

You may download the papers directly or get them from links on the syllabus.

1. Read the paper on HARPS. (Mayor, M.; Pepe, F.; Queloz, et al, 2003, The Messenger, 114, 20; [http://cdsads.u-strasbg.fr/cgi-bin/bib\\_query?2003Msng.114...20M](http://cdsads.u-strasbg.fr/cgi-bin/bib_query?2003Msng.114...20M))
  - a. (5 pts.) HARPS is an improved version of ELODIE. What are two primary improvements, and how do they improve the velocity accuracy?
  - b. (4 pts.) What property of  $\alpha$  Cen B did they measure? What is the size of the effect? What is the error?
  - c. (4 pts.) What are the goals of the HARPS project?
2. Read the paper on the planets around HD10180. (C. Lovis, D. Ségransan<sup>1</sup>, M. Mayor, 2011, A&A, 528, A112; <http://adsabs.harvard.edu/abs/2011A%26A...528A.112L>)
  - a. (5 pts.) Summarize their discussion in “8.2. Extrasolar Titius-Bode-like laws?”. What question did they pose? What is their conclusion?