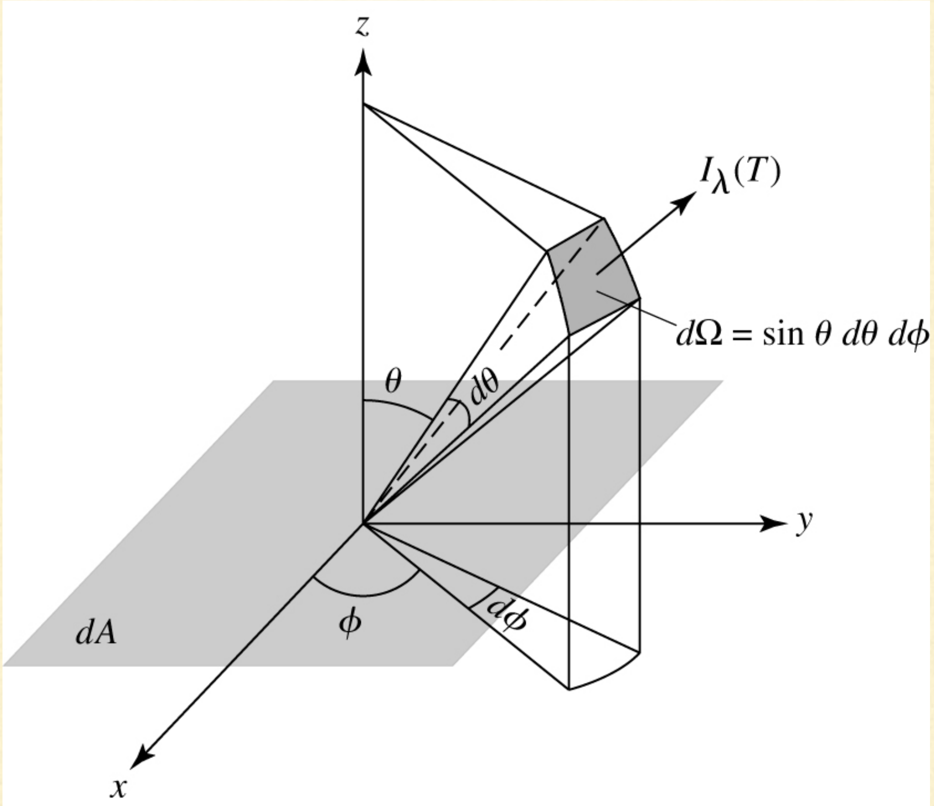
SPECIFIC INTENSITY



- I_λ = energy / time / area / solid angle / wavelength
- I_ν = energy / time / area / solid angle / frequency
- Function of position, direction, wavelength, and polarization

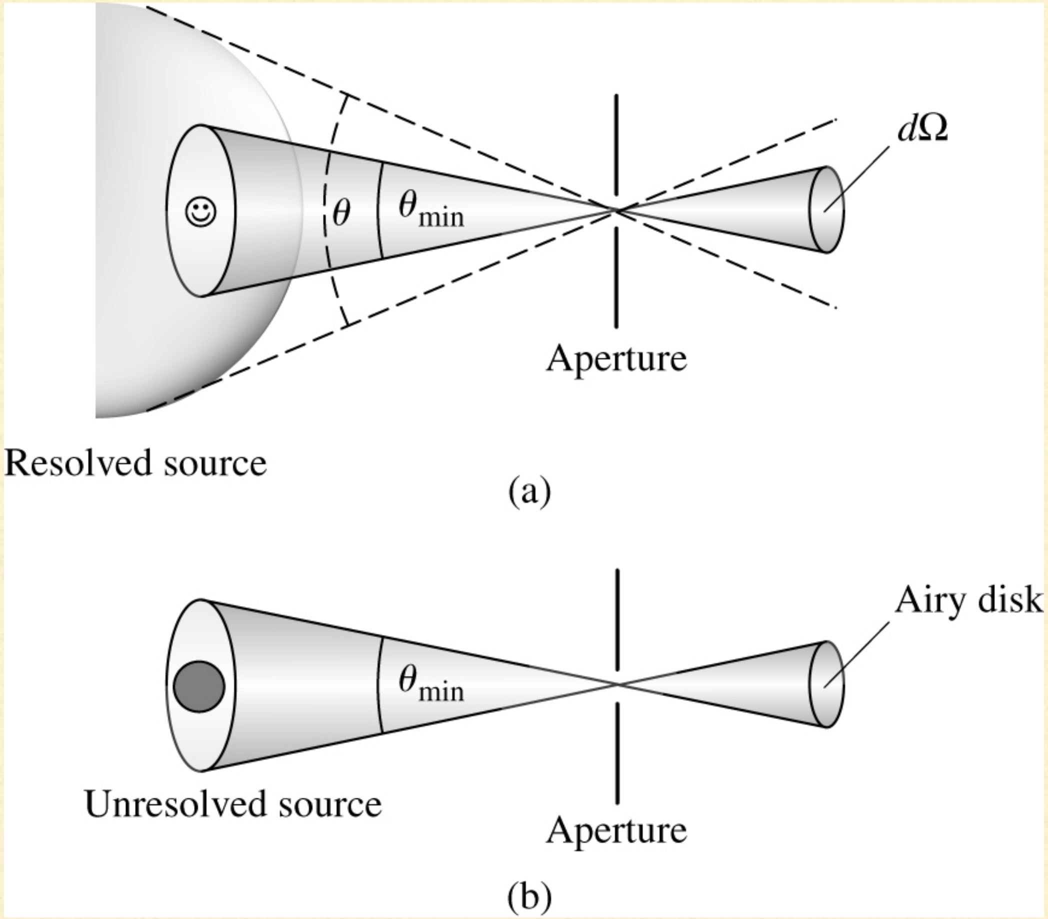
SPECIFIC FLUX

- If a source is resolved by our telescope, we can measure I_λ

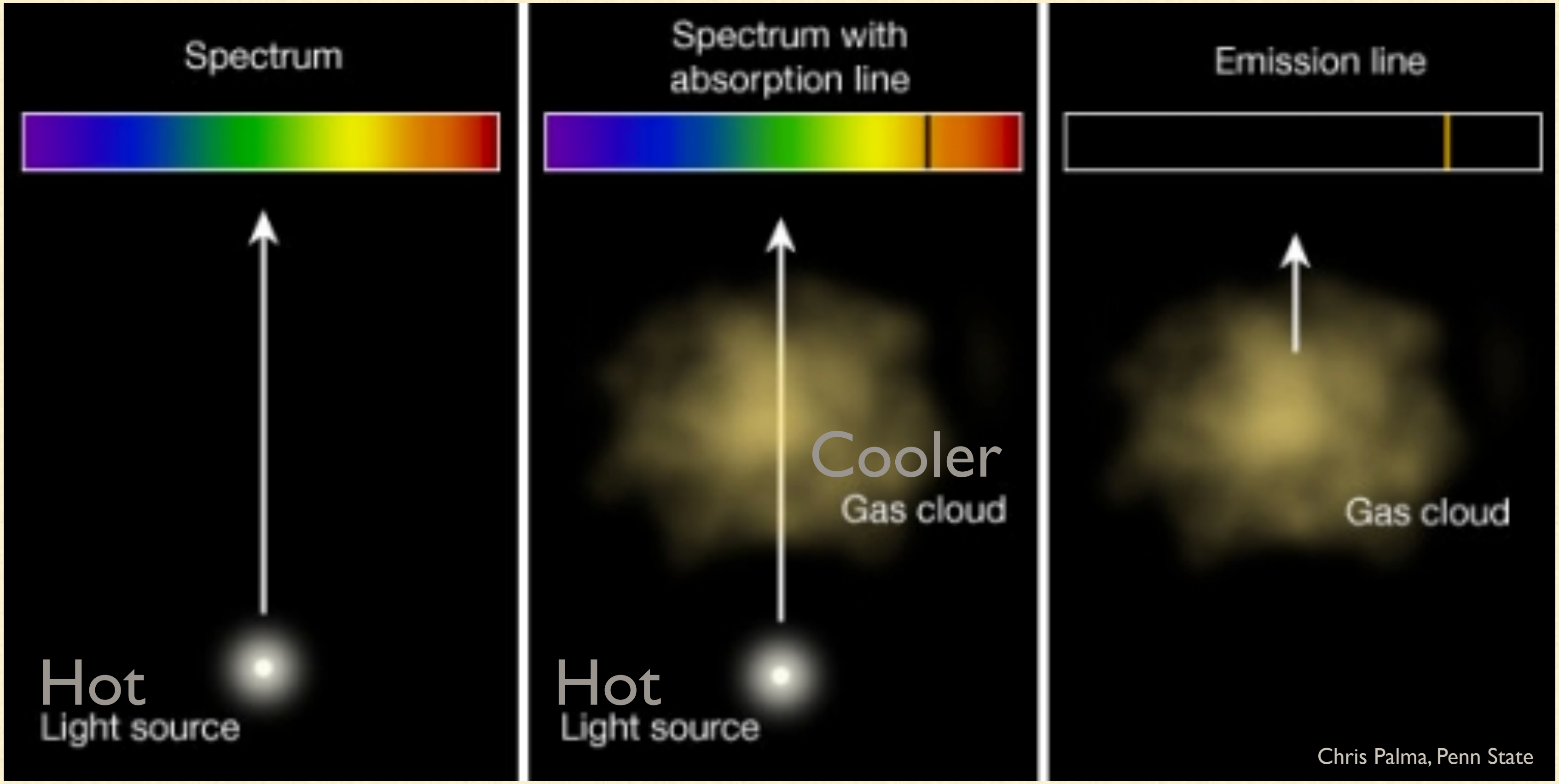
- If the source is unresolved, we integrate over solid angle and measure the ***specific flux*** or ***flux density***:

  $f_\lambda \, d\lambda = \oint I_\lambda \, d\lambda \cos\theta \, d\Omega$

  (energy / time / area / wavelength)



KIRCHHOFF'S LAWS



MOMENTS OF SPECIFIC INTENSITY

- Mean intensity $J_\lambda = \langle I_\lambda \rangle = (1/4\pi) \oint I_\lambda \, d\Omega$
- Specific flux, f_λ $F_\lambda \, d\lambda = \oint I_\lambda \, d\lambda \cos\theta \, d\Omega$
- Specific energy density $u_\lambda = (4\pi/c) \langle I_\lambda \rangle$
- Pressure $P = (1/c) \int \oint I_\lambda \cos^2\theta \, d\Omega \, d\lambda$