Optiwave

OptiFiber
Optical Fiber Design Software

Dispersion Shifted Fiber

Applications

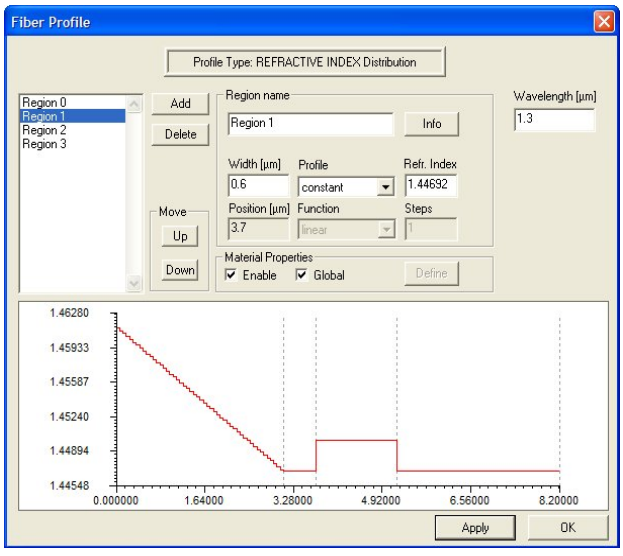
Modelling, simulation, and design of single and multimode optical fibers. Use OptiFiber to calculate:

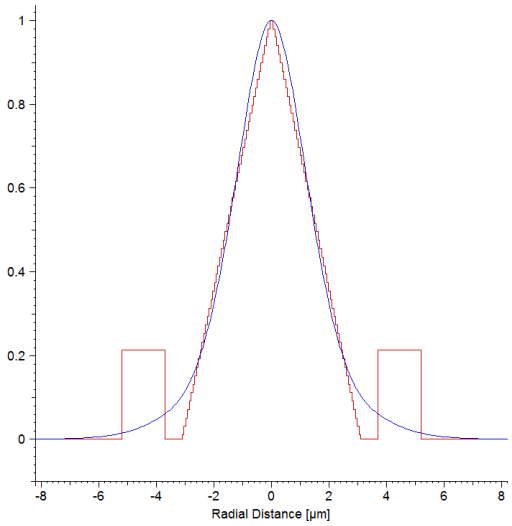
- Modal indices and field patterns
- Waveguide and material dispersion
- Optical glass material properties
- Bend loss, Spice loss, Material loss
- Mode field measures (Peterman I and II, MFD, Effective Area)

Overview

OptiFiber is a collection of mode solvers and analysis tools specialized for optical fibers. OptiFiber can find LP modes and full vector modes for multilayer and graded optical fibers. From the mode solutions, OptiFiber calculates and displays many parameters important in optical fiber design, such as group delay and dispersion, micro and macro bending losses, splice loss, and mode measures. OptiFiber has an easy-to-use scanning utility, enabling the optimization of fiber designs.

Dispersion Shifted Fiber





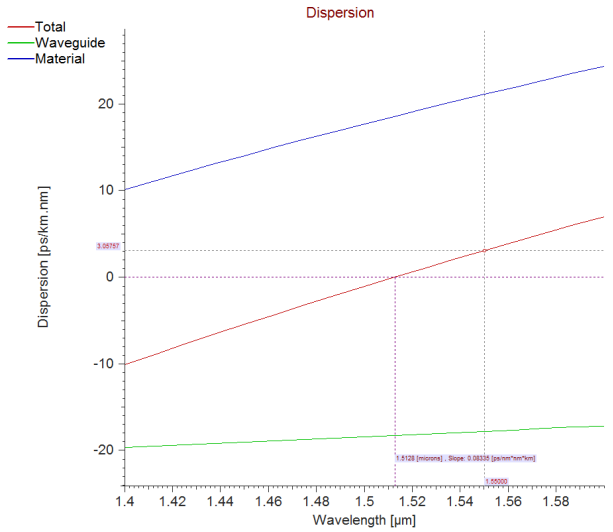
Benefits

- Quickly identify modes and propagation characteristics of optical fibers
- Scan parameters to optimize
- Reduces product development costs

Simulation Description

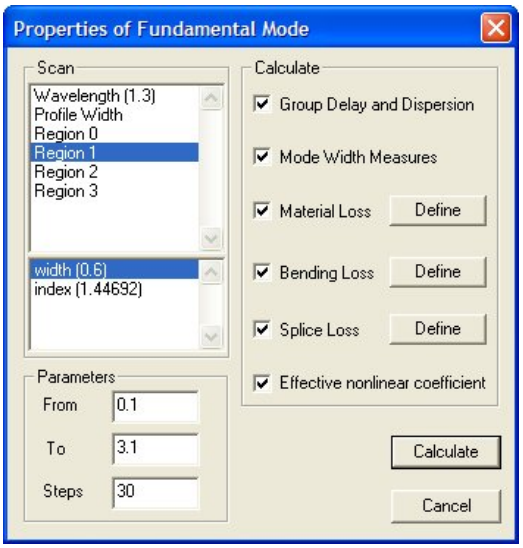
The optical fiber profile is the refractive index vs. the radius. The fiber can consist of layers of constant refractive index, or graded refractive index.

OptiFiber calculates the dispersion of the fiber over a range of wavelengths.

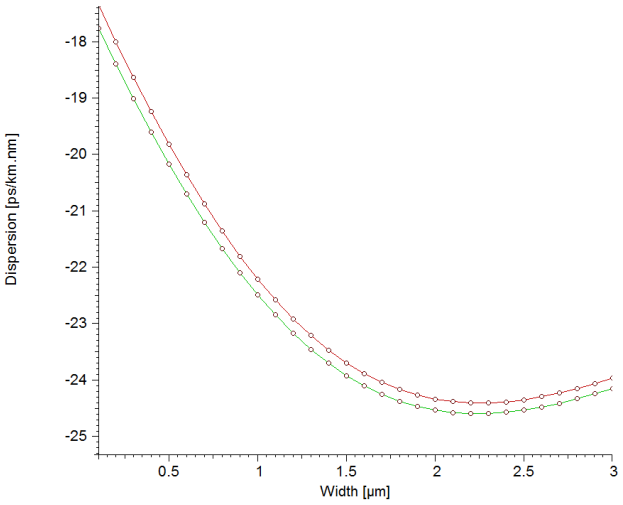


In this example, we will modify the fiber design to obtain zero dispersion at the selected wavelength of 1.55 µm. From the dispersion calculation, we see this design has a dispersion of about 3 ps/km/nm at the selected wavelength.

OptiFiber can plot dispersion and other quantities over various parameters. The parameters are selected from the Properties of Fundamental Mode dialog box



Here the width of Region 1, the layer between the core and the outer ring, is varied from 0.1 to 3.1.



From this graph, we see that in order to shift the dispersion by 3 ps/km/nm, the width will need to be increased to some value between 1.3 and 1.4 µm.

Going back and setting the width of Region 1 to 1.32 µm results in a fiber design with zero dispersion at 1.55 µm.