

- Hour angle and declination – a problem with constantness
- The definition of right ascension
- Sidereal time
- The geometric representation of sidereal time
  - what happens at the meridian?
  - what happens when  $\gamma$  is at the meridian?
  - what happens when  $\gamma$  next crosses the meridian?
- The ecliptic – w.r.t. Sun, w.r.t. Earth
- Vernal (spring) equinox, autumnal equinox, summer and winter solstices
- So where is this  $\gamma$  thingie anyhow?
- Right ascension and declination of the Sun are always changing!
  - what happens when the Sun is at a vernal equinox?
  - what happens when the Sun is at any of the other extrema?
- Ecliptic (celestial) latitude and longitude (leave some space for the transformations!)
- Sidereal time vs. local time
- Example: observing from Villanova ( $\phi=40.0372^\circ$ ,  $\lambda=75.3492^\circ$ ), at what time tonight do we expect Betelgeuse ( $\alpha$  Ori; R.A.= $05^h55^m10^s$ , Dec= $+07^\circ24'25''$ ) to culminate? When will it set?