Ring Resonator

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OBJECTIVES

- Recreate and optimize Lumerical guide.
- Create an Halfring with obtain results.
- Create an .GDS circuit with the results.

THEORETICAL RESULTS

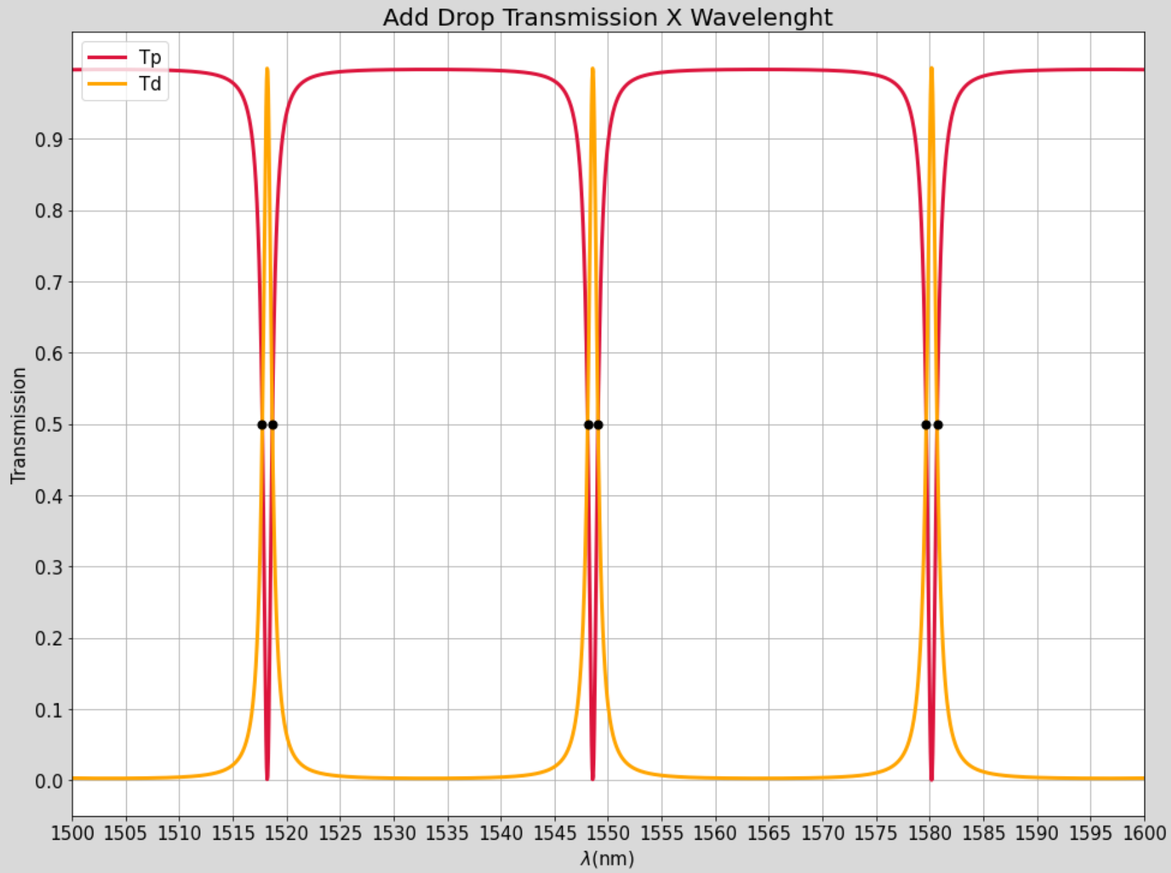
FWHM = 0.8 nm

Fsr = 25.6 nm

Q = 1630.72

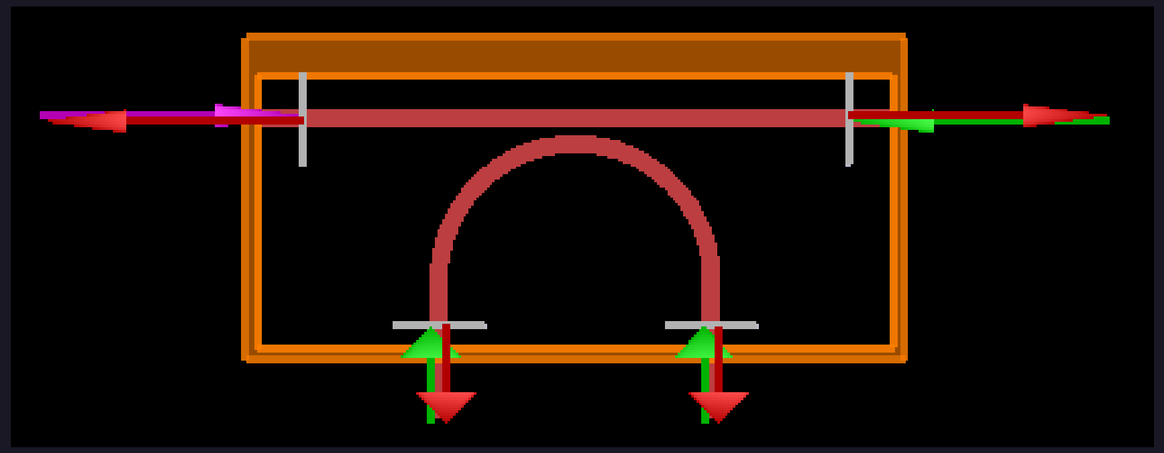
Finesse = 31.95

$K^2 = 0.0936$

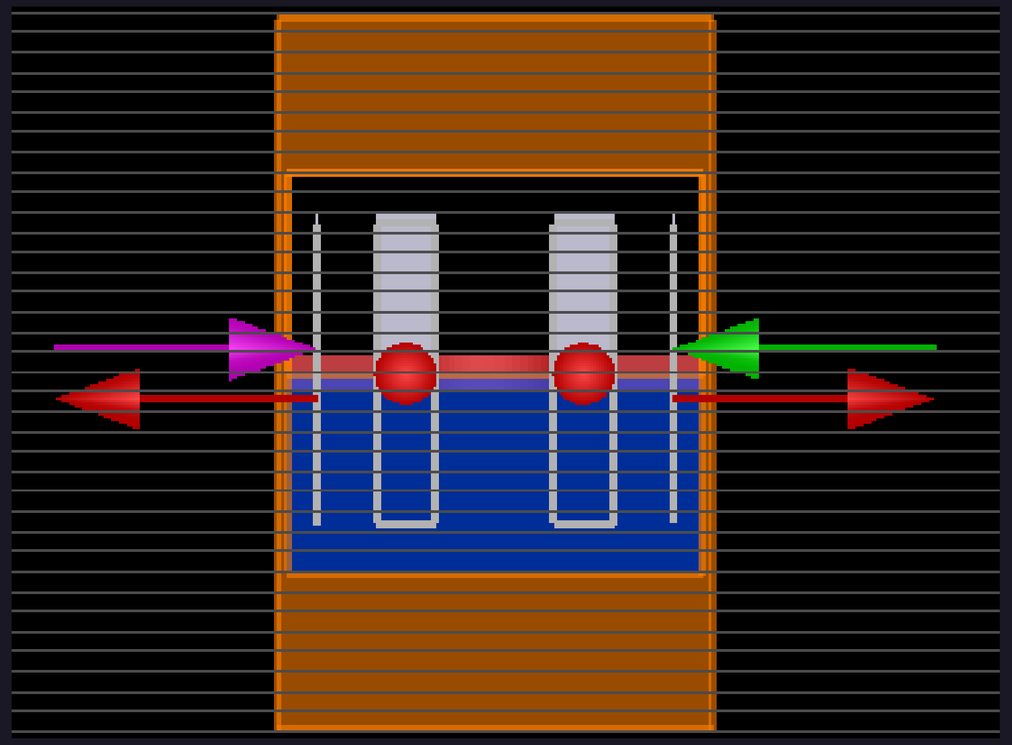


FDTD HALFRING

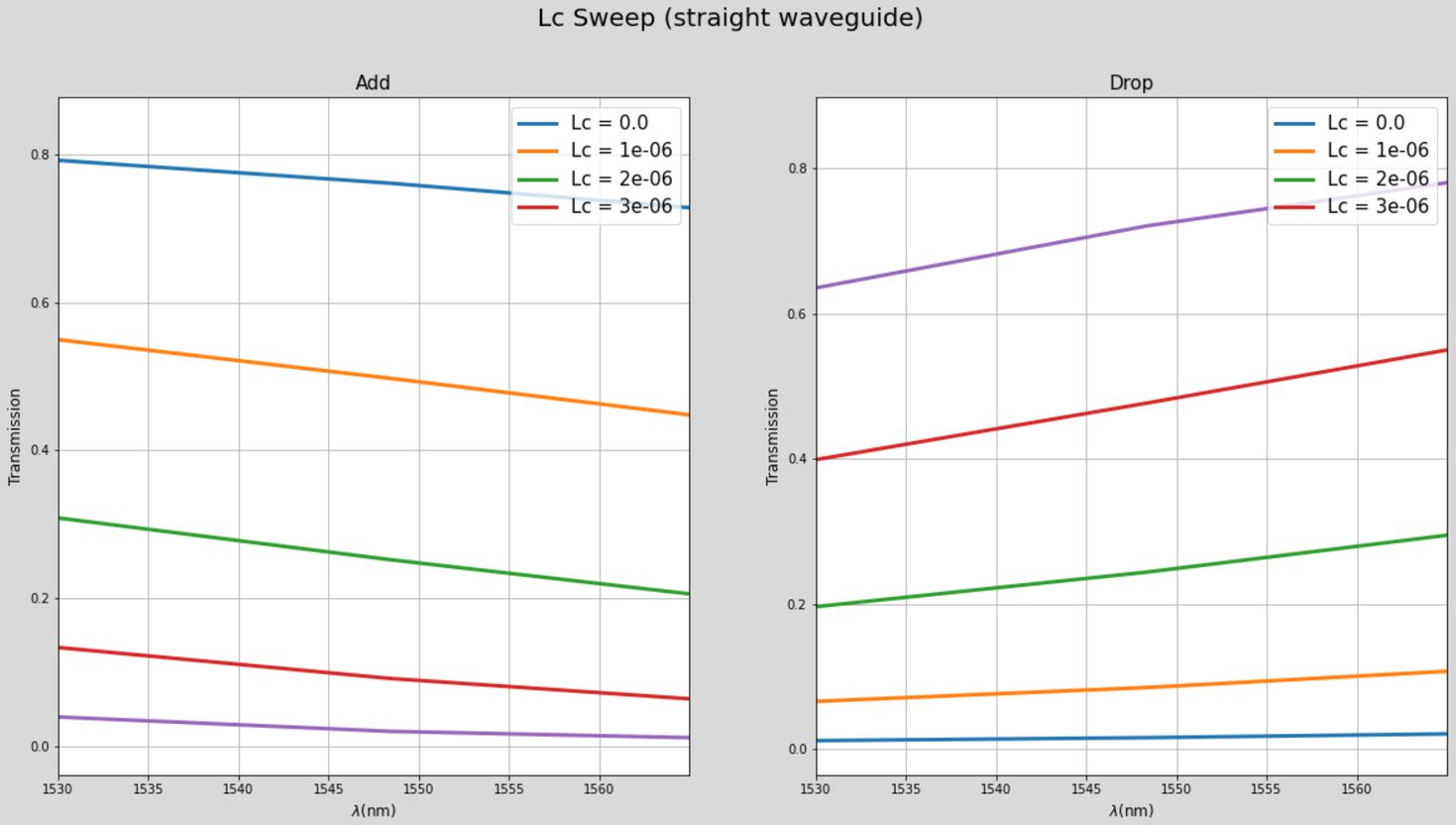
XY



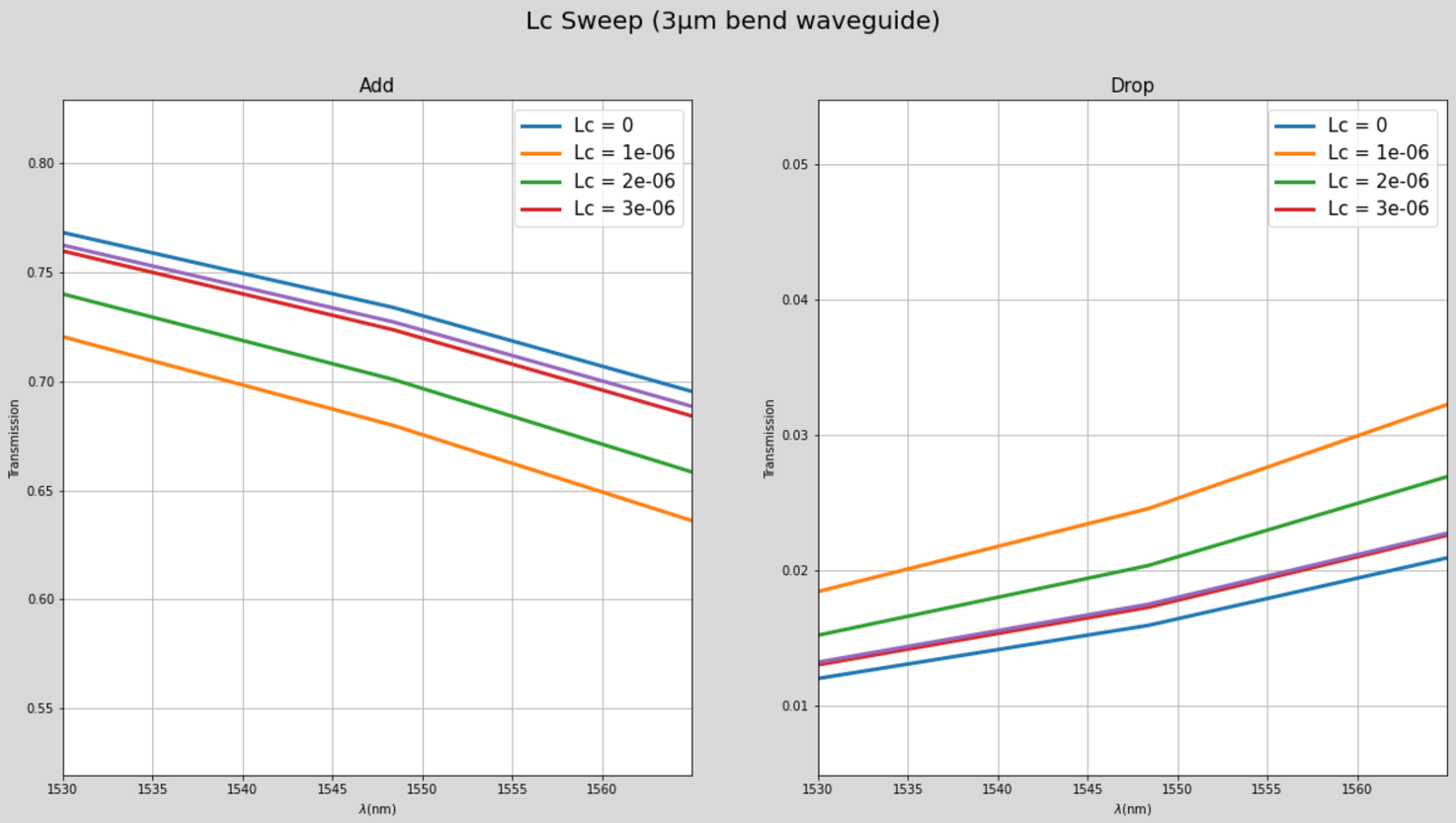
XZ



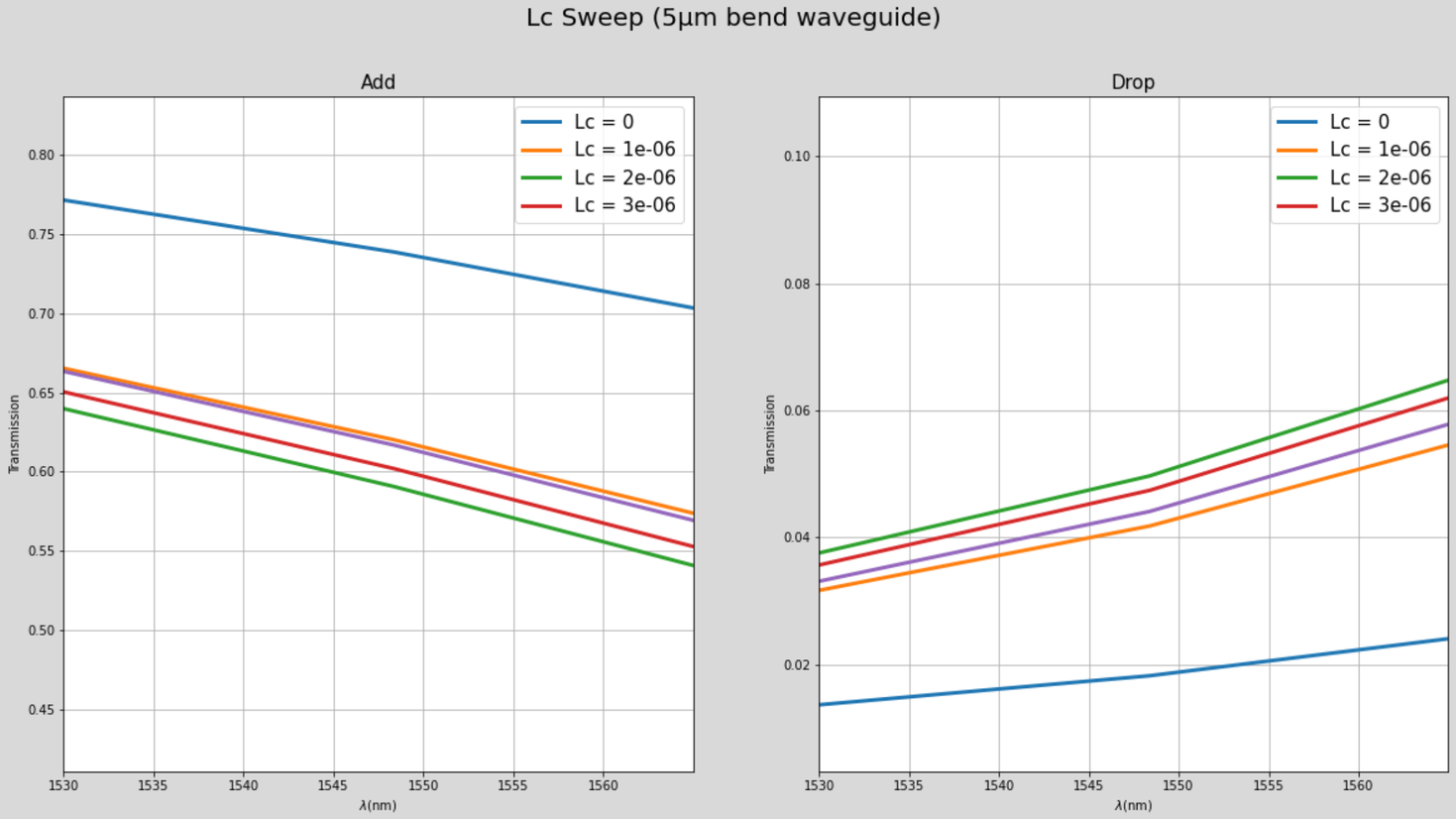
LC SWEEPS


Lc Sweep (straight waveguide)
Add
Drop
Lc = 0.0
Lc = 1e-06
Lc = 2e-06
Lc = 3e-06
Transmission
λ(nm)
0.0
0.2
0.4
0.6
0.8
1530
1535
1540
1545
1550
1555
1560

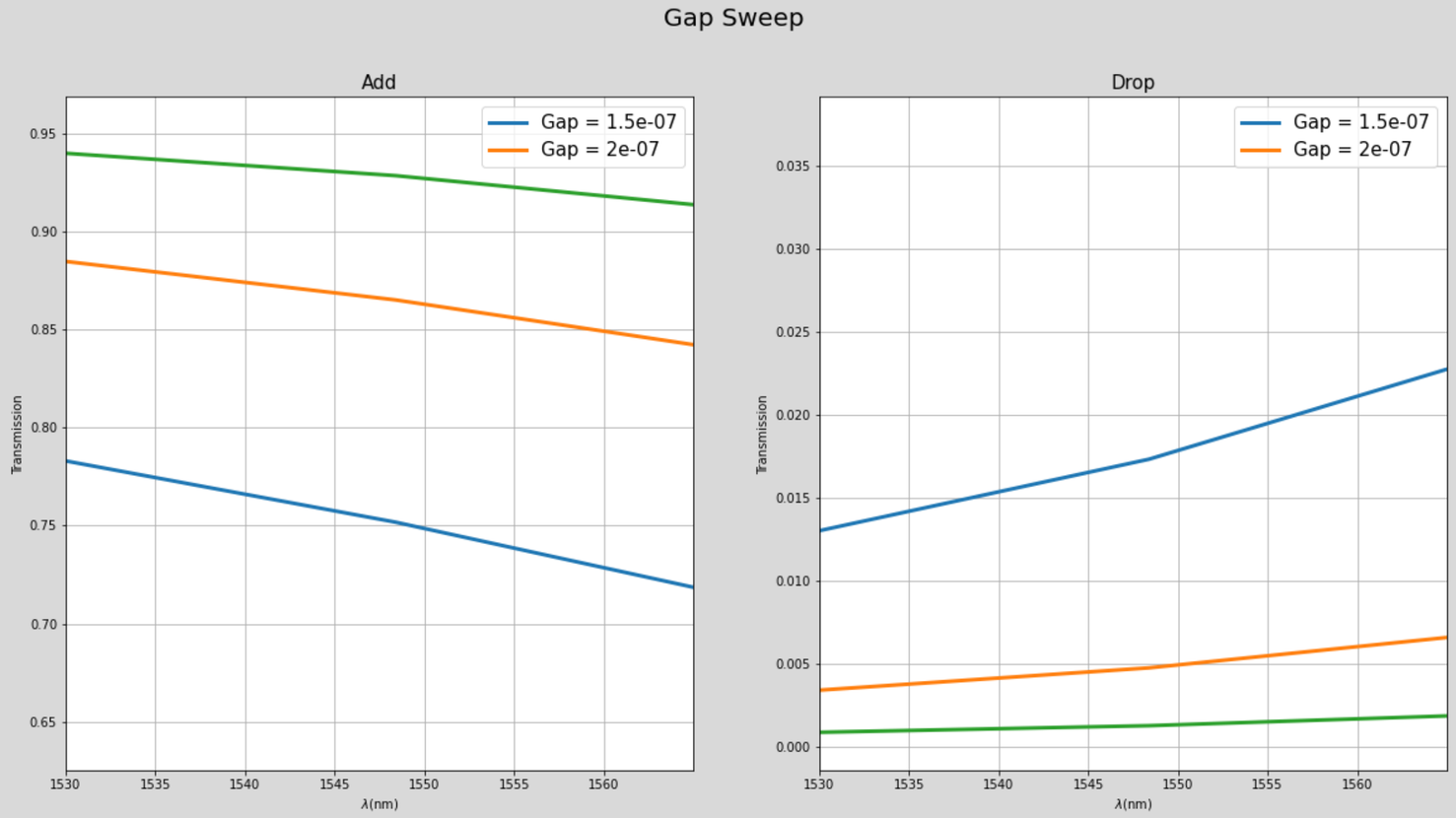
BEND WAVEGUIDES



BEND WAVEGUIDES

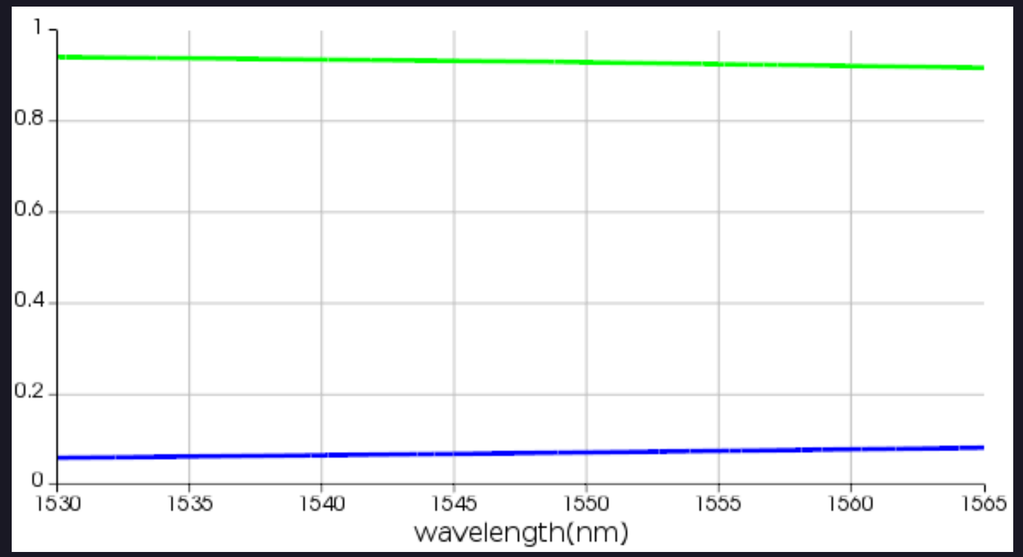


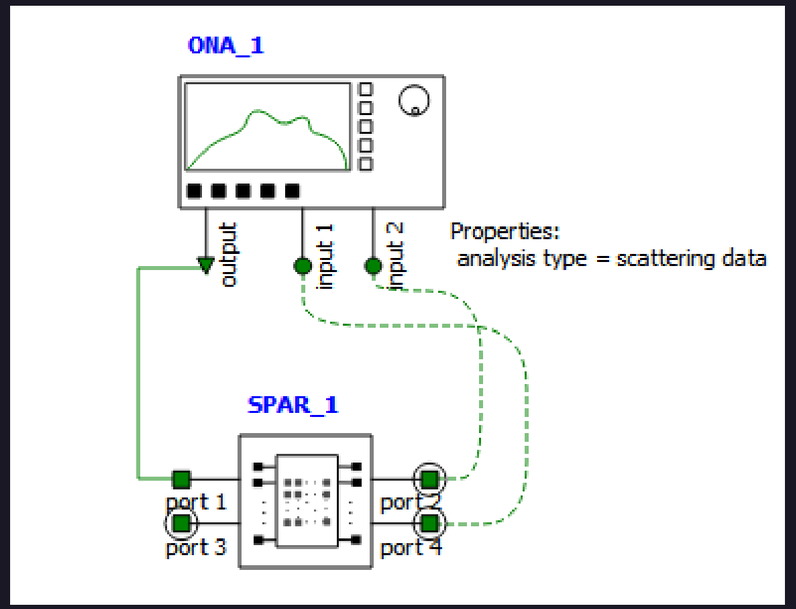
GAP SWEEP


Gap Sweep
Add
Drop
Gap = 1.5e-07
Gap = 2e-07
Transmission
λ(nm)
0.95
0.90
0.85
0.80
0.75
0.70
0.65
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
1530
1535
1540
1545
1550
1555
1560

Export Results

Gap = 150nm Lc = 0nm

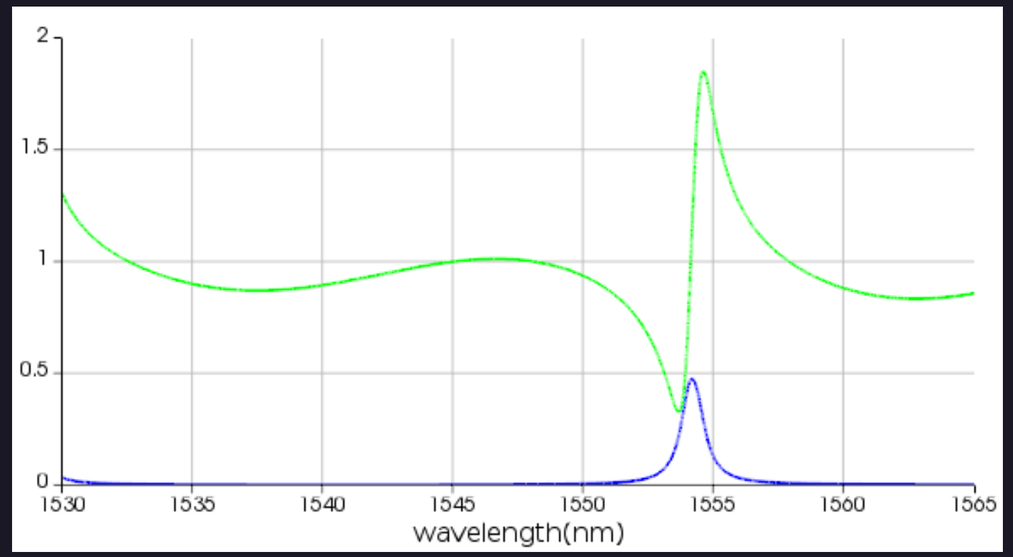


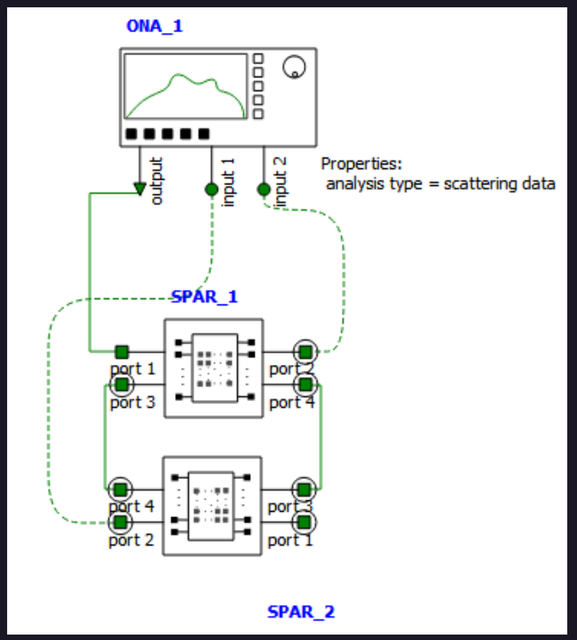


HALFRING

Export Results

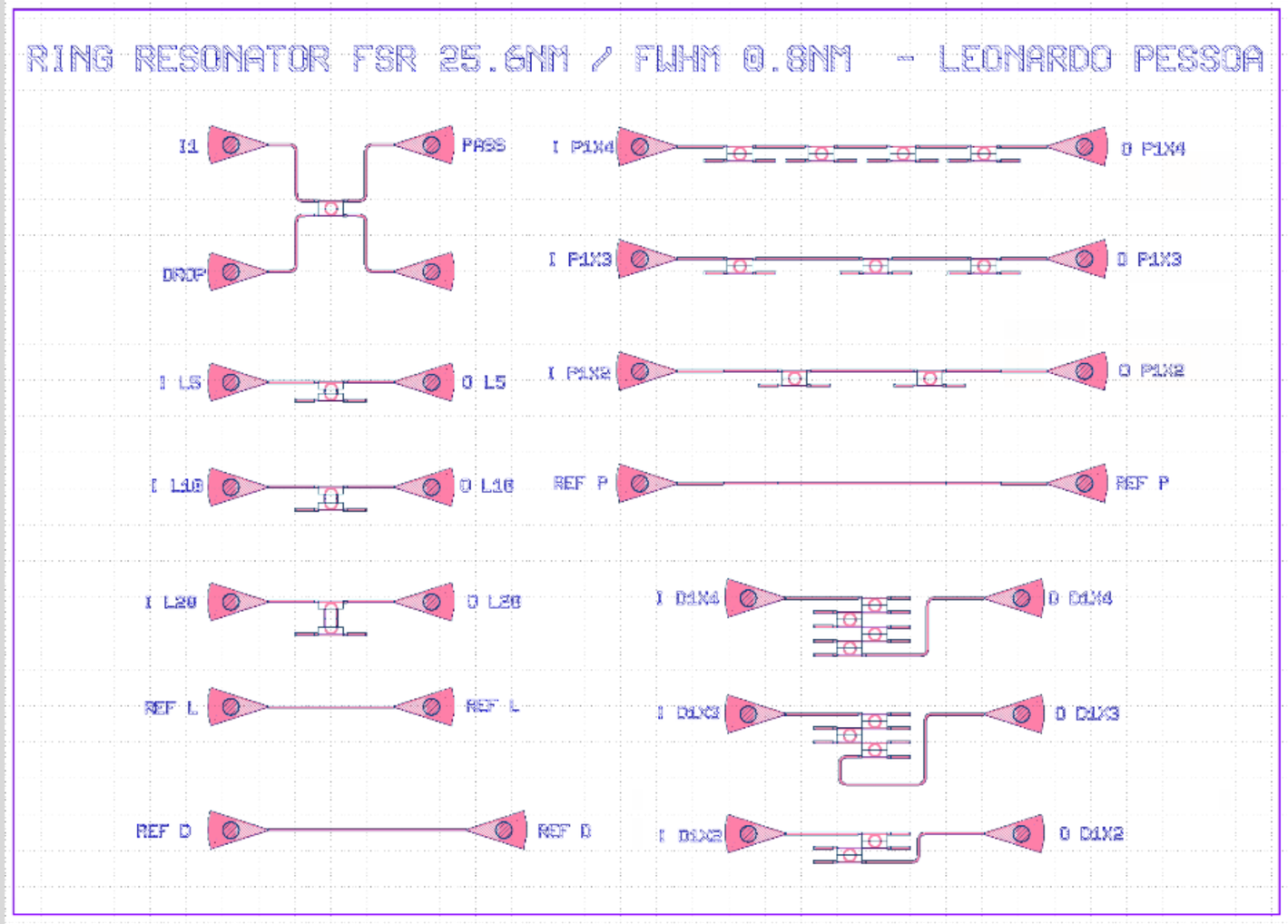
Gap = 150nm Lc = 0nm





RING

KLAYOUT CIRCUIT



CONCLUSION

Interconnect Values:
FWHM = 0.9nm
FSR = 25.5nm
Q = 1548.6
Finesse = 25.8

Unespected result in the Interconnect Ring Transmission.