



## ***FemSIM* Aids the Design of Photonic Crystal Fibers, VCSEL Cavities, and Silicon Photonic Devices**

*RSoft Introduces New Tool for Mode Computation*

**September 21, 2005 – Ossining, NY** – RSoft Design Group, Inc. ([www.rsoftdesign.com](http://www.rsoftdesign.com)), the leader in photonic design and simulation software, announced today the release of *FemSIM*<sup>™</sup>, a new general mode solver for transverse and cavity modes. The software is based on the well known Finite Element Method (FEM), and addresses a variety of applications including high index contrast, lossy, and highly hybrid structures such as polarization rotators, air or solid core photonic crystal fibers, laser and PBG cavities, silicon photonic devices, and structures with small feature sizes.

*FemSIM* provides a powerful and efficient method to calculate any number of transverse or cavity modes of an arbitrary structure on a non-uniform hybrid mesh of triangles and rectangles. The new mode solver is fully-vectorial, can use either Cartesian or cylindrical coordinate systems, employs PML at boundaries, and can have performance benefits over other software algorithms. As the latest addition to RSoft's Photonic Component Design Suite, *FemSIM* is conveniently integrated into the RSoft CAD Environment which allows the accurate definition of arbitrary structures. The new tool is complimentary to the other RSoft mode solvers and products including *BeamPROP*<sup>™</sup>, *FullWAVE*<sup>™</sup>, *BandSOLVE*<sup>™</sup>, *GratingMOD*<sup>™</sup>, *DiffractionMOD*<sup>™</sup>, *LaserMOD*<sup>™</sup>, and *MOST*<sup>™</sup>.

*FemSIM*'s unique set of capabilities provides a comprehensive method for finding any number of guided and/or leaky transverse modes of a structure. This includes modes for high index contrast structures such as SOIs, leaky structures such as air core fibers, and other structures such as photonic crystal fibers and highly hybrid structures. Modes found for these structures can be used in propagation analysis in other RSoft tools, including the award-winning *BeamPROP* and *FullWAVE* packages. Dispersion characteristics can be readily generated using *FemSIM* in conjunction with the built-in scanning capability of *MOST*, RSoft's scanning and optimization tool. Higher order modes can be found at minimal additional expense.

Cavity modes for arbitrary 2D structures such as defects in planar photonic crystal layers and 3D structures with cylindrical symmetry such as VCSEL cavities with thin quantum well layers can be found. VCSEL modes found with *FemSIM* can then be used with *LaserMOD*, RSoft's design package for active components.

For more information or a product demo, please contact RSoft Design Group at [sales@rsoftdesign.com](mailto:sales@rsoftdesign.com) or visit our website at [www.rsoftdesign.com](http://www.rsoftdesign.com). RSoft Design Group will also be exhibiting at the upcoming ECOC conference in Scotland, September 26-28<sup>th</sup>, booth 447.

## **About RSoft Design Group, Inc.**

RSoft Design Group is the worldwide leader in photonics design automation software and serves several industries including optical communication, optoelectronics and semiconductor manufacturing. Within optical communications, RSoft is the only company to provide a full range of design, optimization and planning software for the entire component to network-level hierarchy. RSoft also provides design tools for passive and active optoelectronics components and subsystems as well as advanced electromagnetic modeling software for optical metrology and lithography.

RSoft Design Group, Inc. is a privately held corporation with offices in the US, Japan and Europe and supports over 10 distributors worldwide.

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