

Read me first:

Welcome! Our project consists of several different parts. Here is a simple guide for navigating through it:

- 1) First of all, and most importantly, please make sure you open and run the 'functions.py' file before running anything else.
- 2) In the 'main.py' file you will find the main code that simulates optical systems using all types of matrices from the article. This is an interactive code, please do play with it!

Note that in the code, when choosing any of the prisms, you will be asked to give parameters for the refractive index. The parameters are fed into the known equation:

$$n^2 - 1 = \frac{A\lambda^2}{\lambda^2 - D} + \frac{B\lambda^2}{\lambda^2 - E} + \frac{C\lambda^2}{\lambda^2 - F}$$

- 3) In the files 'use case 1.py', 'use case 2.py', 'use case 3.py', you will find the codes we used for simulating and plotting all the configurations detailed in the article.
- 4) In the files 'monochromator.py', 'pulse shaper.py' you will find the codes we used to simulate and plot the configurations of grating-based pulse shaper, and a monochromator, respectively (the monochromator is our extra use case).
- 5) In 'LMI_final_project.pdf' you will find the journal paper.

Enjoy!