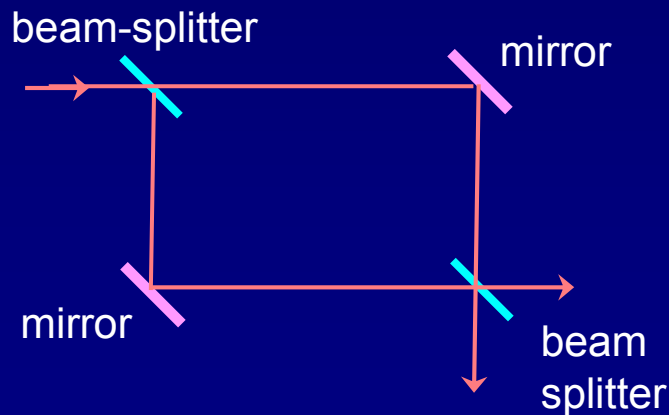# Optical Interferometers

Interference arises whenever there are two (or more) ways for something to happen, *e.g.*, two slits for the light to get from the source to the screen.

$I = 4I_1\cos^2(\phi/2)$, with $\phi = 2\pi\delta/\lambda$, and path-length difference δ

An interferometer is a device using mirrors and "beam splitters" (half of the light is transmitted, half is reflected) to give two separate paths from source to detector.

Two common types:

Mach-Zehnder:

beam-splitter

mirror

mirror

beam
splitter

Michelson :

mirrors

beam
splitter