

Characteristics of input model HD57006

Structure and frequencies

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Global constraints on the input model (E. Michel)

$$T_{eff} = 6150 \pm 100 \quad \Longrightarrow \quad 3.7817 < \log(T_{eff}) < 3.7959$$

$$1.85 < Mbol < 2.2$$

$$[Fe/H] = -0.1 \pm 0.1$$

With $Mbol_{\odot} = 4.75$ and $(Z/X)_{\odot} = 0.0245$

$$1.02 < \log(L/L_{\odot}) < 1.16$$

$$0.01548 < Z/X < 0.0245$$

Rotation

$$V \sin i = 18 \pm 3 \text{ km/s}$$

If we take $i = 45^{\circ}$ and a mean radius 2.210^{11} then

$$\nu_{rot} \approx (1.825 \pm 0.3) \mu\text{Hz}$$

Input model of HD57006

Properties of the input model:

$$M/M_{\text{sol}} = 1.65$$

$$R/R_{\text{sol}} = 3.19$$

$$L/L_{\text{sol}} = 13.10$$

$$\log(L/L_{\text{sol}}) = 1.1174$$

$$\text{Age (My)} = 1861.64$$

$$T_{\text{eff}} = 6.15576 \cdot 10^3$$

$$Z_s = 0.016$$

$$X_s = 0.8004$$

$$Y_s = 0.184$$

$$Z_s/X_s = 0.01998$$

$$X_c = 0.000$$

$$T_c = 2.3940310^7$$

$$x_{zc} = 0.879$$

$$\alpha = 1.6$$

$$\text{overshoot } \zeta = 0.05$$

Comparison of HD57006 frequencies

Frequencies extracted by T. Appourchaux from temporal series computed by T. Toutain:

15 frequencies $l=0$ from 159 to 582 μHz

6 frequencies “non $l=0$ ” from 320 to 475 μHz

37 frequencies “gmodes” located to within 1 bin=0.077

$l=0$ pmodes	(ν σ)	non $l=0$ pmodes	(ν σ)
159.193	0.039	320.195	0.256
189.082	0.045	353.860	0.246
219.143	0.037	373.999	0.324
249.030	0.013	409.970	0.226
279.101	0.038	451.725	1.459
309.235	0.099	474.797	0.512
338.496	0.142		
366.457	0.174		
396.974	0.406		
427.582	0.284		
459.623	0.158		
490.795	0.811		
522.043	0.442		
550.830	6.624		
582.790	6.9e-06		

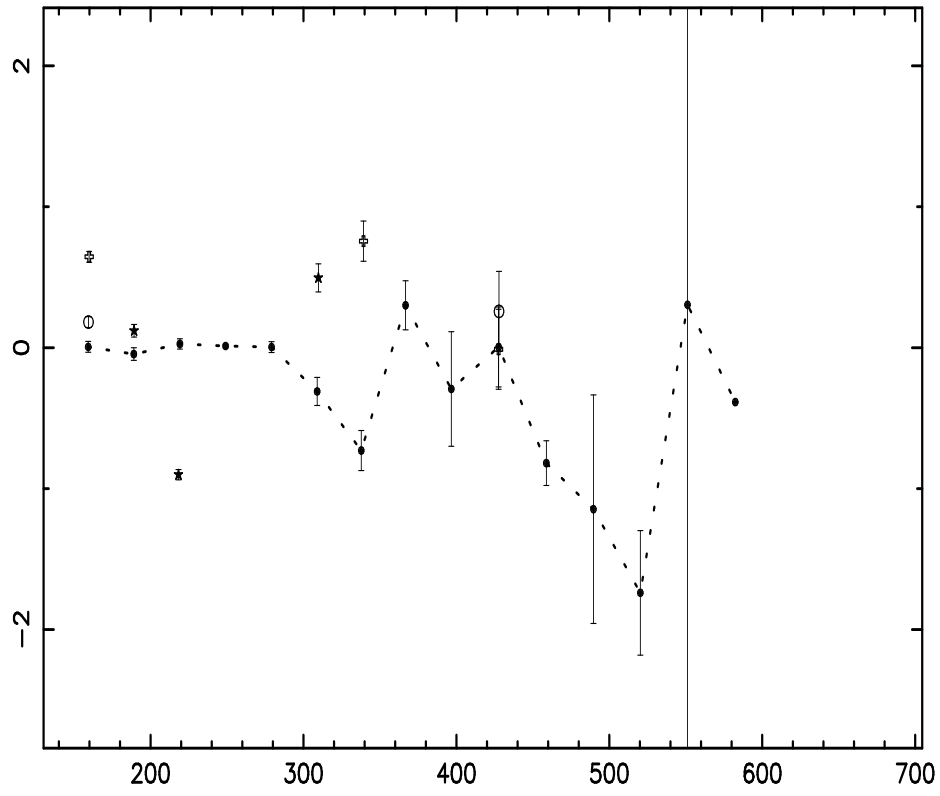
gmodes (located to within 1 bin=0.077)

226.080	236.188	237.191	252.391	253.858	255.092	259.259	260.493
265.586	268.595	276.620	278.318	279.783	281.095	282.253	282.407
285.879	287.654	289.197	290.663	296.682	301.697	303.395	311.111
315.817	318.209	332.253	345.756	347.530	363.117	364.274	371.682
377.006	400.540	402.315	433.719	435.494			

Comparison of HD57006 frequencies

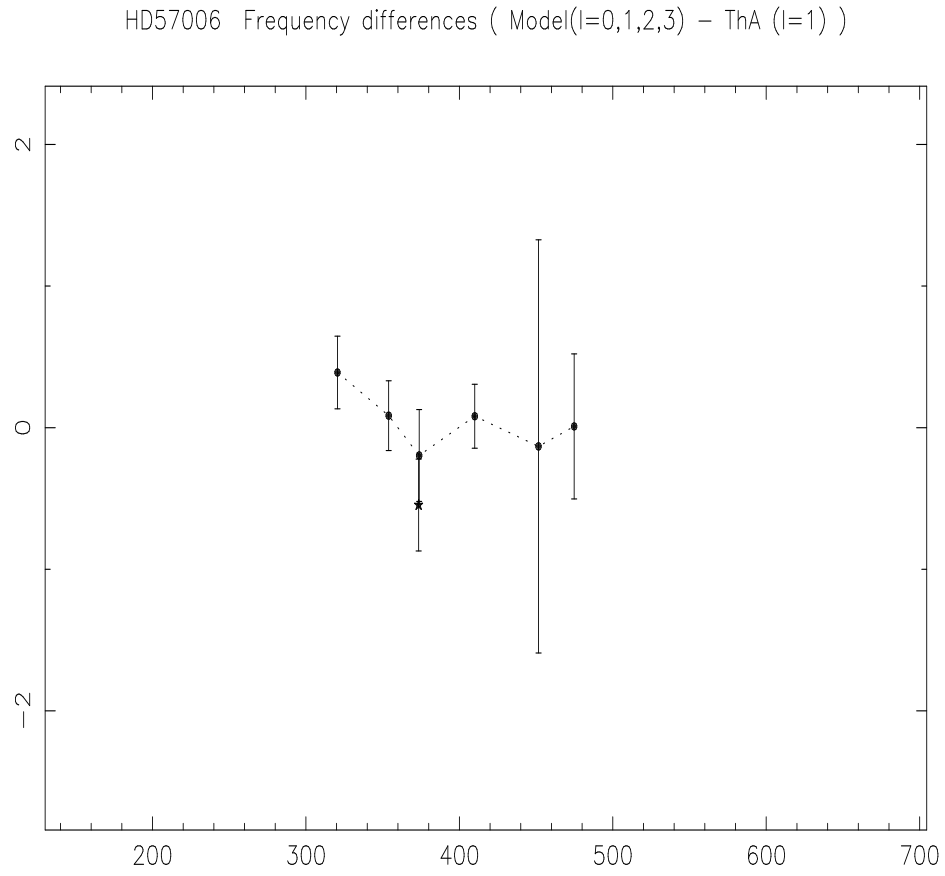
Modes $l=0$

HD57006 Frequency differences (Model($l=0,1,2,3$) - ThA ($l=0$))



Comparison of HD57006 frequencies

Modes not $l=0$



Comparison of HD57006 frequencies

Modes "g"

HD57006 Smallest frequency differences (Model($l=0,1,2,3$) - ThA (modes "g"))

