Read Me

Please read the "Light_Pulse" file first, as it contains the majority of the code annotations. In the "Meilleur_Foyer" file, only the parts that differ have been annotated. This compressed package includes the following four files:

1. Light_Pulse
Used to simulate the propagation of light pulses.

2. Meilleur_Foyer
Used to calculate beam deviation due to chromatic aberration and to analyze light propagation under partially corrected aberrations at the best focal point.

3. PPT
Showcases the main results of our simulations.

4. This Document
Provides a description of the purpose and functions of each file.

Both code files (Light_Pulse and Meilleur_Foyer) share a similar overall structure and contain five main functions:

1. Propagation_in_free_space
Performs three FFTs (Fast Fourier Transforms) to simulate fiber transmission in free space.

2. Meilleur_Foyer
Calculates fiber transmission under conditions of partially corrected aberrations.

3. Three additional plotting functions Generate beam propagation diagrams at various positions.

Naming Conventions:
- r denotes red light (650 nm)
- g denotes green light (550 nm)
- b denotes blue light (450 nm)
- c denotes "complet," referring to light propagation when the three wavelengths are superimposed

We simulate aberrations by modifying the pupil phase condition in Propagation_in_free_space, and apply the Meilleur Foyer principle from optics to calculate beam transmission under this aberration-corrected scenario.