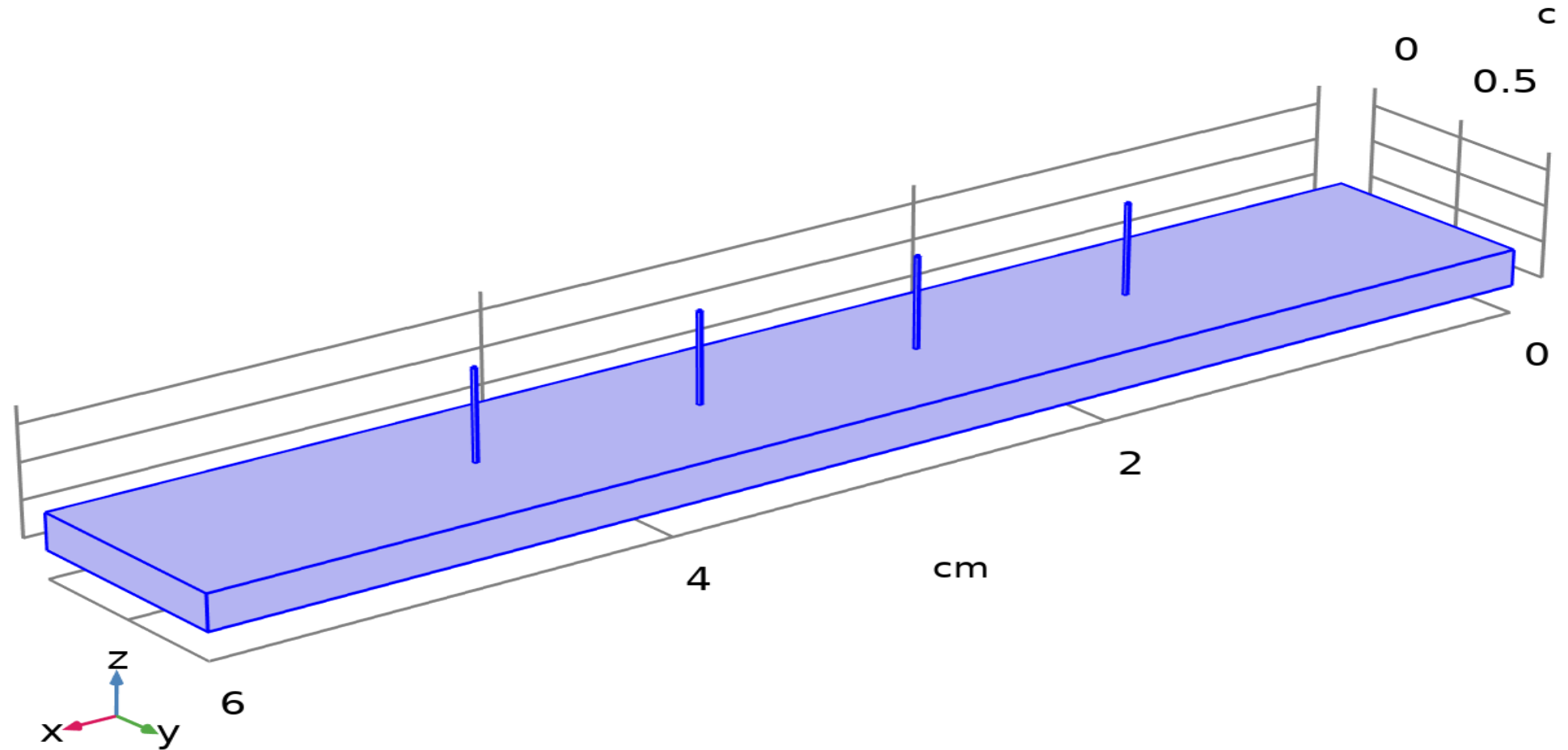
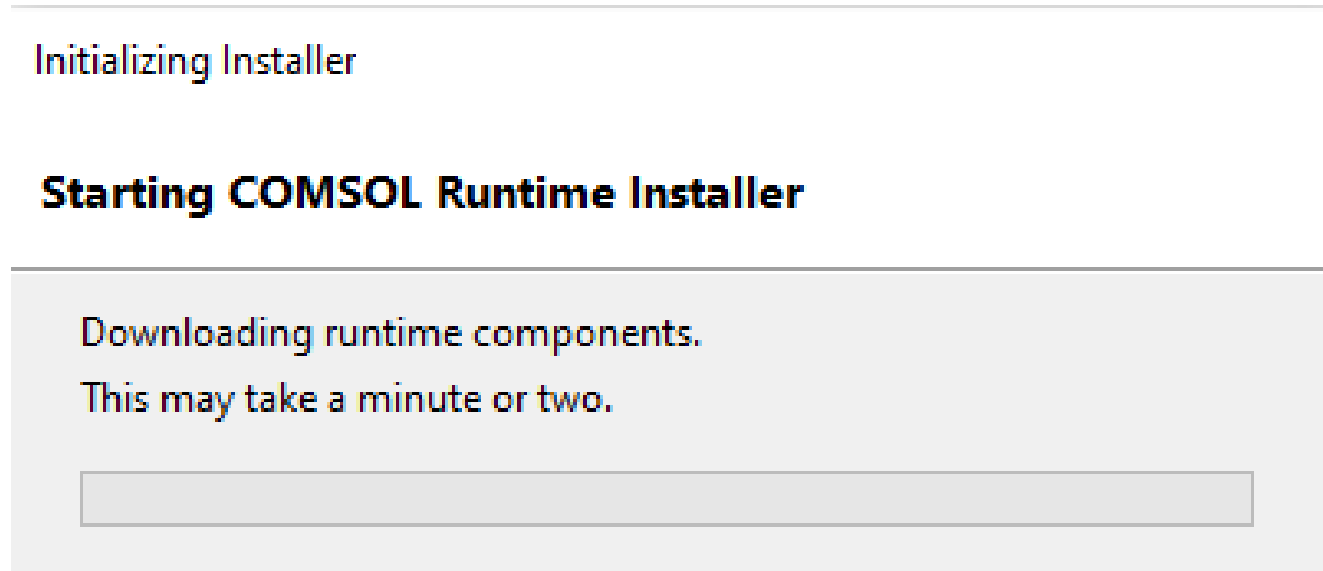


# Four Probes COMSOL Application Manual



# The Application requires to download runtime components



**Once the download is complete the application would open.**

# This is the application GUI

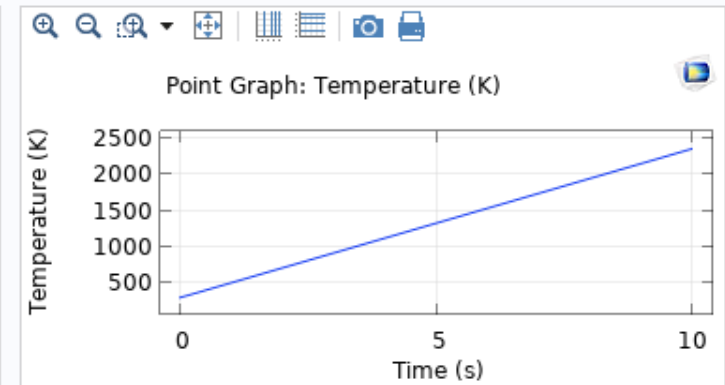
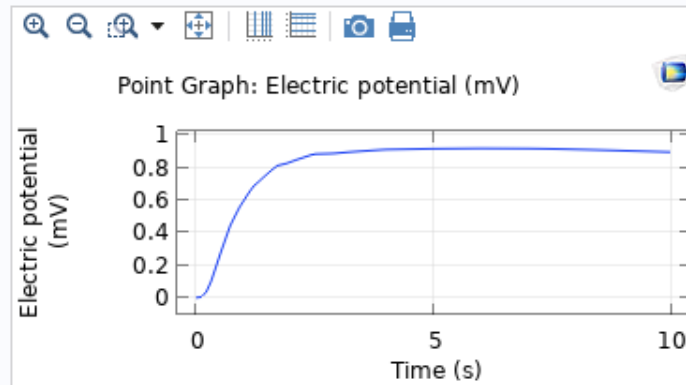
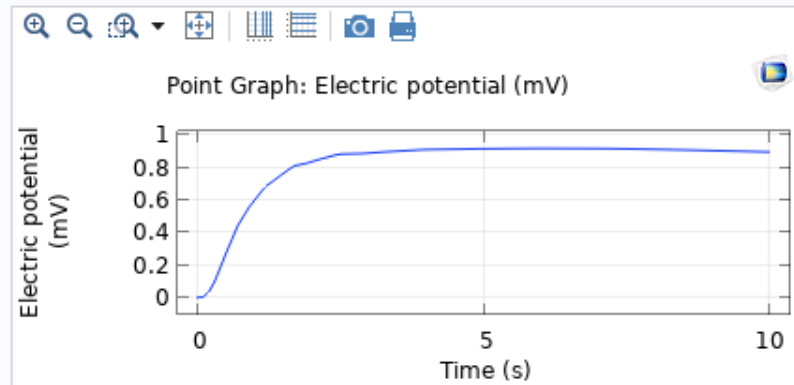
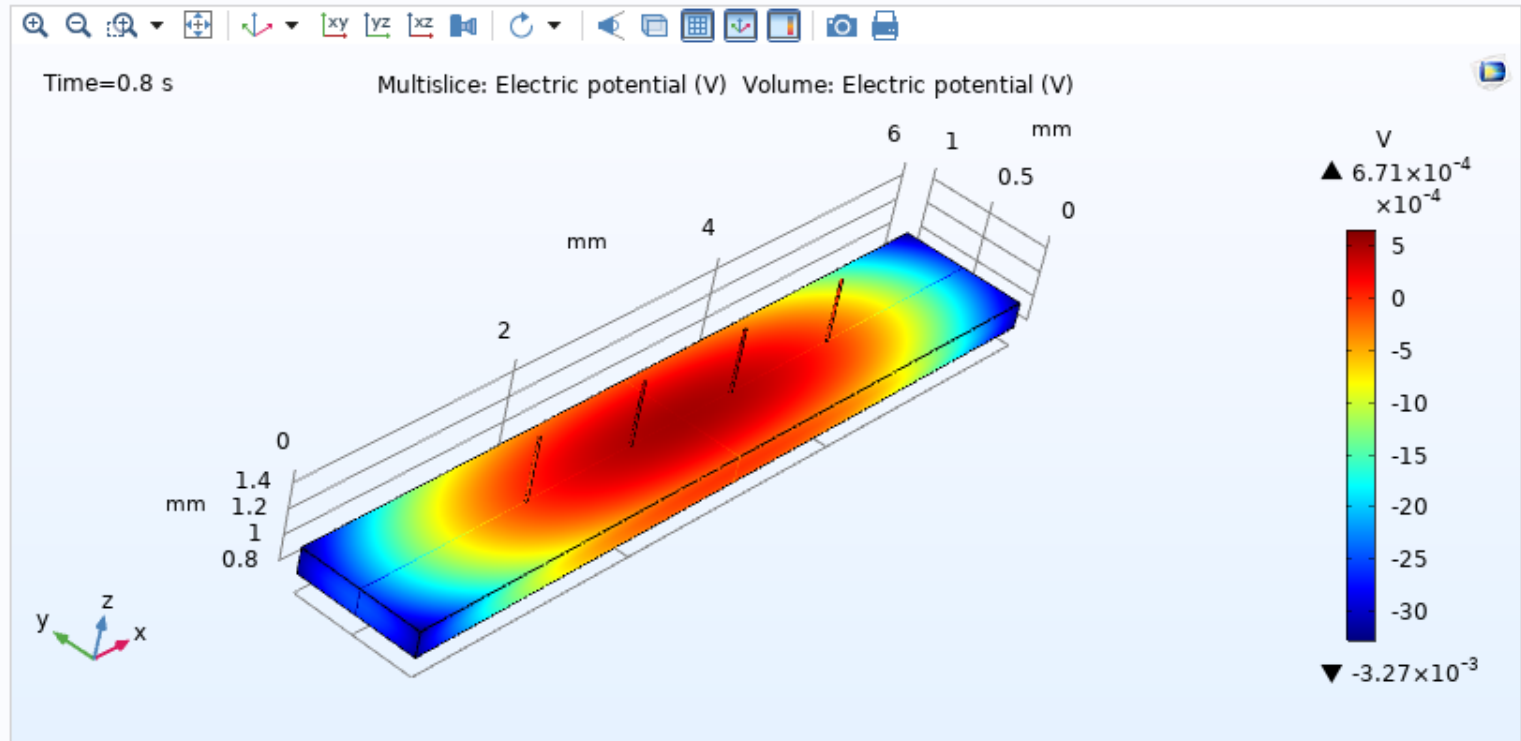
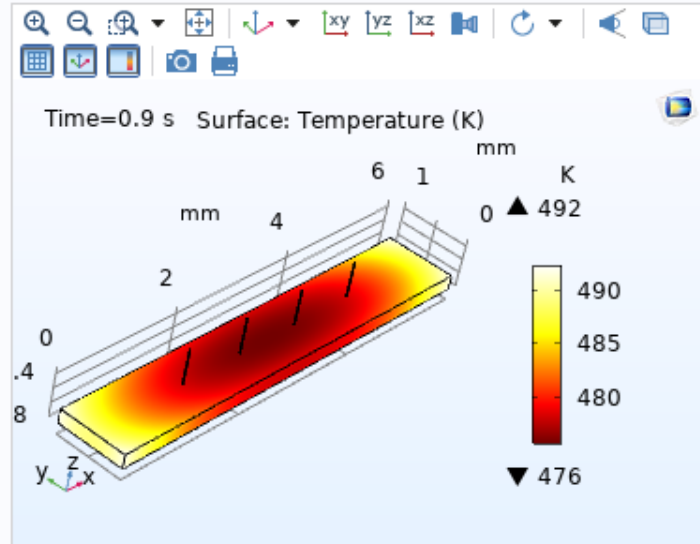
Probe Spacing:  cm

Length:  cm

Breadth:  cm

Height:  cm

Total Time:

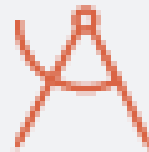


**Use this to change the geometry and the time for experiment.**

Probe Spacing:  cm

Compute

Generate Report



Update  
Geometry

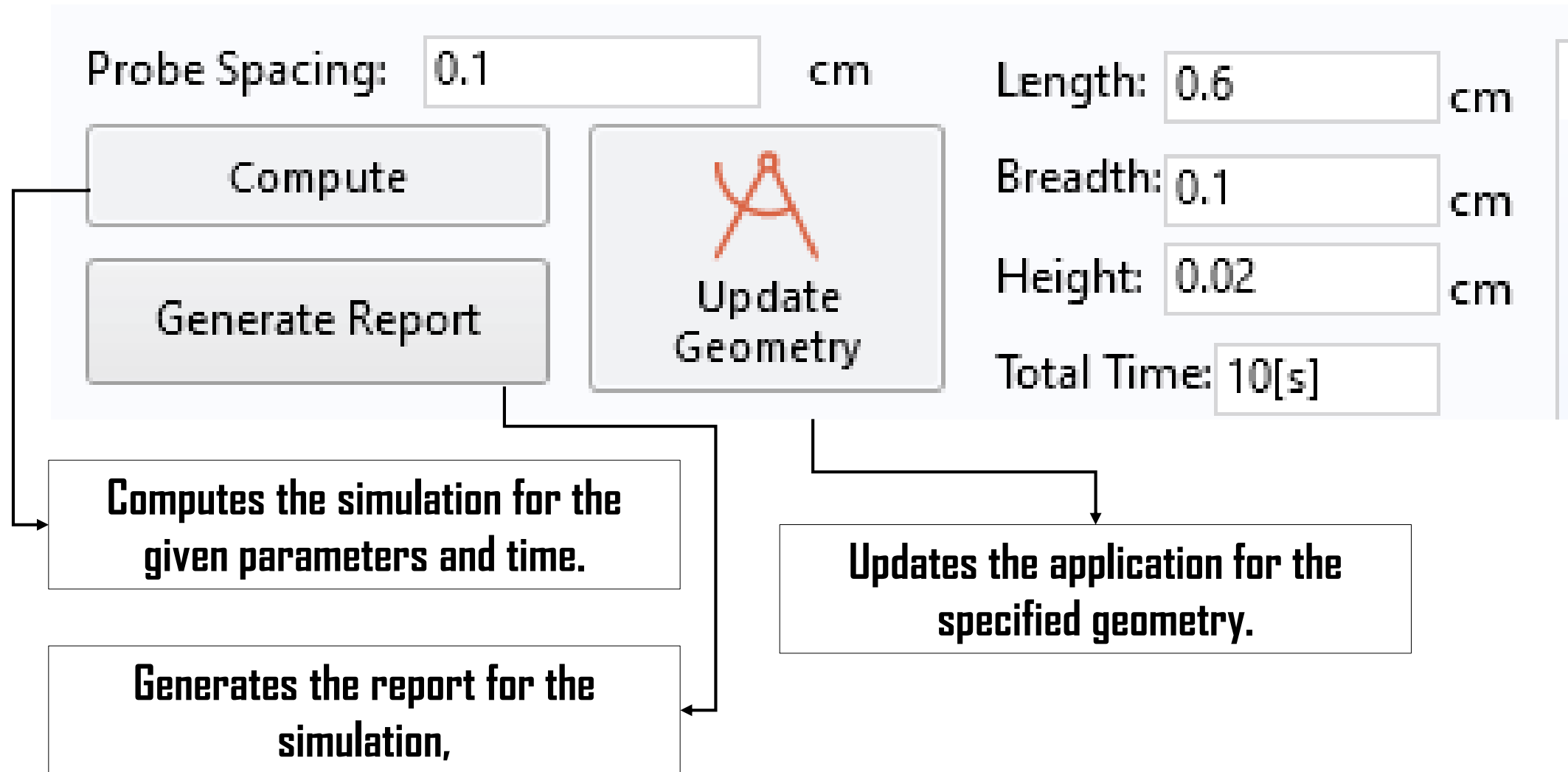
Length:  cm

Breadth:  cm

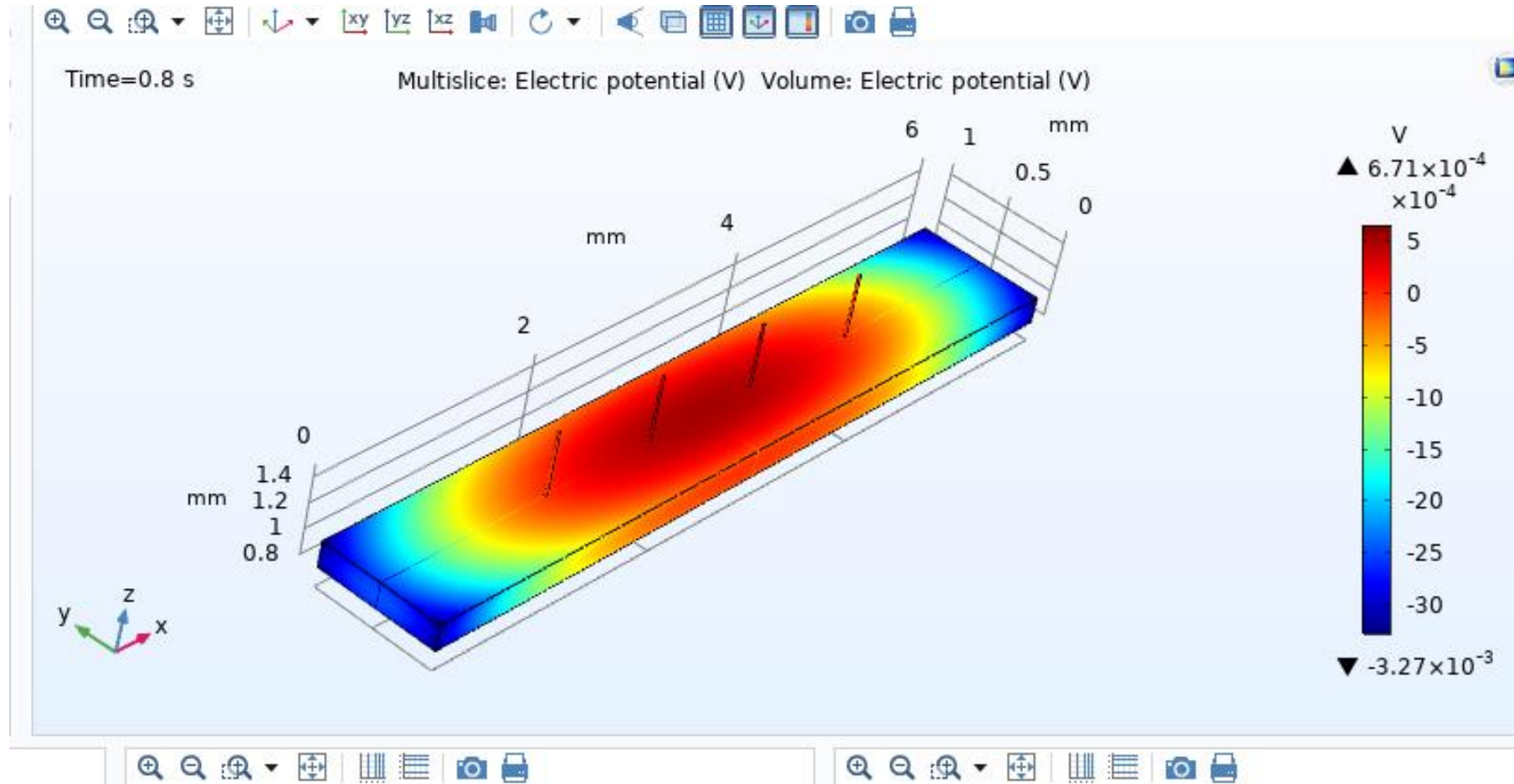
Height:  cm

Total Time:

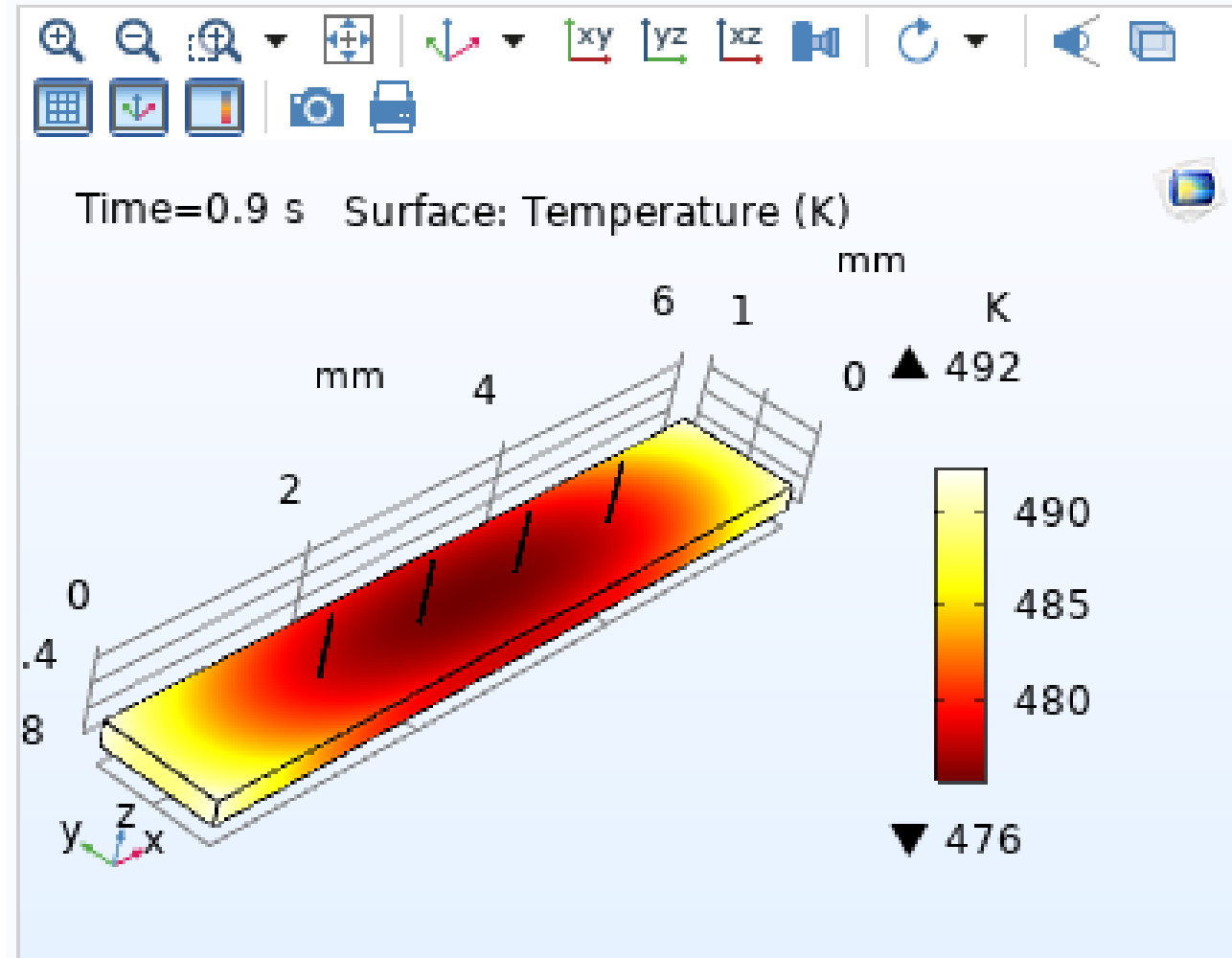
# The three buttons control the application.



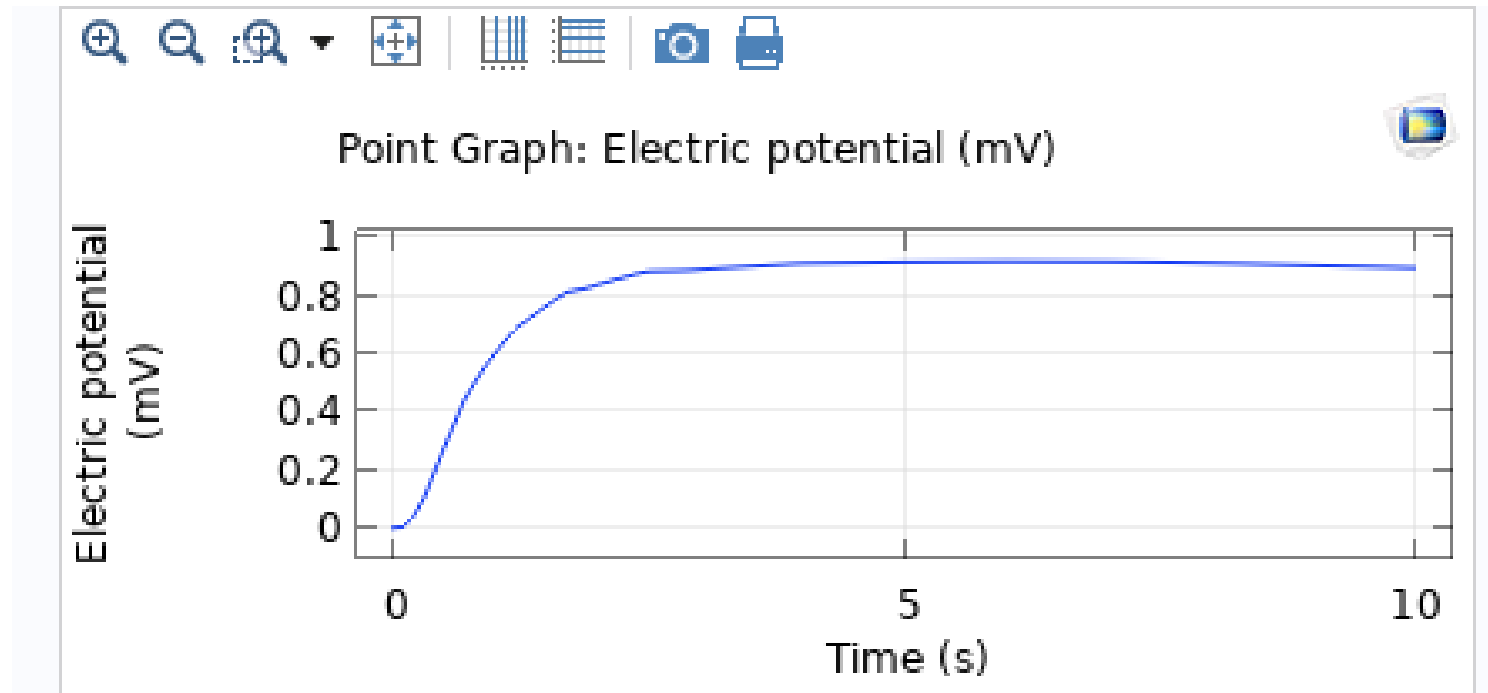
# This is the 3D model for the Potential generated in the Model.



# This is the 3D model for the Surface Temperature of the Model.

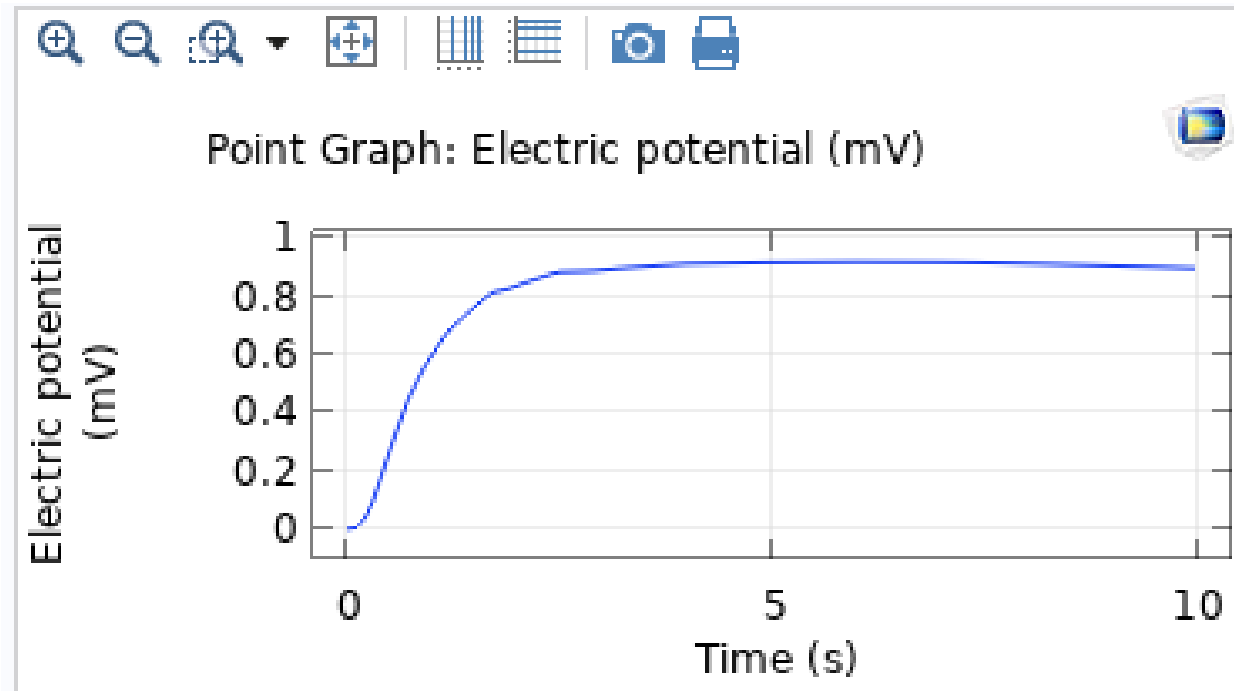


# The plot of Electric Potential from the 2<sup>nd</sup> probe.

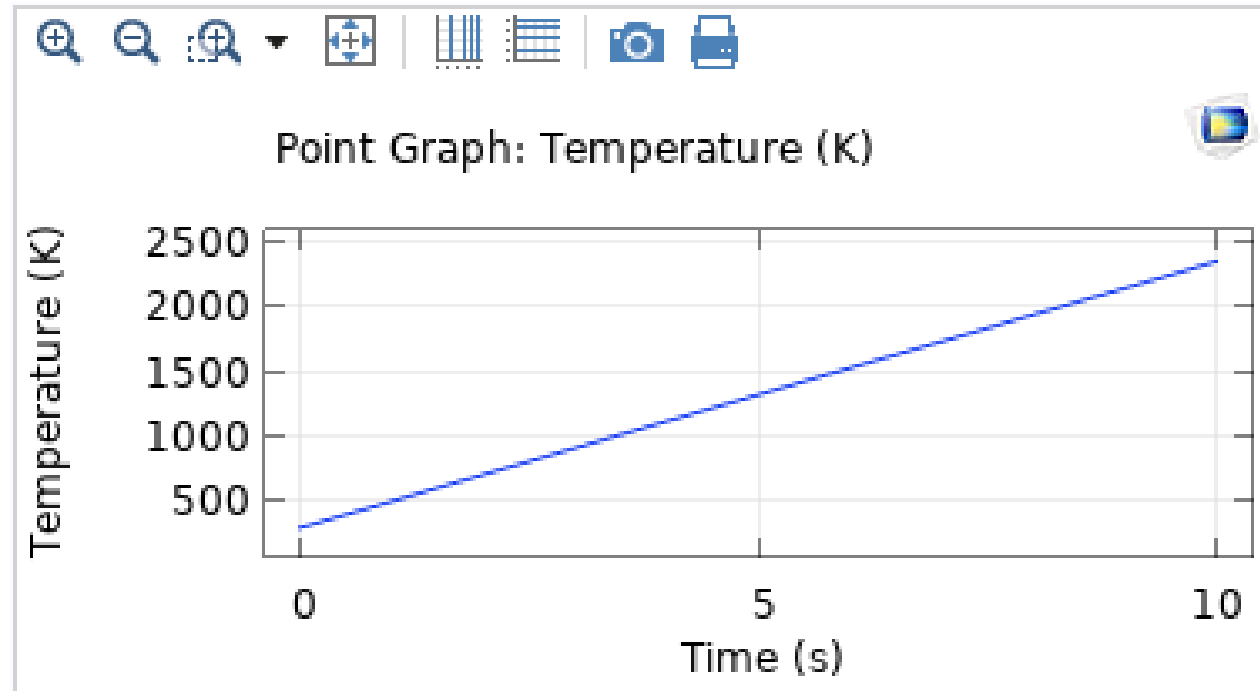





# The plot of Electric Potential from the 3<sup>rd</sup> probe.



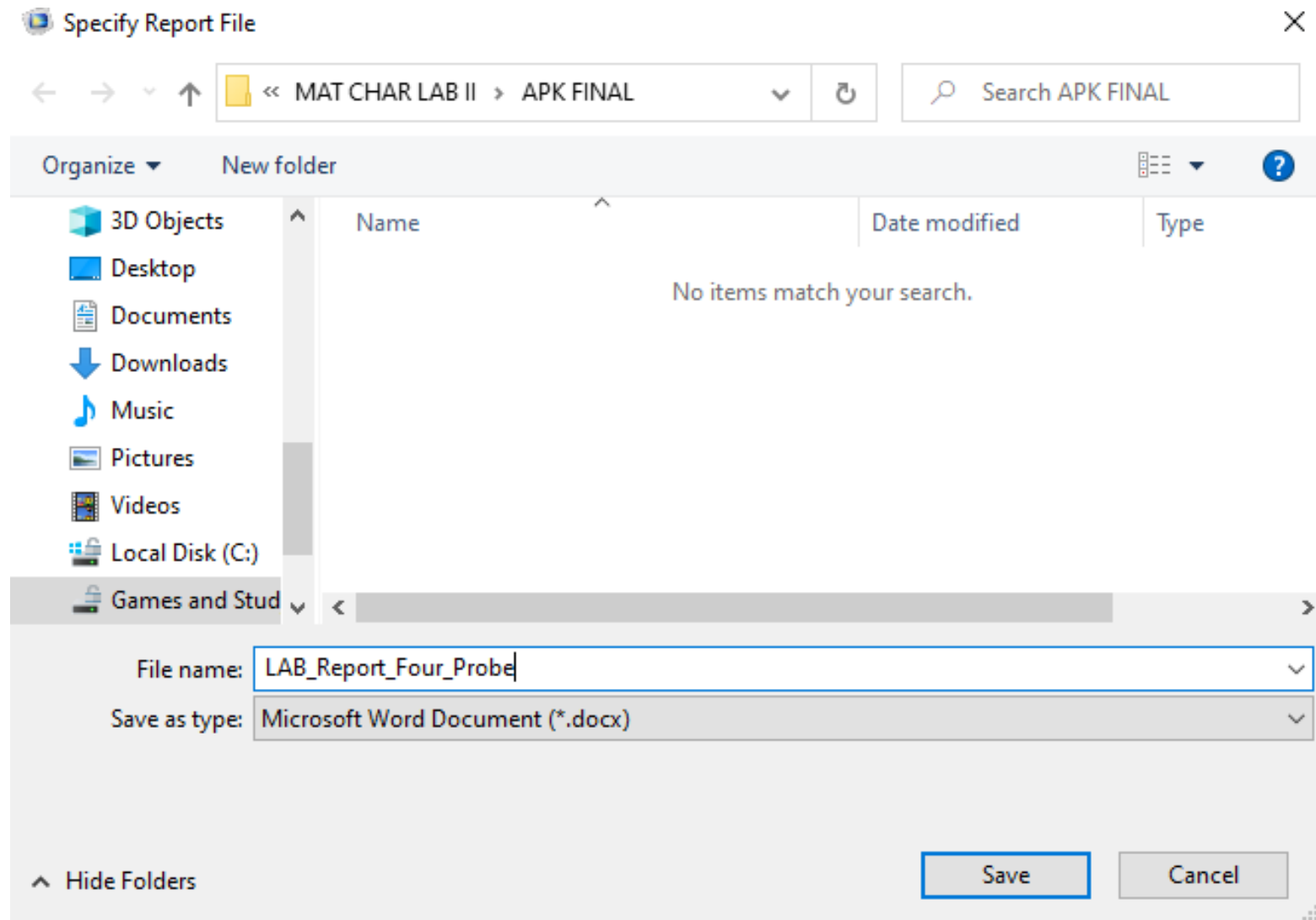
# The plot of Temperature vs Time.



**Once the simulation is complete use the Generate Report Button to generate the Report, and get the data exported.**

|  |   |    |             |                                    |    |
|--|---|----|-------------|------------------------------------|----|
| Probe Spacing:                                 | <input type="text" value="0.1"/>  | cm | Length:     | <input type="text" value="0.6"/>   | cm |
| <input type="button" value="Compute"/>         | <br><input type="button" value="Update Geometry"/> |    | Breadth:    | <input type="text" value="0.1"/>   | cm |
| <input type="button" value="Generate Report"/> |   |    | Height:     | <input type="text" value="0.02"/>  | cm |
|  |   |    | Total Time: | <input type="text" value="10[s]"/> |    |

# Specify the report name and location for the export values.



# The Report would be generated as such.

LAB\_Report\_Four\_Probe [Compatibility Mode] - Word

Vinay Ahir

File Home Insert Design Layout References Mailings Review View Help Grammarly Tell me what you want to do

Clipboard Font Paragraph Styles Editing

1 AaBb AaBbCcDc AaBbCcDc AaBbC AABBBCC AaBbCc

11 Heading... 11 Normal 11 No Spac... Heading 1 Heading 2 Heading 3

Find Replace Select

Open Grammarly

Four Probe

Report date: Nov 24, 2024 2:24:24 PM

1. Global Definitions

1.1. Parameters

2. Component 1

2.1. Definitions

2.1.1. Coordinate Systems

2.1.2. Shared Properties

2.2. GEOMETRY 1

2.3.2. Blometh Telluride - Bi2Te3

2.4. ELECTRIC CURRENTS

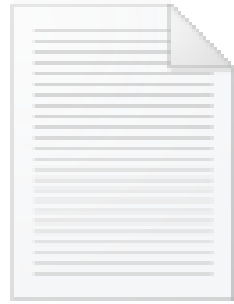
2.4.3. Ground 1

2.4.4. Terminal 1

2.5. HEAT TRANSFER IN SOLIDS

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**The Export Data would be saved in the location of the Report in .txt format.**



PROBE1



PROBE2



Temperature

# What to do next?

- The Voltage data are from second and third probe, take the difference of the voltage data.
- Now calculate the resistivity of the material using Voltage difference.
- Plot the Resistivity vs Temp curve.

# Pros - cons

- The comsol app makes the simulation easier and user friendly.
- Multiple parameters can be changed for the material and data can be uploaded.
- Having COMSOL will be handy to know the physics behind the app and one can clearly make changes.
- One can create their own app by doing minute tweaking and changing GUI in COMSOL.