# Understanding stars

What can we measure?

distance —— initially using heliocentric parallax.

brightness ⟶ determines the energy arriving at the Earth.

colour ⟶ leading to the temperature measurement

proper motion, from measurements of the transverse component

Doppler shift ⟶ speed of recession / approach.

binarity ⟶ mass of the components

properties of the spectra ⟶ composition

rotational speed.

luminosity

## Star clusters

Three types:

① <u>Galactic or open</u>. }
<u>Not well-defined</u>.          } Different ages
Distances not well known. }

✱ ② <u>Globular</u> —— all the same age. } Members are
Well-defined and "crowded" with stars. } typically
Distanc(s) known reasonably well. } $0.8 M_\odot$

③ <u>Extragalactic</u>, eg. Large Magellanic Cloud.
Distances well-known.
Unresolved —— no detail because of "crowding".

✱ My answer to number sixteen on the 2006 Paper goes
into considerable detail: dimensions, distances, number of stars
Each star in a globular cluster is roughly the same distance
from the Sun. ∴ the brightest stars must be the most
luminous, because the inverse-square law governing the
propagation of light does not have to be applied.

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