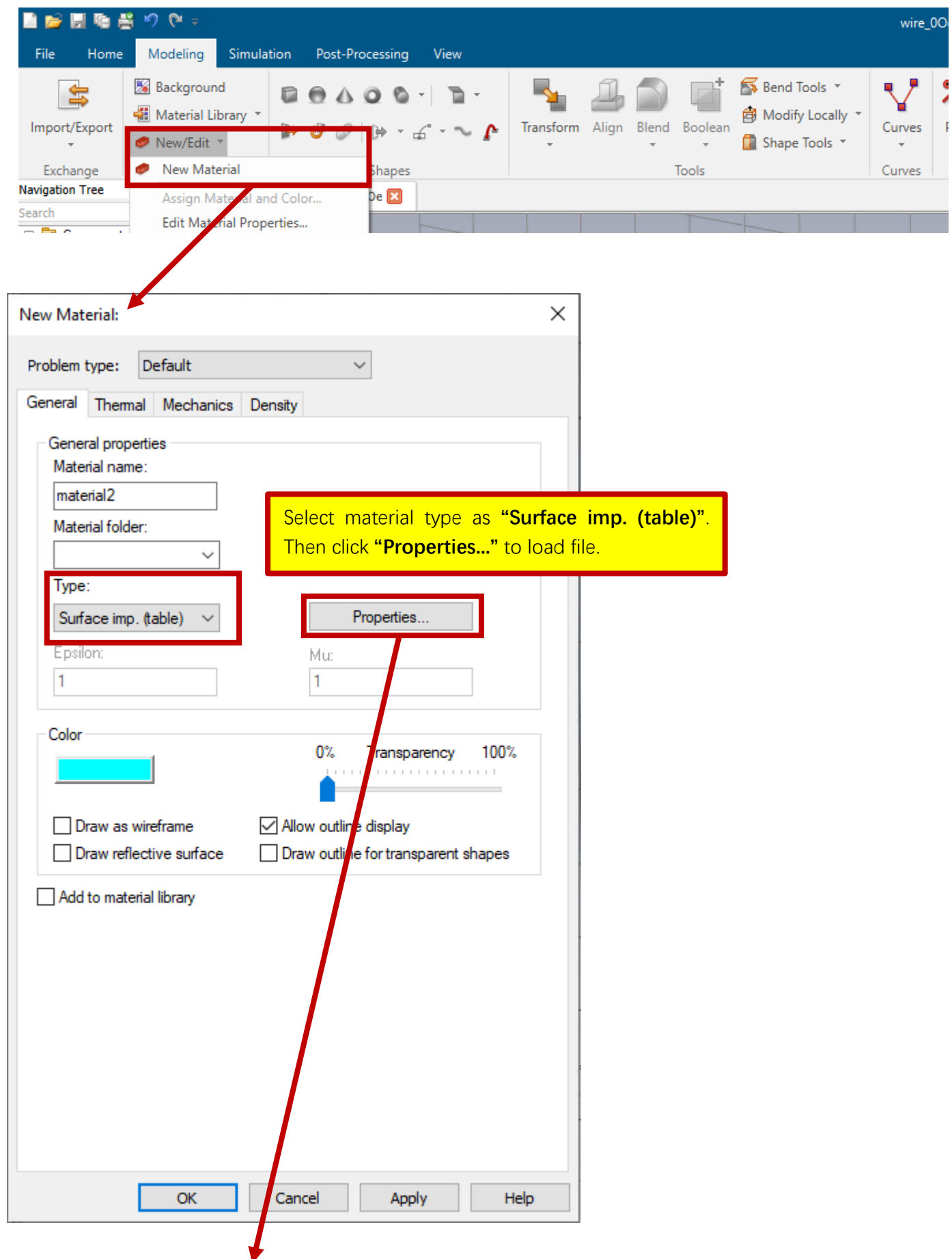


Use of the impedance boundary condition in CST Studio simulations



Tabulated Surface Impedance

Surface impedance

Fitting scheme: nth order

☐ Use data in frequency range

Max. order: 10

Error limit: 0.1

Used order: -

Error: -

☐ Transparent sheets

Details...

| Freq. [GHz] | Resistance [Ohm/s] | Reactance [Ohm/s] | Weight |
|-------------|--------------------|-------------------|--------|
| | | | 1.0 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Load File...

Delete

Clear List

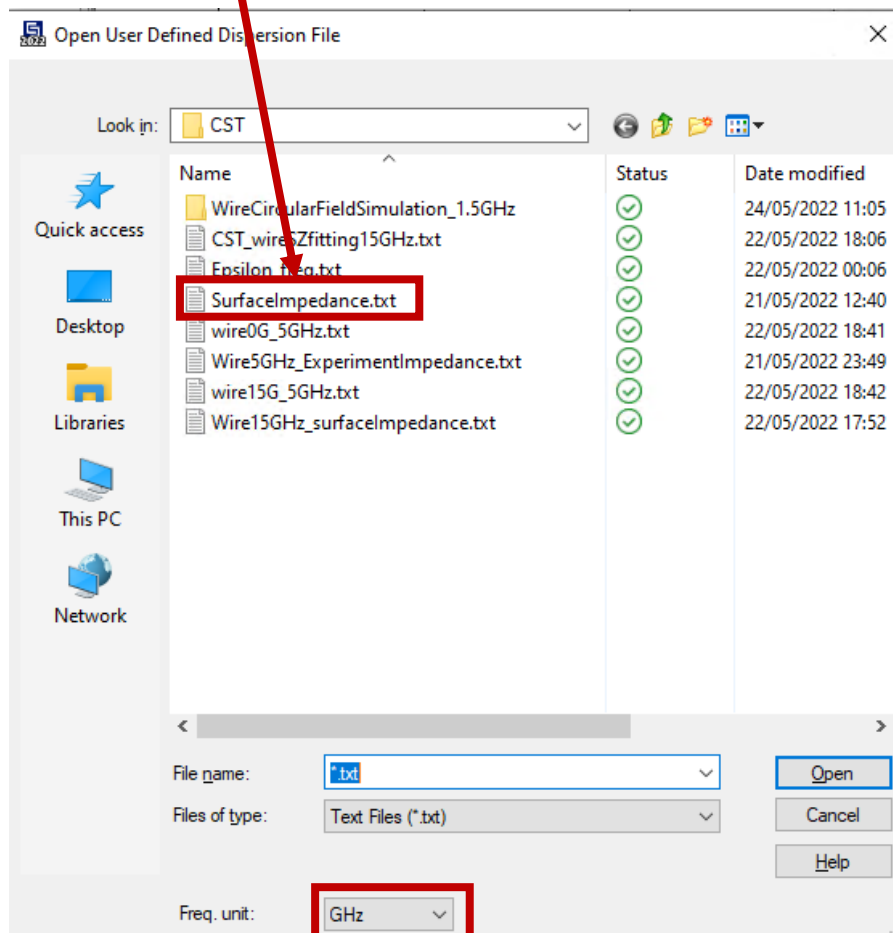
OK

Cancel

Apply

Help

Choose your preferred error limit and maximum order (≤ 10 , including the order of the poles in the resonance terms). Then load your surface impedance file (txt format) with three columns: **Frequency**, **Real Part**, **Imaginary Part**. For each value of the external stimulus (field, stress, temperature), you must define "a new material" (starting from Step 1 in this manual) with the corresponding file. The surface impedance is recalculated from the experimental impedance according to the equation (SI units) provided in the manuscript.



Choose the frequency unit for your surface impedance file. We used Hz.

Tabulated Surface Impedance

Surface impedance

Fitting scheme: nth order ☐ Use data in frequency range

Max. order: Error limit:

Used order: Error:

☐ Transparent sheets Details...

| Freq. [GHz] | Resistance [Ohm/s] | Reactance [Ohm/s] | Weight |
|-------------|--------------------|-------------------|--------|
| 4.994271 | 0.642098325 | -0.361836687 | 1.0 |
| 4.997872 | 0.640097484 | -0.365369448 | 1.0 |
| 5.001472 | 0.655185144 | -0.355452513 | 1.0 |
| | | | 1.0 |

Load File... Delete Clear List

OK Cancel Apply Help

Click **"Apply"** to see the surface impedance fitting result shown below.

