Introductory Astronomy

Week 4: Stars

Clip 14: Mass-Luminosity Relation

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Mass Statistics
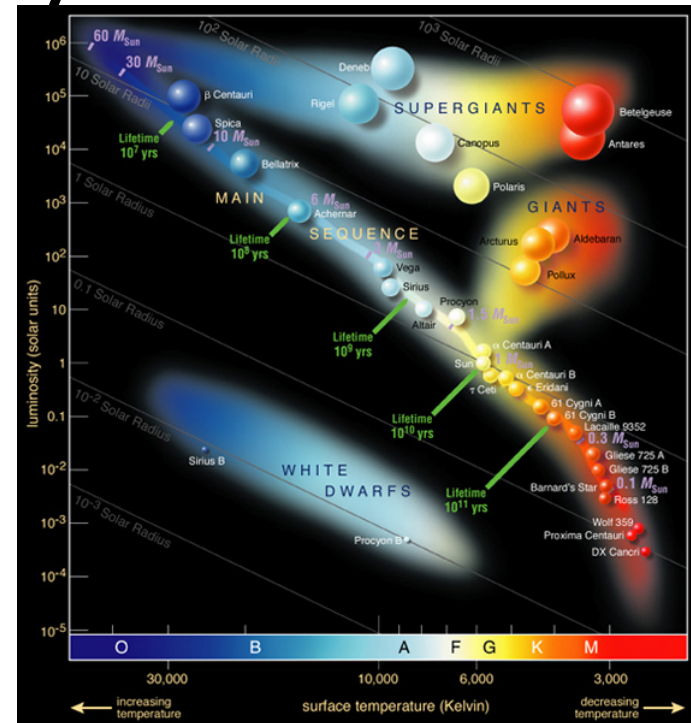
- Add mass for main sequence to our plot

- Masses vary little

- Model: Stars are the same: mass determines rest

- Heavy stars hot, luminous
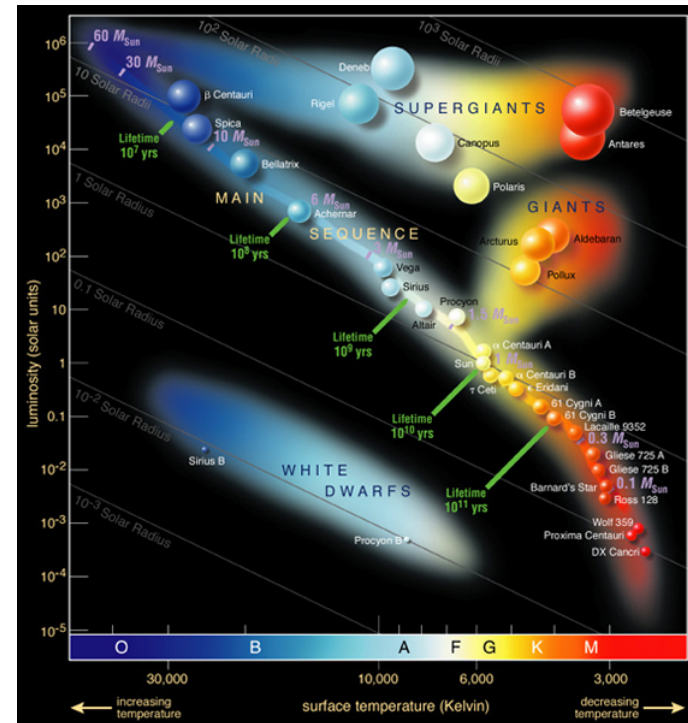
Mass-Luminosity Relation

- Find approximately

$$\left(\frac{L}{L_\odot}\right) = \left(\frac{M}{M_\odot}\right)^{3.5}$$

- Borne out by models: Mass compresses star increasing rate of fusion

- If amount of Hydrogen available for fusion is near constant fraction, big stars run out sooner

- OB stars are young!

3

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Credits

- HR Diagram: ESO
  http://www.eso.org/public/images/eso0728c/

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