

Station Card: Parallax Distance

Closer stars have larger parallax

Dr. Anna Rosen

Name: _____ Section: _____

Date: _____

Station: _____ Group members: _____

Goal: Use the demo to make a claim supported by (1) at least one number/readout and (2) at least one sanity check.

Demo: /demos/parallax-distance/

Artifact: a “parallax card” with one numeric example + one sentence interpretation.

At the station, produce: - A chosen distance d (pc) and the corresponding parallax p (in arcsec or mas), - One sentence: “Because p decreases as d increases, this star is [near/far] compared to _____.” - One note about measurement: “Hipparcos/Gaia can/can’t measure this because _____.”

 Word bank + sanity checks

Word bank: - **Parallax:** an apparent shift caused by a change in viewpoint (here: Jan vs July). - **Parallax angle p :** the measured angle; larger p means the star is closer. -

Parsec (pc): defined so that:

$$d(\text{pc}) = \frac{1}{p(\text{arcsec})}$$

Sanity checks: - If $d = 1$ pc, then $p = 1$ arcsec. - If distance increases by $10\times$, parallax should decrease by $10\times$. - Distant stars have tiny parallax angles (mas or μas).