

2572–20

**Winter College on Optics: Fundamentals of Photonics – Theory,
Devices and Applications**

10 – 21 February 2014

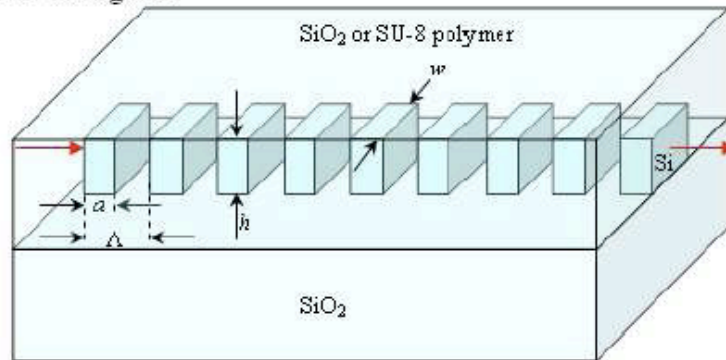
Simulations Laboratory

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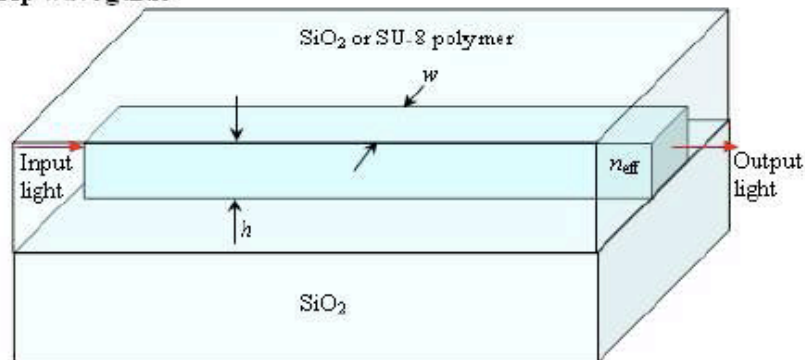
SUBWAVELENGTH GRATINGS

Subwavelength grating waveguide principle

a) SWG waveguide



b) Strip waveguide



- We alternate sections of silicon and insulator, with a period smaller than the wavelength of the guided light
- Diffraction and bandgap opening are suppressed
- Light propagates as in an equivalent homogeneous waveguide with a synthesized (average) refractive index
- By choosing the grating fill factor, we control the effective index of the waveguide core and the propagation constant of waveguide mode (Floquet-Bloch)

Some basic subwavelength devices

