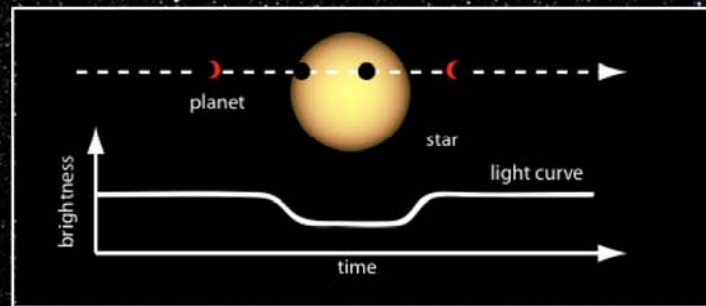
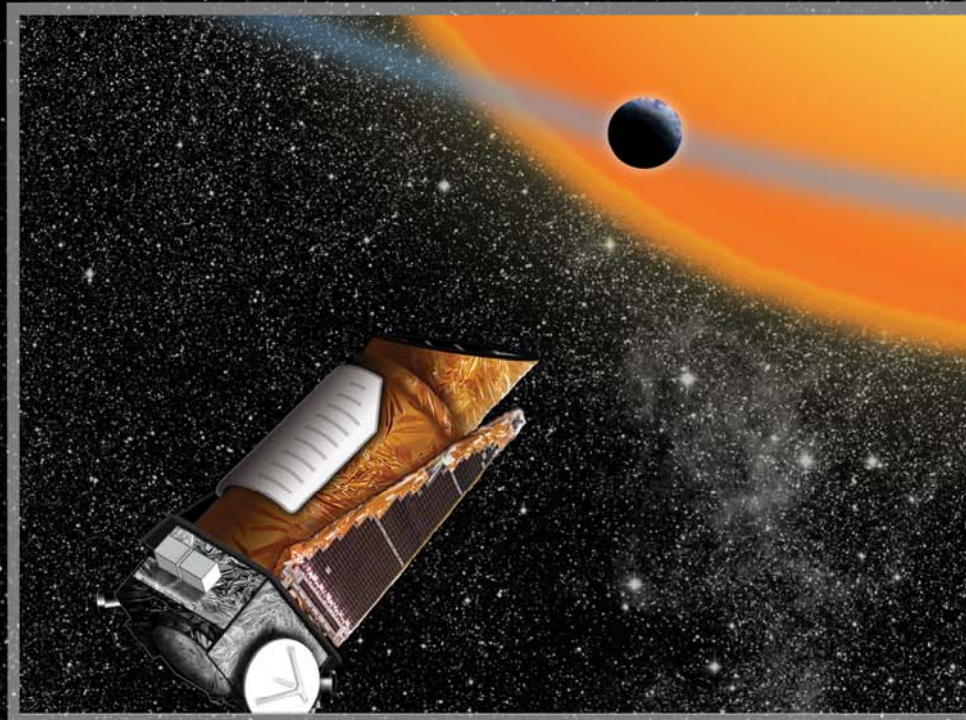


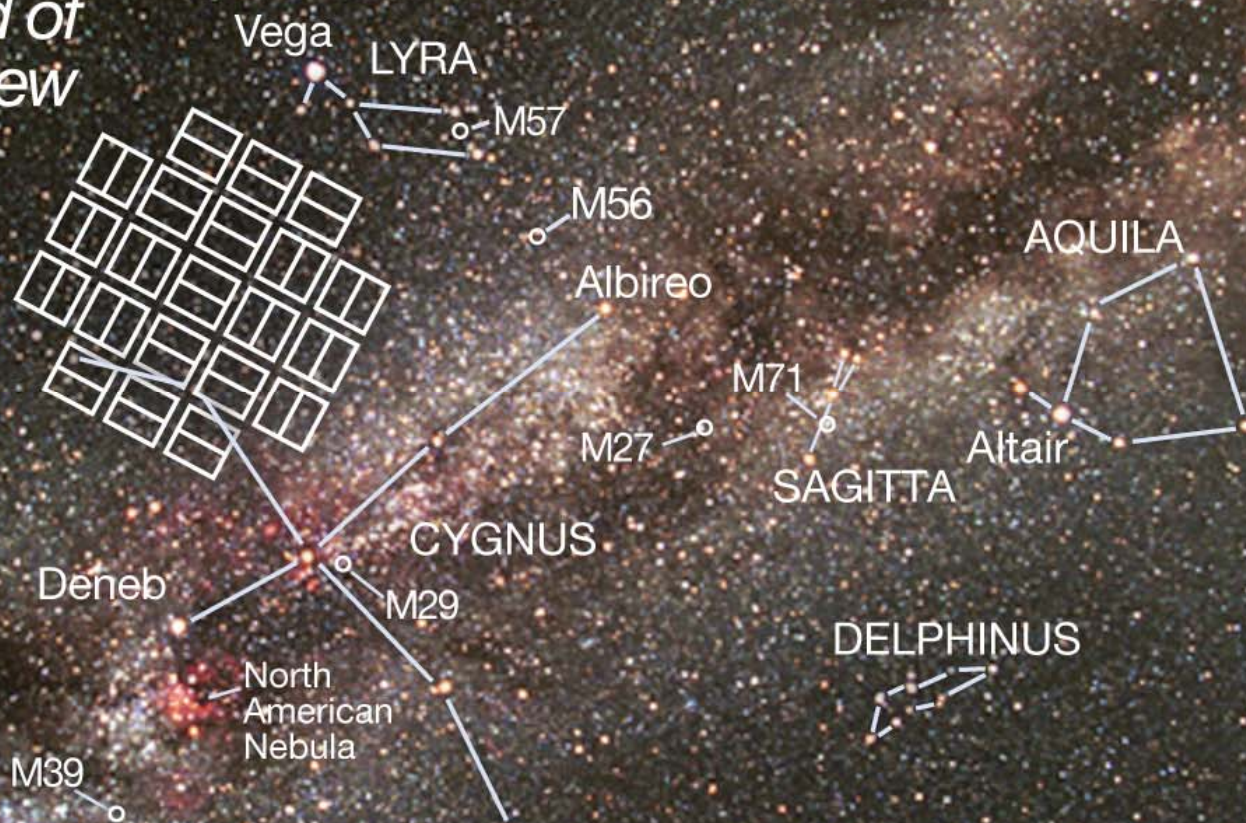
# Kepler Mission

*The determination of the frequency of Earth-size & larger planets  
in and near the habitable zone of solar-like stars*



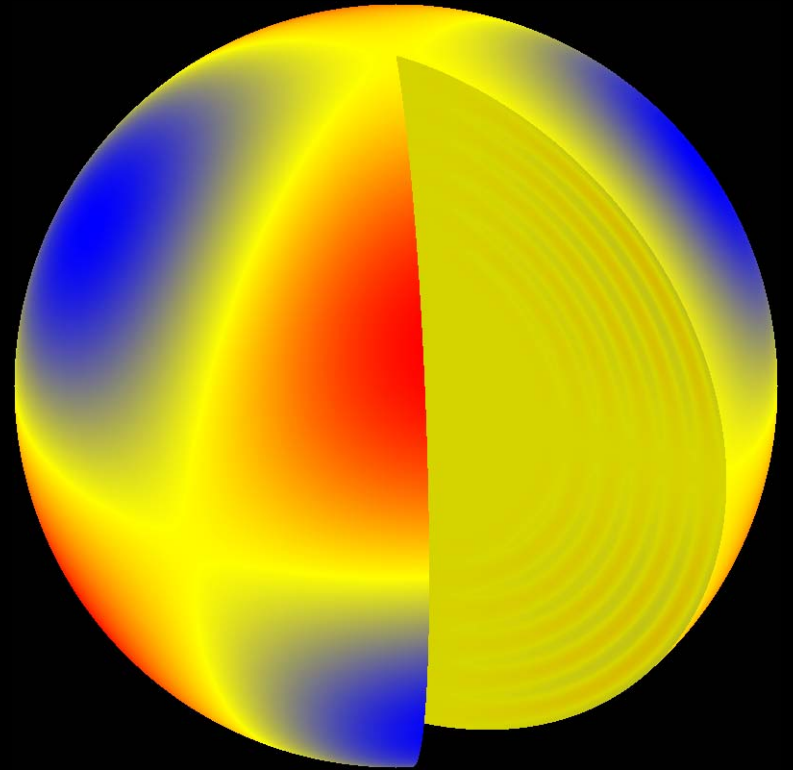
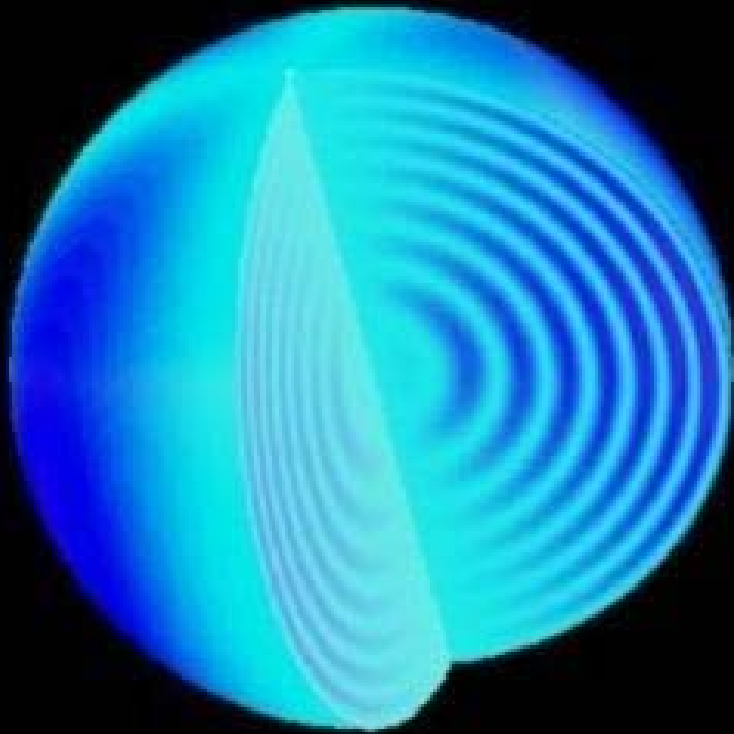


*Kepler  
Field of  
View*

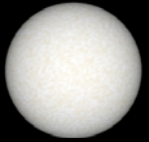




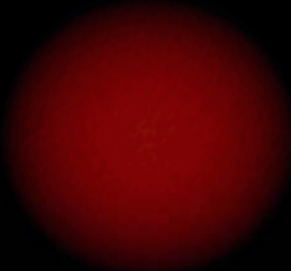
# Stellar Vibrations



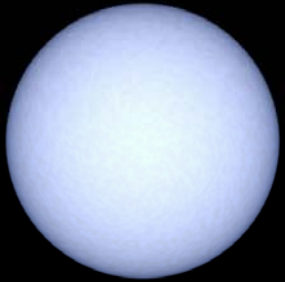
# TAKING THE "PULSE" OF STARS



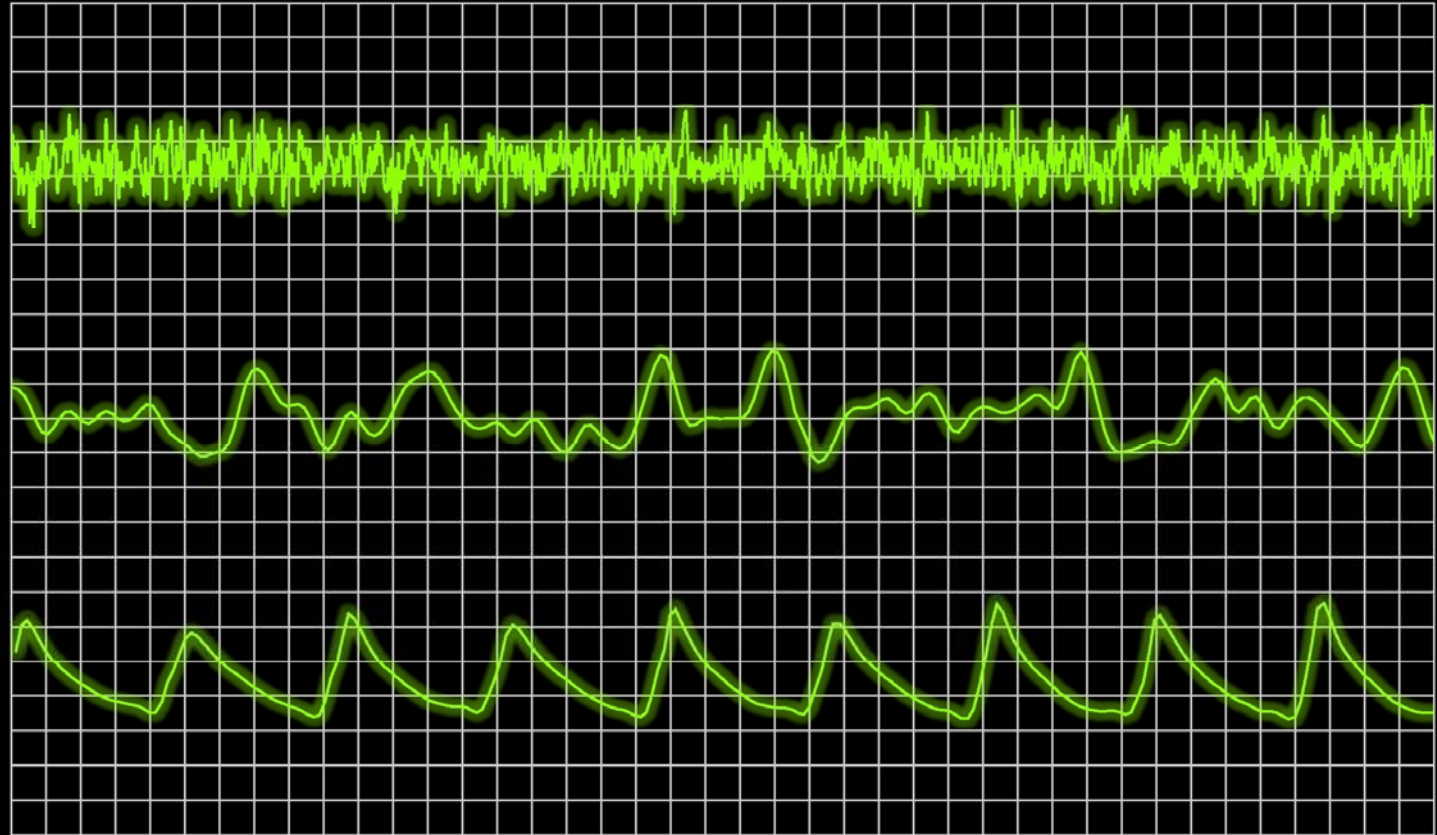
Subgiant  
KIC 11026764



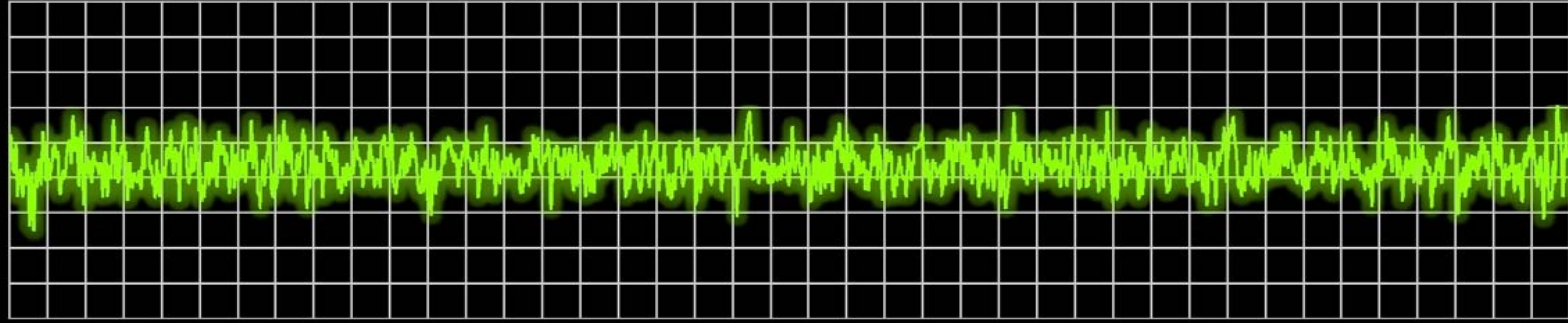
Red giant  
KIC 9300159



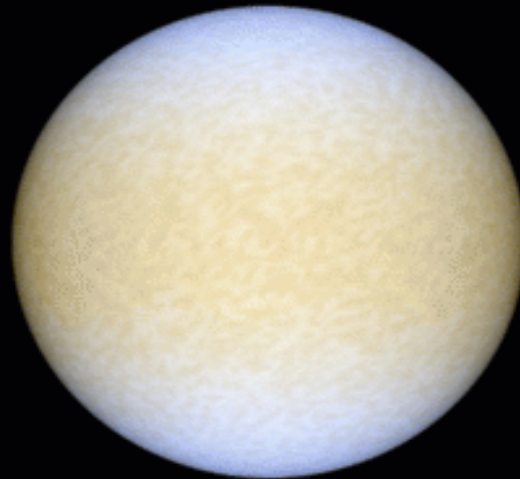
Blue giant  
RR Lyrae



# The Sizes of Stars



TIME →



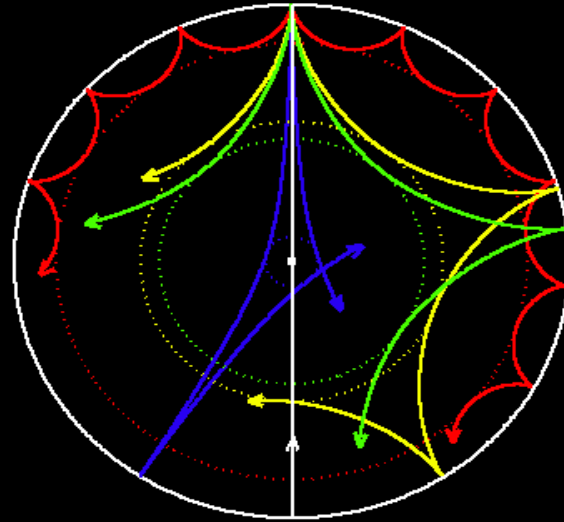
KIC 11026764:  $2.05 R_{\text{sun}}$



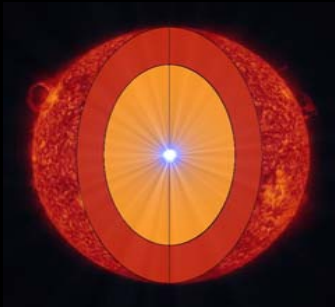
Sun



# The Ages of Stars

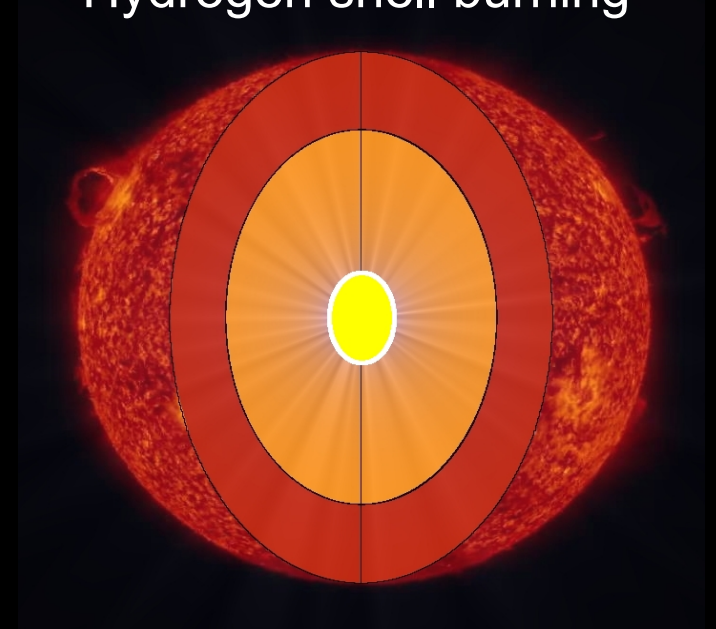


Hydrogen core burning



Sun: 4.57 billion years

Hydrogen shell burning



KIC 11026764: 5.94 billion years

The Sun



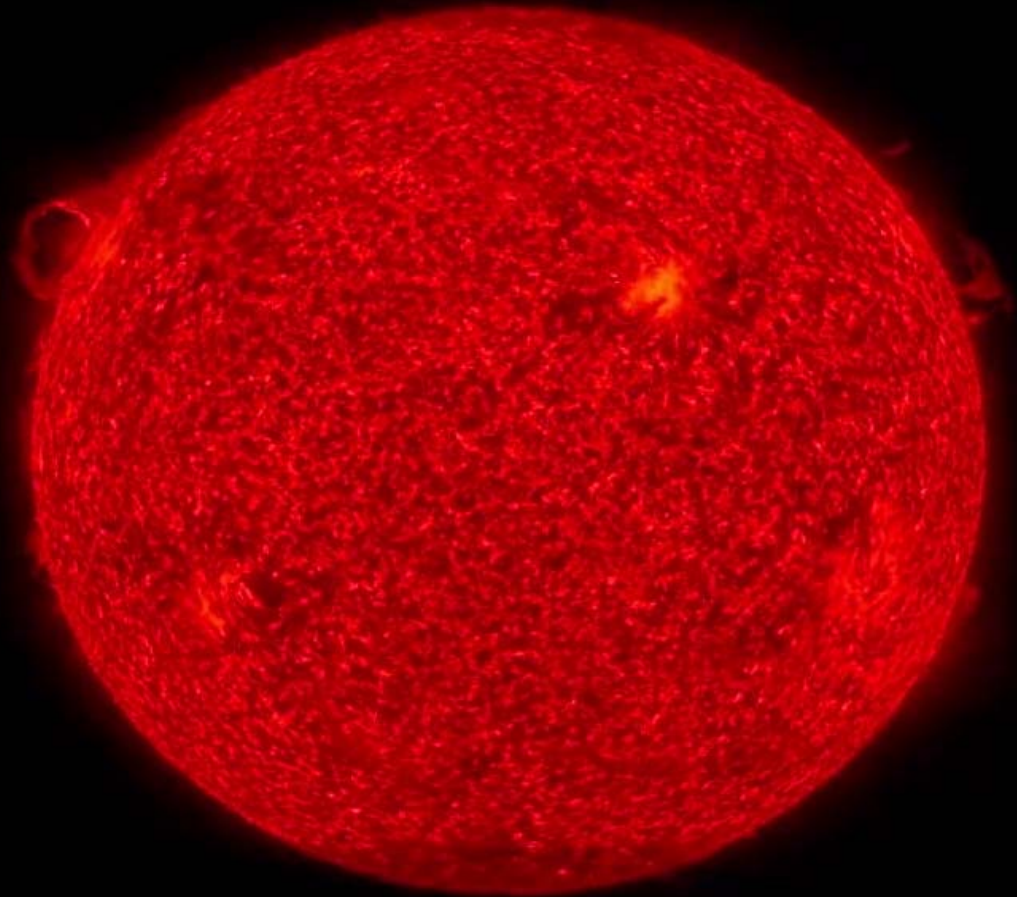
5800 K

Smallest  
Kepler red  
giant



5000 K

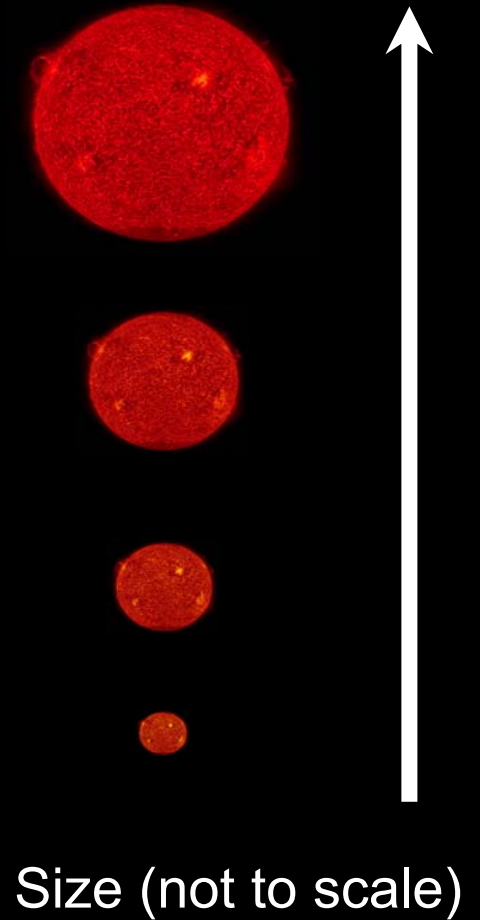
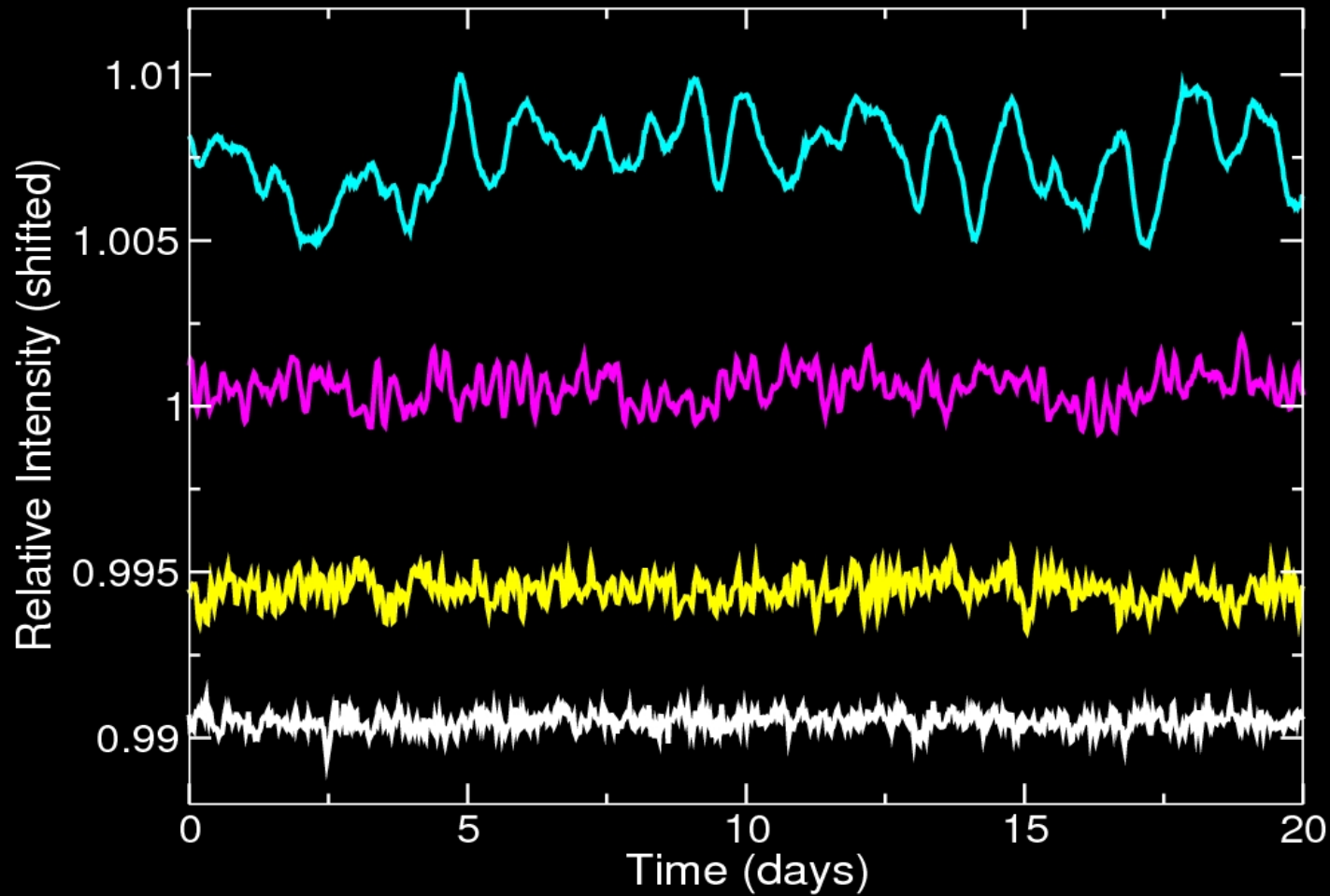
Largest Kepler red giant



4500 K



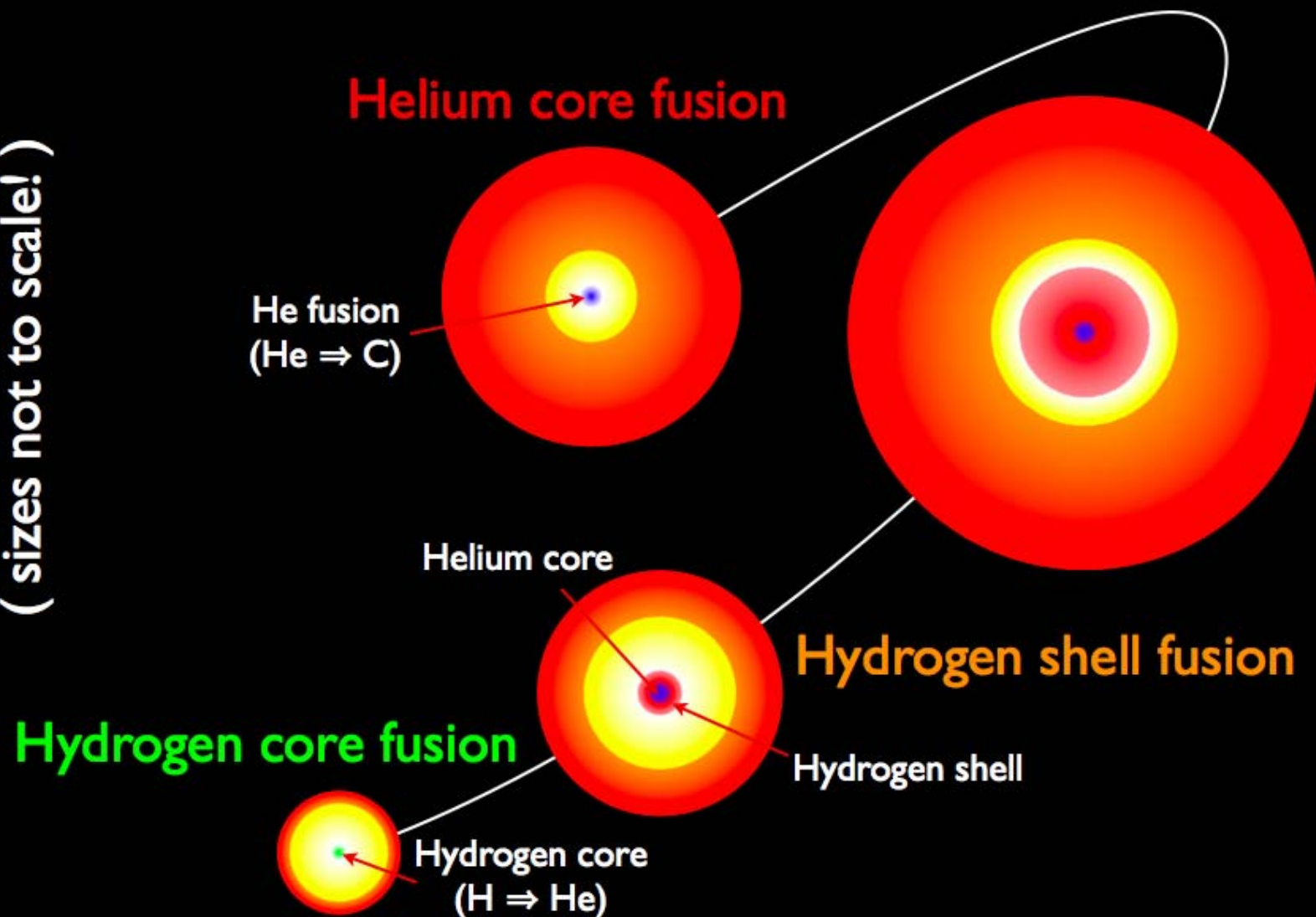
# A Kepler “concert” of Red Giant Stars



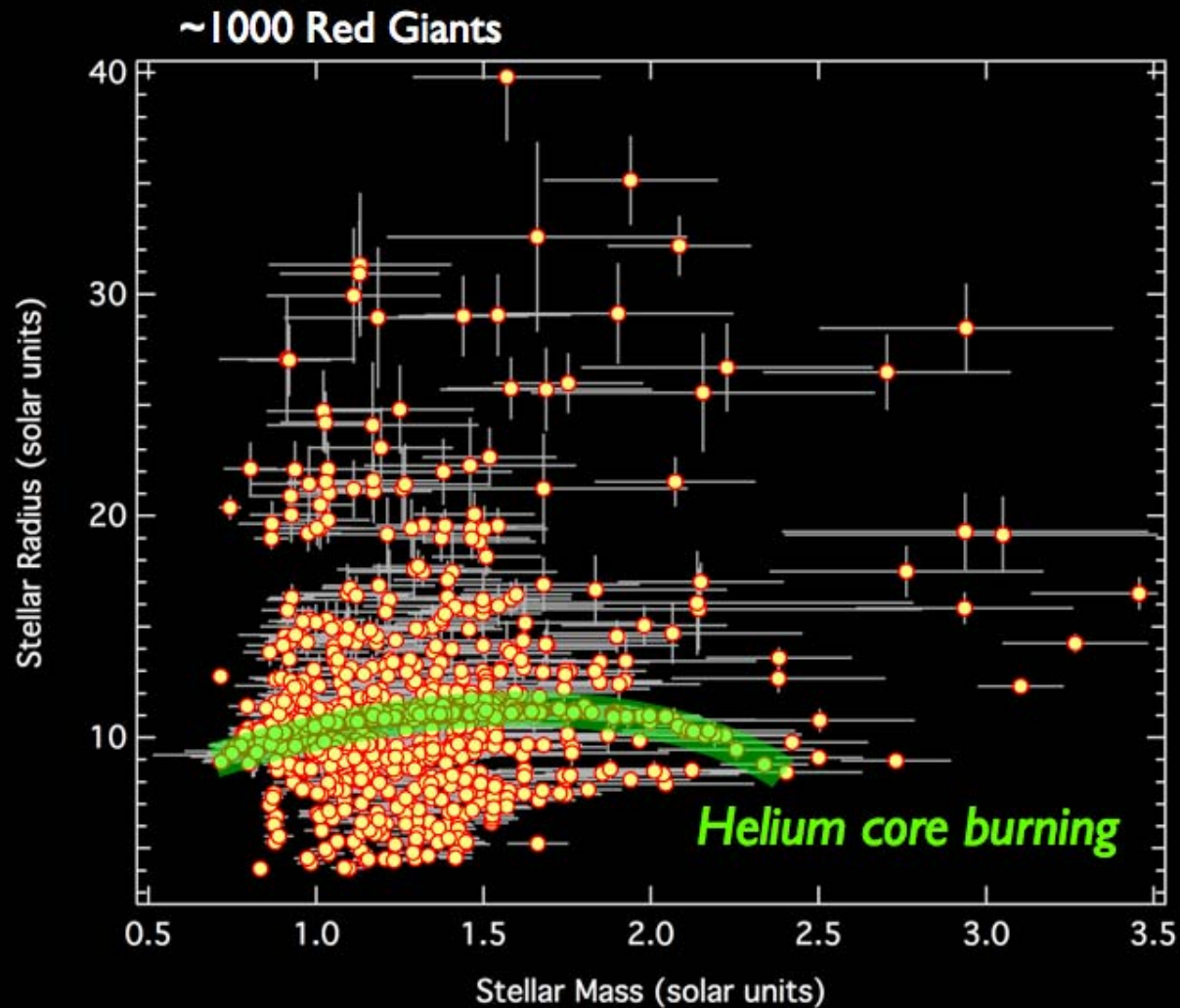


# Stellar evolution

( sizes not to scale! )

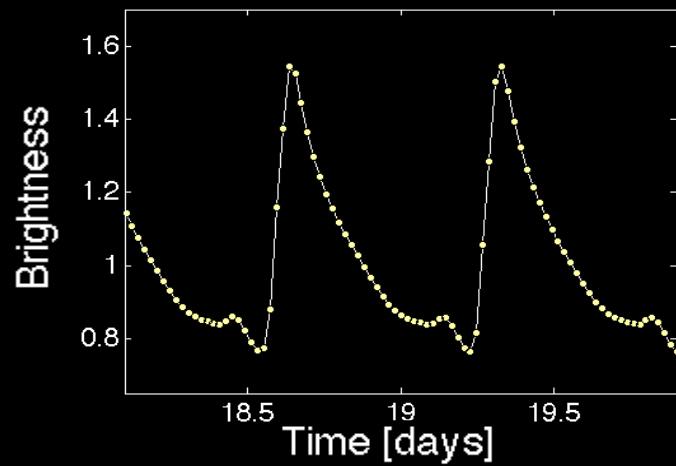
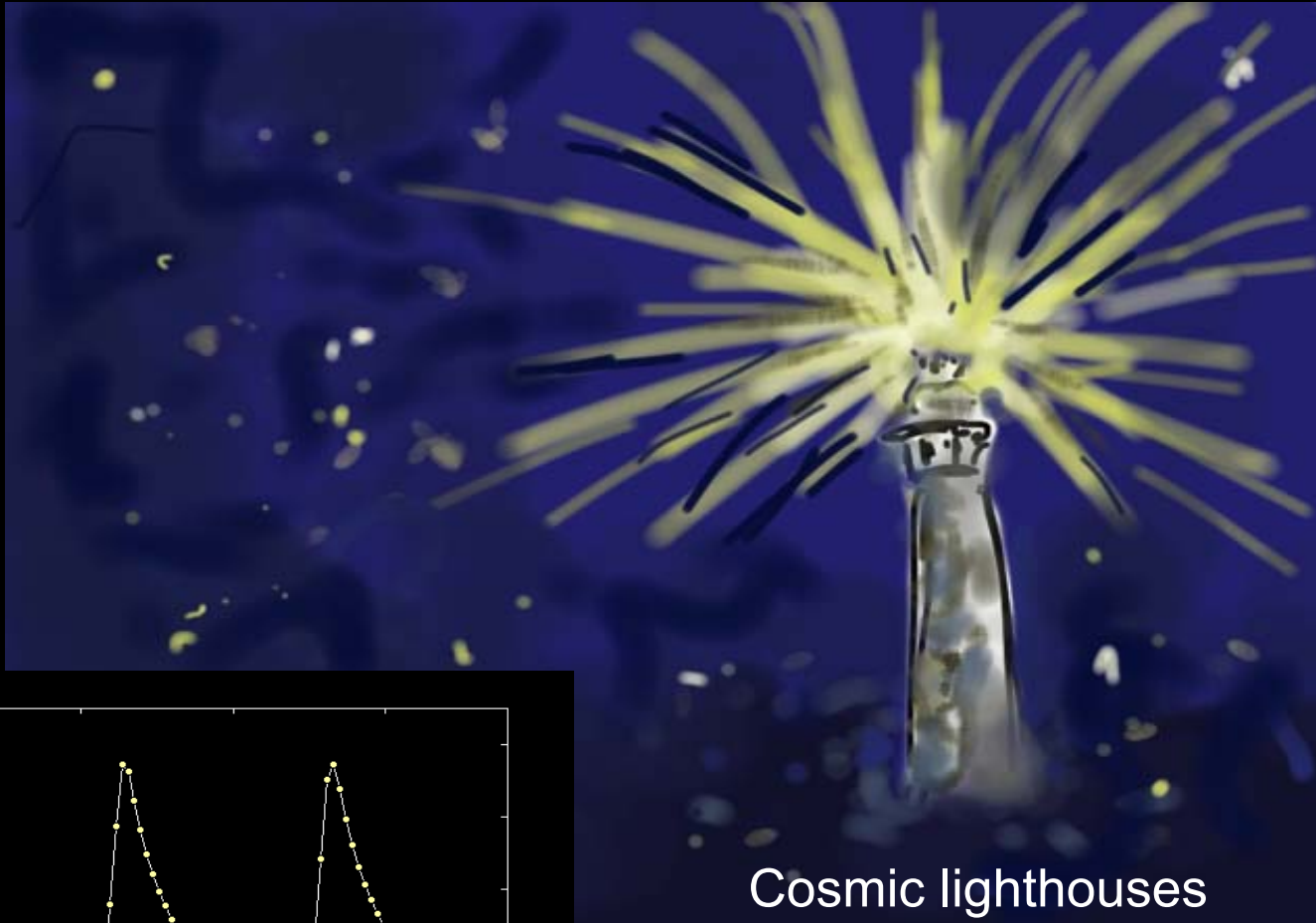


# Kepler probes the future of our Sun

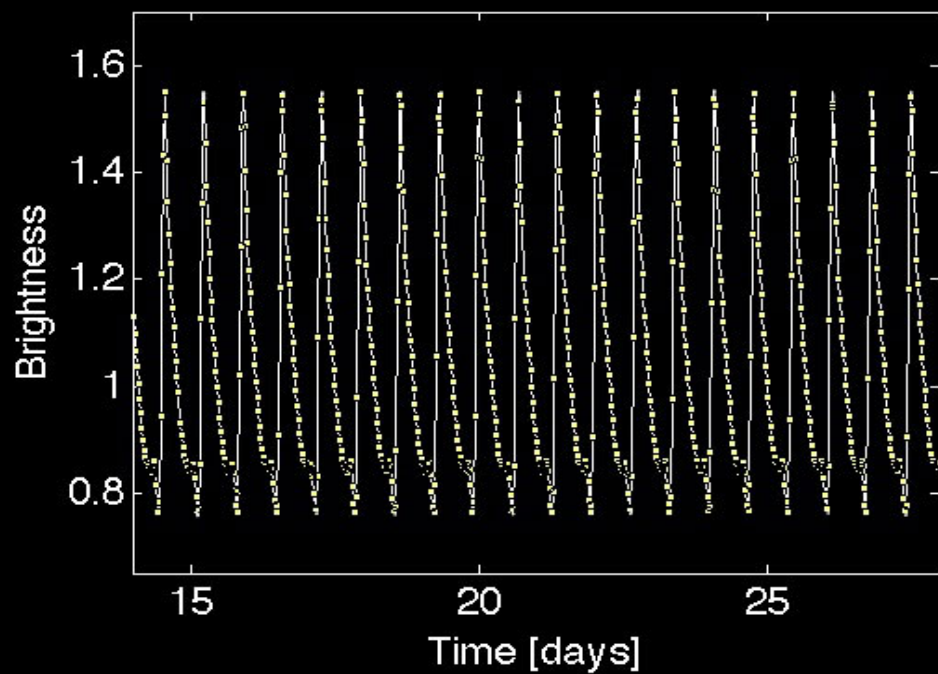




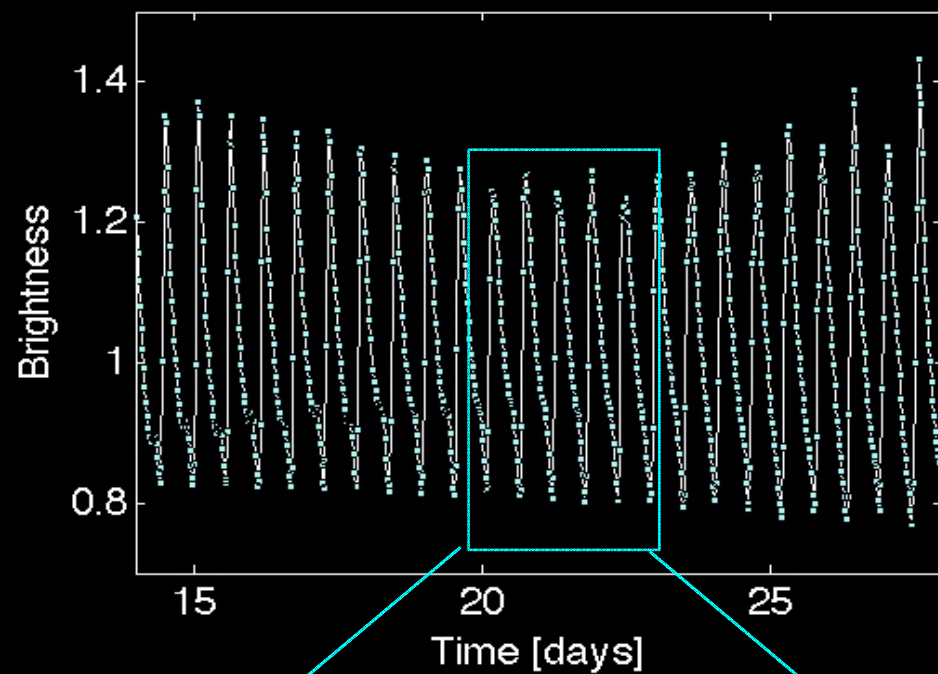
# RR Lyrae stars



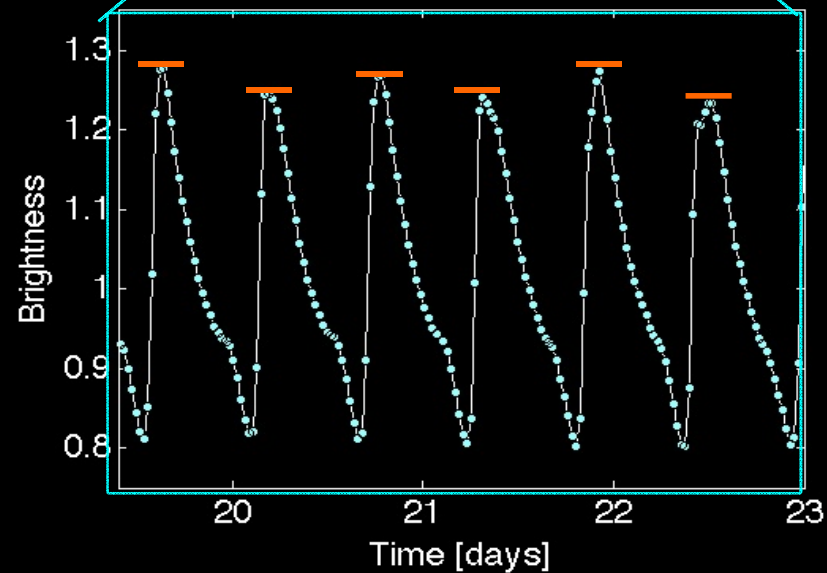
Repeating cycles



Blazhko modulation

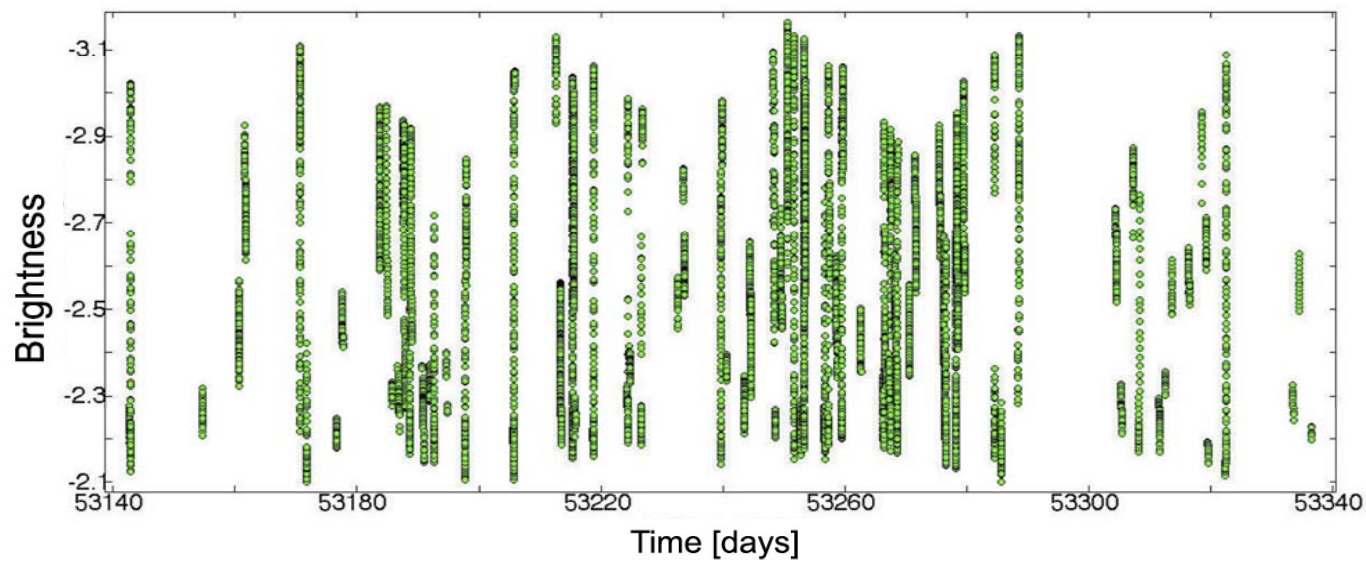


Period Doubling

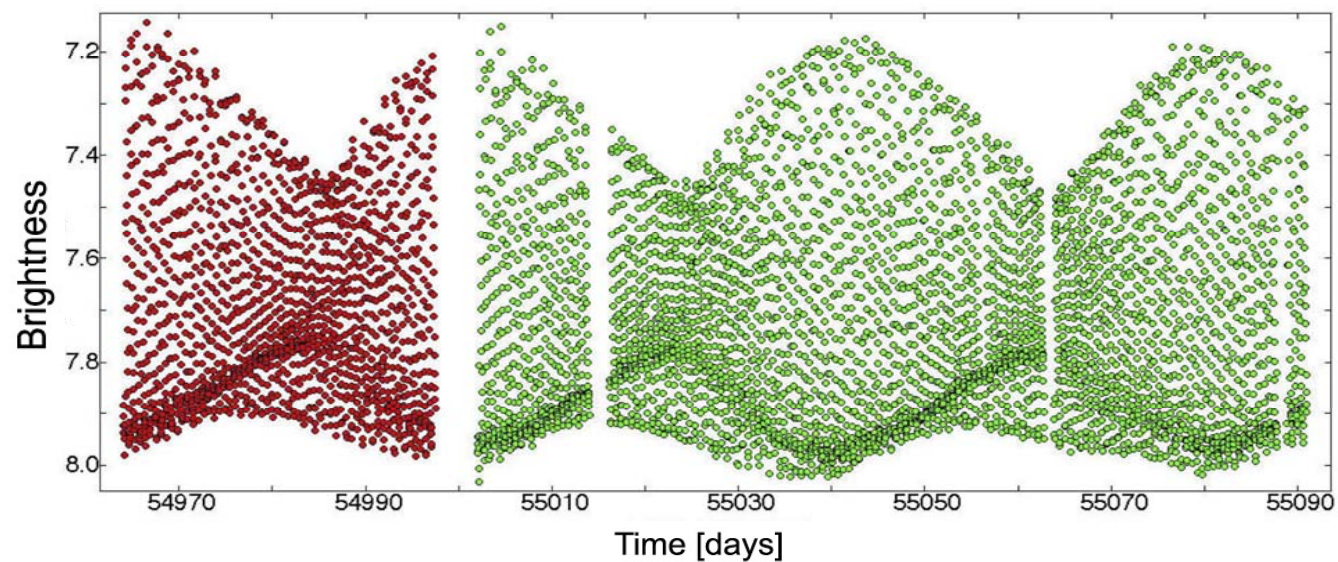




RR Lyr ground-based data (2004)



RR Lyr *Kepler* Q1+Q2 data (2009)



# Kepler RR Lyr data

