

Lecture 19

Optical MEMS (1)

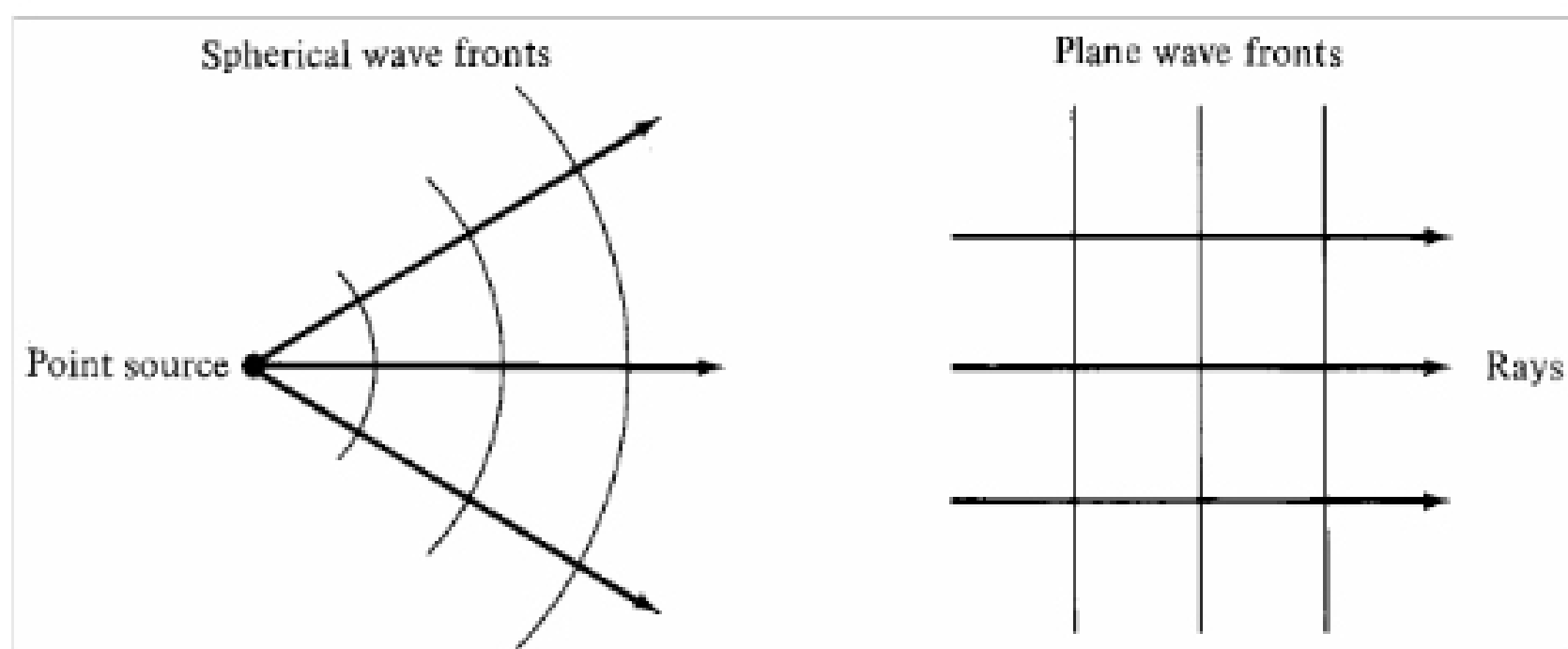
■ Agenda:

- ↗ Optics Review

Optics Review

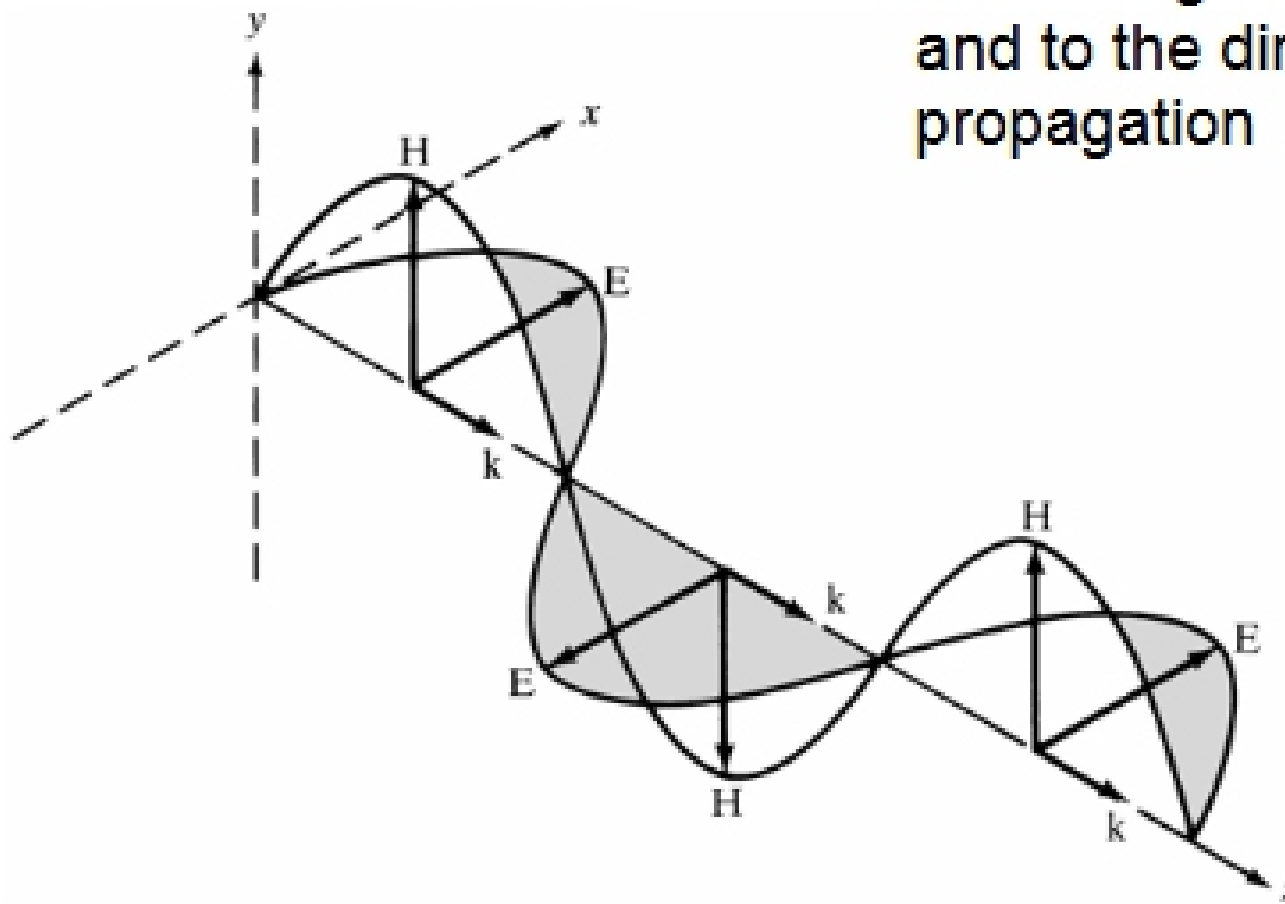
- ↗ Nature of Light
- ↗ Reflection and Refraction
- ↗ Total Internal Reflection
- ↗ Lenses
- ↗ Numerical Aperture
- ↗ Diffraction
- ↗ Polarization
- ↗ Interference
- ↗ Doppler Effect
- ↗ Coherence
- ↗ Optic Fibers: Basics

- **Particle** – Light consists of photons
- **Wave** – Light travels as a *transverse* electromagnetic wave
- **Ray Theory** – Light travels along a straight line and obeys laws of *geometrical optics*. Ray theory is valid when the objects are much larger than the wavelength

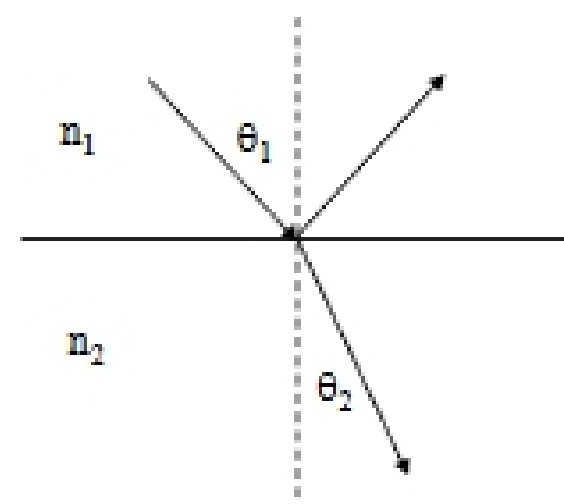


A wave front is the locus all points in the wave train which have the same phase

Electric and magnetic fields are orthogonal to each other and to the direction of propagation \underline{z}



■ Snell's Law



$$\frac{\sin \theta_1}{\sin \theta_2} = \frac{n_2}{n_1}$$