MOST

MOST[†], Multi-variable Optimization and Scanning Tool, is an exciting solution to the critical problem of design optimization for photonic devices. During the research or design cycle, it becomes vital to understand the full parameter space of the system. Acting as an automated driver for the RSoft physics-based simulators, MOST takes the drudgery out of these important operations by streamlining the definition, calculation and analysis of scans and optimizations. Moreover, if you own multiple copies of RSoft products, MOST can automate the distribution of work across your entire network with virtually a single mouse click.

Benefits

▸ Automatically scans and optimizes devices with minimal user interaction.
▸ Automates the design process to take out tedious work.
▸ A wide range of output and analysis features available through measurement and user-defined metric techniques.
▸ Fully integrated into the RSoft CAD Environment and with all of the component simulation tools (page 6).

Applications

MOST is applicable to any situation where a range of parameters need to be looked at or optimized including, but not limited to:

▸ Perform parameter scans over any design parameter in any number of dimensions
▸ Perform single and multiple variable local and global automated optimization
▸ Perform global optimization by genetic algorithm
▸ Automated distributed computation of scans and some optimizations with all of the passive component simulation tools.

Simulation Technology

MOST provides the most flexible scanning/ optimization environment available today. Measurements are generalized so that any type of data produced by any simulator can be treated in a uniform fashion. Thus, scanning modal effective indices calculated with BeamPROP is identical to scanning diffraction efficiencies calculated with DiffractMOD. In addition, vector and matrix quantities such as reflection spectra or modal profiles are scanned just as easily. Literally, any quantity produced by any RSoft tool can be the target of a scan or optimization.

[†]The scanning portion of MOST is included with all passive device simulation tools; optimization and distributed scanning are licensed separately.

Features

▸ Any quantity produced by any RSoft tool can be the target of a scan or optimization.

▸ Scans and optimizations can be performed over an arbitrary number of parameters.

▸ Automatic generation of line, contour, and 3D volume plots.

▸ "Data sliced" plots showing behavior in particular planes of the parameter space.

▸ Real time convergence plots to track the performance of optimizations.

▸ Data conveniently accessed and viewed within RSoft's customized DataBROWSER environment.

▸ Instantly reprocess existing data in different plot styles.

▸ Complete data dumps to file of any scanned quantity.

▸ Several optimization algorithms available for different types of convergence.

▸ Custom post-processing of simulation output to produce scans/optimizations of any parameter.

▸ Define new optimization algorithms with MOST through custom modules.
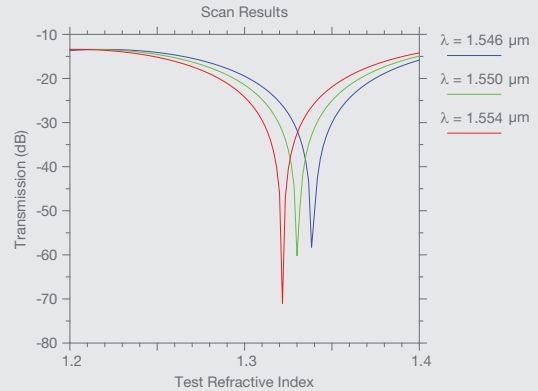
ModePROP scan results showing surface plasmon resonance locations for different operating wavelengths as a function of the refractive index of the test material.
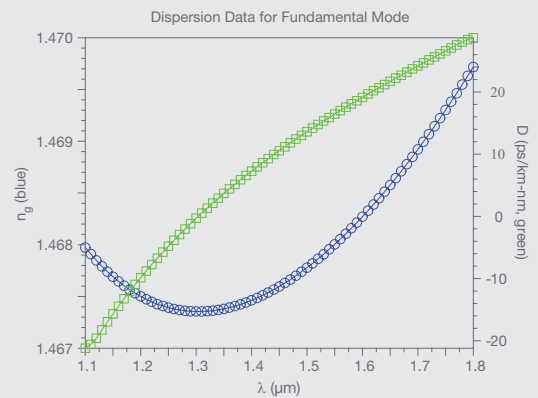
Computed dispersion parameters for a fiber found using BeamPROP and the scanning/post-processing capabilities of MOST.

SEE PAGE 42 FOR SYSTEM REQUIREMENTS