

Credit  
Mark Garlick

# Hot Jupiters around young active stars

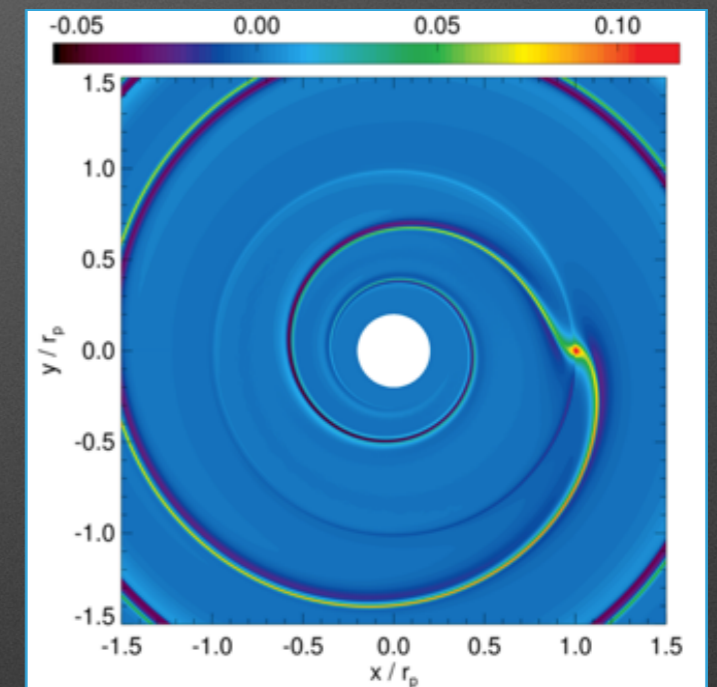
Journée des thèses IRAP 21/06/2017

Louise YU - 1st year - my PhD in 180s

Supervisor: Jean-François DONATI

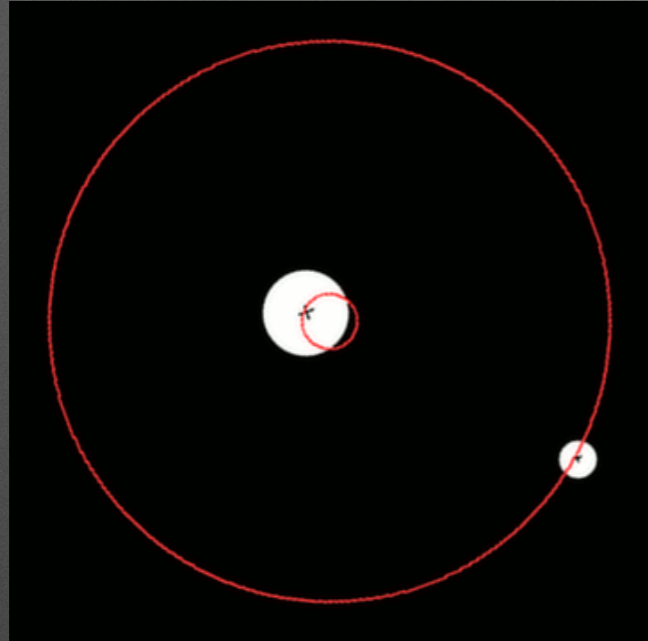
# What and why?

- Hot Jupiter: **massive** exoplanet orbiting **close** to its host star.
- Formed far from the star.
  - **Migration?**
- Observation of young stars:
  - 300-1000 x younger than Sun.
  - Rotate fast → magnetic activity
- **History of Solar System?**

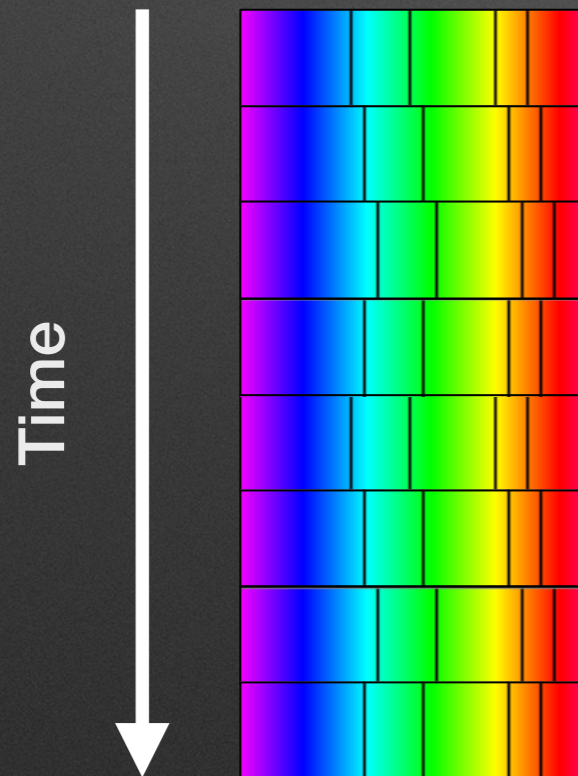


Baruteau et al. 2015

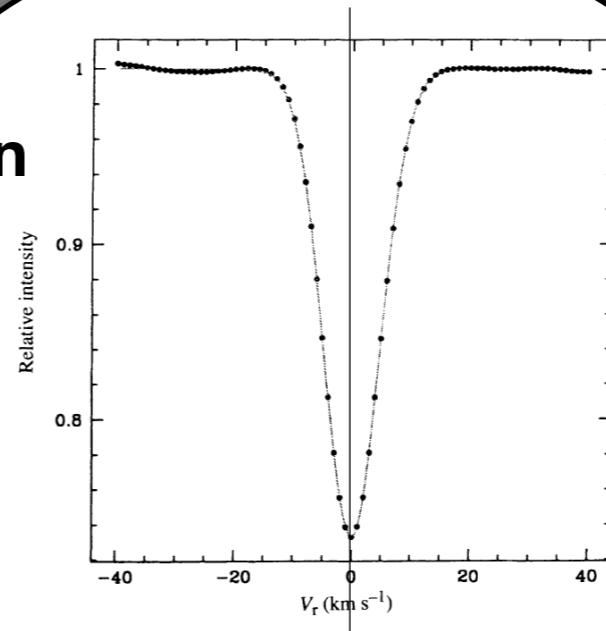
# How?



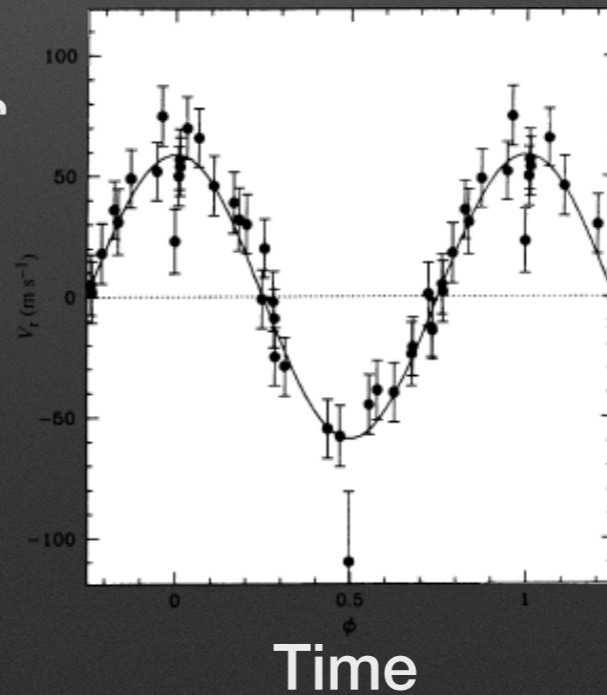
Doppler effect



Cross correlation

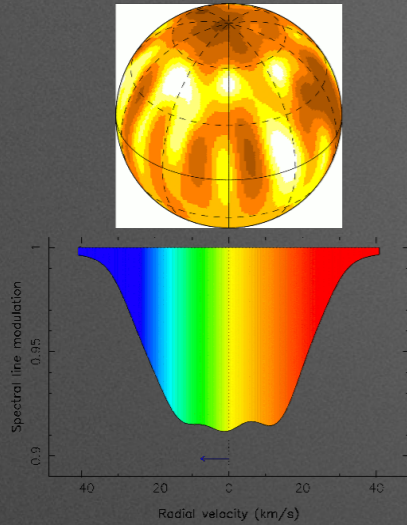


Radial velocity



Period  
Semi-major axis  
Minimal mass

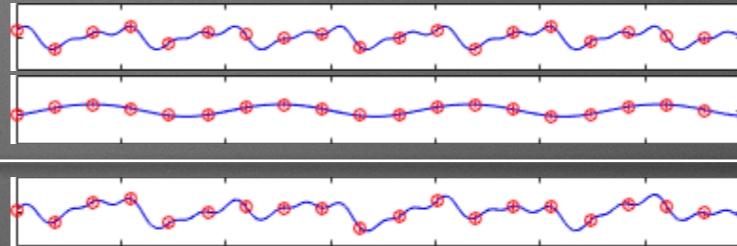
# How?



Activity jitter

+ Planet

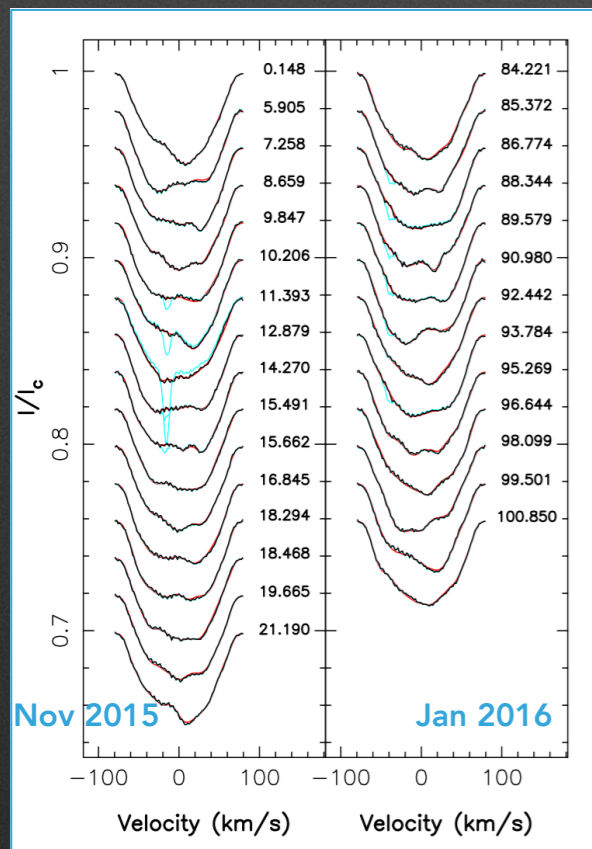
Measured



$P_{rot}$

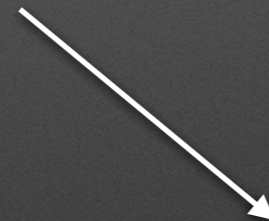
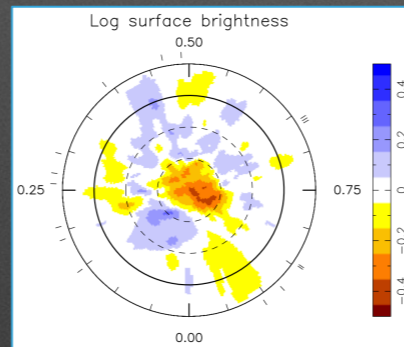
$P_{orb}$

Data

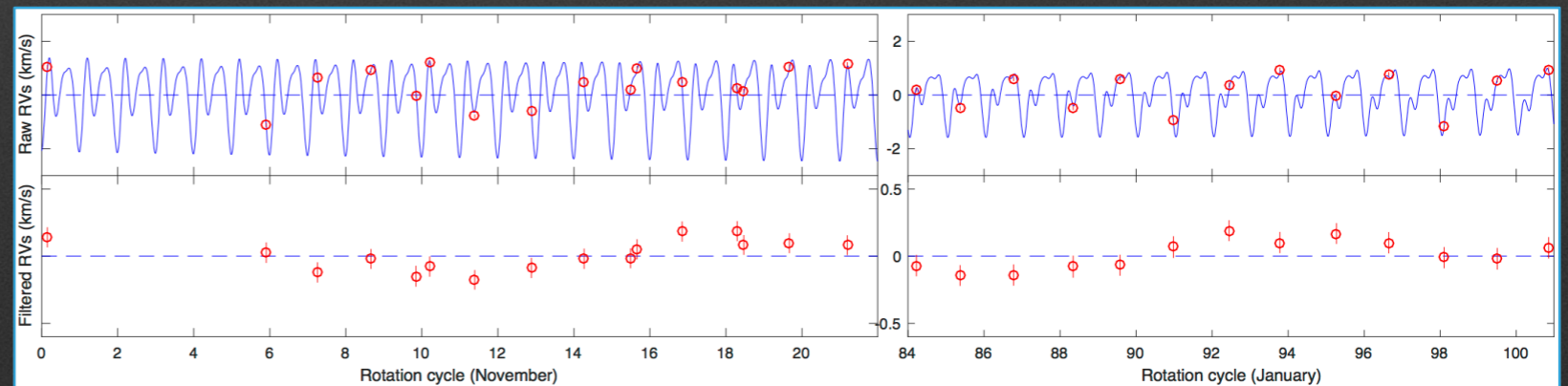


Stokes I

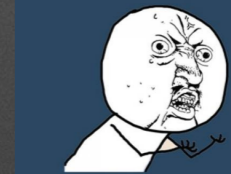
Model



Filtering

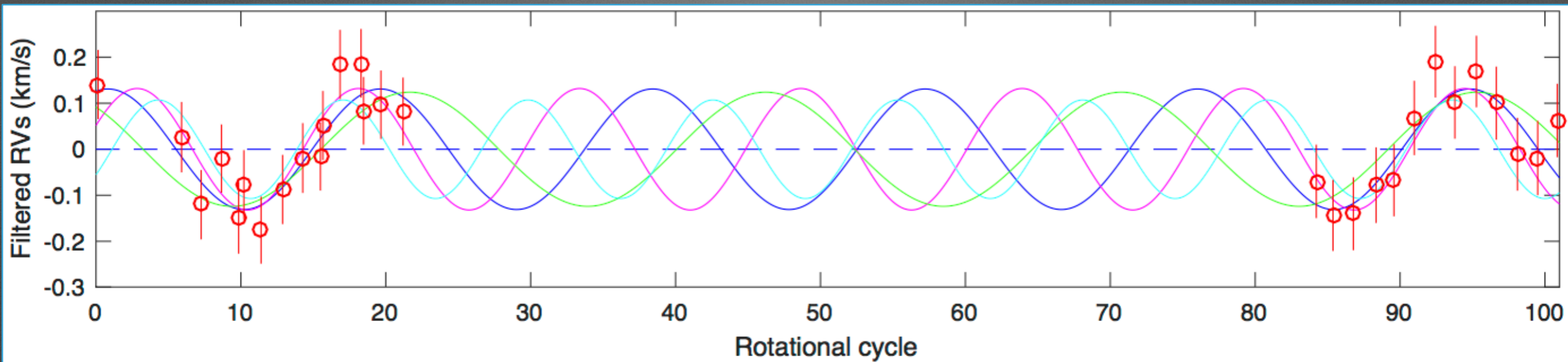


Y U NO BE SIMPLER



YOUNG STARS?

# Results



- Detection of TAP 26 b (17 Myr)
- Yu, L. et al. 2017, MNRAS n. 467, p. 1342
- MaTYSSE and SPIRou programmes
  - V830 Tau b (2 Myr) detected before
  - maybe others in the future!

