Closing remarks

Douglas Gough
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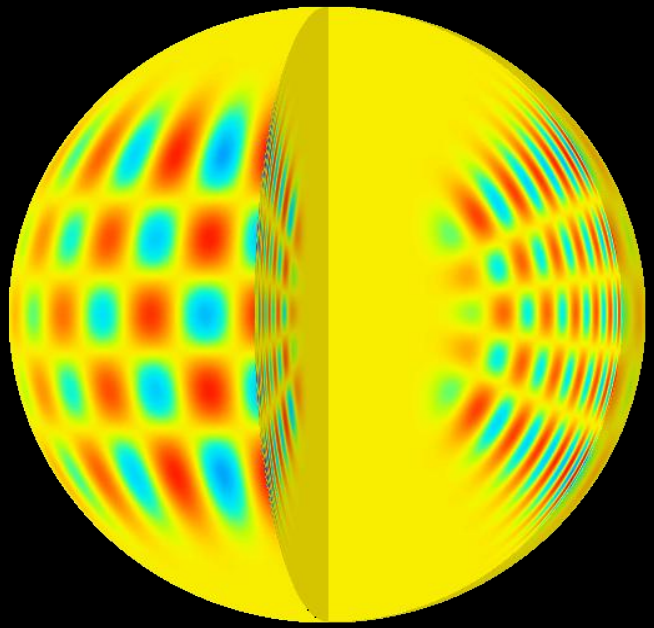
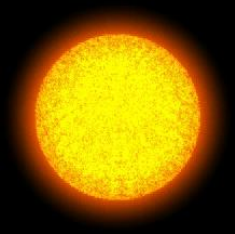
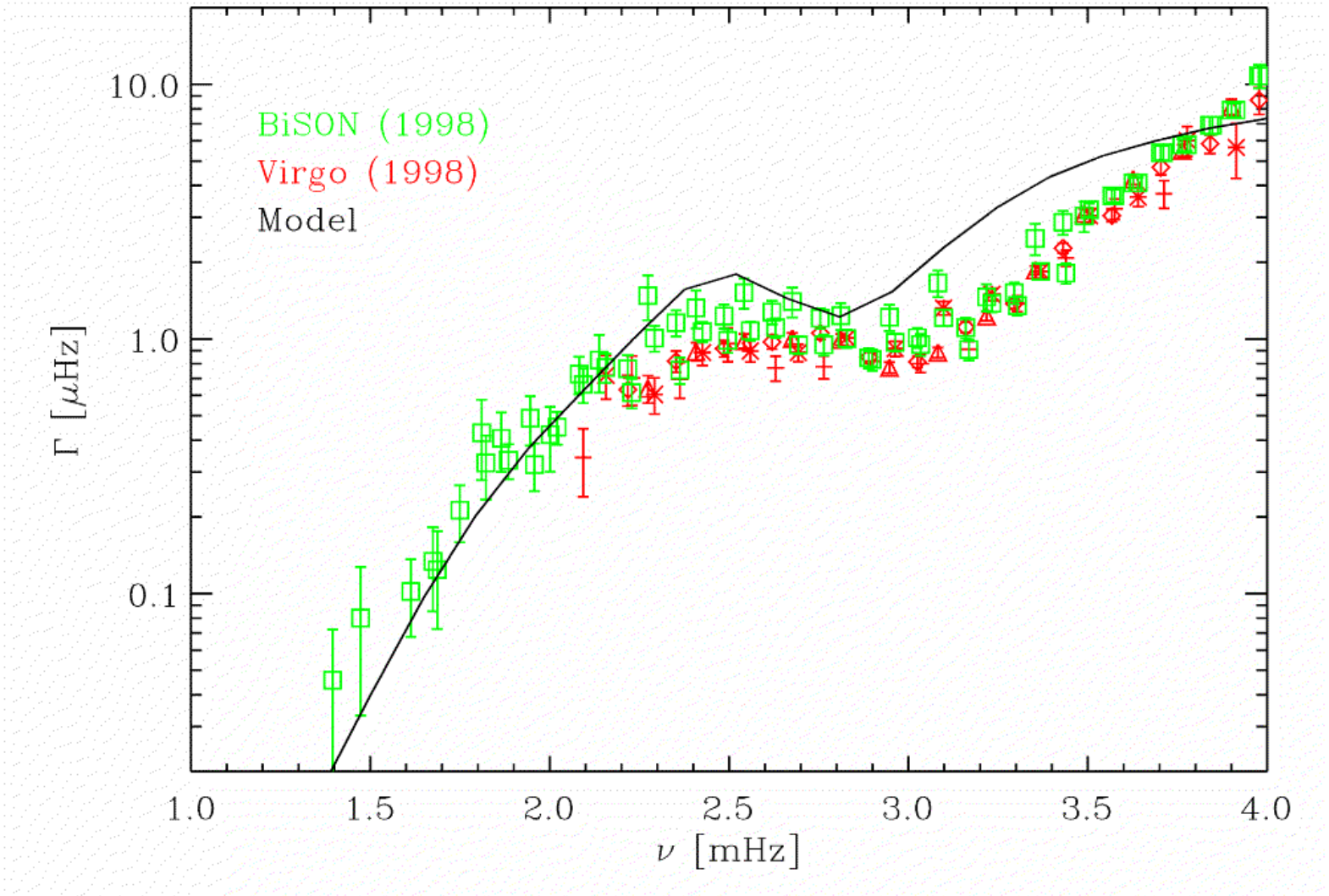
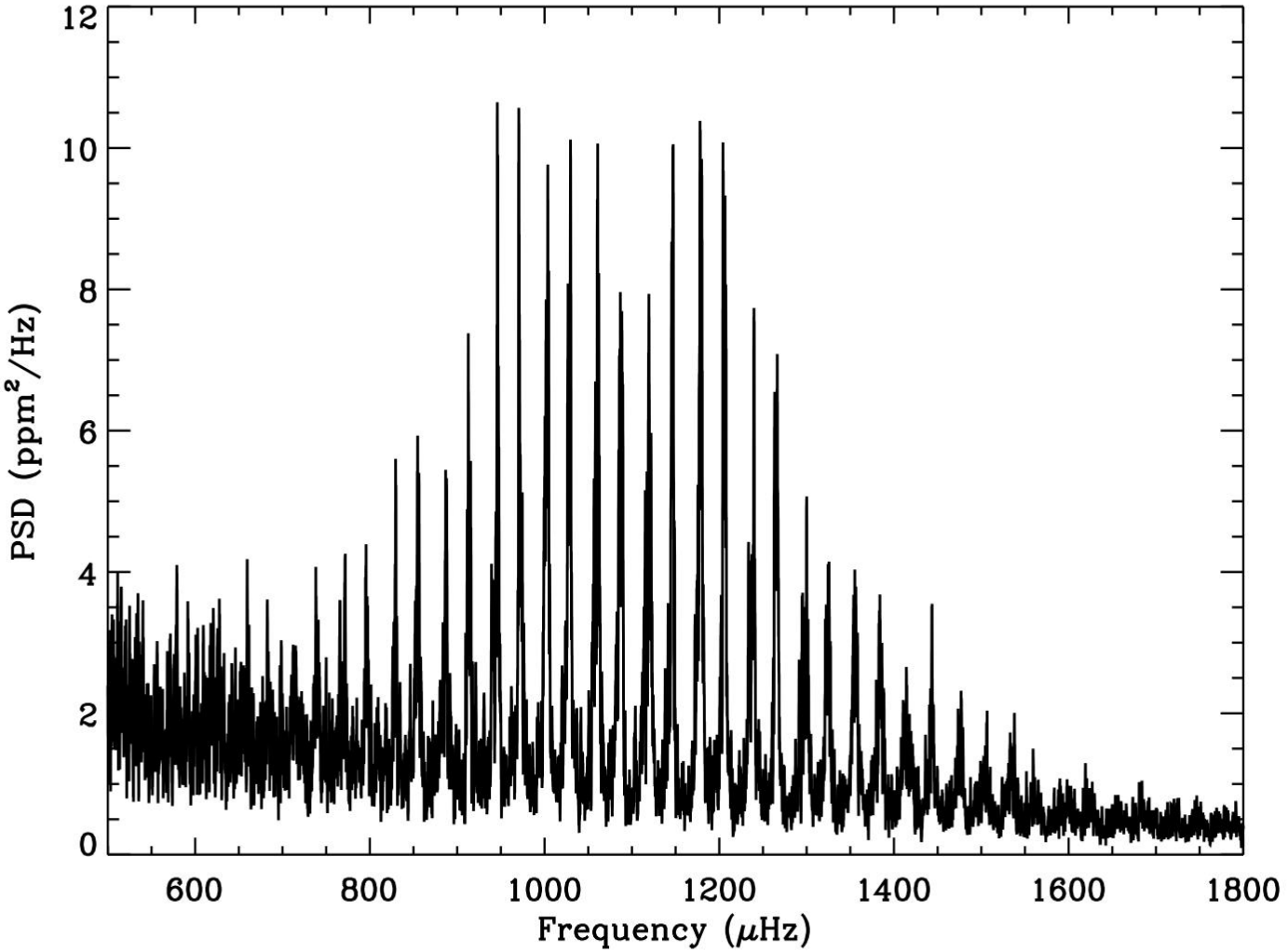


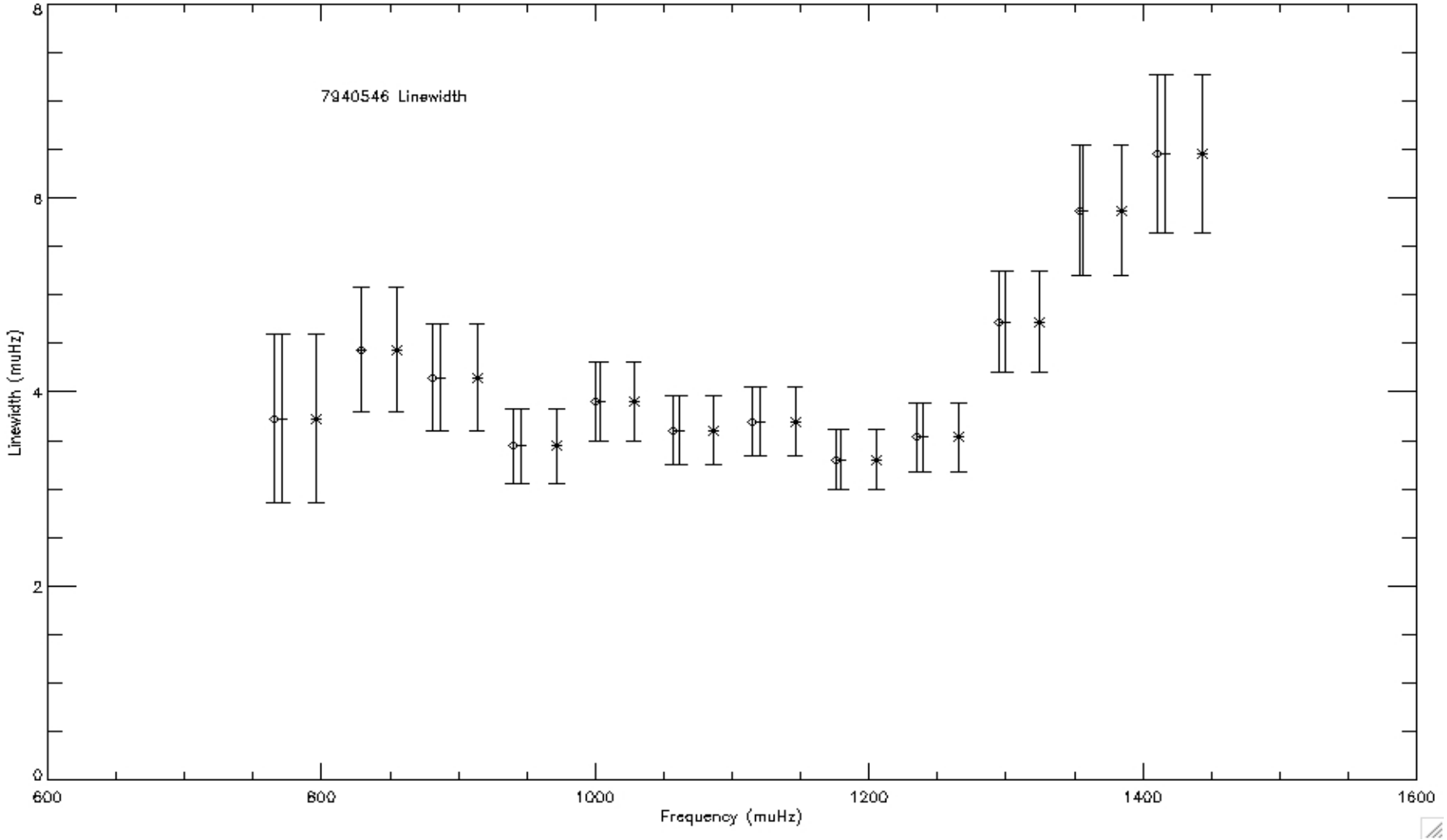


IoA UNIVERSITY OF CAMBRIDGE

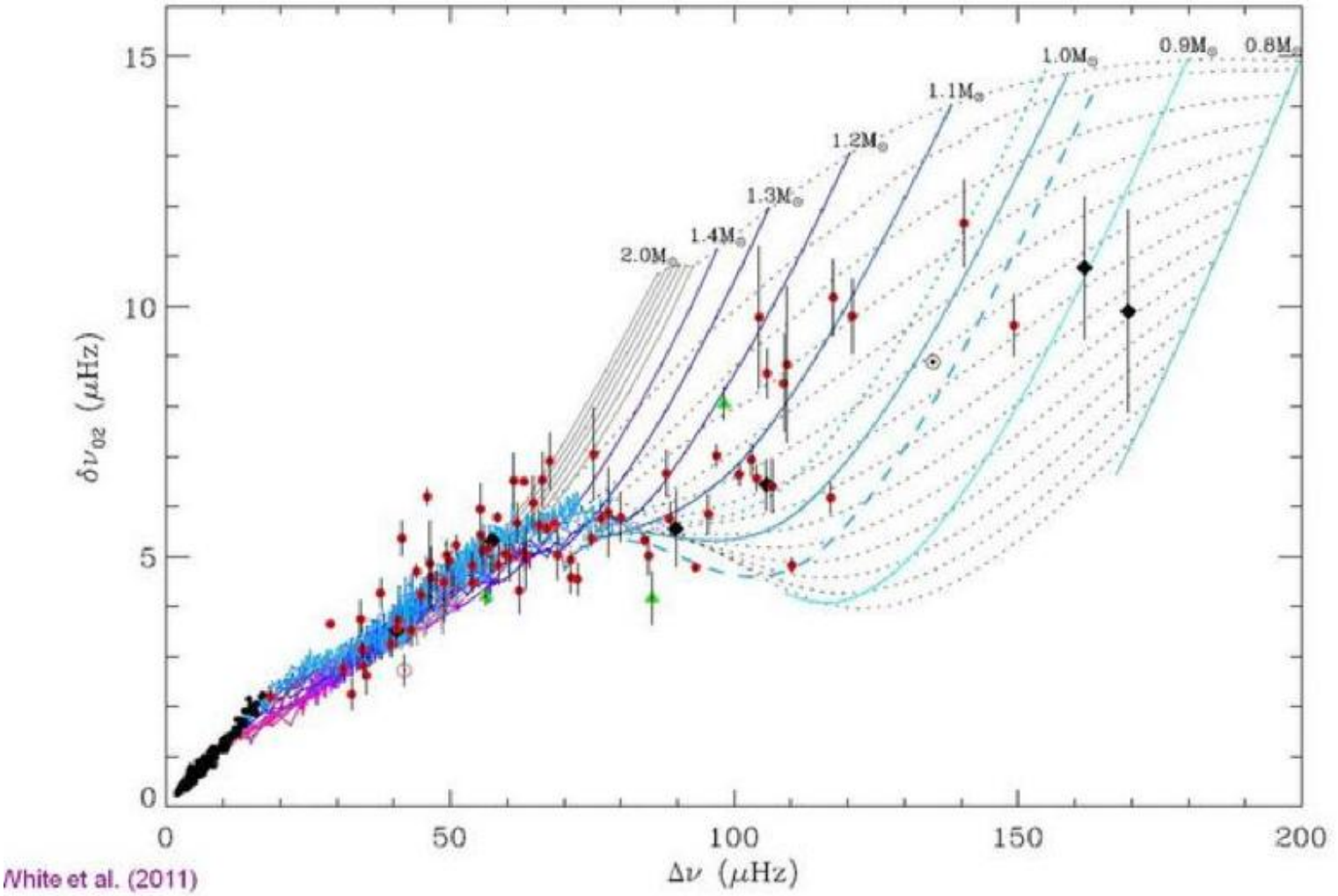
$$\nu_{si} \sim (n + \tfrac{1}{2} l + \varepsilon)\nu_0 - \frac{AL^2 - B}{\nu_{si}} \nu_0^2 - \frac{CL^4 - DL^2 + E}{\nu_{si}^3} \nu_0^4 - \frac{FL^6 - GL^4 + HL^2 - I}{\nu_{si}^5} \nu_0^6$$


BiSON (1998)
Virgo (1998)
Model
10.0
1.0
0.1
Γ [μHz]
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ν [mHz]


12
10
8
6
4
2
0
PSD (ppm²/Hz)
600
800
1000
1200
1400
1600
1800
Frequency (μHz)


7940546 Linewidth
Linewidth (muHz)
Frequency (muHz)
0
2
4
6
8
600
800
1000
1200
1400
1600

C-D diagnostic diagram



White et al. (2011)

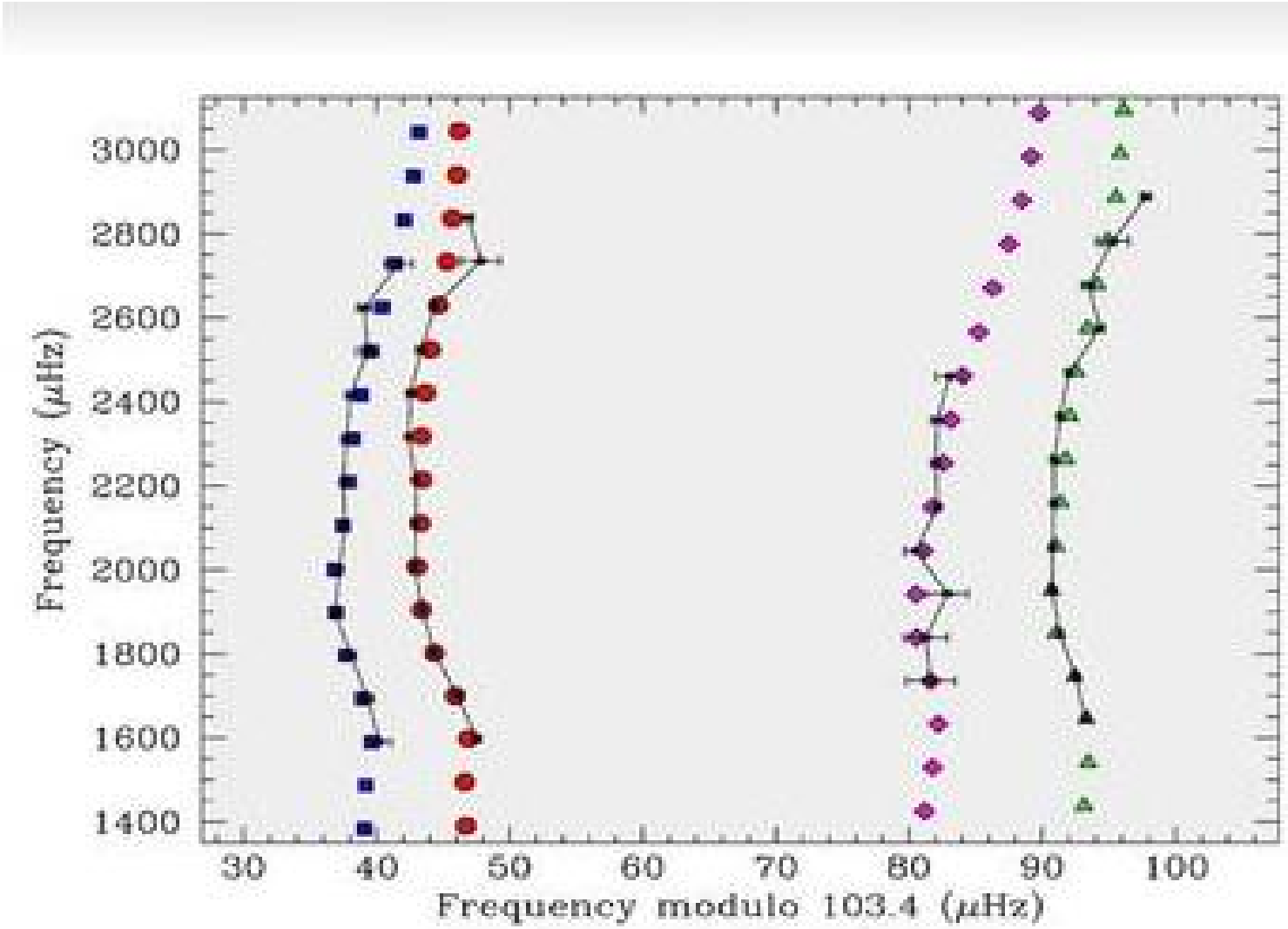
$$\nu_{si} \sim (n + \tfrac{1}{2} l + \varepsilon)\nu_0 - \frac{AL^2 - B}{\nu_{si}} \nu_0^2 - \frac{CL^4 - DL^2 + E}{\nu_{si}^3} \nu_0^4 - \frac{FL^6 - GL^4 + HL^2 - I}{\nu_{si}^5} \nu_0^6$$

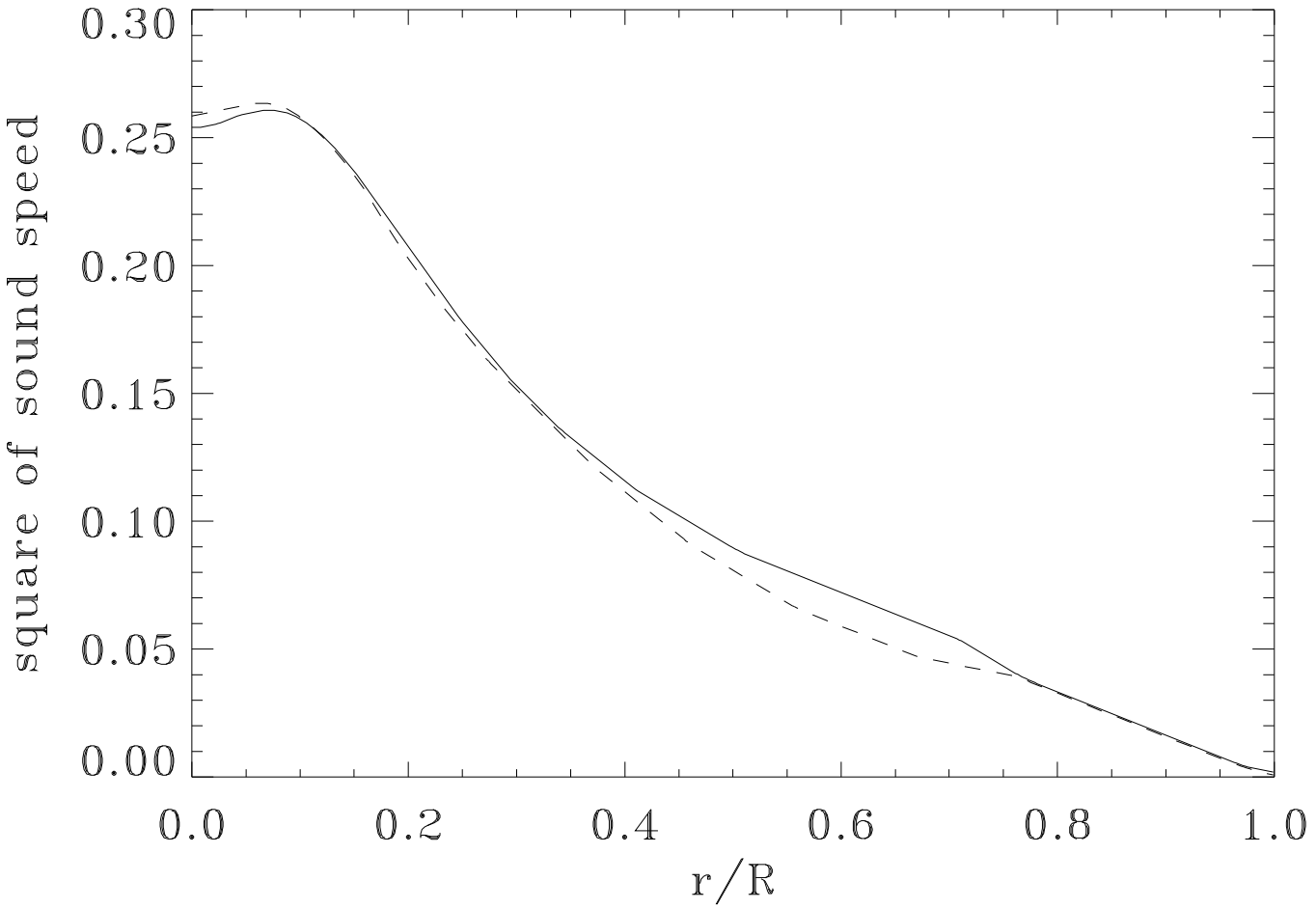
$$\nu \sim \left\{ n + \frac{1}{2} l + \epsilon \right\} \nu_0 - \frac{Al(l+1) - B}{\nu} \nu_0^2 + \ldots$$

$$\nu \sim \left\{ n + \frac{1}{2} l + \epsilon \right\} \nu_0 - \frac{Al(l+1) - B}{\nu} \nu_0^2 + \ldots$$

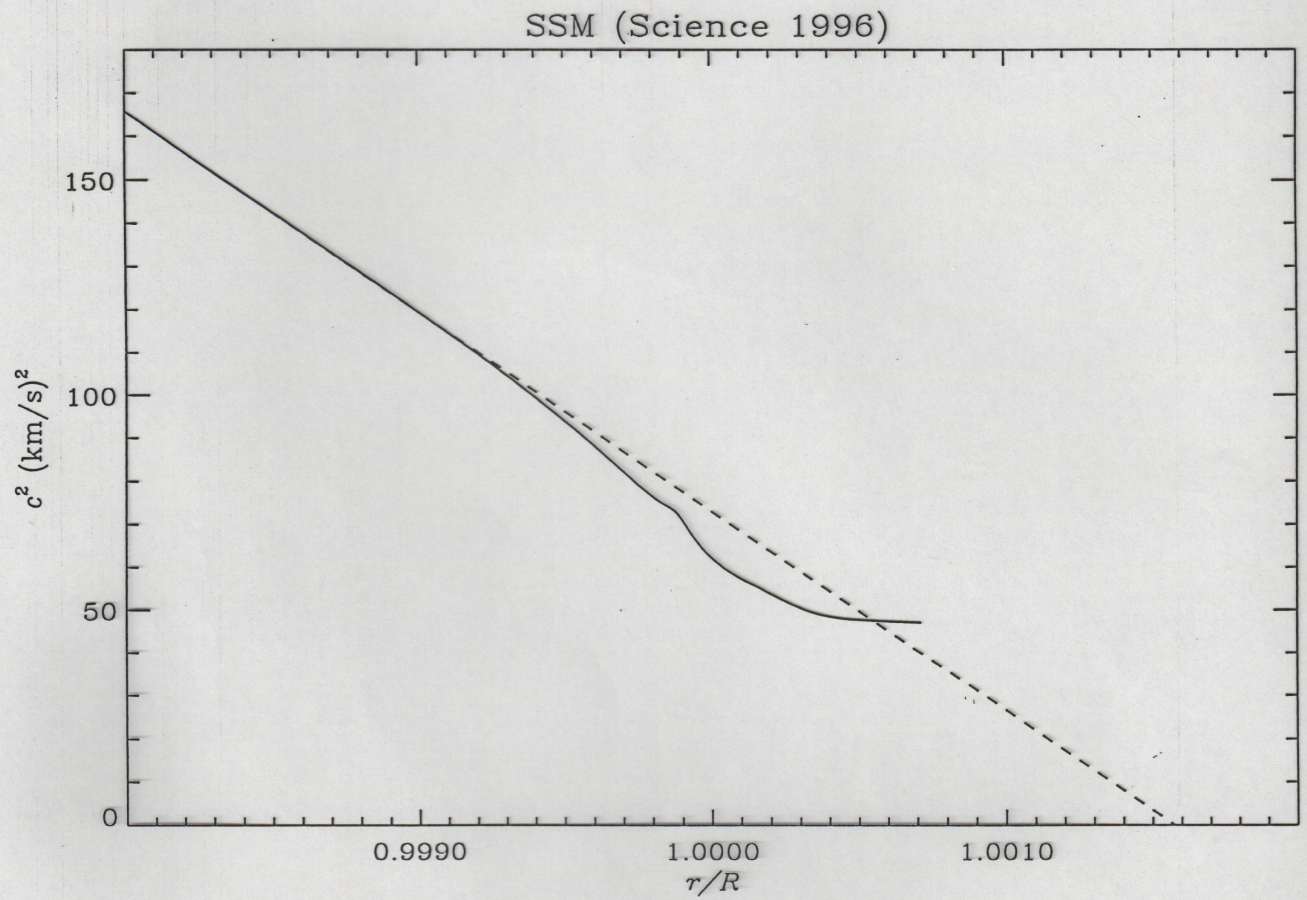
$$d_{n,l} = \nu_{n,l} - \nu_{n-1,l+2}$$

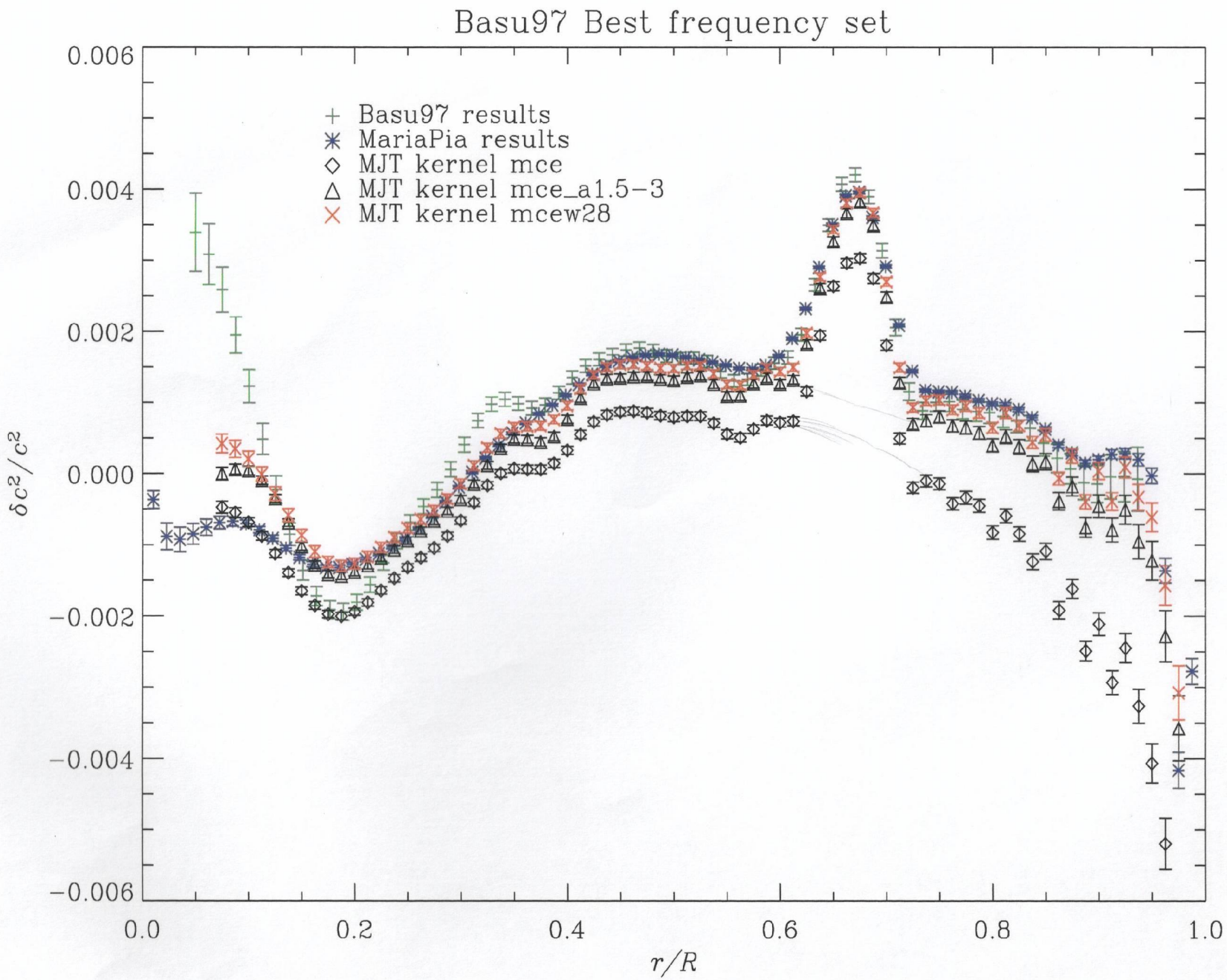
$$d_{n,0} \sim 6A\nu_0^2/\nu$$

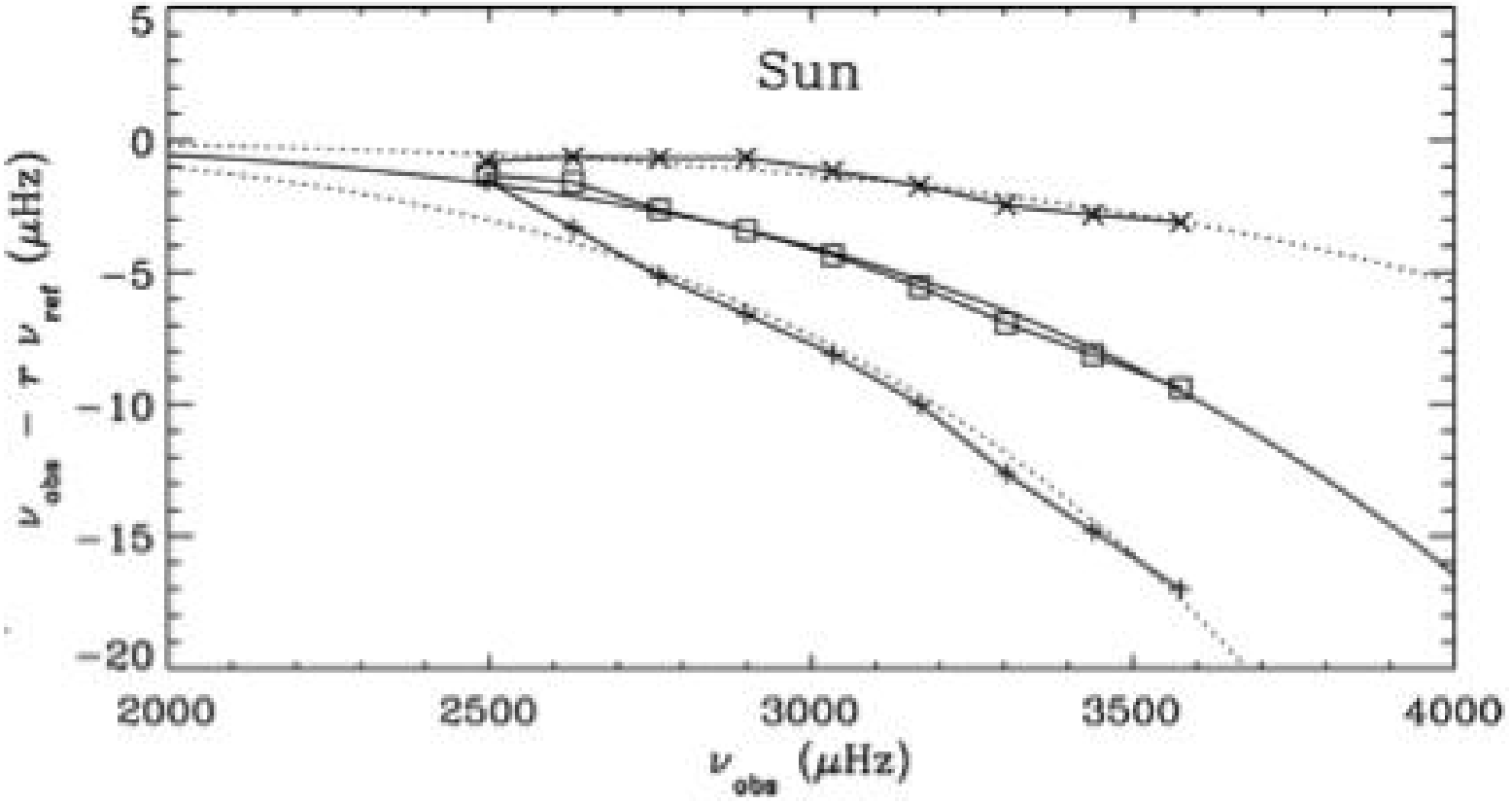

3000
2800
2600
2400
2200
2000
1800
1600
1400
Frequency (μHz)
30
40
50
60
70
80
90
100
Frequency modulo 103.4 (μHz)

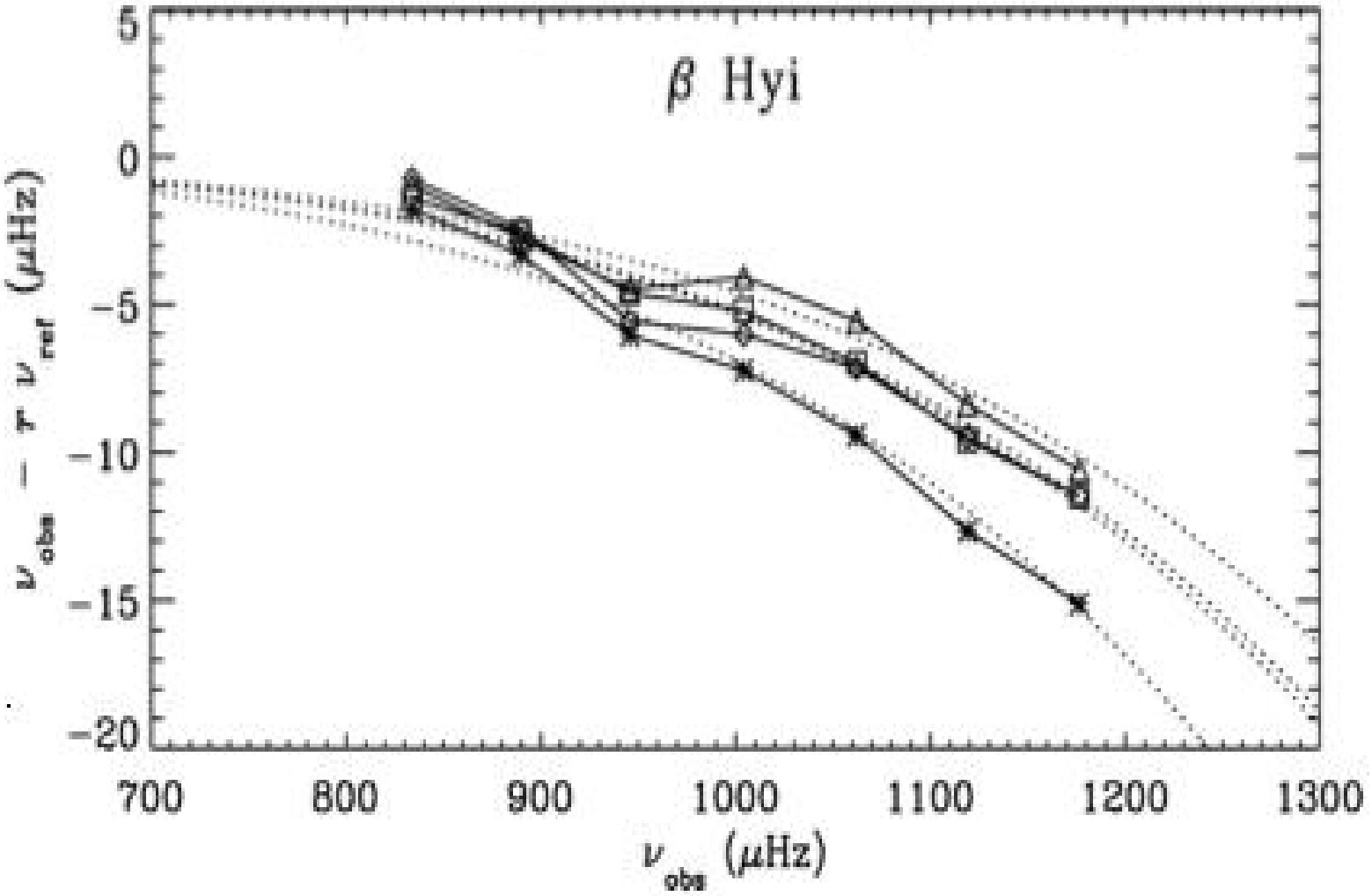


Christensen-Dalsgaard & Gough, 1998

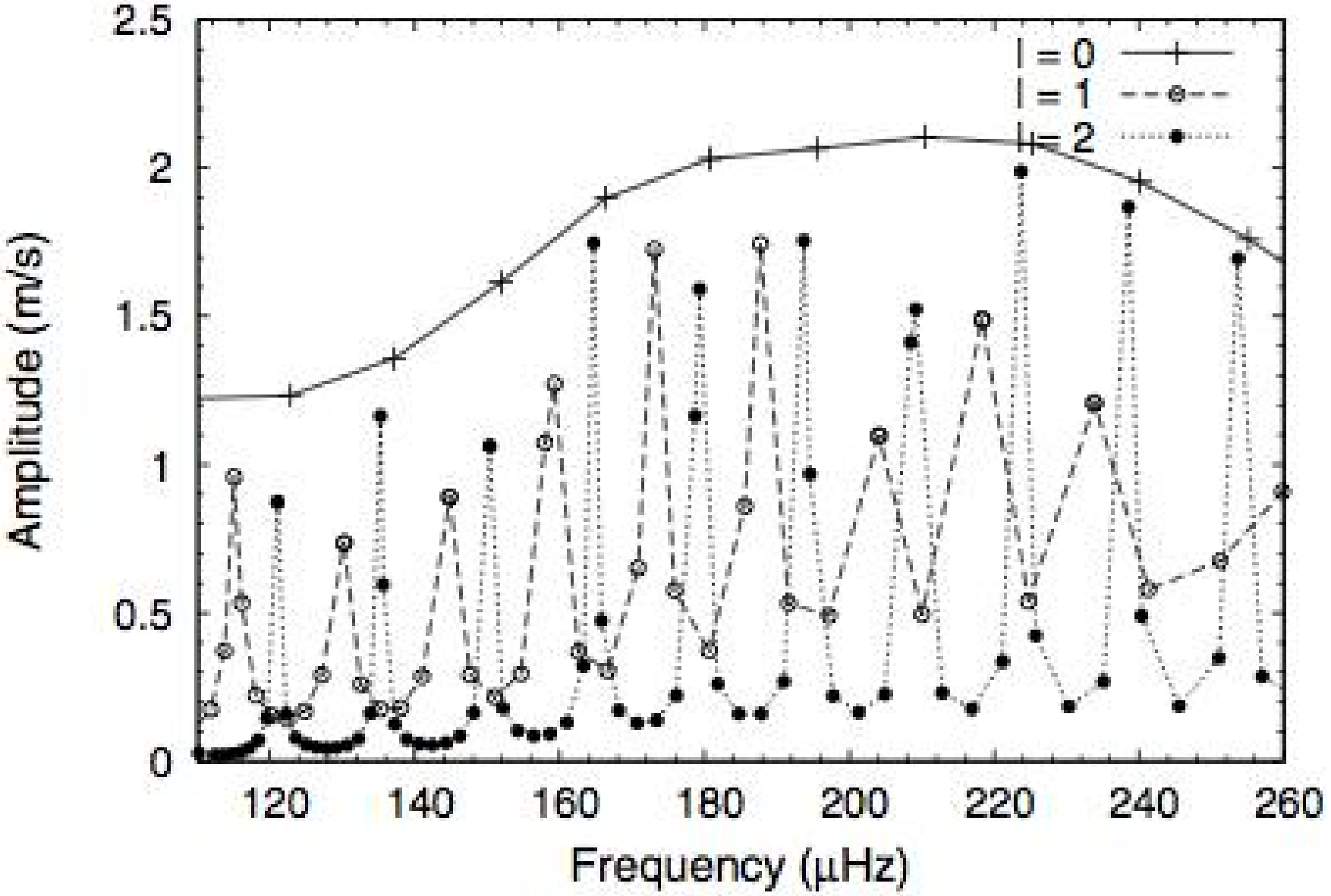

SSM (Science 1996)
150
100
50
0
c^2 (km/s)^2
0.9990
1.0000
1.0010
r/R


Basu97 Best frequency set
Basu97 results
MariaPia results
MJT kernel mce
MJT kernel mce_a1.5−3
MJT kernel mcew28
0.006
0.004
0.002
0.000
−0.002
−0.004
−0.006
$\delta c^2/c^2$
0.0
0.2
0.4
0.6
0.8
1.0
r/R


Sun
5
0
−5
−10
−15
−20
2000
2500
3000
3500
4000
$\nu_{obs} - \tau\,\nu_{ref}$ (μHz)
ν_{obs} (μHz)


β Hyi
5
0
−5
−10
−15
−20
700
800
900
1000
1100
1200
1300
$\nu_{obs} - \tau\ \nu_{ref}$ (μHz)
ν_{obs} (μHz)

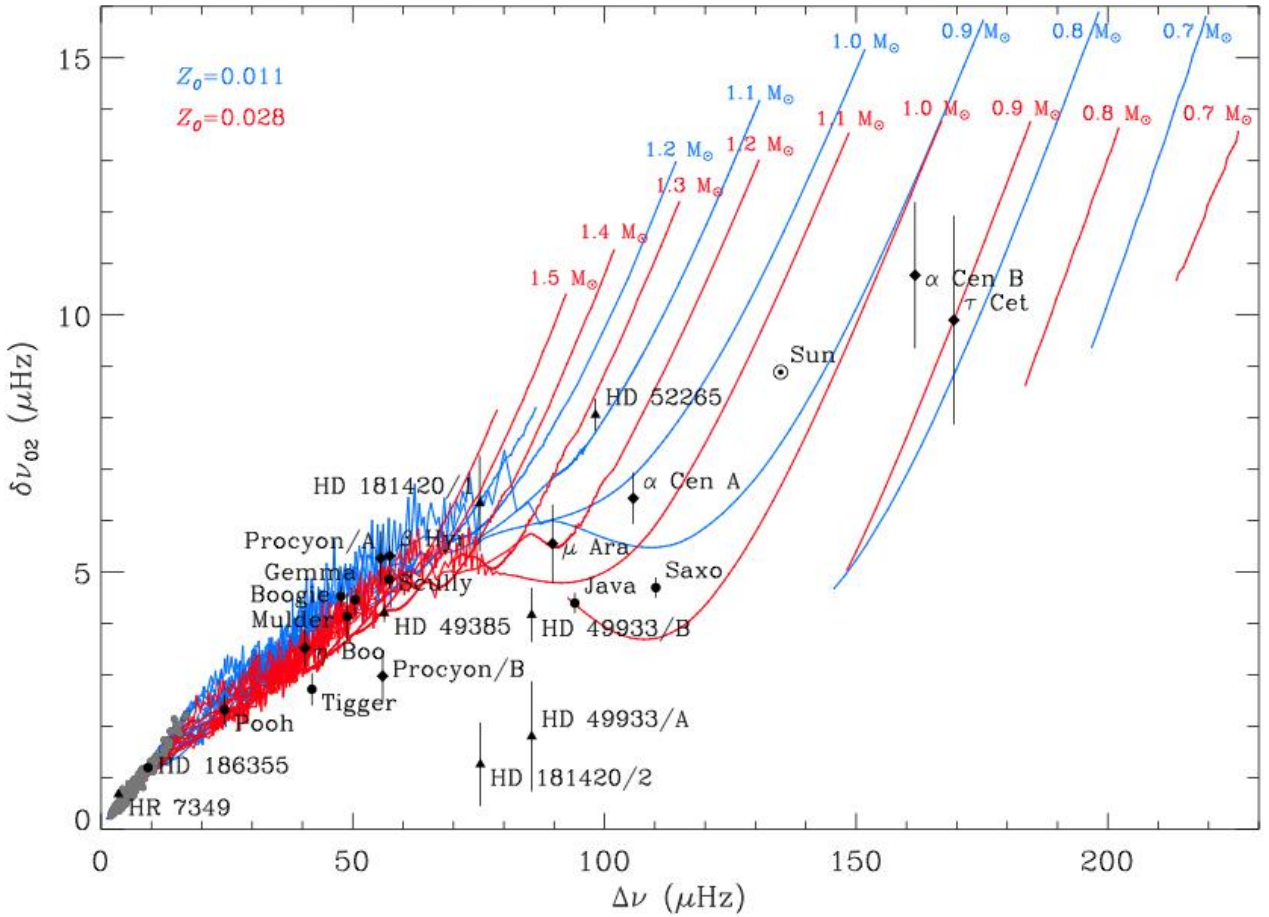
$$\nu \sim \left\{ n + \frac{1}{2(1+\beta)} l + \epsilon \right\} \nu_0 - \frac{Al(l+1) - B}{\nu} \nu_0^2 + \ldots$$


2.5
2
1.5
1
0.5
0
Amplitude (m/s)
120
140
160
180
200
220
240
260
Frequency (μHz)
l = 0
l = 1
l = 2

$$\nu \sim \left\{ n + \frac{1}{2(1+\beta)} l + \epsilon \right\} \nu_0 - \frac{Al(l+1) - B}{\nu} \nu_0^2 + \ldots$$

$$d_{n,l} = \nu_{n,l} - \nu_{n-1,l+2}$$

$$d_{n,0} \sim \frac{\beta}{1+\beta} \nu_0$$


Z_0=0.011
Z_0=0.028
1.0 M⊙
0.9 M⊙
0.8 M⊙
0.7 M⊙
1.1 M⊙
1.2 M⊙
1.3 M⊙
1.4 M⊙
1.5 M⊙
α Cen B
τ Cet
Sun
HD 52265
α Cen A
HD 181420/1
μ Ara
Saxo
Java
Procyon/A
Gemma
Scully
Boogie
Mulder
HD 49385
HD 49933/B
Boo
Procyon/B
Tigger
Pooh
HD 49933/A
HD 186355
HD 181420/2
HR 7349
$\delta\nu_{02}$ (μHz)
$\Delta\nu$ (μHz)
0
5
10
15
0
50
100
150
200

On behalf of all the non-organizing attendees of this meeting I express our sincere thanks to the organizers for an extremely interesting and stimulating meeting

(I even thank them for inviting me)