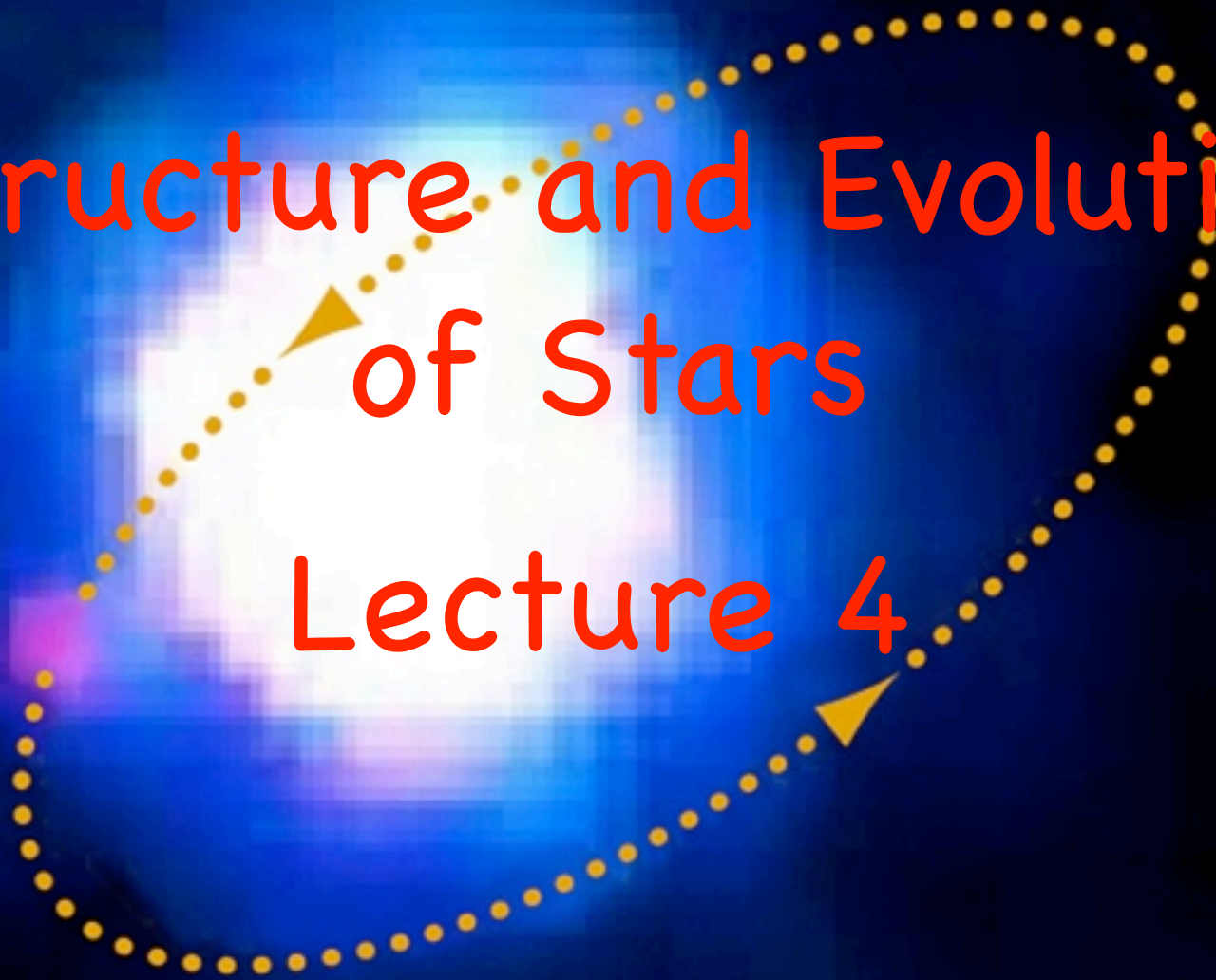


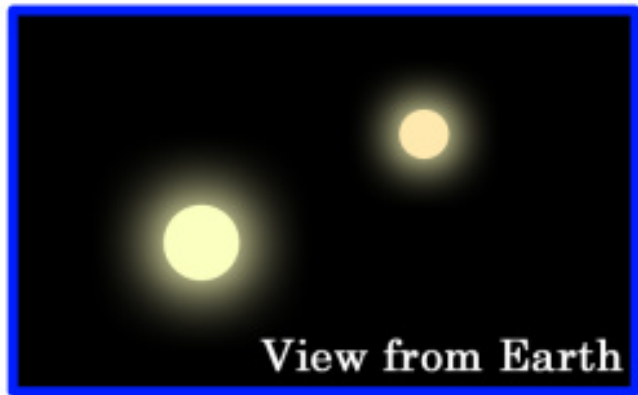
Orbit of AB Dor C

Structure and Evolution of Stars

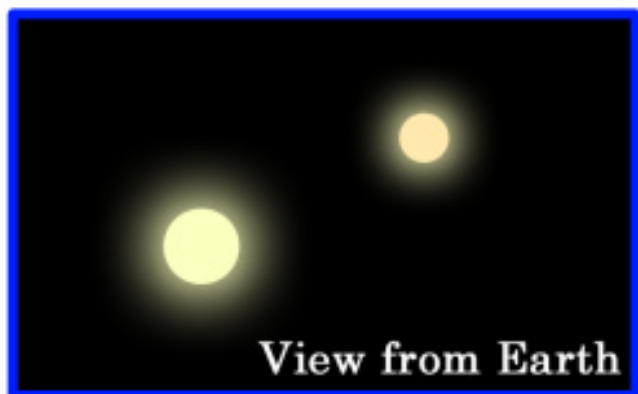
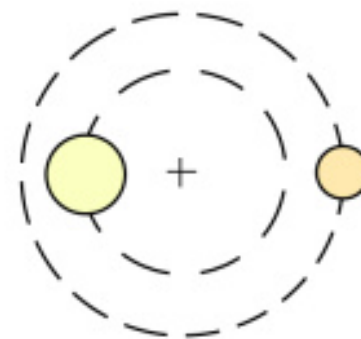
Lecture 4





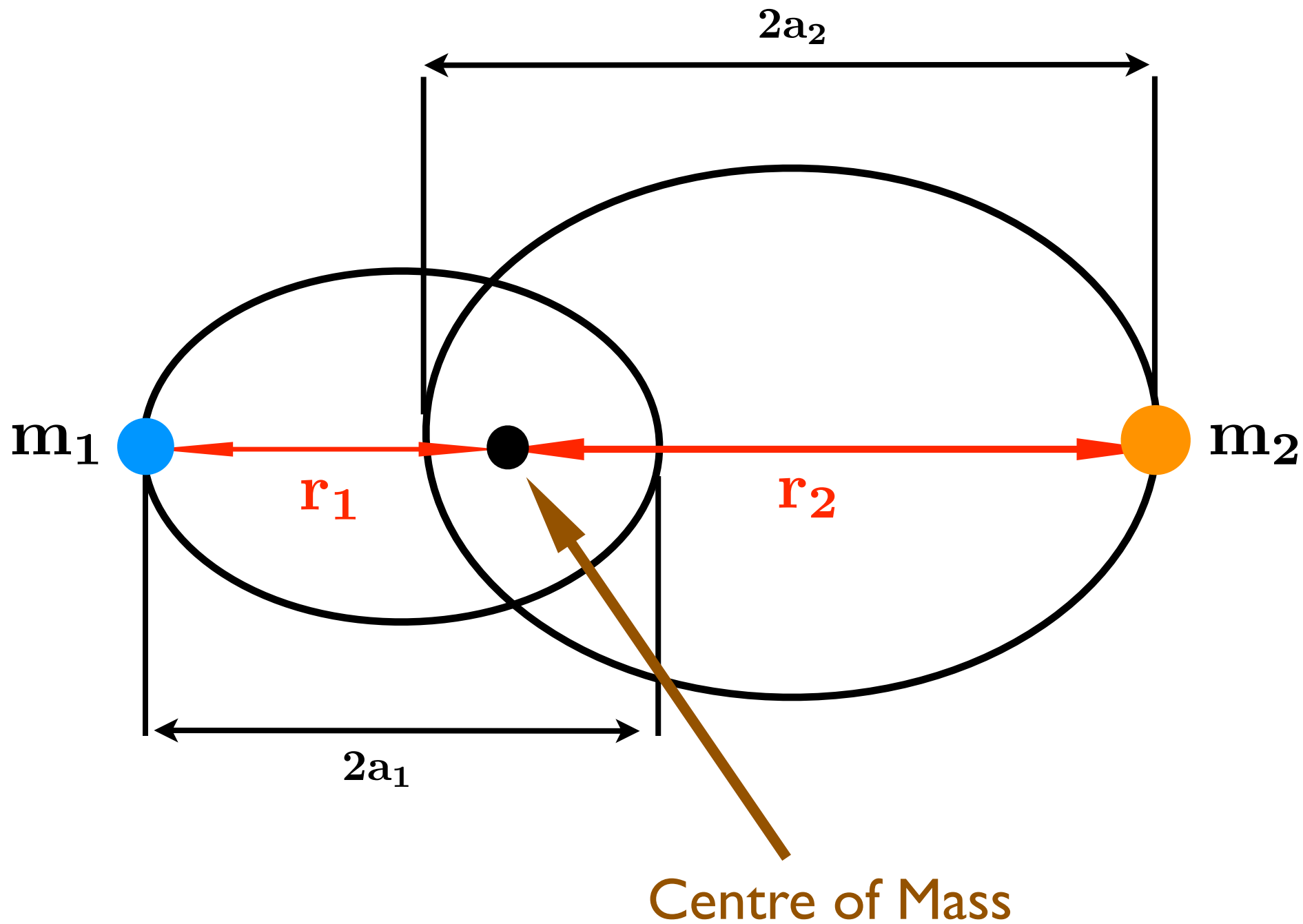


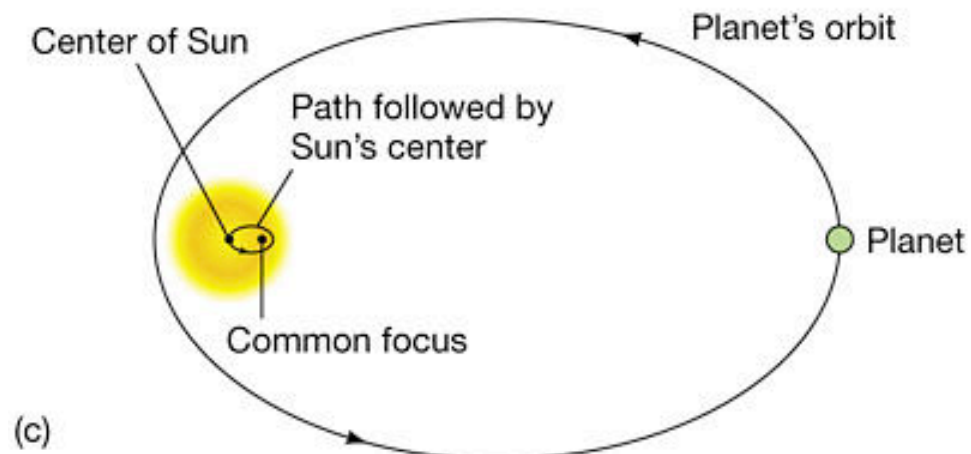
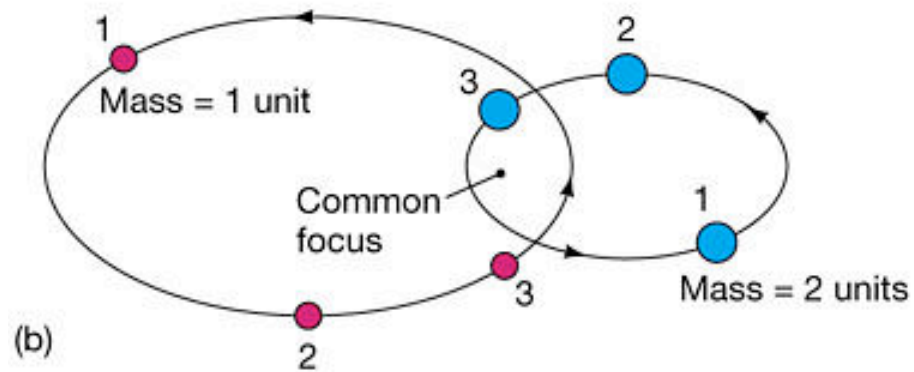
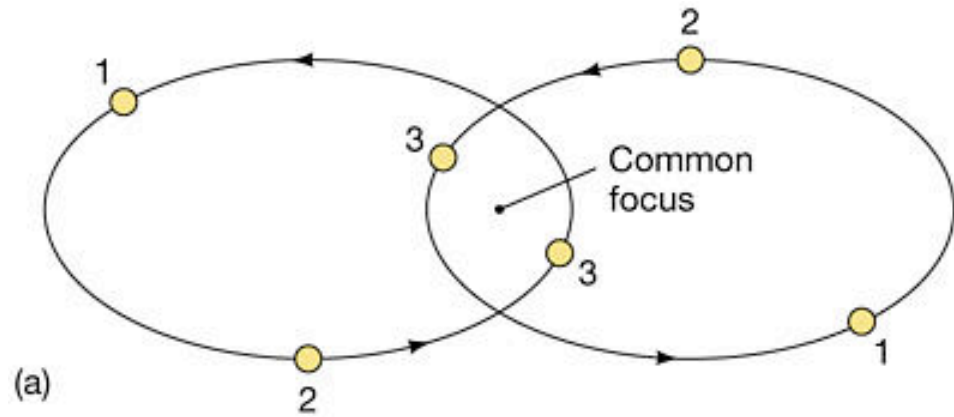
Visual Binary Stars

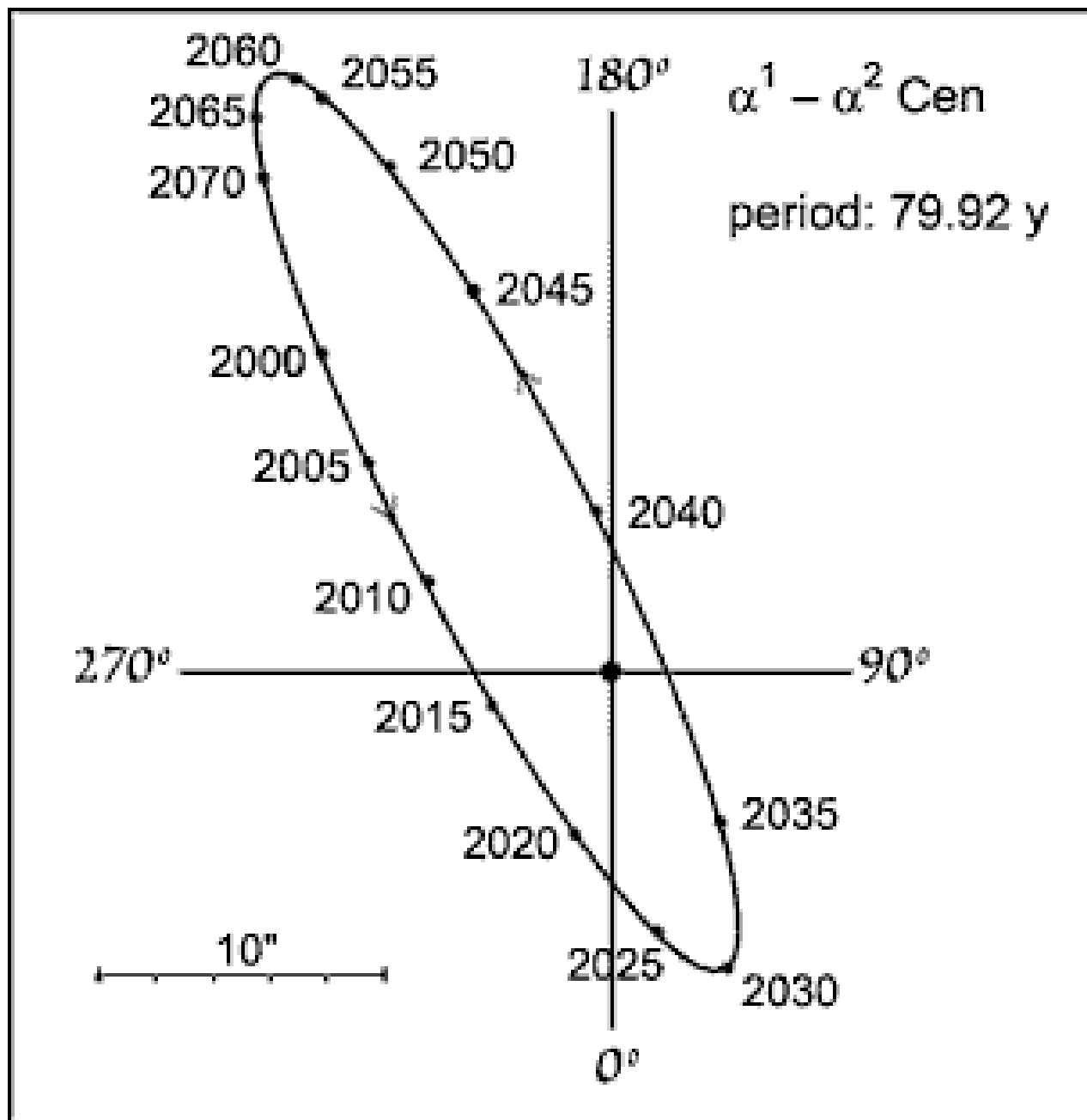


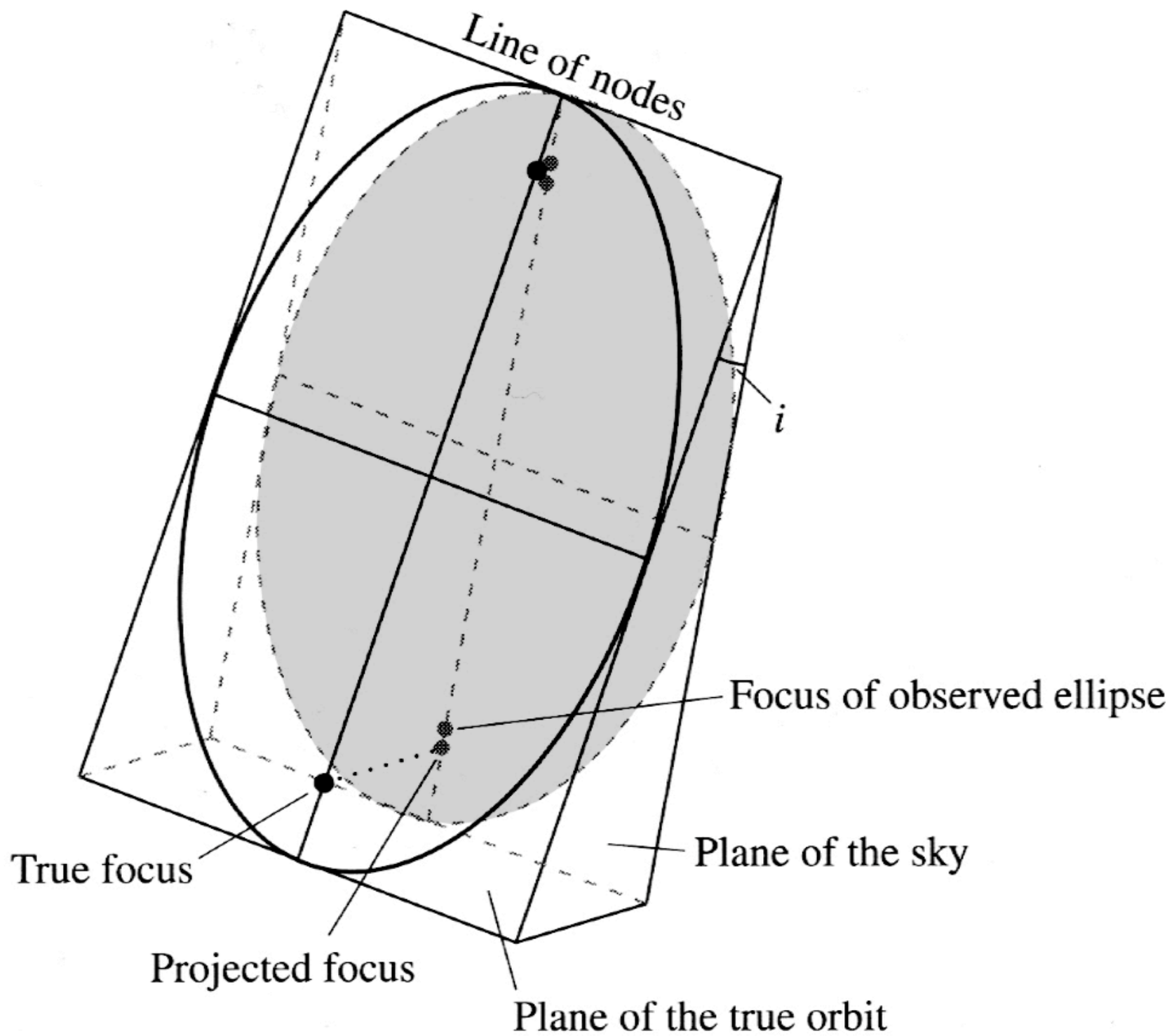
Optical Double Stars

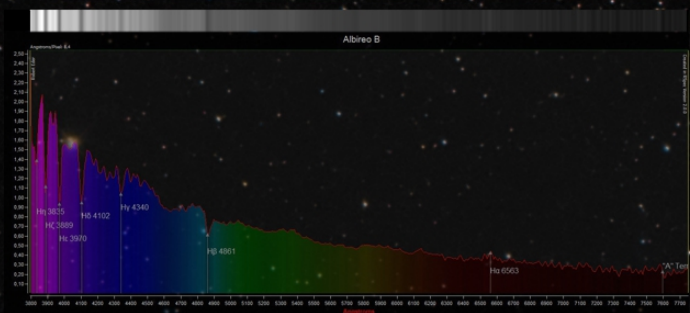
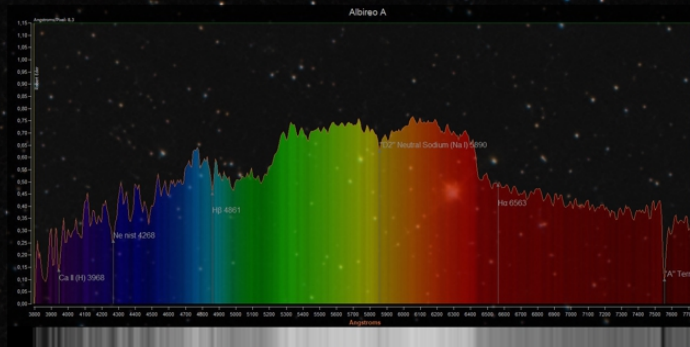


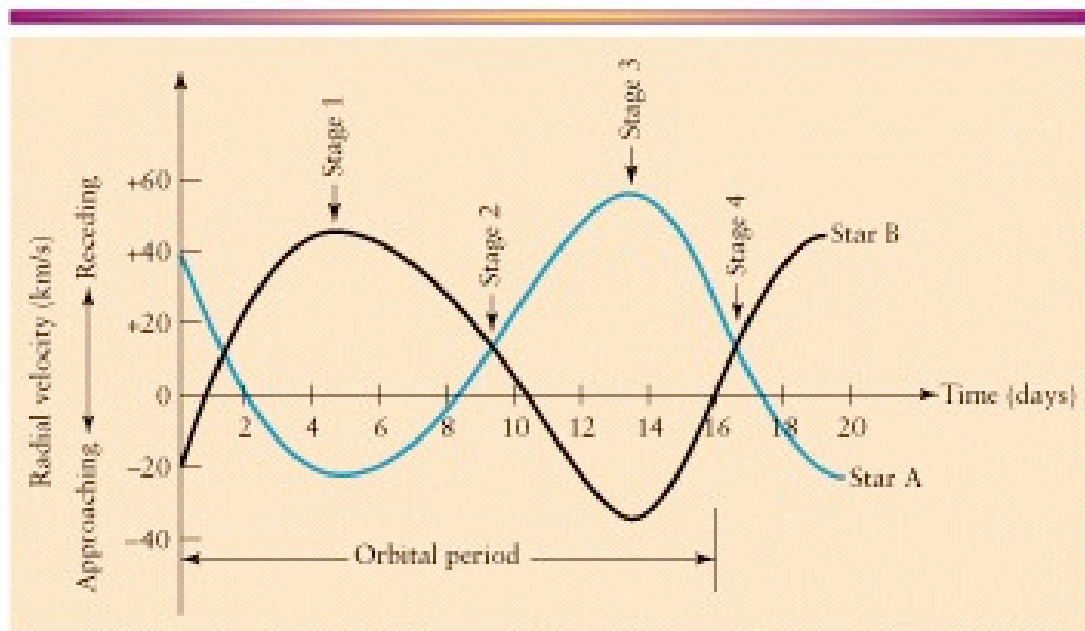
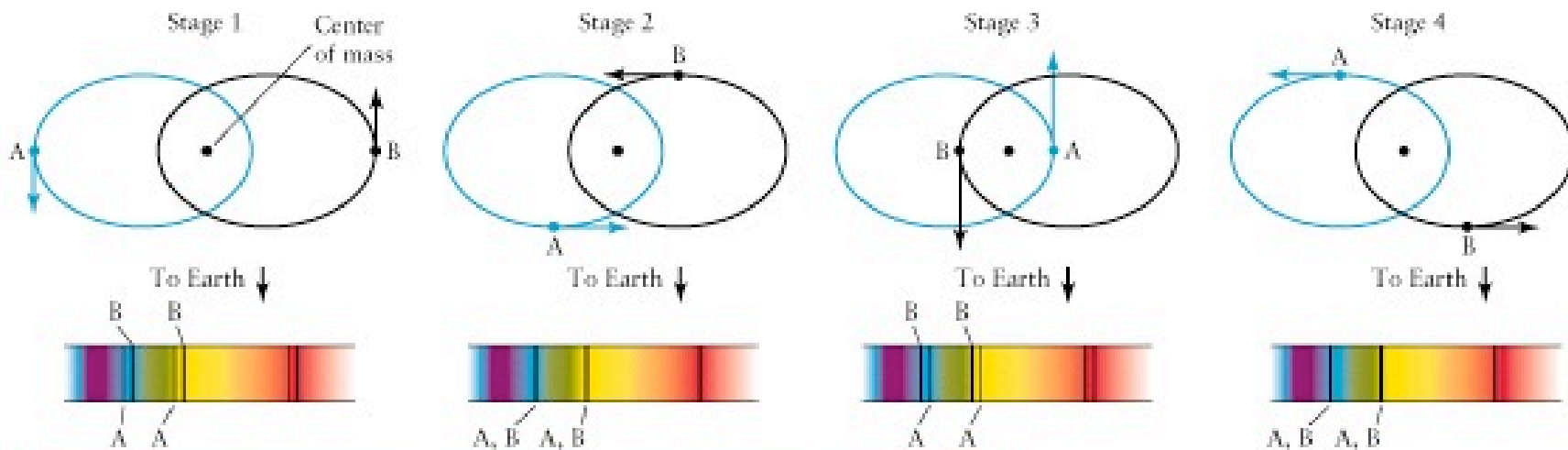












Binary orbit of RS Cha

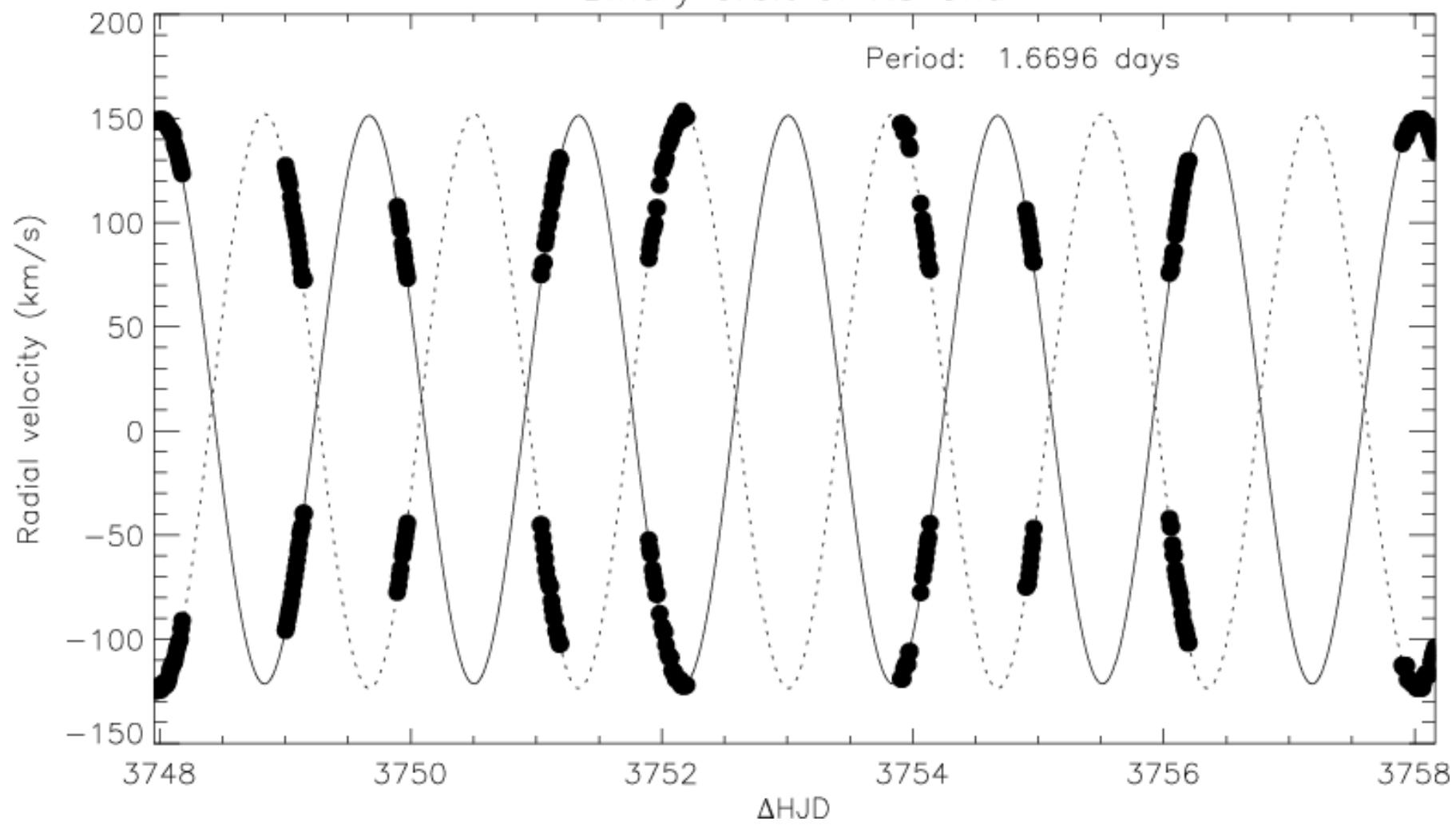
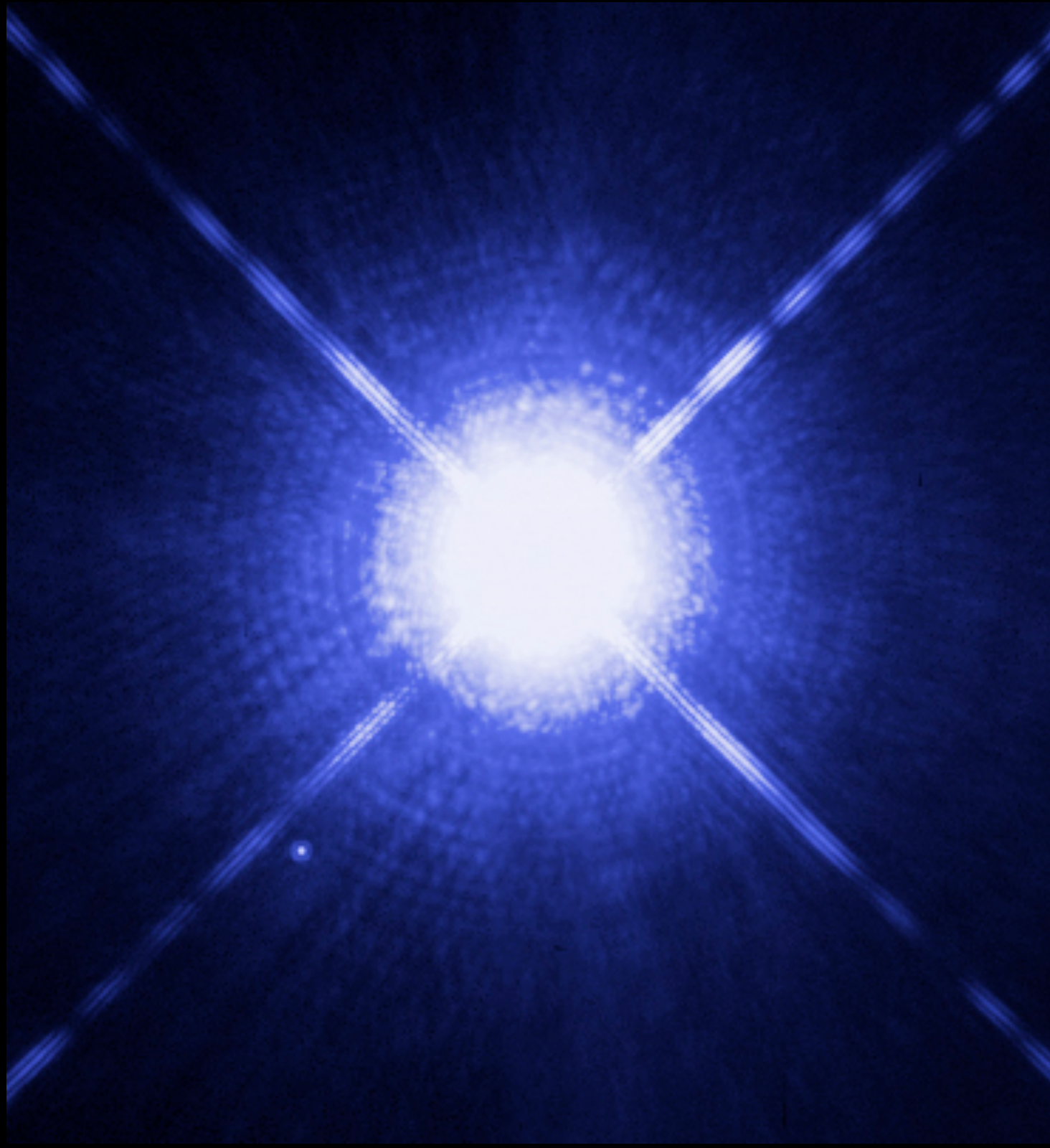


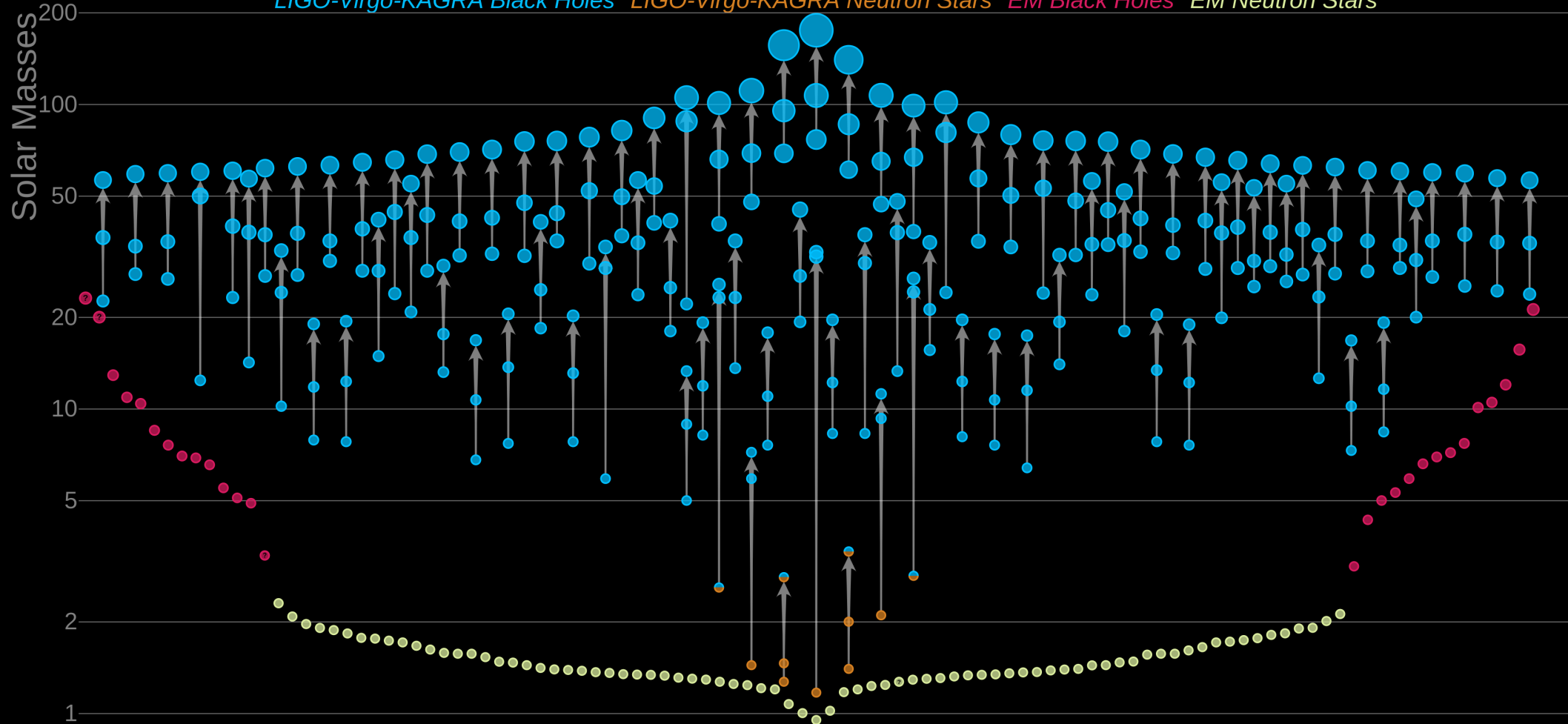
Table 4.1. Parameters of RS Cha. References: [1]
 Alecian et al., 2005, [2] Ribas et al., 2000, [3]
 Clausen & Nordstrom, 1980.

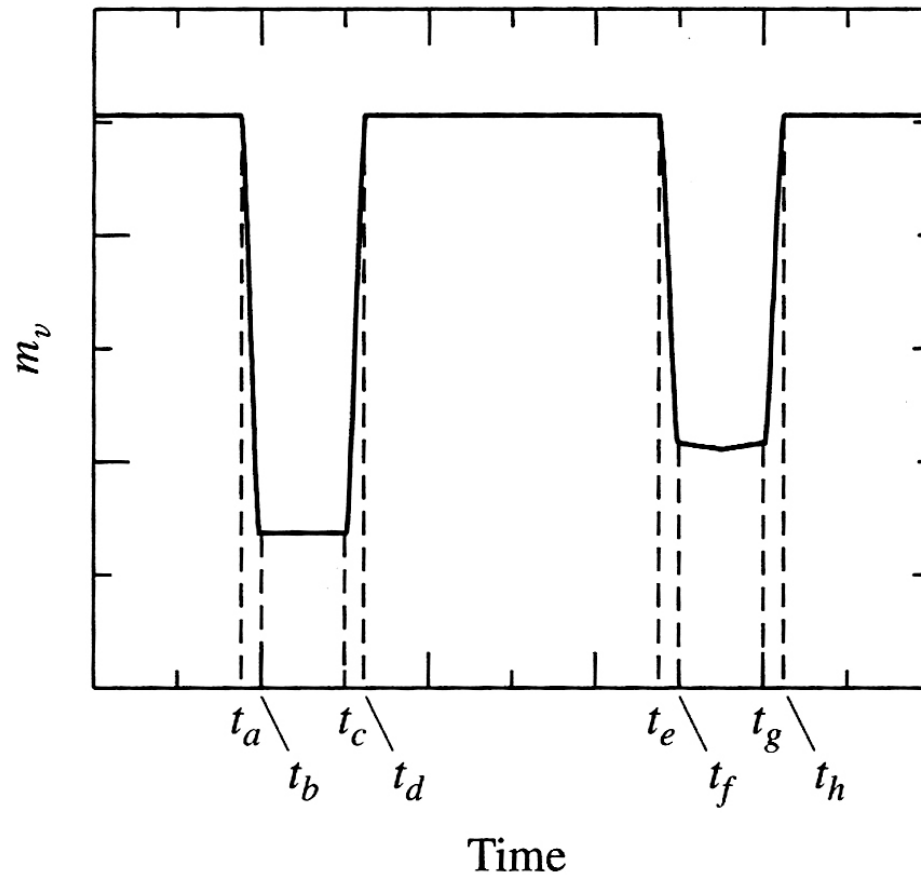
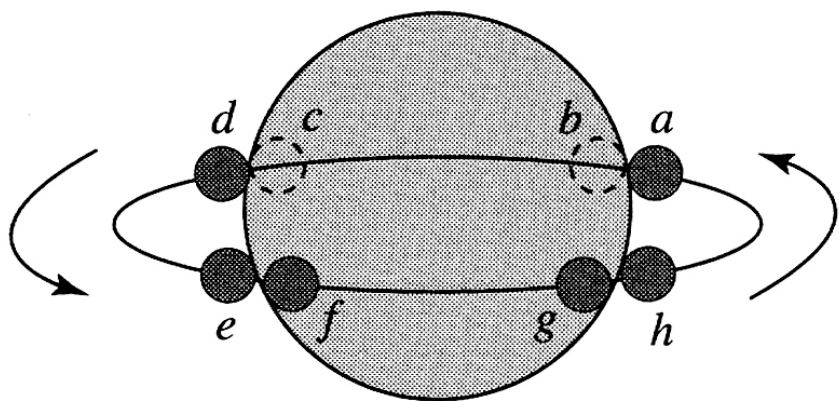
Parameter	Primary	Secondary	References
M/M_{\odot}	1.89 ± 0.01	1.87 ± 0.01	[1]
R/R_{\odot}	2.15 ± 0.06	1.87 ± 0.01	[1]
T_{eff} [K]	7638 ± 76	7228 ± 72	[2]
$\log(L/L_{\odot})$	1.15 ± 0.09	1.13 ± 0.09	$L = 4\pi R^2 \sigma T_{\text{eff}}^4$
$\log(g)$ [cm s^{-2}]	4.05 ± 0.06	3.96 ± 0.06	$g = MG/R^2$
$v \sin i$ [km s^{-1}]	64 ± 6	70 ± 6	[1]
P_{orb} [d]		1.67	[1]
i [deg]		83.4 ± 0.3	[3]
[Fe/H]		0.17 ± 0.01	[1]

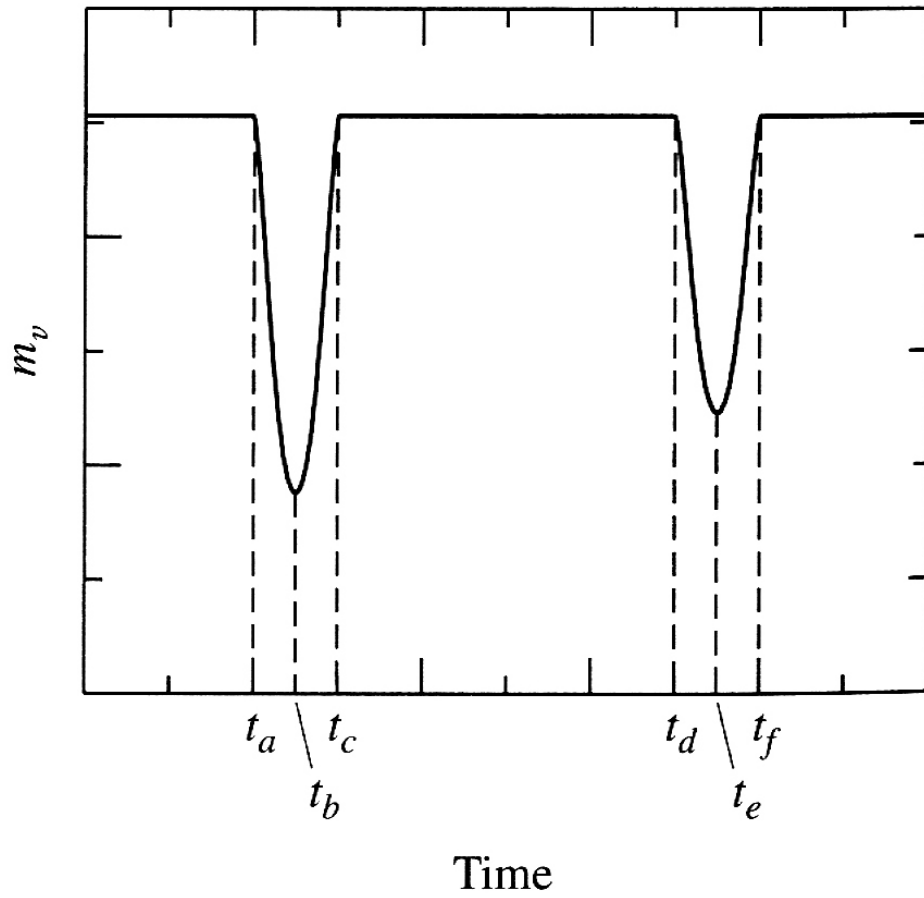
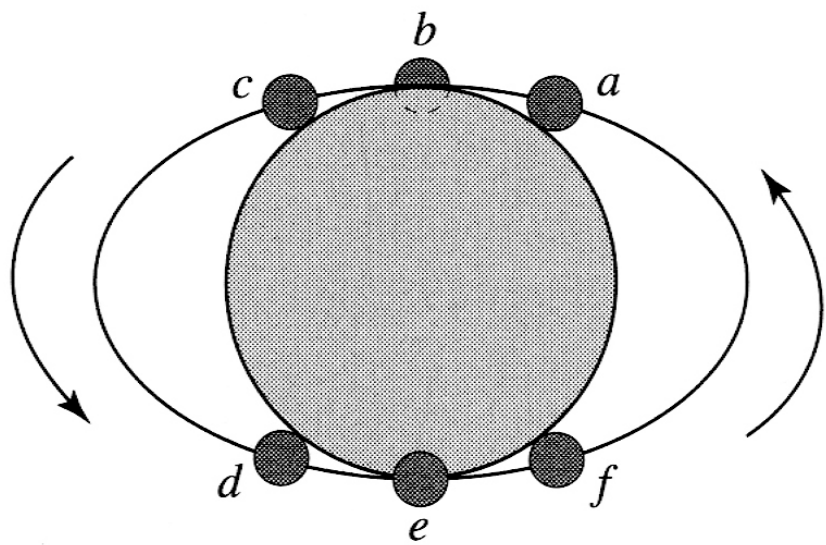


Masses in the Stellar Graveyard

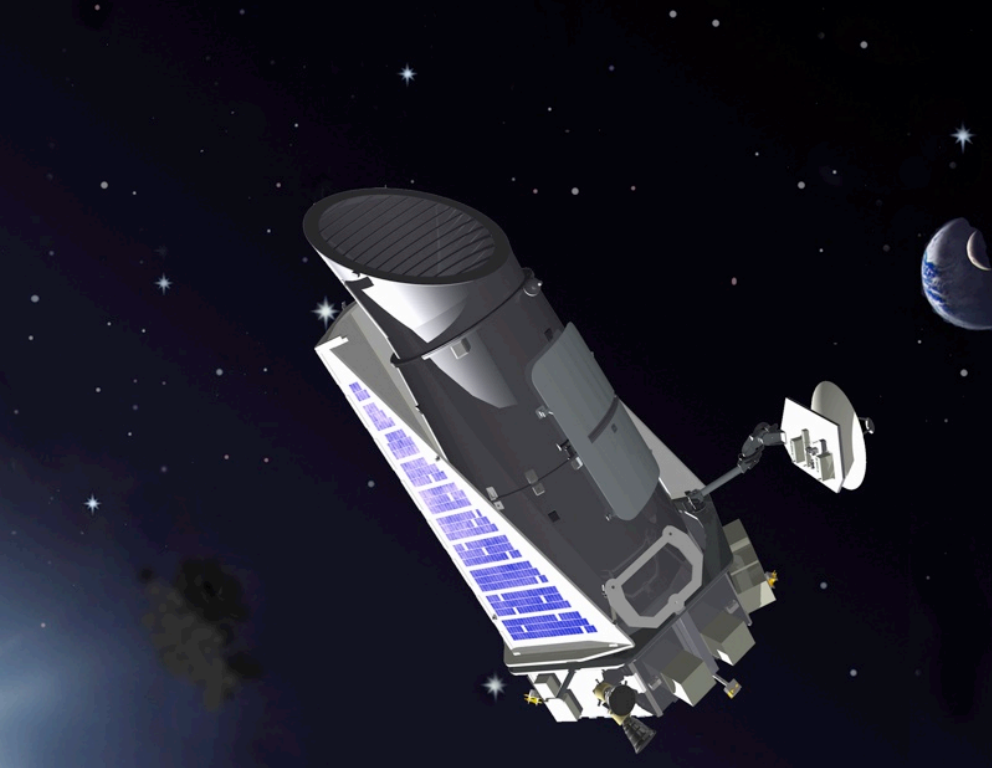
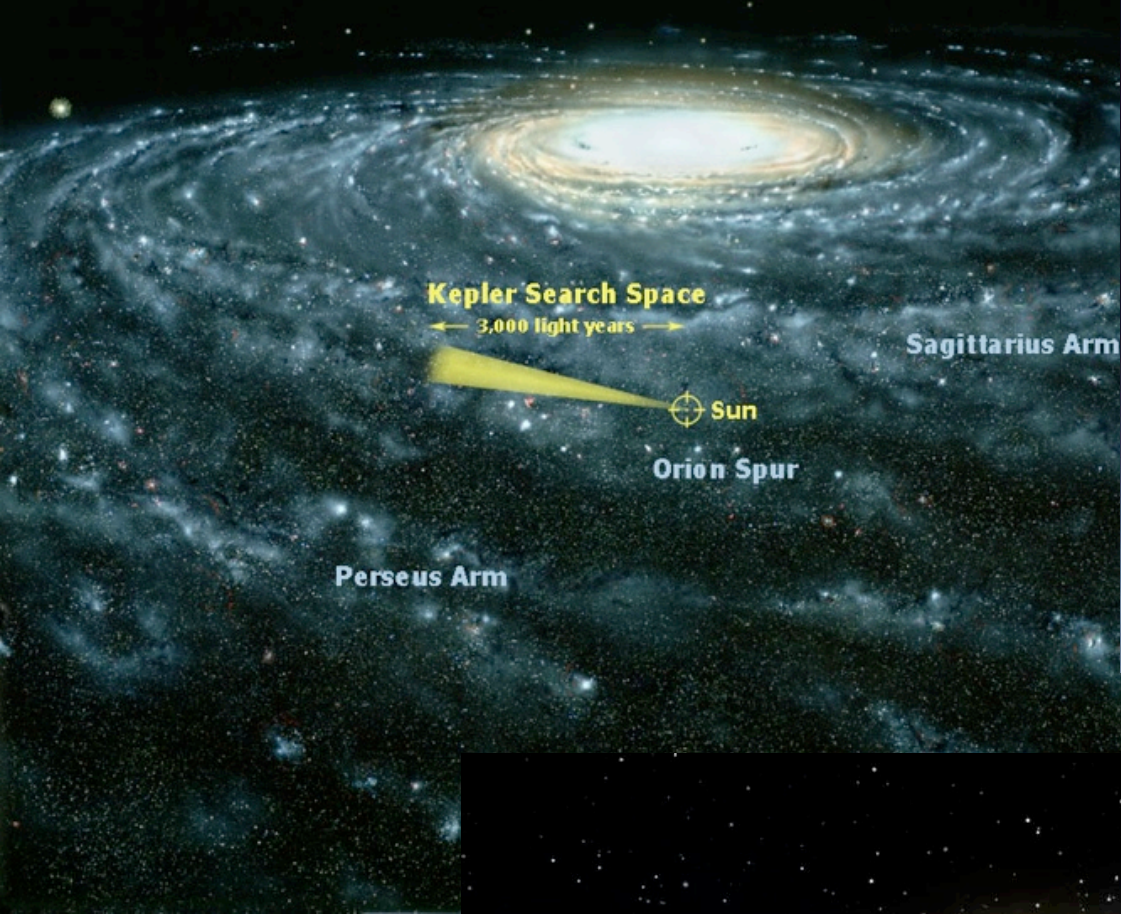
LIGO-Virgo-KAGRA Black Holes *LIGO-Virgo-KAGRA Neutron Stars* *EM Black Holes* *EM Neutron Stars*



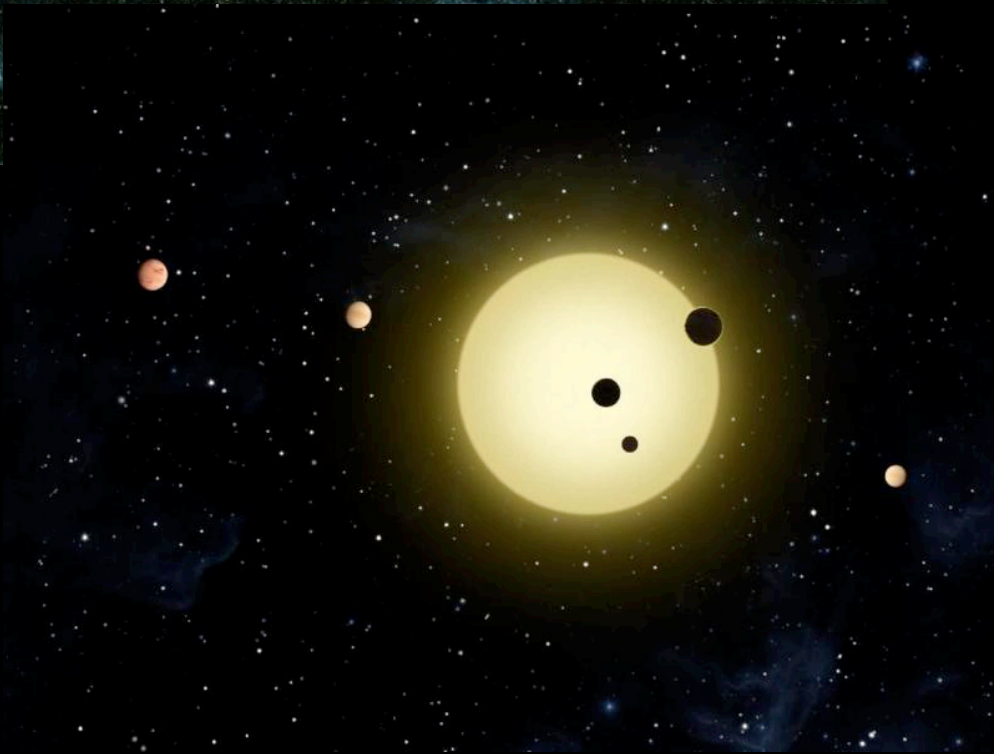




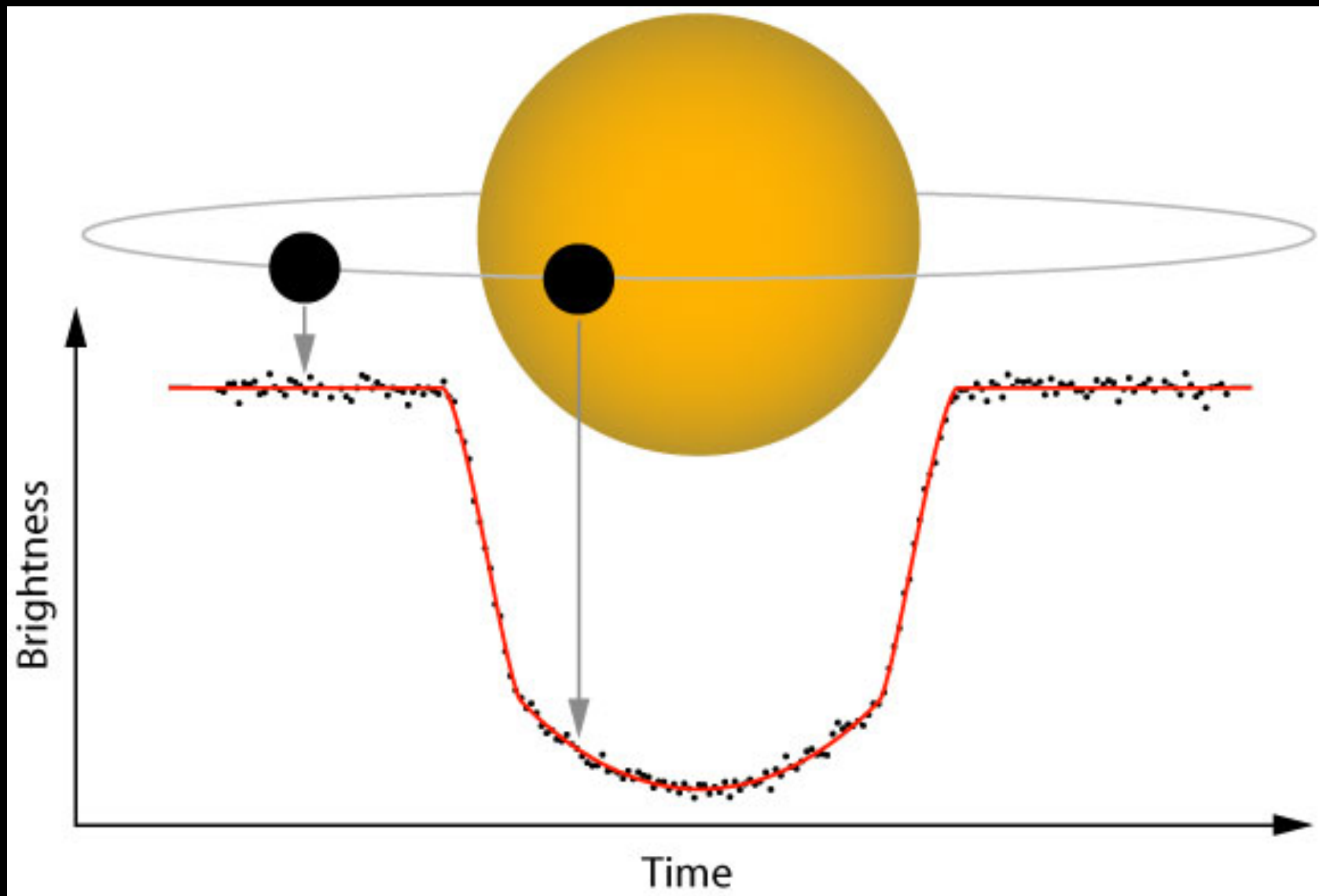
Milky Way Galaxy



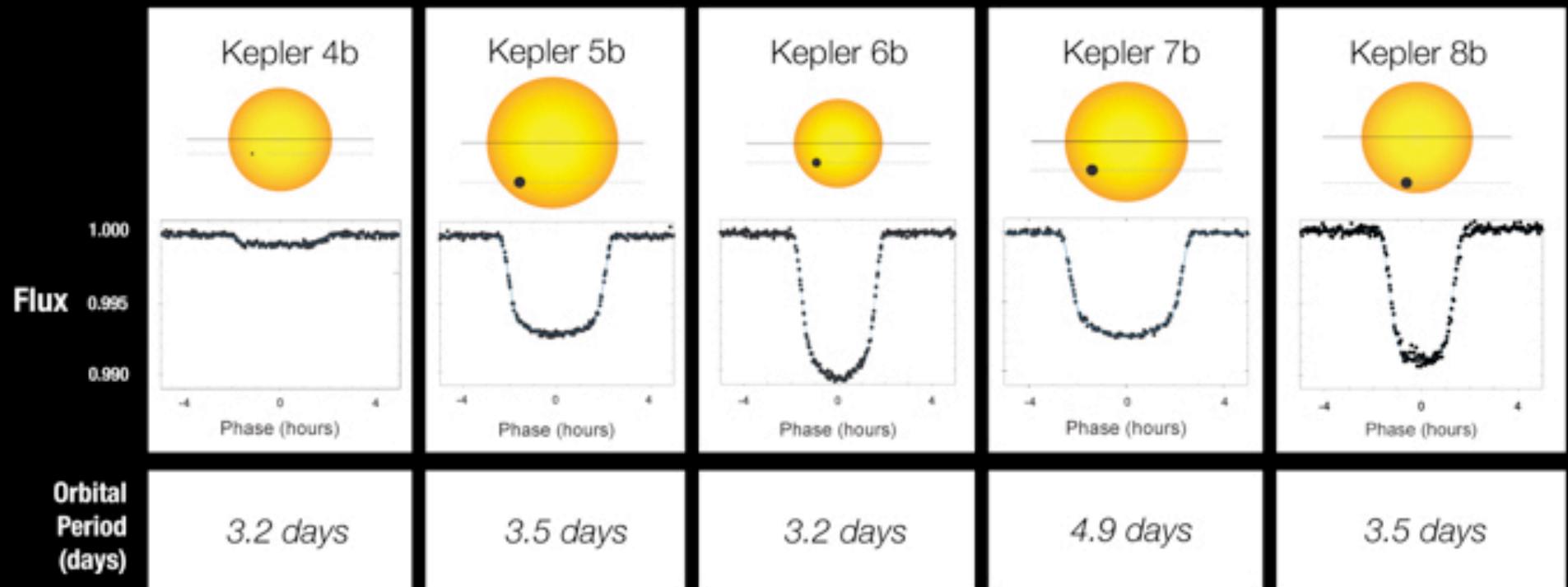
NASA

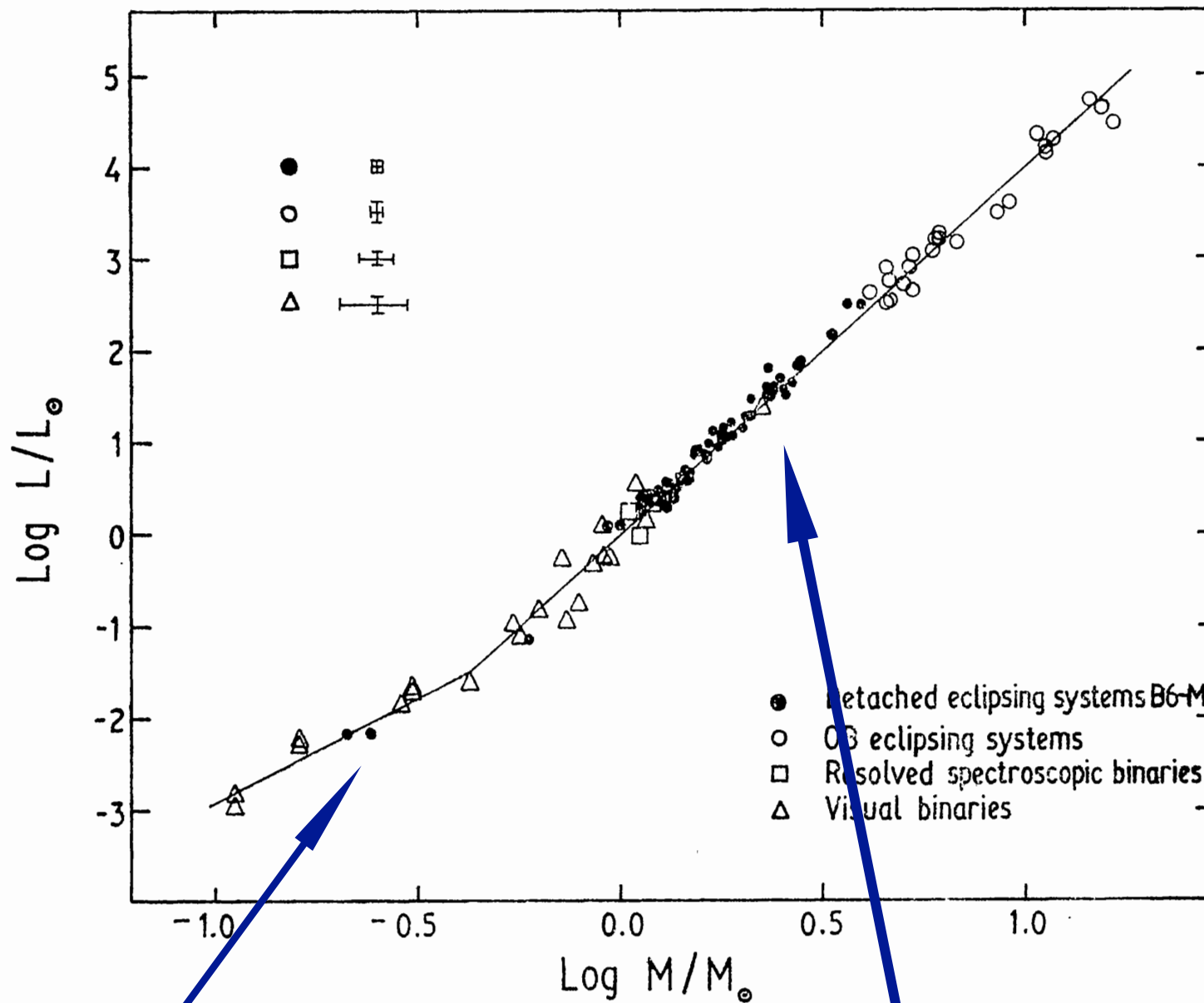


Kepler Mission



Transit Light Curves



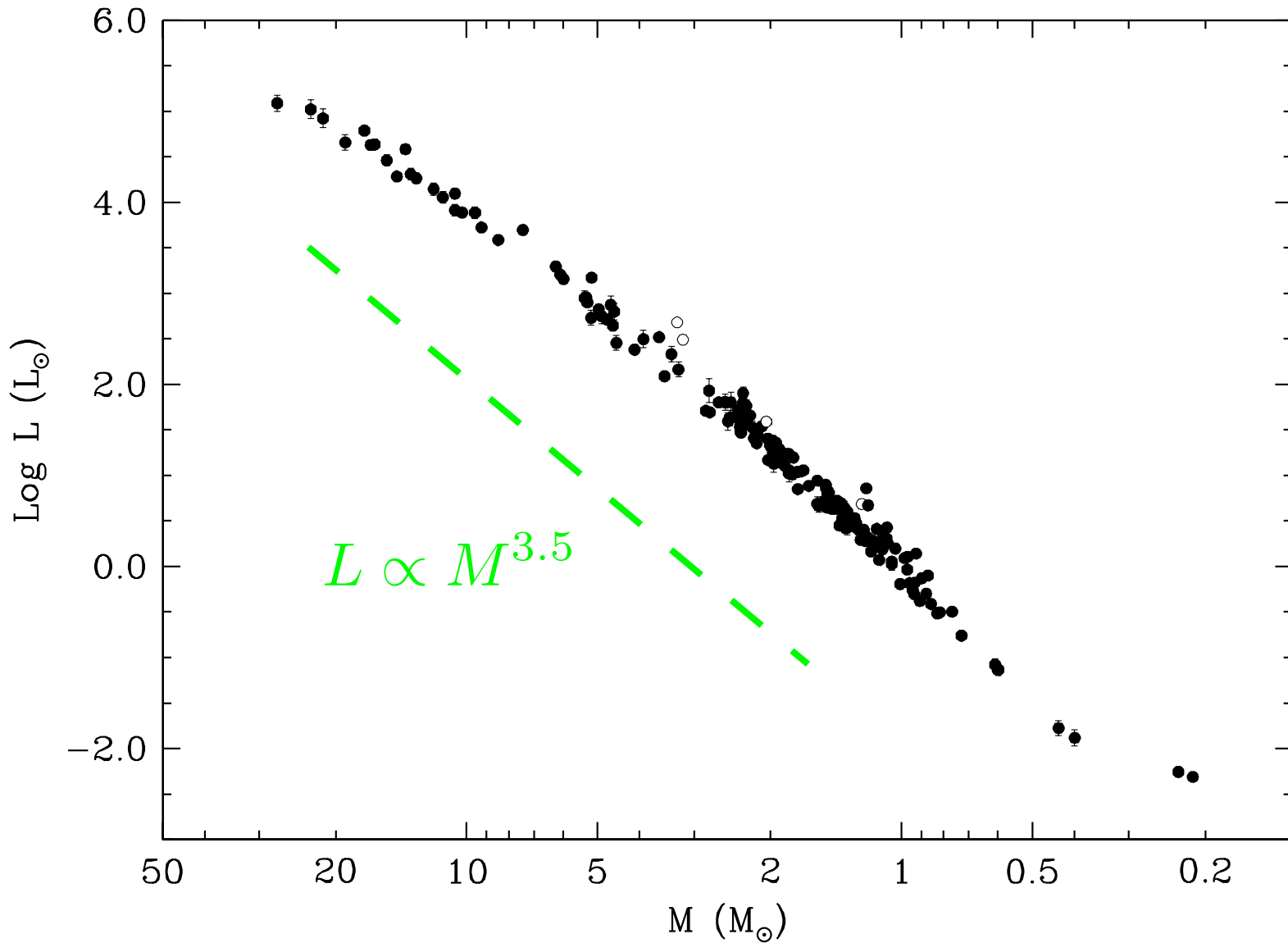


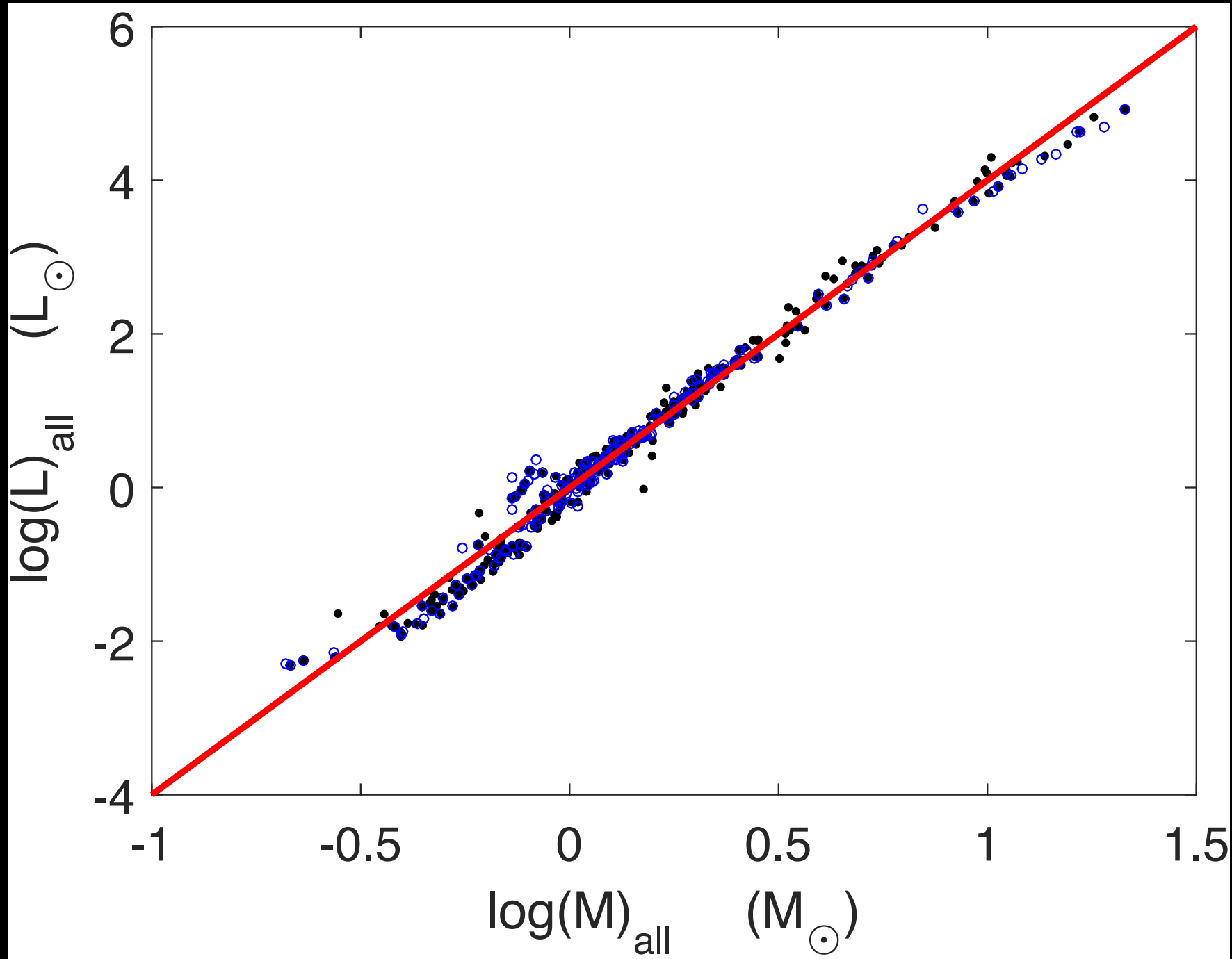
R C Smith 1983

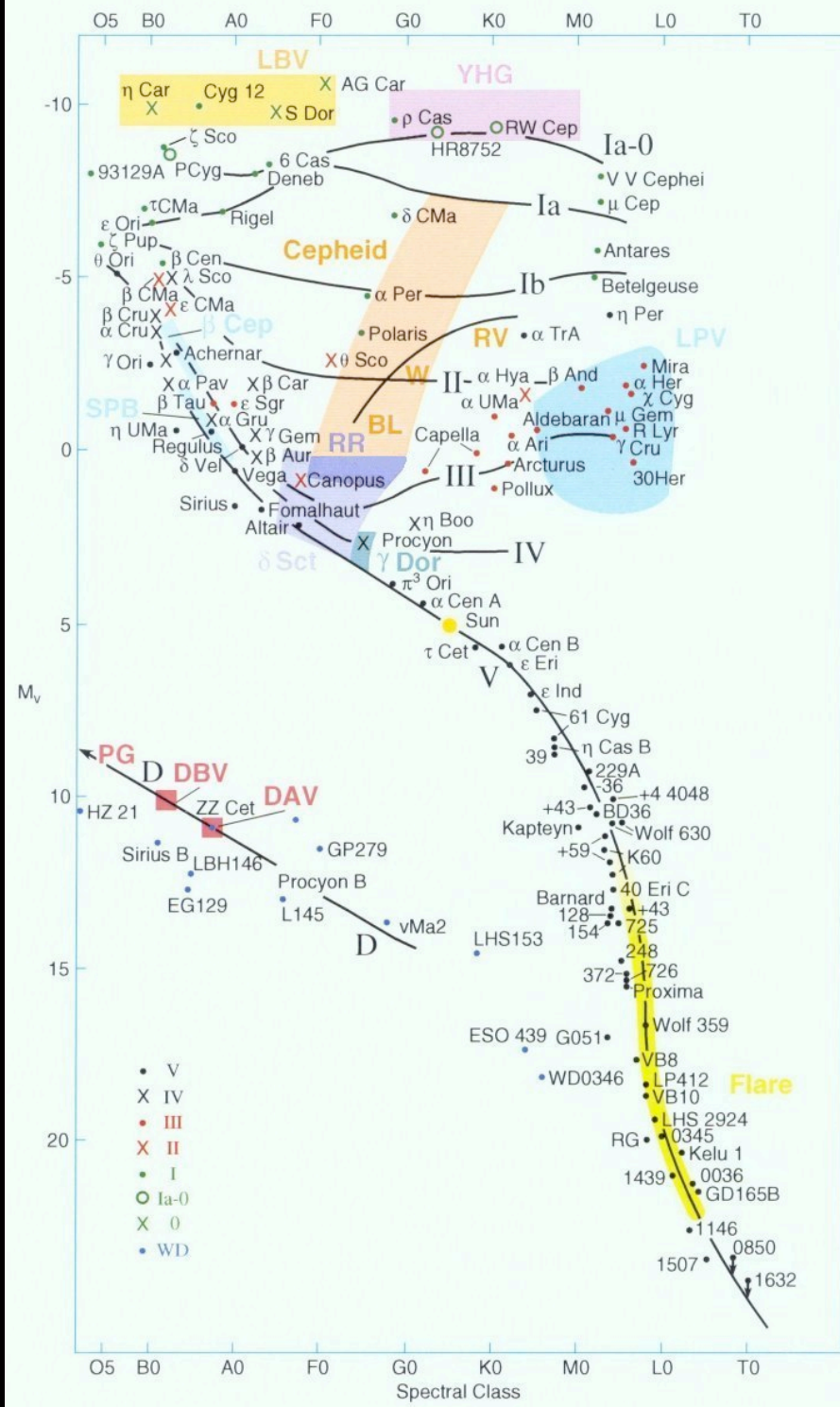
$$\frac{L}{L_{\odot}} \propto \left(\frac{M}{M_{\odot}} \right)^{2.3}$$

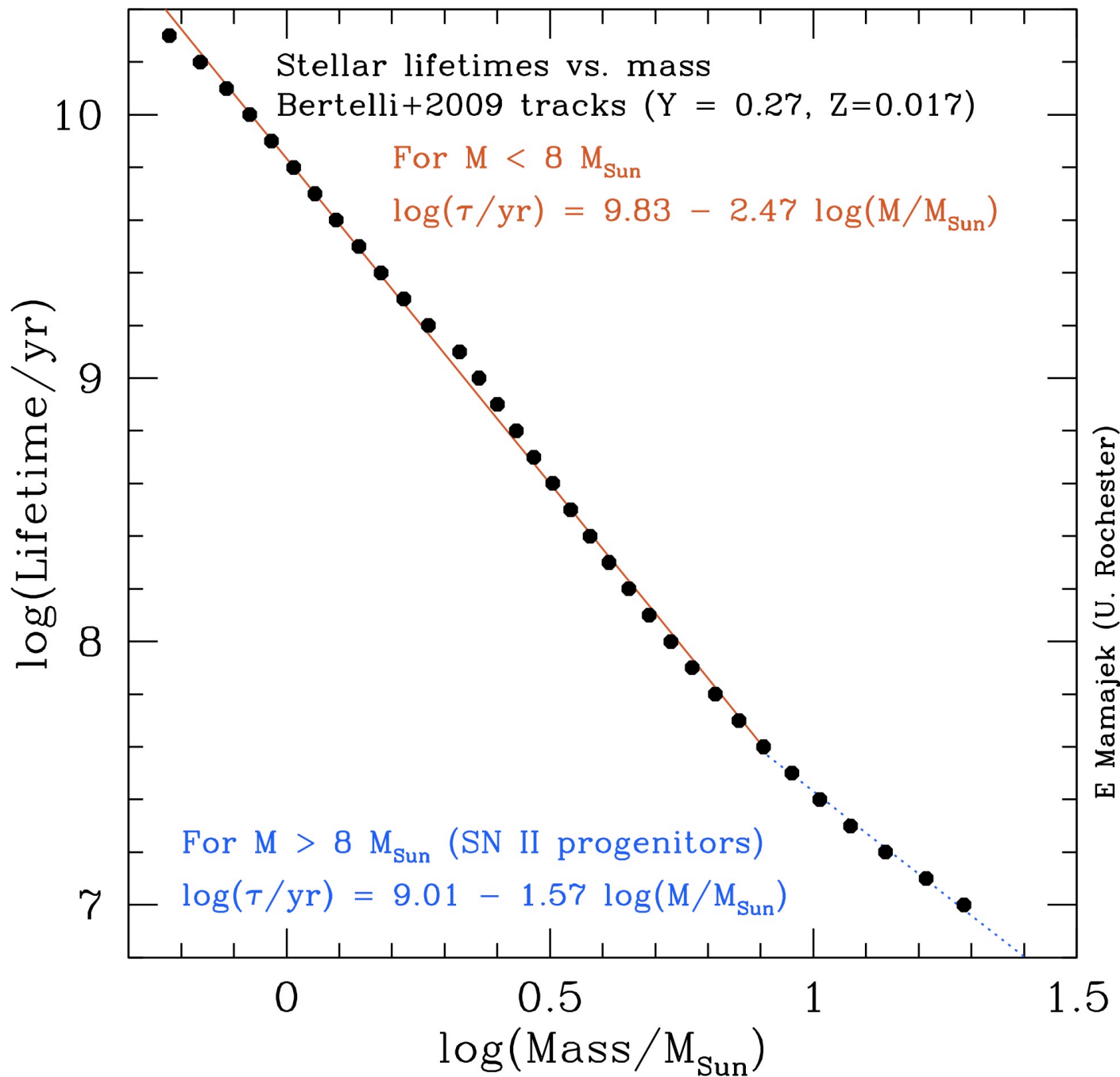
$$\frac{L}{L_{\odot}} \propto \left(\frac{M}{M_{\odot}} \right)^4$$

Mass-Luminosity relation for 190 stars in 95 detached binary systems
whose radii and masses are known to better than 3%









E Mamajek (U. Rochester)



