Ratrace

November 10, 2024

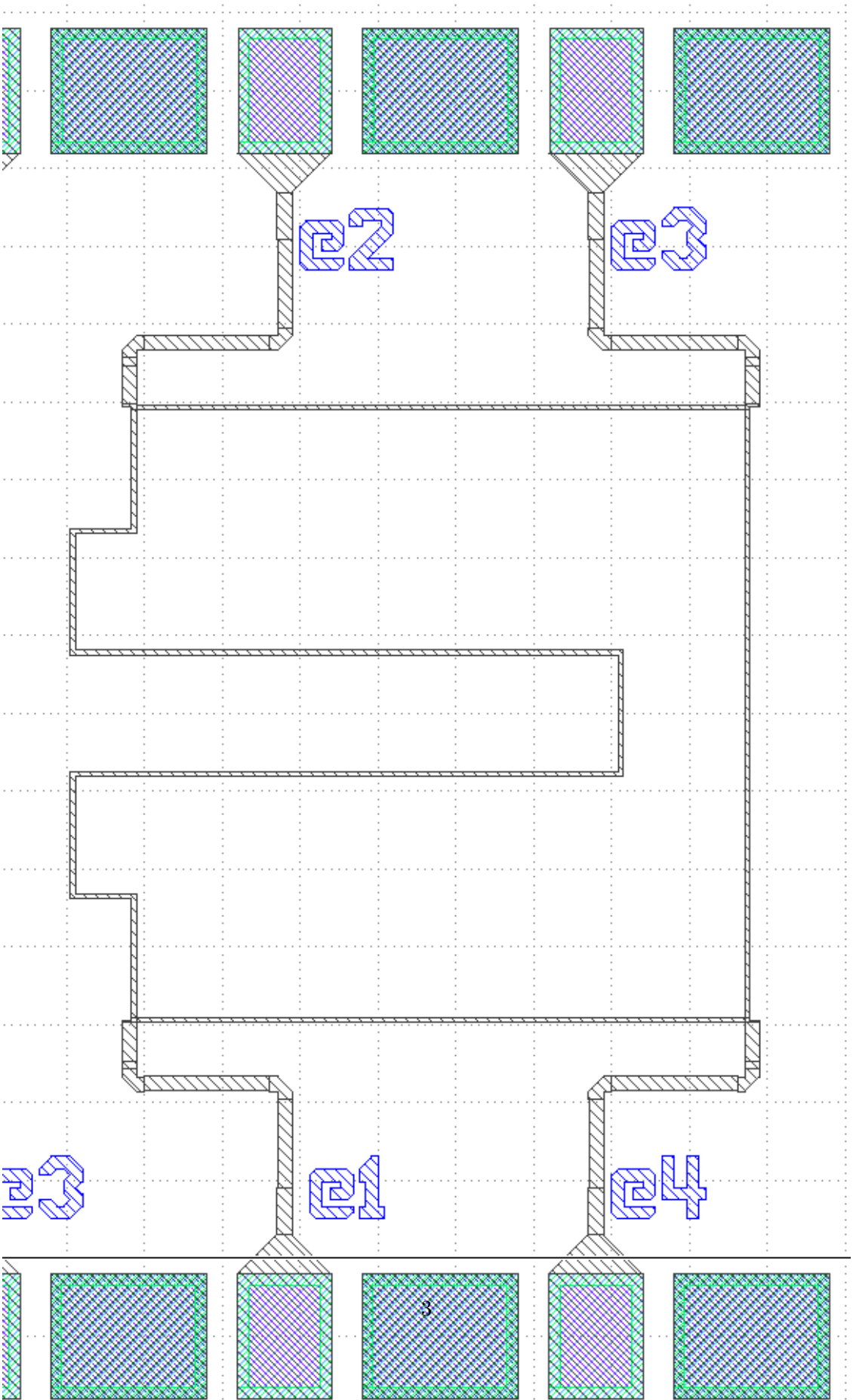
[1]:
```
import skrf
import numpy as np
from matplotlib import pyplot as plt
%matplotlib inline

import warnings
import glob

warnings.filterwarnings("ignore", category=RuntimeWarning)

plt.rcParams["figure.figsize"] = [12,10]
```

1 Ratrace Port Labels



2 Ratrace G4

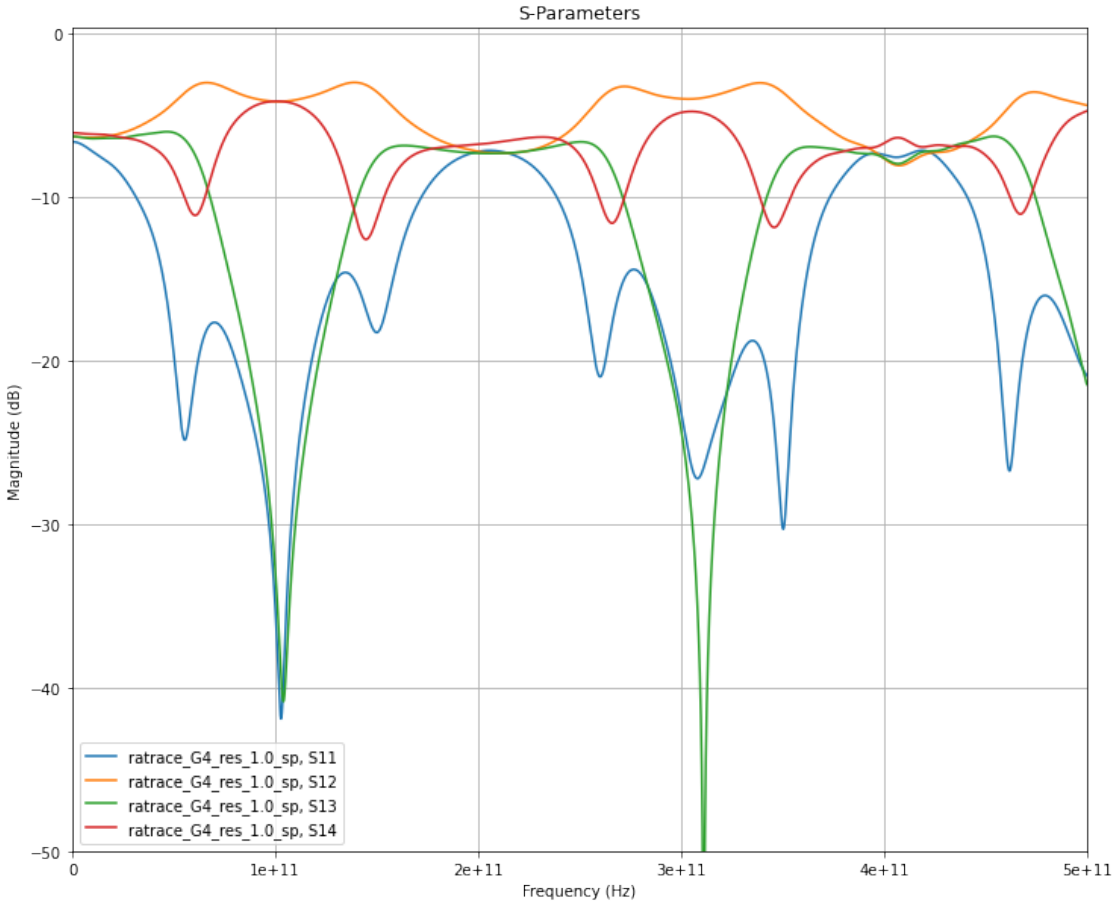
- branch_length = 400

[2]:
```
net = skrf.Network("ratrace_G4_res_1.0_sp.s4p")
```

[3]:
```
print(net)
```

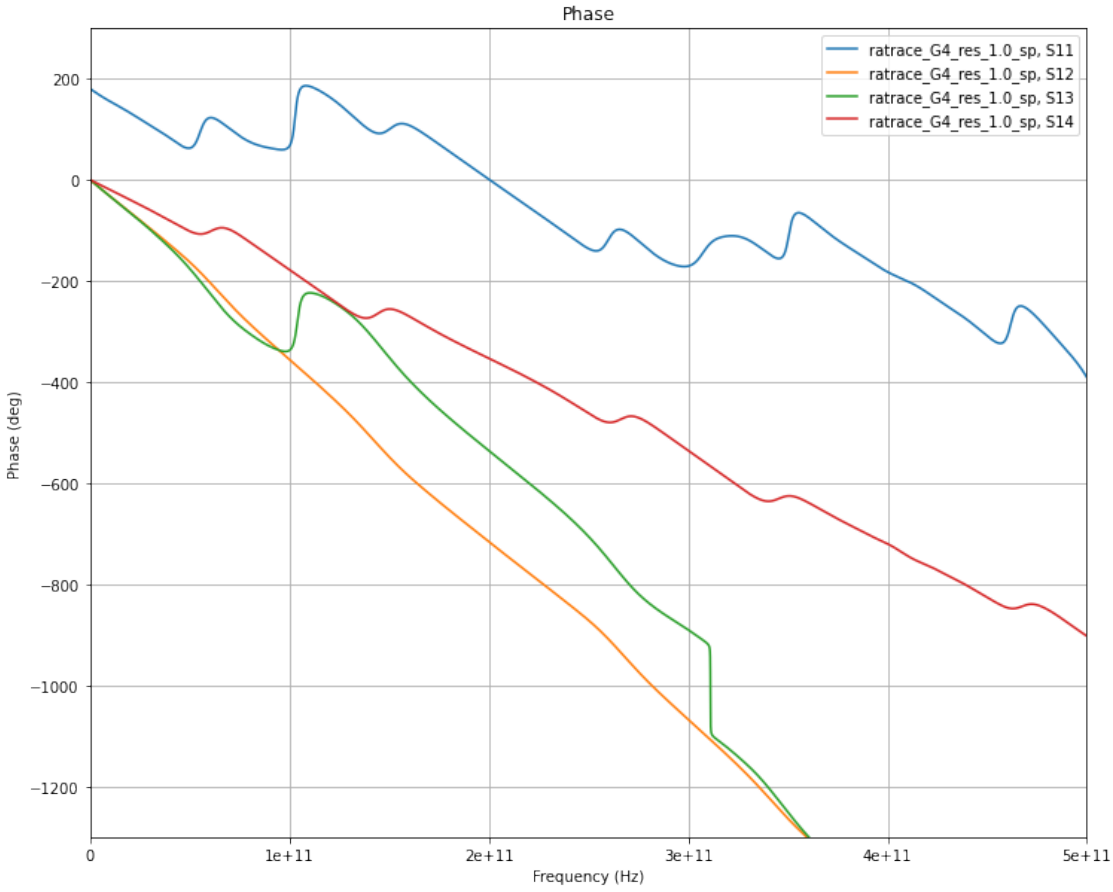
```
4-Port Network: 'ratrace_G4_res_1.0_sp',  0.0-500000000000.0 Hz, 20000 pts,
z0=[50.+0.j 50.+0.j 50.+0.j 50.+0.j]
```

[4]:
```
net.plot_s_db(m=0)
plt.grid()
plt.ylim(bottom=-50)
plt.title("S-Parameters")
plt.show()
```

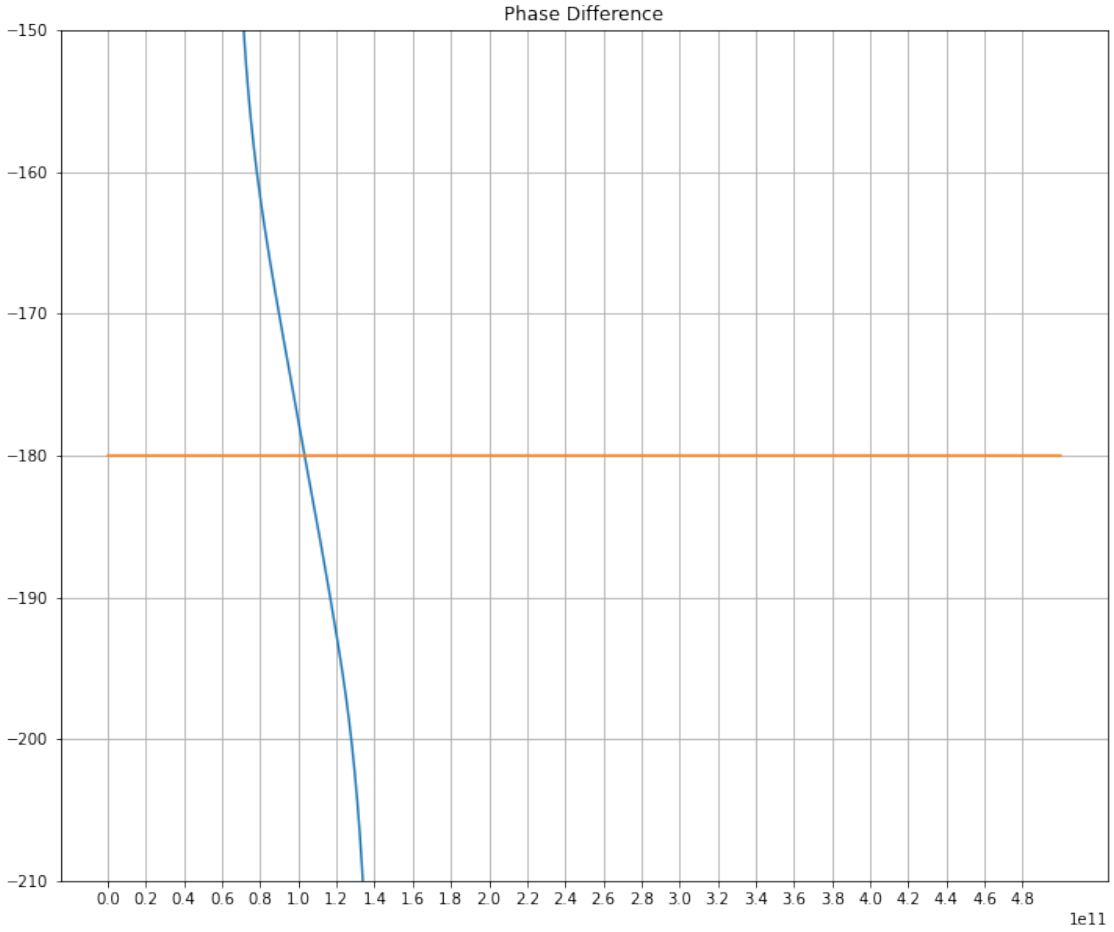


[5]:
```
net.plot_s_deg_unwrap(m=0)
plt.grid()
```

```
plt.ylim(top=300, bottom=-1300)
plt.title("Phase")
plt.show()
```



[6]:
```
x = net.f
y = net.s_deg_unwrap[:,0,1]-net.s_deg_unwrap[:,0,3]
x1 = net.f
y1 = np.full(len(x1),-180)
plt.plot(x,y,x1,y1)
plt.ylim(bottom=-210, top=-150)
plt.grid()
plt.xticks(np.arange(0,5e11,20e9))
plt.title("Phase Difference")
plt.show()
```


Phase Difference
−150
−160
−170
−180
−190
−200
−210
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8
1e11