

Project 2: Fabry-Perot Cavity

- Design objectives:
 - Maximize bandwidth of cavity
 - Minimize FSR of cavity
 - Since we have a sweep of 0.2 nm, need an FSR of 0.1
 - Gives a desired length of 3800 μm (design has 3600 μm)

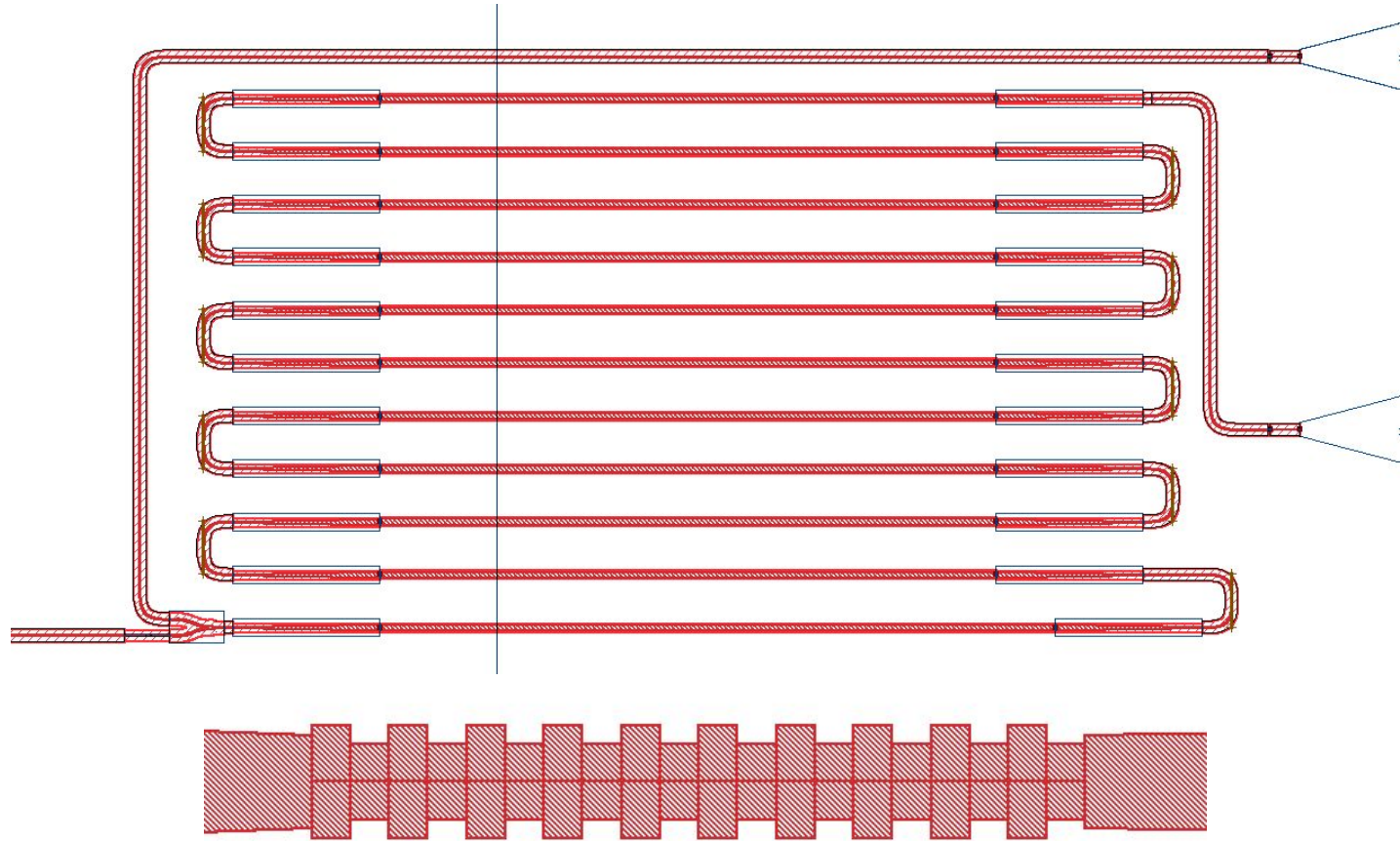
Param	Value
Cavity Length	3800 μm
Period	293 nm
# Periods	10
dW	70 nm

Outcome	Value
FSR	0.05 nm
Bragg Bandwidth	35 nm
Max Q	135k

Layout

Used 2 μ m wide waveguides for cavity, tapered at turns.

Cell name:
design_ethanj



Simulations

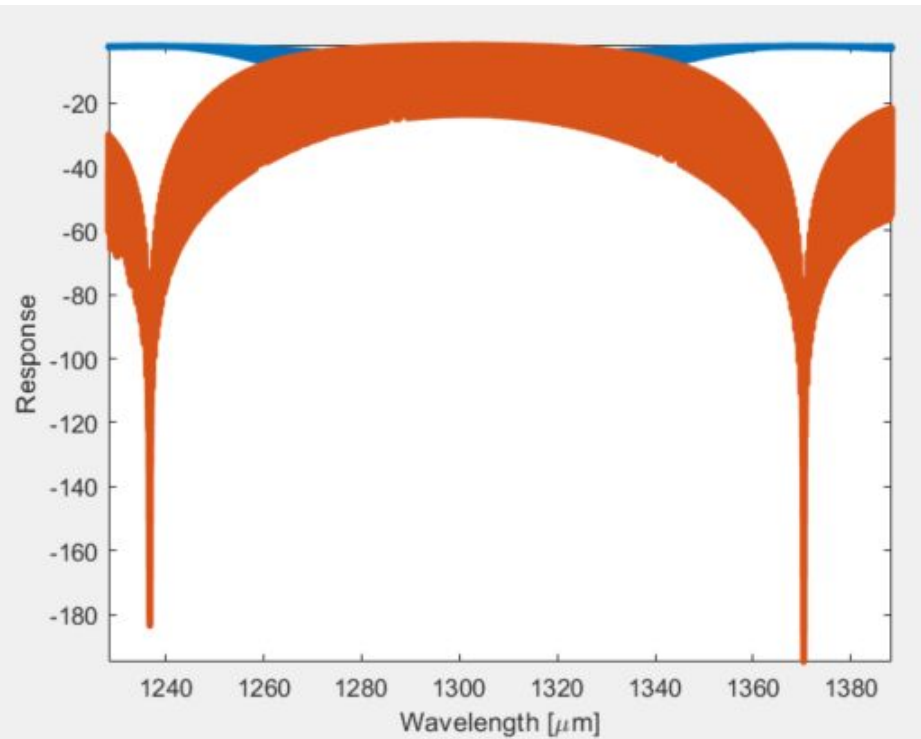


Fig 1. Simulated FP cavity, full spectrum

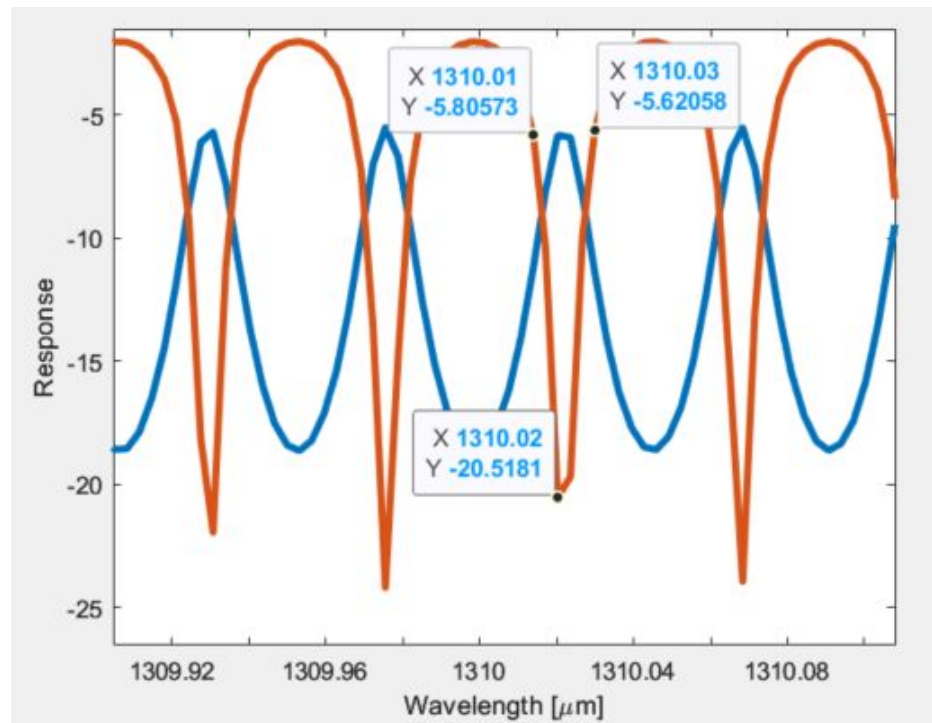


Fig 2. Simulated FP cavity, zoomed in on modes

Project 1: Param Sweeps of Project 2

I wrote Python scripts to generate several variations of Fabry-Perot cavities

Variations include:

- **# Periods:** 2, 5, 8, 10, 13, 15, 18, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 90, 100, 115, 130, 150, 175, 200
- **Period:** 260 nm, 270 nm, 280 nm, 290 nm, 300 nm
- **Cavity Length:** 10 μm , 15 μm , 20 μm , 30 μm , 50 μm , 65 μm , 80 μm , 100 μm , 150 μm