

Session 1 – June 4th 2019 – 3 Hours

Slides :

- Overview of the active devices which can be simulated in LaserMOD
 - Meshing of device cross-sections
 - Use of RSoft Mode Solvers
- Introduction of simulation methodology used by LaserMOD
 - Simulation flows
- Utilities involving LaserMOD

Demo :

- Review of RSoft CAD topics that apply to LaserMOD
 - Symbol Tables
 - Passive Materials
 - Mode & Index File passing (to/from Lasermod)
- Introduction to the LaserMOD CAD
 - Geometric Elements
 - Symbol Table Hierarchy
 - Active Materials
 - Use of RSoft Passive materials
- Meshing & Tiling
 - Use of Global and Local Mesh parameters
- Profile Generation
 - Index, doping, custom parameters
- Advanced LaserMOD CAD layout options
 - Alloy & Doping Profiles
 - Importing layer files
 - Coupled QWs (optional)
- Material Gain Calculation
 - Density/Temperature Sweep
 - Gain, PL, Index, Peak plots
 - Bulk vs QW
 - Gain Tables (optional)
 - Creating a Table (optional)
- Mode solving
 - Waveguide Modes: Ritz, BeamPROP™, FemSIM™
 - Cavity Modes: TMM, FemSIM™
 - Incident Fields: TMM
 - Importing Mode(s), Cavity Lifetime

- Bias Table
 - Steady-State
 - Transient
- Full active simulation
 - Model selection
 - Clearing old data
 - Recalculating the Gain/Modes
 - Threshold Bias
- Extracting Simulation Results
 - Standard Plots (extras)
 - Plot Dependencies
 - Custom Bias / Spatial / Energy Plots
 - Output options: FF orientation, axis, etc...
- Scanning of design parameters
 - Multi-variable scanning via scripting
- Advanced simulation techniques
 - Commonly used symbols not currently in the Dialogs
 - Convergence and re-meshing

Session – June 6th 2019 – 3 Hours

- FP Lasers (1D, 2D)
 - Waveguide Mode Calculation
 - Steady-State (Calibration)
 - Small signal (Frequency Response)
 - Large signal (Eye)
 - Self-Heating (Calibration)
- VCSELs (1D, quasi-3D)
 - Cavity Mode Calculation
 - Optical vs Full DBR
 - Alignment with Gain
 - Self-Heating (Calibration)
- DFBS
 - Cavity Mode Calculation
 - Alignment with Gain
 - Mode Competition
- External Cavity (optional)
- Micro Cavity (optional)

Session – June 11th 2019 – 3 Hours

- Photodetectors
 - Reverse Bias
 - Surface normal
 - Responsivity
 - Frequency Response
 - Waveguide
 - Field Decay
- Modulators (FCA)
 - Frequency Response
 - MZM formulas
- Utilities that include active device simulate (optional):
 - Solar Cell Utility™
 - Multi-Physics Utility™, (FCA, EAM, transients)
 - Tapered Laser Utility™