

SimphoSOFT™

Powerful Photonics

Modeling & Simulation Software



SimphoSOFT is a revolutionary CAD environment that permits generalized numerical simulations of the dynamic interaction of incident beams of coherent light with photonic materials. It avoids the tedious process of formulating mathematical equations and re-writing simulation code applicable for different classes of photoactivated materials and different experimental conditions.

Simphotek has invented graphical transition modules—symbolic representation of computational building blocks linking the GUI interface to the mathematical kernel—that replace the traditional process of code writing. Users can configure different coherent light sources and design virtual samples comprising multiple layers of materials where the test material layers are one or more photoactive species dispersed in a medium. Users define the material properties (index of refraction, single or multi-photon absorption coefficients, electron relaxation times, sample length, single or multiple combinations of different materials), electronic structure (desired number of energy levels, desired allowed photonic transitions), and laser wavelength and pulse width. SimphoSOFT then simulates laser beam propagation through the sample, giving time and location dependent field strength, dynamic population densities of every level, and plots of results.

With its novel CAD technology and easy to use GUI, SimphoSOFT makes interdisciplinary collaboration easy. You do not need to be an optics expert or invest heavily in modeling to obtain meaningful photophysical results which can be shared with biologists, medical personnel, engineers, materials scientists, chemists, optical scientist and physicists. SimphoSOFT reduces language barriers through its use of visual graphical methods.

 **simphotek**
Light Interactions Matter

Benefits of SimphoSOFT:

- Extract material parameters from experimental results
- Pre-screen materials before experimenting
- Explore performance under various conditions
- Model complex multi-layer materials
- Guide materials development
- Conserve internal software development resources
- Use SimphoSOFT unique Graphical Building Blocks!
No more re-writing rate equations!
- Collaborate with interdisciplinary partners at home or abroad
- Reduce modeling time and cost by an order of magnitude
- Share results with your collaborators on-line, anywhere and anytime
- Export complete files of your simulations to other commercial or in-house software

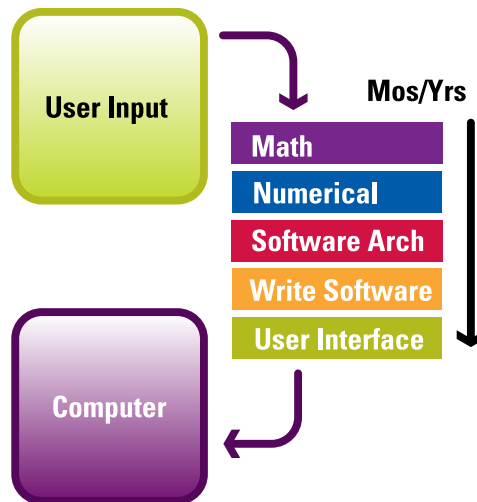
Features of SimphoSOFT:

- Generalized propagation algorithm for modeling photoactivated materials
- Simphotek computational transition modules that integrate a Jablonsky energy level diagram of arbitrary shape into the simulation model
- Rapid, easy input of materials and parameters using a GUI CAD environment
- Constant, single-pulse, or multiple-pulse incident beams
- Radially symmetric incident beams with Gaussian shape (in the spatial domain)
- Multiple absorbers, multiple layers (up to the limits of available computational resources)
- Extensive set of graphical output options
- Easy to use Library of Materials Database for cataloging and sharing results with others

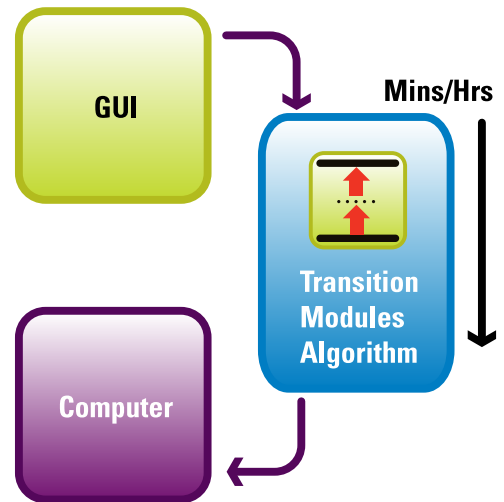
SimphoSOFT consolidates multiple steps of traditional photophysical simulations into a simplified, graphical process of defining energy levels and materials properties. The generalized numerical engine within SimphoSOFT then does the heavy lifting.

Simphotek Automation Technology

In-house software requires several steps



Simphotek software eliminates most steps



SimphoSOFT Structure

- Easy to use GUI
- Multiple simulation features
- Multiple plots of results

