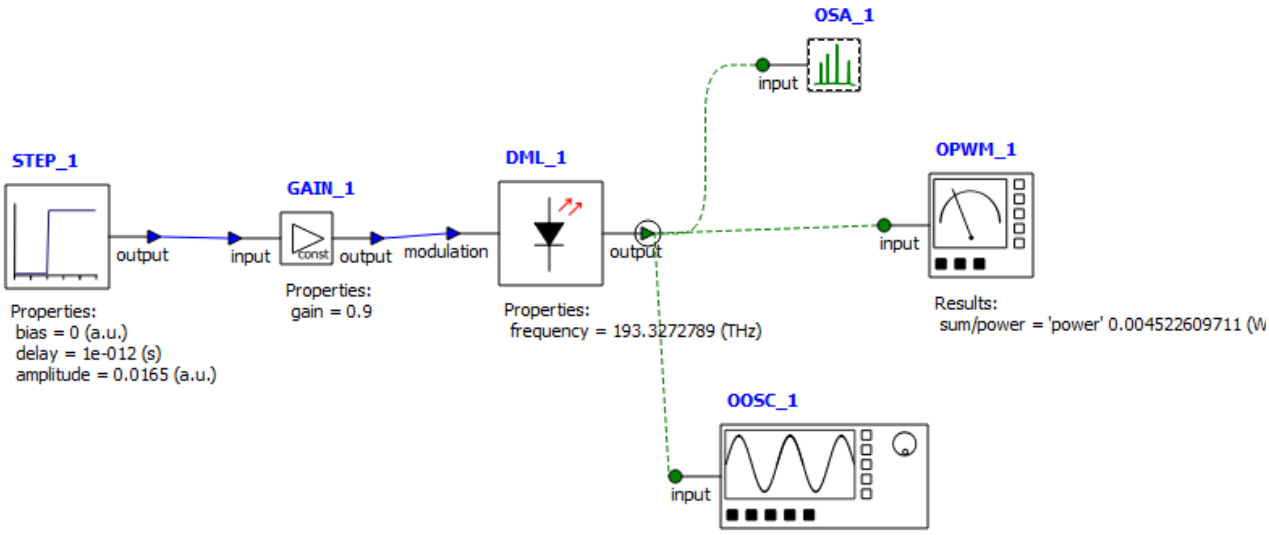
Or Bahari #51277200
University of British Columbia, Canada
orbahari@mail.tau.ac.il

ELEC413 – Lumerical 0D HW

Question 1:

Picture of the simulation:



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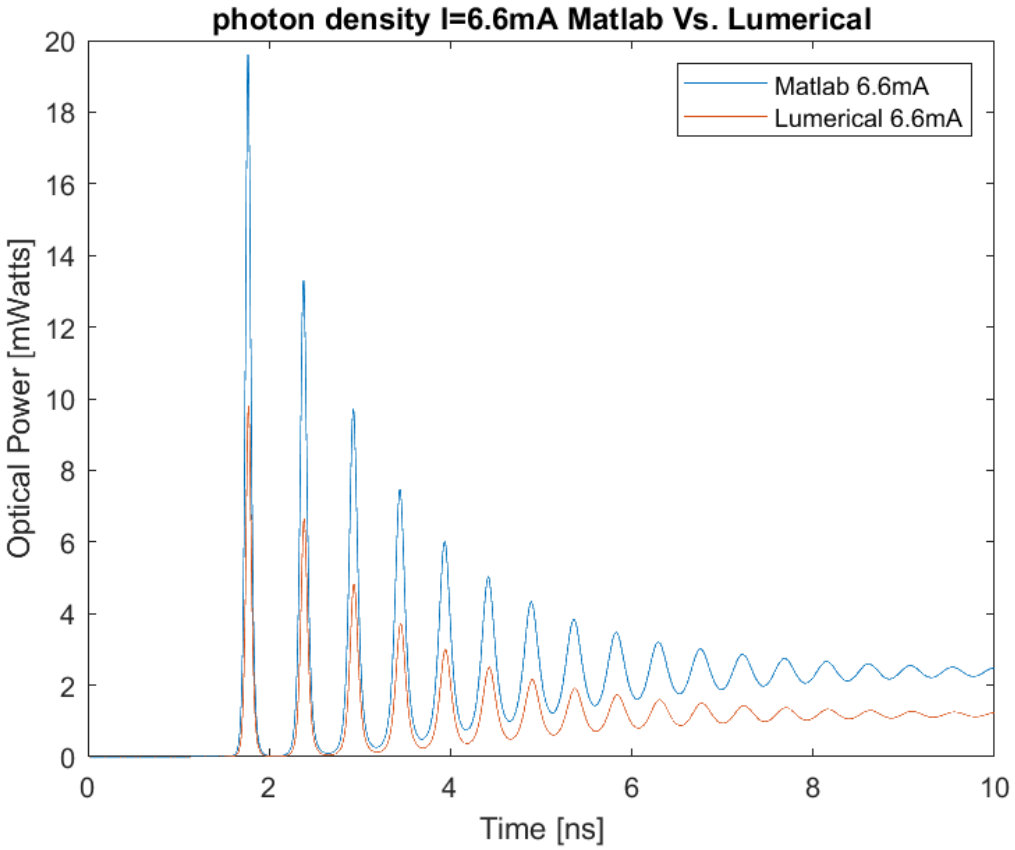
Question 2.1: Oscillations:

I=2xIth=6.6mA, Matlab Vs. Interconnect:



We can see that the amplitude in Matlab is 2Xtimes bigger, this is probably due to the different in the mirror reflectivity between the 2 models.

Matlab – same R, 2 mirrors.

Vs. Lumerical – 1 mirror with 100% reflectivity.

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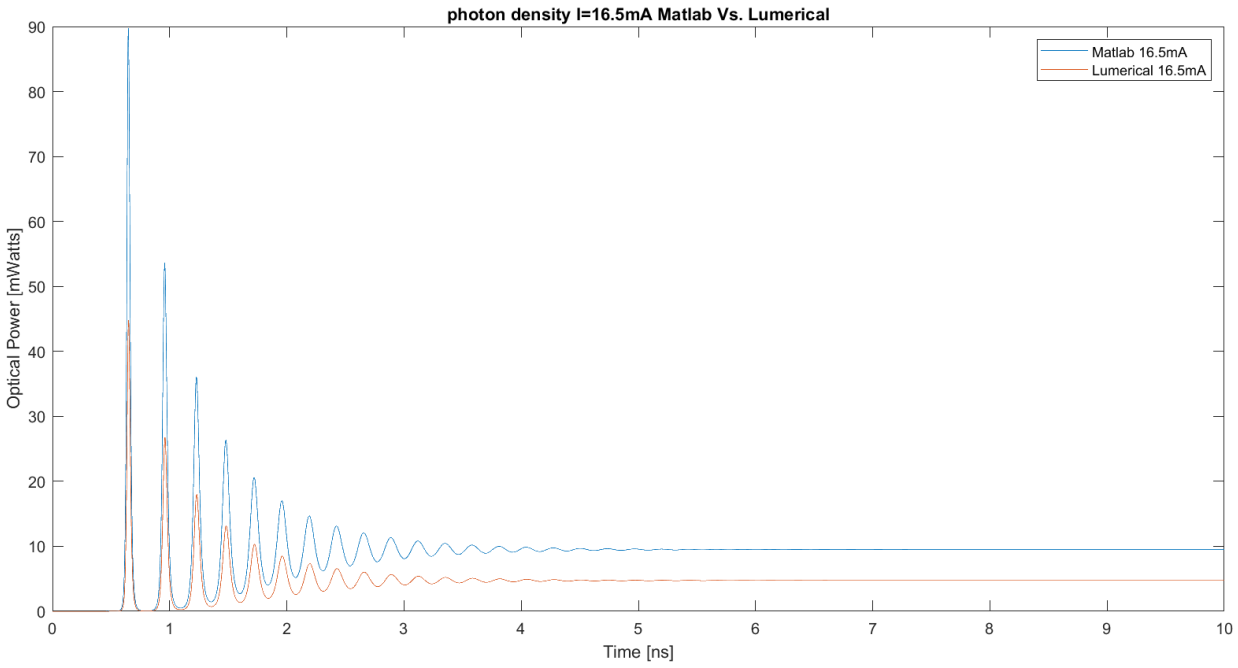
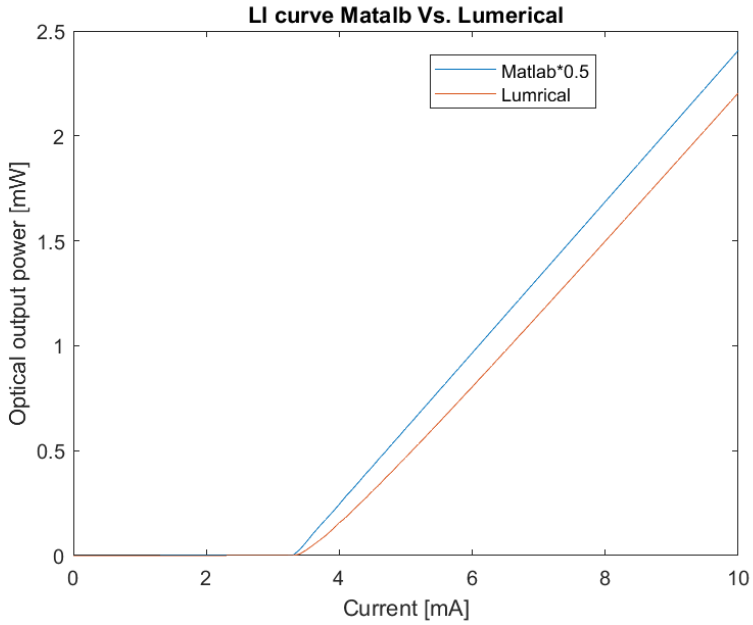
I=5xIth=16.5mA, Matlab Vs. Interconnect:



Same effect. Yay! ☺

Question 2.2: LI curve Matalb Vs. Lumircal Interconnect, **I TOOK CARE OF THE POWER 0.5 FACTOR AND PLOTTED THE POWER FROM MATLAB FACTORED BY 0.5.**



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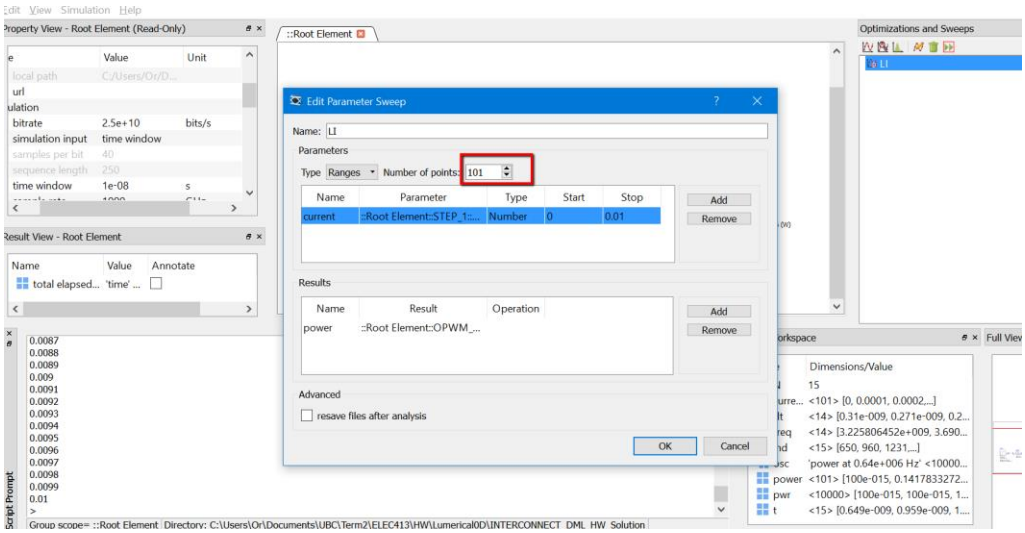
Note: I took 101 points in the LI sweep simulation as done in Matlab, so that the power vectors will have the same lengths. Also, the current range is the same.



Also, an easy way to get the answer for Q1 on edX would be, typing in matlab after loading the data from interconnect:

```
power(101)

ans =

   0.0022
```

Therefore: P(I=10mA)=2.2mWatts

Differences: can be due to losses that taken into count in the Lumerical model, other parameters like different G0 and alpha_h that were described in the edX.