

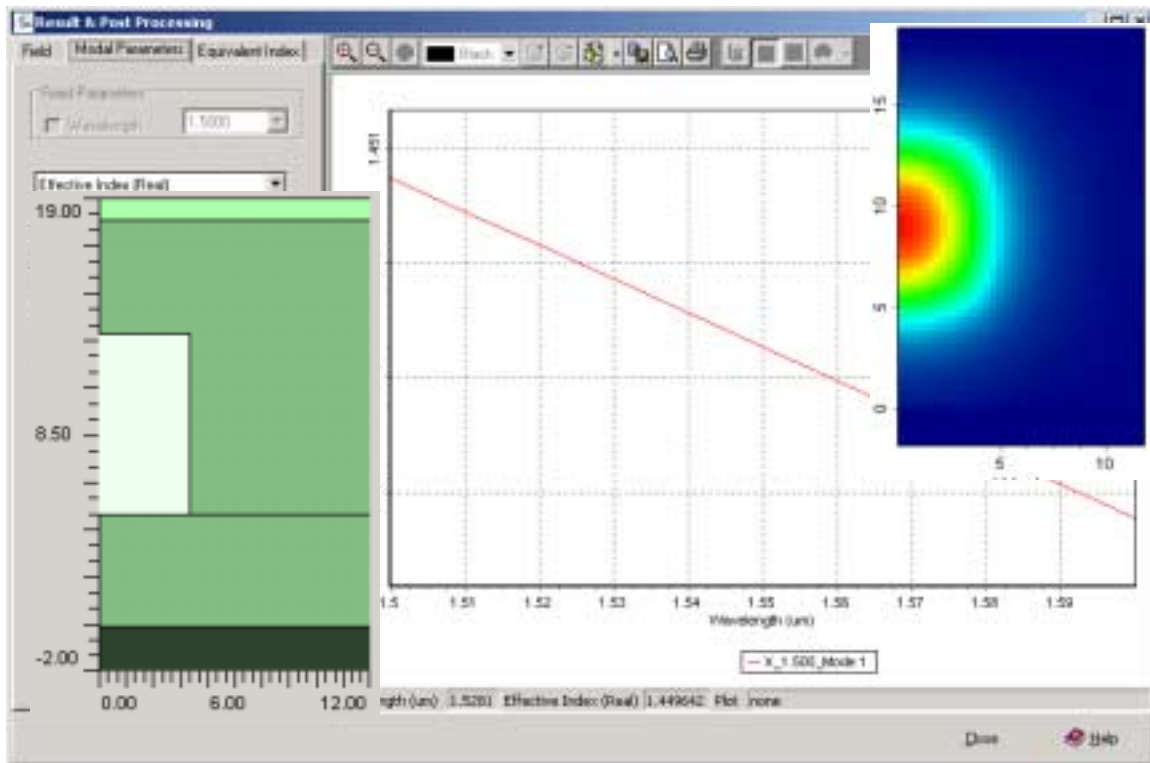
MZI based Add-Drop Filter

Introduction

To design this circuit, we should select the technology, and the waveguide (cross section) geometry. Then based on that design the splitter and the gratings. Then put these components into a circuit and adjust the circuit parameters.

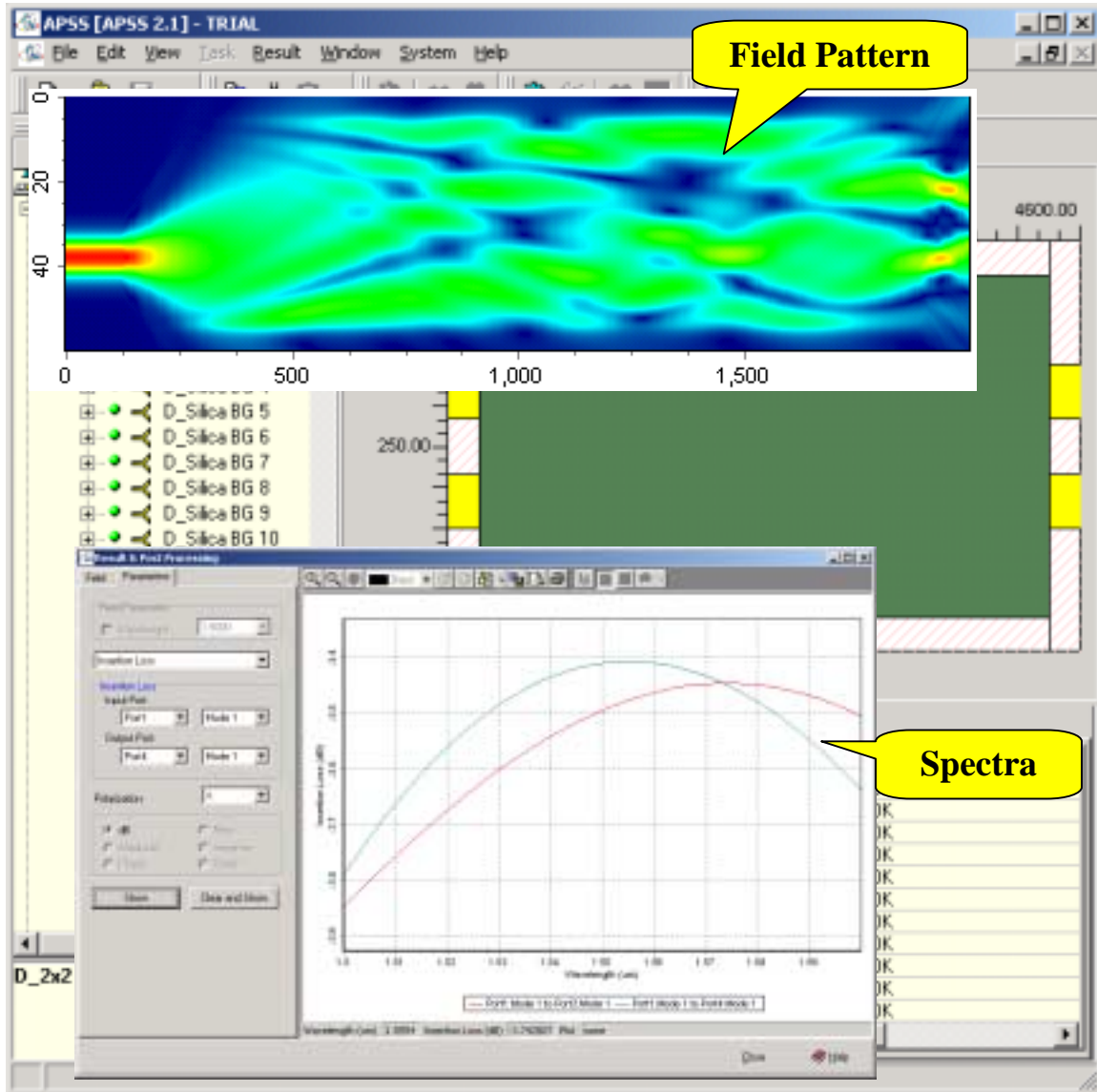
Design a single mode waveguide

Single mode and polarization independent waveguide is essential requirement for the proper device operation. In APSS waveguide module, we could easily create a channel waveguide. Due to its square shape, polarization independence is preserved. Single mode design needs some effort.



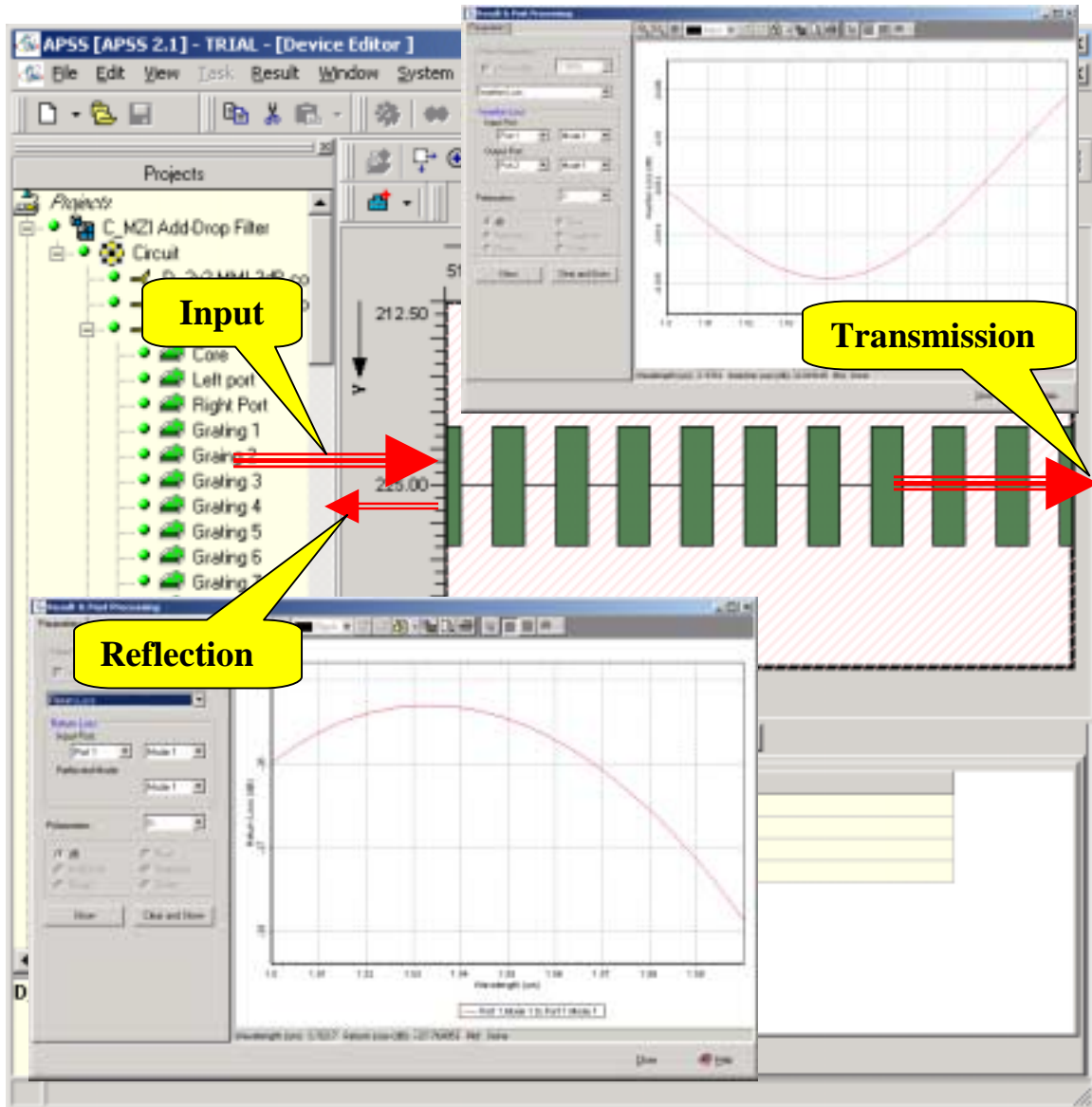
Design a 2x2 MMI 3dB coupler

Following the user-friendly device wizard, it is straightforward to design a 2x2 MMI. The key is the even splitting ratio.



Design a short Bragg gratings with only 10 periods

Using the same waveguide (cross section) project as used in MMI, we will create a grating structure. Since gating period is fixed, we can create only small part of the structure, and then put several of them in parallel. Therefore, the grating device would be small and we may use direct FDTD simulation to accurately analyze the grating section.



Connect 2 MMIs and 100 gratings together

Taking the advantage of the reusability of the APSS, we could simply copy the gratings 100 times into the circuit project and do not need to design and simulate each of them. After creating the circuit, APSS can simulate it very fast using a circuit solver.

