

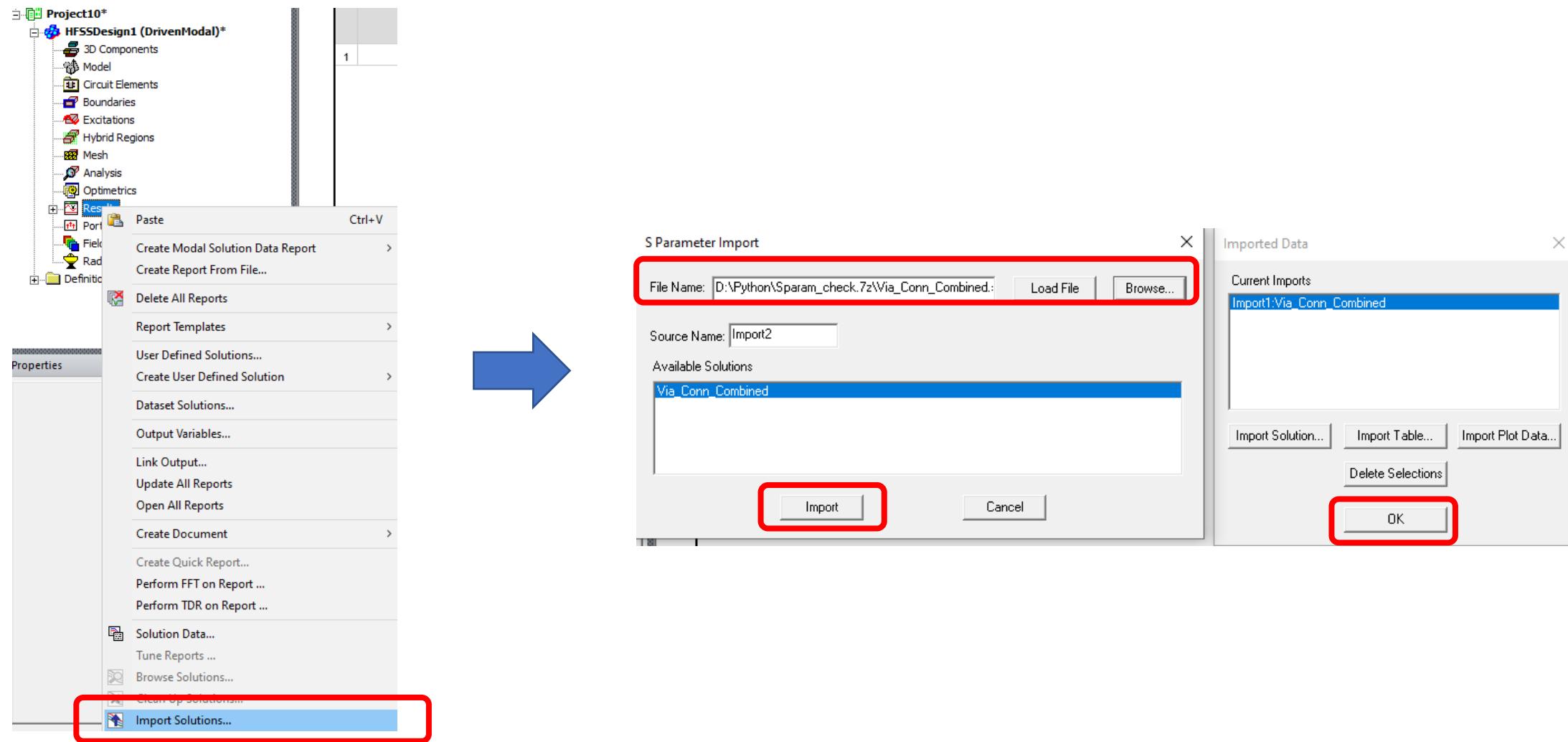
编辑公式将S参数转为RLC

Ansys

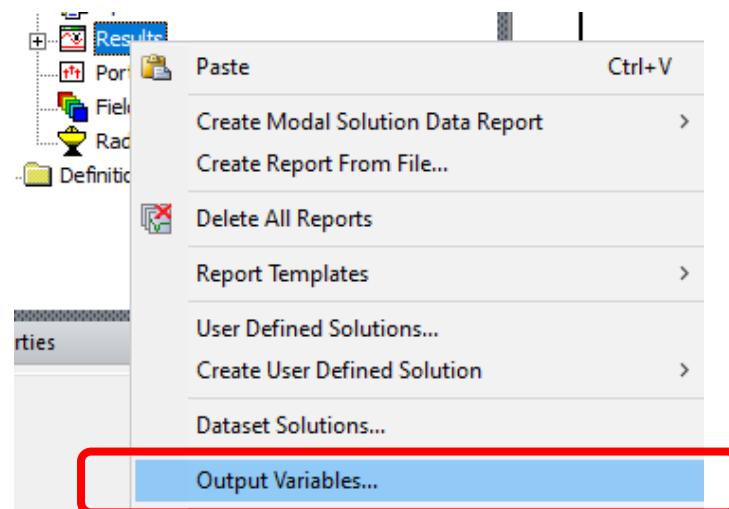
Yang Zhao

2020.12.08

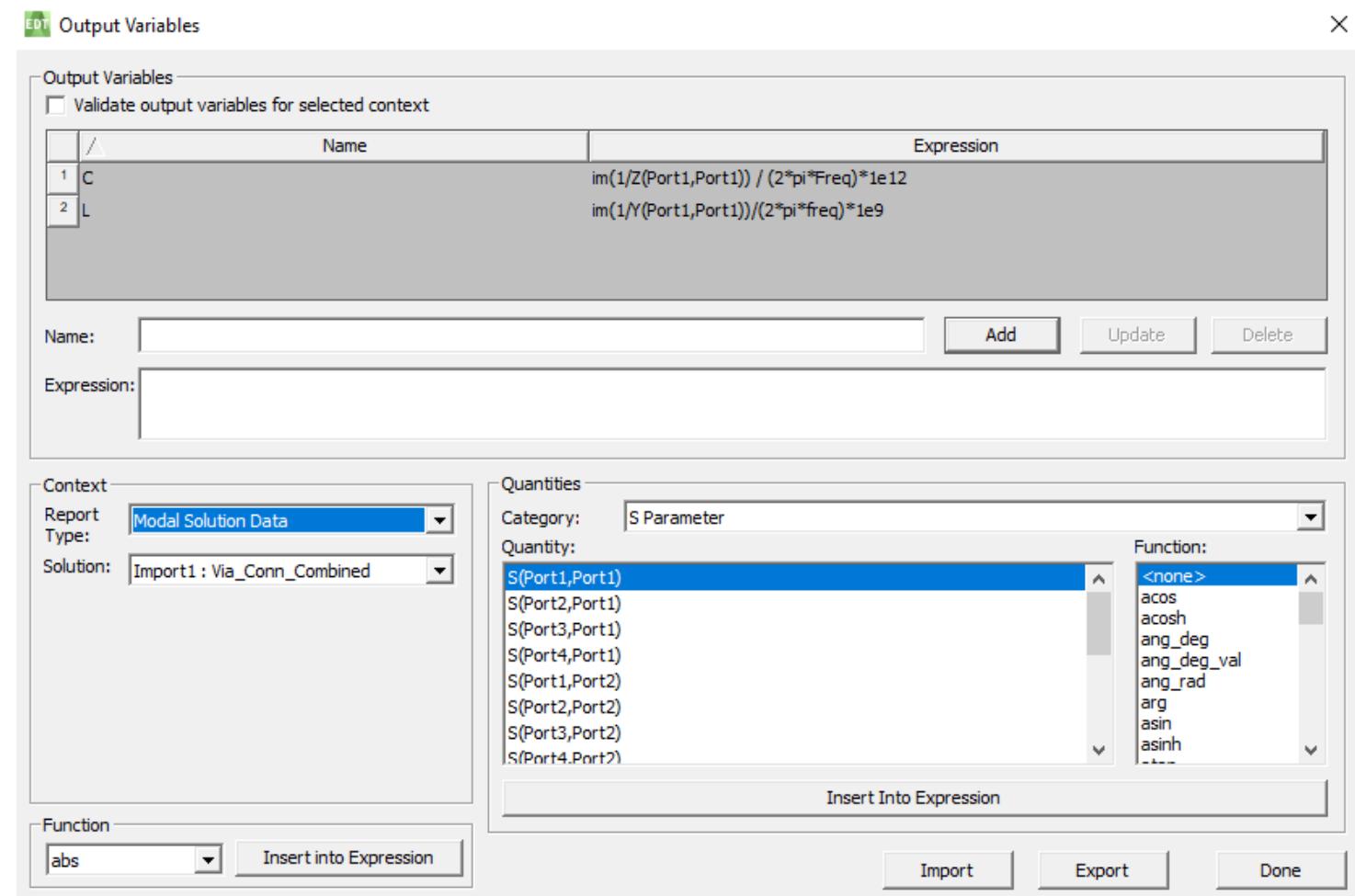
Step1, 新建HFSS工程（空的工程）, Import Solution导入S参数



Step2, Results中右键选择Output Variables



Step3, 编辑公式



Below equations are used for computing RLGC sub-circuit values:

$$L = \text{im}(1/Y(1,1)) / (2\pi F) * 1e9 \quad (\text{in nH})$$

$$R = \text{re}(1/Y(1,1)) \quad (\text{in Ohms})$$

$$C = \text{im}(1/Z(1,1)) / (2\pi F) * 1e12 \quad (\text{in pF})$$

$$G = \text{re}(1/Z(1,1)) * 1e3 \quad (\text{in mS})$$

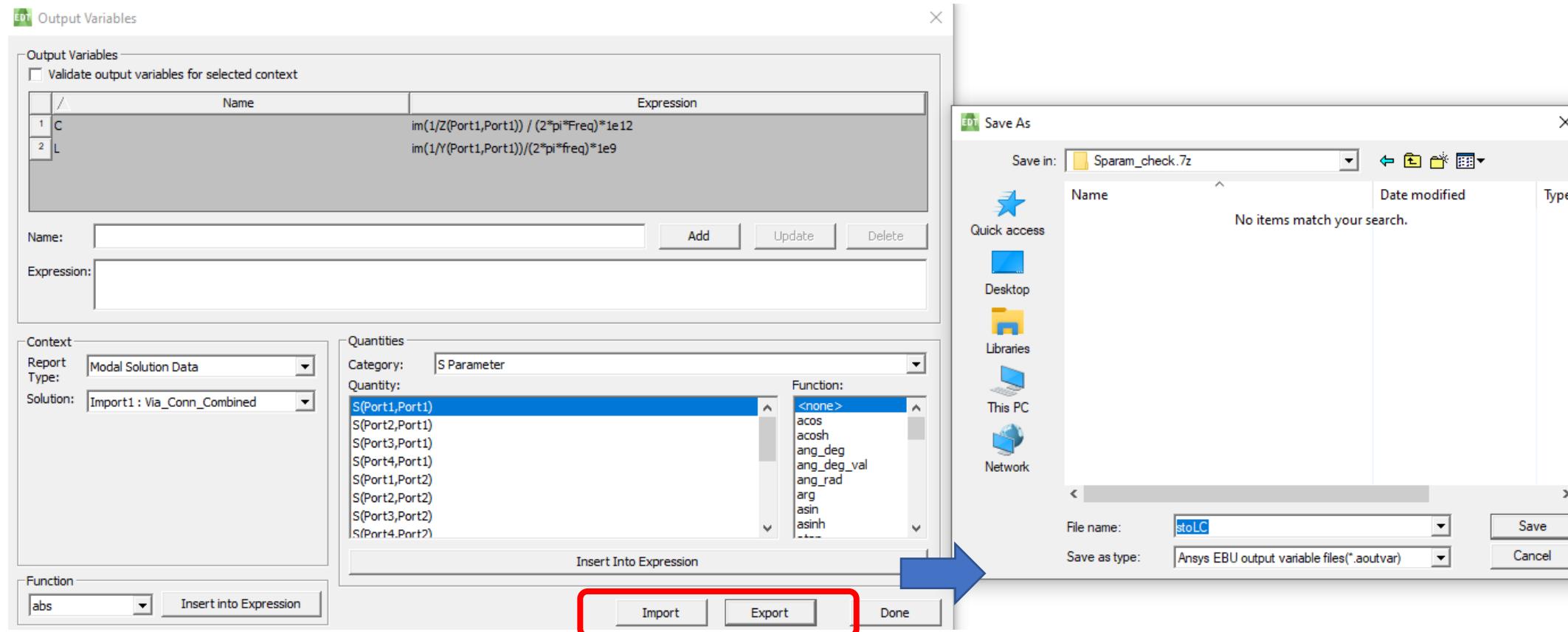
Step4, 查看结果：选择Data Table, 或者Plot, 选择需要的频率点

The screenshot shows the HFSS software interface with the following components:

- Left Sidebar:** Contains icons for 3D Components, Model, Circuit Elements, Boundaries, Excitations, Hybrid Regions, Mesh, Analysis, Optimetrics, and Results. Under Results, there is an **Output Variables Table 1** node expanded, showing entries for C and L.
- Top Bar:** Shows standard menu items like Paste (Ctrl+V), Create Modal Solution Data Report, Create Report From File..., Delete All Reports, and Report Templates.
- Contextual Menu (Open at Top Bar):** Options include Rectangular Plot, Rectangular Stacked Plot, Polar Plot, Data Table (selected), and Smith Chart.
- Report Window:** Titled "Report: Project10 - HFSSDesign1 - New Report - New Trace(s)". It shows a list of variables under "Variables" (Output Variables, S Parameter, Y Parameter, Z Parameter, VSWR, Gamma, Port Zo) and categories L and C under "Function: <none>". The "Primary Sweep" is set to Freq at 4.41GHz. A dropdown menu for frequency selection is open, with the value 4.41GHz highlighted. Other options in the dropdown include 4.32GHz, 4.33GHz, 4.34GHz, 4.35GHz, 4.36GHz, 4.37GHz, 4.38GHz, 4.39GHz, 4.4GHz, and 4.41GHz.
- Data Table View:** A table titled "Import1 : Via_Conn_Combined" showing the following data:

	Freq [GHz]	C	L
1	1.000000	1.984878	5.279722

Step5, Export公式，方便下次直接Import



```
1 L1 'im(1/Y(Port1,Port1))/ (2*pi*freq)*1e9' Double '' dBTypeDoesntCare
2 C1 'im(1/Z(Port1,Port1)) / (2*pi*Freq)*1e12' Double '' dBTypeDoesntCare
3 L2 'im(1/Y(Port2,Port2))/ (2*pi*freq)*1e9' Double '' dBTypeDoesntCare
4 C2 'im(1/Z(Port2,Port2)) / (2*pi*Freq)*1e12' Double '' dBTypeDoesntCare
```

可以直接在保存的公式文档中直接文本复制和修改，来增加多个Port