

### Comsol Optical Waveguide Simulation

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#### Comsol Optical Waveguide Simulation

In this archived webinar, learn how to use the beam envelope method in COMSOL Multiphysics® to solve nonlinear optics problems. We go over the benefits of this method and advanced examples. Learn more about the specialized features for waveguide simulation in the Wave Optics Module [here](#).

#### Simulating Optical Waveguides with COMSOL Multiphysics®

Wave optics simulation brings new opportunities for the design and optimization of optical systems. Watch this archived webinar on the basics of modeling and simulating wave optics for application areas such as directional couplers, nonlinear optical waveguides, optically large systems, and metamaterials.

#### Simulating Wave Optics in COMSOL Multiphysics®

Simulation Software for Optimizing Optical Devices Simulation can be used to validate optical system designs with experimental data and theory. However, traditional simulation methods for optically large structures, where the geometry is much larger than the electromagnetic wavelength, can be computationally expensive and time consuming.

#### Wave Optics Software for Analyzing Micro- and ... - COMSOL

Such applications include lens systems, waveguides, external optical systems, fiber couplings, laser diode stacks, and laser beam delivery systems. Simulation of a waveguide that out-couples to the ambient air. Next Step. See how the Wave Optics Module can benefit your lens simulations by clicking the button below:

#### How to Perform Lens Simulations Using the Wave Optics ...

In this introductory wave optics modeling example, we demonstrate how to model a small lossy scatterer in the proximity of an optical waveguide in COMSOL®. × Warning Your internet explorer is in compatibility mode and may not be displaying the website correctly.

#### Modeling a Scatterer Near an Optical Waveguide | COMSOL Blog

Modelling and simulation of a ridge waveguide and a Mach - Zehnder interferometer was done. An optical ridge waveguide is made; width was chosen as 3 microns for 1550 nm wavelength electromagnetic wave. Substrate material chosen was Sapphire, over which 300 nm LiNbO<sub>3</sub> was

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chosen as the waveguide material. The geometry is done in 3D model.

### **Waveguides and Interferometers - COMSOL Multiphysics**

Asymmetrical Waveguide Simulation. Posted Oct 22, 2020, 6:19 AM PDT Wave Optics Version 5.5 0 Replies . Minu Sunny . Send Private Message Flag post as spam. Please login with a confirmed email address before reporting spam ... Note that while COMSOL employees may participate in the discussion forum, COMSOL ...

### **Asymmetrical Waveguide Simulation - COMSOL Multiphysics**

his guide describes the Wave Optics Module, an optional add-on package for COMSOL Multiphysics® designed to assist you to set up and solve electromagnetic wave problems at optical frequencies. This chapter introduces you to the capabilities of this module.

### **Wave Optics Module - COMSOL Multiphysics**

the COMSOL Multiphysics® software, which basically involves dividing the simulation domain into smaller subdomains forming a mesh. In this study, the standard meshing tool was used with the mesh setting at physics-controlled mesh and element size set to “extremely fine”. A total of 25020 triangular elements

### **Modelling Of Optical Waveguide Using COMSOL Multiphysics**

□Simulation of dielectric waveguides and optic fibers using COMSOL □Simulation of surface plasmon polariton (SPP) waveguides and devices using COMSOL School of Electronic and Information Engineering □Simulation of dielectric waveguides and optic fibers using COMSOL

### **Simulations of nanophotonic waveguides and devices using ...**

Tutorial on how to simulate optical periodic structures and photonic crystals in COMSOL. Presented by: Mohammad Bereyhi: mohammad.bereyhi@epfl.ch This conten...

### **COMSOL simulation tutorials: Optical Periodic Structures ...**

COMSOL simulation tutorials: Optical Periodic Structures and Photonic Crystals - By Mohammad Bereyhi - Duration: 36:24. Optomechanical Technologies - ETN 10,544 views 36:24

### **Parallel plates waveguide simulation on COMSOL**

In this work COMSOL Multiphysics was applied to the full 3D electromagnetic wave simulation of a novel forked grating coupler designed to interface with vortex modes of 1550 nm wavelength light. Full 3D models were solved for the radiating vector mode from a forked grating emitter structure driven from a nanophotonic waveguide.

### **Simulation of Vector Mode Grating Coupler ... - COMSOL**

The main purpose of this numerical simulation was to obtain insights on the performance of the optical fibre with variations in refractive index of the cladding. The core diameter was fixed at 4.0 μm, which is the most commonly used diameter in literature [1-8].

### **Modelling Of Optical Waveguide Using COMSOL Multiphysics ...**

Once you have made the simulation in the COMSOL (the one you are talking about, I assume you made a 2D simulation with air and silicon oxide as cladding materials), you can find out the effective...

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### **How can I calculate an effective refractive index by using ...**

We will present an overview of the Wave Optics Module, an add-on to COMSOL Multiphysics ®. This module solves the Maxwell equations to simulate an optical wave's propagations, reflections, refractions, absorptions, scatterings, diffractions, and all other optical phenomena in spaces that are comparable to the wavelength.

### **COMSOL Day: Microwave & Optics**

The material properties using in the simulation are listed in table 1. The device structure is composed by: silicon dioxide silicon nitride, and silicon as substrate A. Design The waveguide selected is the rib waveguide (see Fig. 2), between four types, (embossed waveguide, rib waveguide,

### **SISPAD 2012, September 5-7, 2012, Denver, CO, USA Design ...**

Simulate real-world designs, devices, and processes with multiphysics software from COMSOL. General-purpose simulation software based on advanced numerical methods. Fully coupled multiphysics and single-physics modeling capabilities. Complete modeling workflow, from geometry to postprocessing.

### **COMSOL - Software for Multiphysics Simulation**

one of the best tools in understanding the optical properties of gratings. The CMT is a powerful mathematical tool to analyze the wave propagation and interactions with materials in optical waveguide. The CMT sees the grating structure as perturbation to an optical waveguide [23]. CMT have been used to successfully model numerous fibre grating ...