OptiFDTD

OptiFDTD 12.1

Finite-Difference Time-Domain Simulation Design

for Microsoft Windows® XP /Vista /7 /8

Optiwave

OptiFDTD 12.1

Improvements

- ## OP-62 Support for Observation Points export in scripts

Observation point time series data can now be exported using scripts.

- ## OP-54 support for observation areas export in Linux simulator

Observation area data can now be exported using the Linux simulator. It uses the script functions described in OP-46 (http://192.168.0.144:8090/browse/OP-46) and saves f3d files.

- ## OP-39 Change color coding of axes in 3D editor

The axes in the 3D editor are now color coded according to their orientation.

- ## OP-74 add intensity plots to Opti 2D viewer

Intensities (as defined by the square of magnitude) can now be displayed in Opti 2D viewer.

- ## OP-65 plot intensity in observation area / line / point detector window

Intensities (as defined by the square of magnitude) can now be displayed in observation point / line / area detectors in OptiFDTD Analyzer.

- ## OP-59 Provide the user with the possibility to export files for OptiBPM

OptiBPM-compatible files (f3d files with Ex and Ey or Hx and Hy components) can now be created by OptiFDTD. See the documentation for more details.

- ## OP-52 XML anisotropic materials import

Materials definitions can now be imported in the profiles and materials designer. The materials use XML notation.

- ## OP-48 Add a VB script function for exporting total field intensities

Total field intensities, $|Ex|^2 + |Ey|^2 + |Ez|^2$, can now be exported after simulation using scripting functions.

- ## OP-46 Add support for movies and observation areas export in scripts

Movies and field data from observation area can now be exported using VB script functions. See the VB scripting documentation for more details.

⊕ The export function for fields take a wavelength as an argument. This wavelength must be present in the list of wavelengths generated by the DFT transform. This means that one cannot use an arbitrary wavelength here. To ensure a correct wavelength is given, first do a test-run of the simulation without the scripting checked, pick a wavelength of interest in the list displayed on the observation area window in OptiFDTD Analyzer, and finally use that wavelength in the script. A clever system will be devised in a latter release of OptiFDTD.

- **OP-2 Xeon Phi cards support in the Linux simulator**

Intel Xeon Phi copressor cards are now supported by the Linux simulator as an experimental feature.

Bug fixes

- **OP-88 Dielectric Sellmeier parameters not saved properly**

The Sellmeier parameters for dielectric materials where not saved when the "store" function was used. This issue is now corrected.

- **OP-66 Wrong folder is displayed when saving a file opened from windows explorer**

When opening a project file using Windows explorer and when using the function "Save as..." in OptiFDTD Designer, the folder displayed in the "save as" dialog box is now the current folder.

- **OP-61 Fields movie recording limited to 6 fields simultaneously**

An unlimited (dependent on the amount of memory available) number of movie files can now be recorded.

- **OP-60 unstable profiles and materials designer**

The profiles and materials designer stability and performances have improved.

- **OP-50 Various issues with OptiTool Mesh converter**

In OptiTools, the mesh converter had various issues such as calculation problems for non-square matrices. This update fixes this bug and improves the overall usability of the tool.

- **OP-45 nonuniform mesh is not used in analyzer for displaying the fields**

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When simulating using the non-uniform mesh options in the simulation dialog box, the analyzer observation area window wouldn't be updated to reflect the non-uniform grid. This update fixes this issue. The observation area displays a pixels sized accordingly to the density of the grid. The export function now exports the correct number of data points.

It is possible to save the mesh points as a text file:

1. In OptiFDTD Analyzer, go to Simulation-> Simulation parameters...

2. Click Parameters... in the Nonuniform mesh section

3. For each dimension of interest, click Export mesh... to save the data as a text file

⊘ The f3d data file doesn't contain any reference to non-uniform mesh points. If the file is opened in OptiWave 3D viewer, a uniform mesh will be applied an structures will appear distorted. Data file formats will be modified to account for non-uniform data in a latter release of OptiFDTD

- **OP-42 changing the display ratio of the 2D layout gives wrong results in 3D editor**

The 2D layout options now provide the expected behavior in the 3D editor window.