Last time:

Interference from multiple sources

- Phased arrays
- Beaming

\[
I = I_0 \left[ \frac{\sin \left( \frac{N\delta}{2} \right)}{\sin \left( \frac{\delta}{2} \right)} \right]^2
\]

\[
\delta = \frac{2\pi}{\lambda} d \sin \psi + \Delta \phi
\]
Diffraction

- What happens when EM wave hits a finite obstacle?
  - Shadows from edges of objects
  - Light passing through apertures ‘bends’

- Formalism ➔ Huygens-Fresnel principle
  - Treat aperture as an array of many infinitesimal radiating sources that superpose (interfere)

- Examples ➔ systems with simple geometries
  - Rectangular slit
  - Circular aperture