THE RADIAL VELOCITY (RV) METHOD
RVs IN THE TRANSIT ERA

Radial velocities are crucial for transit follow-up:
- planet confirmation/rejection
- mass from RVs + radius from transit = planet densities

Between survey programs and follow-up, RV facilities can’t keep up!
RADIAL VELOCITY JITTER

In short, RV “noise” induced by stellar variability

My exoplanet perspective is showing...

Magnetically driven
- star spots
- flares

Convection driven
- granulation
- oscillations
MORE ACTIVE STARS HAVE HIGHER RV JITTER

Saar et al. (1998)
Santos et al. (2000)
Wright (2005)
Isaacson & Fischer (2010)
...among others

Wright (2005)
More evolved stars have higher RV jitter

Bastien+ (2014)
Luhn et al. (2018, in prep.)
Active stars pile up toward high logg (~ZAMS)

Inactive stars increase with evolution

"Planetary noise"

Luhn et al. 2018a, submitted
1. Star is born, active and jittery
2. Spins down, decrease in activity/jitter
3. Falls to “jitter minimum”
4. Gradual increase from convection
RV jitter tracks stellar evolution!

We can use this sample as a tool to predict amplitude and dominant component of RV jitter.

Precise radial velocities provide another means of studying stellar evolution.

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