Measuring the Mass of Stars

1 Binary Stars

Many stars come in pairs.

2 Can track changes over time and determine the orbital Period
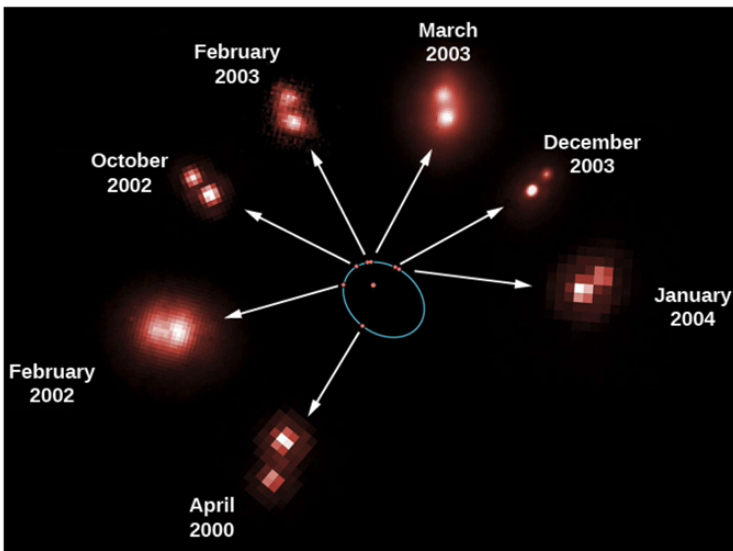
Absorption Lines move over time as Binary Stars orbit.

Combine with Doppler Effect to get velocity

3 Can also use Spectra!

4

Velocity -> Size of Orbit -> Semi Major Axis (D)

Kepler's Law with Newton's

$$P^2 = (M_1 + M_2) * D^3$$
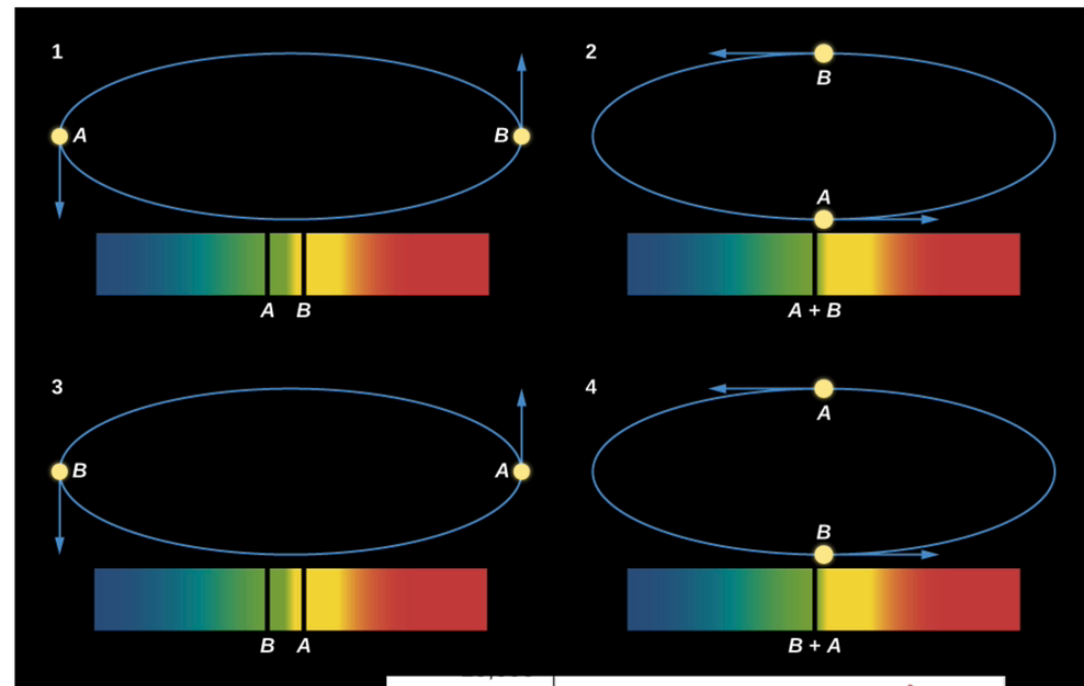
5 Mass-Luminosity Relation

$$L \sim M^{3.9}$$