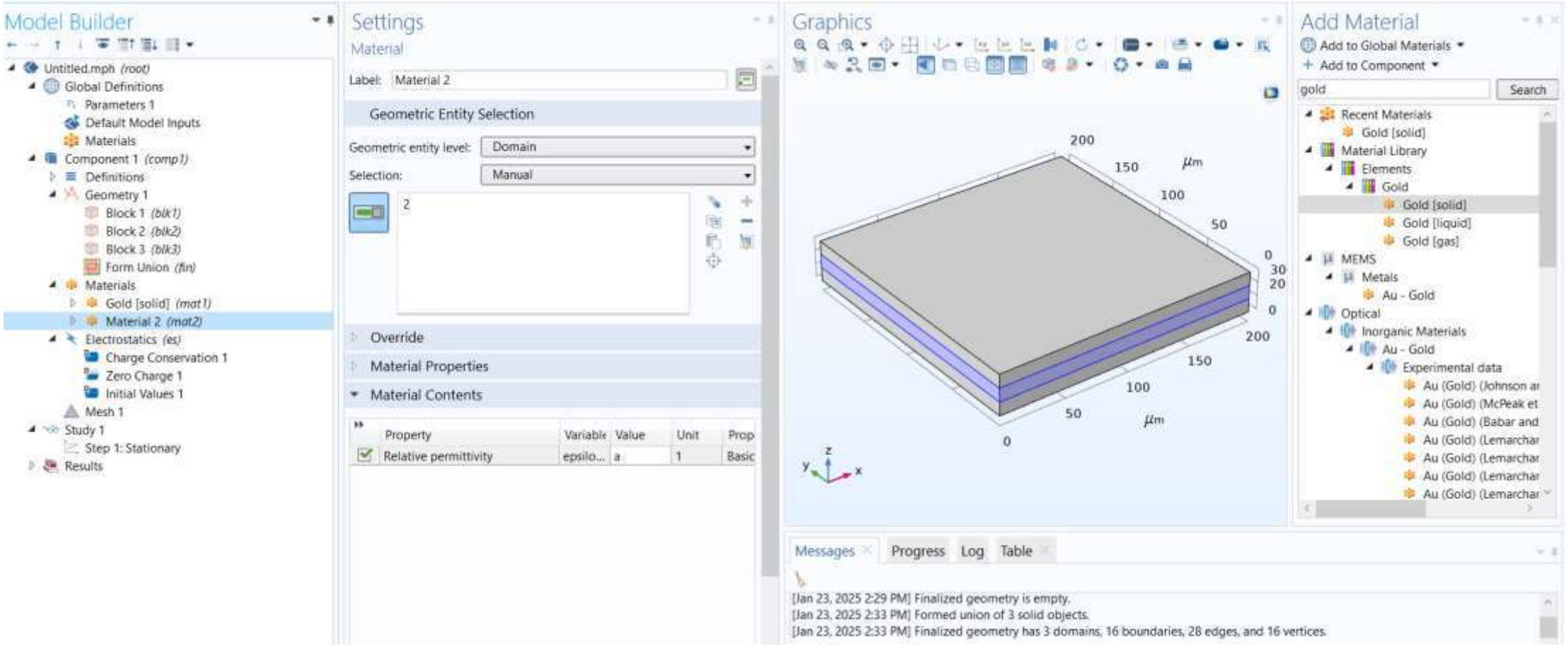
GEOMETRY 1 :


Model Builder
Global Definitions
Parameters 1
Default Model Inputs
Materials
Component 1 (comp1)
Definitions
Geometry 1
Block 1 (blk1)
Block 2 (blk2)
Block 3 (blk3)
Form Union (fin)
Materials
Gold [solid] (mat1)
Material 2 (mat2)
Electrostatics (es)
Charge Conservation 1
Zero Charge 1
Initial Values 1
Ground 1
Electric Potential 1
Mesh 1
Study 1
Parametric Sweep
Step 1: Stationary
Solver Configurations
Results
Datasets
Derived Values
Surface Integration 1
Tables
Electric Potential (es)
3D Plot Group 2
Surface 1
Settings
Block
Build Selected
Build All Objects
Label: Block 1
Object Type
Type: Solid
Size and Shape
Width: 200 µm
Depth: 200 µm
Height: 10 µm
Position
Base: Corner
x: 0 µm
y: 0 µm
z: 0 µm
Axis
Axis type: z-axis
Rotation Angle
Rotation: 0 deg
Coordinate System
Work plane: xy-plane
Graphics
Convergence Plot 1
µm
0
30
200
150
100
50
0
0
50
100
150
200
µm
x
y
z
Add Material
Add to Global Materials
Add to Component
gold
Search
Gold [solid]
Material Library
Elements
Gold
Gold [solid]
Gold [liquid]
Gold [gas]
MEMS
Metals
Au - Gold
Optical
Inorganic Materials
Au - Gold
Experimental data
Models and simulations
Au (Gold) (RakiÄ‡ et al.
Au (Gold) (RakiÄ‡ et al.
Au (Gold) (Werner et al.
Glasses
Ophthalmic Glass: Barberini
Barberini D1230: Neophan
Miscellaneous Materials
Alloys
Au-Ag (Gold-silver alloy) (R
Au-Ag (Gold-silver alloy) (R
Au-Ag (Gold-silver alloy) (R
Messages
Progress
Log
Table 1
533 MB | 1987 MB

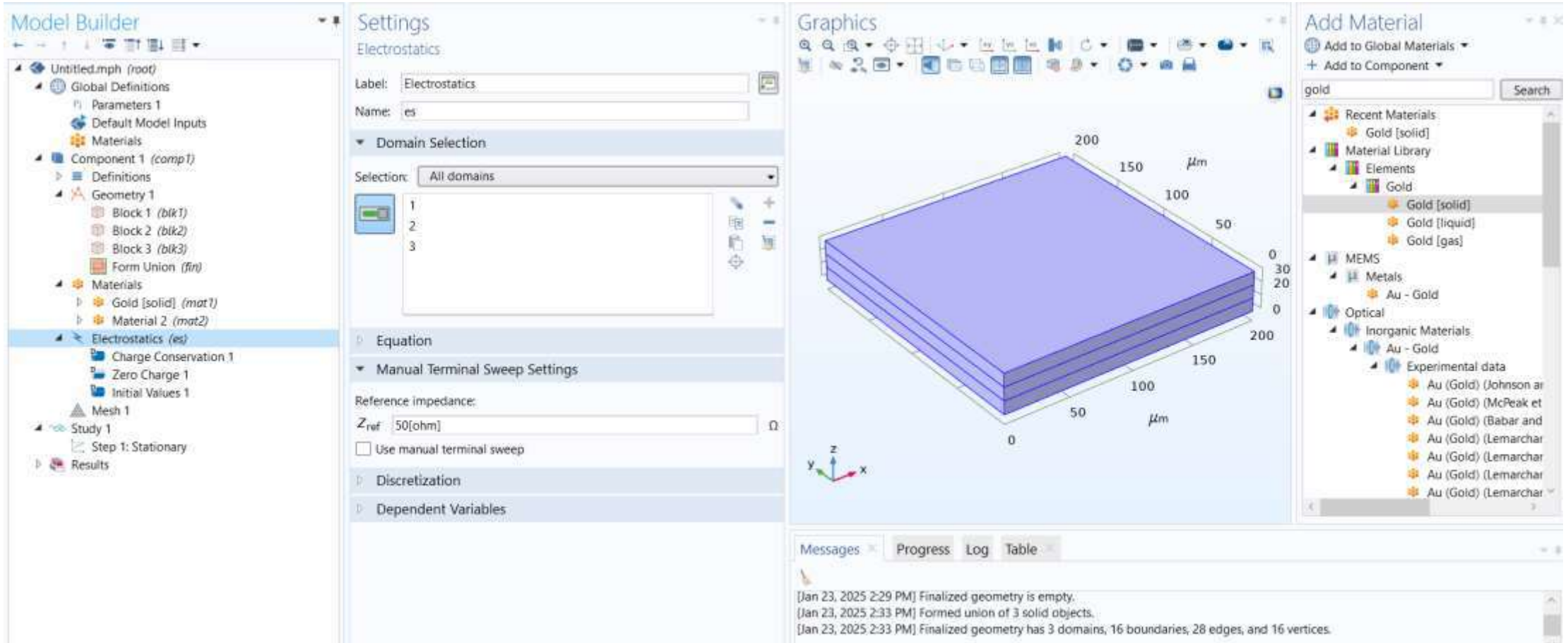
GOLD [SOLID](mat1):



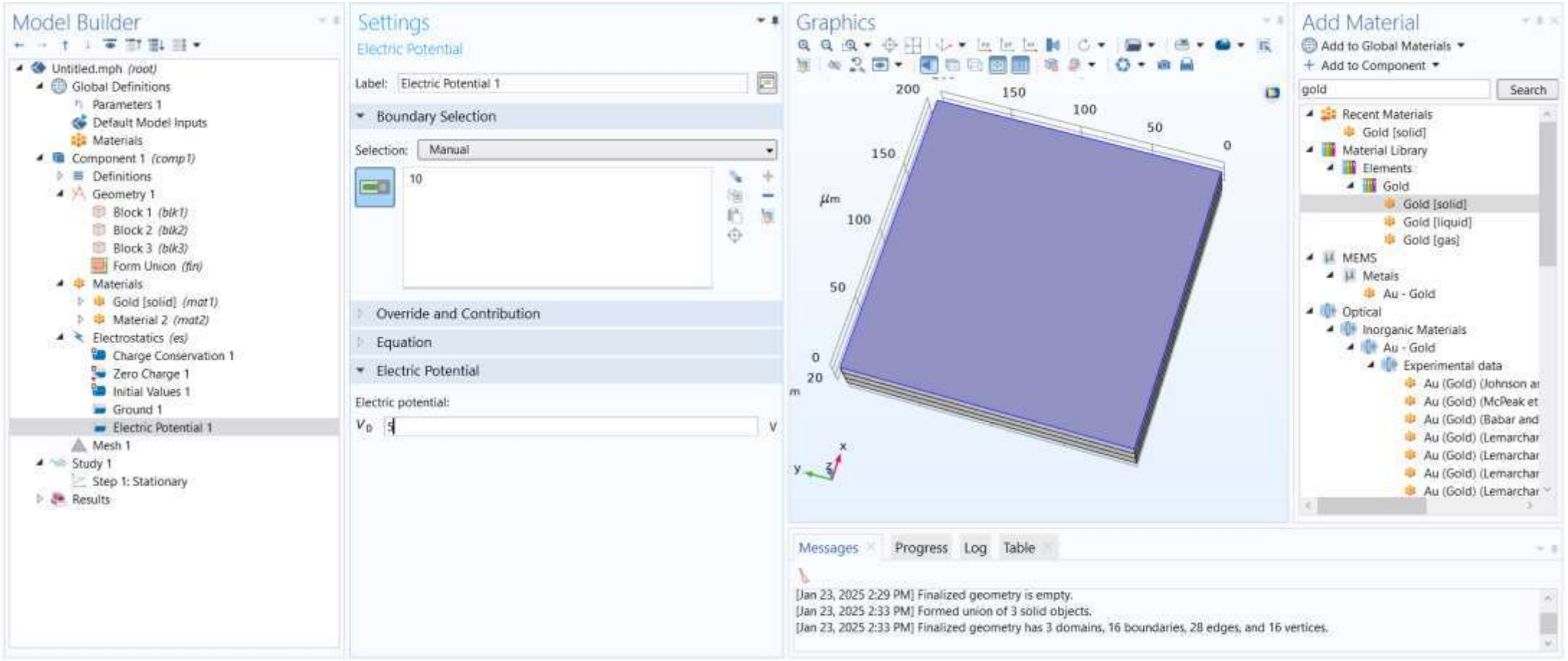
MATERIAL 2 (mat 2) :



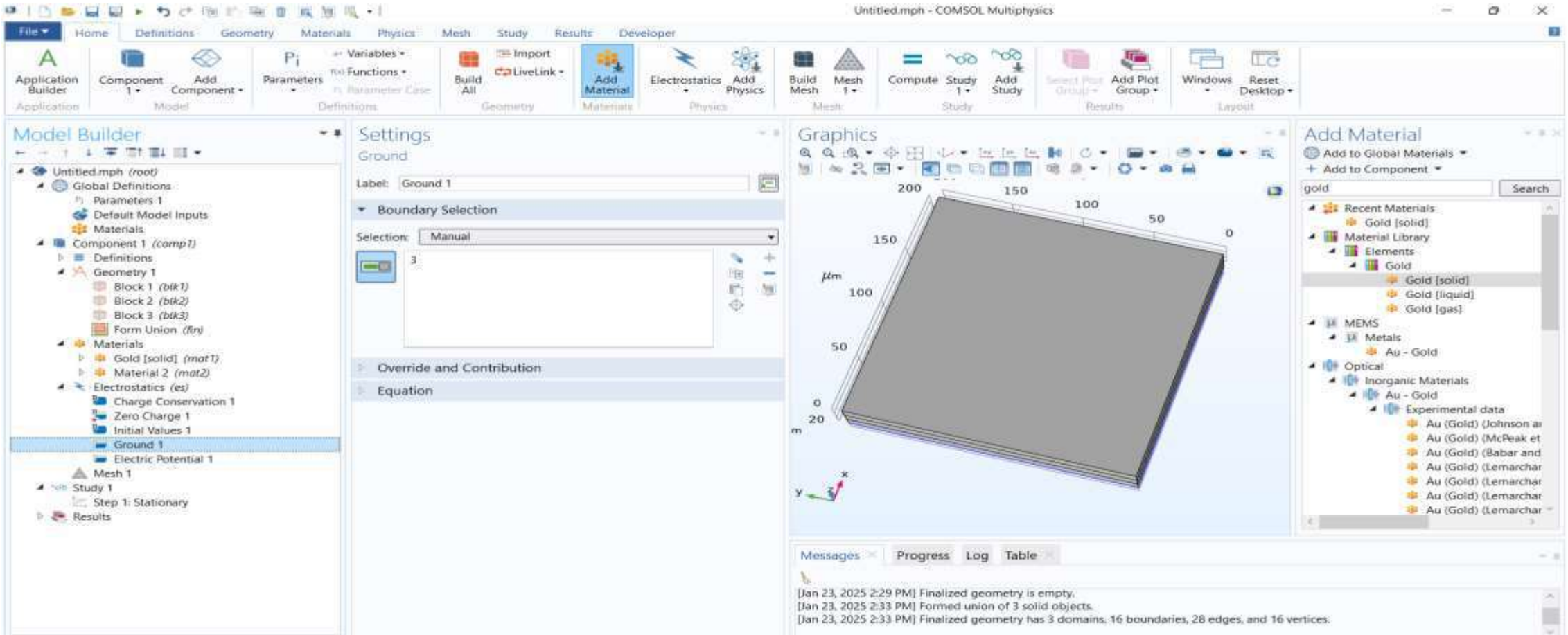
ELECTROSTATICS (es) :



ELECTRI POTENTIAL 1 :



GROUND 1 :


Untitled.mph - COMSOL Multiphysics
File
Home
Definitions
Geometry
Materials
Physics
Mesh
Study
Results
Developer
Application Builder
Component 1
Add Component
Parameters
Variables
Functions
Import
LiveLink
Build All
Add Material
Electrostatics
Add Physics
Build Mesh
Mesh 1
Compute
Study 1
Add Study
Add Plot Group
Windows
Reset Desktop
Model Builder
Untitled.mph (root)
Global Definitions
Parameters 1
Default Model Inputs
Materials
Component 1 (comp1)
Definitions
Geometry 1
Block 1 (blk1)
Block 2 (blk2)
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Form Union (fin)
Materials
Gold [solid] (mat1)
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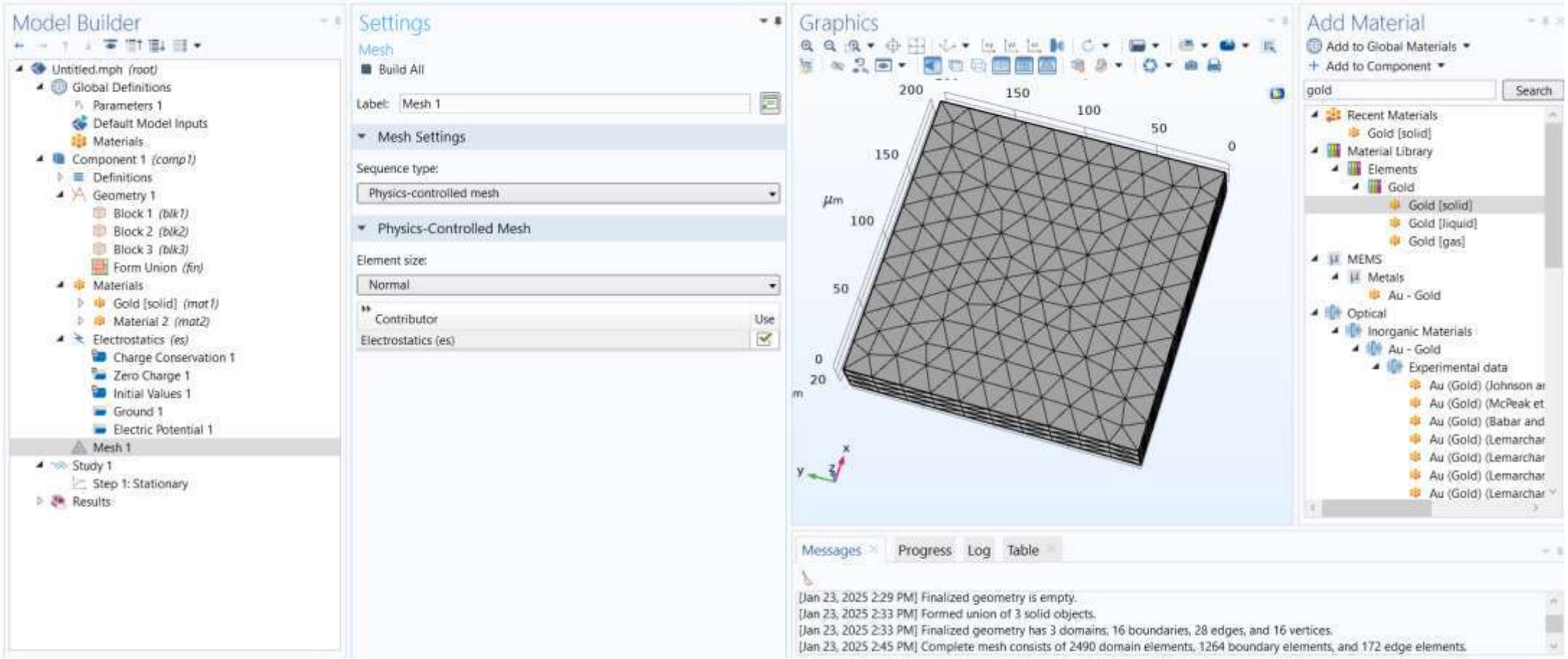
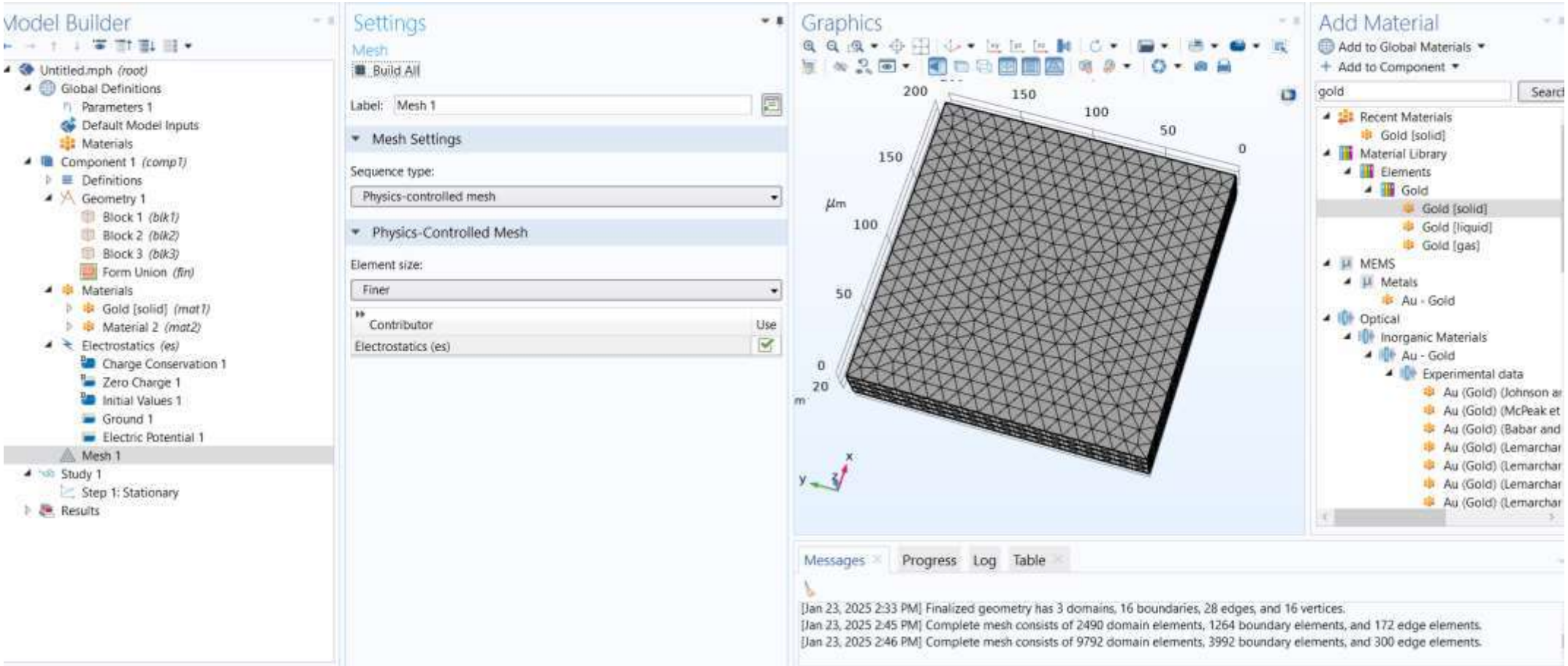
Electrostatics (es)
Charge Conservation 1
Zero Charge 1
Initial Values 1
Ground 1
Electric Potential 1
Mesh 1
Study 1
Step 1: Stationary
Results
Settings
Ground
Label: Ground 1
Boundary Selection
Selection: Manual
3
Override and Contribution
Equation
Graphics
Add Material
Add to Global Materials
Add to Component
gold
Search
Recent Materials
Gold [solid]
Material Library
Elements
Gold
Gold [solid]
Gold [liquid]
Gold [gas]
MEMS
Metals
Au - Gold
Optical
Inorganic Materials
Au - Gold
Experimental data
Au (Gold) (Johnson a
Au (Gold) (McPeak et
Au (Gold) (Babar and
Au (Gold) (Lemarchar
Au (Gold) (Lemarchar
Au (Gold) (Lemarchar
Au (Gold) (Lemarchar
Messages
Progress
Log
Table
[Jan 23, 2025 2:29 PM] Finalized geometry is empty.
[Jan 23, 2025 2:33 PM] Formed union of 3 solid objects.
[Jan 23, 2025 2:33 PM] Finalized geometry has 3 domains, 16 boundaries, 28 edges, and 16 vertices.

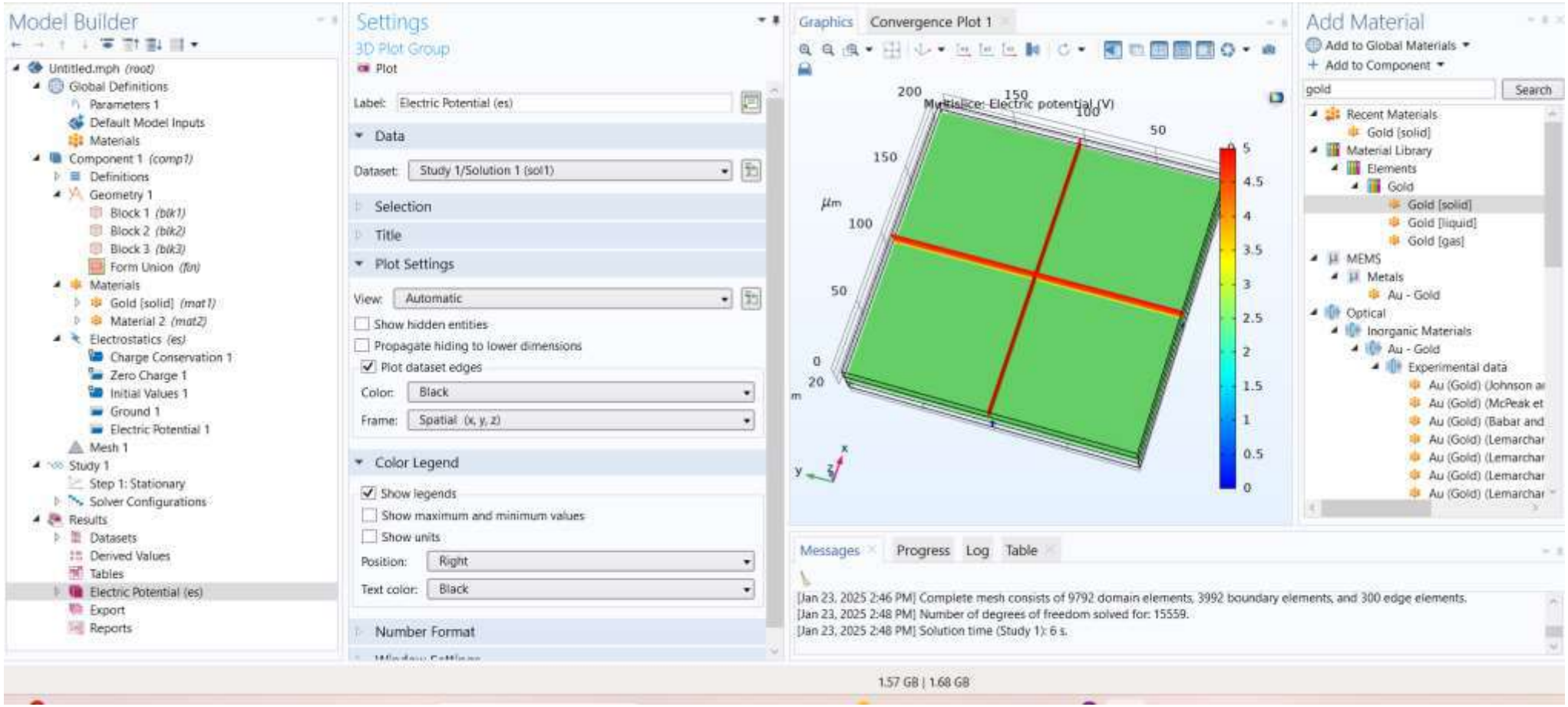
MESH 1:
ELEMENT SIZE : NORMAL



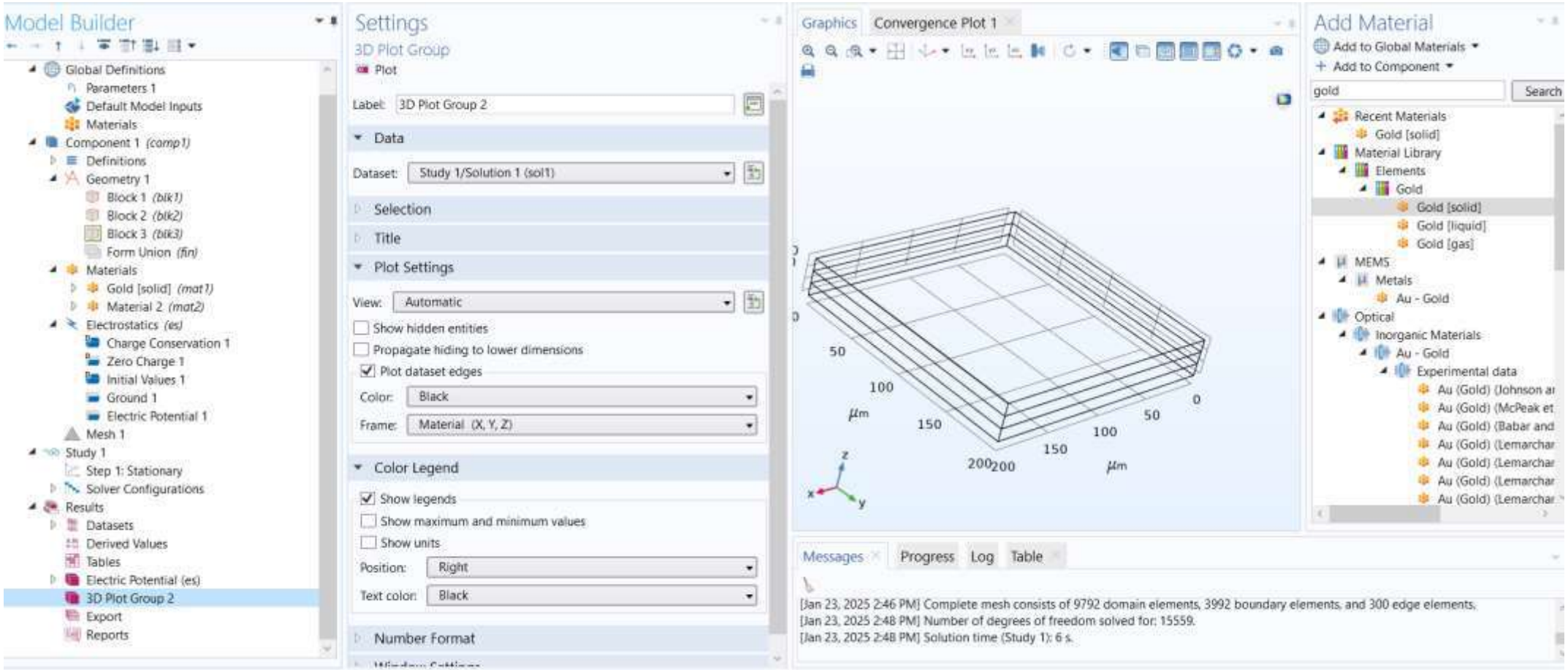
ELEMENT SIZE : FINER



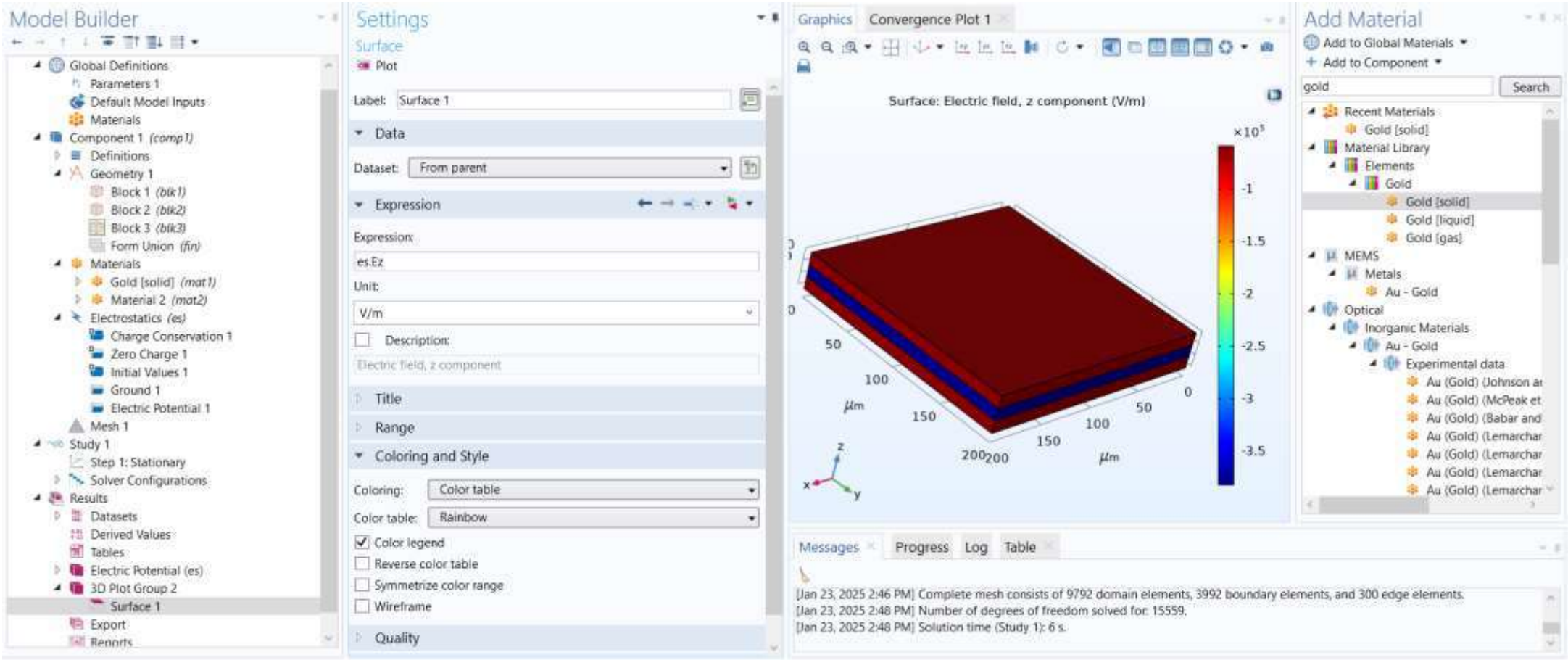
ELECTRI POTENTIAL(es) :



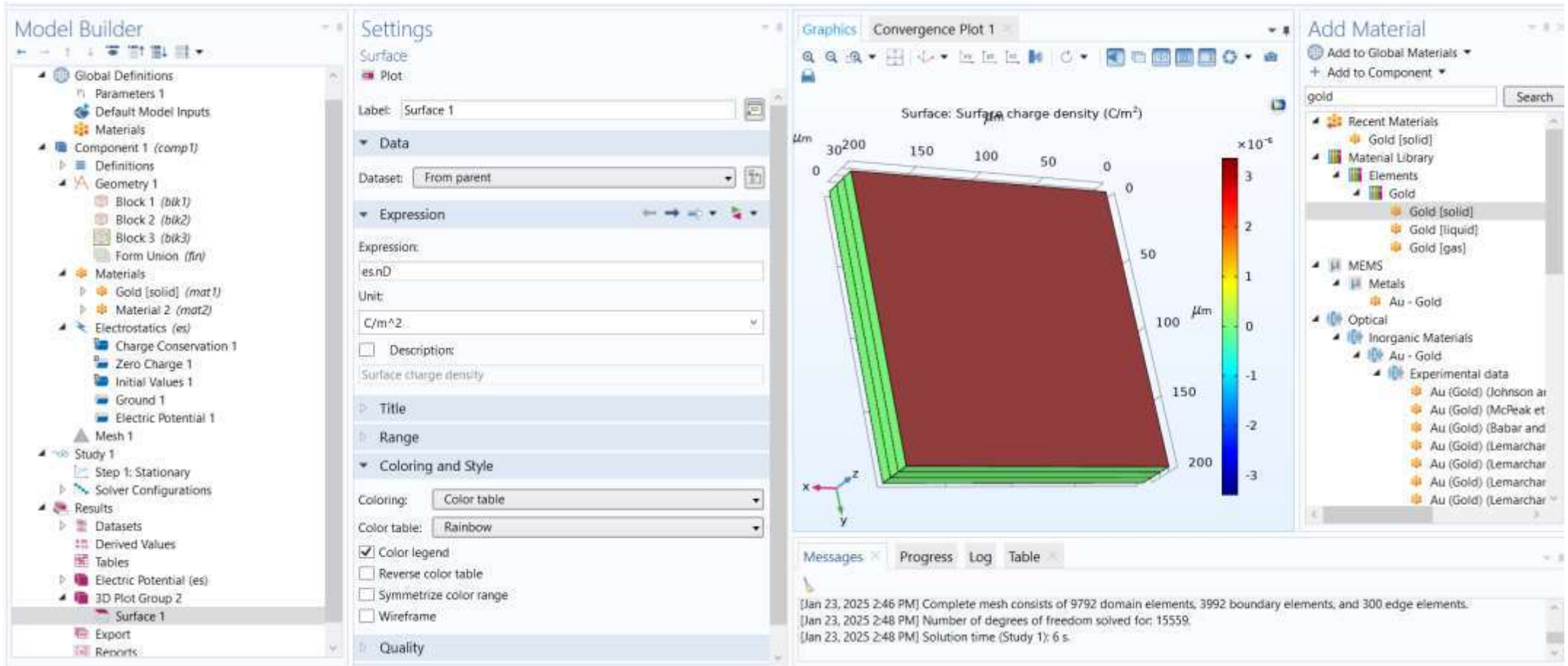
3D PLOT GROUP 2 :



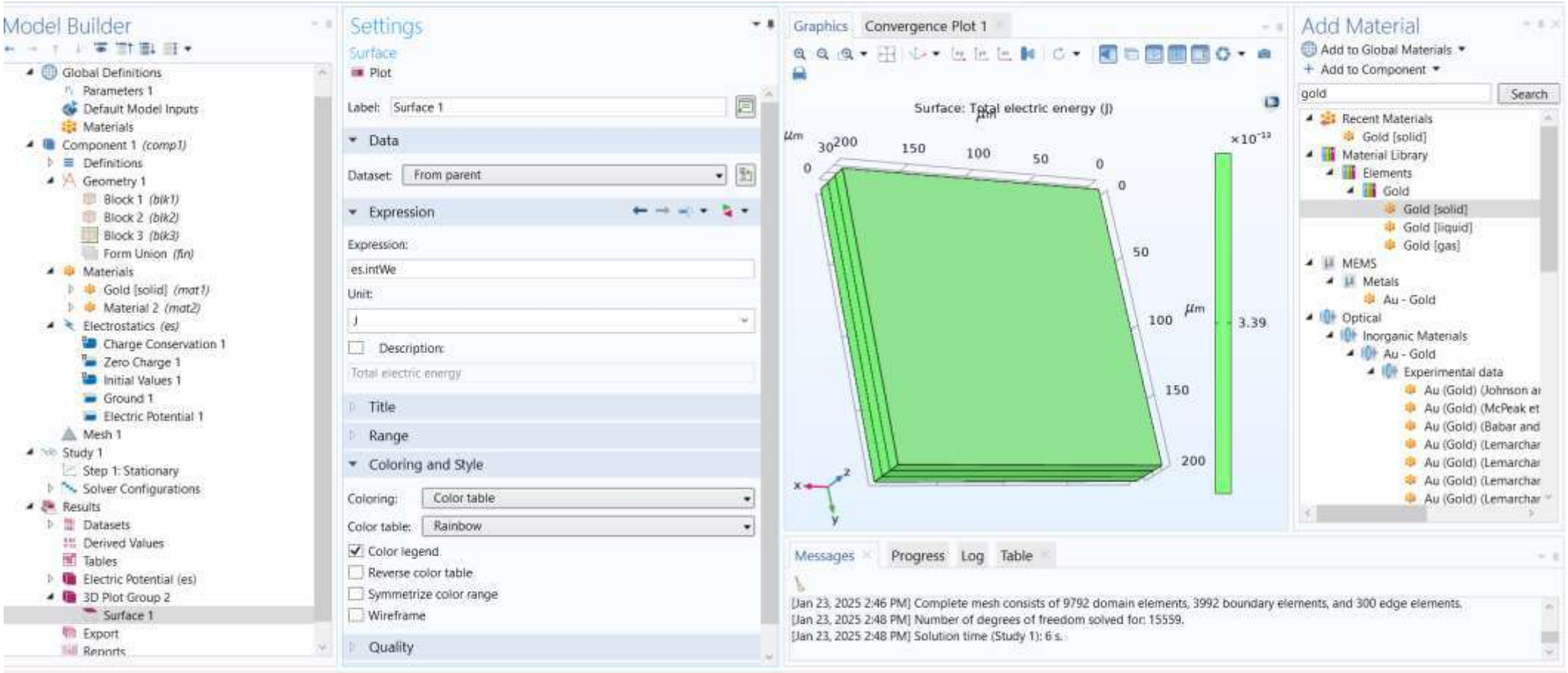
SURFACE 1 : ELECTRIC FIELD ,z COMPONENT
UNIT : V/m



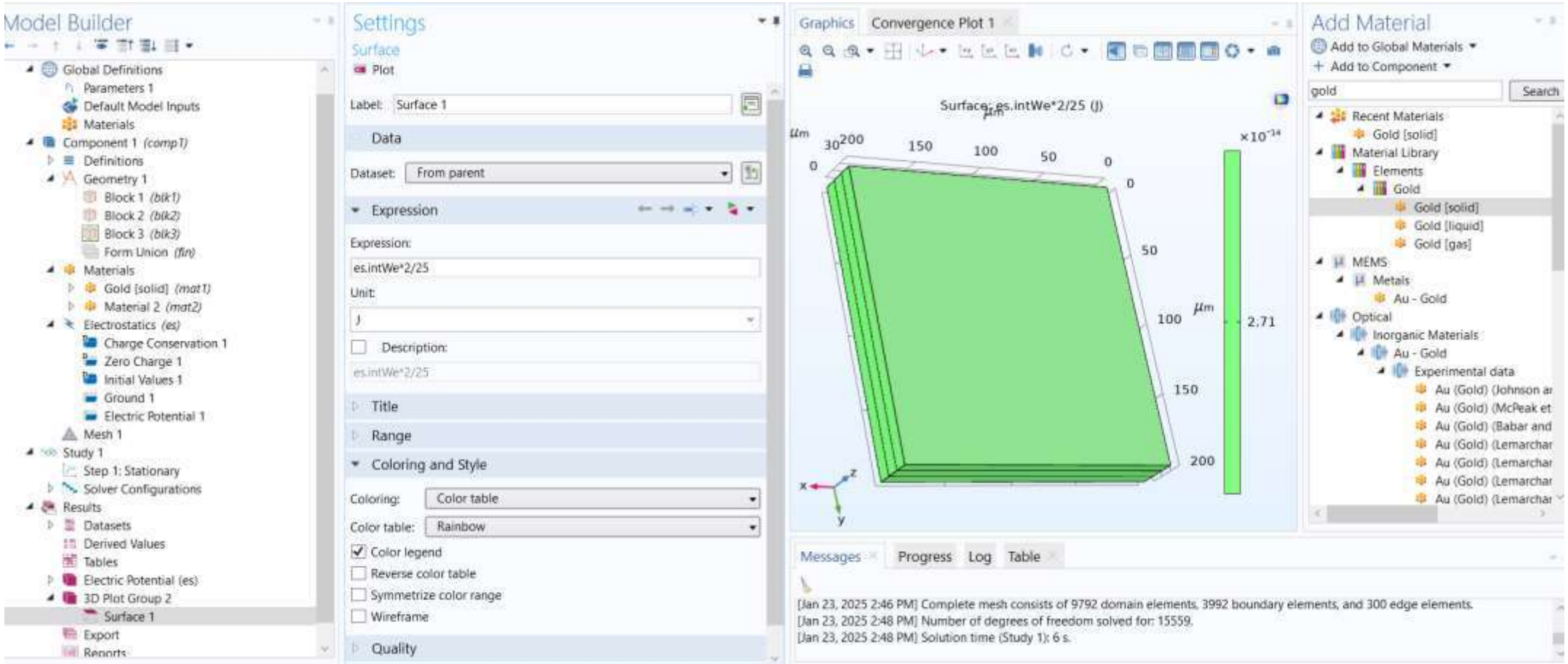
SURFACE 1 : SURFACE CHARGE DENSITY
UNIT : C/m^2



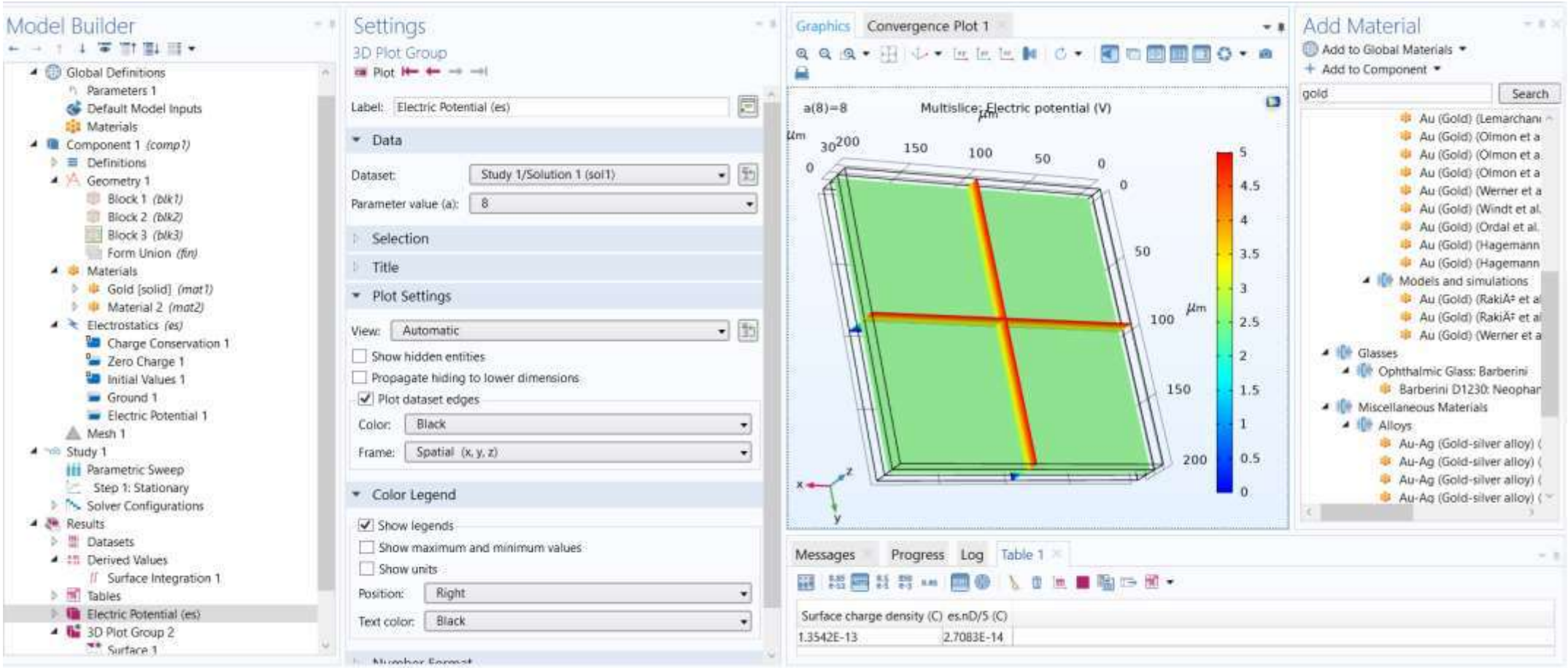
SURFACE 1 : TOTAL ELECTRIC ENERGY
UNIT : J



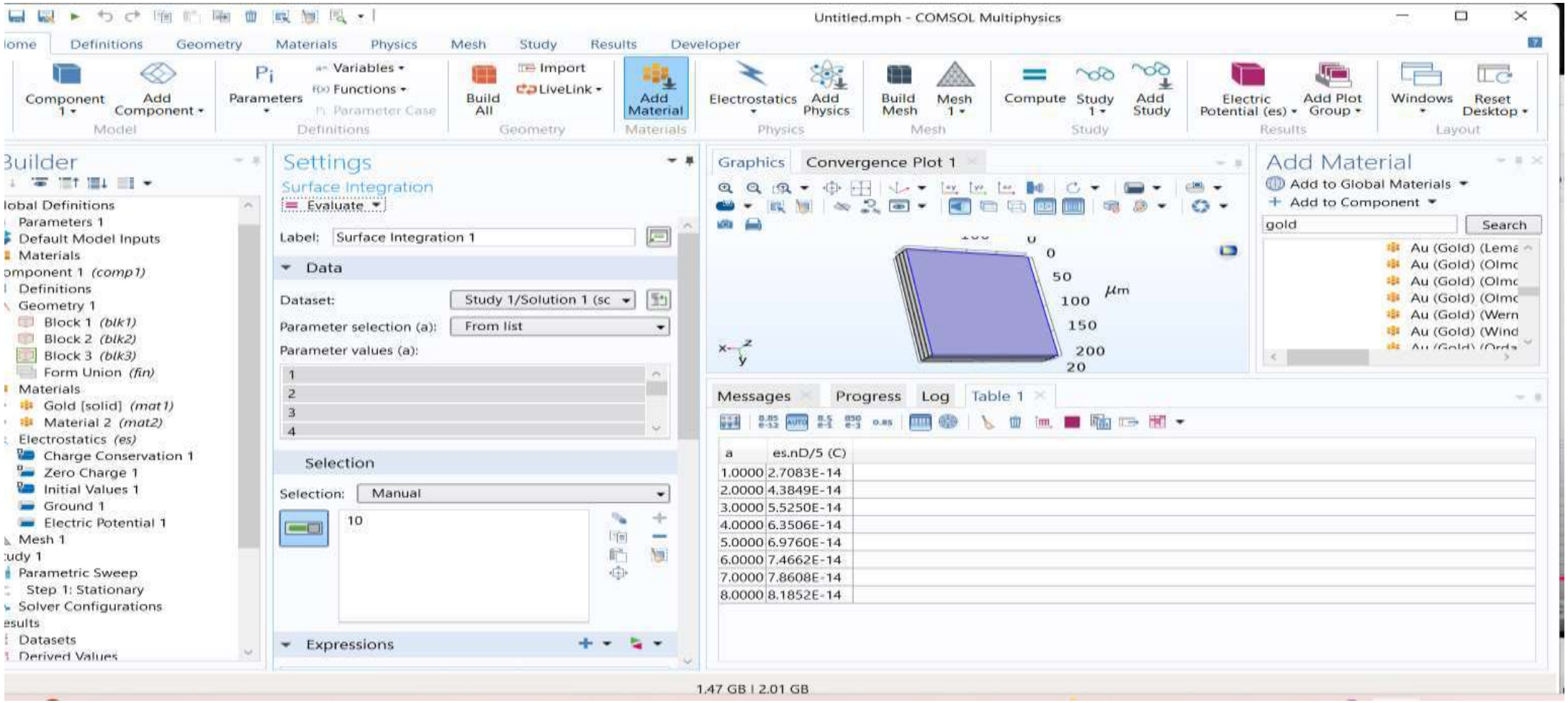
SURFACE 1 : es.intWE*2/25(J)



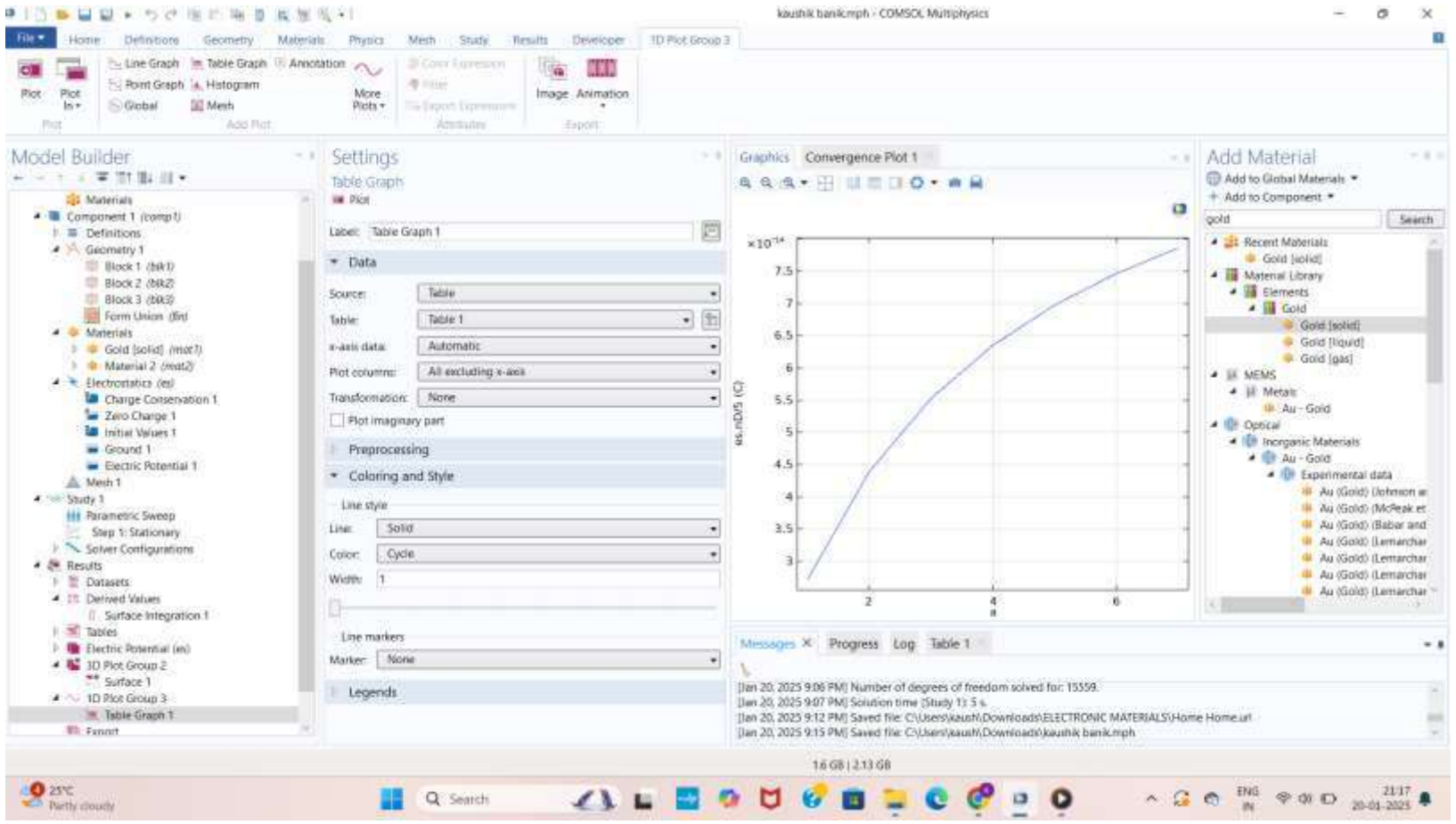
MULTISLICE : ELECTRIC POTENTIAL(V)



PARAMETER VALUES (a):



GRAPH :


kaushik banik.mph - COMSOL Multiphysics
Model Builder
Settings
Table Graph
Graphics
Convergence Plot 1
Add Material
Messages
Progress
Log
Table 1

THANK YOU