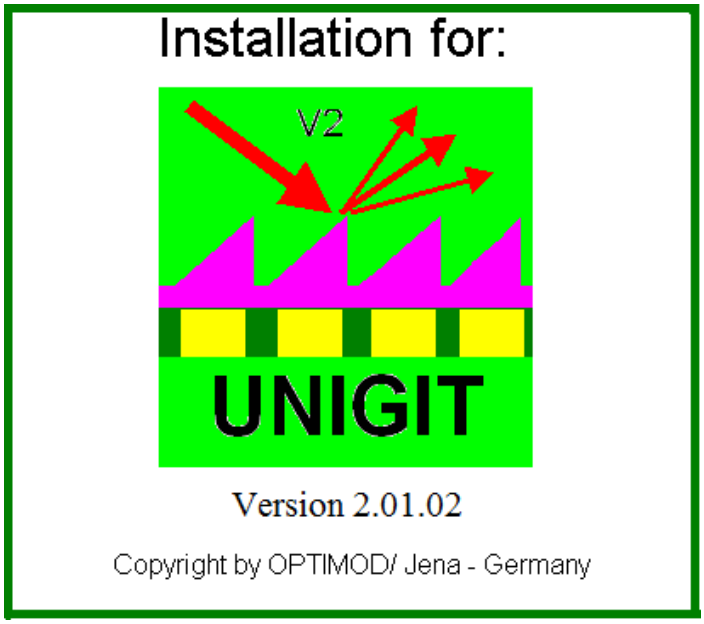
UNIGIT RIGOROUS GRATING SOLVER

VERSION 2.01.02
Compact Information



Developed by:

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Unigit is a rigorous diffraction solver for 2D (1D periodic) or 3D (2D periodic) multilayer stacks (see Fig. 1). It runs on PC with Windows NT, Windows 2000, Windows XP, Vista and Windows 7 both 32 and 64 bit machines. The schema in **Fehler! Verweisquelle konnte nicht gefunden werden.** gives an idea what types of complex patterns can be solved with Unigit.

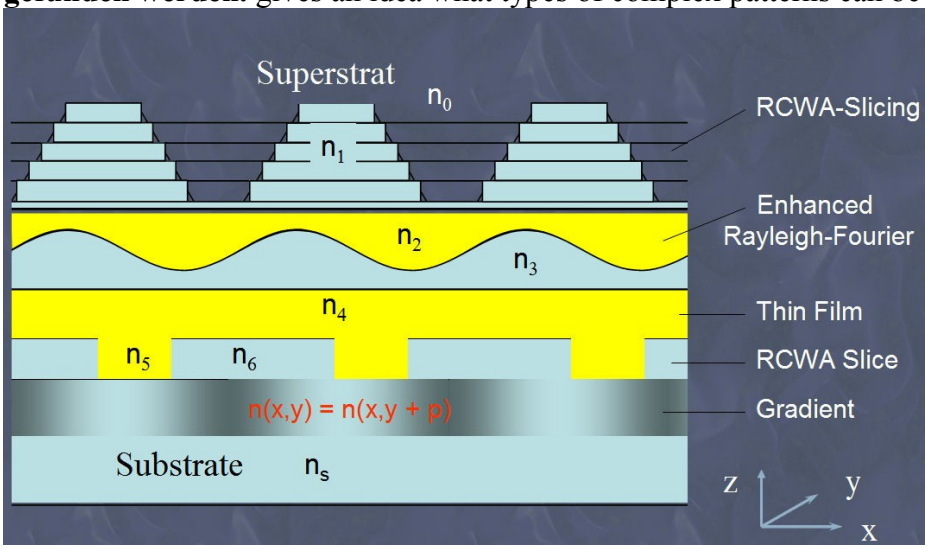


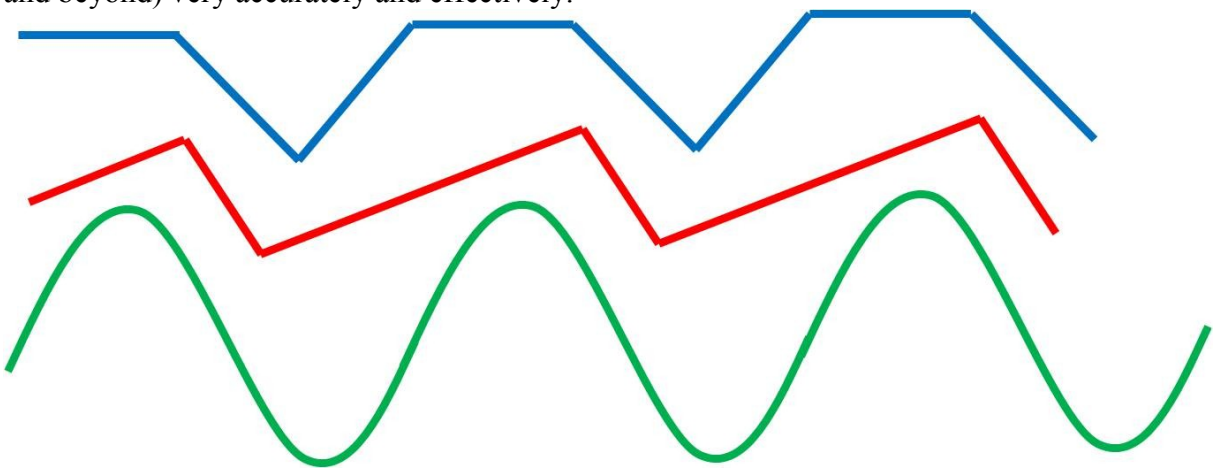
Fig. 1: Schematic representation of a multilayer stack

Unigit V2.01.02 includes three basic solution algorithms:

- the Rigorous Coupled Wave Approach (RCWA) a.k.a. Modal Method with Fourier Expansion (see e.g., /1/, /2/),
- genuine implementation of **Chandezon method** (C-method) for non-parallel layers,
- and the Rayleigh Fourier Method (/3/) which is not rigorous.

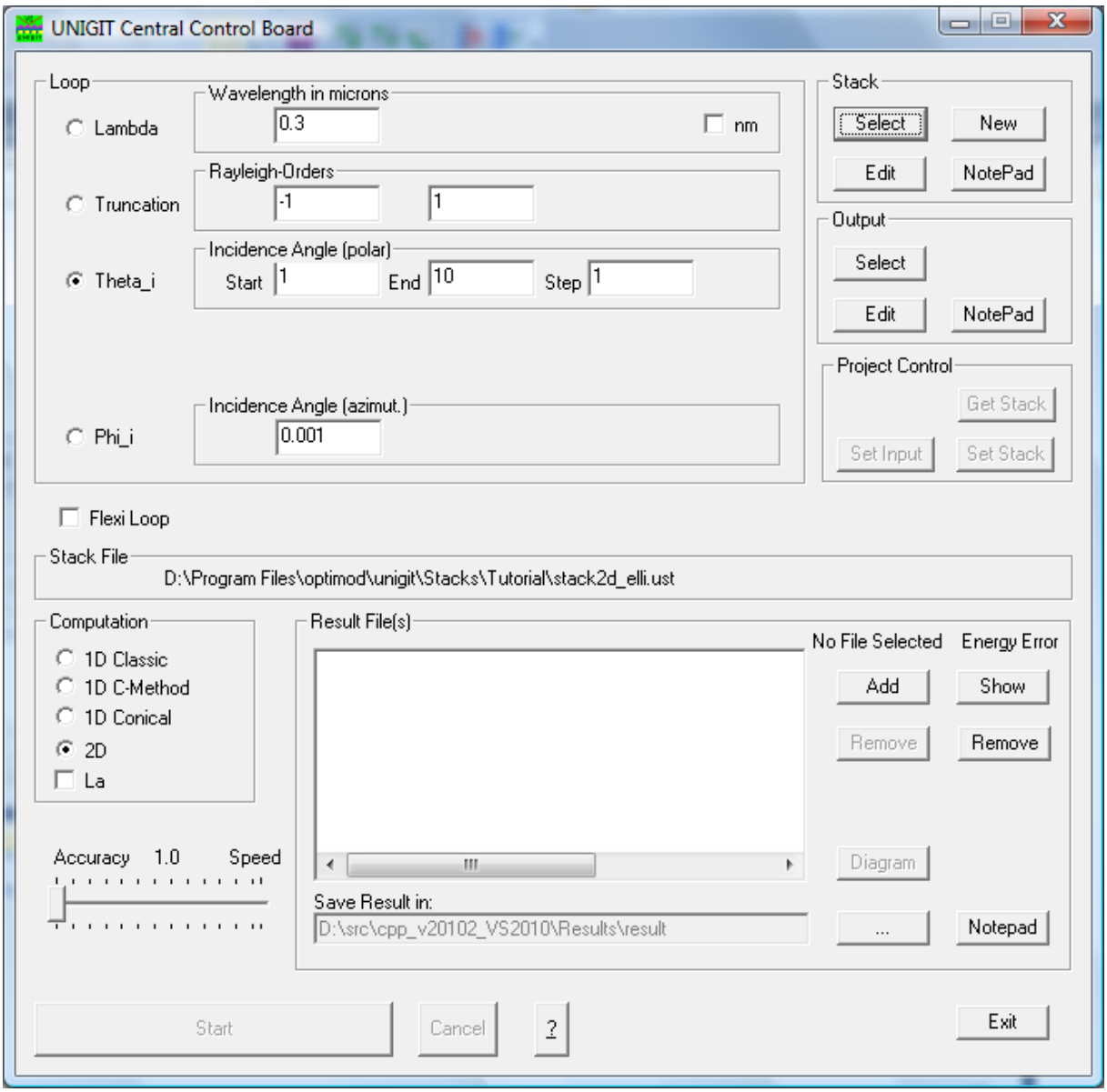
The computation kernels can be run without the Unigit-GUI by embedding it in an user application (e.g. Matlab, Visual Basic, C++ or C# based).

The C-method solver can simulate multilayer gratings with non-parallel interfaces (see example sketch below) in a very effective way (in some cases much faster than RCWA and thus is an ideal supplement). Moreover, it is able to model Echelle gratings in high order (20 and beyond) very accurately and effectively.



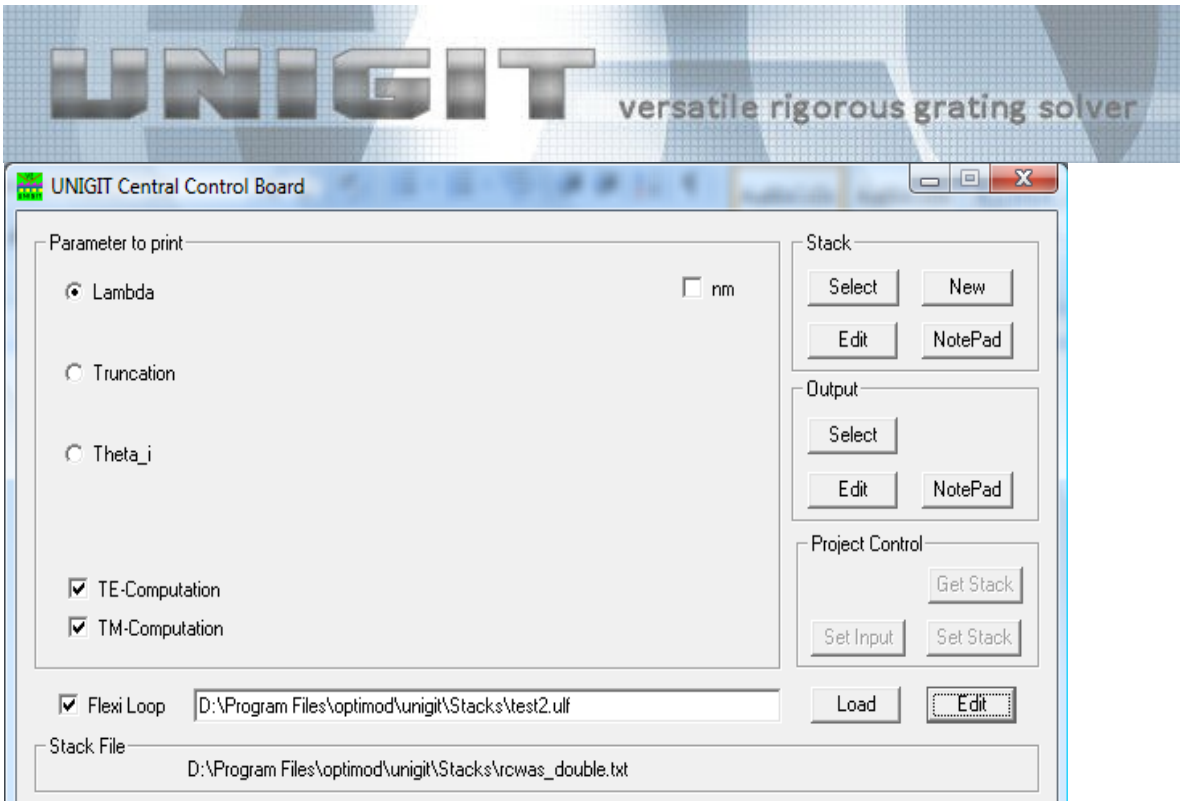
Important New Features

- New Central Control Board

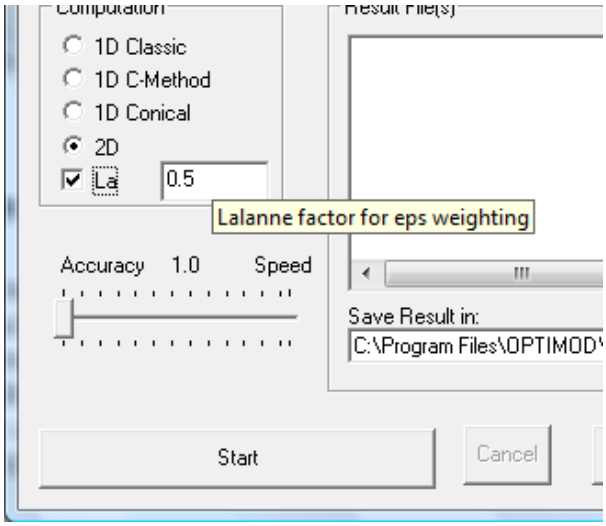


- A project retrieval mode (and project handling) where setups or results may be retrieved from previous computations

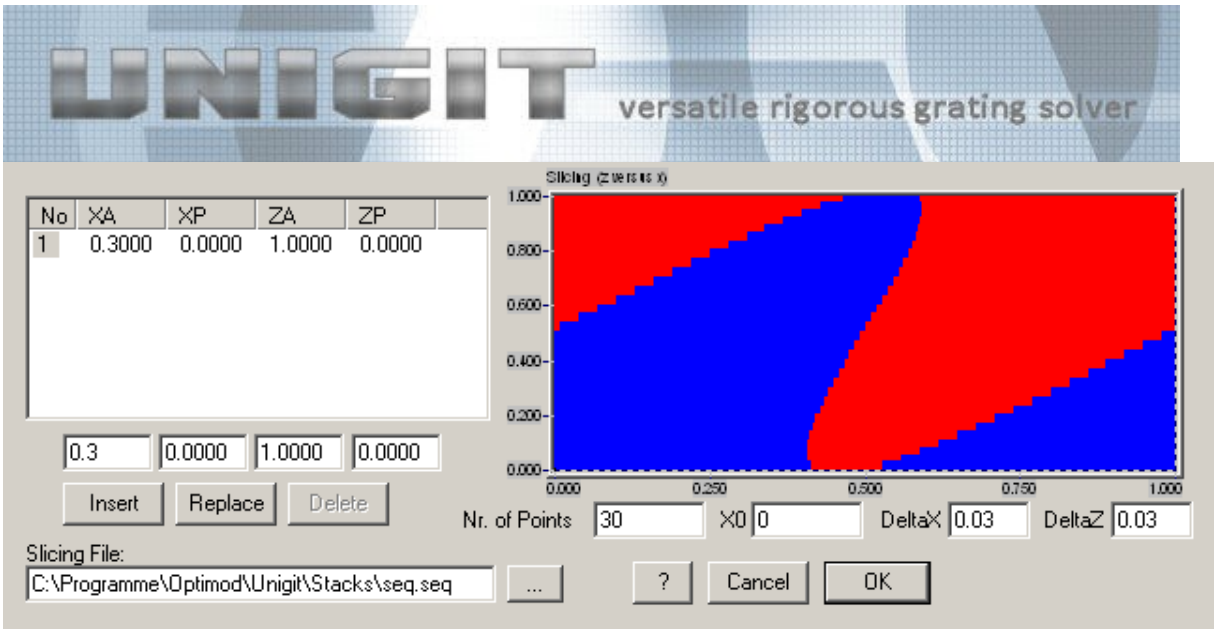
- A flexible loop mode which permits the user to assemble his own batch processing



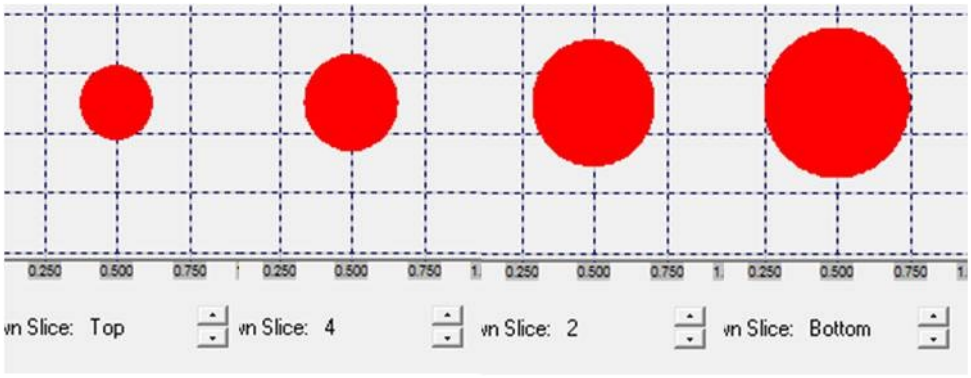
- An accelerator for 2D crossed gratings with speed up factor up to 4 ... 8 w/o accuracy loss (trade secret of Optimod)



- A slicer for complicated overhanging profiles (described by a parametric Fourier presentation)



- Save and (scaled) reuse of sub-stacks
- Arbitrary pixel filling of a 2D layer to simulate 3D volume holograms
- Composite Layers for 3D (with automatic slicing)



3D Body Cross Sections at different height

- Unified material description via direct n&k input, n&k file reference or various dispersion formulas
- Complex output control (e.g., output of complete diffraction matrices for further processing)