# Table of Contents

# GSvit in a nutshell

GSvit is an open source software for electromagnetic field propagation calculations via Finite Difference in Time Domain method (FDTD). In this numerical technique, electric and magnetic field values (vectors) in some computational volume are calculated iteratively, solving Maxwell equations, step by step. In order to do this, computational volume needs to be discretized very densely, which affects computational demandness of FDTD, being very large both in processor time and in memory.

Original motivation for writing GSvit was to explore parallelization possibilities offered by graphics cards in the field of numerical electromagnetics. By successive improvements it became rather universal software that can be used in different fields of physics and engineering and we continue in improving the applicability for different tasks. Already now, GSvit features both command line and graphical user interface, can be run on different operating systems and can be used with many different geometries, materials, source conditions, boundaries, etc.
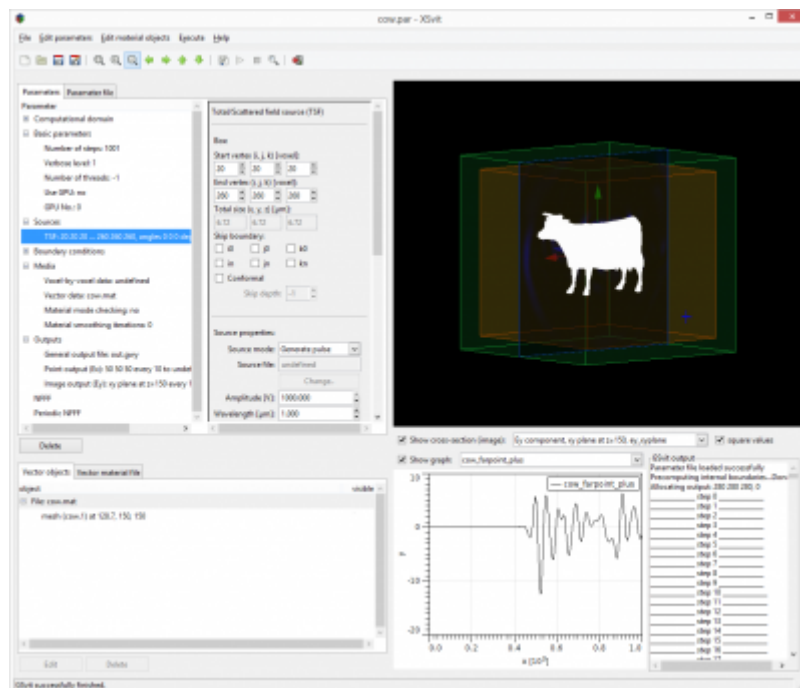


To start your work with GSvit, follow the instructions on Gettng started page.

Note that there are many other FDTD packages available elsewhere, either commercial (e.g. Lumerical) or open source (e.g. Meep). We don't claim that GSvit overcomes any of them in any sense, even if we do our best to do so.

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