

DESIGN

90° OPTICAL HYBRID

SEMANA 1

Analise da referencia

Design dos componentes

Esse modelo de híbrida possui 3 componentes básicos

- 3 - MMI 2X2 (Modelo apresentado no trabalho base)
- 1 - Y-Branch (Modelo apresentado em:
A compact and low loss Y-junction for submicron silicon waveguide)
- 4 - 90° Bend (Guia padrão de 4 μm de raio)

Design dos componentes

Estudo de convergencia

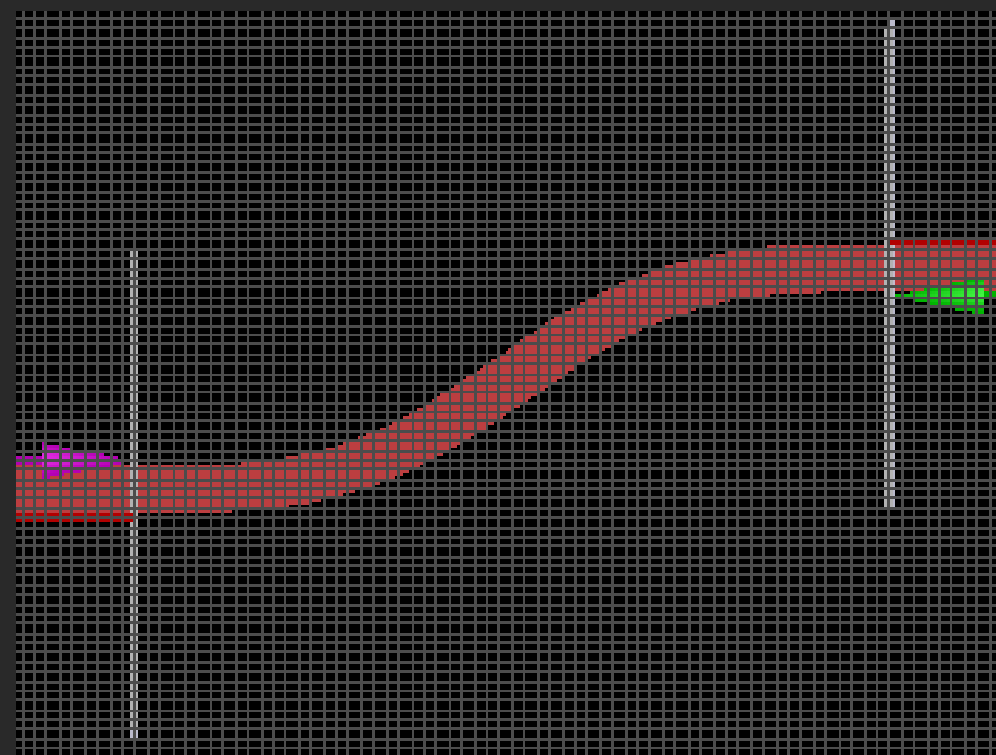
Como nessa etapa não temos como objetivo otimizar o dispositivo, o tempo de simulação não era um fator tão importante, logo, não foi feita análise de convergencia de precisão, todos os dispositivos foram simulados com a maior precisão possível (non-variant mesh 8)

Design dos componentes

Design Buried

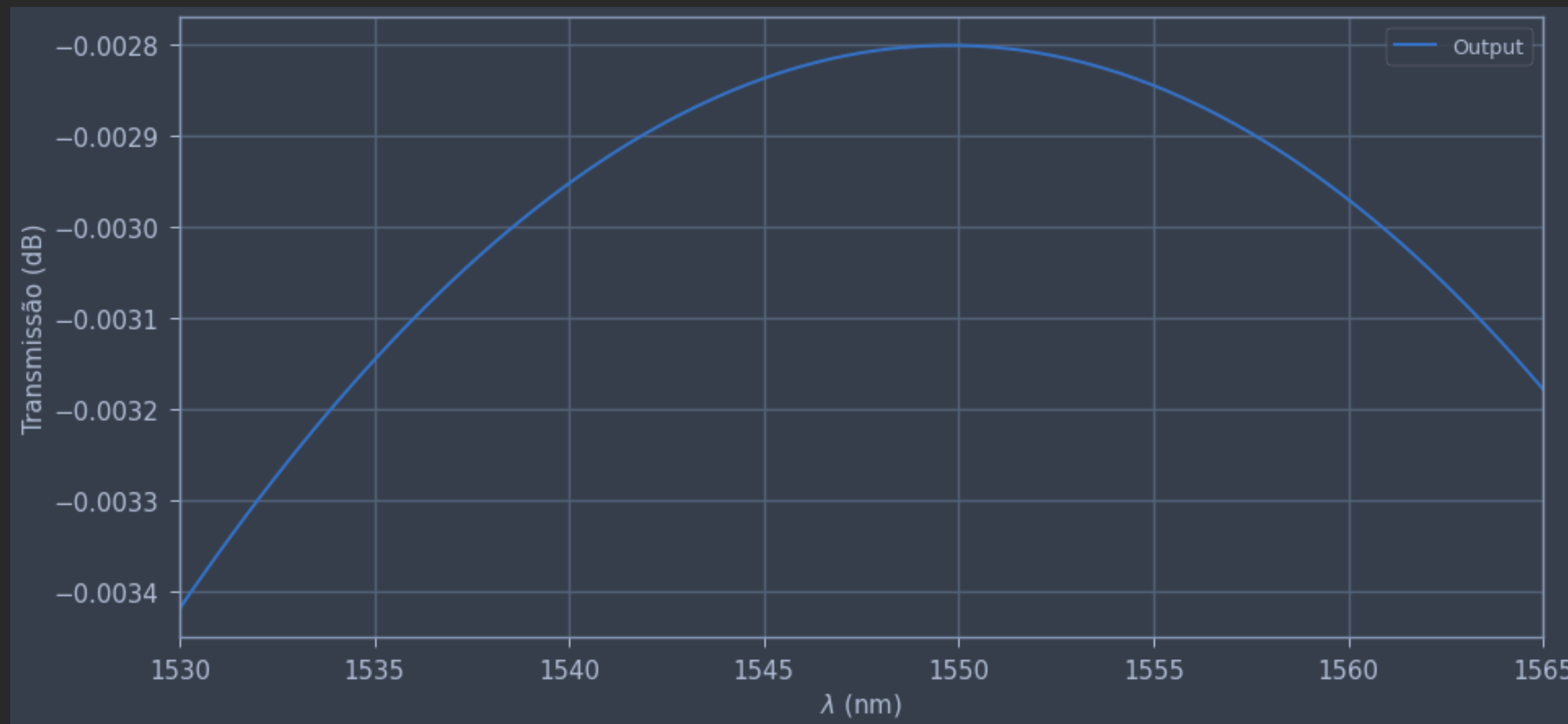
Design dos componentes

Adição do S-bend no MMI



Design dos componentes

Resultados



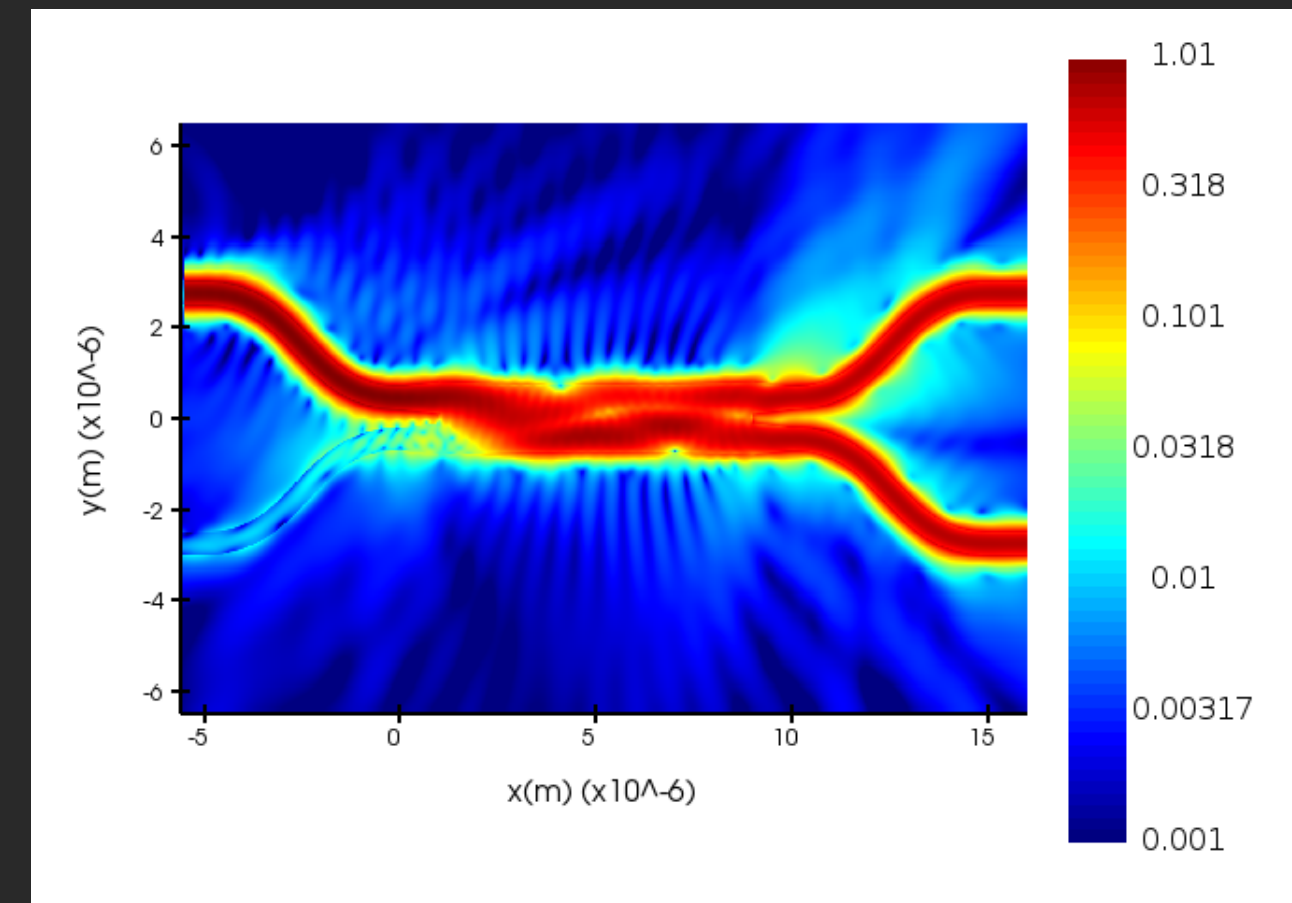
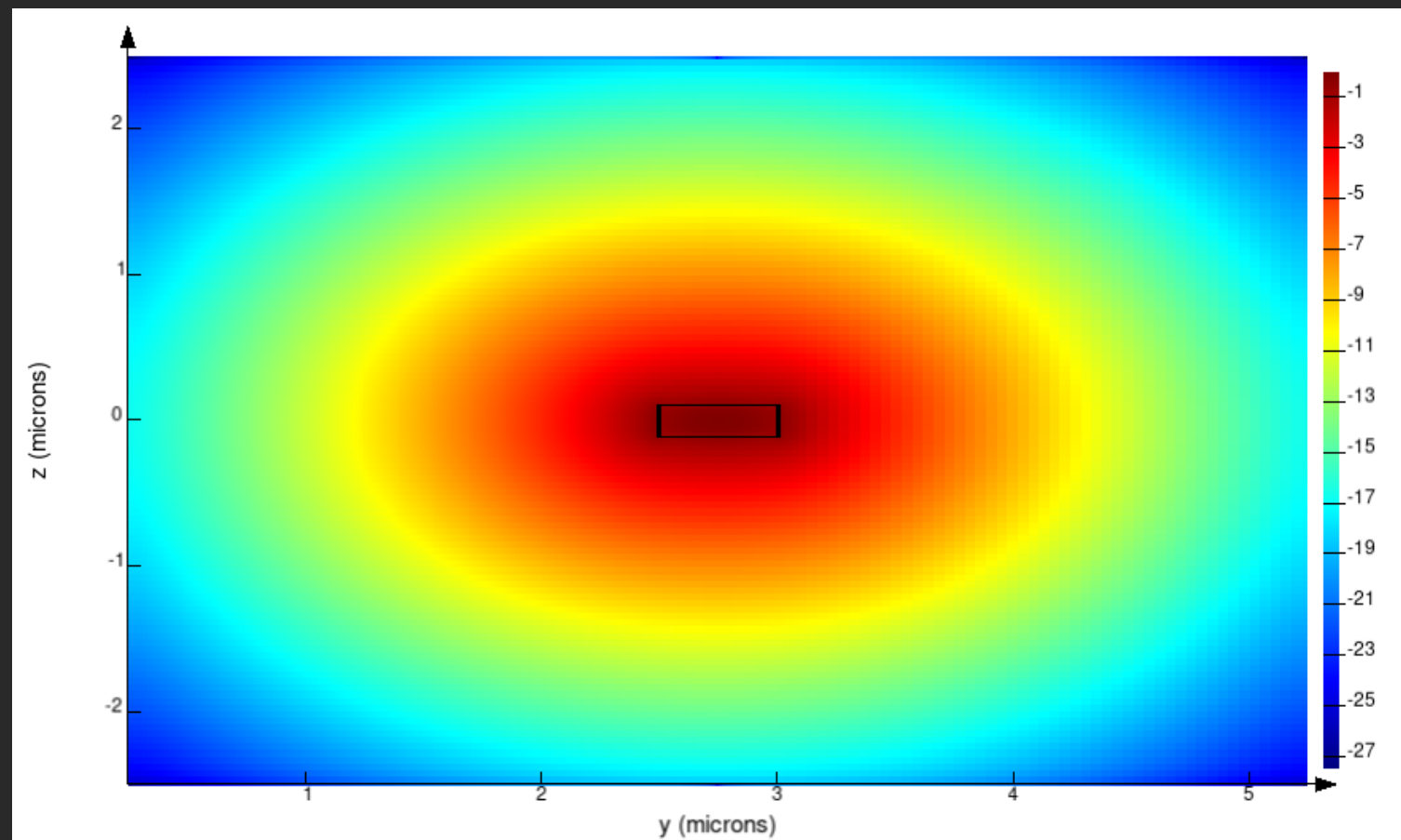
Design dos componentes

Design do MMI



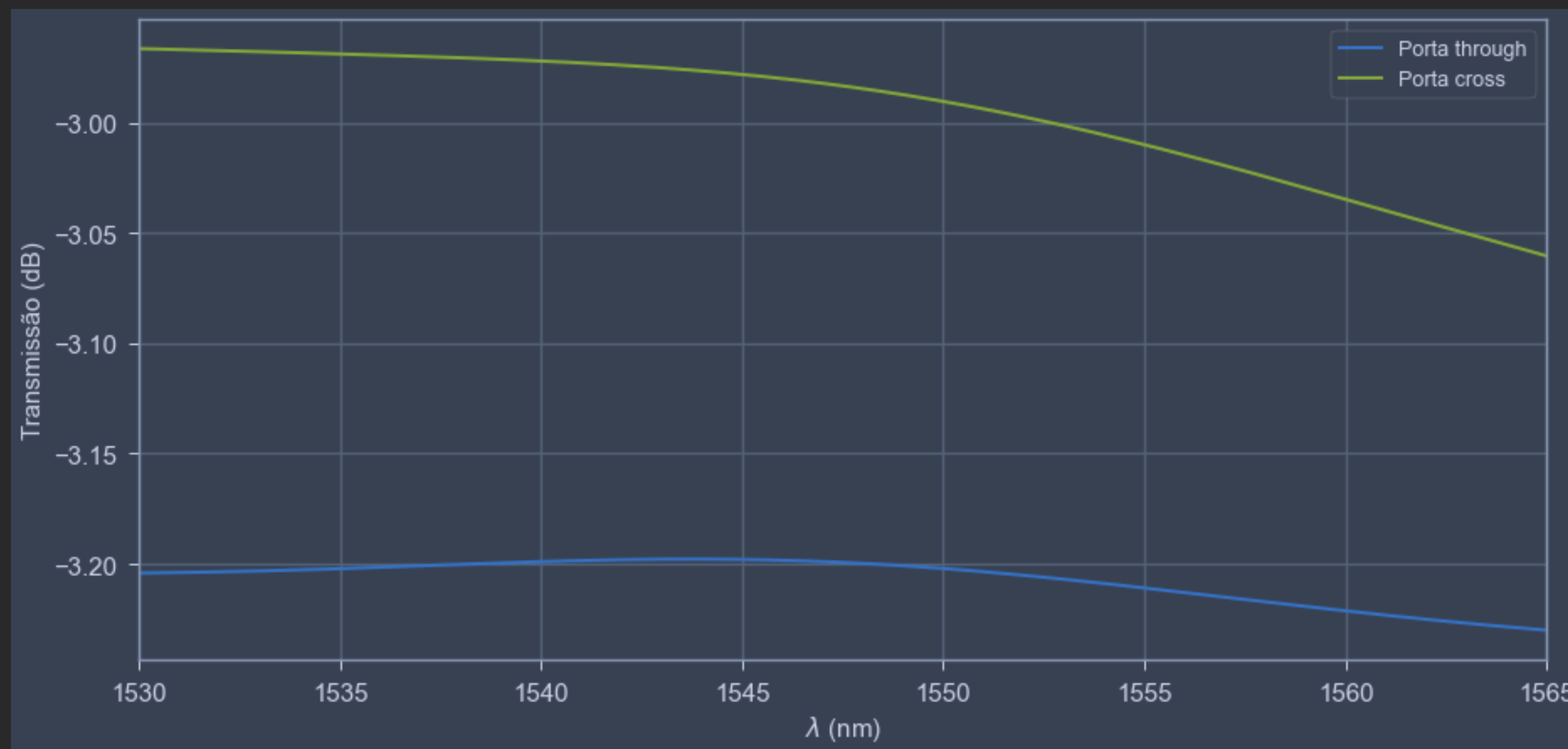
Design dos componentes

Analise do campo na simulação



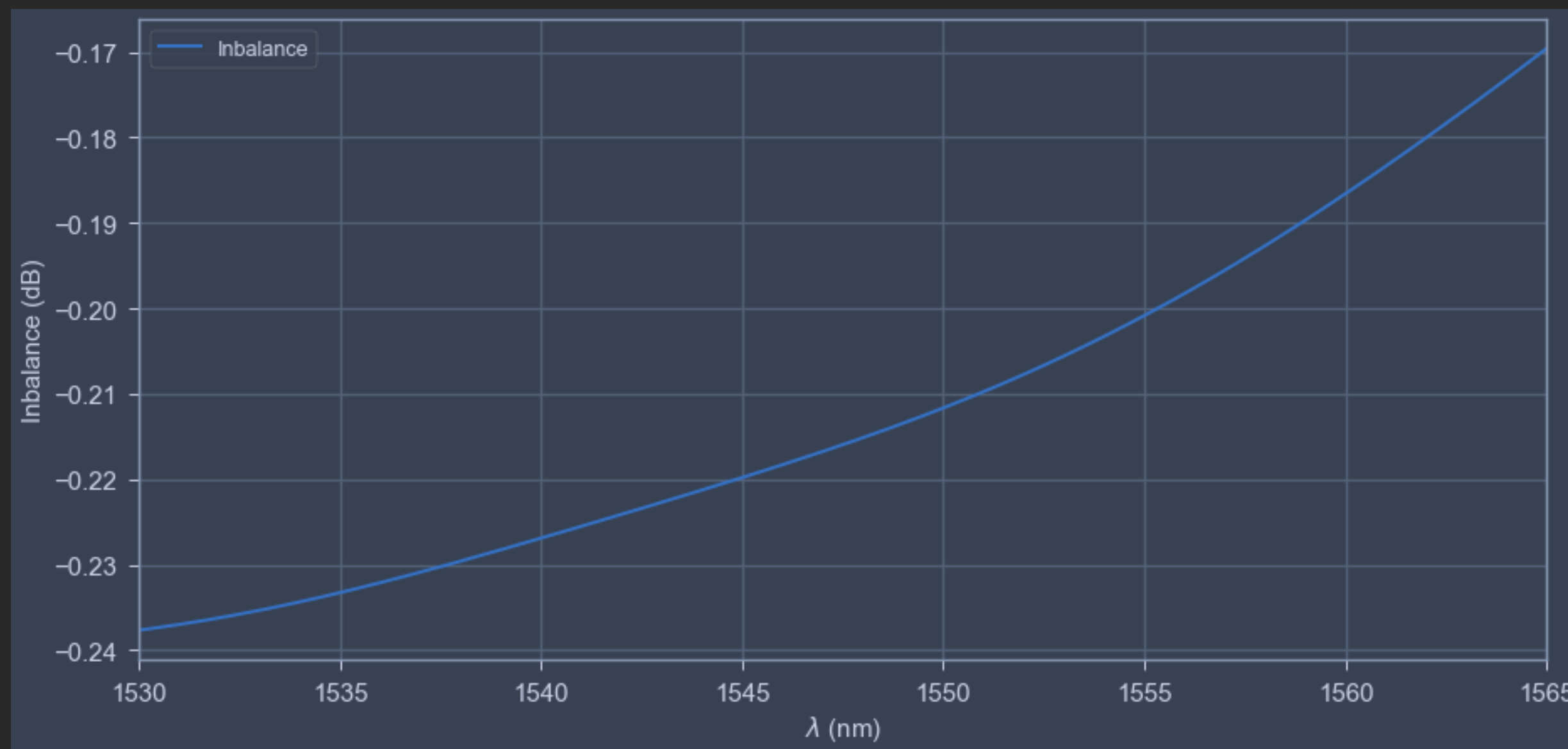
Design dos componentes

Resultados



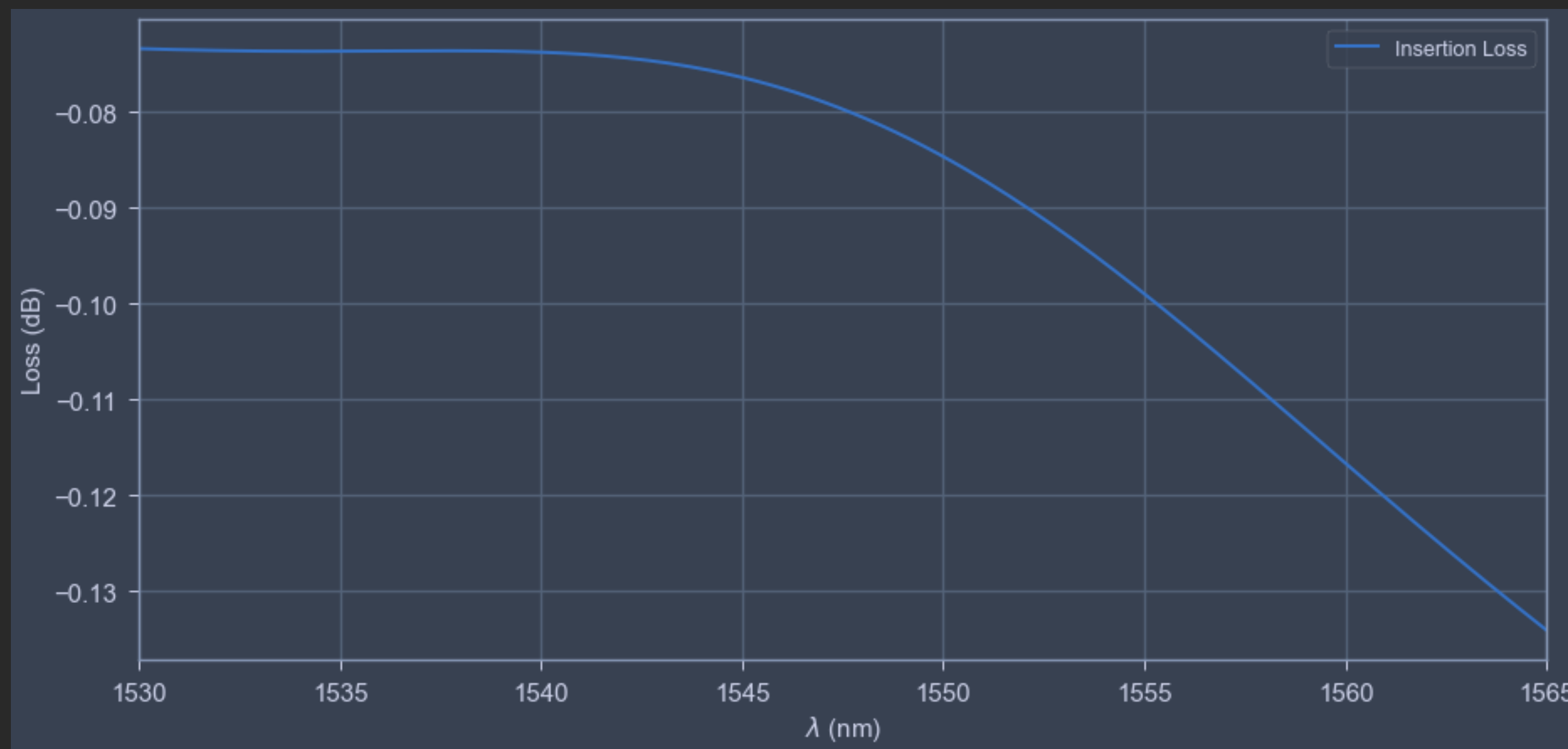
Design dos componentes

Resultados



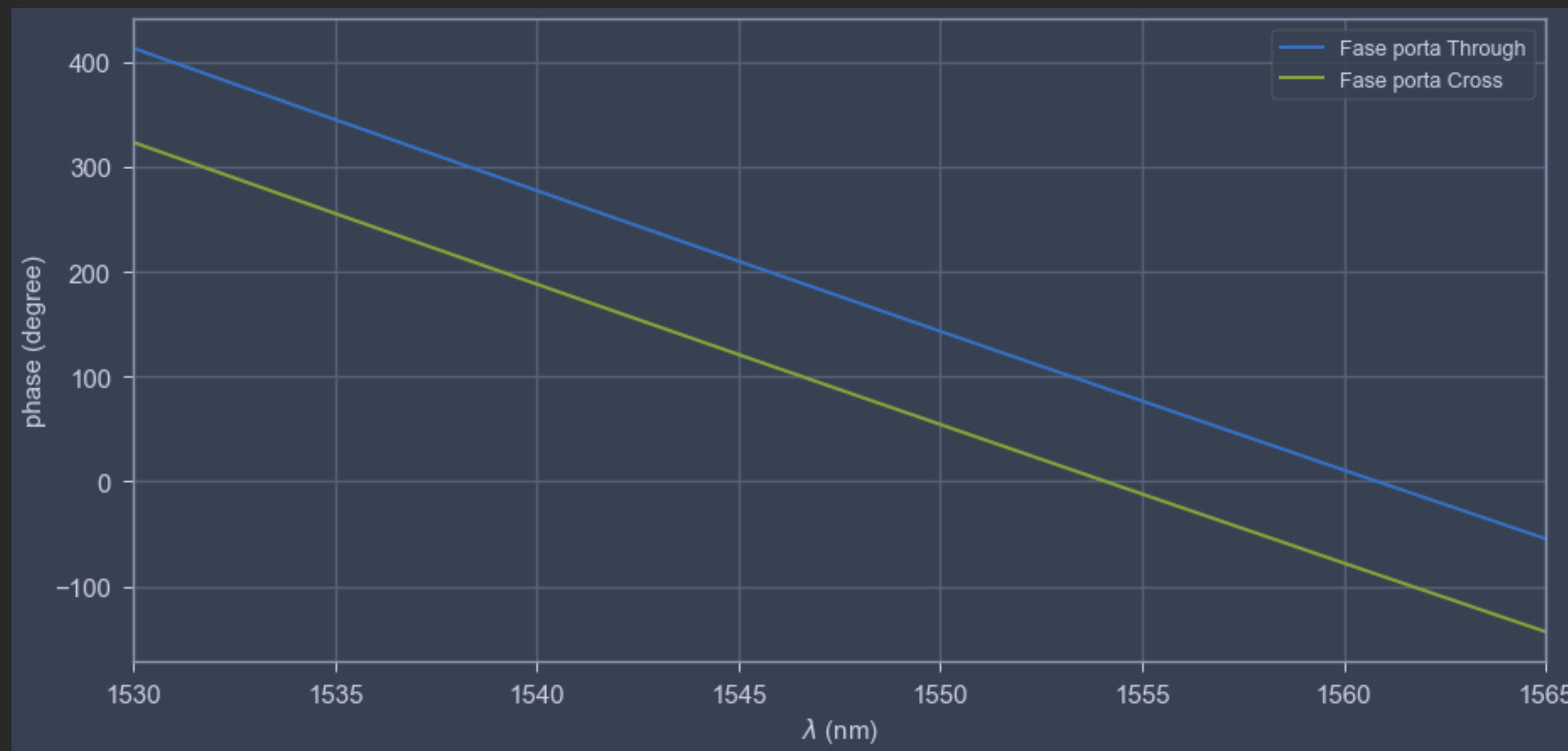
Design dos componentes

Resultados



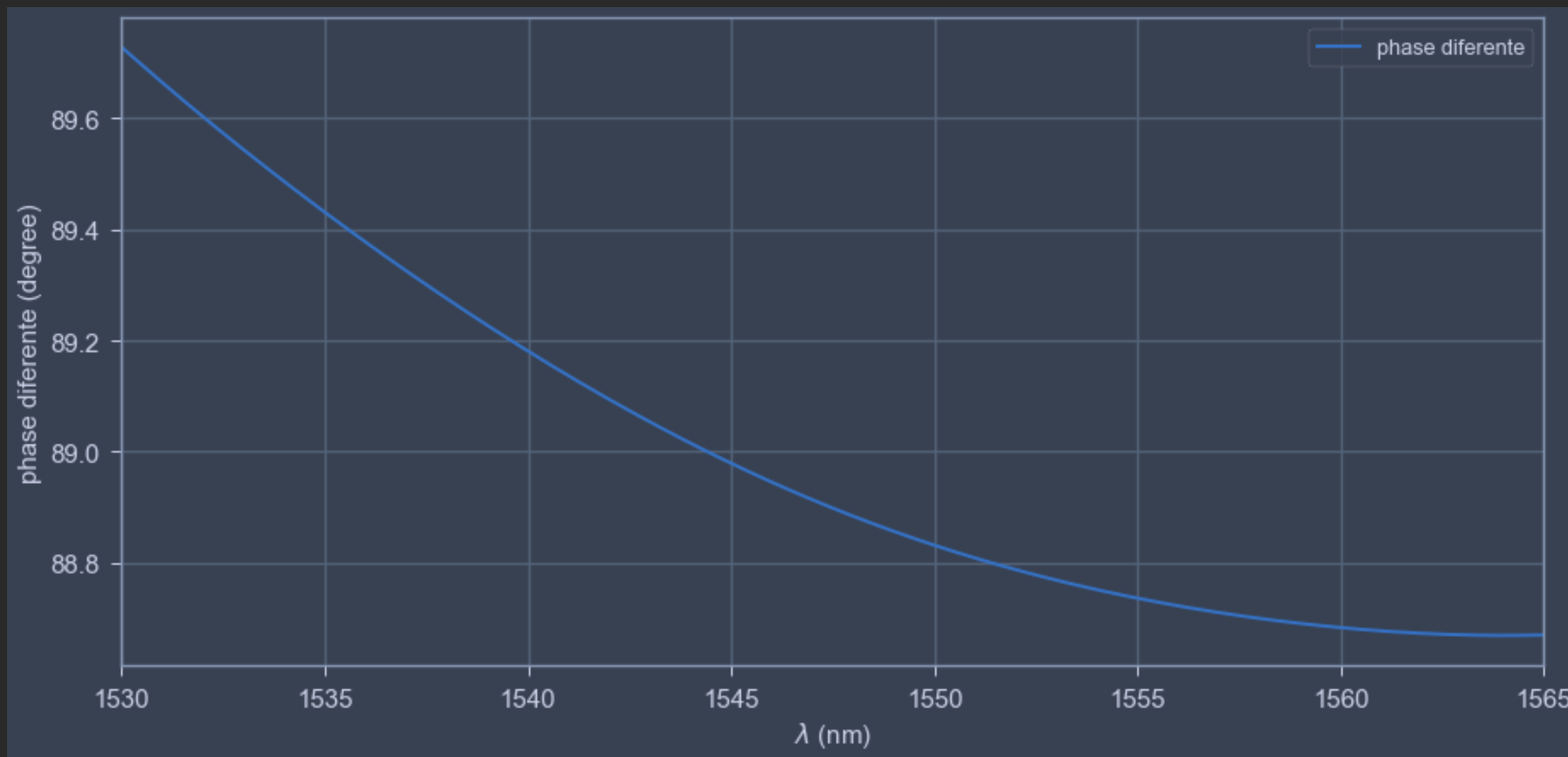
Design dos componentes

Resultados



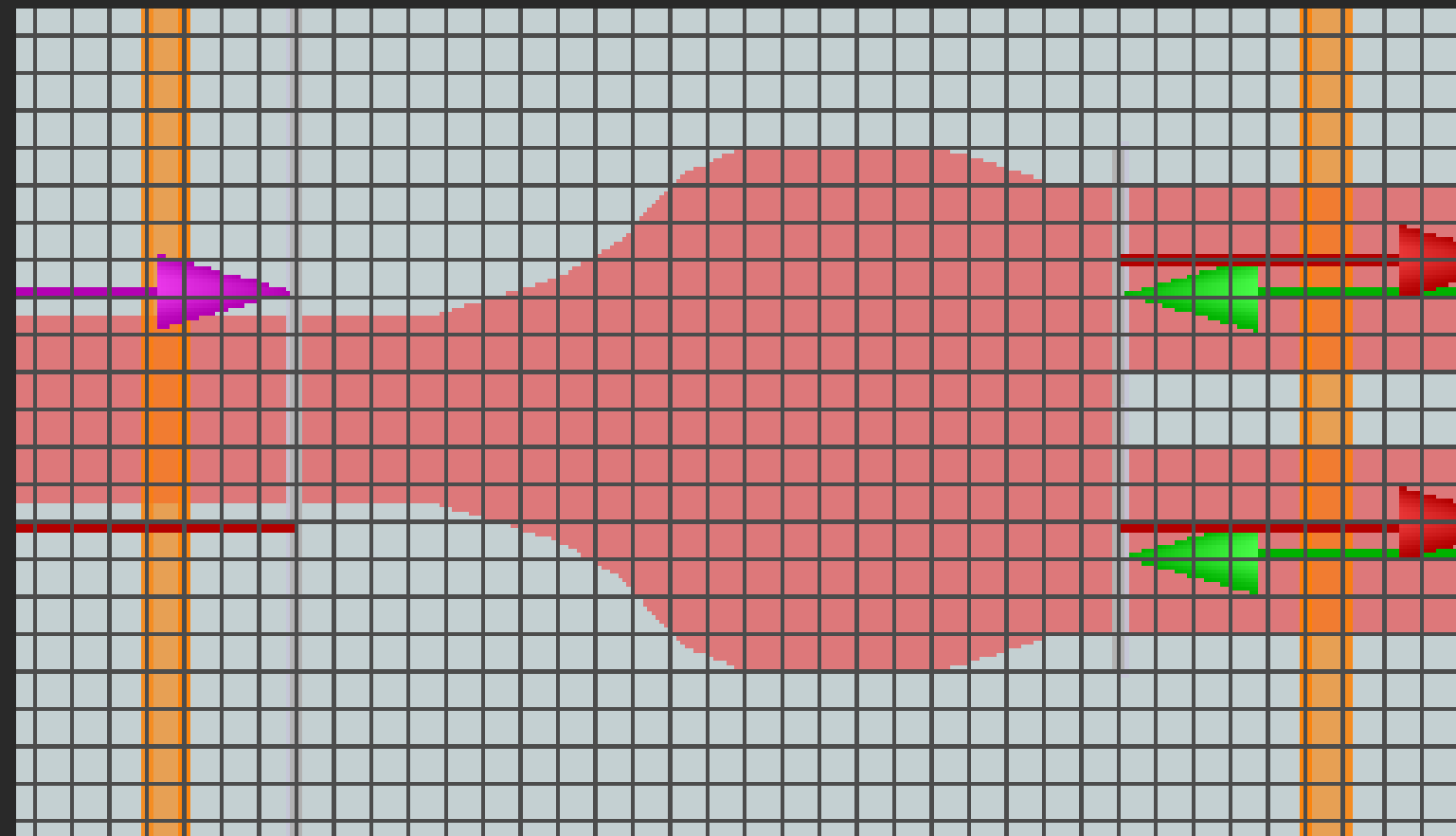
Design dos componentes

Resultados



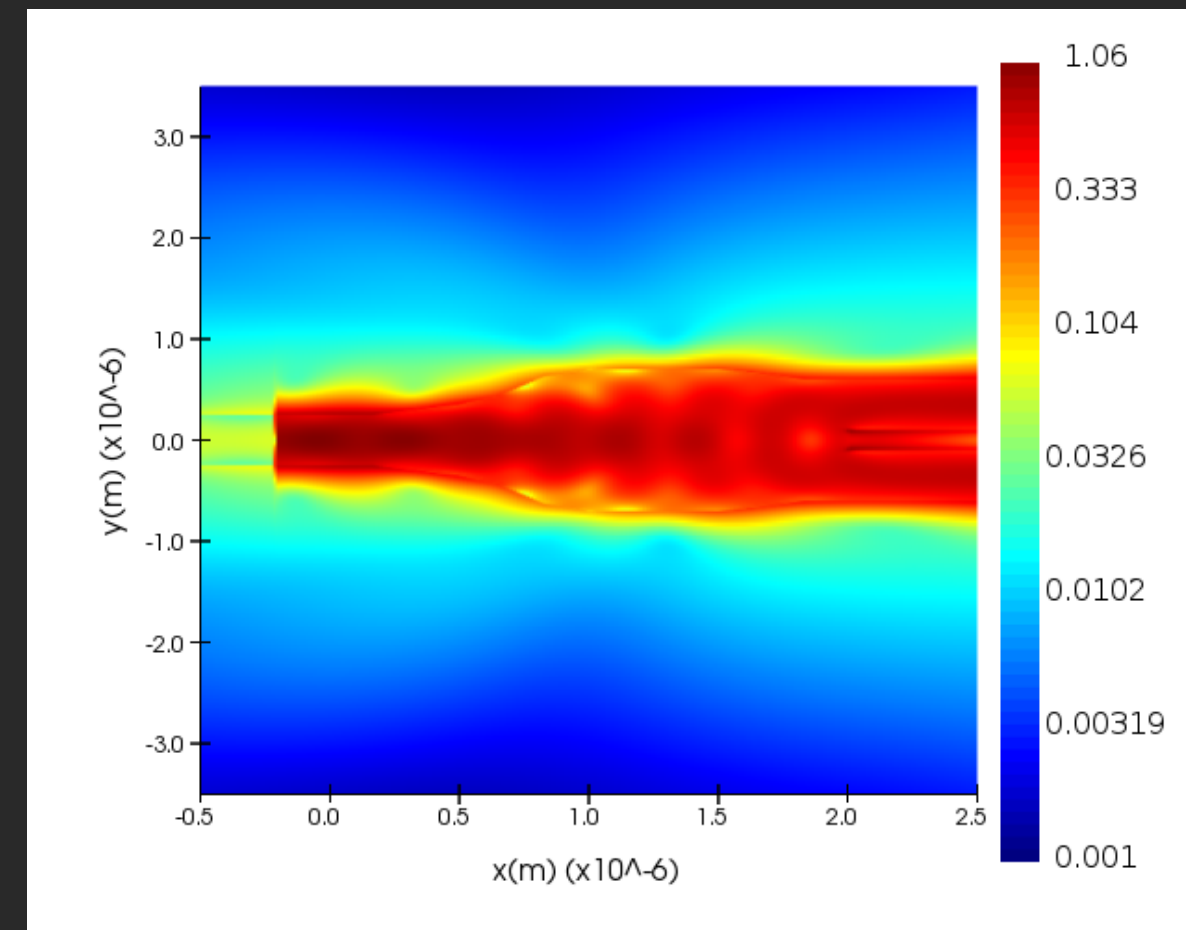
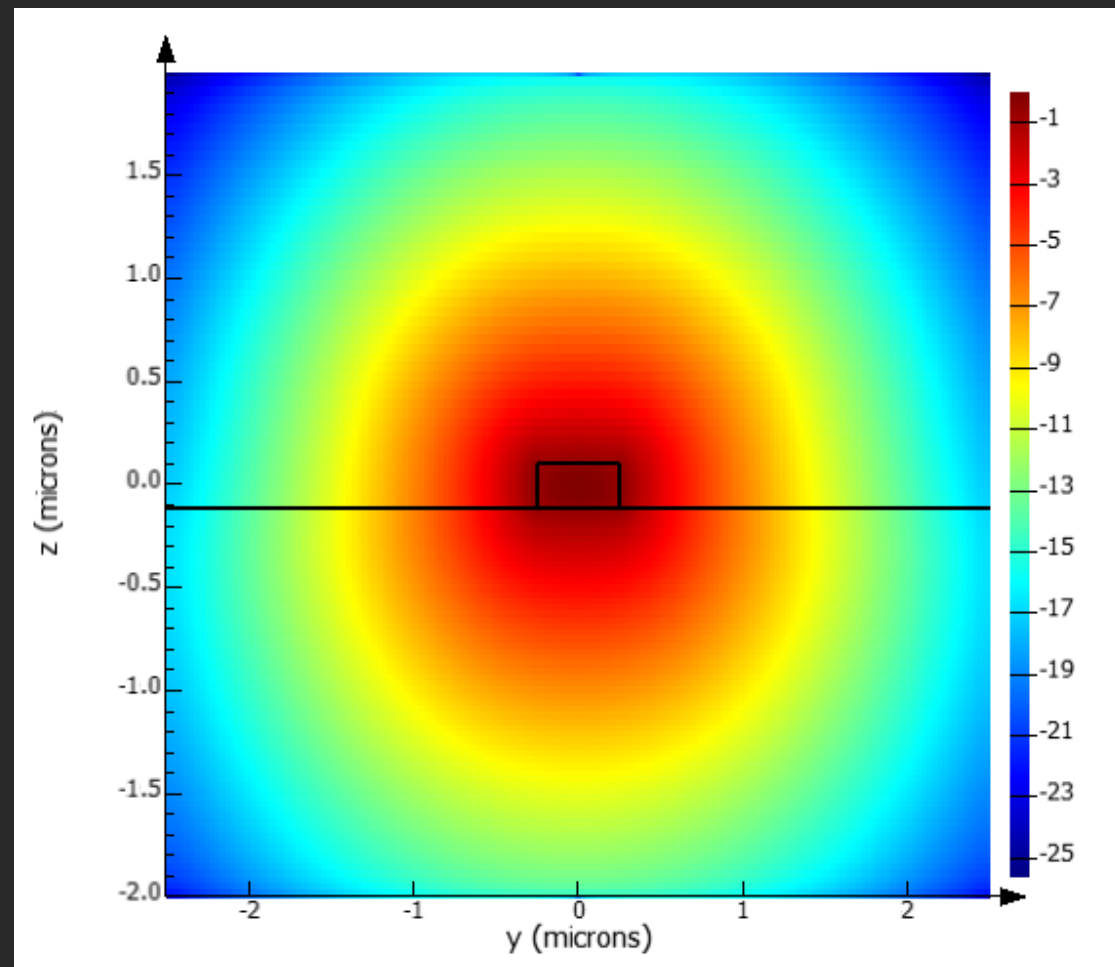
Design dos componentes

Design do Ybranch



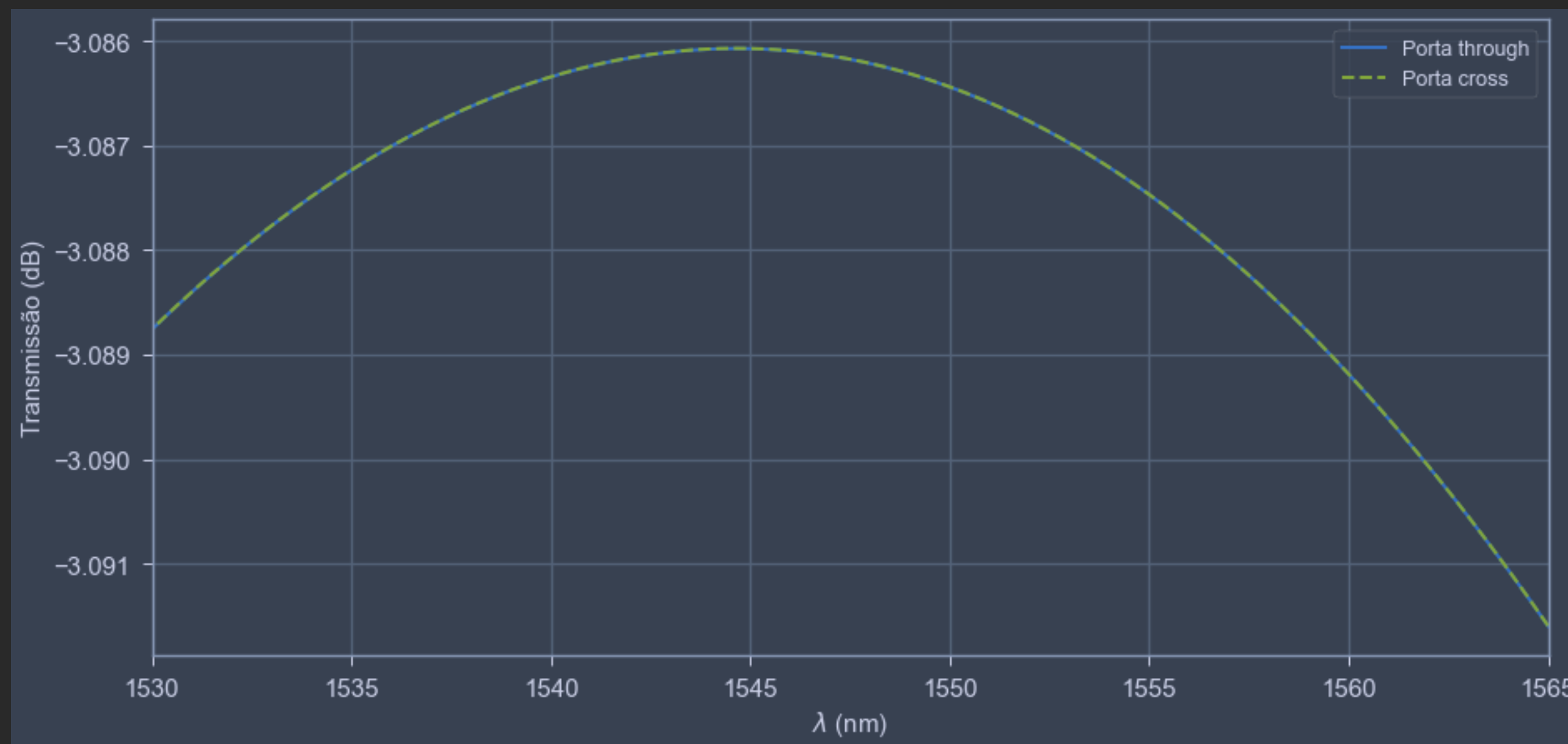
Design dos componentes

Design do Ybranch



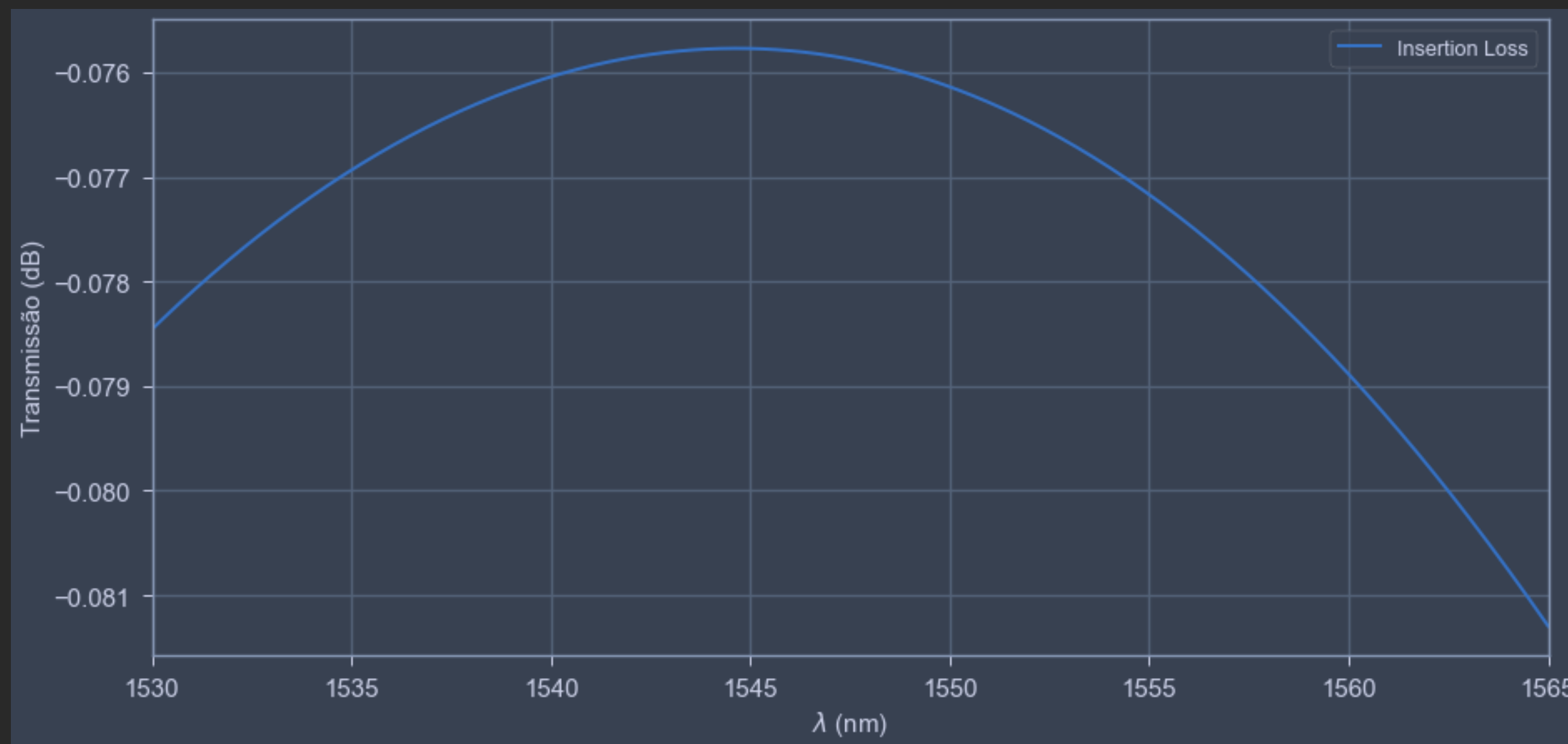
Design dos componentes

Resultados



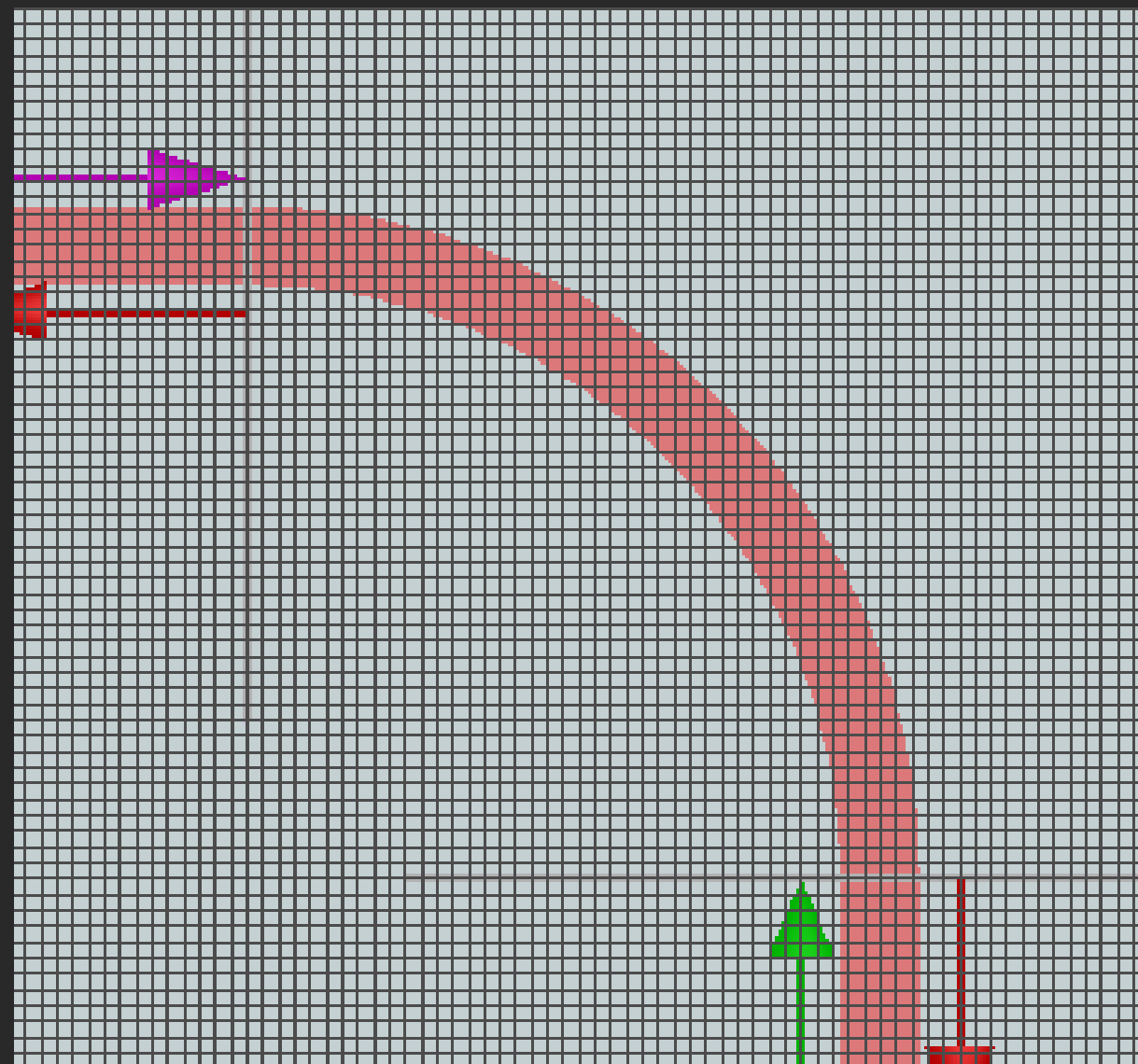
Design dos componentes

Resultados



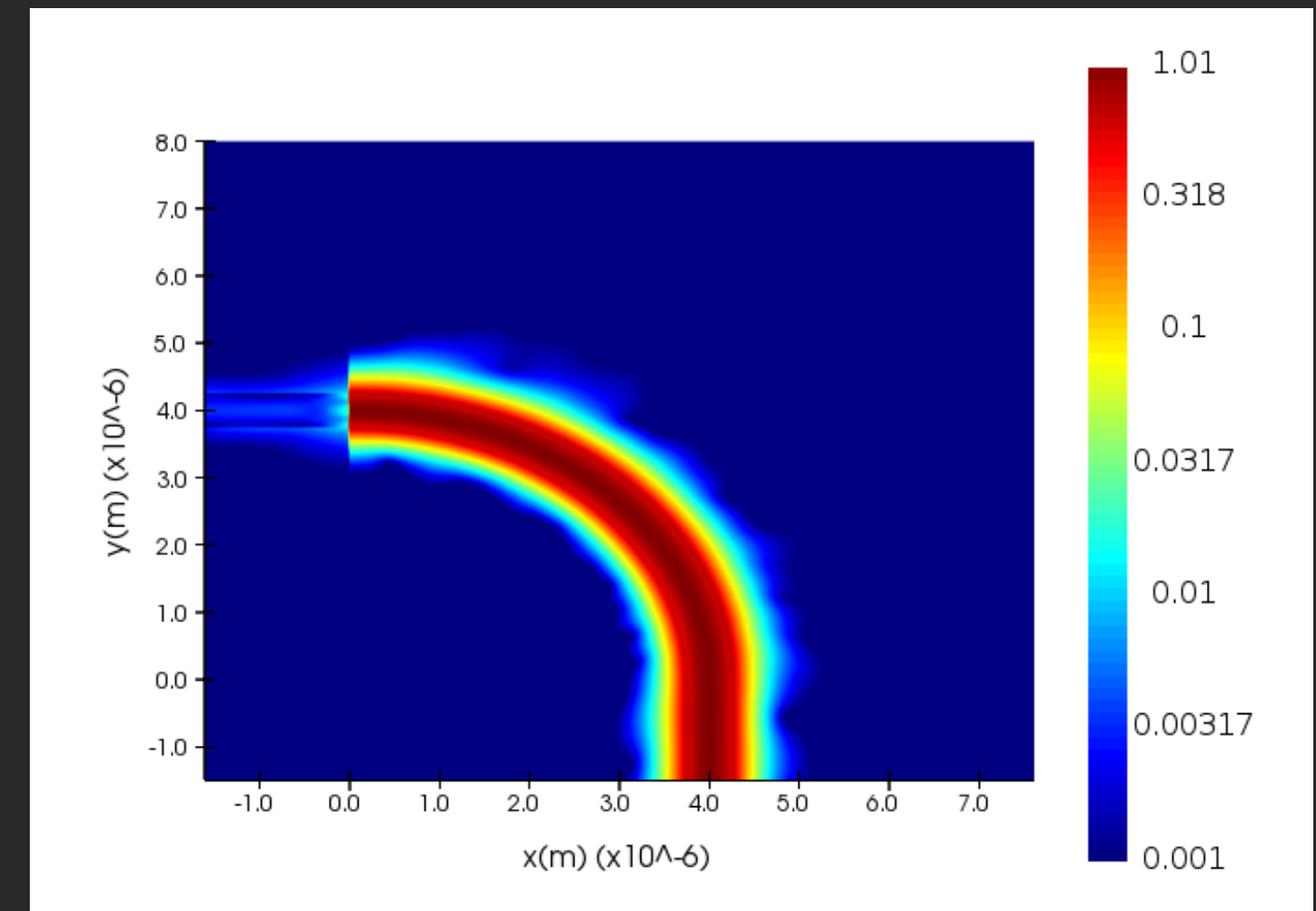
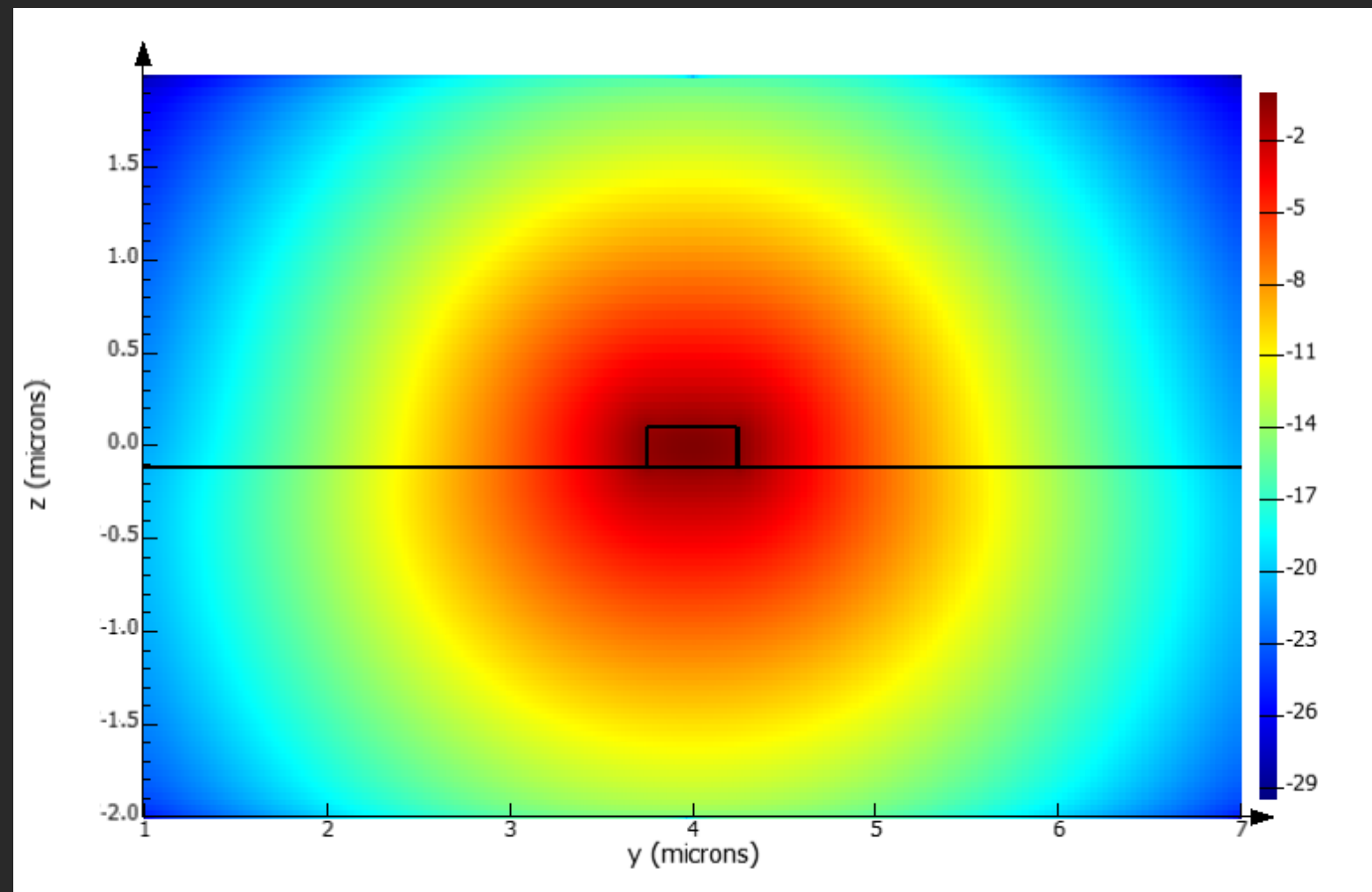
Design dos componentes

Design do Bend



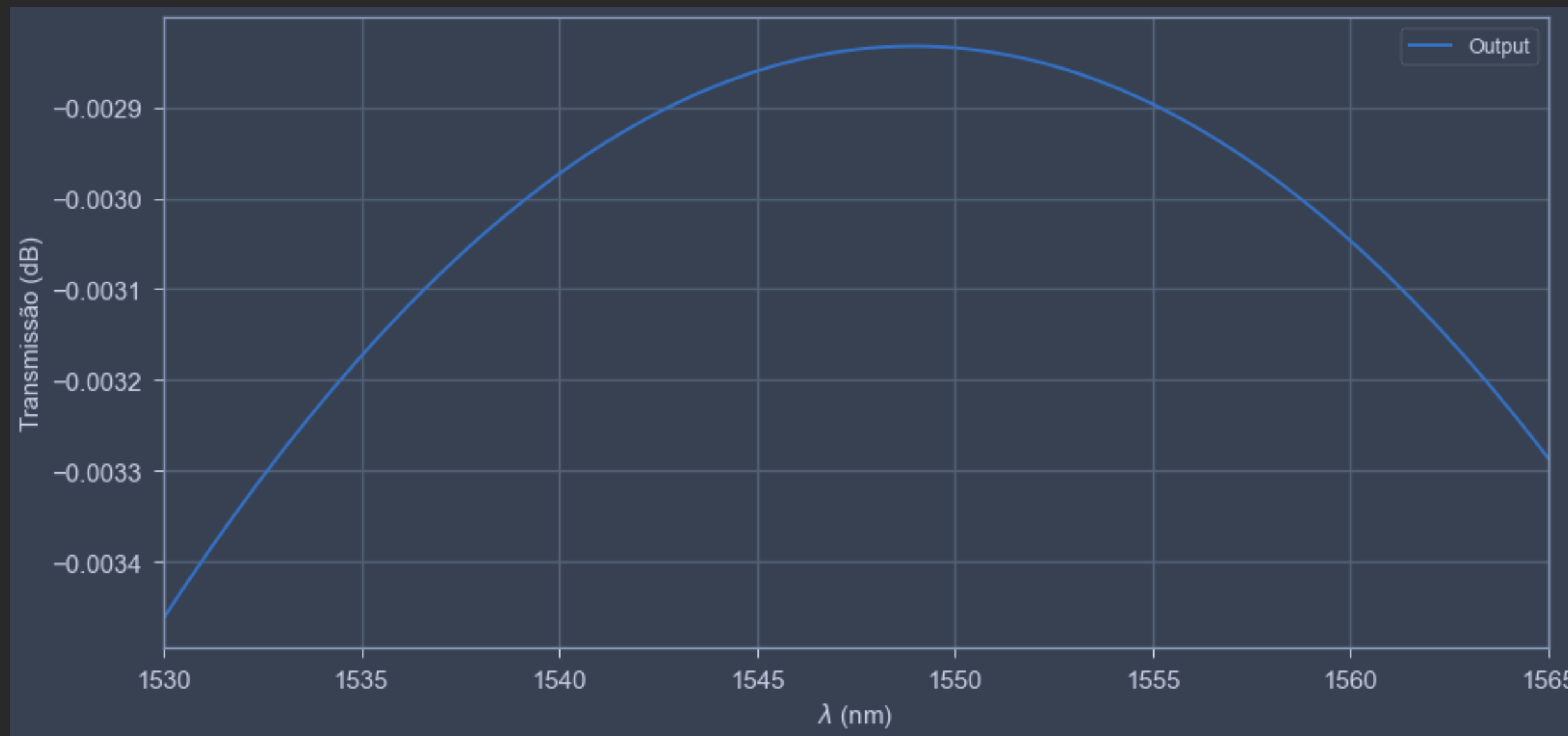
Design dos componentes

Analise do campo na simulação



Design dos componentes

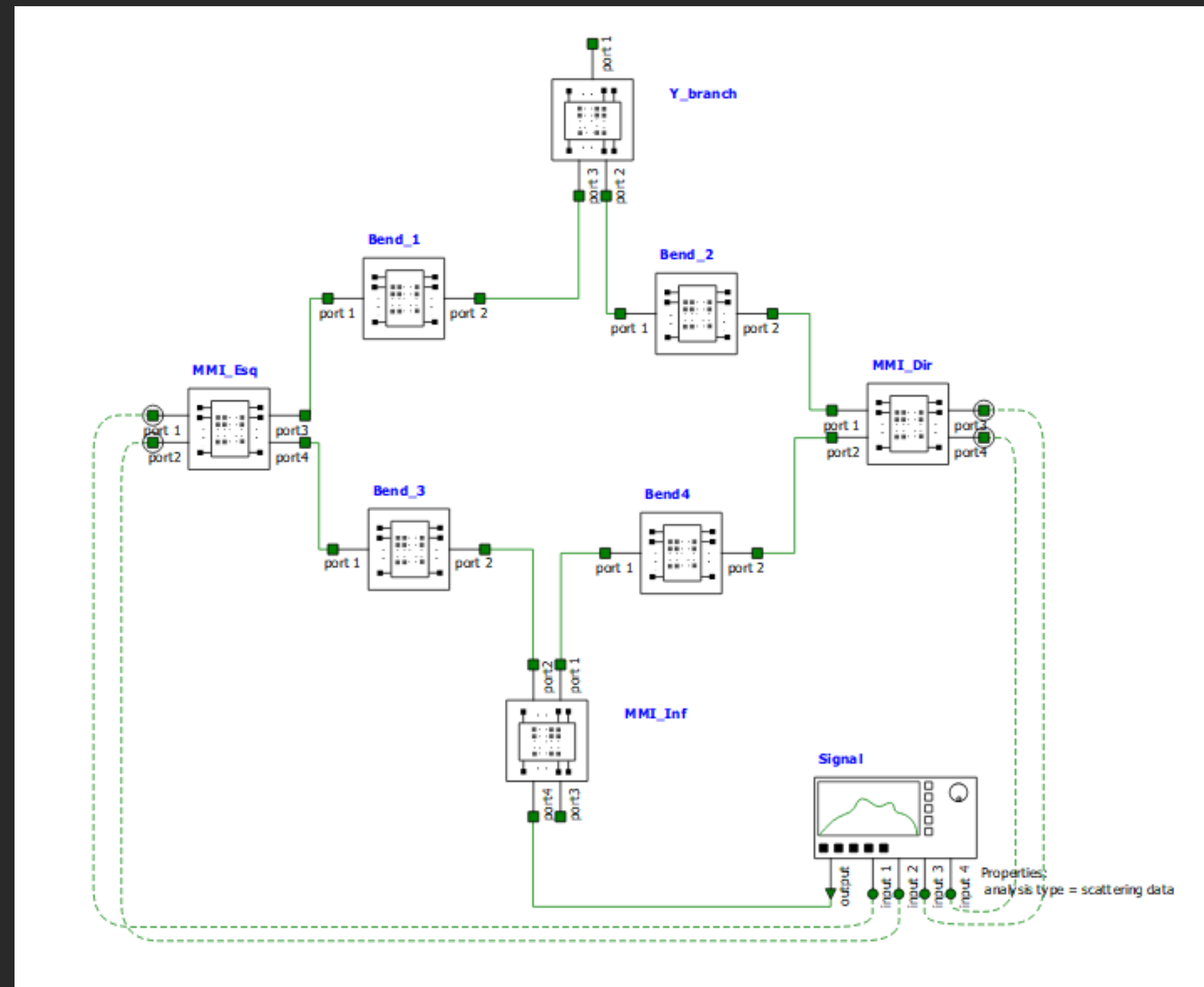
Resultados



SEMANA 2

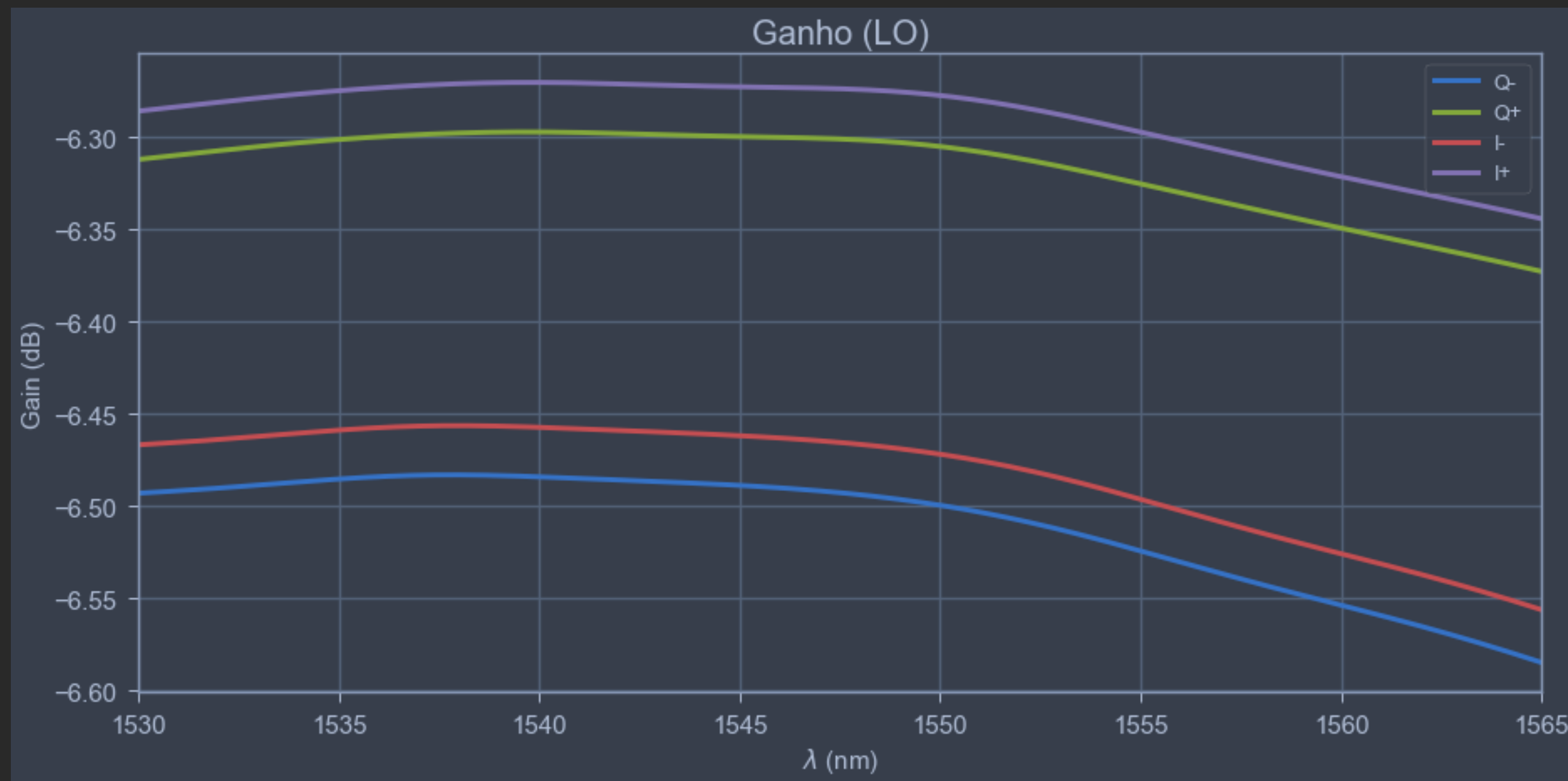
Simulação Interconnect

Montagem do dispositivo



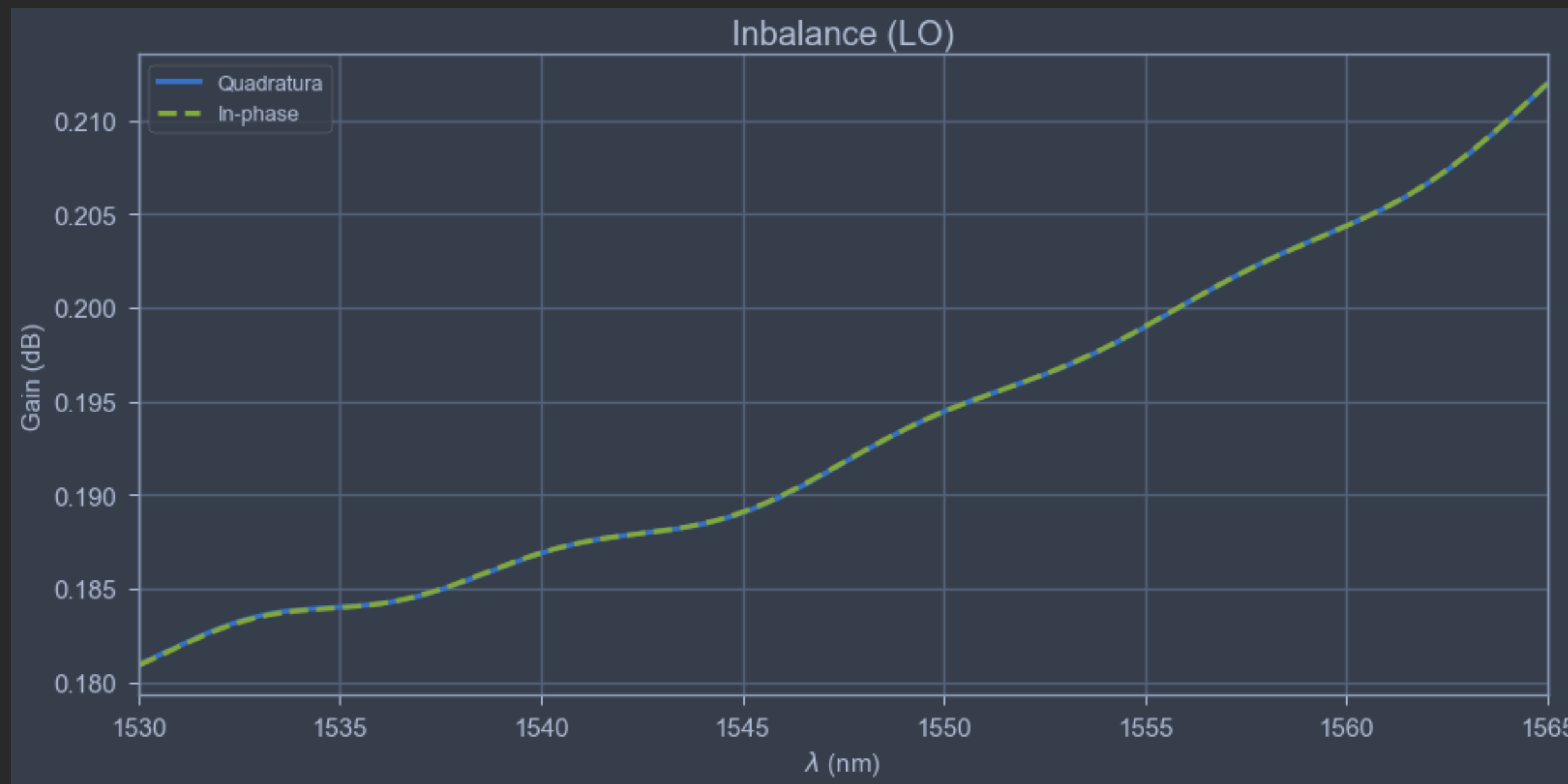
Simulação Inter

Resultados, Porta LO



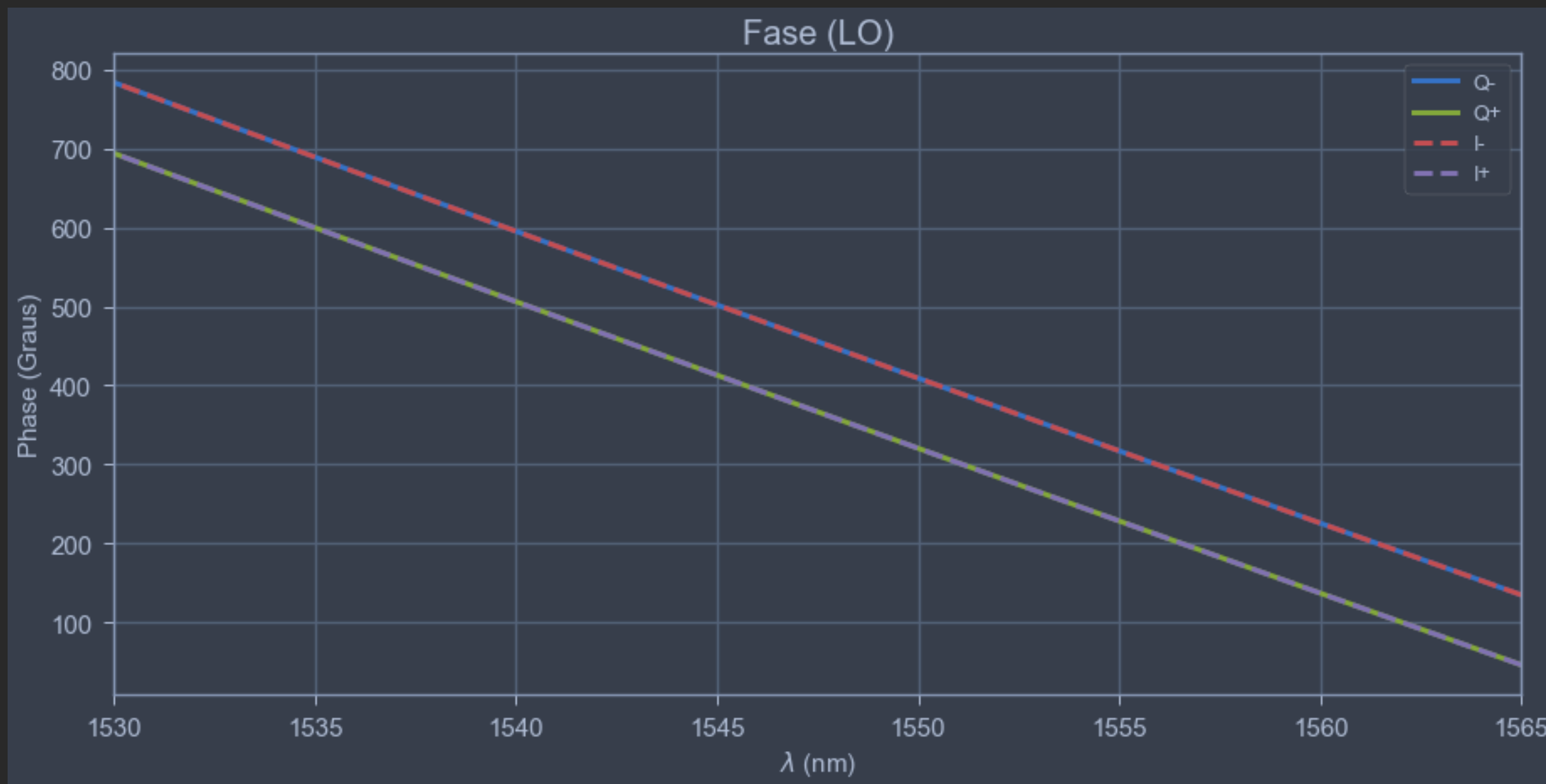
Simulação Inter

Resultados, Porta LO



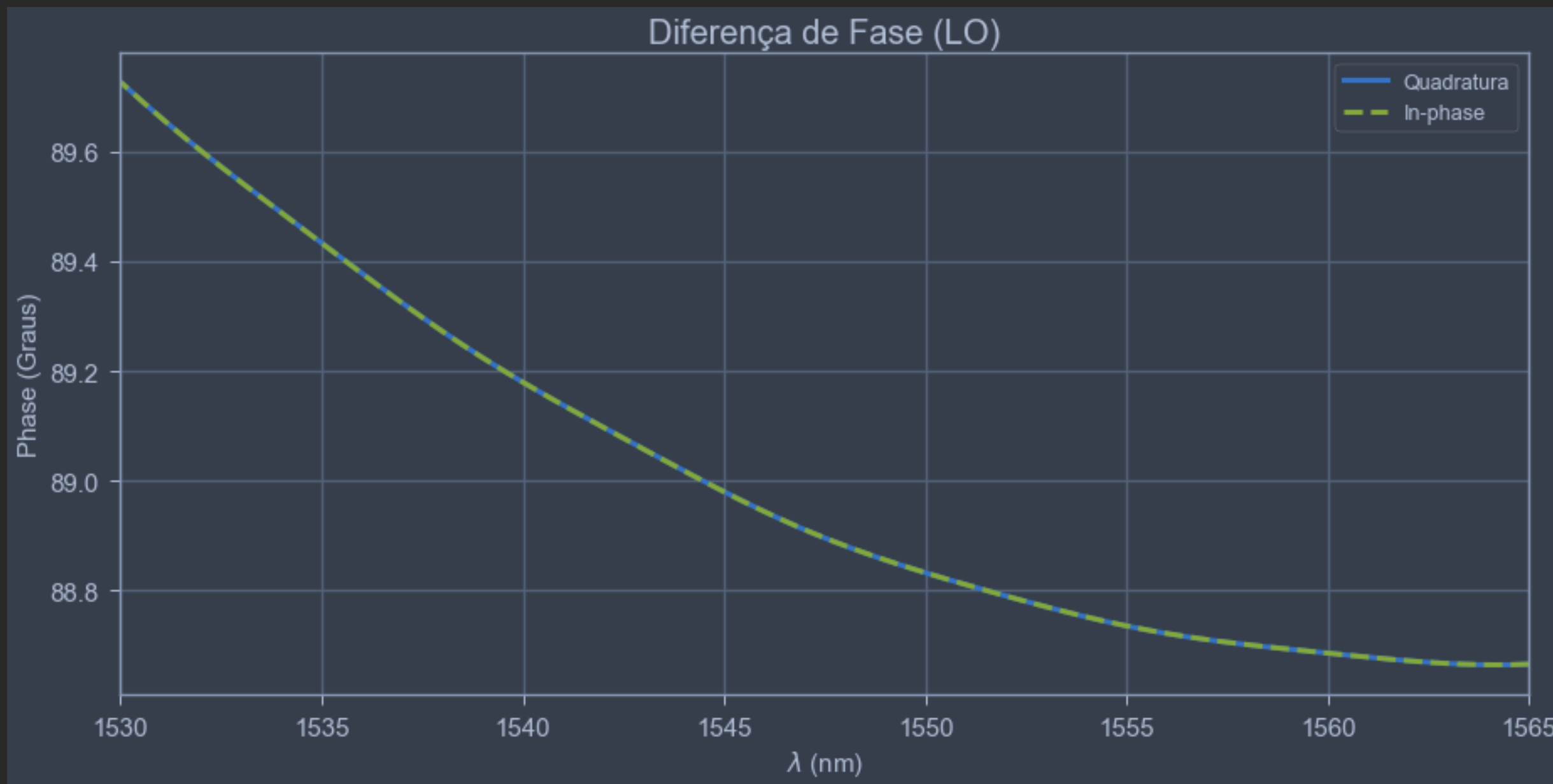
Simulação Inter

Resultados, Porta LO



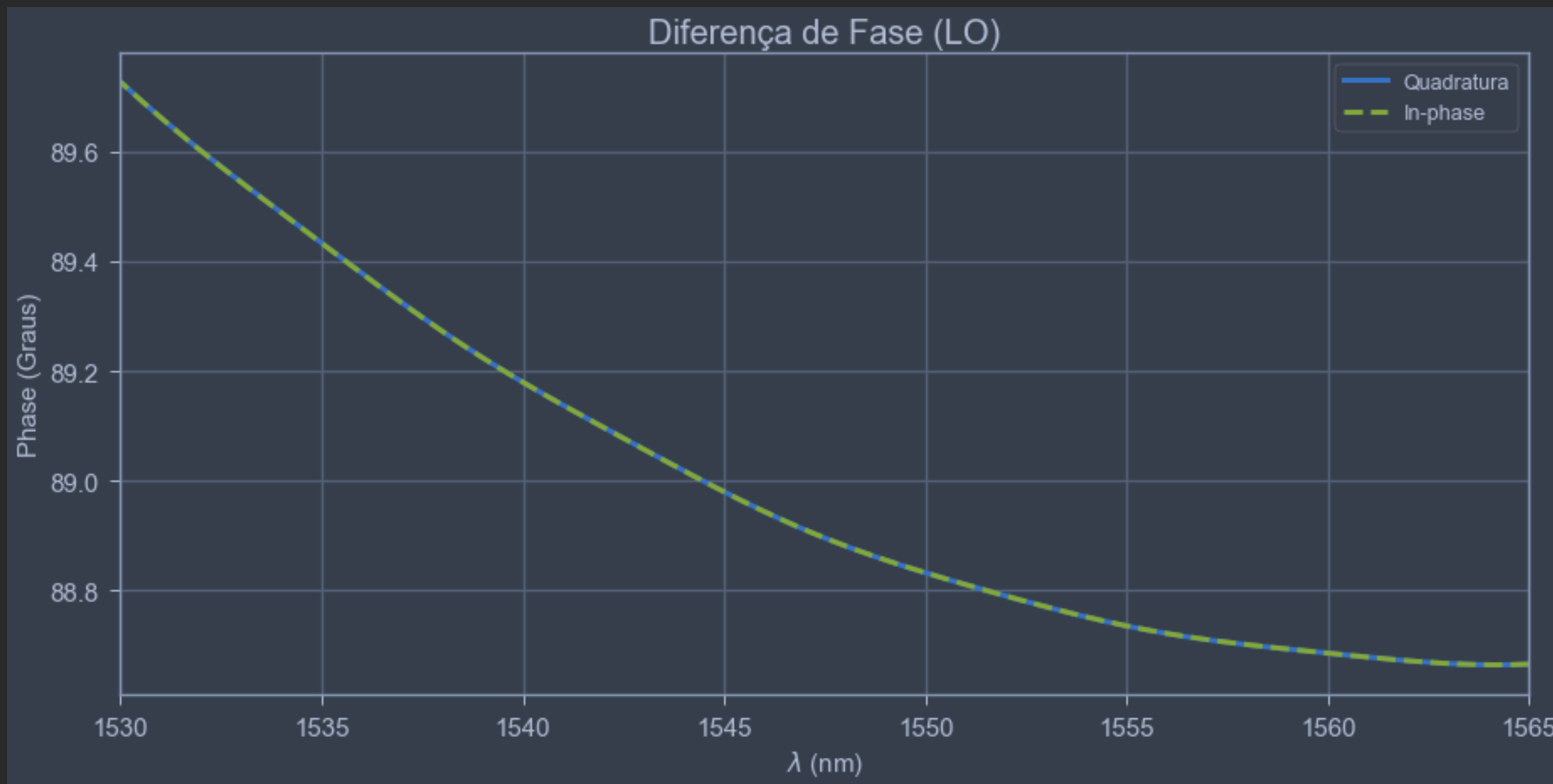
Simulação Inter

Resultados, Porta LO



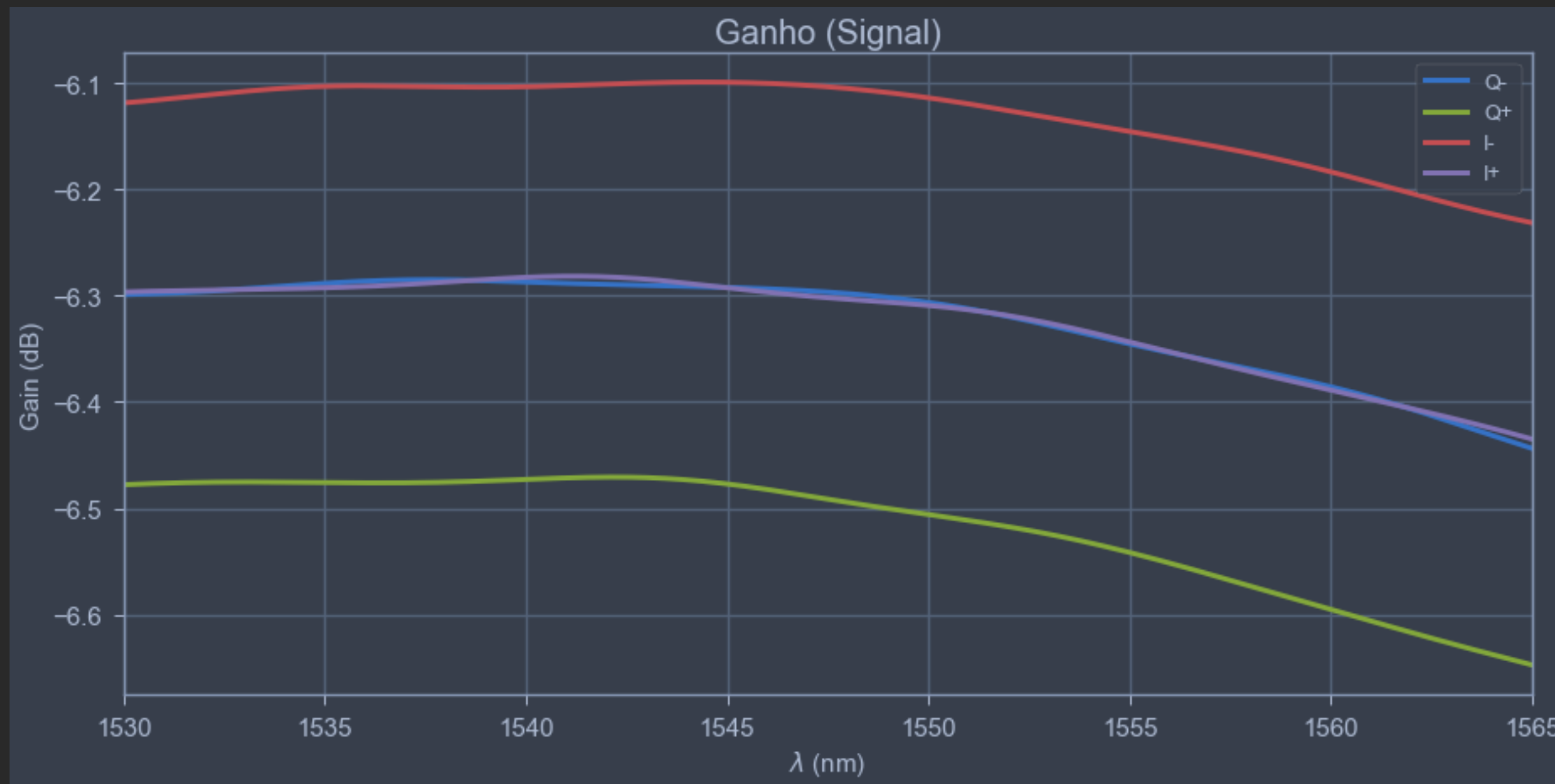
Simulação Inter

Resultados, Porta LO



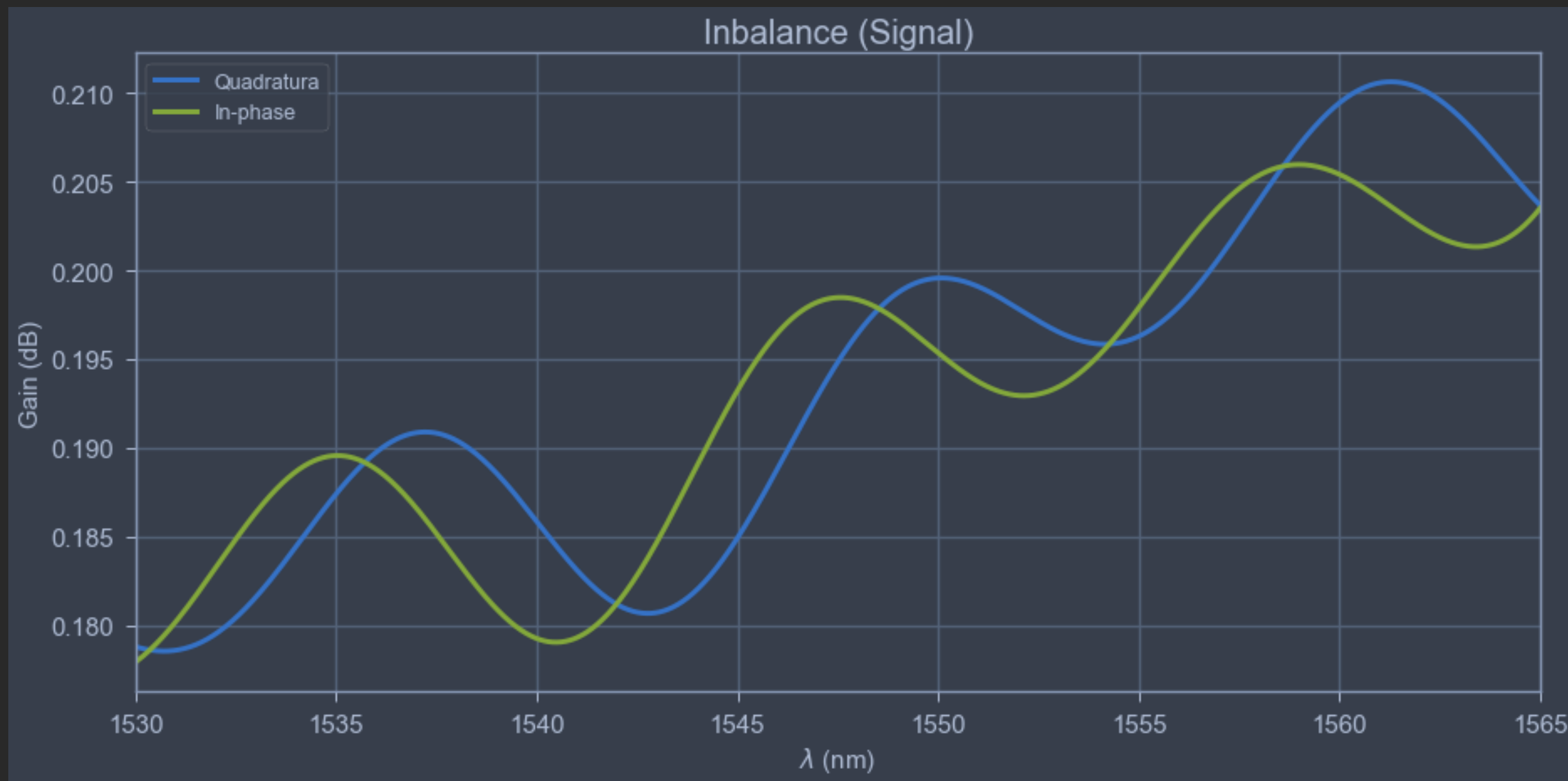
Simulação Inter

Resultados, Porta Signal



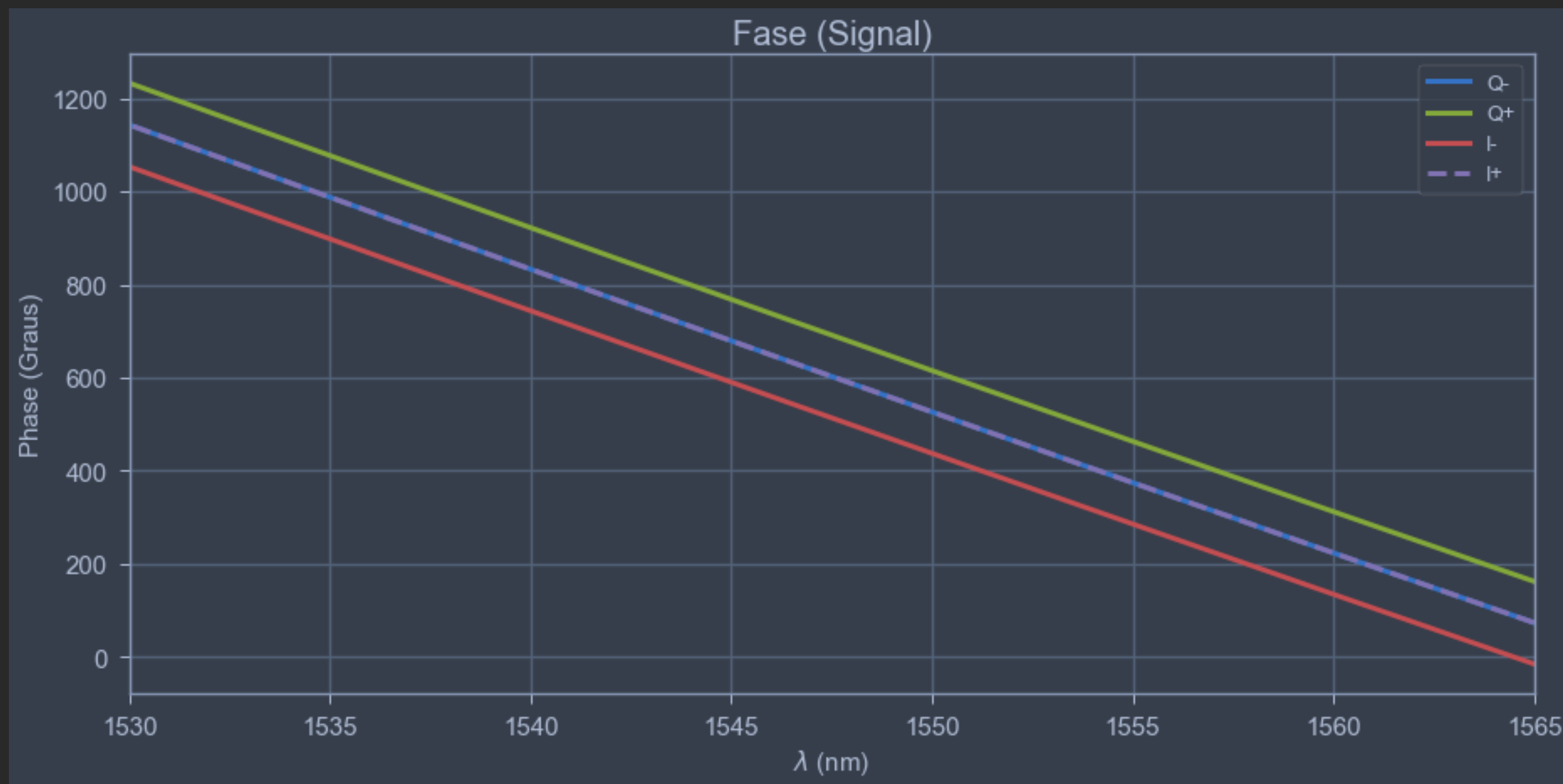
Simulação Inter

Resultados, Porta Signal



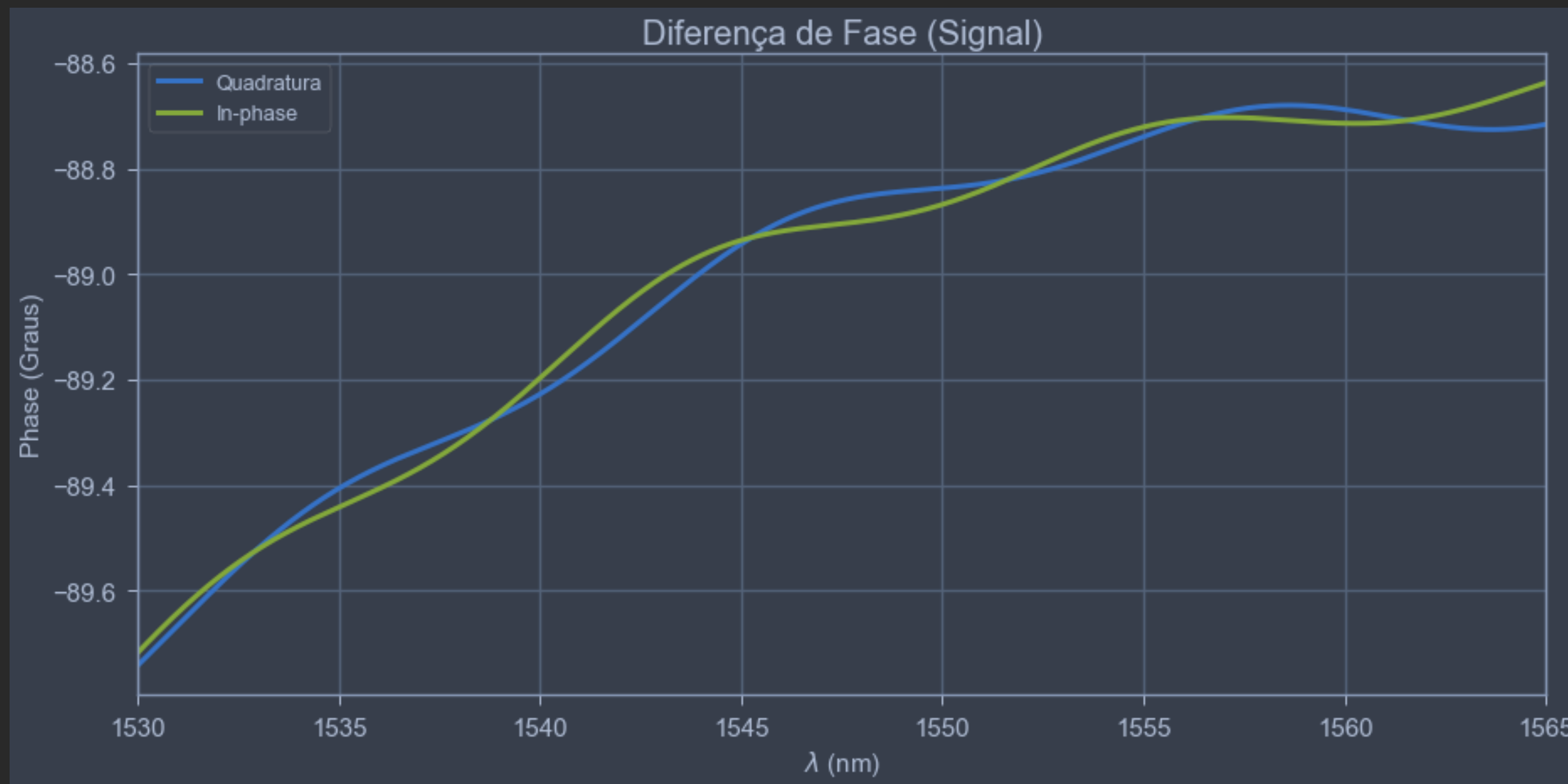
Simulação Inter

Resultados, Porta Signal



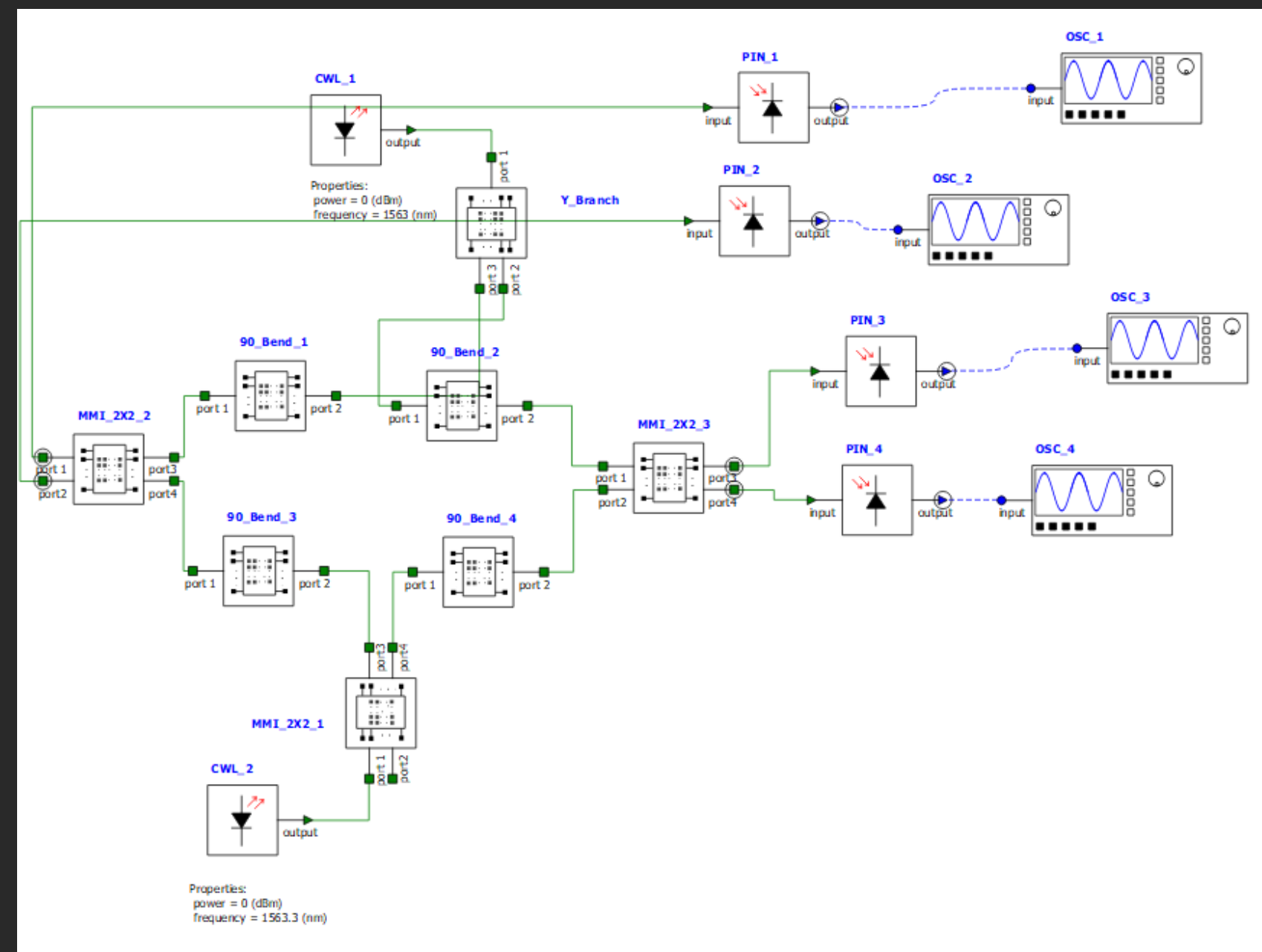
Simulação Inter

Resultados, Porta Signal



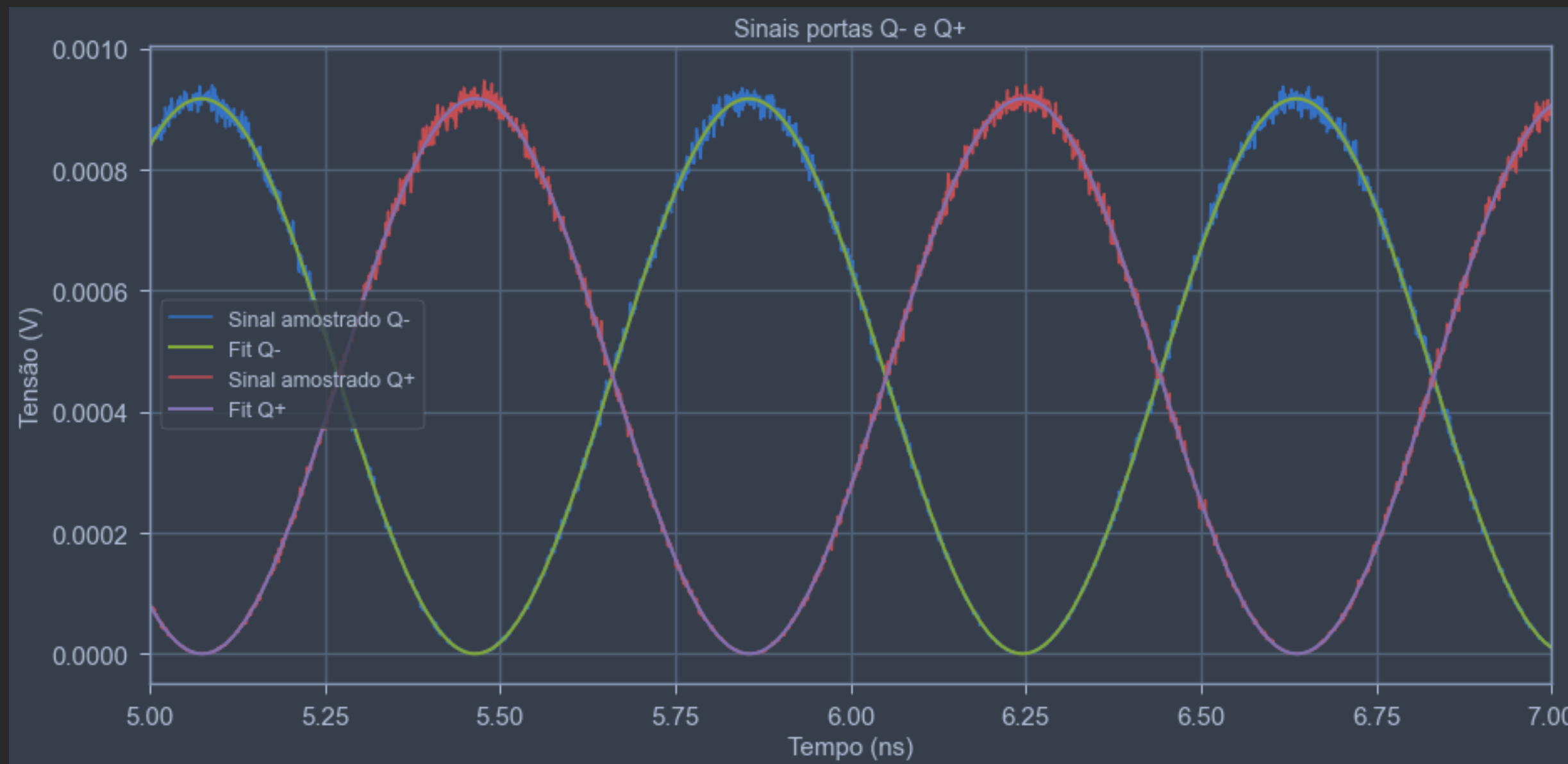
Simulação Inter

Diferença de fase experimental



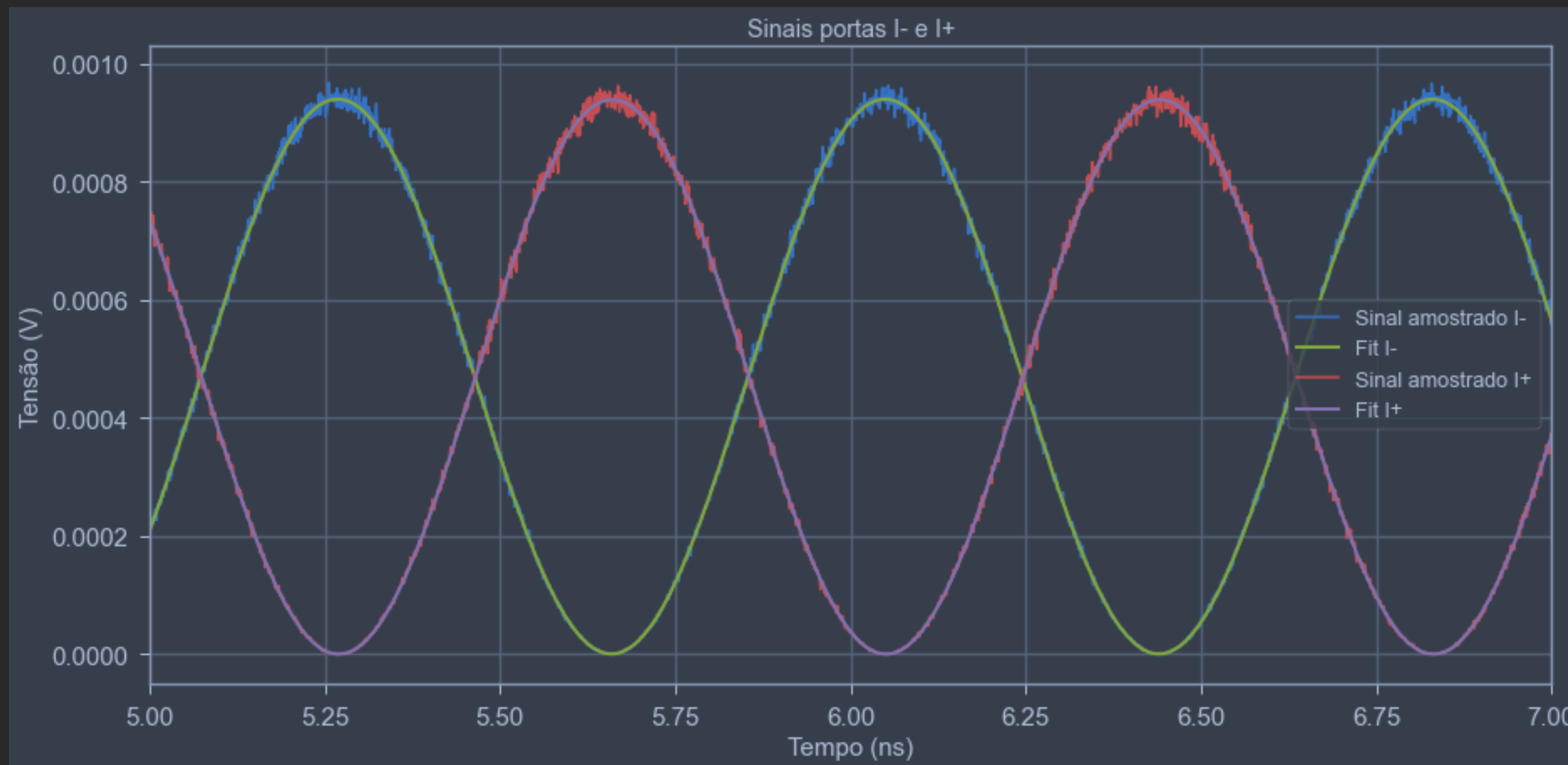
Simulação Inter

Diferença de fase experimental



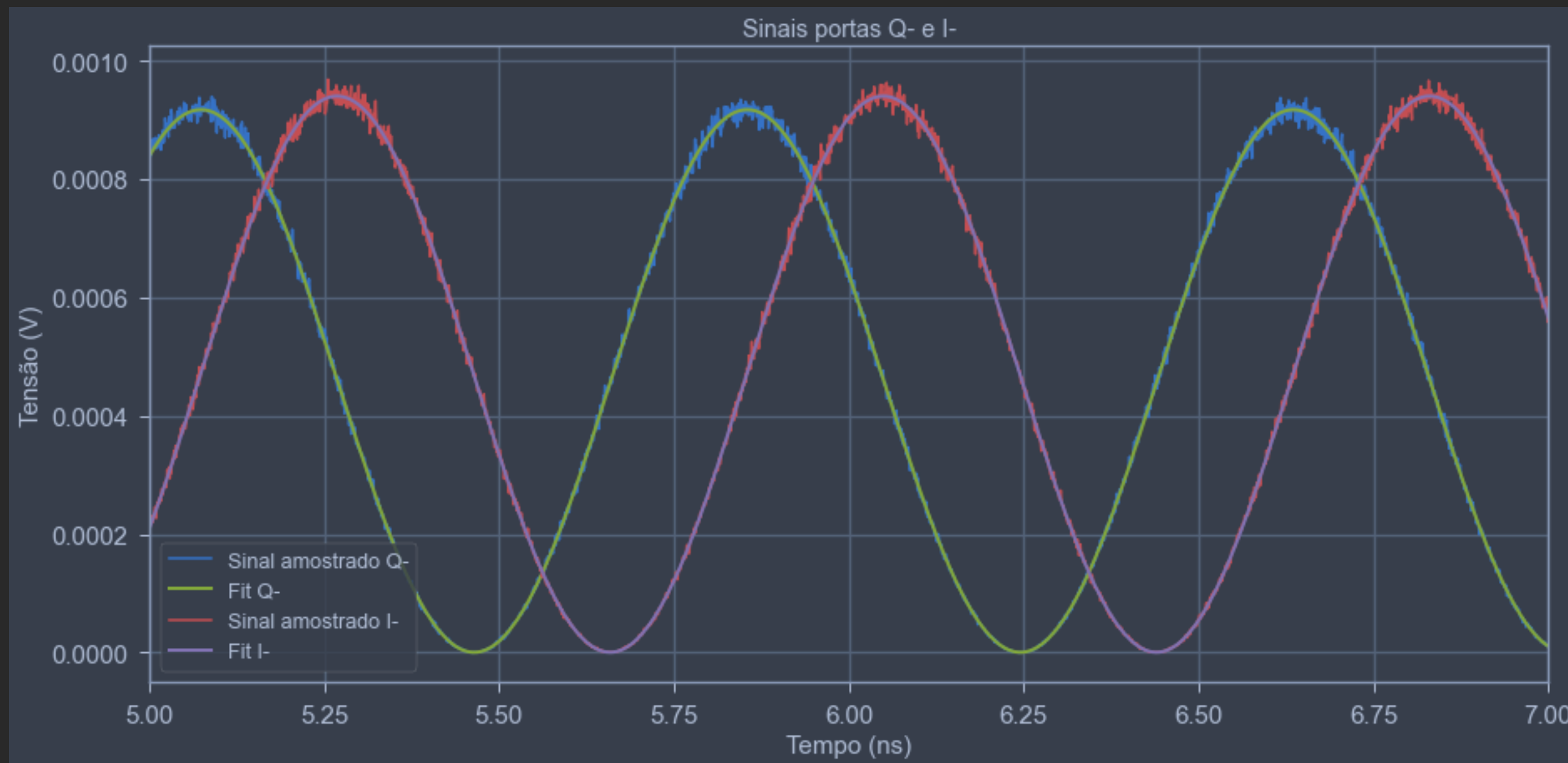
Simulação Inter

Diferença de fase experimental



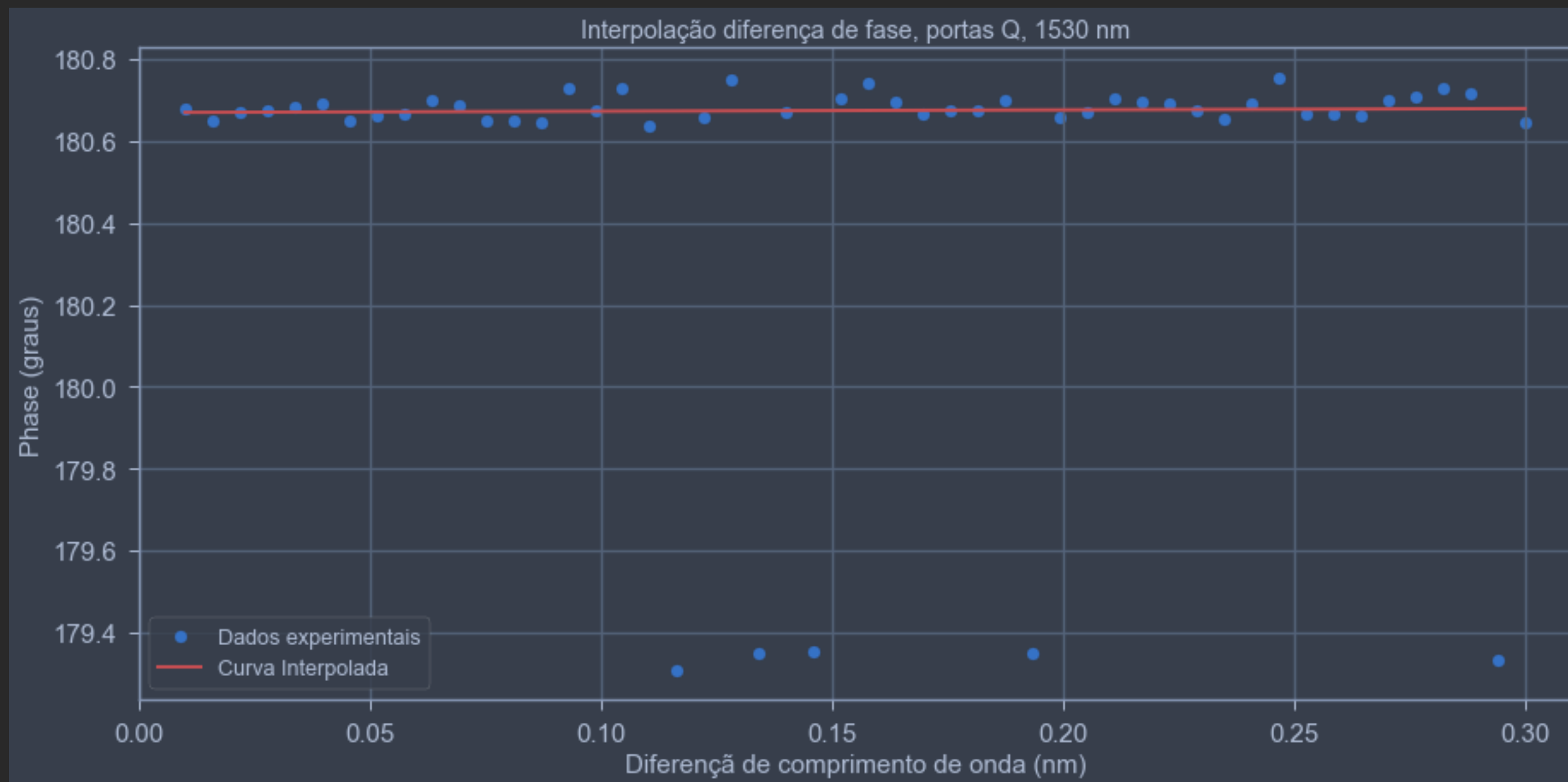
Simulação Inter

Diferença de fase experimental



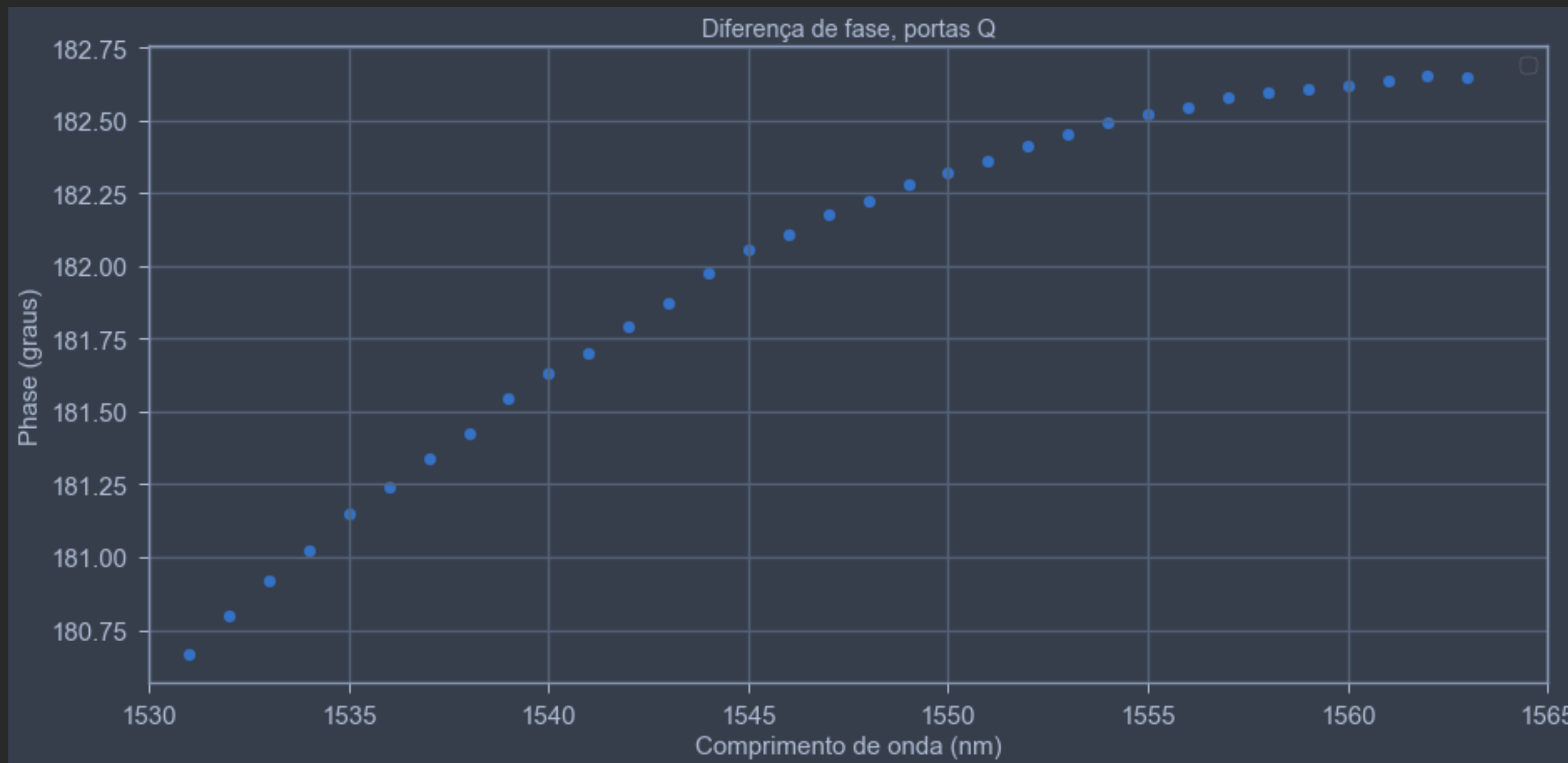
Simulação Inter

Diferença de fase experimental



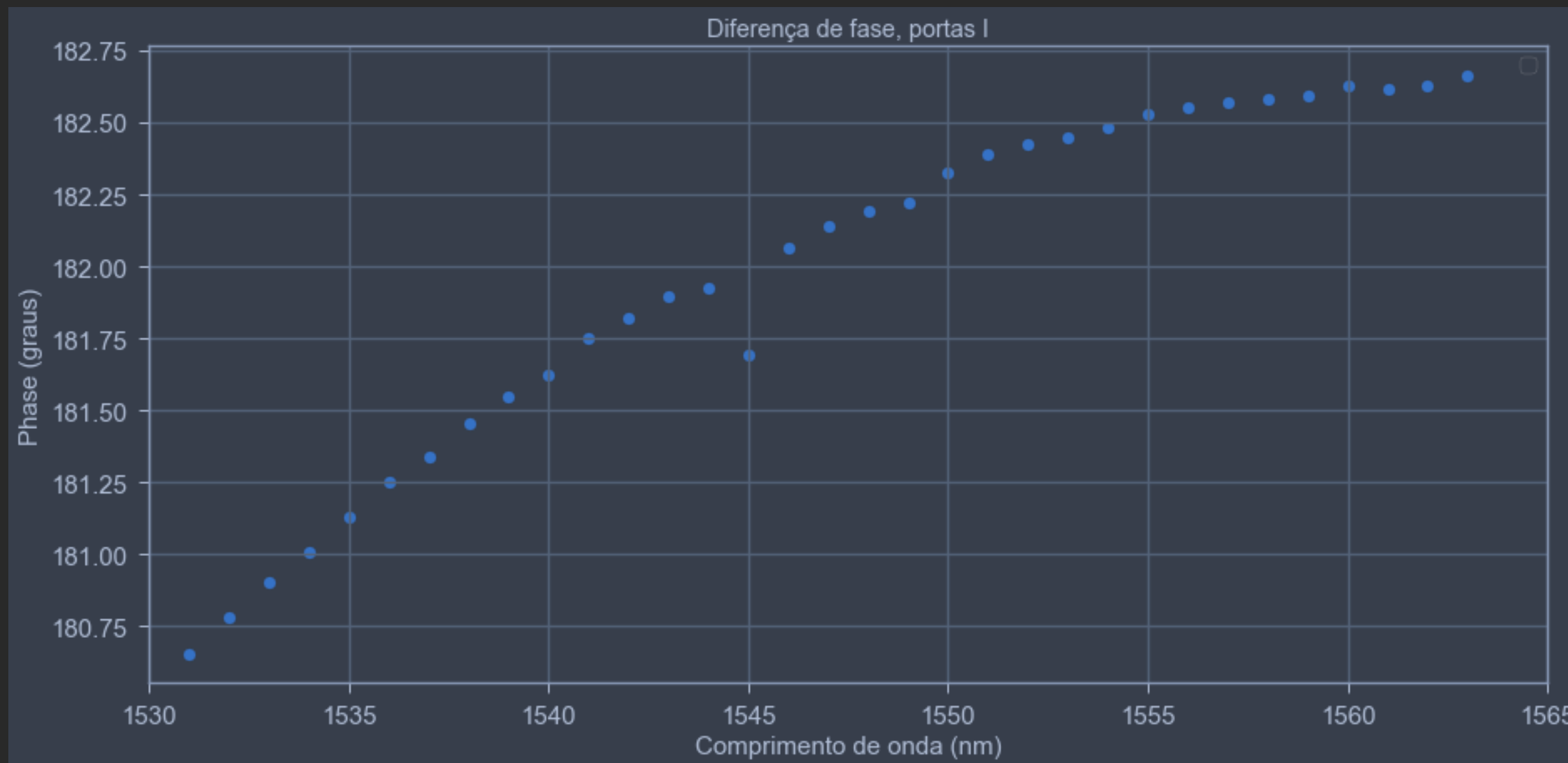
Simulação Inter

Diferença de fase experimental



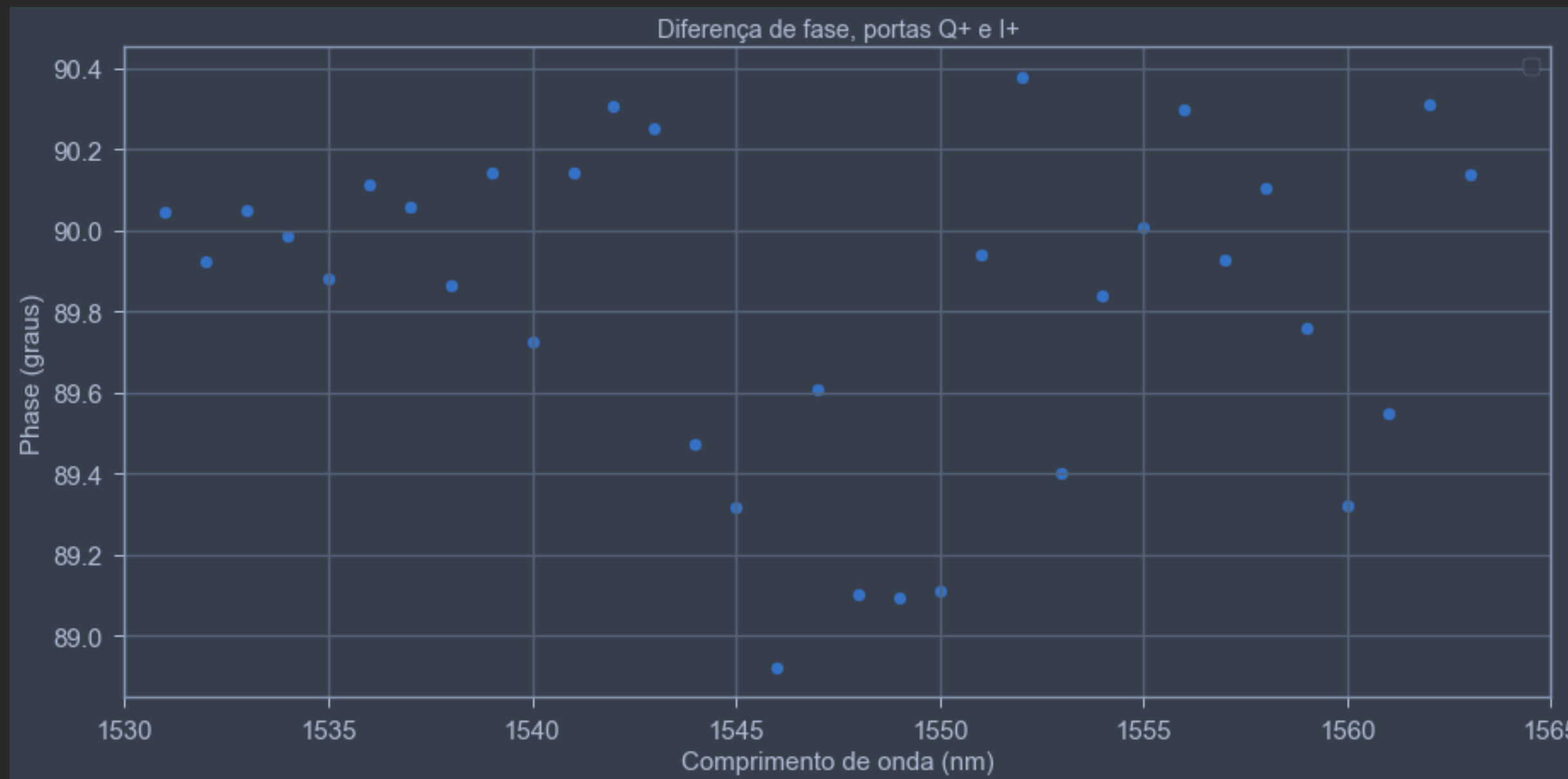
Simulação Inter

Diferença de fase experimental



Simulação Inter

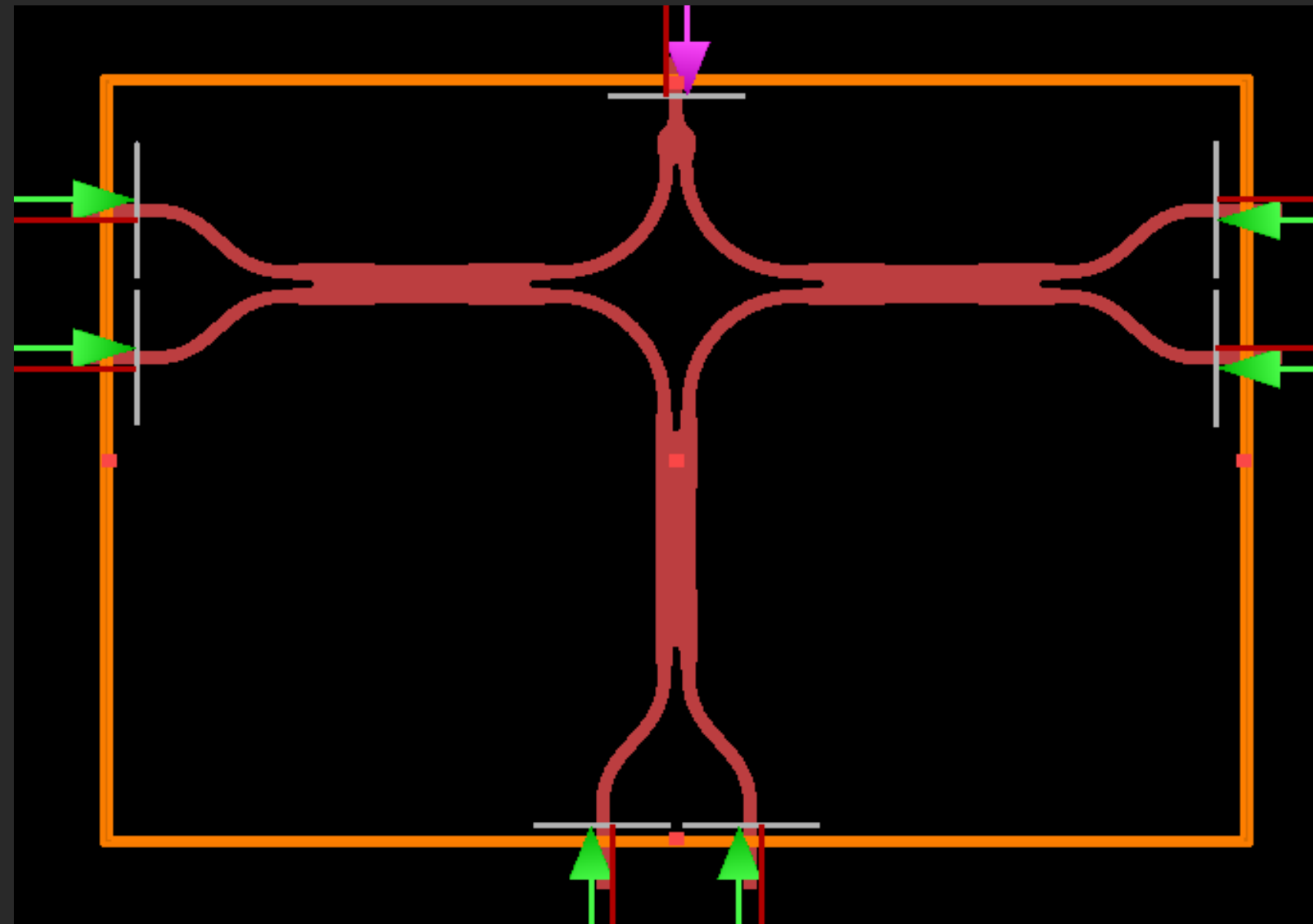
Diferença de fase experimental



SEMANA 2

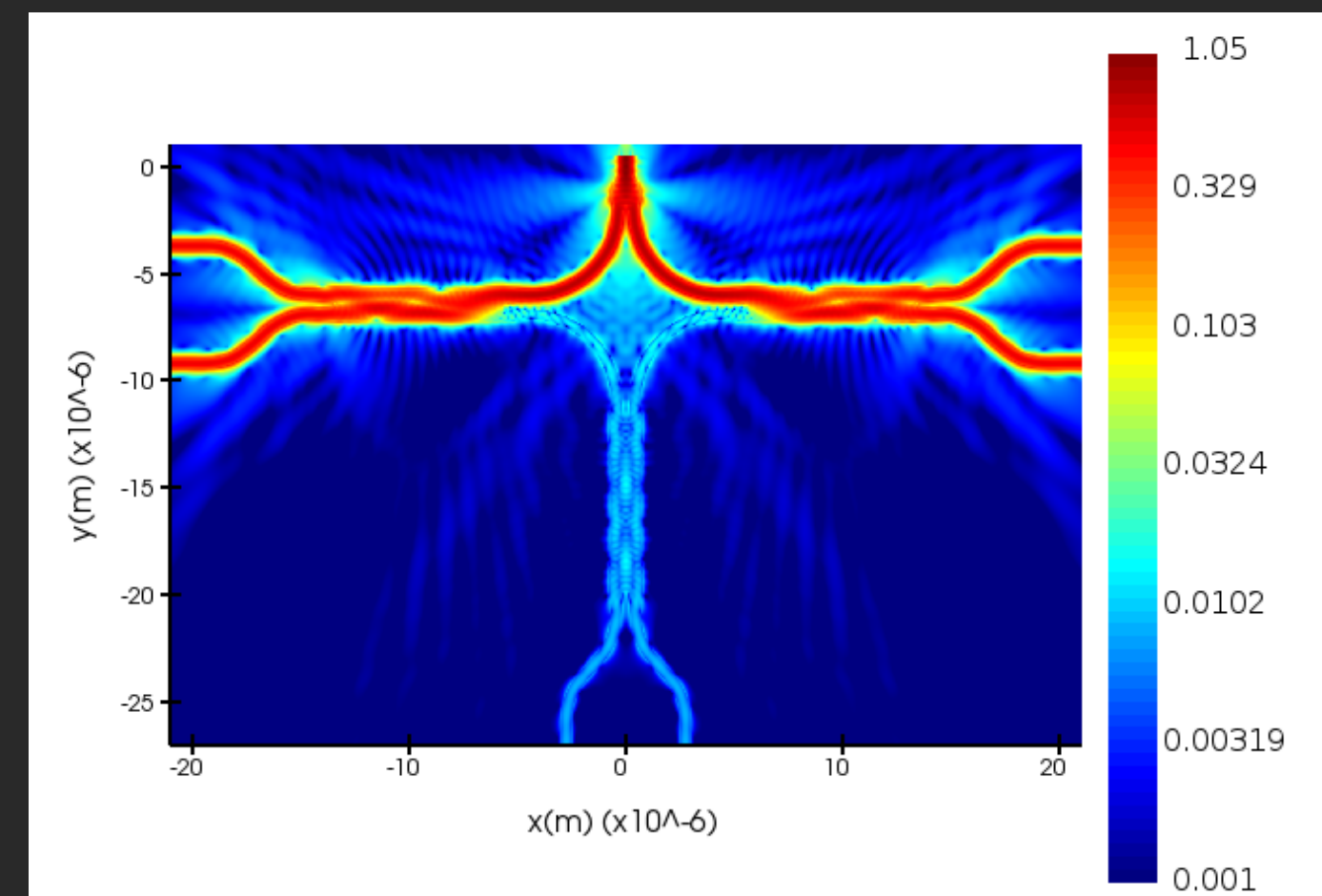
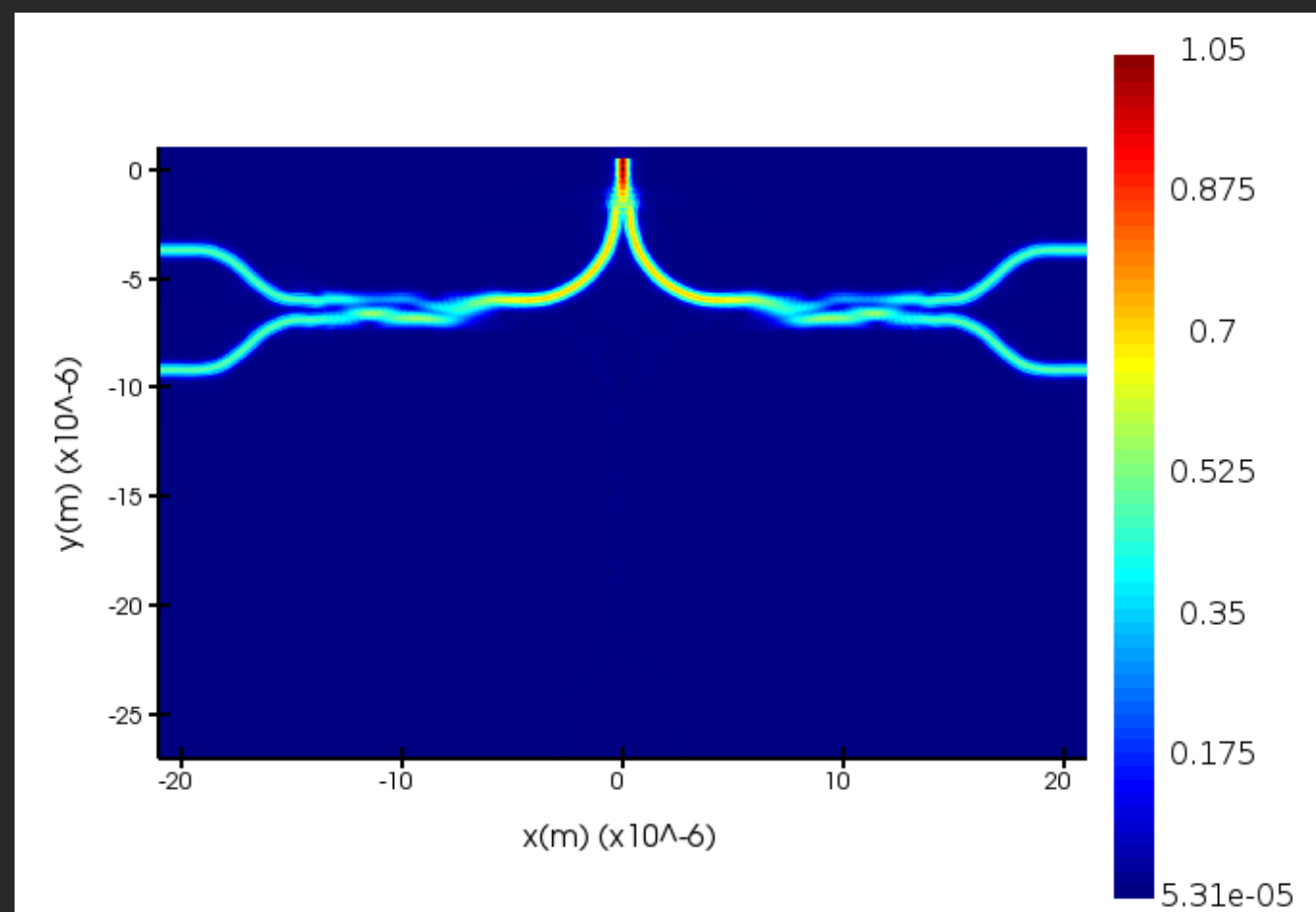
Simulação FDTD

Simulação FDTD



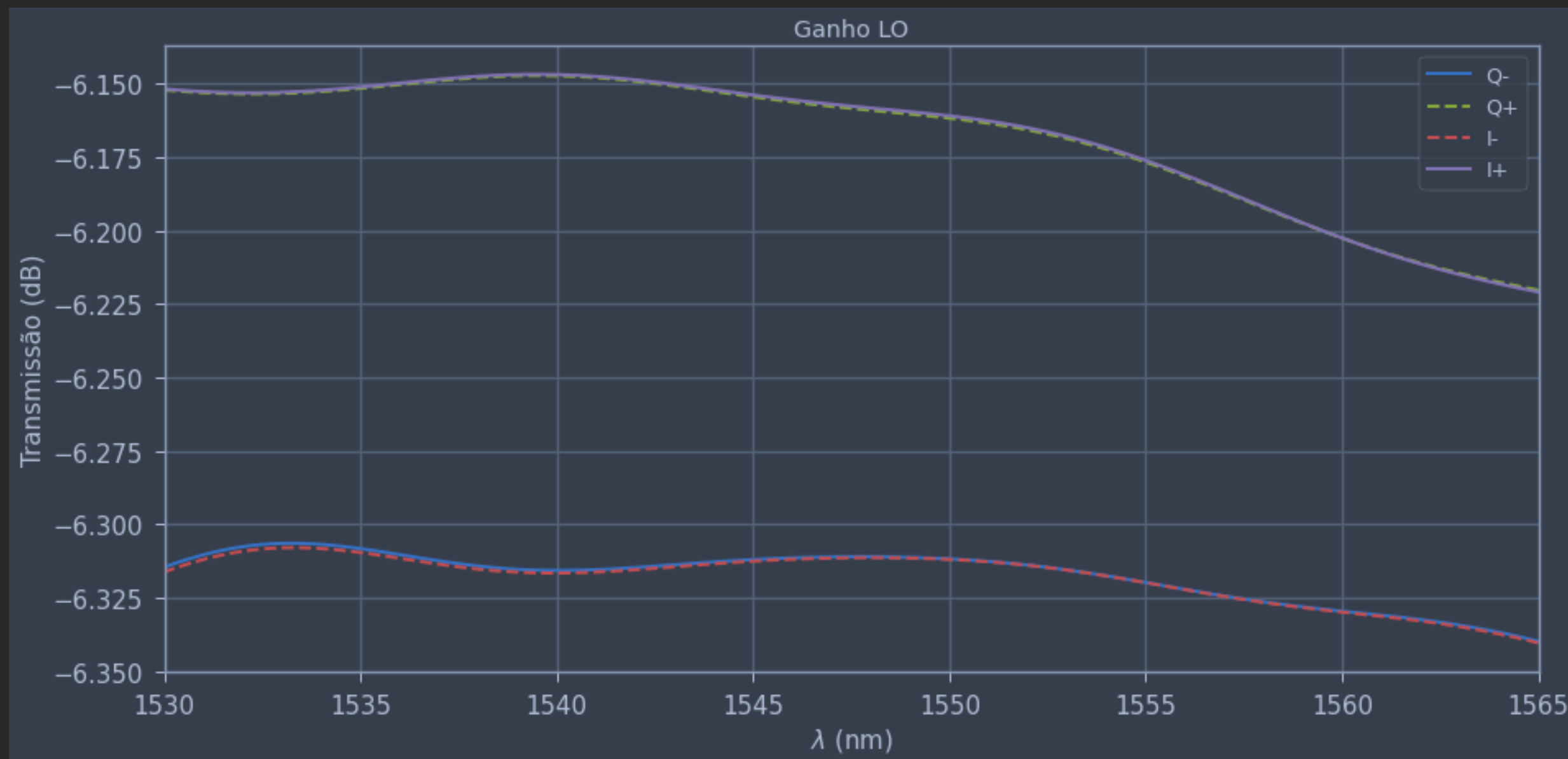
Simulação FDTD

Resultados, Porta LO



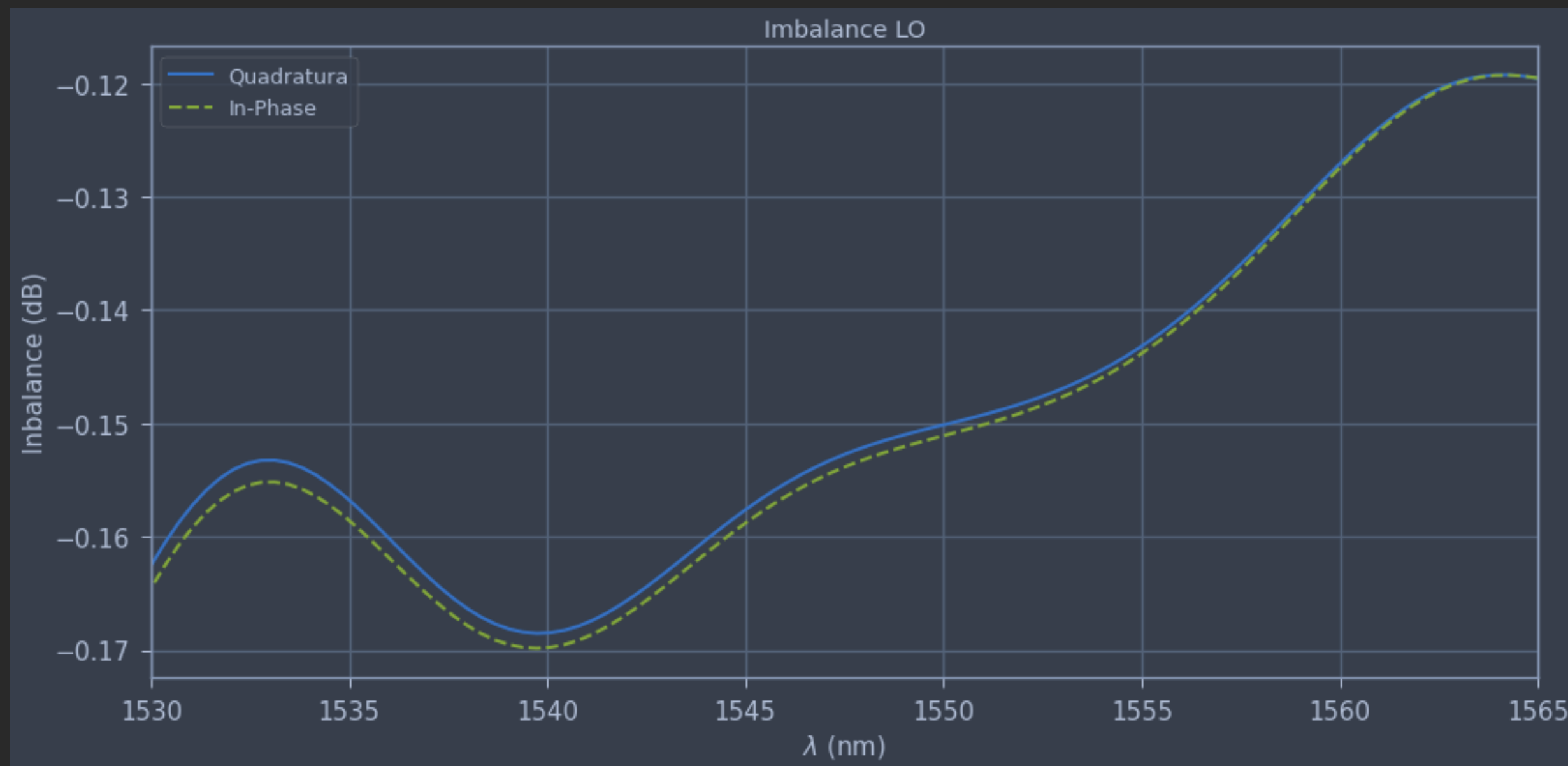
Simulação FDTD

Resultados, Porta LO



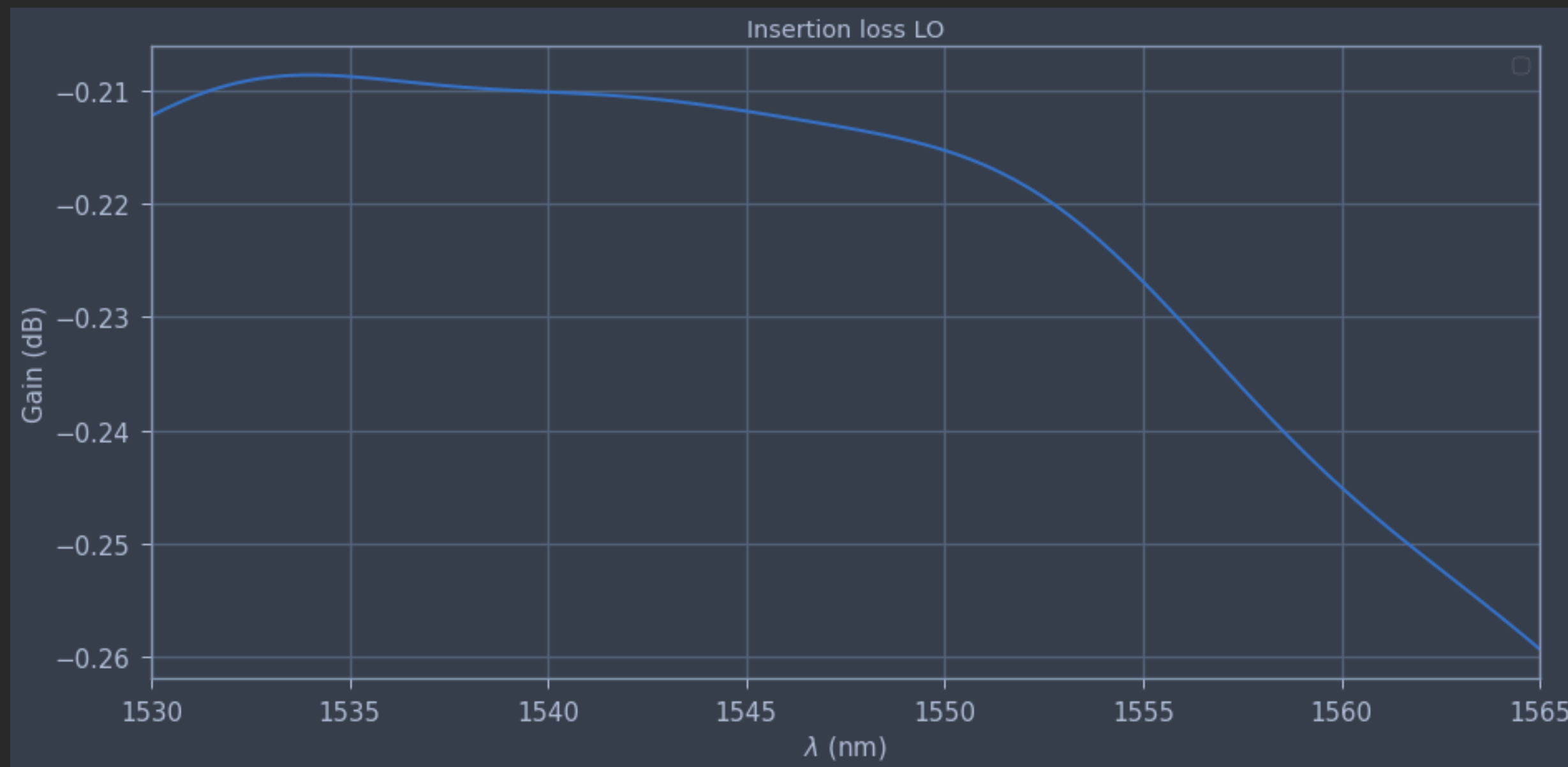
Simulação FDTD

Resultados, Porta LO



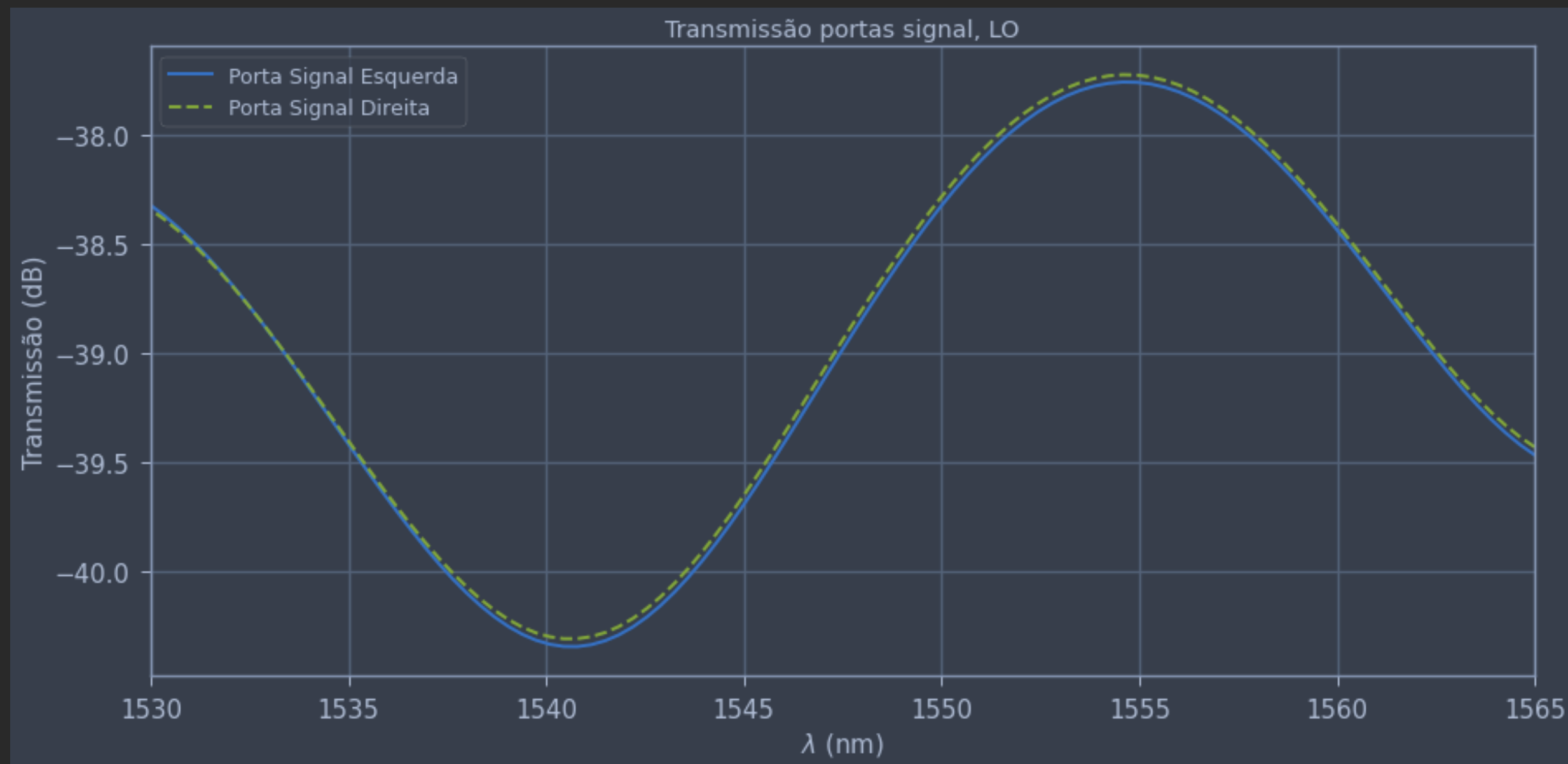
Simulação FDTD

Resultados, Porta LO



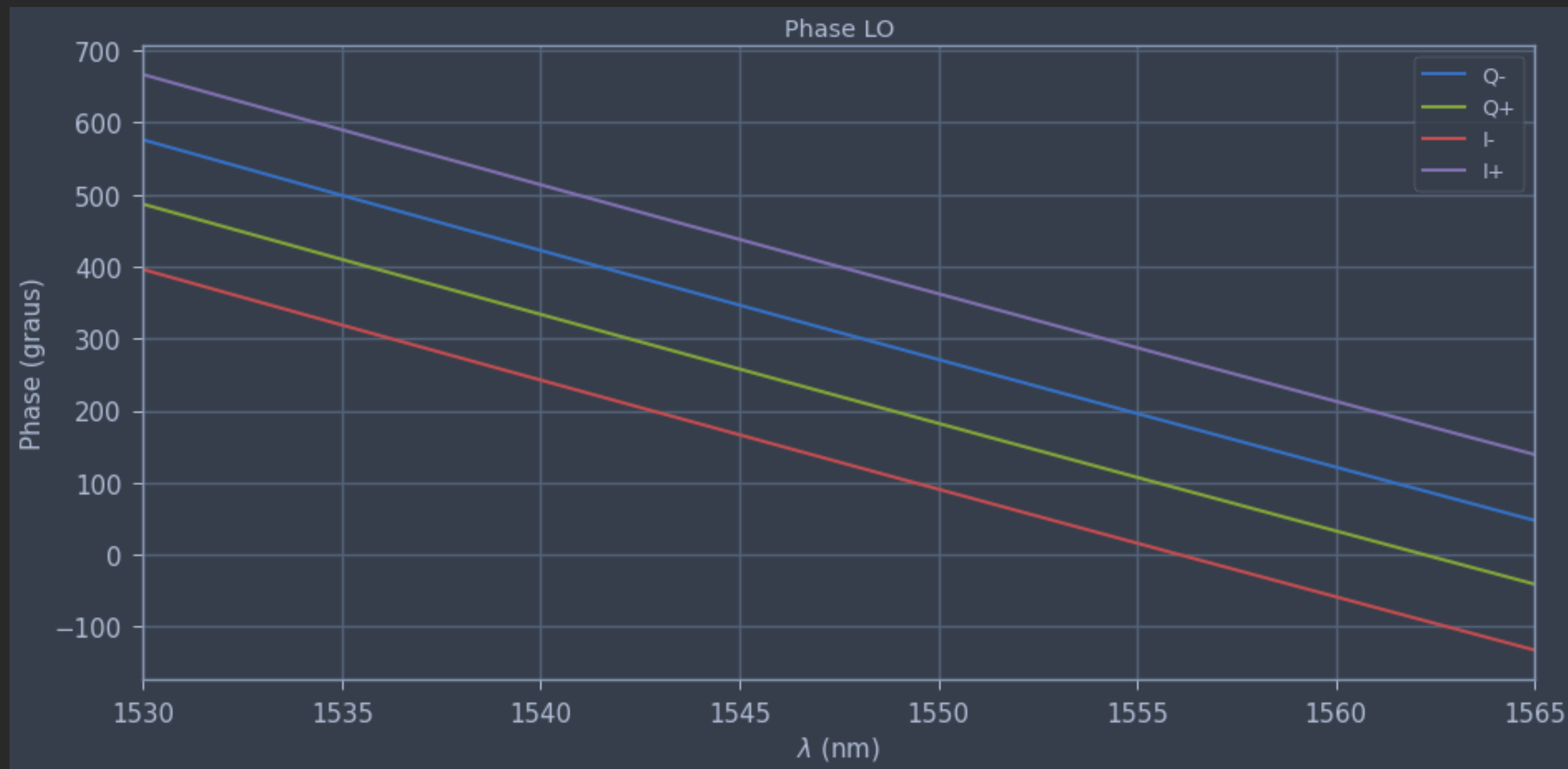
Simulação FDTD

Resultados, Porta LO



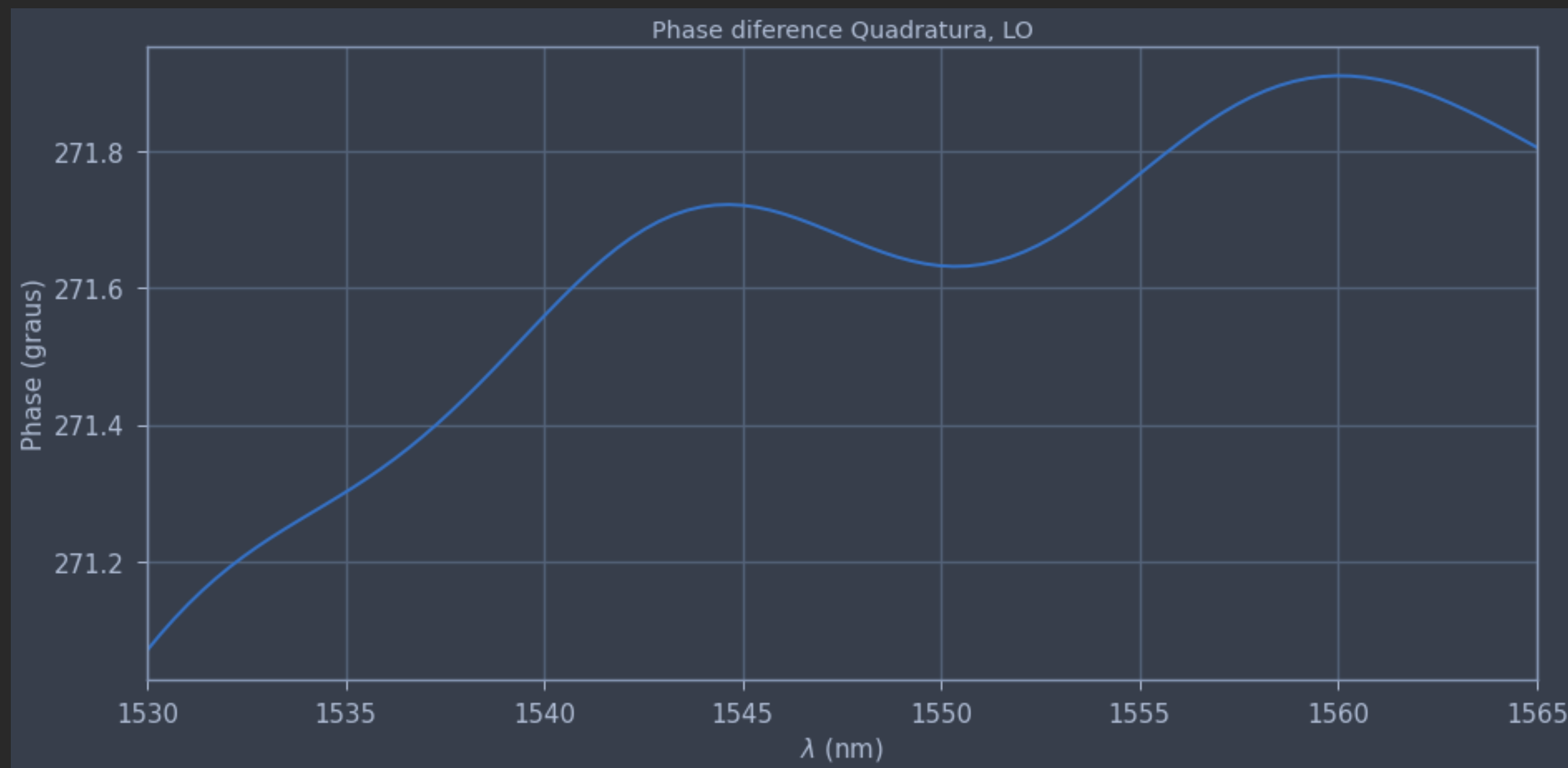
Simulação FDTD

Resultados, Porta LO



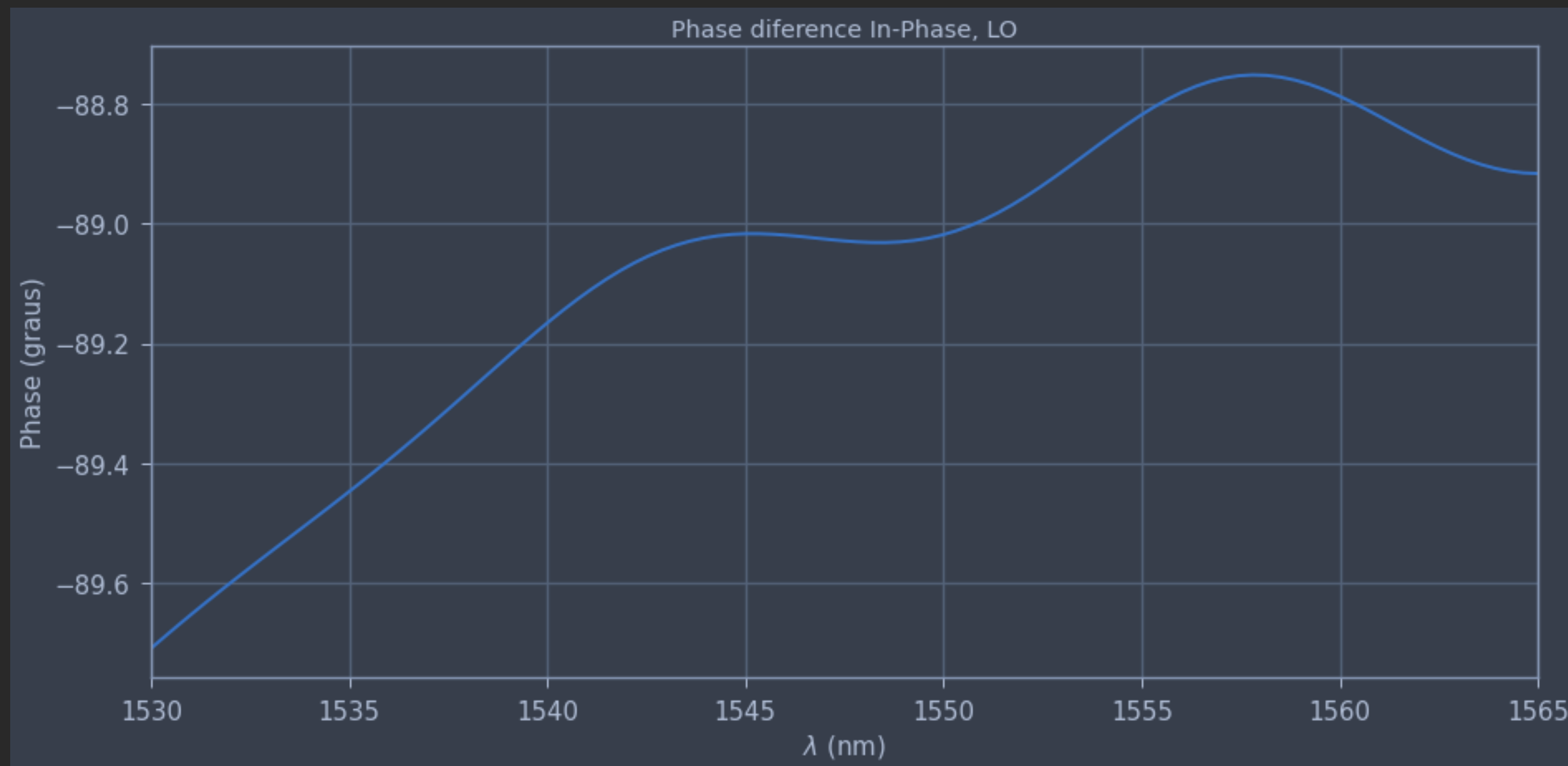
Simulação FDTD

Resultados, Porta LO



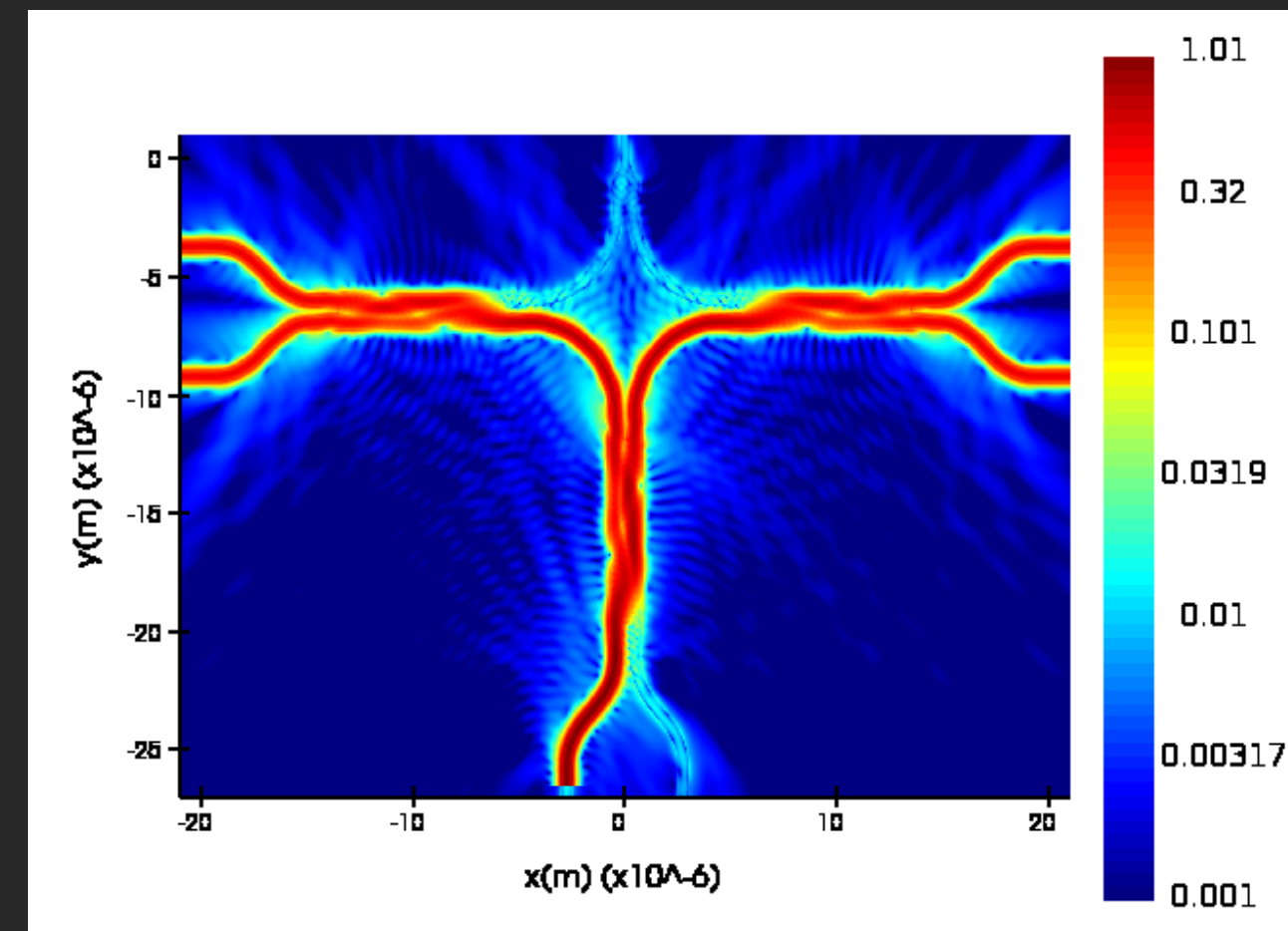
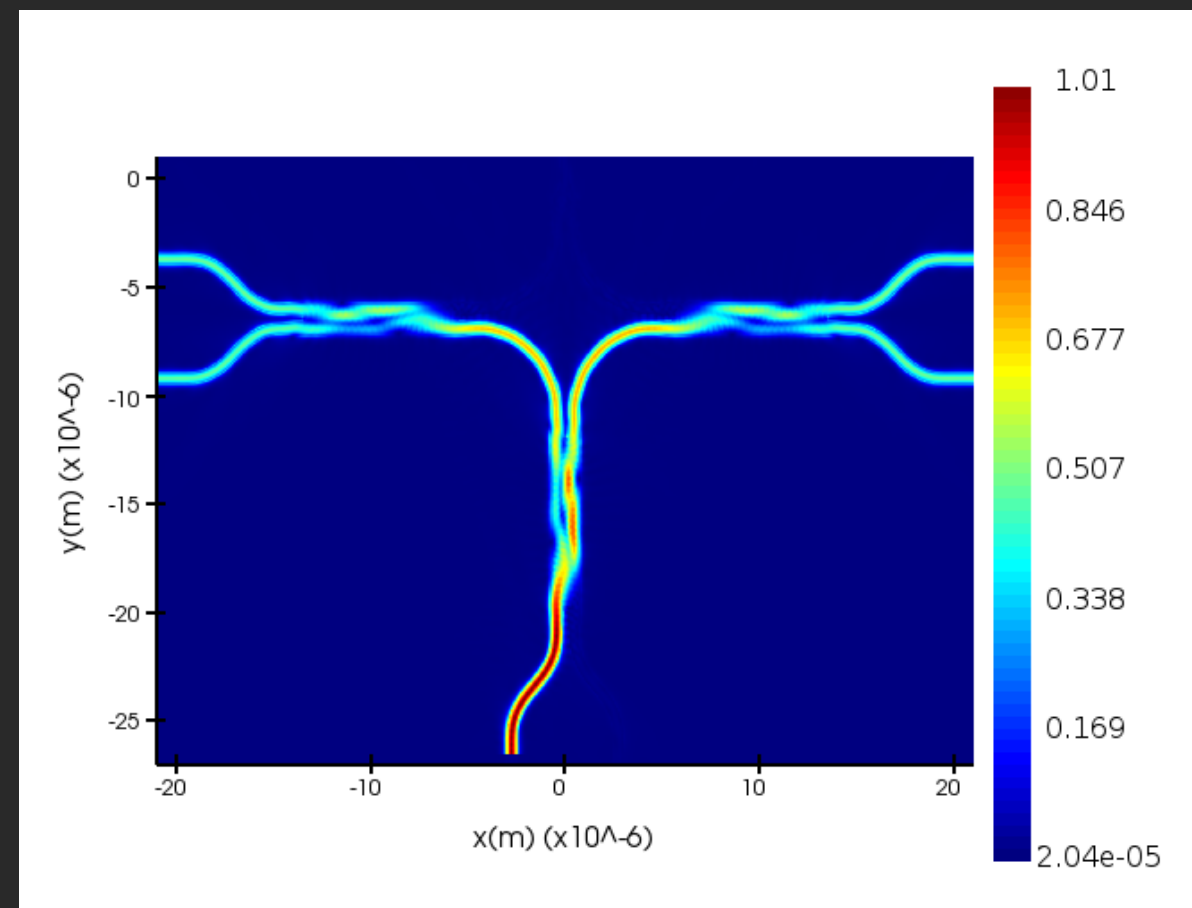
Simulação FDTD

Resultados, Porta LO



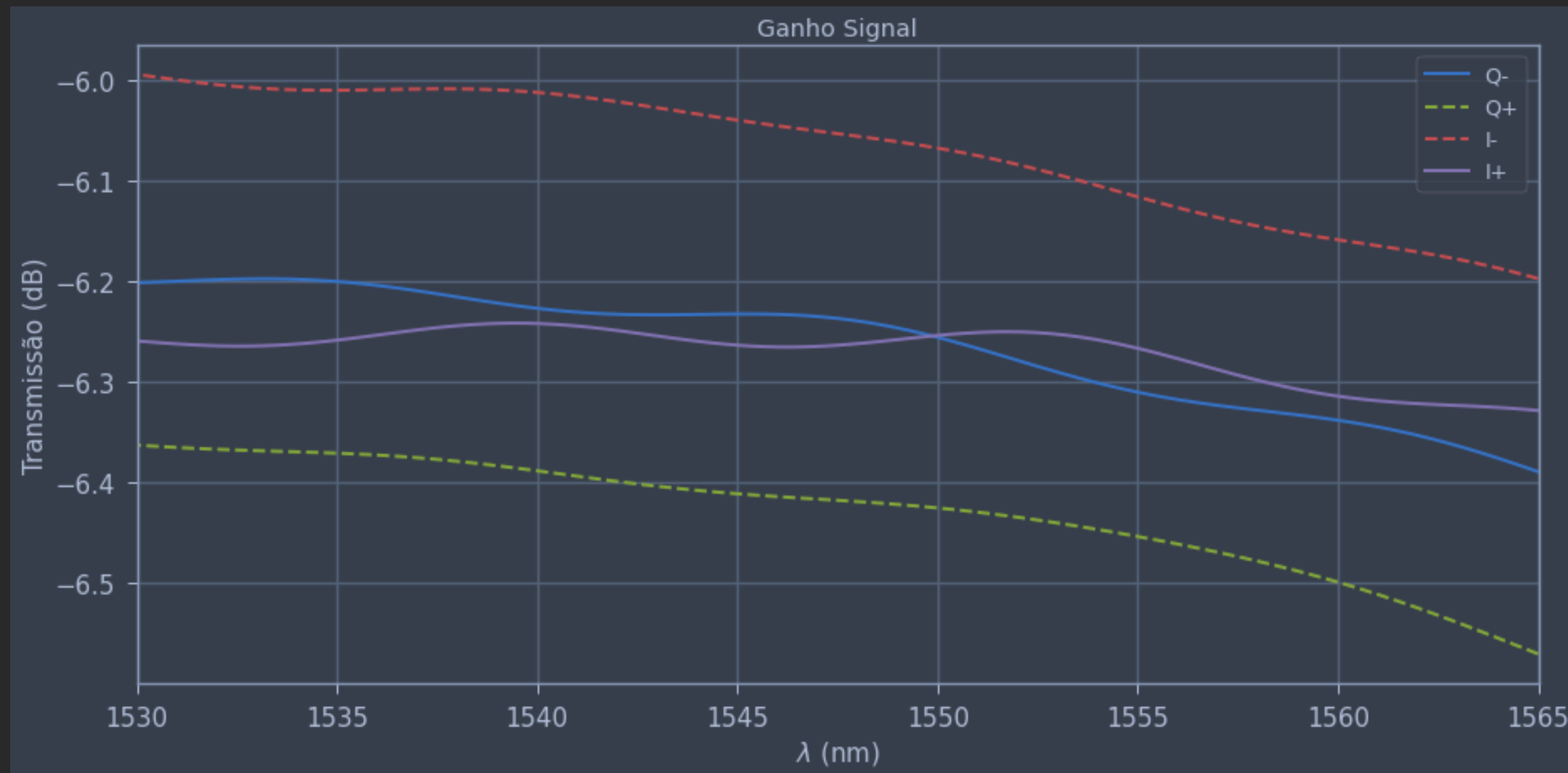
Simulação FDTD

Resultados, Porta Signal



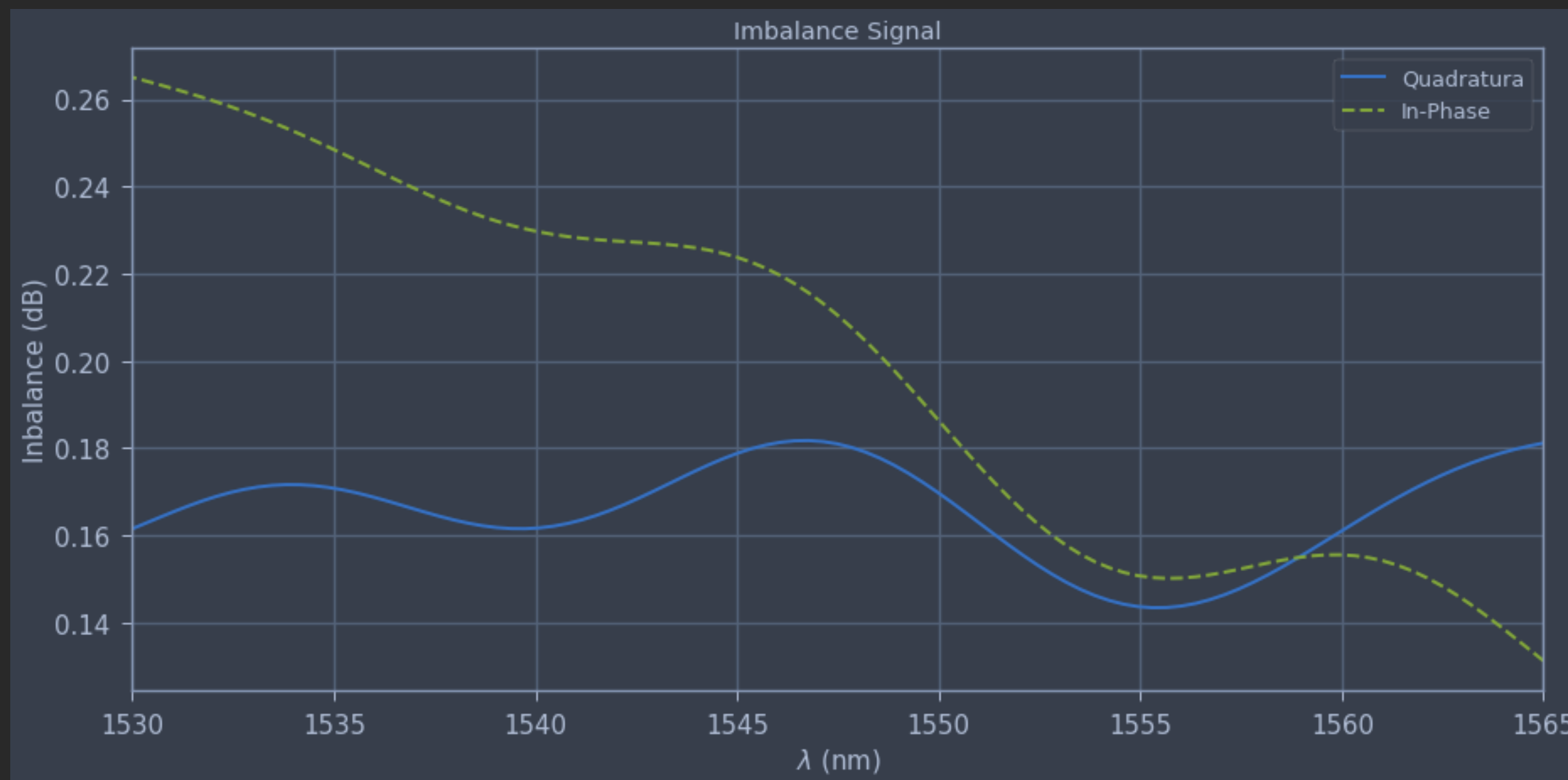
Simulação FDTD

Resultados, Porta Signal



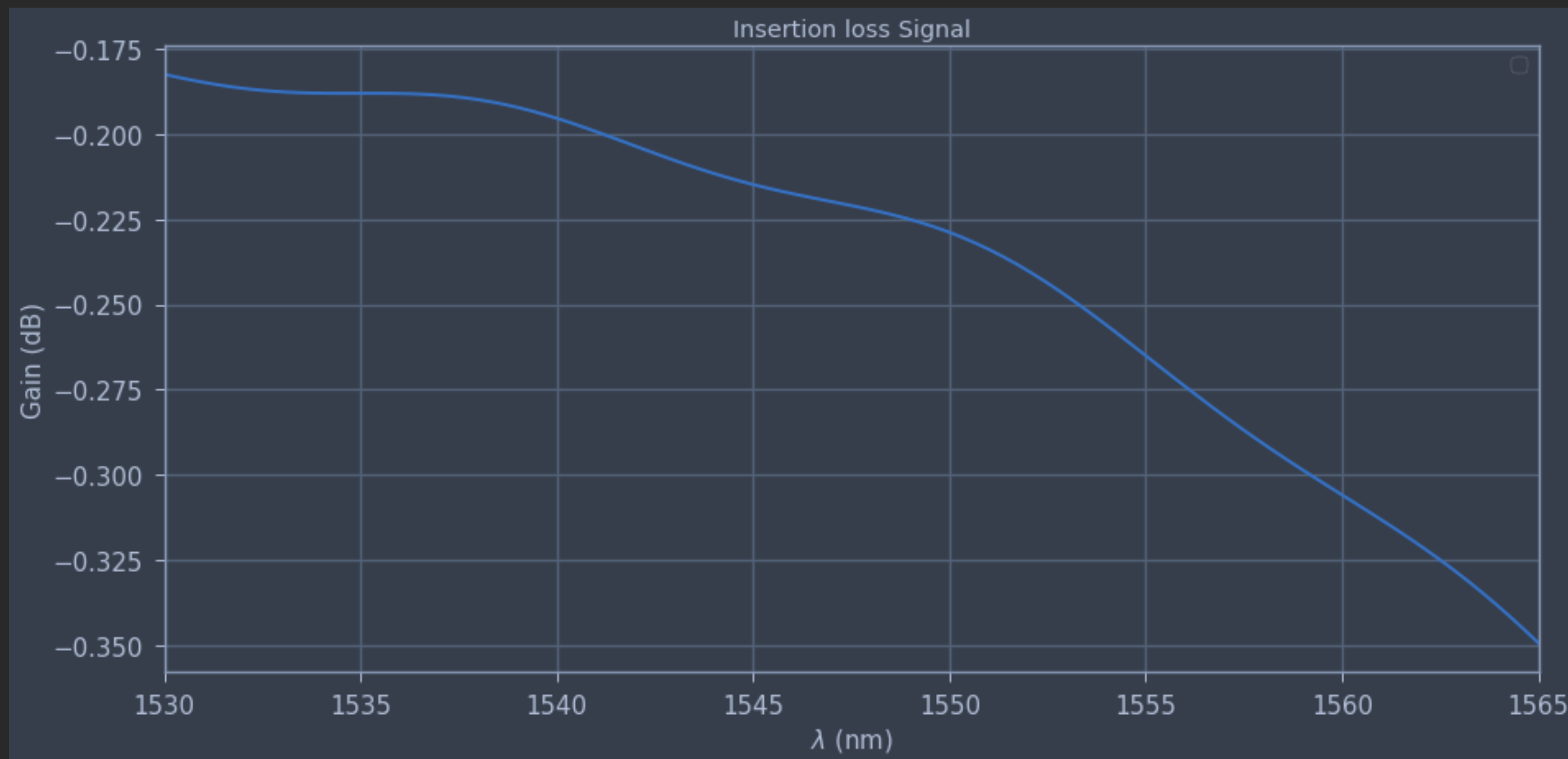
Simulação FDTD

Resultados, Porta Signal



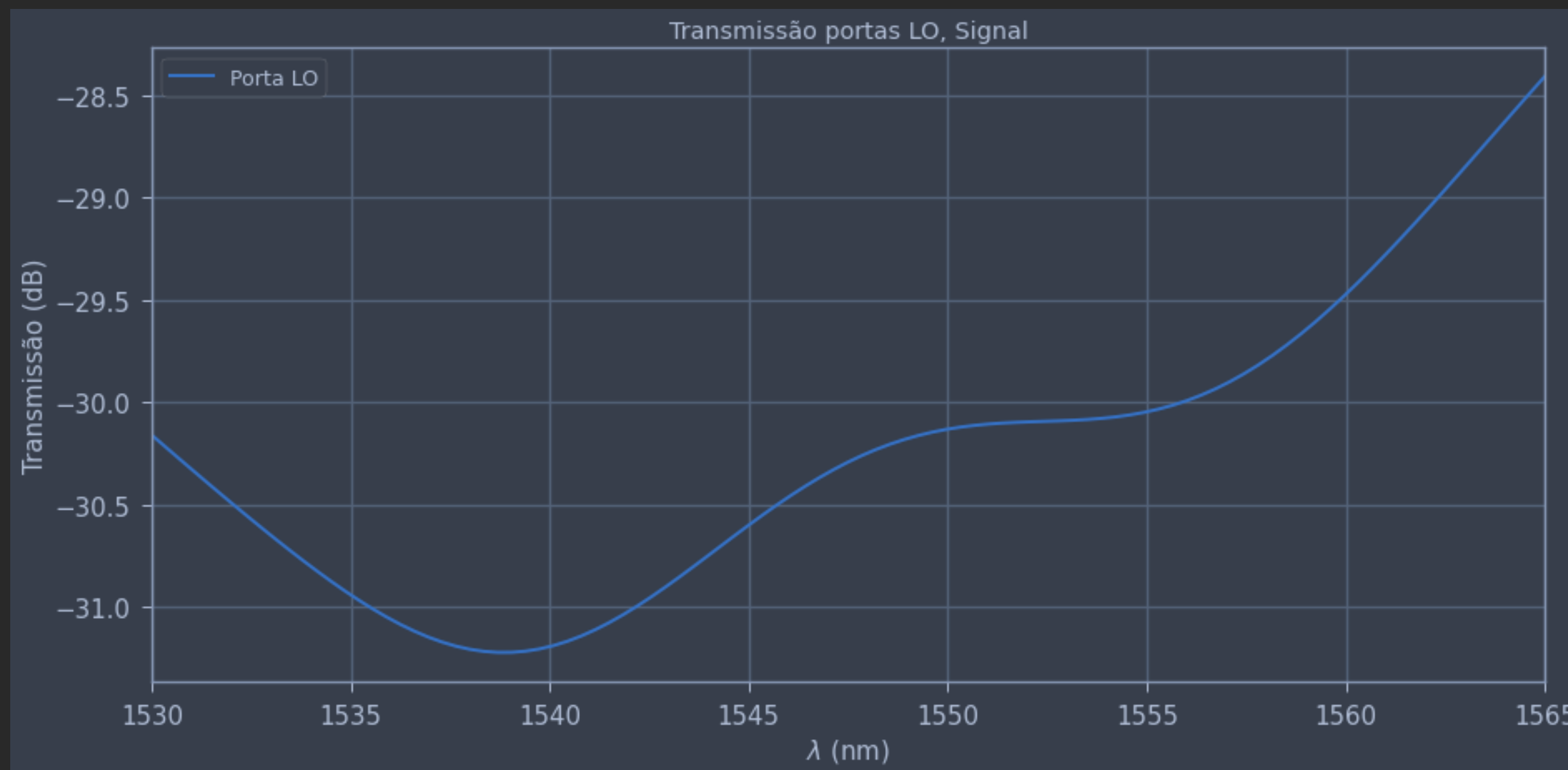
Simulação FDTD

Resultados, Porta Signal



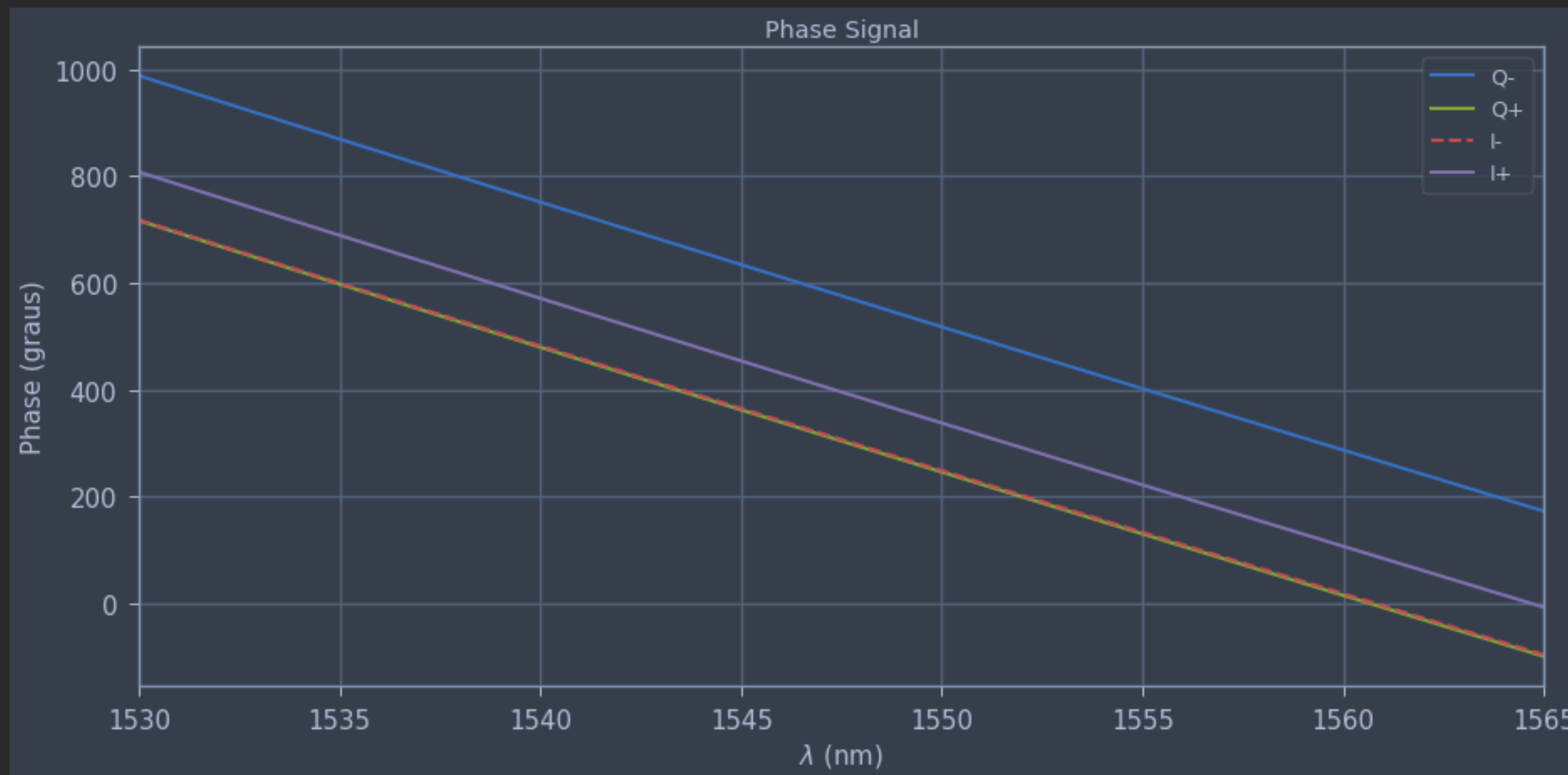
Simulação FDTD

Resultados, Porta Signal



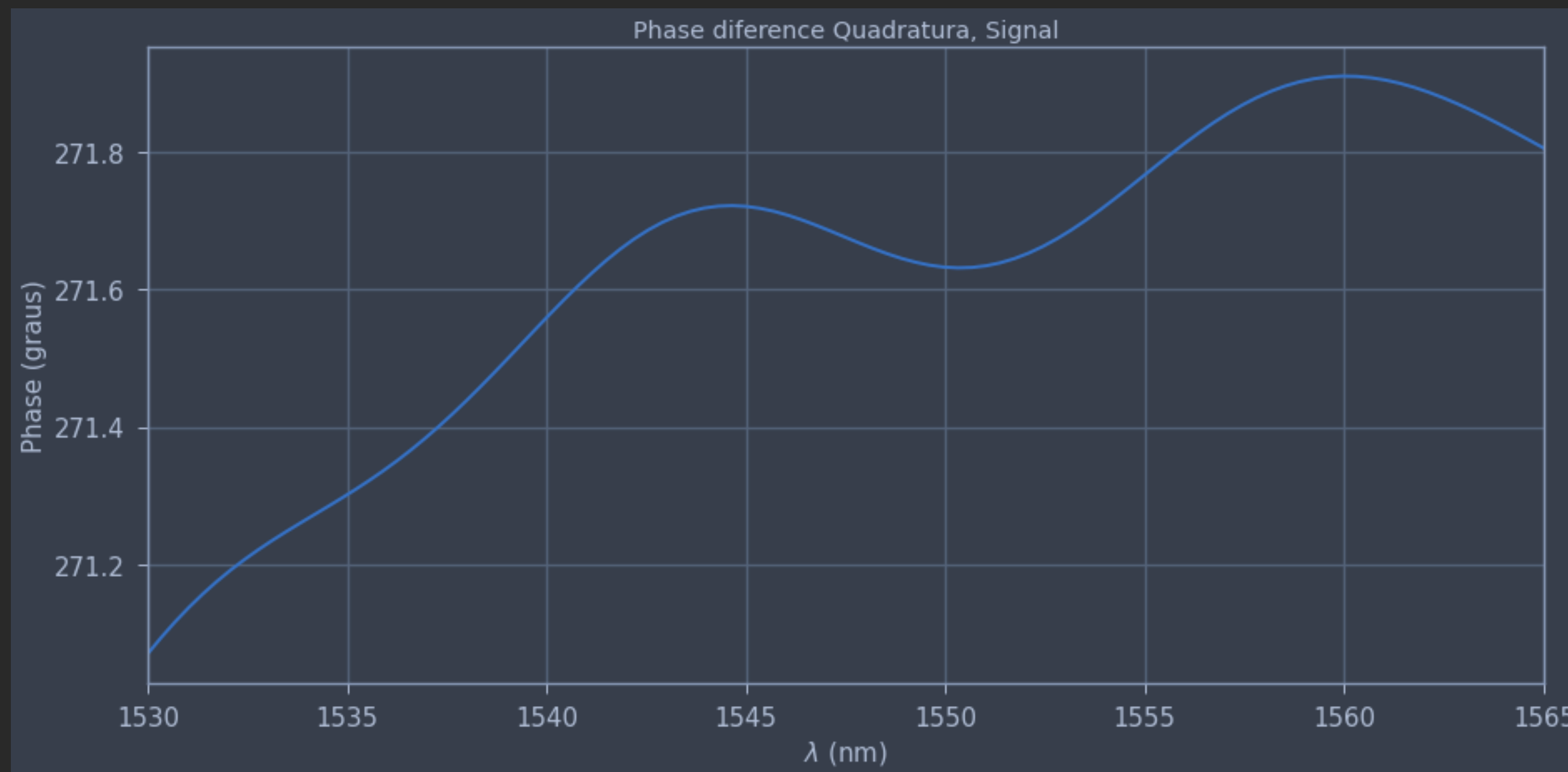
Simulação FDTD

Resultados, Porta Signal



Simulação FDTD

Resultados, Porta Signal



Simulação FDTD

Resultados, Porta Signal

