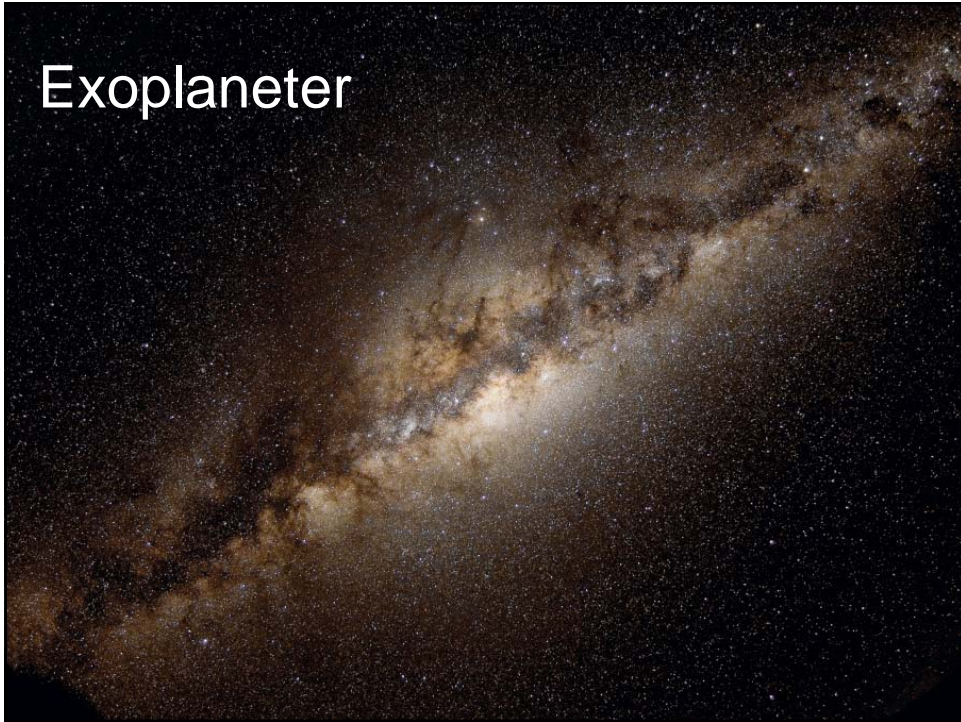
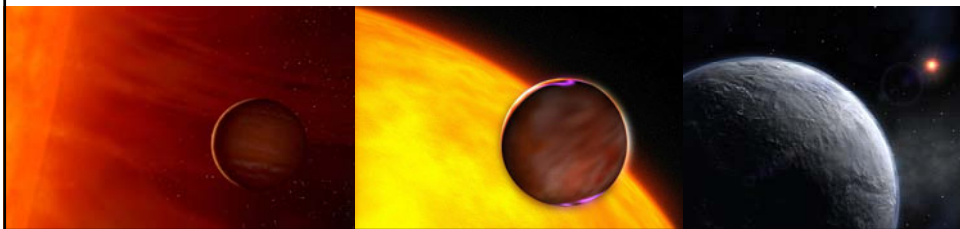


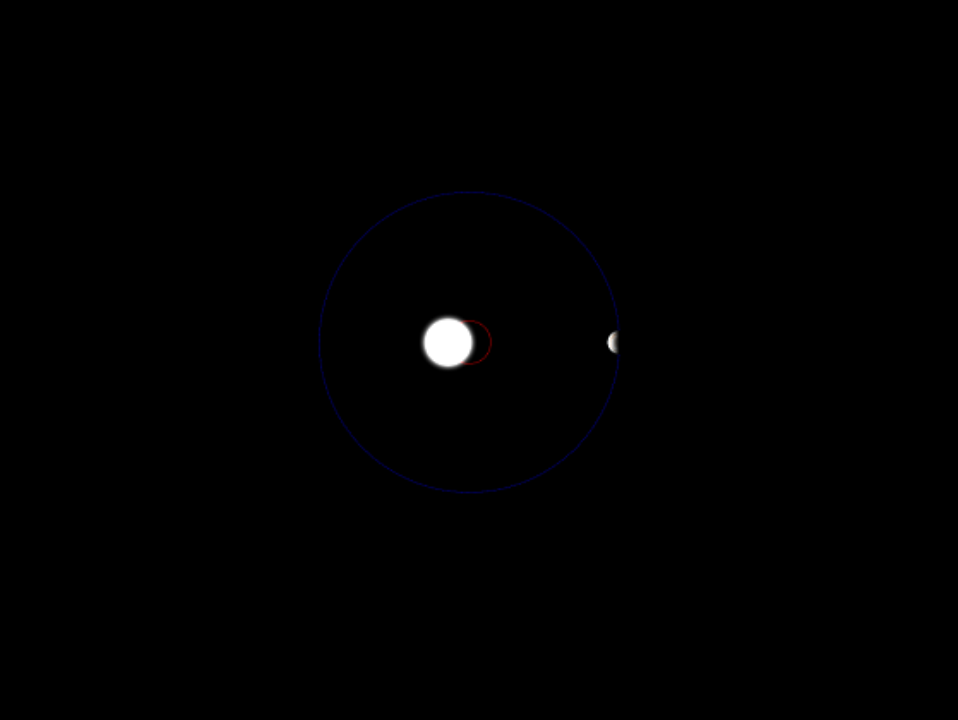
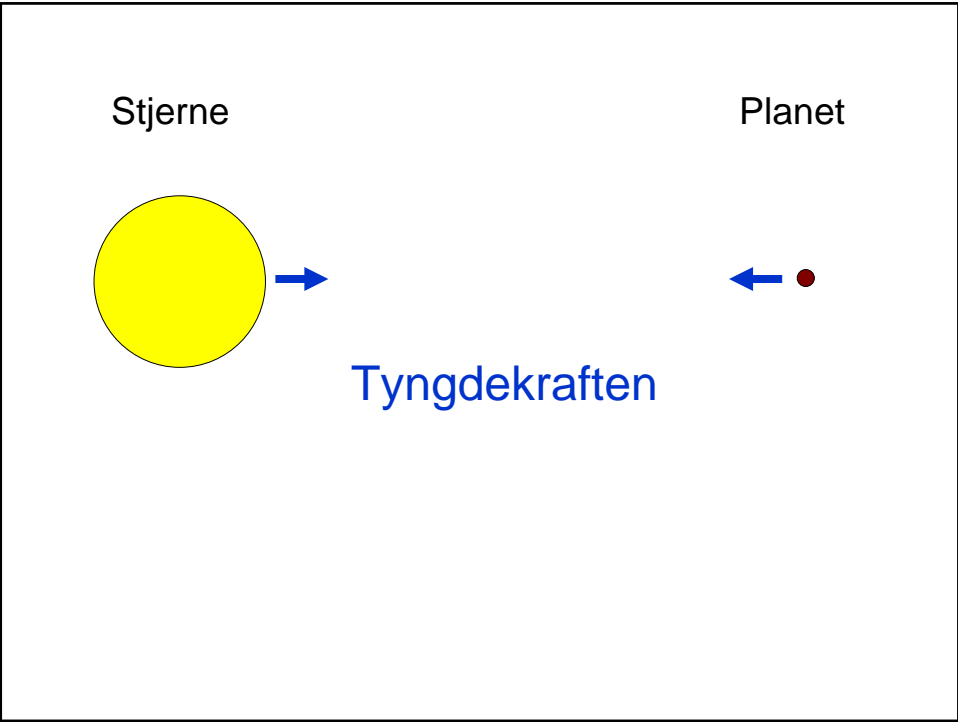
Exoplaneter



Hvordan finder man en exoplanet?

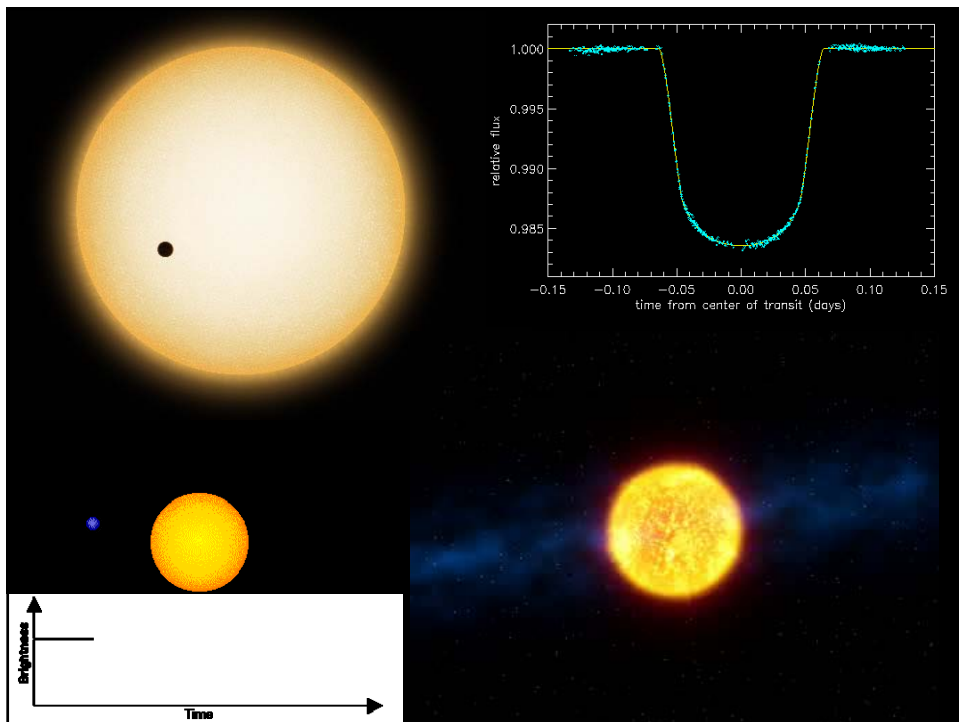
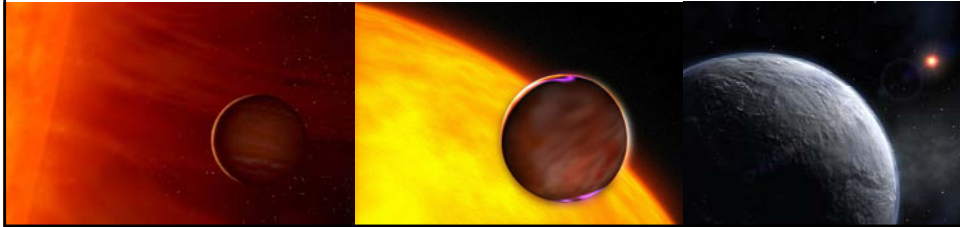
- Direkte observation
- Via tyngdekraften
- Via passage foran moderstjernen

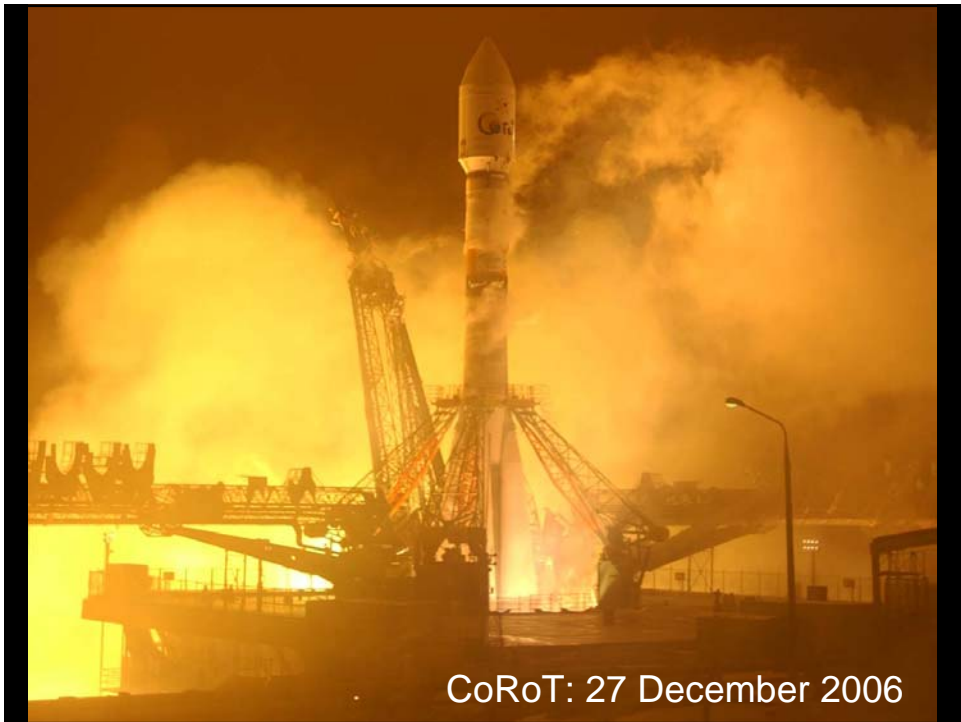


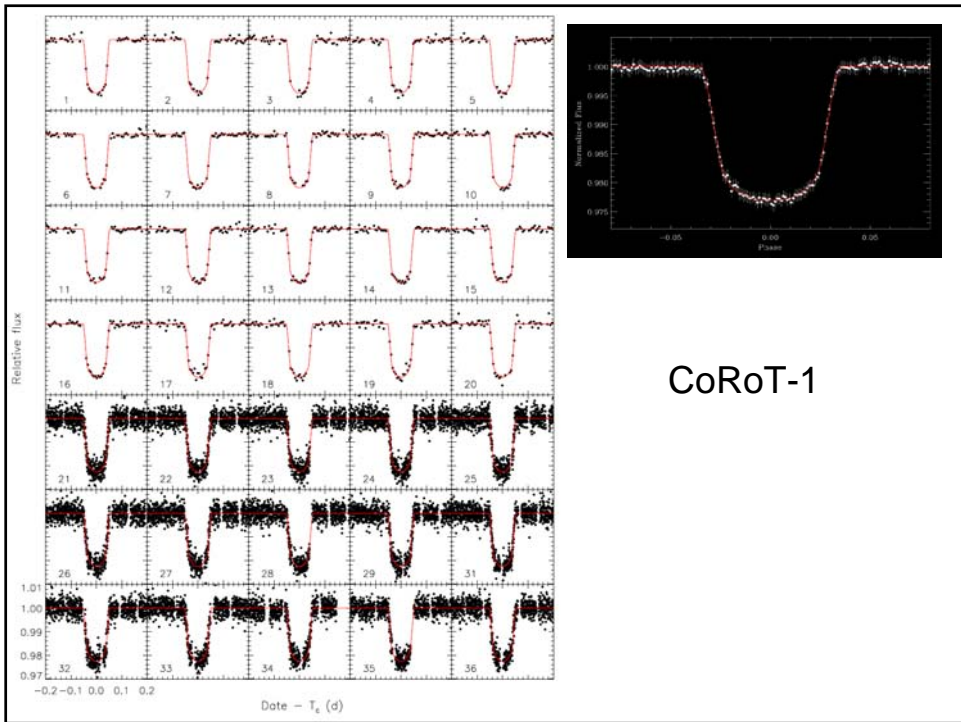
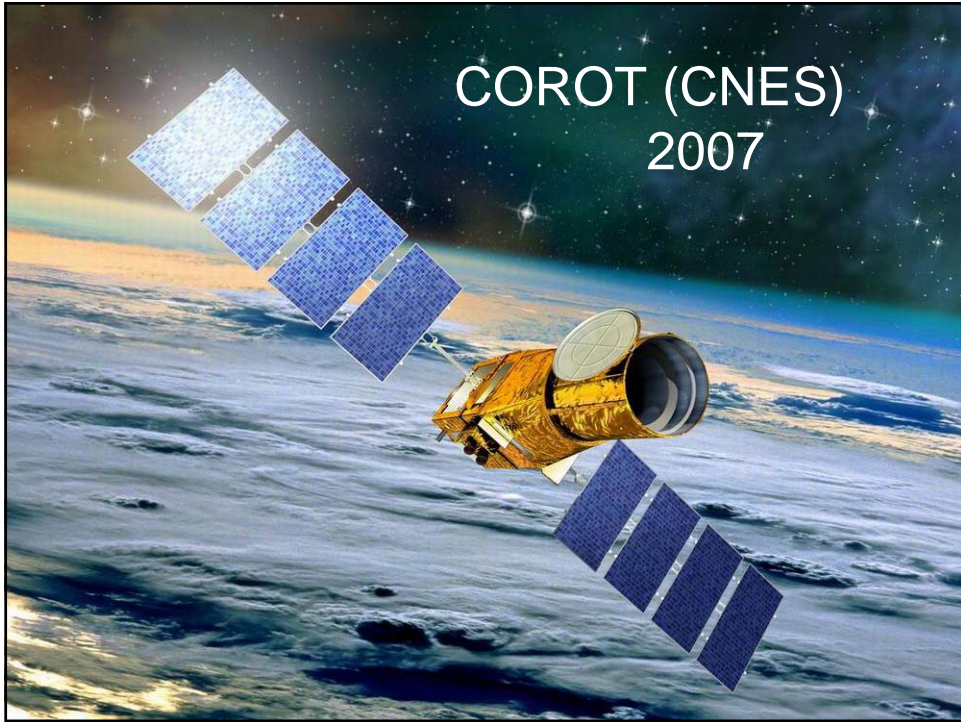


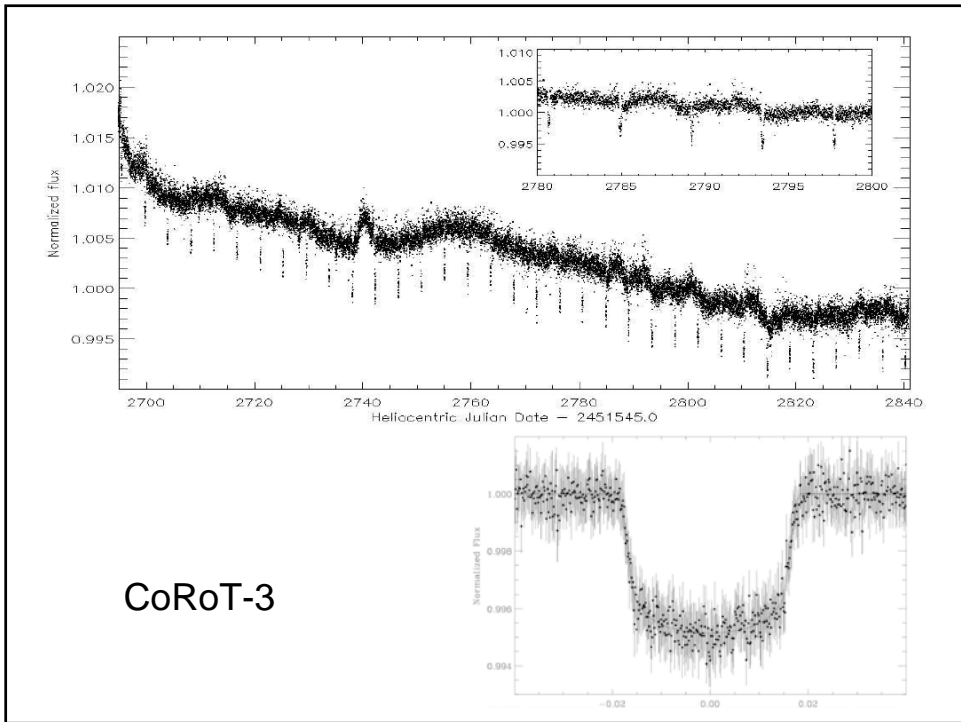
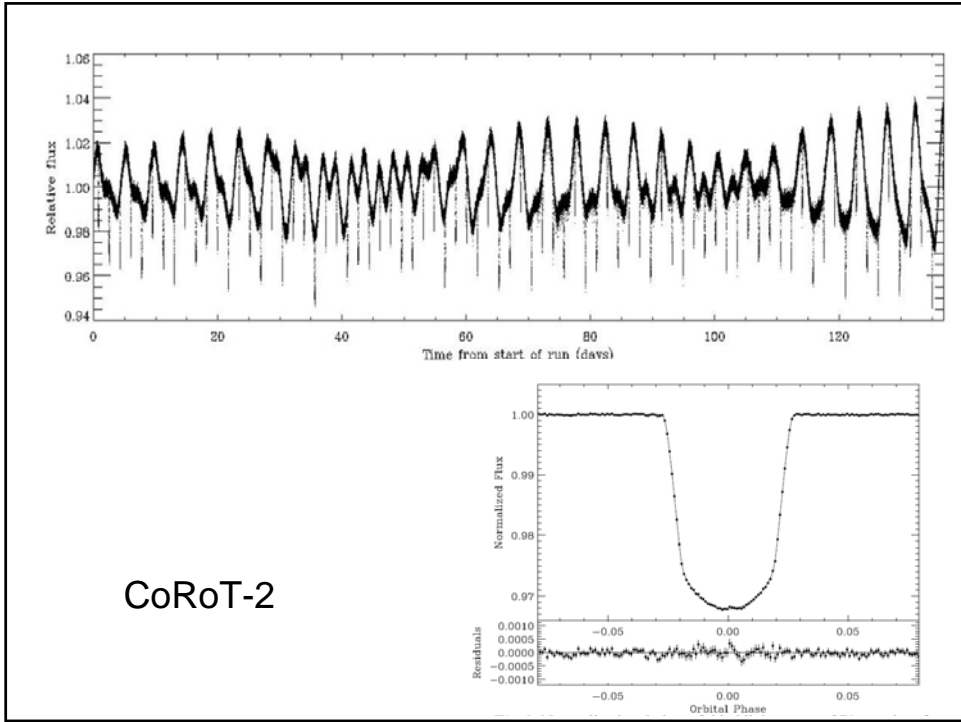
Hvordan finder man en exoplanet?

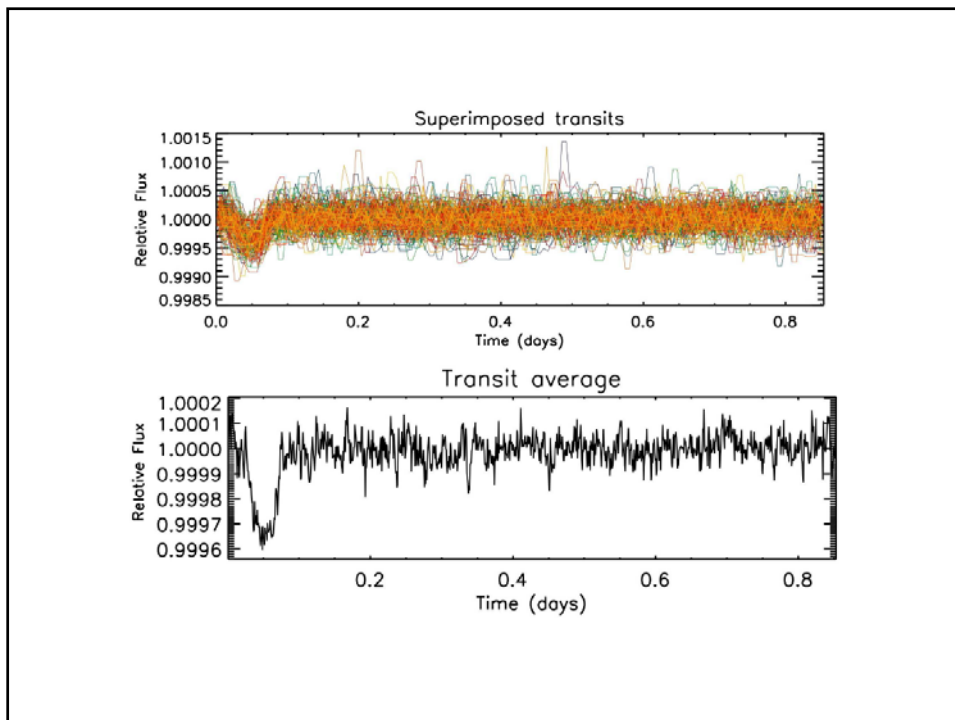
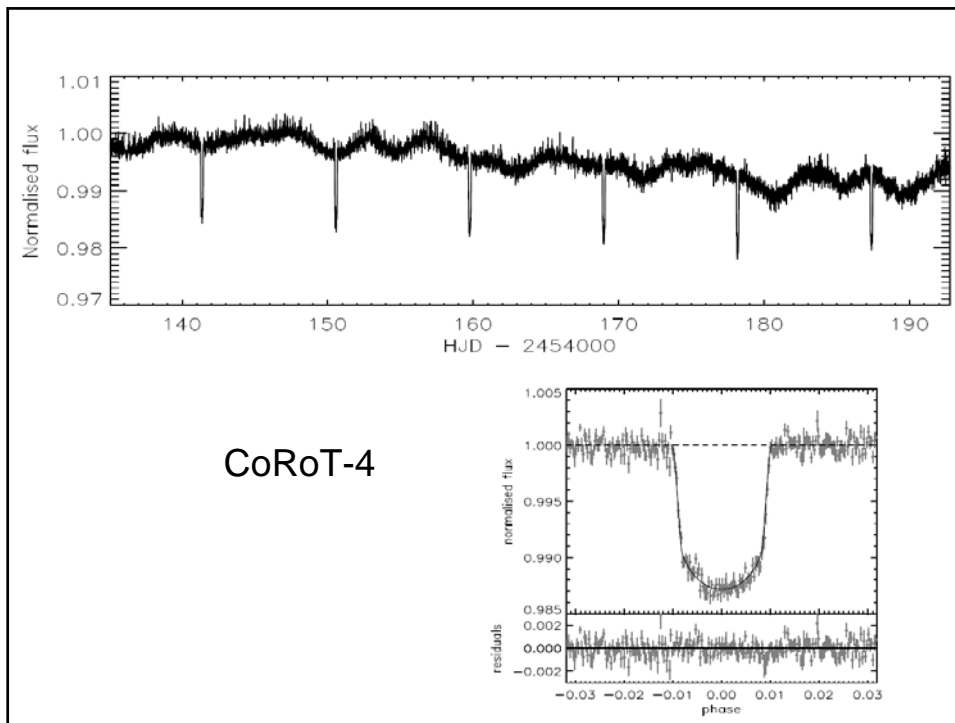
- Direkte observation
- Via tyngdekraften
- Via passage foran moderstjernen

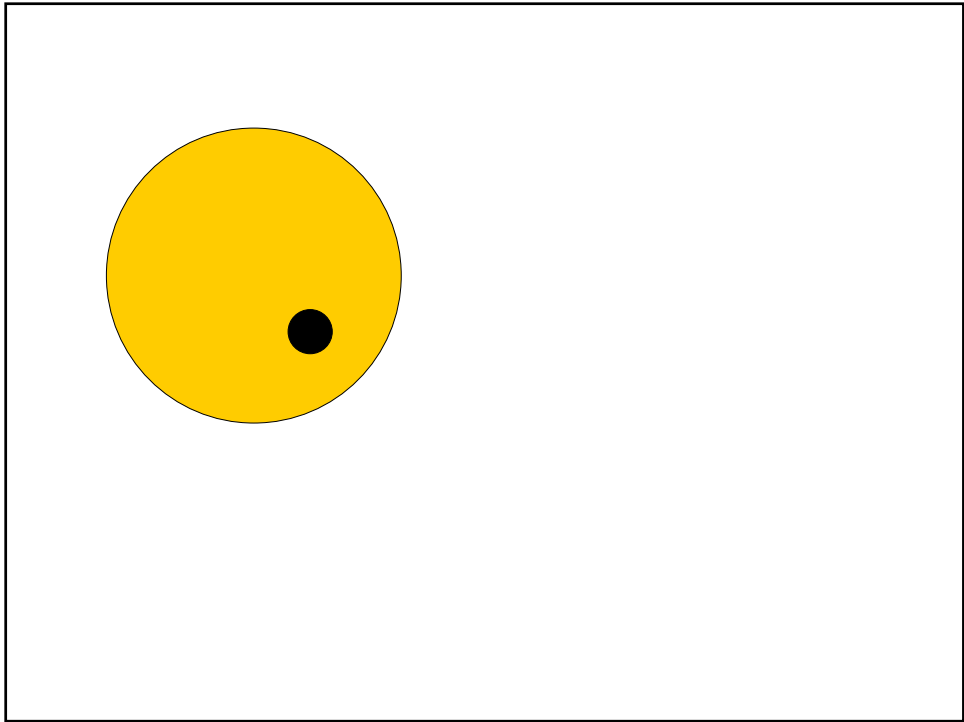
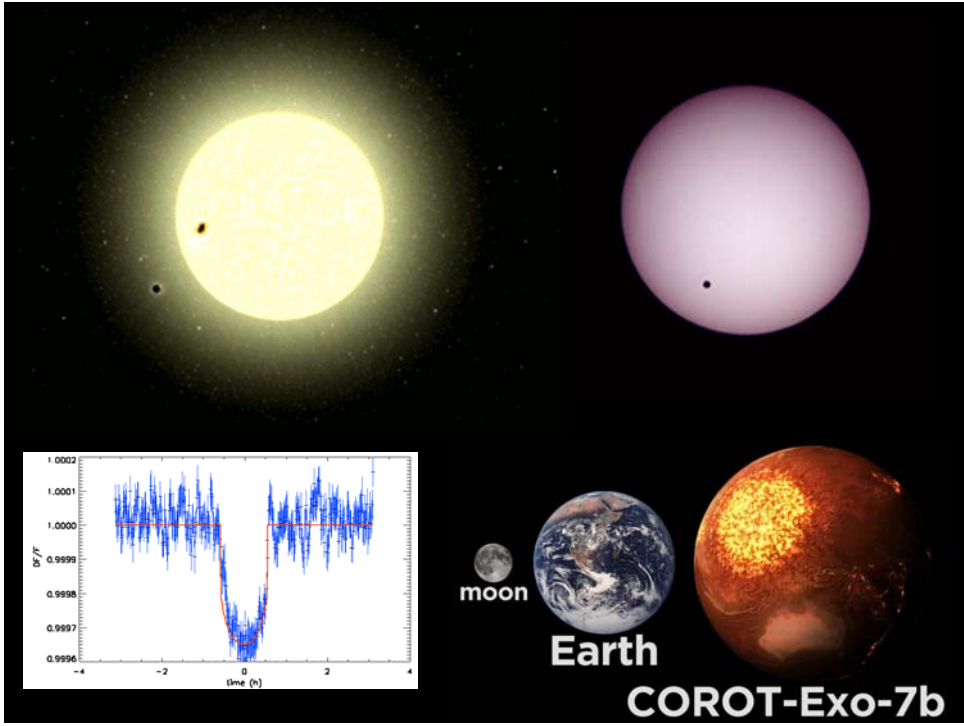


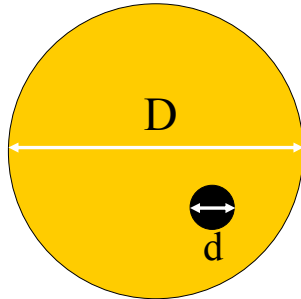




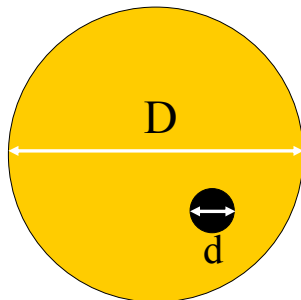








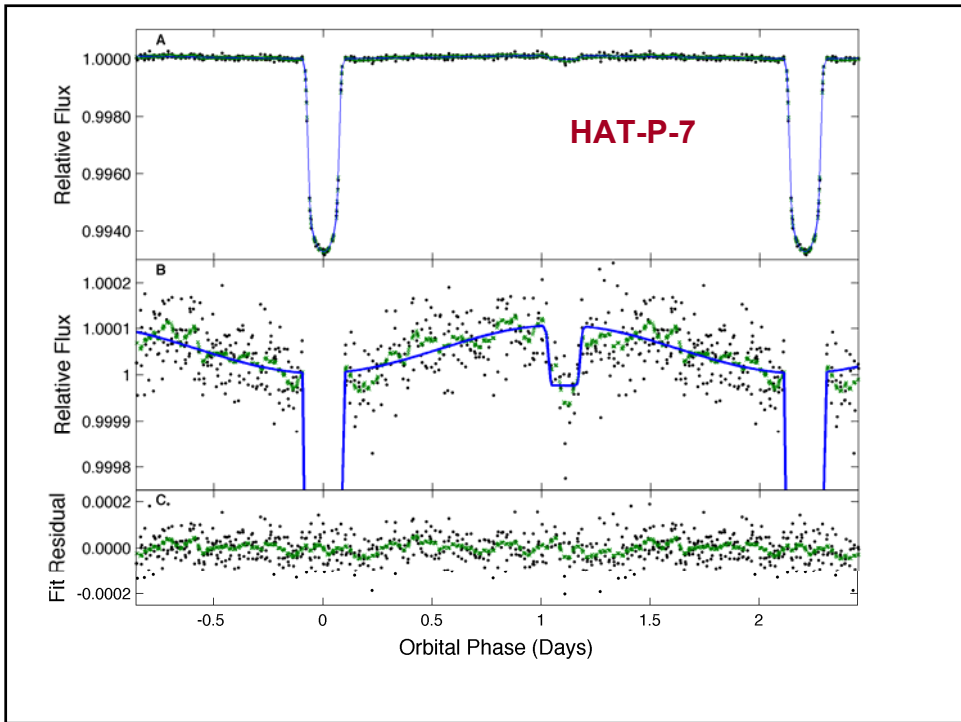
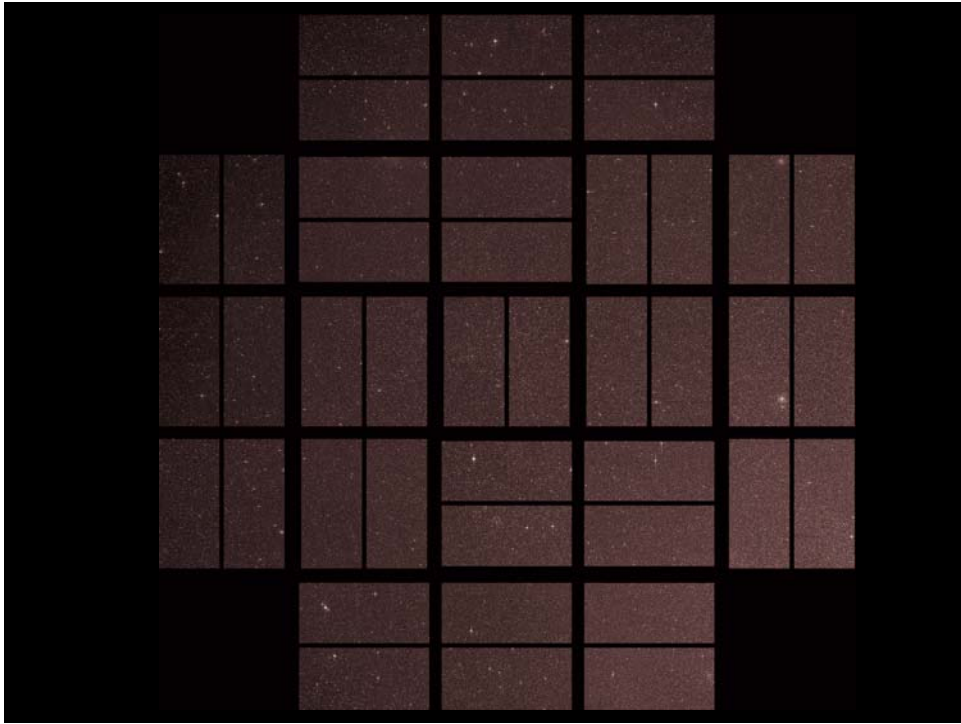
$$\frac{a}{A} = \frac{\pi \cdot r^2}{\pi \cdot R^2} = \frac{d^2}{D^2} = \left(\frac{d}{D}\right)^2$$

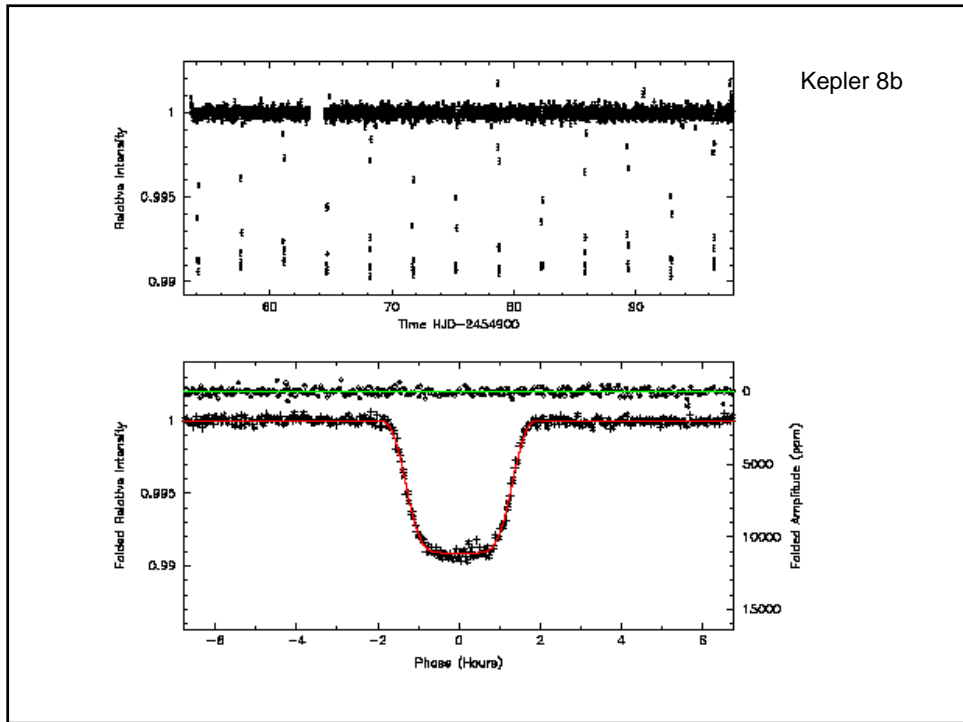
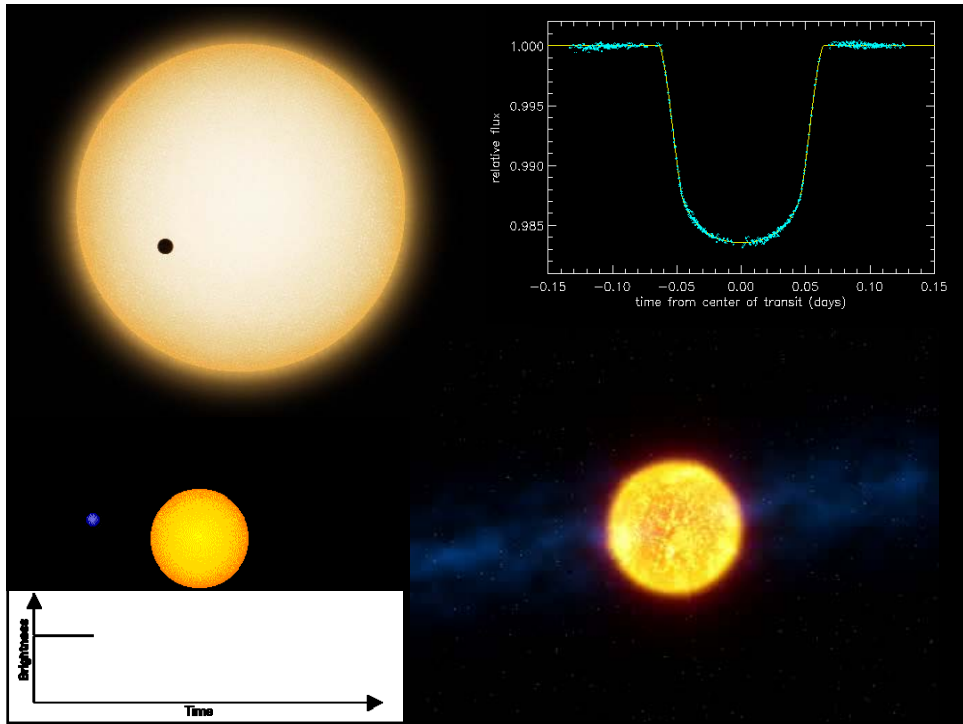


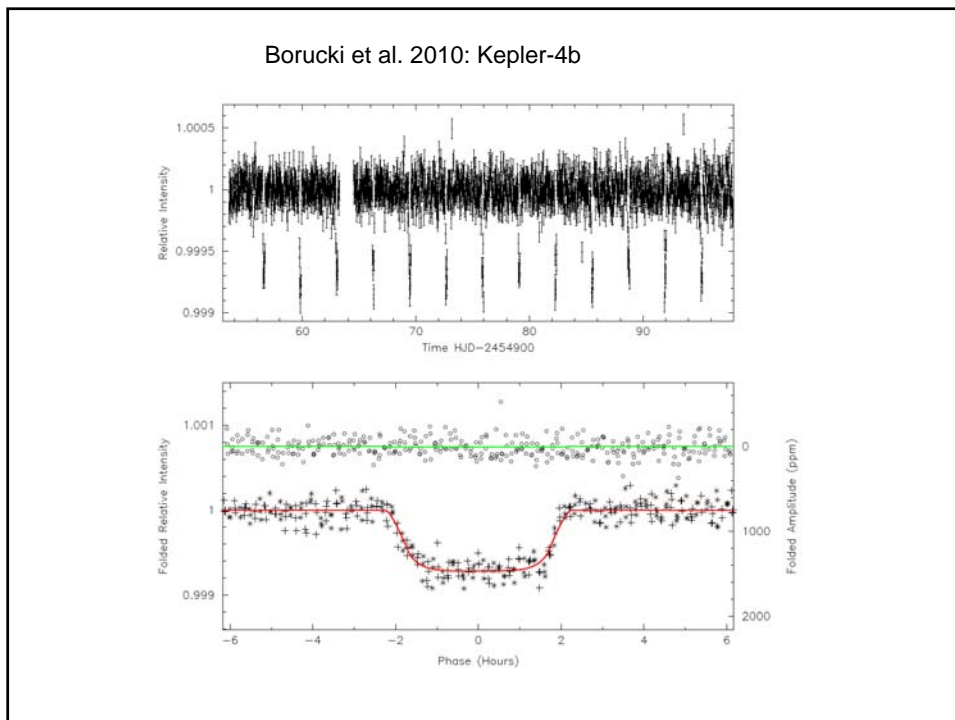
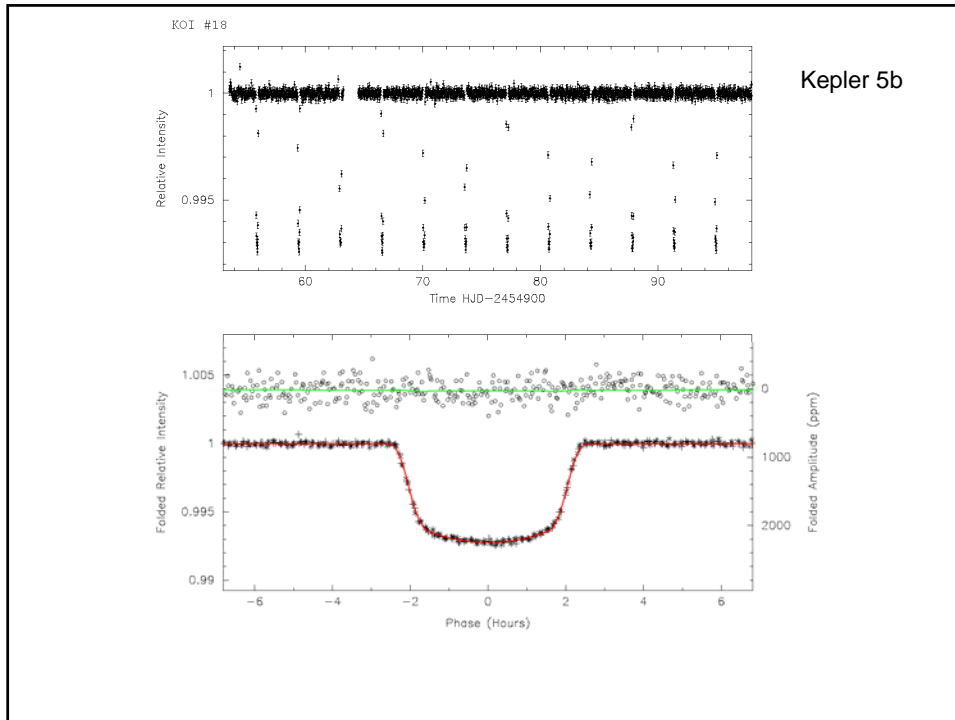
$$\frac{a}{A} = \frac{\pi \cdot r^2}{\pi \cdot R^2} = \frac{d^2}{D^2} = \left(\frac{d}{D}\right)^2$$

Jupiter: 1 %
Uranus: 0,1 %
Jorden: 0,01 %









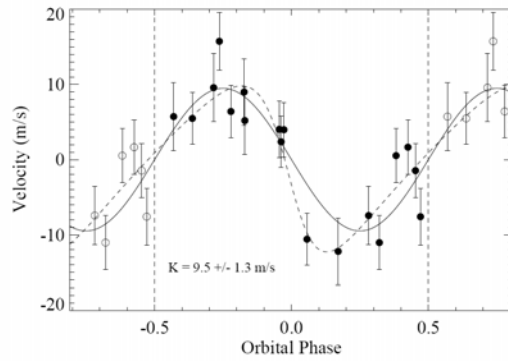
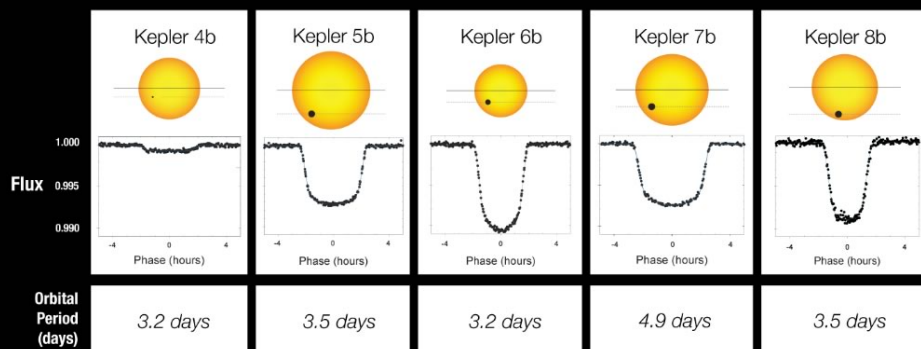
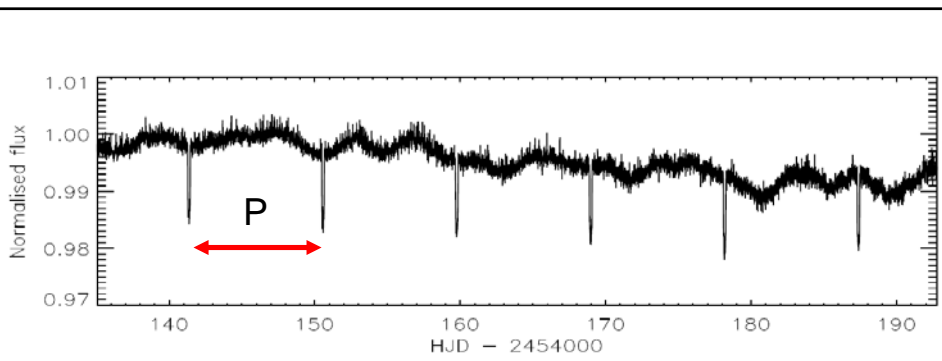
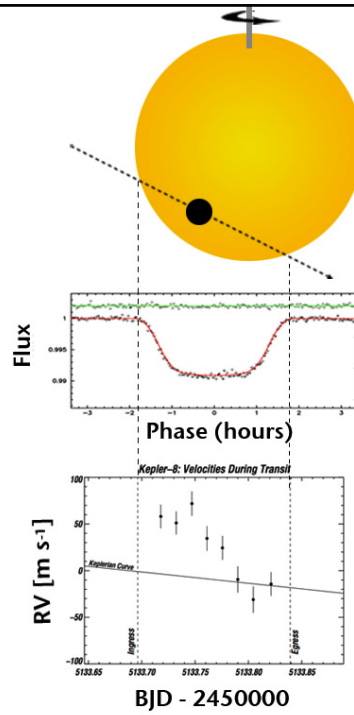


Fig. 2.— The phased radial velocity curve of Kepler-4, consisting of 18 epochs observed using the Keck/HIRES spectrometer, spanning 69 days. Open symbols represent observations that are shown twice to help visualize phasing. The solid overplotted curve is a fit assuming a circular orbit, phased to match the transit photometry; the corresponding semi-amplitude is shown in the annotation. The dashed curve shows the best-fit eccentric orbit, with $\epsilon = 0.31 \pm 0.22$.

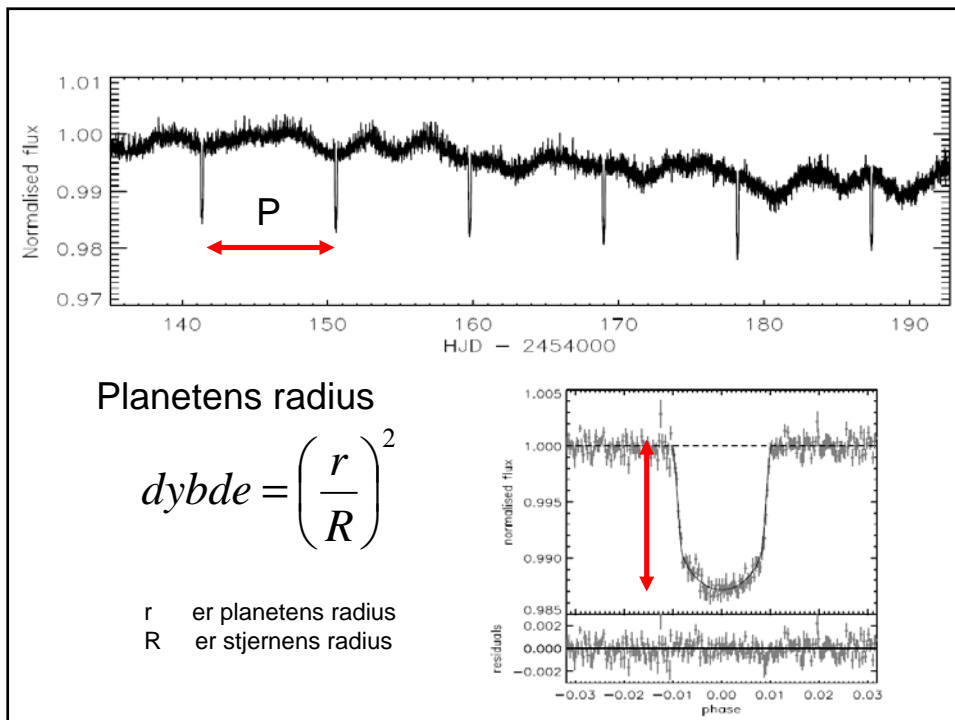
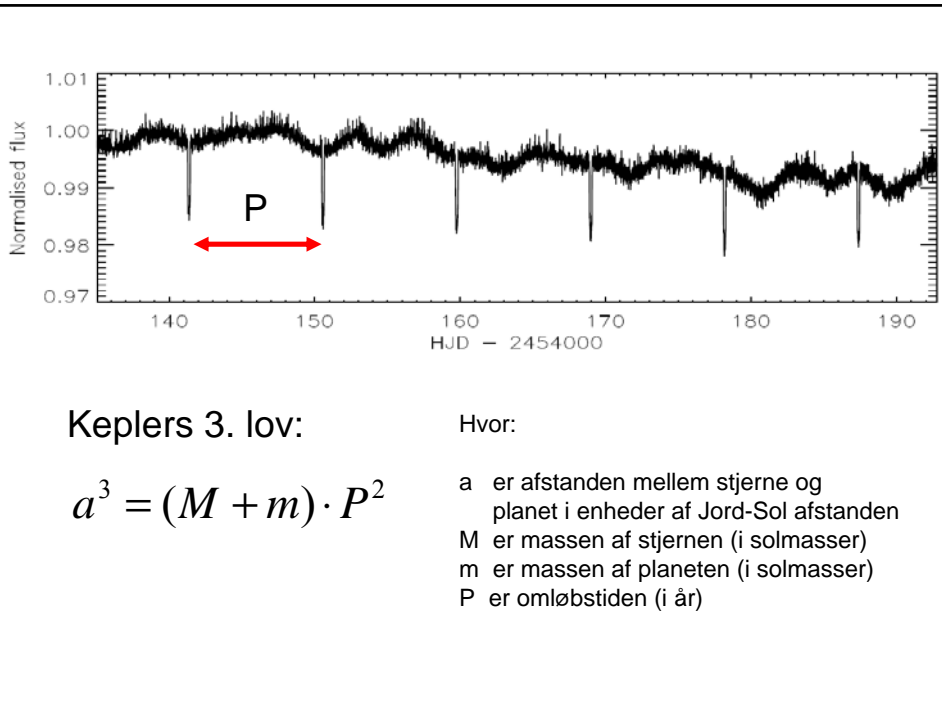
Transit Light Curves



Kepler 8b



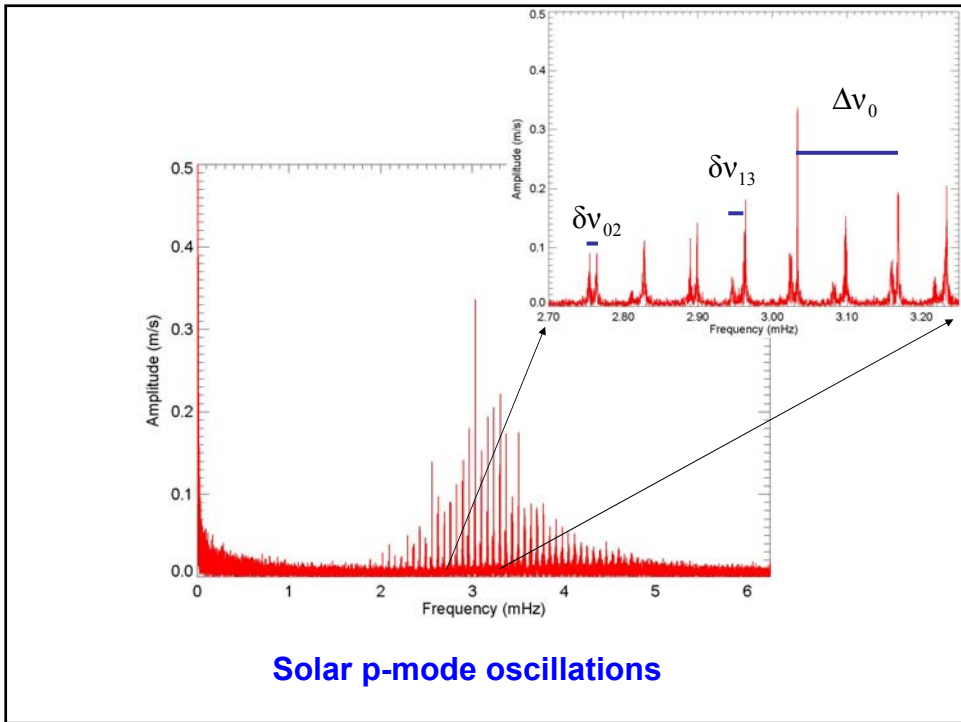
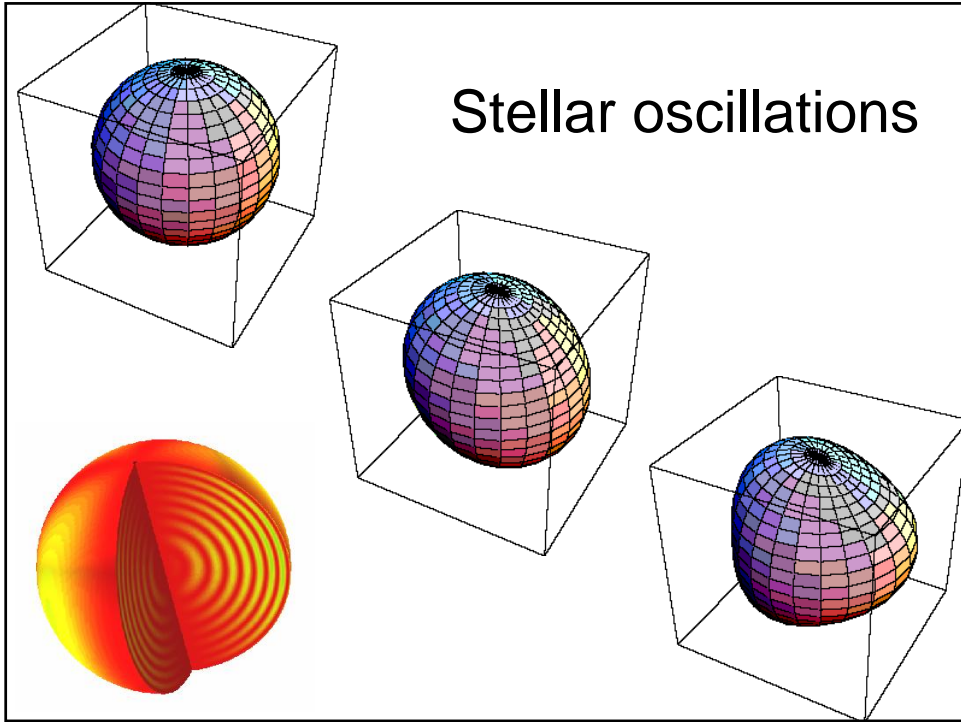
Planetens omløbstid: P

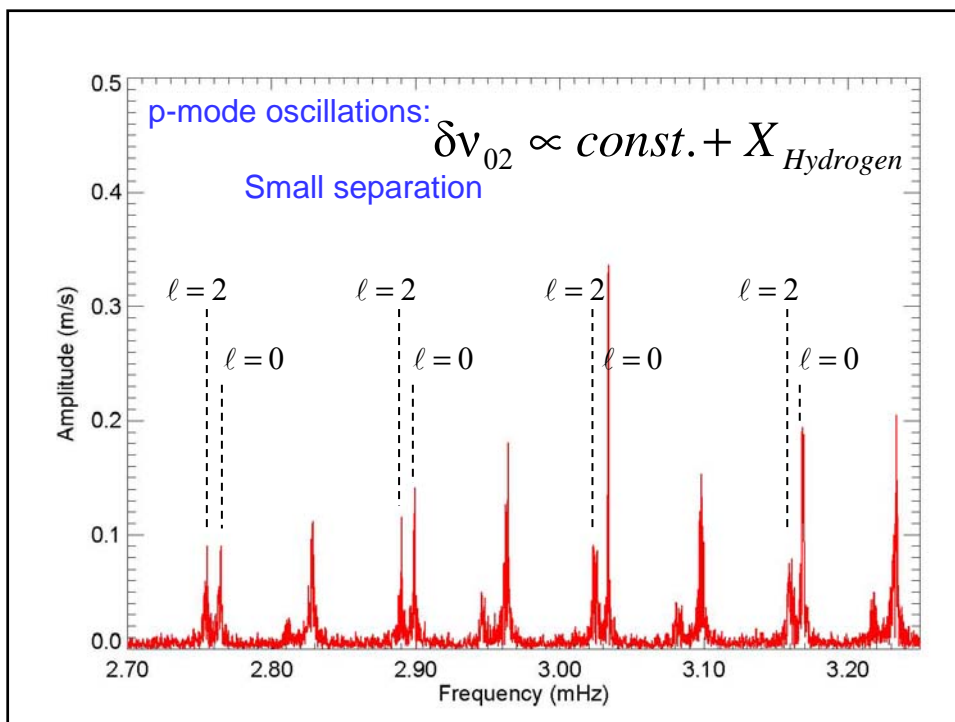
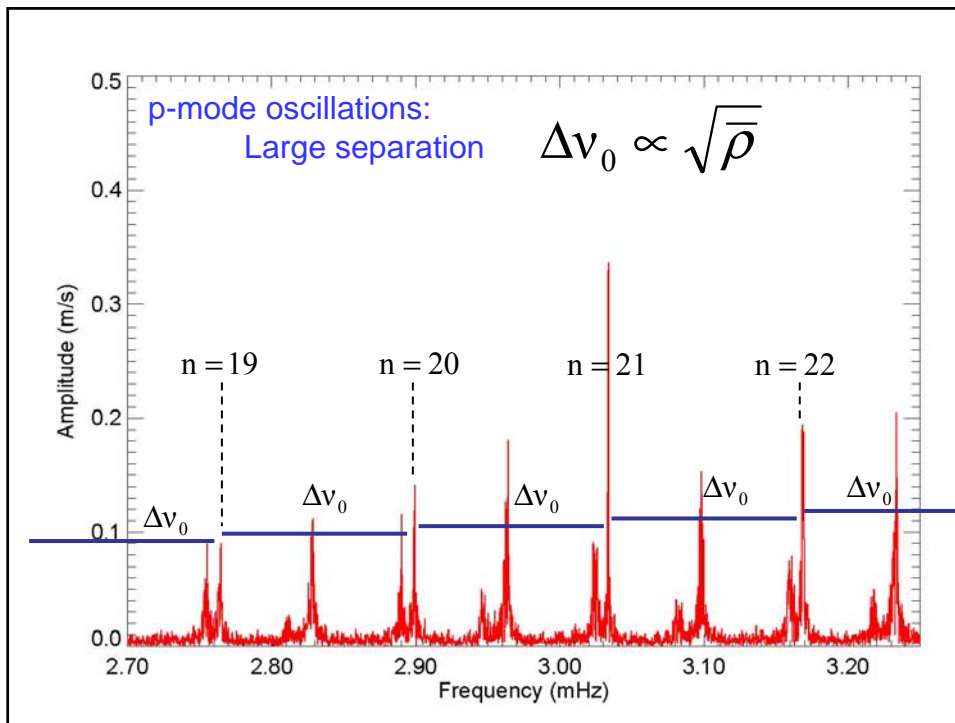


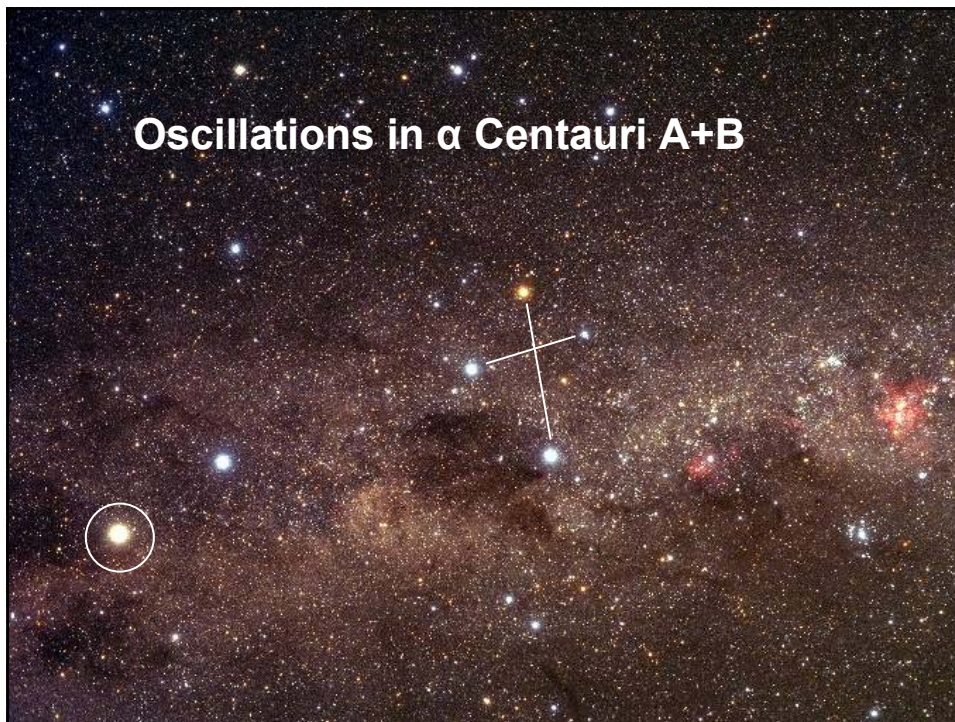
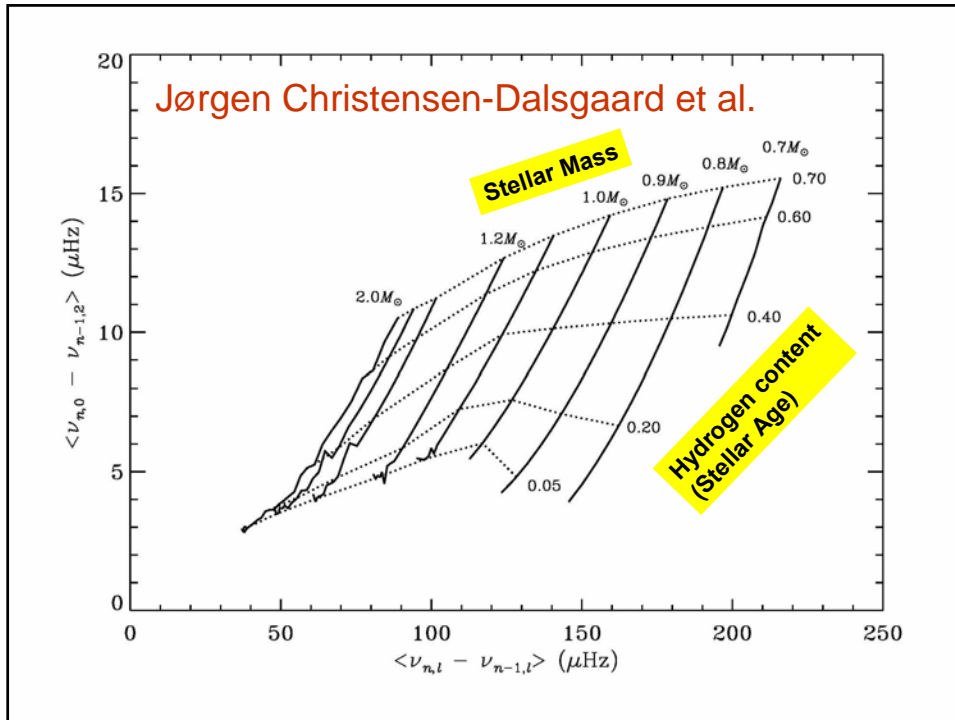
Frie data

- <http://astro.phys.au.dk/KASC/GYM>

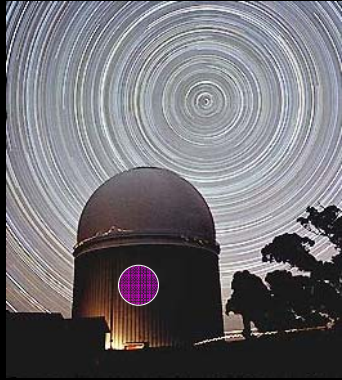








High precision radial velocities

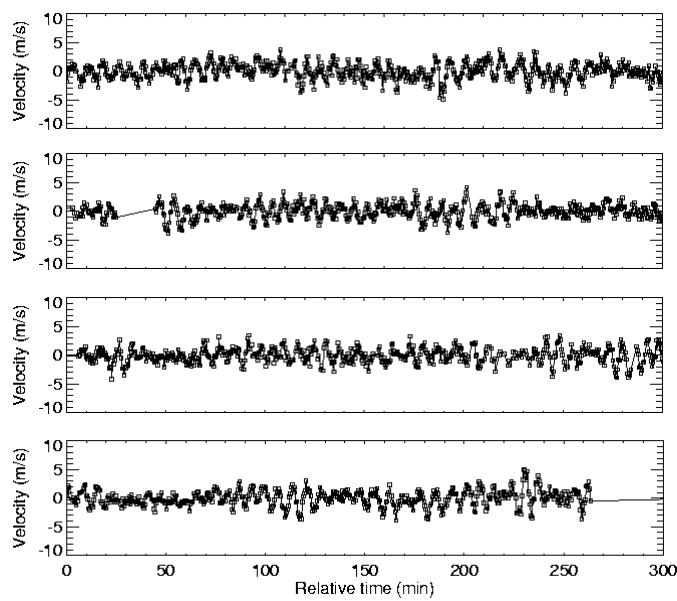


UCLES at the
AAT

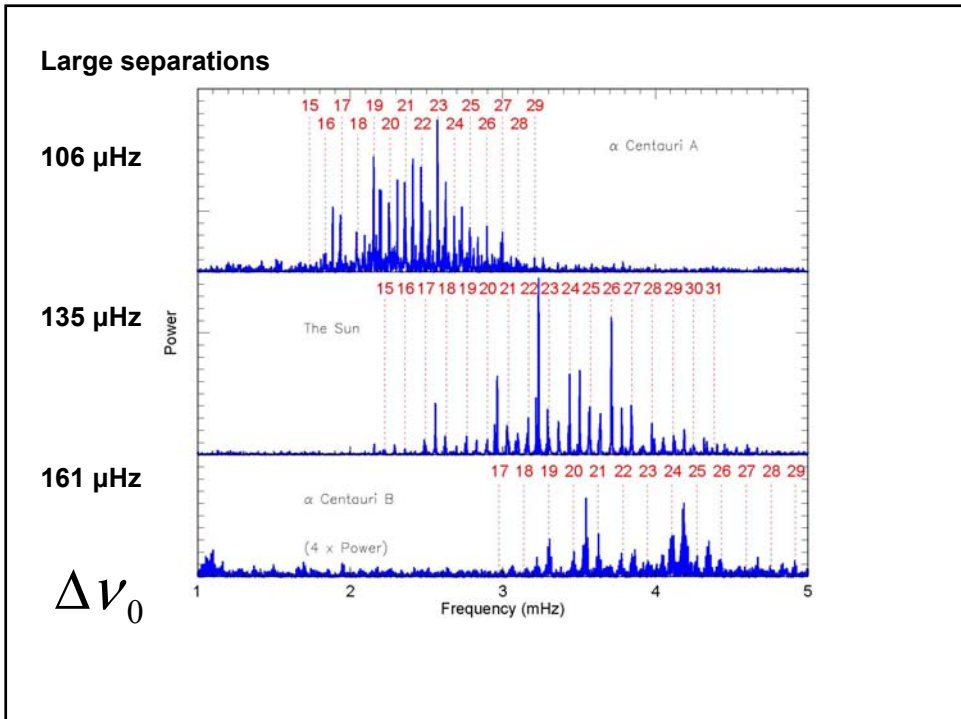
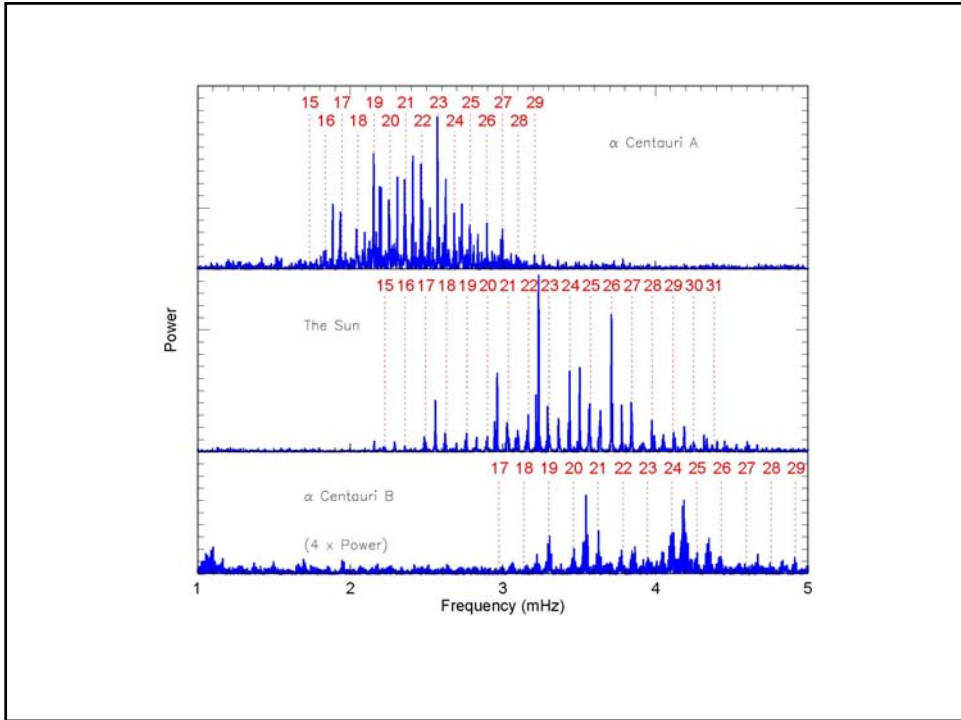


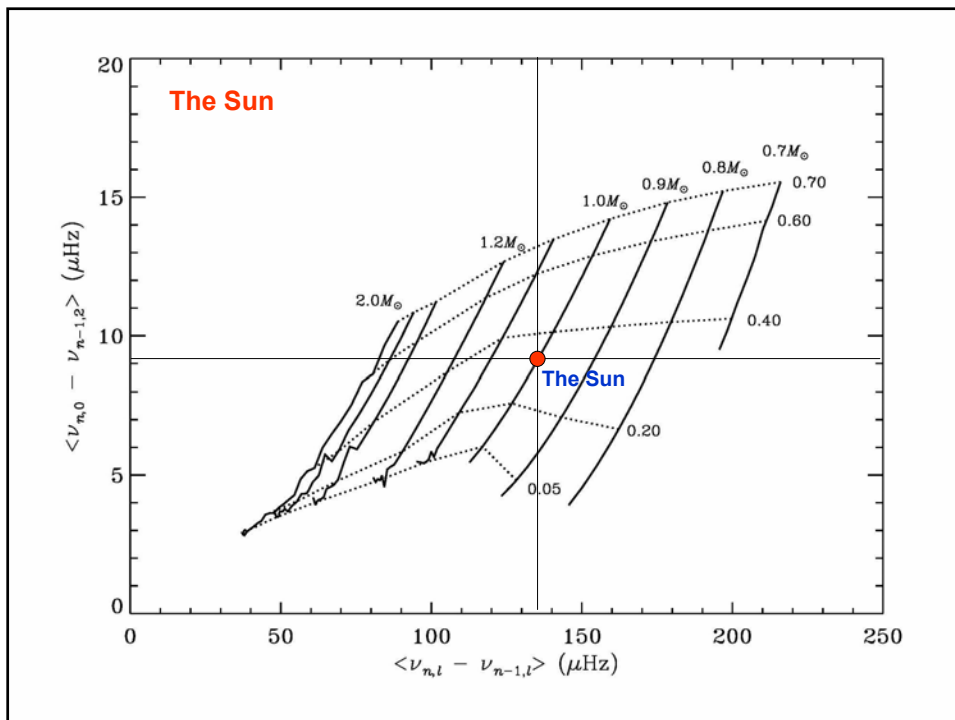
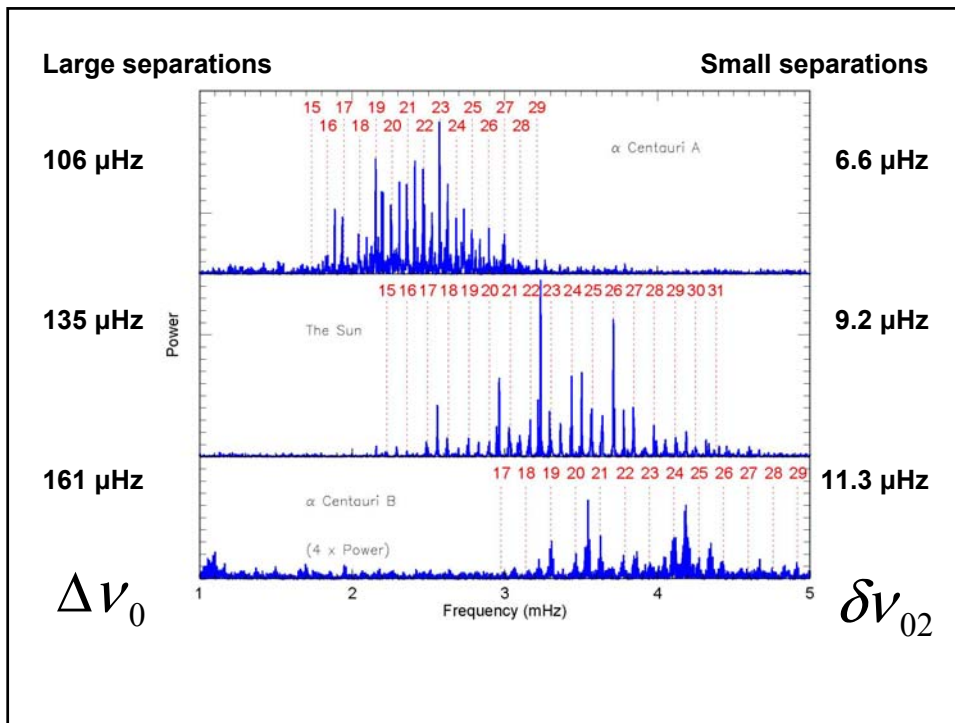
UVES at the VLT

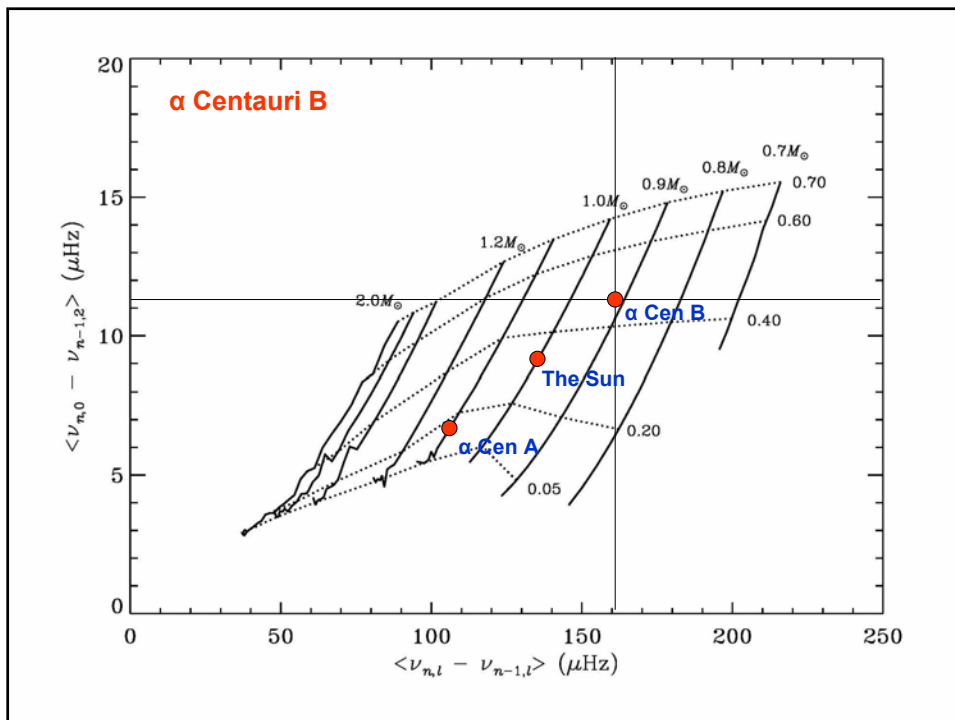
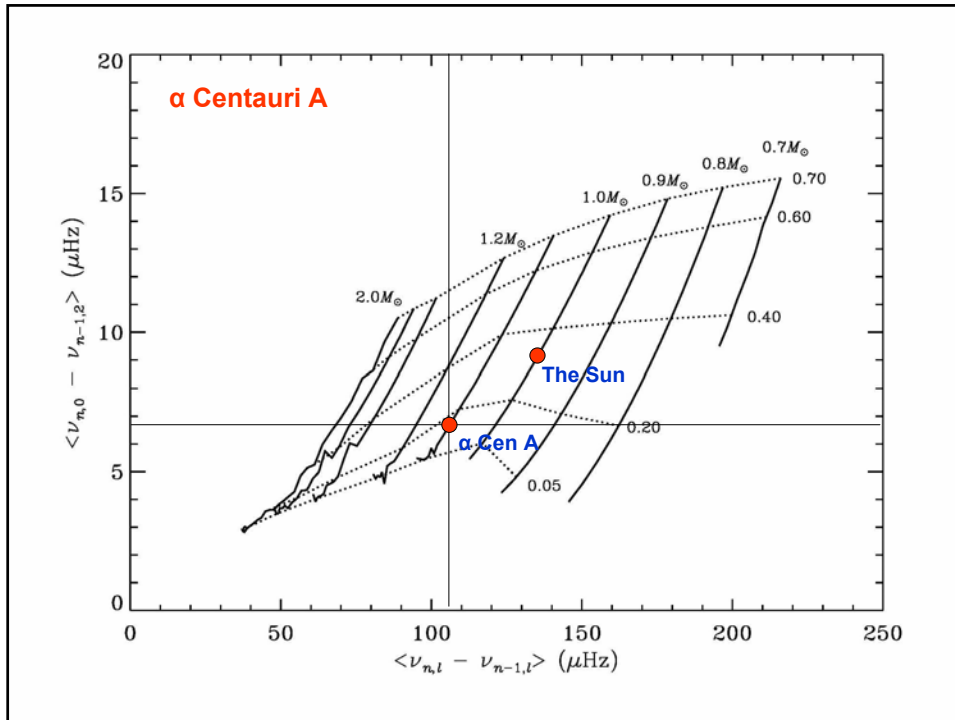
Velocities of α Cen A with UVES/VLT

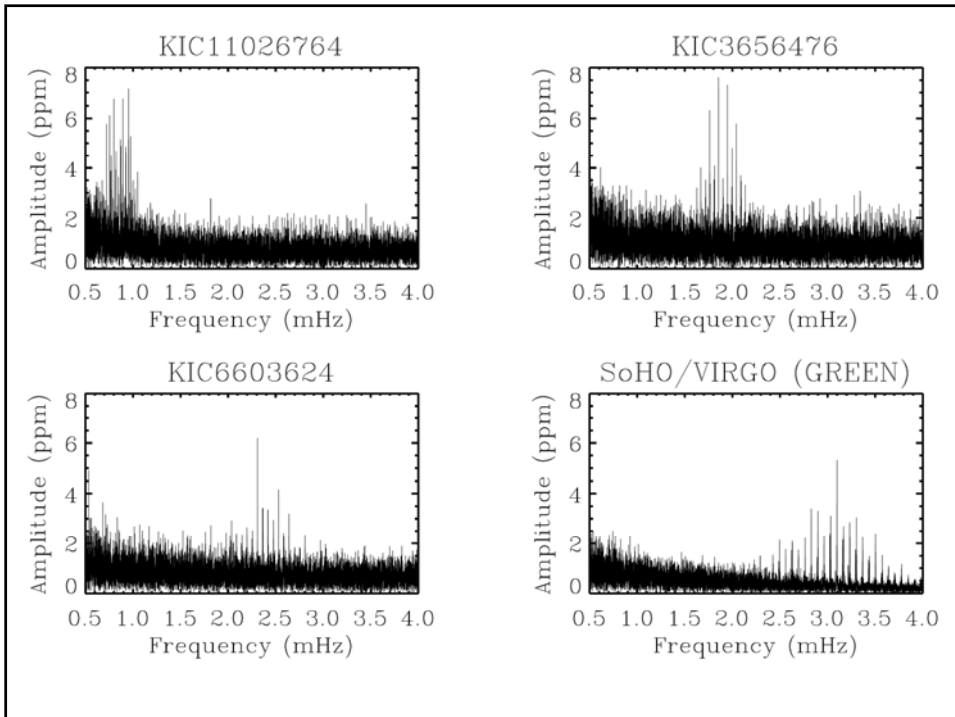


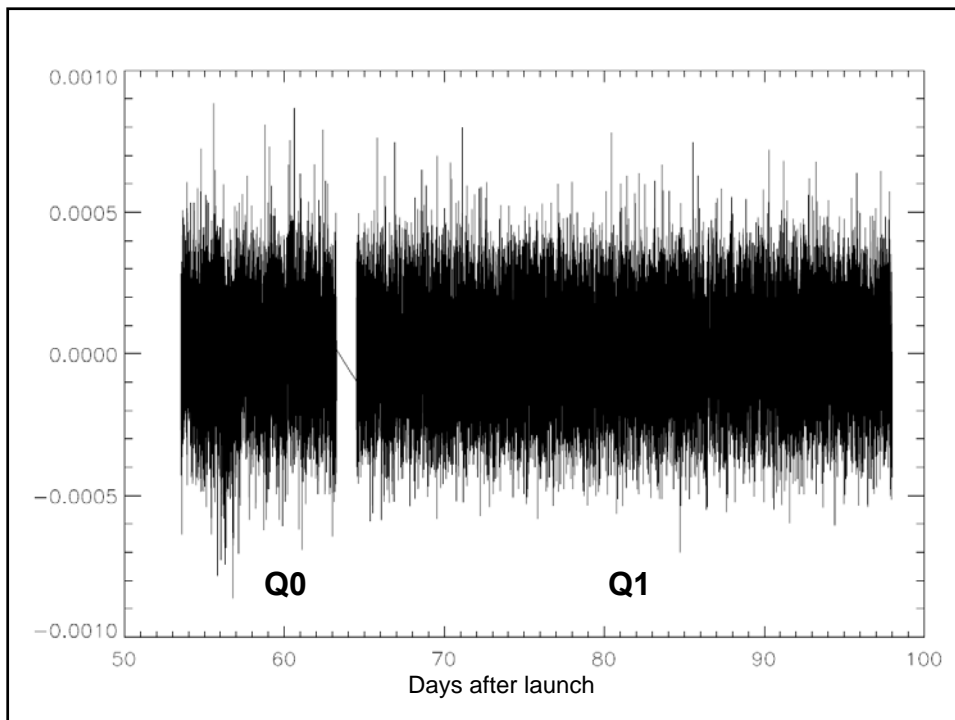
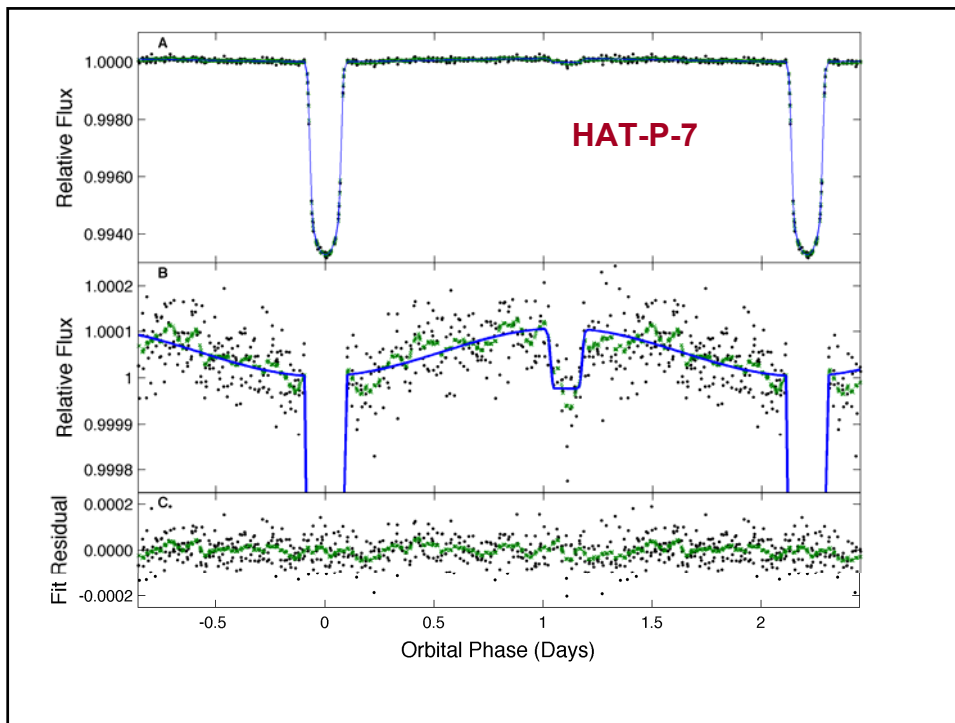
Precision: 50-70 cm/s. Cadence 26 seconds!

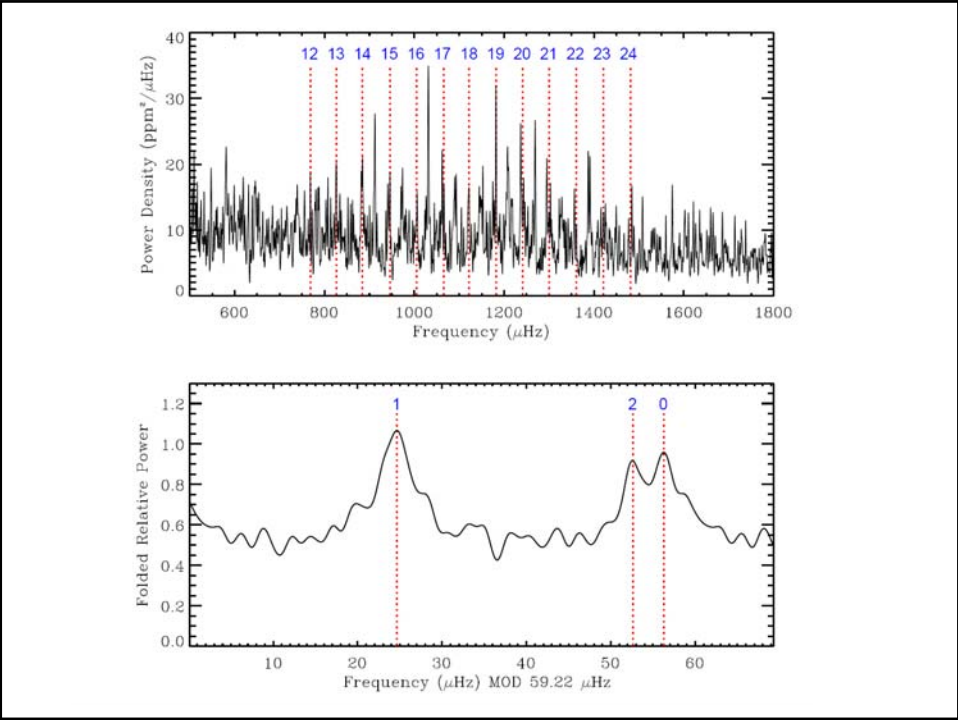




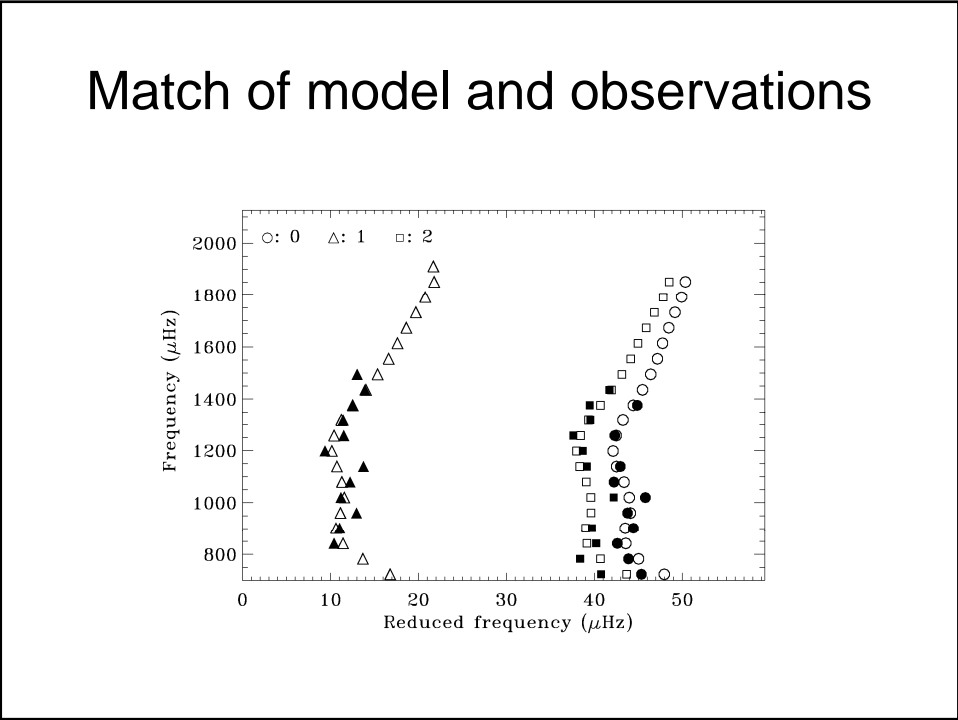


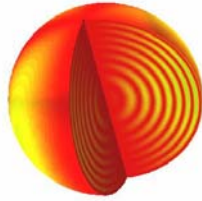






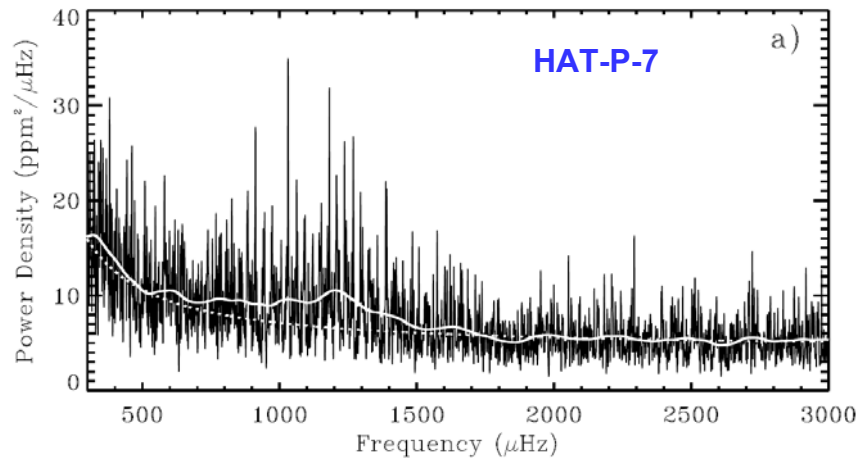
Match of model and observations





Stellar Oscillations

1,52 M(sol)
1,99 R(sol)



Seismologi

- Store frekvensopsplitning

$$\Delta\nu_0 \propto \sqrt{\bar{\rho}}$$

- Radius via kendskab til massen:

$$\bar{\rho} = \frac{M}{\frac{4}{3}\pi \cdot R^3} \propto \frac{M}{R^3} \quad R = \sqrt[3]{\frac{M}{\bar{\rho}}}$$

Frie data

- <http://astro.phys.au.dk/KASC/GYM>
- <http://www.kvant.dk/issue.php?n=2&y=2009>
- http://astro.phys.au.dk/KASC/GYM/COROT_launch.pdf
- <http://infolink2003.elbo.dk/Naturvidenskab/dokumenter/doc/8698.pdf>
- <http://owwww.phys.au.dk/~hans/silkeborg/kvant.pdf>