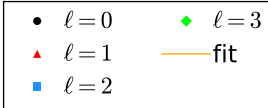
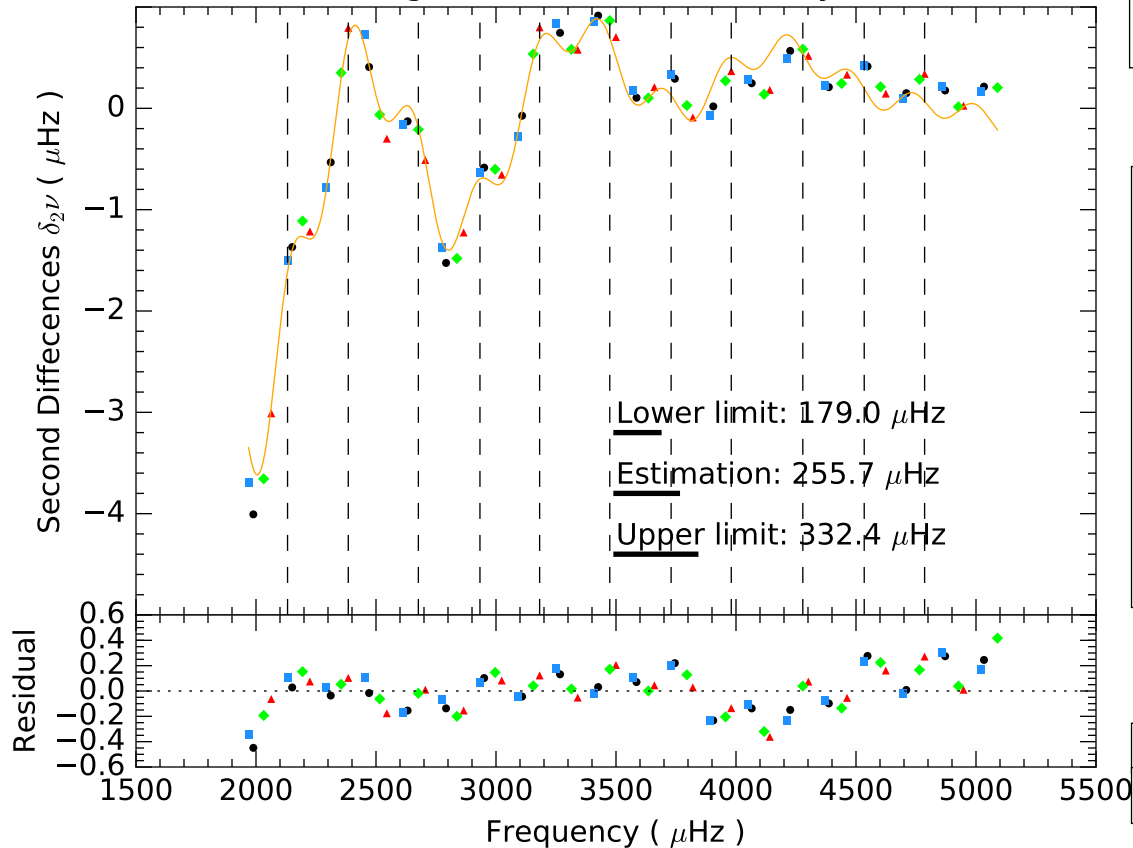


Age after ZAMS: 0.000 Gyr

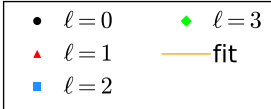
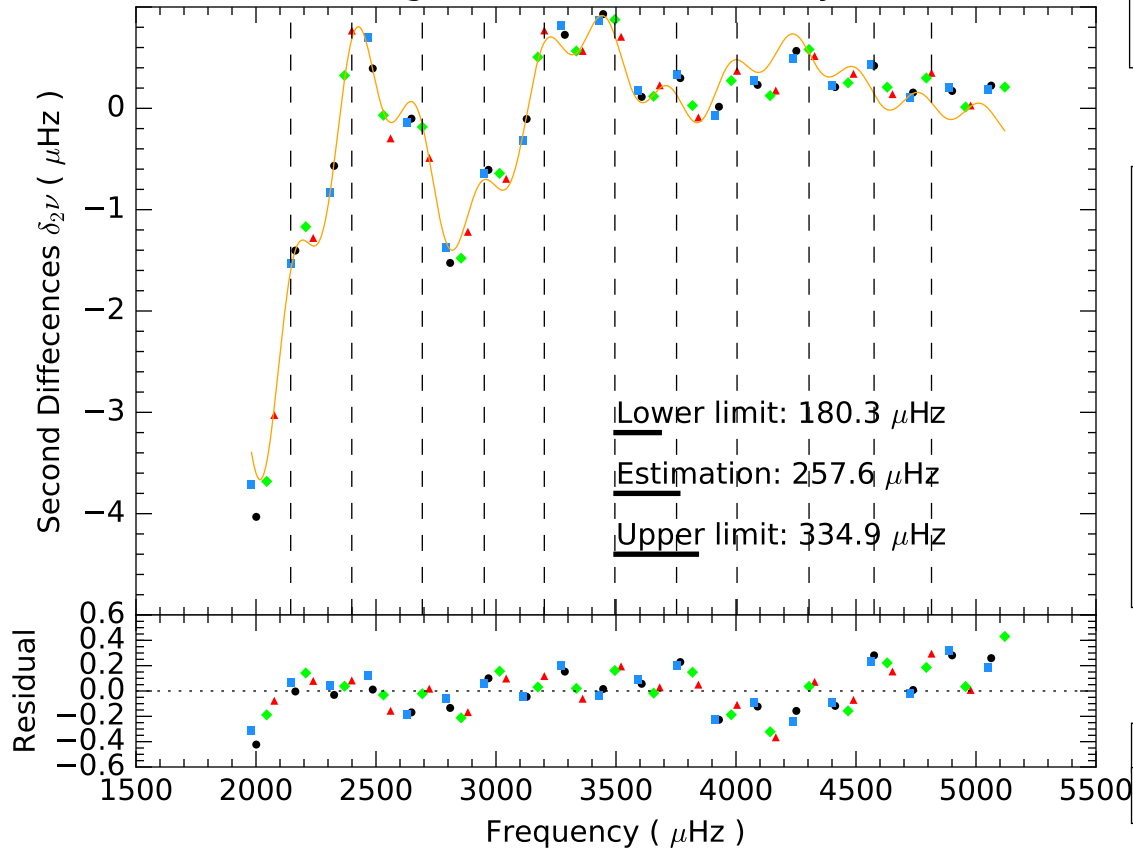


$$\begin{aligned}
 a_0 &= -7.4199 \mu\text{Hz} \\
 a_1 &= 0.0039235 \\
 a_2 &= -4.9214e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0016184 \\
 c_2 &= 1.9616e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 563.29 \text{ s} \\
 \phi_{HeII} &= 3.1209 \\
 b_2 &= 2.5274e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 1929.4 \text{ s} \\
 \phi_{CZ} &= 6.1294
 \end{aligned}$$

profile1

$$\chi^2_\nu(\text{dof} = 69) = 0.032015$$

Age after ZAMS: 0.000 Gyr

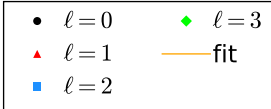
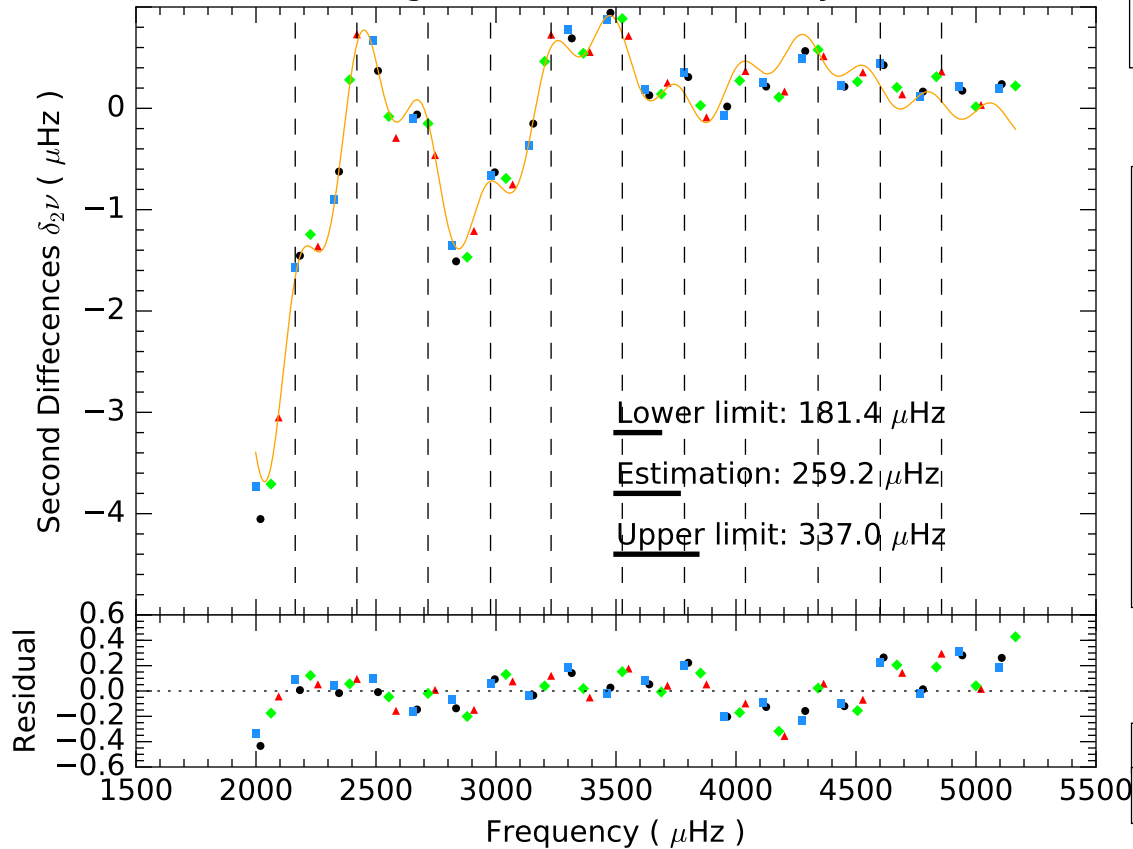


$$\begin{aligned}
 a_0 &= -7.4984 \mu\text{Hz} \\
 a_1 &= 0.0039335 \\
 a_2 &= -4.8978e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0015822 \\
 c_2 &= 1.9233e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HeII}} &= 556.83 \text{ s} \\
 \phi_{\text{HeII}} &= 3.1937 \\
 b_2 &= 2.6931e+06 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 1919.0 \text{ s} \\
 \phi_{\text{CZ}} &= 6.1356
 \end{aligned}$$

profile2

$$\chi^2_\nu(\text{dof} = 69) = 0.032395$$

Age after ZAMS: 0.001 Gyr

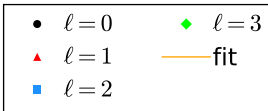
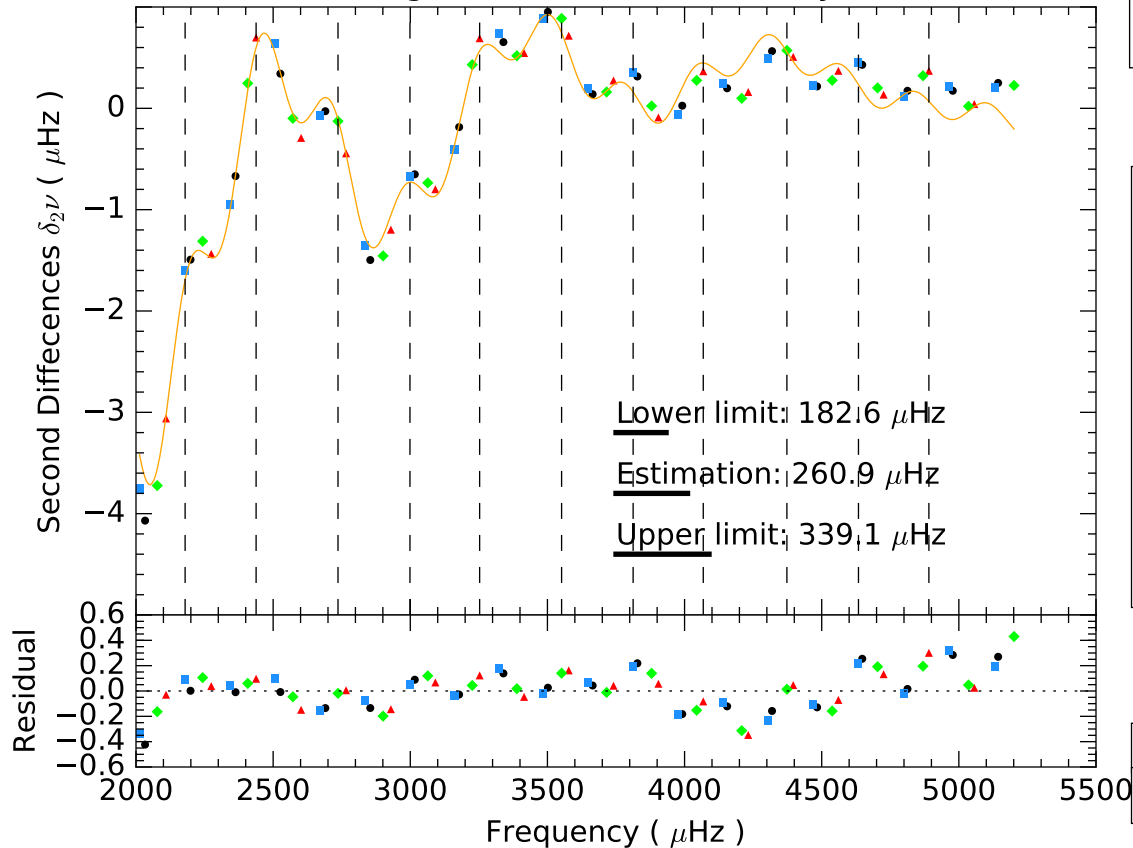


$a_0 = -7.5536 \mu\text{Hz}$   
 $a_1 = 0.0039153$   
 $a_2 = -4.819e-07 \mu\text{Hz}^{-1}$   
 $c_0 = 0.0015767$   
 $c_2 = 1.9028e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 550.65 \text{ s}$   
 $\phi_{HeII} = 3.1956$   
 $b_2 = 2.7366e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 1901.4 \text{ s}$   
 $\phi_{CZ} = 6.1343$

profile3

$\chi^2_\nu(\text{dof} = 69) = 0.030677$

Age after ZAMS: 0.002 Gyr

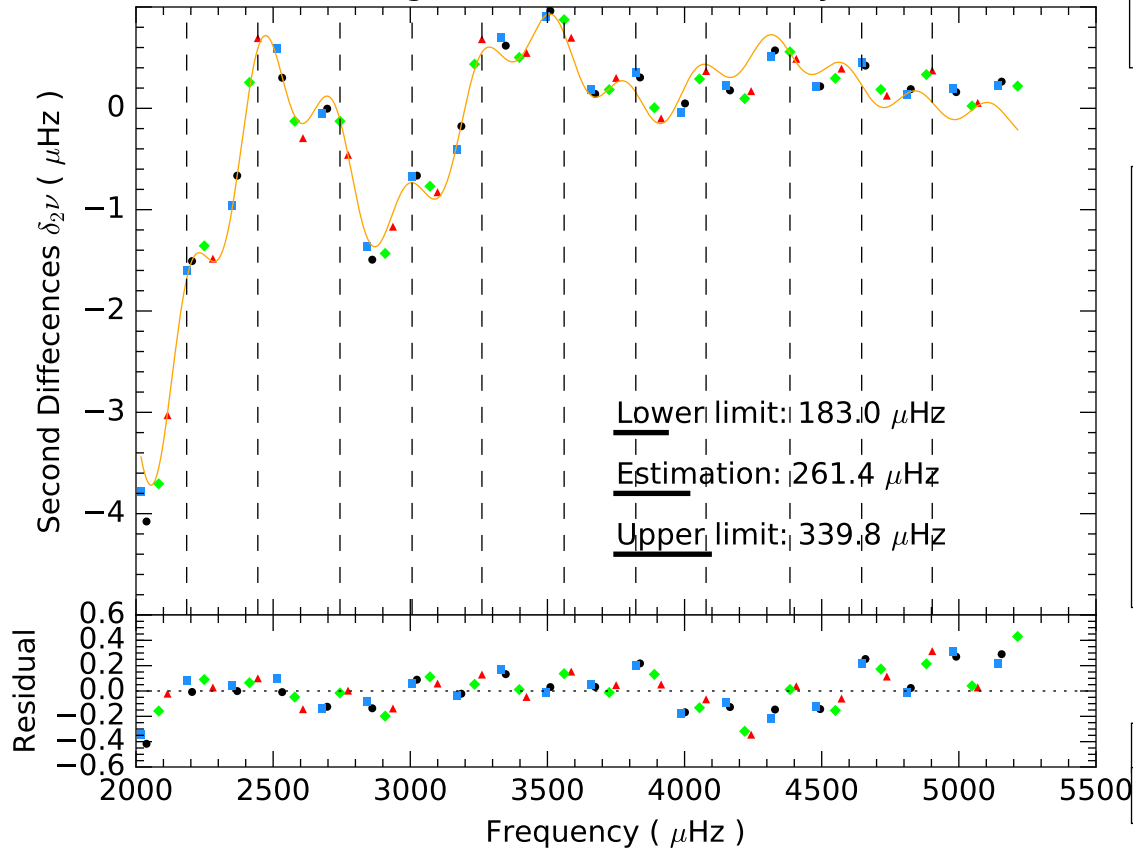


$a_0 = -7.6239 \mu\text{Hz}$   
 $a_1 = 0.0039134$   
 $a_2 = -4.7725e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0015559$   
 $c_2 = 1.877e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HeII}} = 544.58 \text{ s}$   
 $\phi_{\text{HeII}} = 3.2354$   
 $b_2 = 2.8192e+06 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 1887.9 \text{ s}$   
 $\phi_{\text{CZ}} = 6.141$

profile4

$\chi^2_{\nu}(\text{dof} = 69) = 0.029487$

Age after ZAMS: 0.004 Gyr



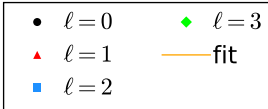
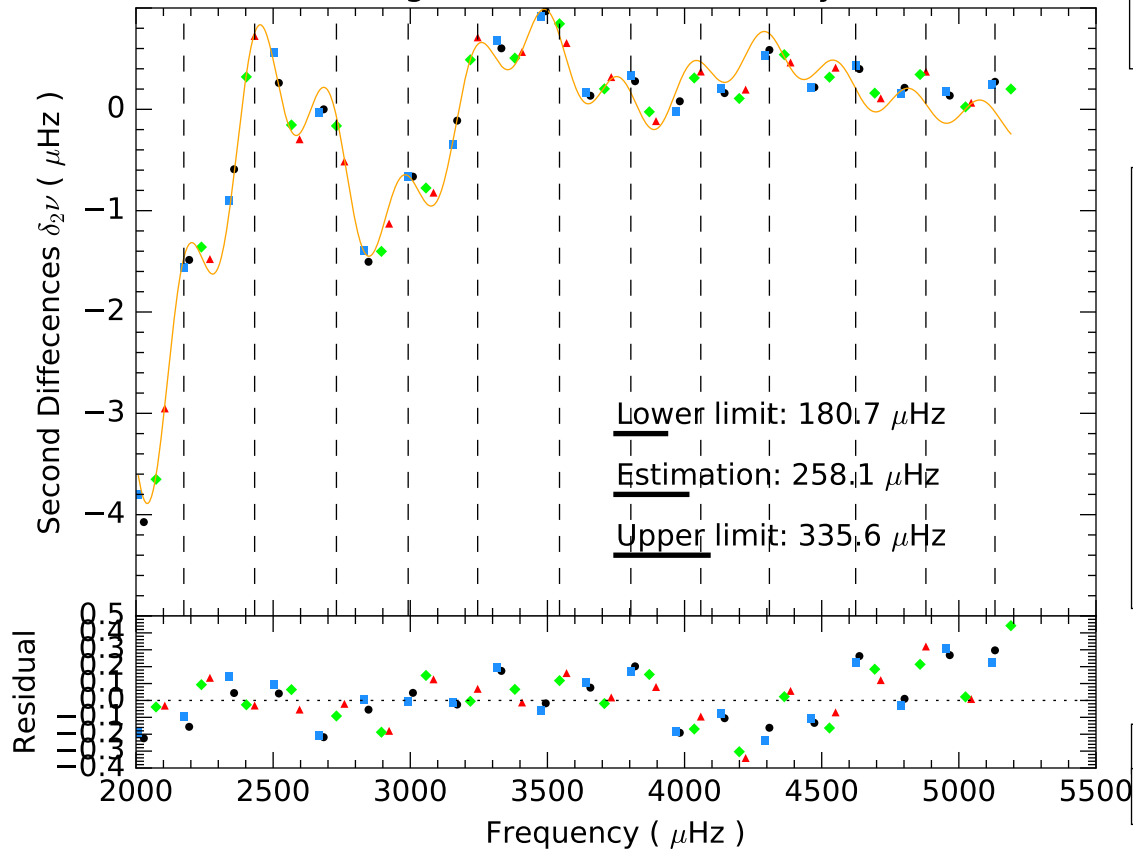
$\ell=0$      $\ell=3$   
 $\ell=1$     fit  
 $\ell=2$

$a_0 = -7.6519 \mu\text{Hz}$   
 $a_1 = 0.0039134$   
 $a_2 = -4.7562e-07 \mu\text{Hz}^{-1}$   
 $c_0 = 0.0015328$   
 $c_2 = 1.8627e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 542.09 \text{ s}$   
 $\phi_{HeII} = 3.2634$   
 $b_2 = 2.8583e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 1884.8 \text{ s}$   
 $\phi_{CZ} = 6.1335$

profile5

$\chi^2_{\nu}(\text{dof} = 69) = 0.028982$

Age after ZAMS: 0.007 Gyr

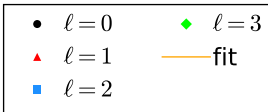
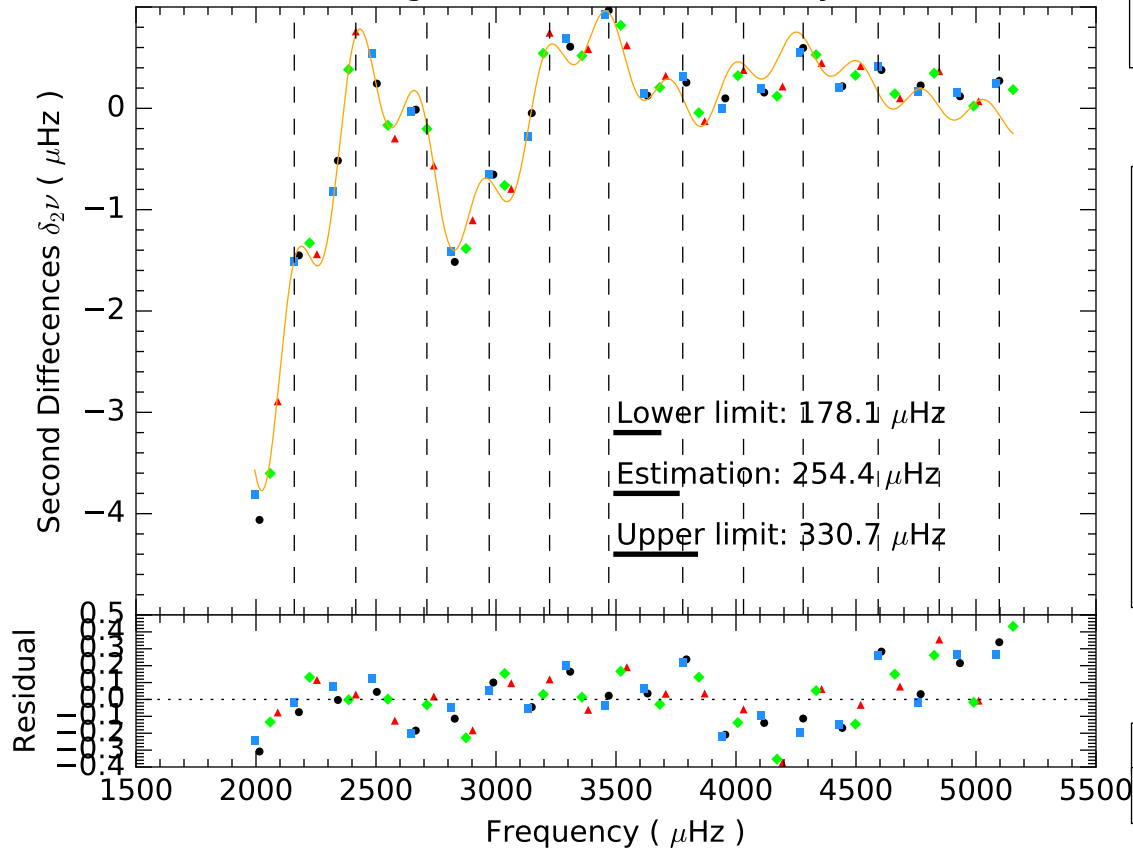


$$\begin{aligned}
 a_0 &= -7.5995 \mu\text{Hz} \\
 a_1 &= 0.0039095 \\
 a_2 &= -4.7782e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0015326 \\
 c_2 &= 1.8854e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 545.77 \text{ s} \\
 \phi_{HeII} &= 3.2551 \\
 b_2 &= 3.5919e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 1893.2 \text{ s} \\
 \phi_{CZ} &= 6.283
 \end{aligned}$$

profile6

$$\chi^2_{\nu}(\text{dof} = 69) = 0.02809$$

Age after ZAMS: 0.013 Gyr

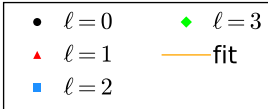
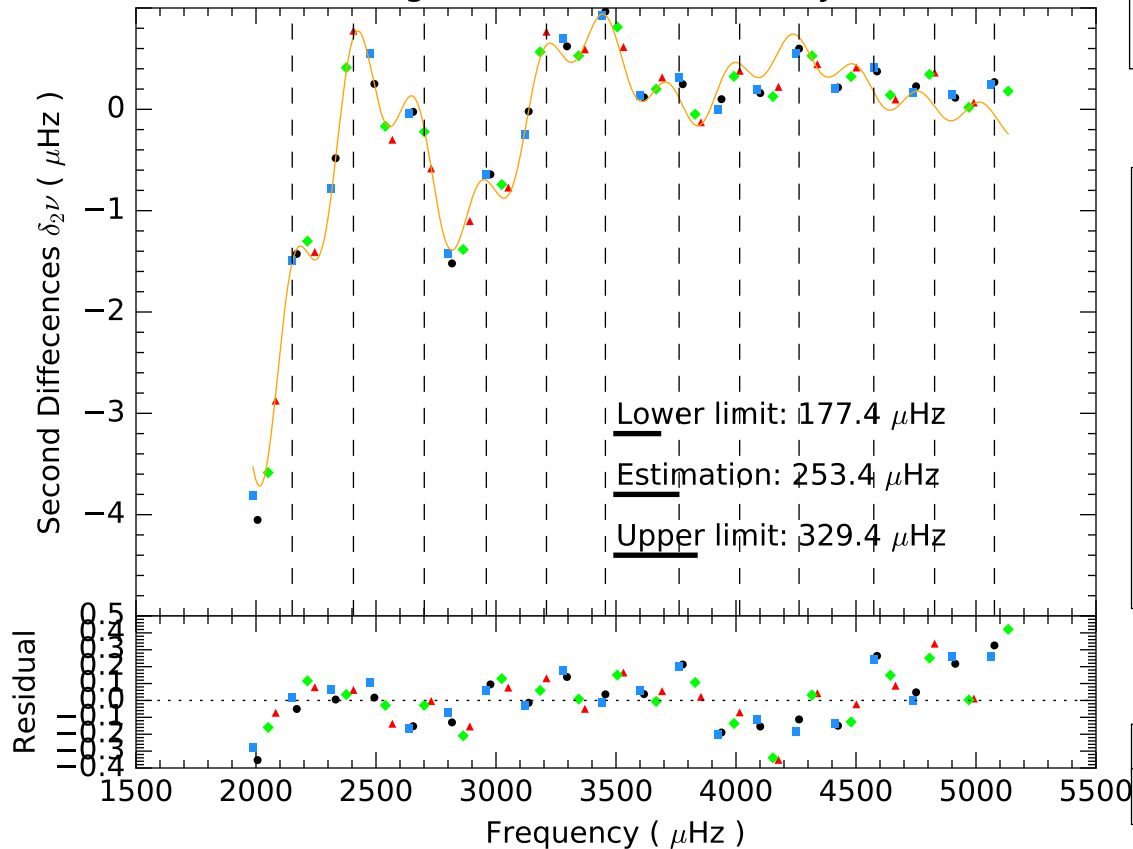


$a_0 = -7.5288 \mu\text{Hz}$   
 $a_1 = 0.0039078$   
 $a_2 = -4.8165e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0015325$   
 $c_2 = 1.9037e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 551.35 \text{ s}$   
 $\phi_{HeII} = 3.2297$   
 $b_2 = 3.1457e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 1912.4 \text{ s}$   
 $\phi_{CZ} = 6.1897$

profile7

$\chi^2_{\nu}(\text{dof} = 69) = 0.031326$

Age after ZAMS: 0.023 Gyr



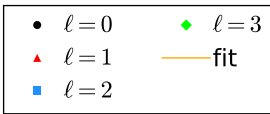
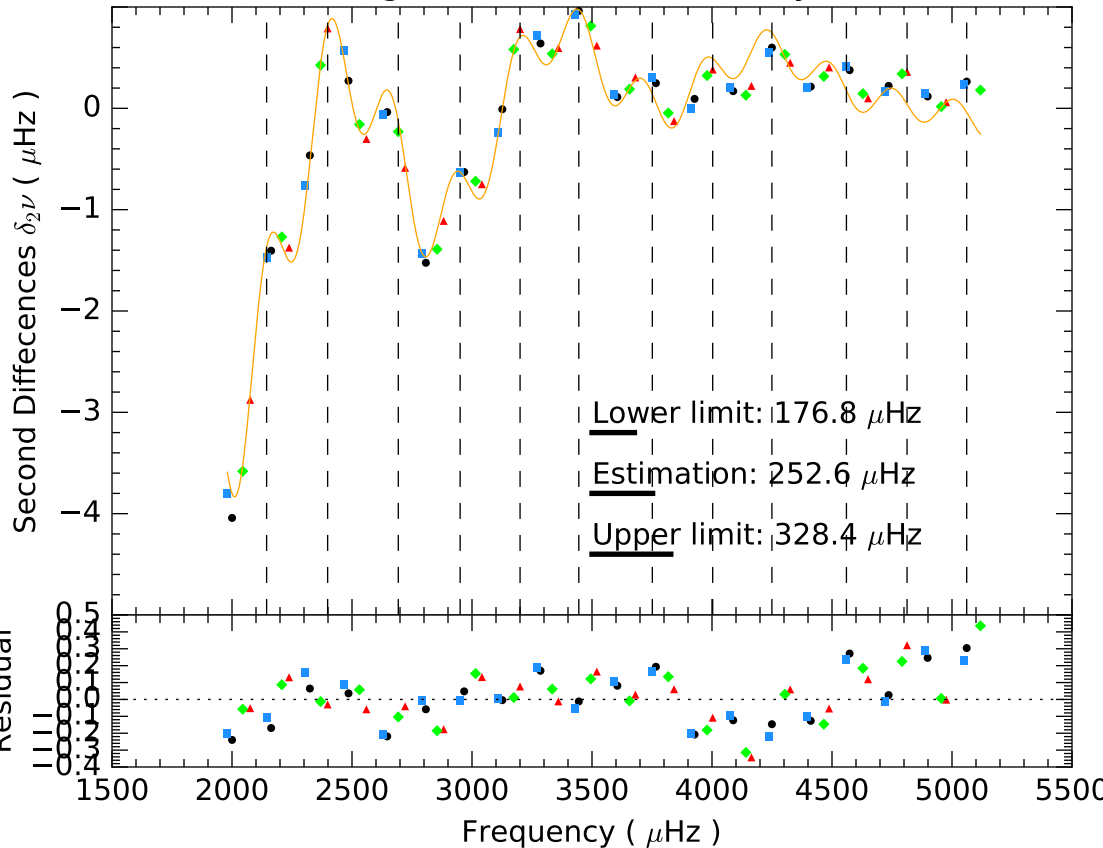
$$\begin{aligned}
 a_0 &= -7.5134 \mu\text{Hz} \\
 a_1 &= 0.0039222 \\
 a_2 &= -4.8611e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0015399 \\
 c_2 &= 1.9181e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 553.68 \text{ s} \\
 \phi_{HeII} &= 3.2454 \\
 b_2 &= 2.9308e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 1916.6 \text{ s} \\
 \phi_{CZ} &= 6.2652
 \end{aligned}$$

profile8

$$\chi^2_\nu(\text{dof} = 69) = 0.028826$$



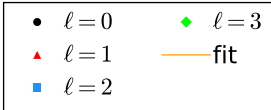
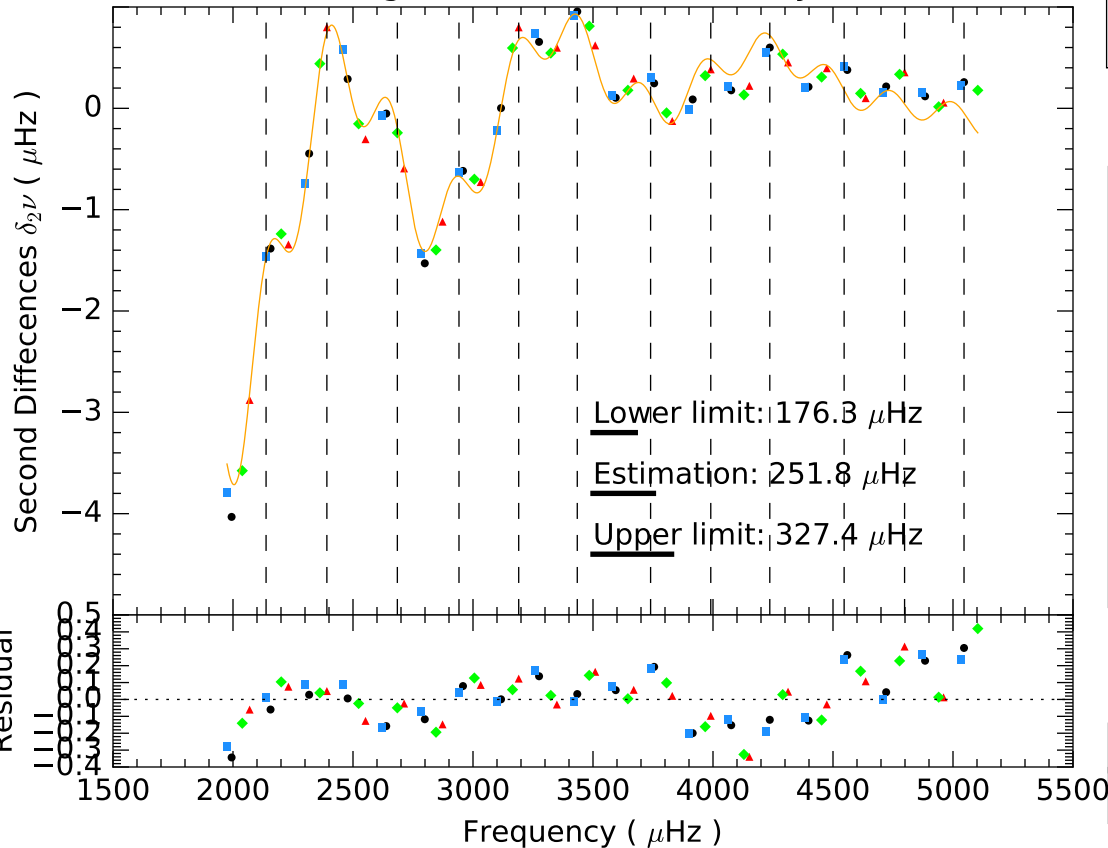
Age after ZAMS: 0.039 Gyr



$a_0 = -7.4779 \mu\text{Hz}$   
 $a_1 = 0.0039209$   
 $a_2 = -4.8794e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0015412$   
 $c_2 = 1.9249e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 555.89 \text{ s}$   
 $\phi_{HeII} = 3.2427$   
 $b_2 = 3.4593e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 1920.7 \text{ s}$   
 $\phi_{CZ} = 6.2831$

profile9  
 $\chi^2_{\nu}(\text{dof} = 69) = 0.028481$

Age after ZAMS: 0.068 Gyr



$$a_0 = -7.4604 \mu\text{Hz}$$

$$a_1 = 0.003928$$

$$a_2 = -4.9078e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015743$$

$$c_2 = 1.9534e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 558.53 \text{ s}$$

$$\phi_{\text{HeII}} = 3.2257$$

$$b_2 = 2.9257e+06 \text{ mHz}^3$$

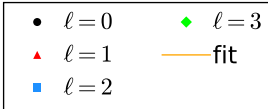
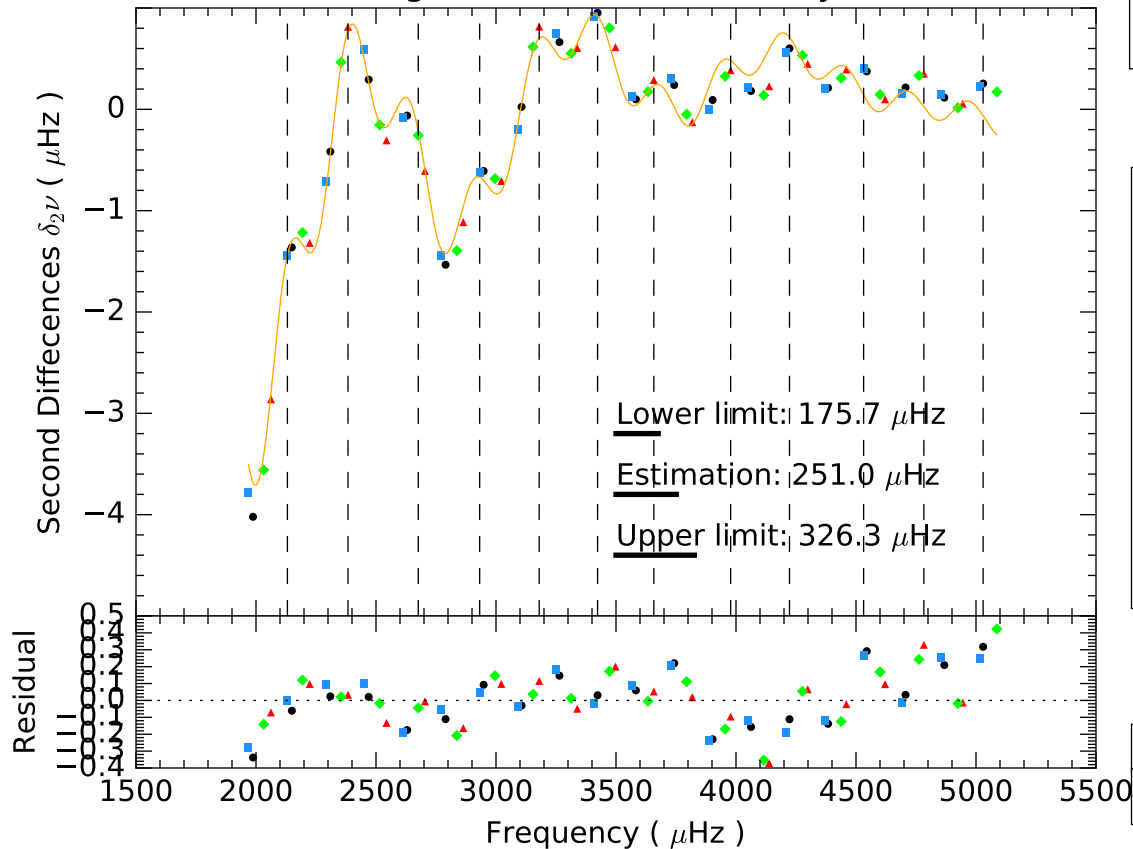
$$\tau_{\text{CZ}} = 1925.9 \text{ s}$$

$$\phi_{\text{CZ}} = 6.2832$$

profile10

$$\chi^2_{\nu}(\text{dof} = 69) = 0.027341$$

Age after ZAMS: 0.118 Gyr



$$a_0 = -7.3965 \mu\text{Hz}$$

$$a_1 = 0.0039106$$

$$a_2 = -4.9046e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015687$$

$$c_2 = 1.952e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 562.95 \text{ s}$$

$$\phi_{\text{HeII}} = 3.1589$$

$$b_2 = 2.9531e+06 \text{ mHz}^3$$

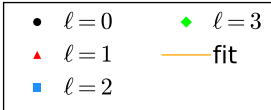
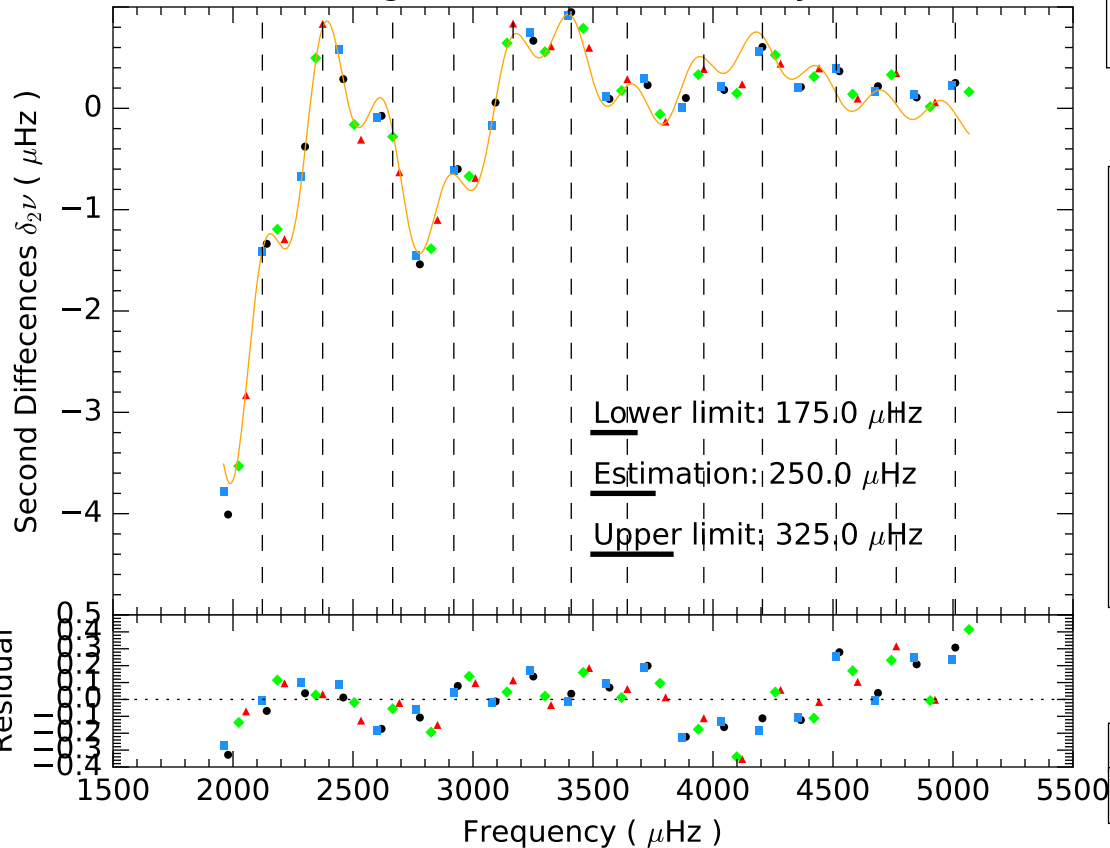
$$\tau_{\text{CZ}} = 1937.1 \text{ s}$$

$$\phi_{\text{CZ}} = 6.173$$

profile11

$$\chi^2_\nu(\text{dof} = 69) = 0.030532$$

Age after ZAMS: 0.205 Gyr

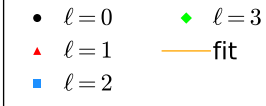
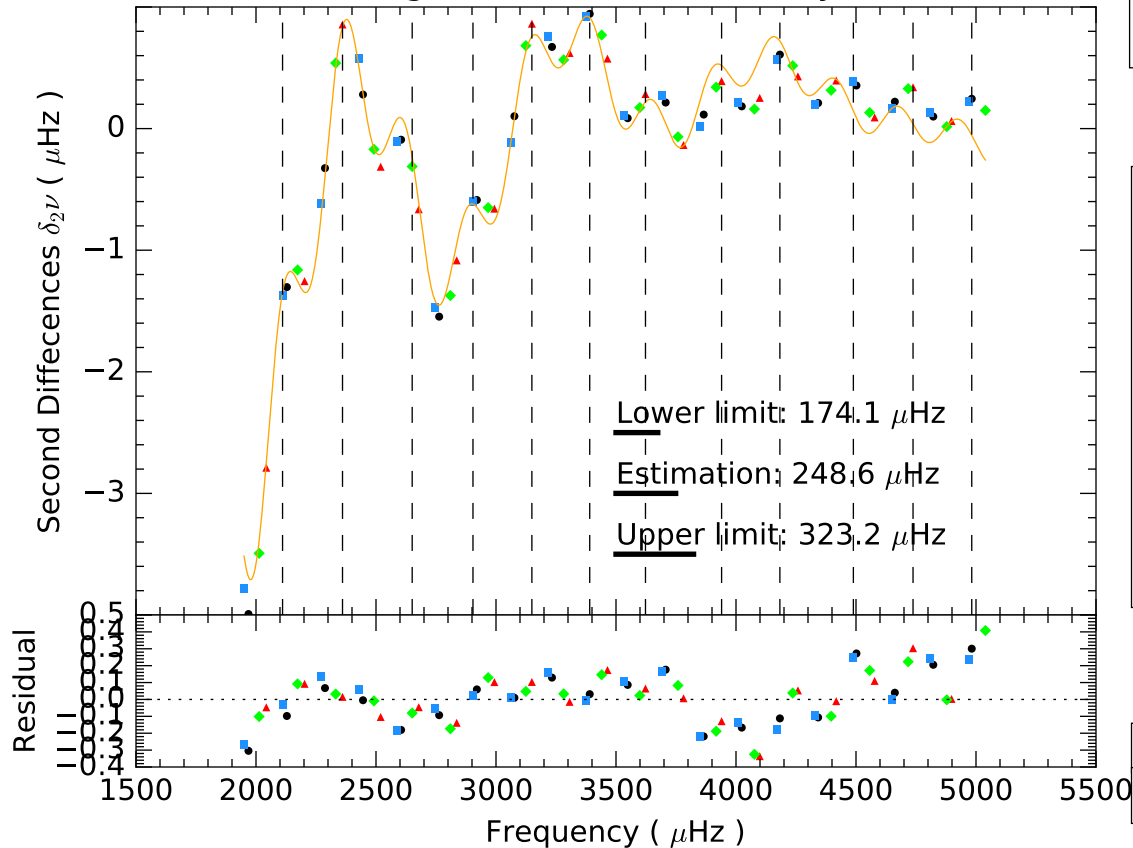


$$\begin{aligned}
 a_0 &= -7.3651 \mu\text{Hz} \\
 a_1 &= 0.003915 \\
 a_2 &= -4.9355e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0015784 \\
 c_2 &= 1.9715e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 565.82 \text{ s} \\
 \phi_{HeII} &= 3.1598 \\
 b_2 &= 2.9448e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 1942.1 \text{ s} \\
 \phi_{CZ} &= 6.2588
 \end{aligned}$$

profile12

$$\chi^2_\nu(\text{dof} = 69) = 0.028356$$

Age after ZAMS: 0.354 Gyr

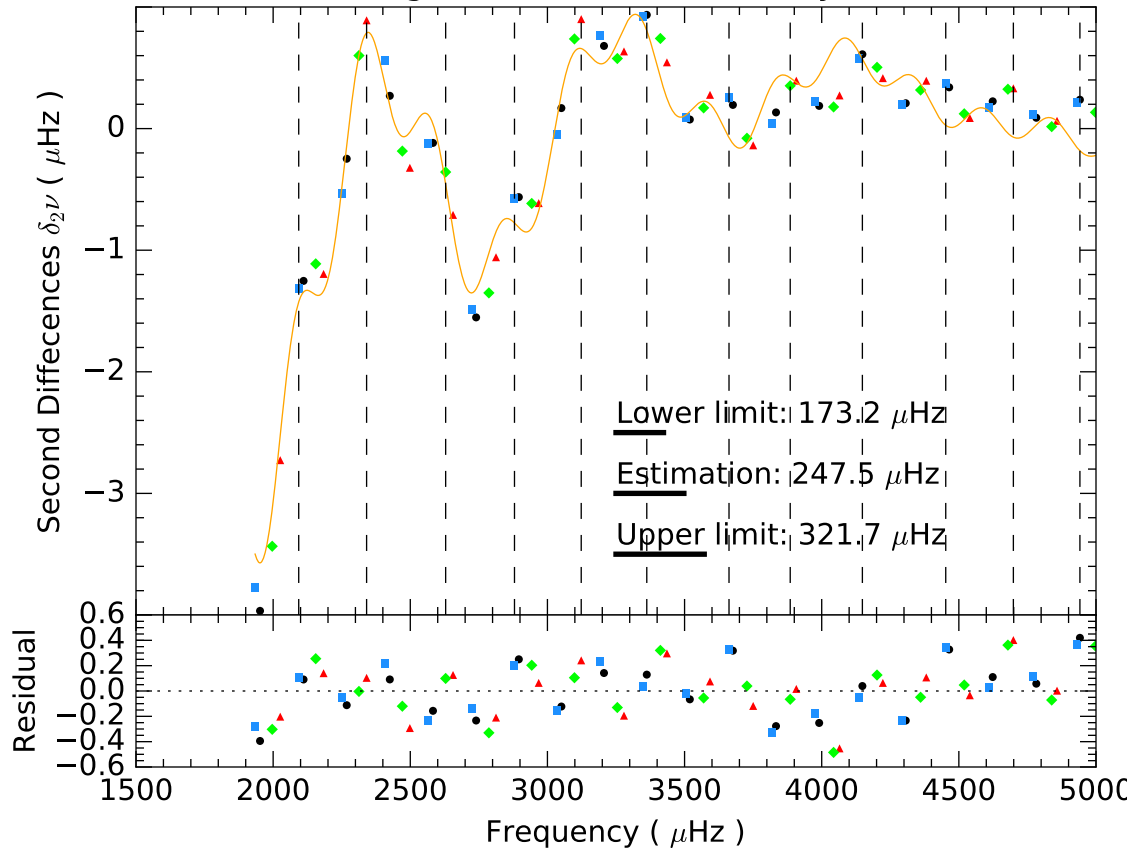


$$\begin{aligned}
 a_0 &= -7.325 \mu\text{Hz} \\
 a_1 &= 0.0039225 \\
 a_2 &= -4.98e-07 \mu\text{Hz}^{-1} \\
 c_0 &= 0.0015942 \\
 c_2 &= 1.9998e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HeII}} &= 569.83 \text{ s} \\
 \phi_{\text{HeII}} &= 3.1596 \\
 b_2 &= 3.0052e+06 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 1952.0 \text{ s} \\
 \phi_{\text{CZ}} &= 6.2721
 \end{aligned}$$

profile13

$$\chi^2_\nu(\text{dof} = 69) = 0.026547$$

Age after ZAMS: 0.610 Gyr



$$a_0 = -7.2592 \mu\text{Hz}$$

$$a_1 = 0.0039319$$

$$a_2 = -5.0465e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015947$$

$$c_2 = 2.0134e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 577.15 \text{ s}$$

$$\phi_{HeII} = 3.1195$$

$$b_2 = 2.4007e+06 \text{ mHz}^3$$

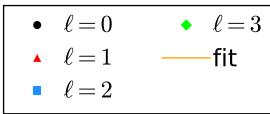
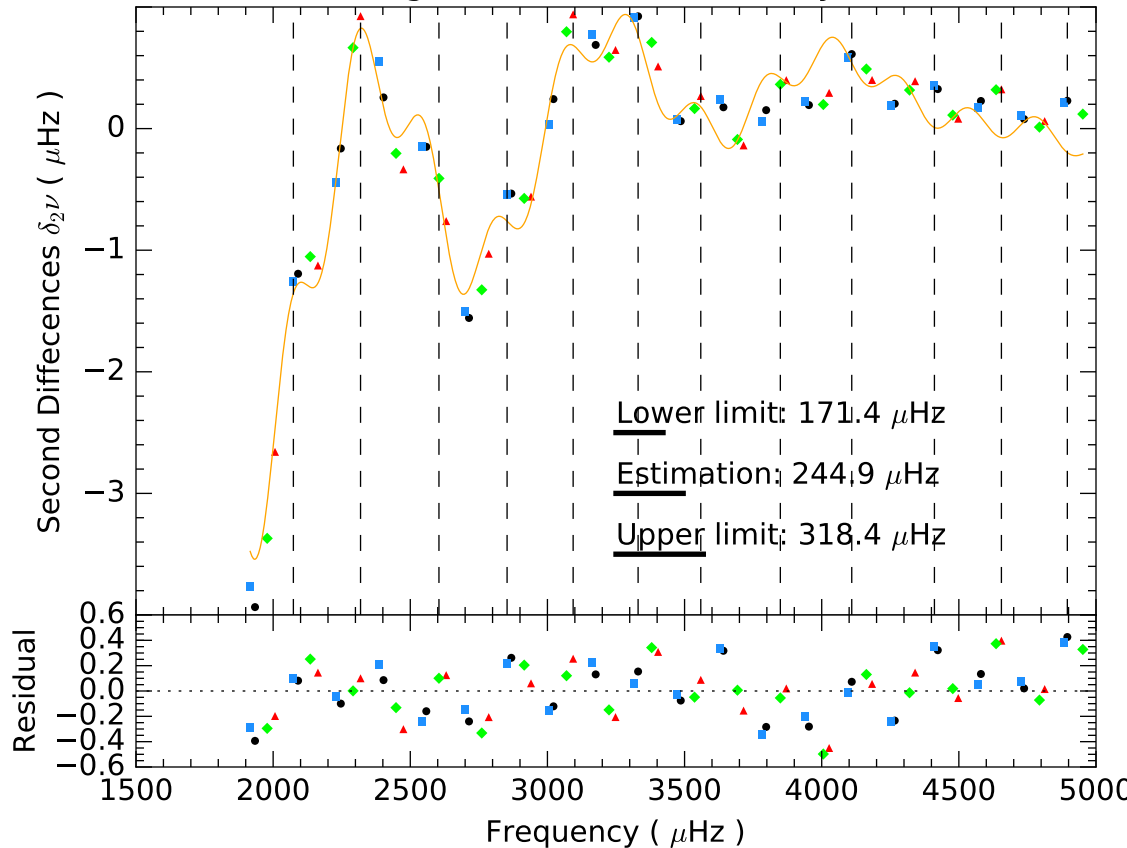
$$\tau_{CZ} = 1998.1 \text{ s}$$

$$\phi_{CZ} = 5.7789$$

profile14

$$\chi^2_\nu(\text{dof} = 69) = 0.053437$$

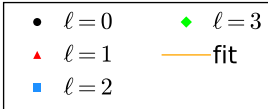
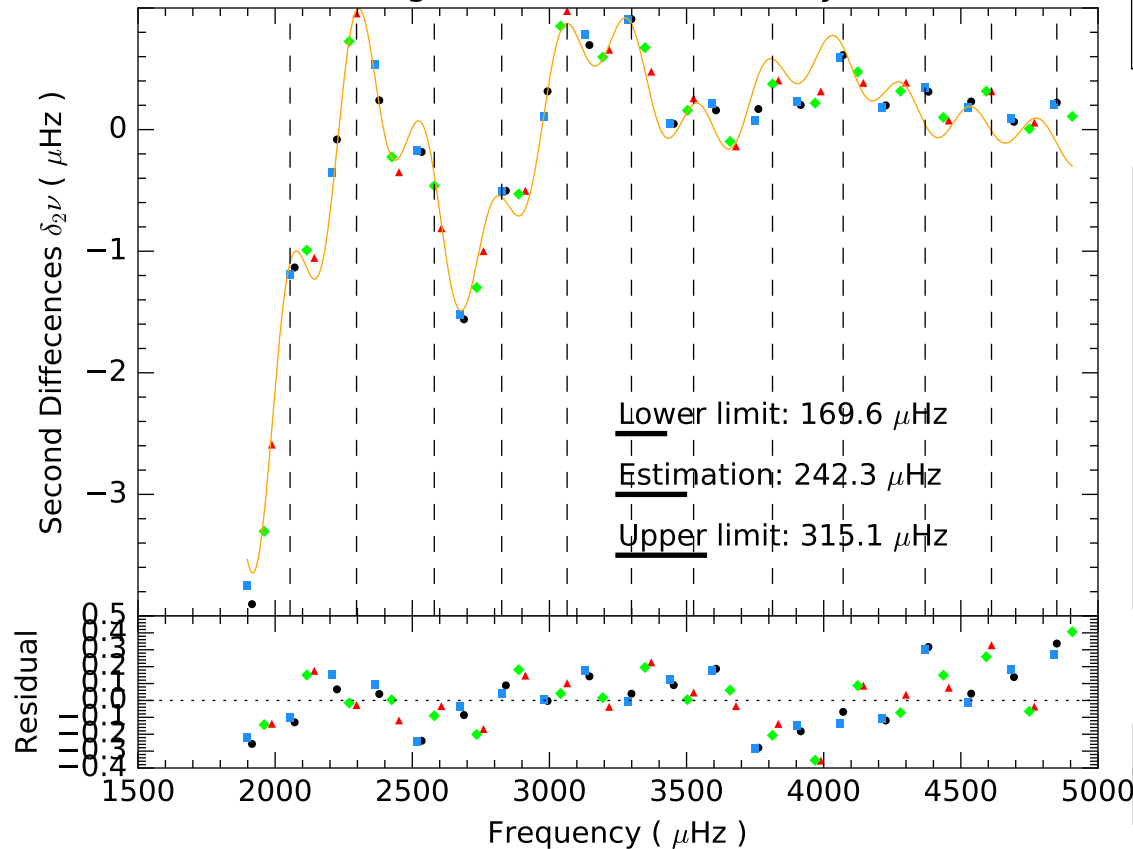
Age after ZAMS: 0.910 Gyr



$a_0 = -7.1693 \mu\text{Hz}$   
 $a_1 = 0.0039326$   
 $a_2 = -5.1082e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0016043$   
 $c_2 = 2.0465e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 584.95\text{ s}$   
 $\phi_{HeII} = 3.0927$   
 $b_2 = 2.3702e+06\text{ mHz}^3$   
 $\tau_{CZ} = 2023.2\text{ s}$   
 $\phi_{CZ} = 5.6379$

profile15  
 $\chi^2_{\nu}(\text{dof} = 69) = 0.055394$

Age after ZAMS: 1.210 Gyr



$$a_0 = -7.0571 \mu\text{Hz}$$

$$a_1 = 0.0039191$$

$$a_2 = -5.15e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0015864$$

$$c_2 = 2.0683e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 591.57 \text{ s}$$

$$\phi_{HeII} = 3.107$$

$$b_2 = 2.9911e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2011.8 \text{ s}$$

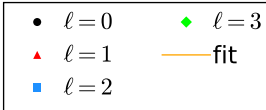
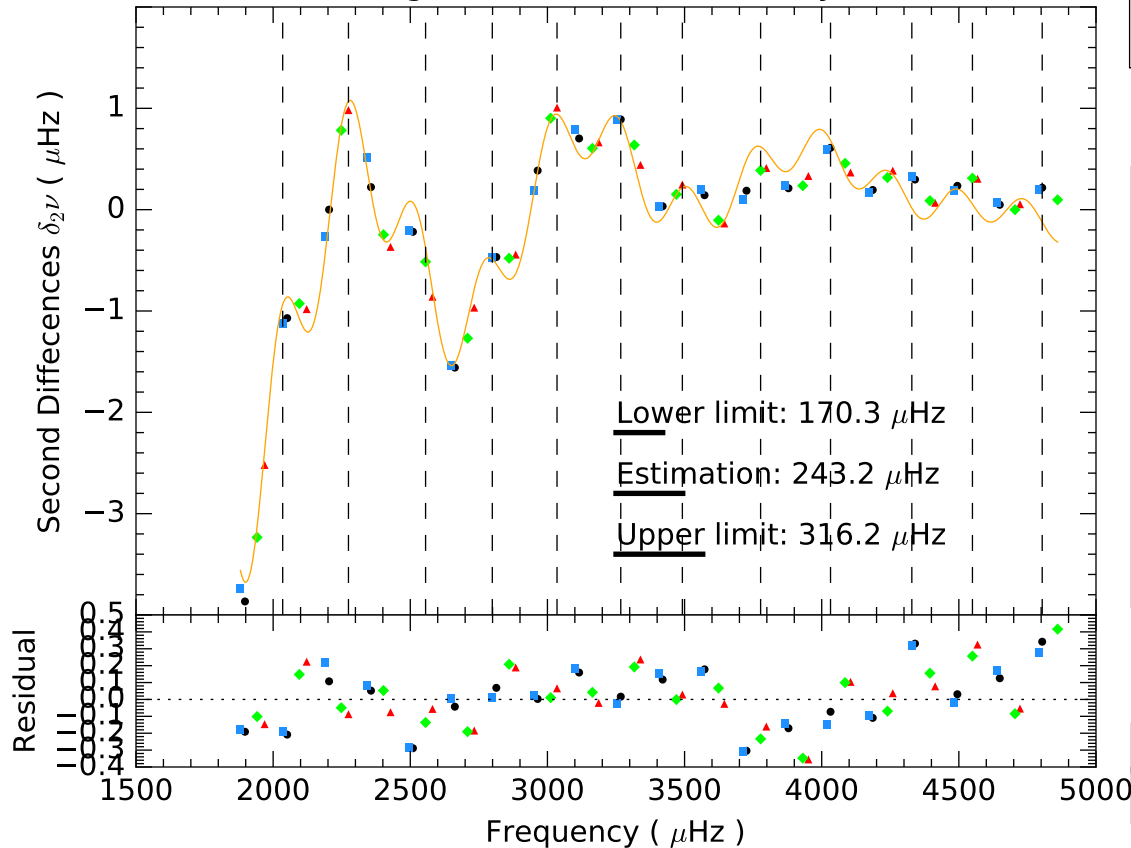
$$\phi_{CZ} = 6.2829$$

profile16

$$\chi^2_\nu(\text{dof} = 69) = 0.032167$$



Age after ZAMS: 1.510 Gyr



$$a_0 = -6.9538 \mu\text{Hz}$$

$$a_1 = 0.0039122$$

$$a_2 = -5.2042e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015702$$

$$c_2 = 2.0828e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 599.24 \text{ s}$$

$$\phi_{HeII} = 3.0947$$

$$b_2 = 3.2389e+06 \text{ mHz}^3$$

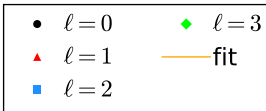
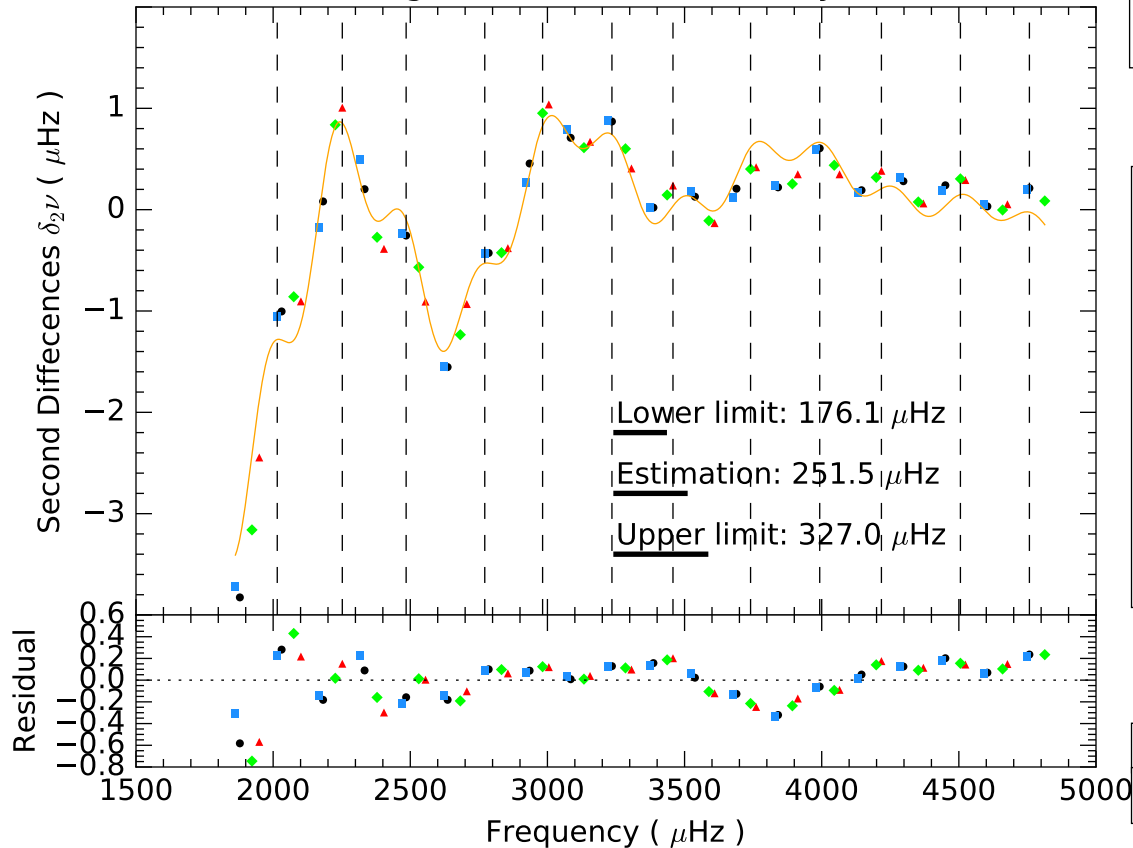
$$\tau_{CZ} = 2031.6 \text{ s}$$

$$\phi_{CZ} = 6.2828$$

profile17

$$\chi^2_{\nu}(\text{dof} = 69) = 0.034946$$

Age after ZAMS: 1.810 Gyr

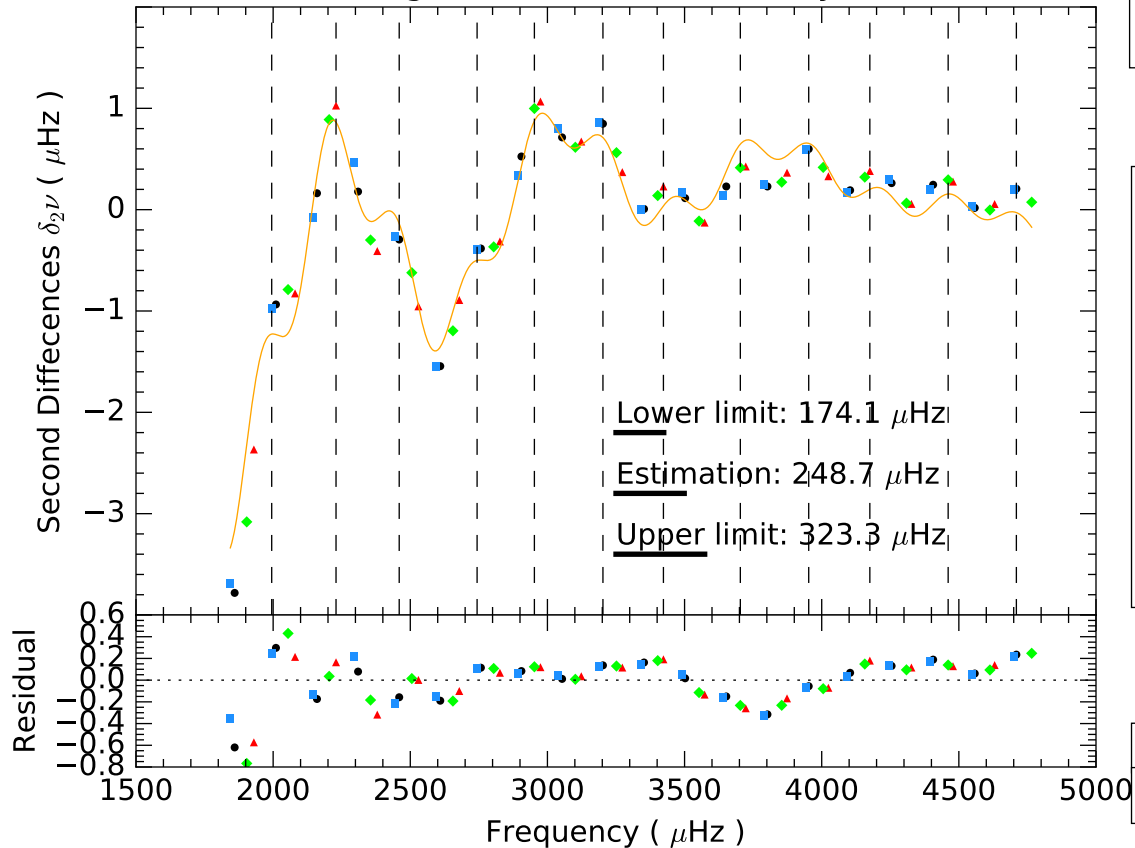


$$\begin{aligned}
 a_0 &= -6.8561 \mu\text{Hz} \\
 a_1 &= 0.0039104 \\
 a_2 &= -5.27e-07 \mu\text{Hz}^{-1} \\
 c_0 &= 0.0015406 \\
 c_2 &= 2.0866e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HeII}} &= 608.62 \text{ s} \\
 \phi_{\text{HeII}} &= 3.0426 \\
 b_2 &= 2.1942e+06 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 1971.1 \text{ s} \\
 \phi_{\text{CZ}} &= 2.7959
 \end{aligned}$$

profile18

$$\chi^2_\nu(\text{dof} = 69) = 0.047298$$

Age after ZAMS: 2.110 Gyr

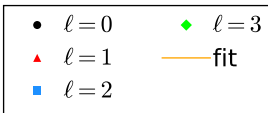
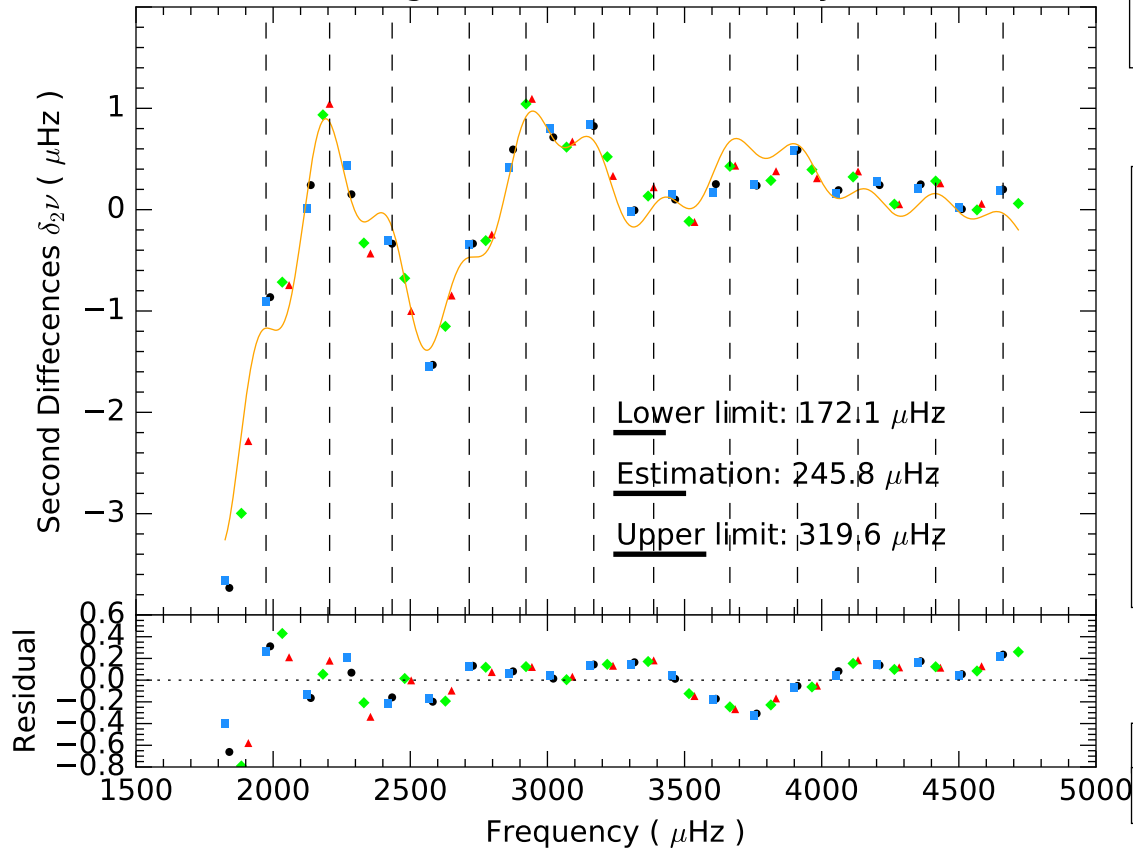


$\bullet$   $\ell=0$        $\blacklozenge$   $\ell=3$   
 $\blacktriangle$   $\ell=1$       — fit  
 $\blacksquare$   $\ell=2$

$a_0 = -6.7456 \mu\text{Hz}$   
 $a_1 = 0.0039004$   
 $a_2 = -5.3246e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0015316$   
 $c_2 = 2.1077e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 617.3 \text{ s}$   
 $\phi_{HeII} = 3.0181$   
 $b_2 = 2.1086e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 1993.6 \text{ s}$   
 $\phi_{CZ} = 2.7868$

profile19  
 $\chi^2_\nu(\text{dof} = 69) = 0.049853$

Age after ZAMS: 2.410 Gyr



$$a_0 = -6.6286 \mu\text{Hz}$$

$$a_1 = 0.0038872$$

$$a_2 = -5.3776e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015153$$

$$c_2 = 2.1243e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 625.91 \text{ s}$$

$$\phi_{HeII} = 3.006$$

$$b_2 = 2.024e+06 \text{ mHz}^3$$

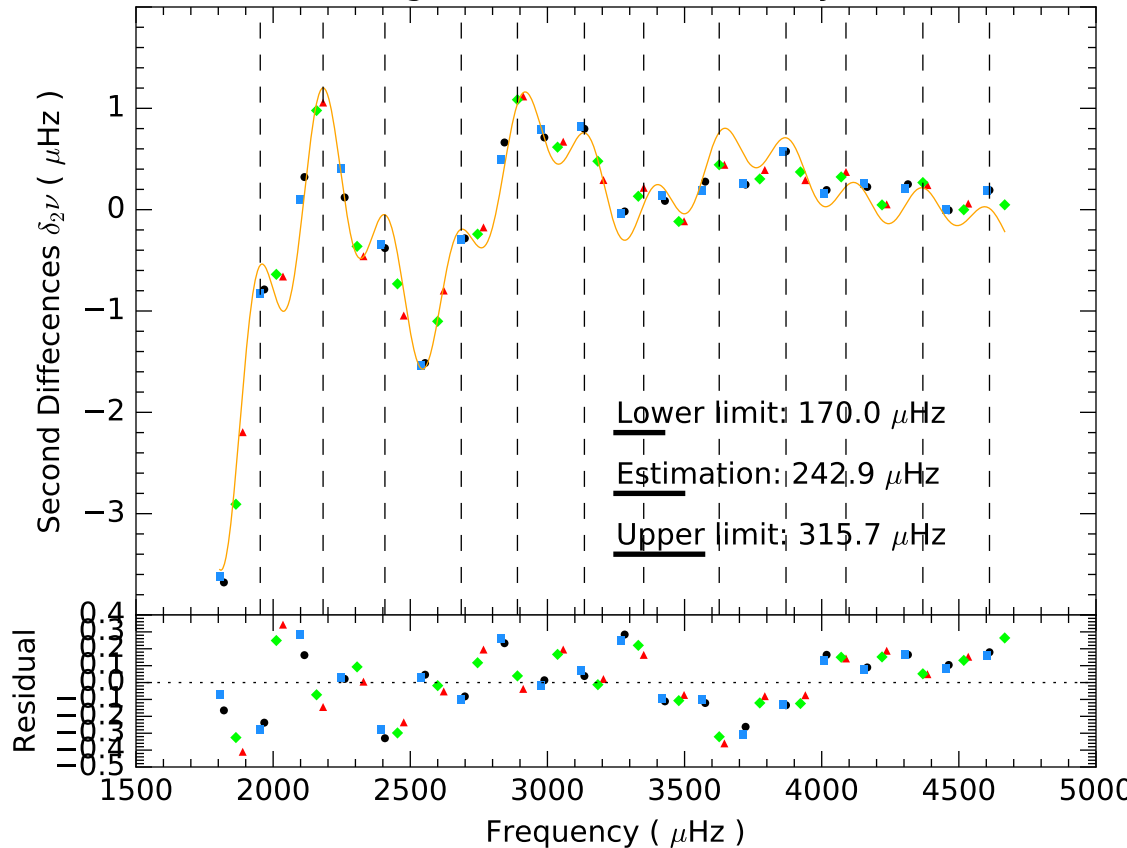
$$\tau_{CZ} = 2017.3 \text{ s}$$

$$\phi_{CZ} = 2.7747$$

profile20

$$\chi^2_{\nu}(\text{dof} = 69) = 0.052895$$

# Age after ZAMS: 2.710 Gyr



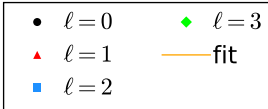
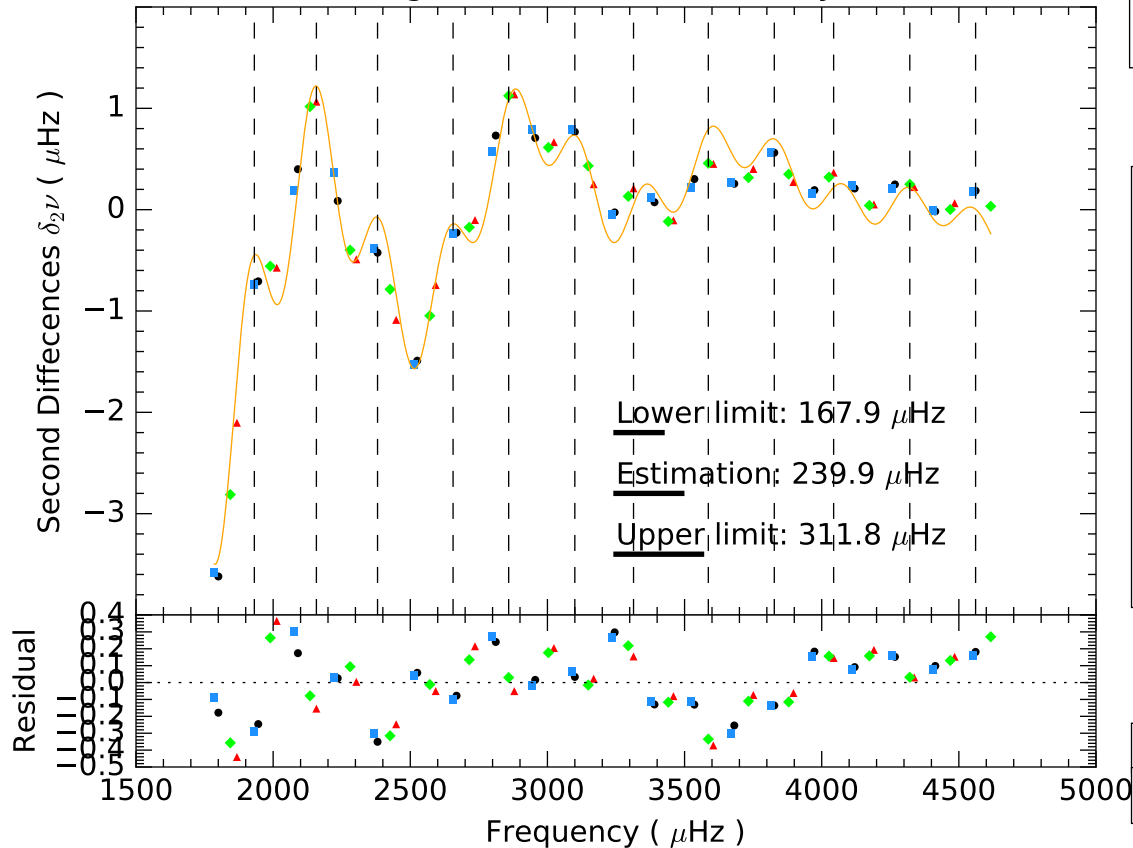
- $\bullet$   $\ell=0$
- $\blacktriangle$   $\ell=1$
- $\blacksquare$   $\ell=2$
- $\blacklozenge$   $\ell=3$
- fit

$a_0 = -6.5242 \mu\text{Hz}$   
 $a_1 = 0.0038832$   
 $a_2 = -5.4474e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.001506$   
 $c_2 = 2.1638e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 630.53 \text{ s}$   
 $\phi_{HeII} = 3.1281$   
 $b_2 = 3.2078e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 2060.1 \text{ s}$   
 $\phi_{CZ} = 1.6399$

profile21

$\chi^2_{\nu}(\text{dof} = 69) = 0.036682$

# Age after ZAMS: 3.010 Gyr



$$a_0 = -6.4051 \mu\text{Hz}$$

$$a_1 = 0.0038711$$

$$a_2 = -5.509e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0014839$$

$$c_2 = 2.1802e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 638.92 \text{ s}$$

$$\phi_{HeII} = 3.1475$$

$$b_2 = 3.1618e+06 \text{ mHz}^3$$

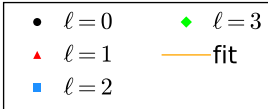
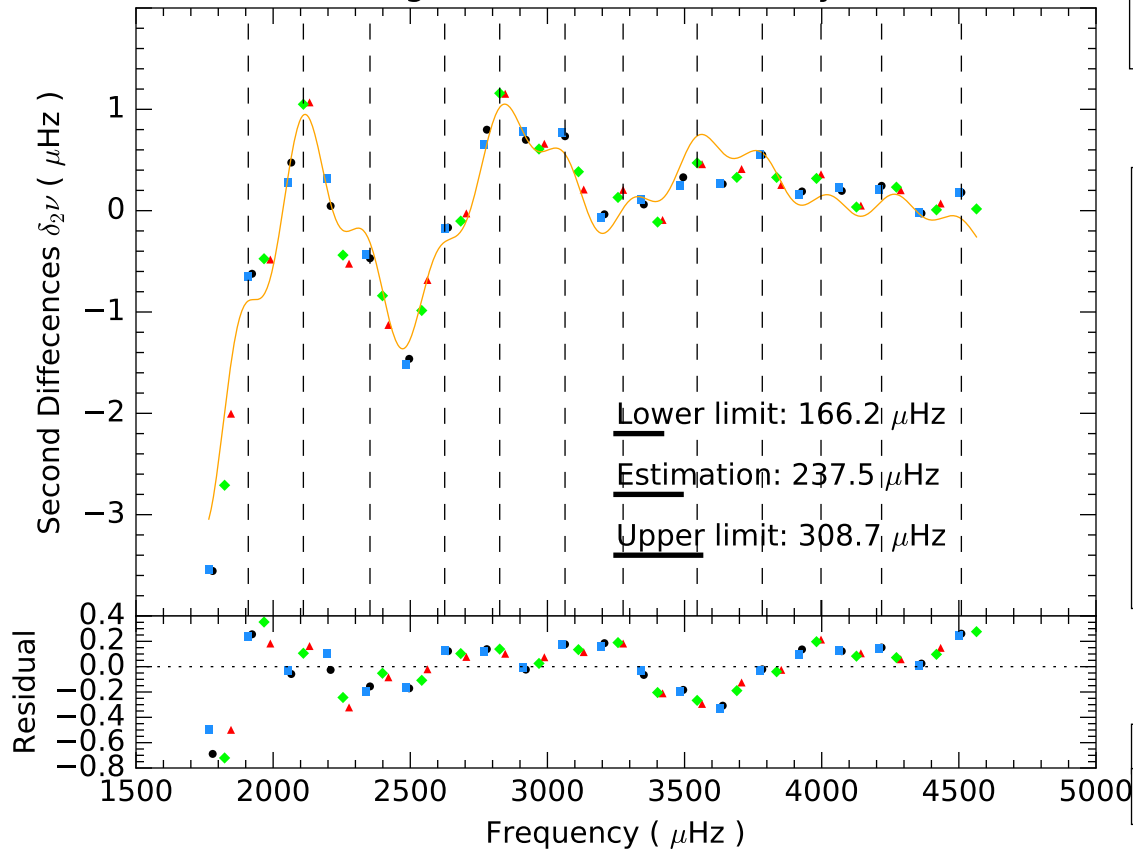
$$\tau_{CZ} = 2083.5 \text{ s}$$

$$\phi_{CZ} = 1.6659$$

profile22

$$\chi^2_\nu(\text{dof} = 69) = 0.03988$$

Age after ZAMS: 3.310 Gyr

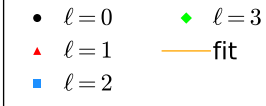
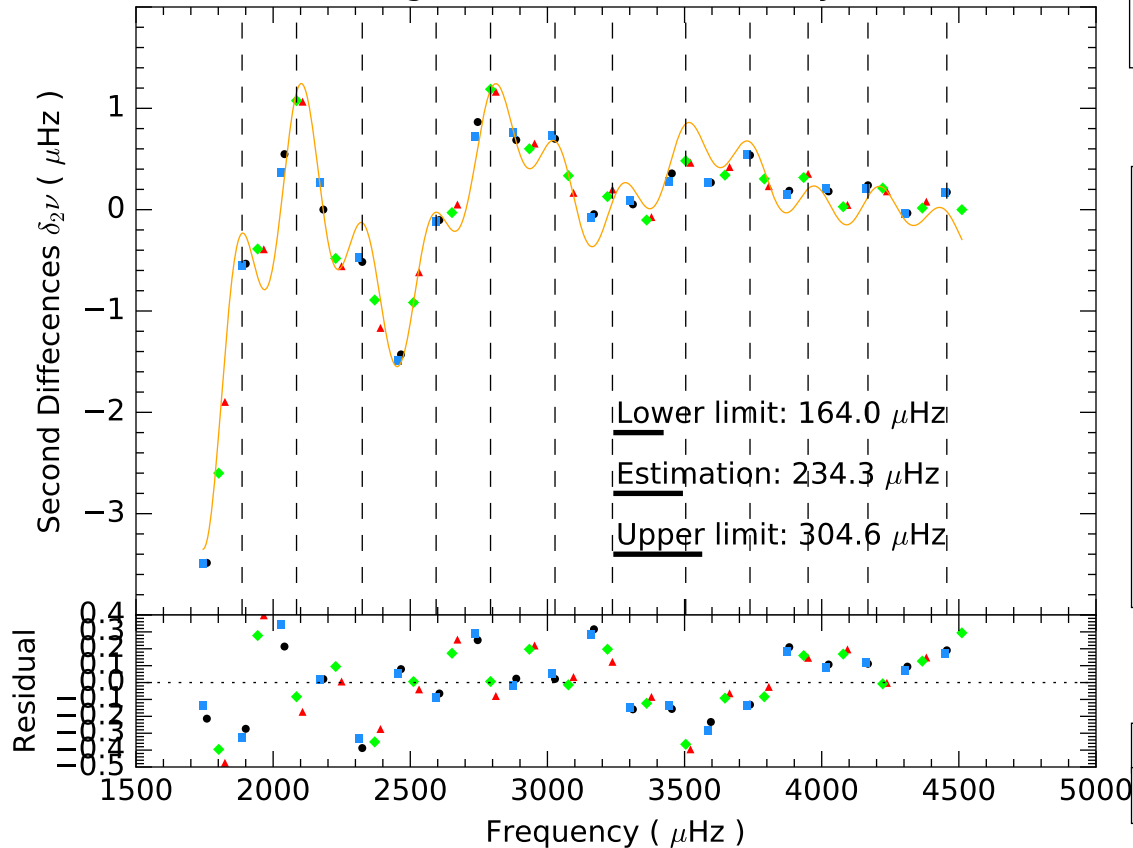


$$\begin{aligned}
 a_0 &= -6.2994 \mu\text{Hz} \\
 a_1 &= 0.0038683 \\
 a_2 &= -5.589e-07 \mu\text{Hz}^{-1} \\
 c_0 &= 0.0015076 \\
 c_2 &= 2.217e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 652.91 \text{ s} \\
 \phi_{HeII} &= 3.0133 \\
 b_2 &= 1.7347e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2089.5 \text{ s} \\
 \phi_{CZ} &= 2.6478
 \end{aligned}$$

profile23

$$\chi^2_\nu(\text{dof} = 69) = 0.050641$$

Age after ZAMS: 3.610 Gyr



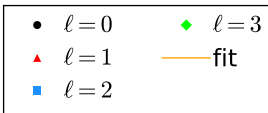
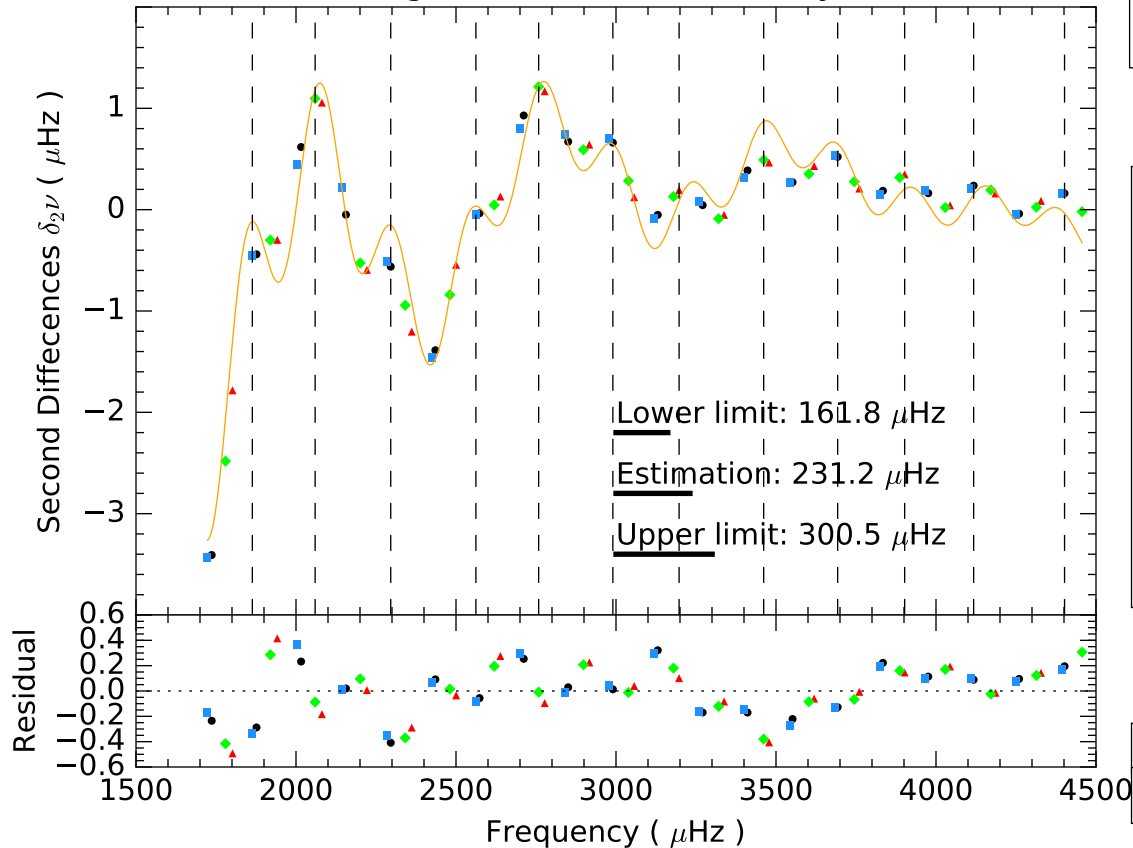
$$\begin{aligned} a_0 &= -6.1502 \mu\text{Hz} \\ a_1 &= 0.0038394 \\ a_2 &= -5.6322e-07 \mu\text{Hz}^{-2} \\ c_0 &= 0.0014326 \\ c_2 &= 2.2107e-07 \mu\text{Hz}^{-2} \\ \tau_{HeII} &= 656.28 \text{ s} \\ \phi_{HeII} &= 3.2111 \\ b_2 &= 3.0482e+06 \text{ mHz}^3 \\ \tau_{CZ} &= 2136.7 \text{ s} \\ \phi_{CZ} &= 1.6146 \end{aligned}$$

profile24

$$\chi^2_\nu(\text{dof} = 69) = 0.045925$$



# Age after ZAMS: 3.910 Gyr

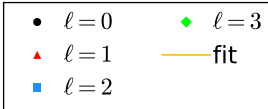
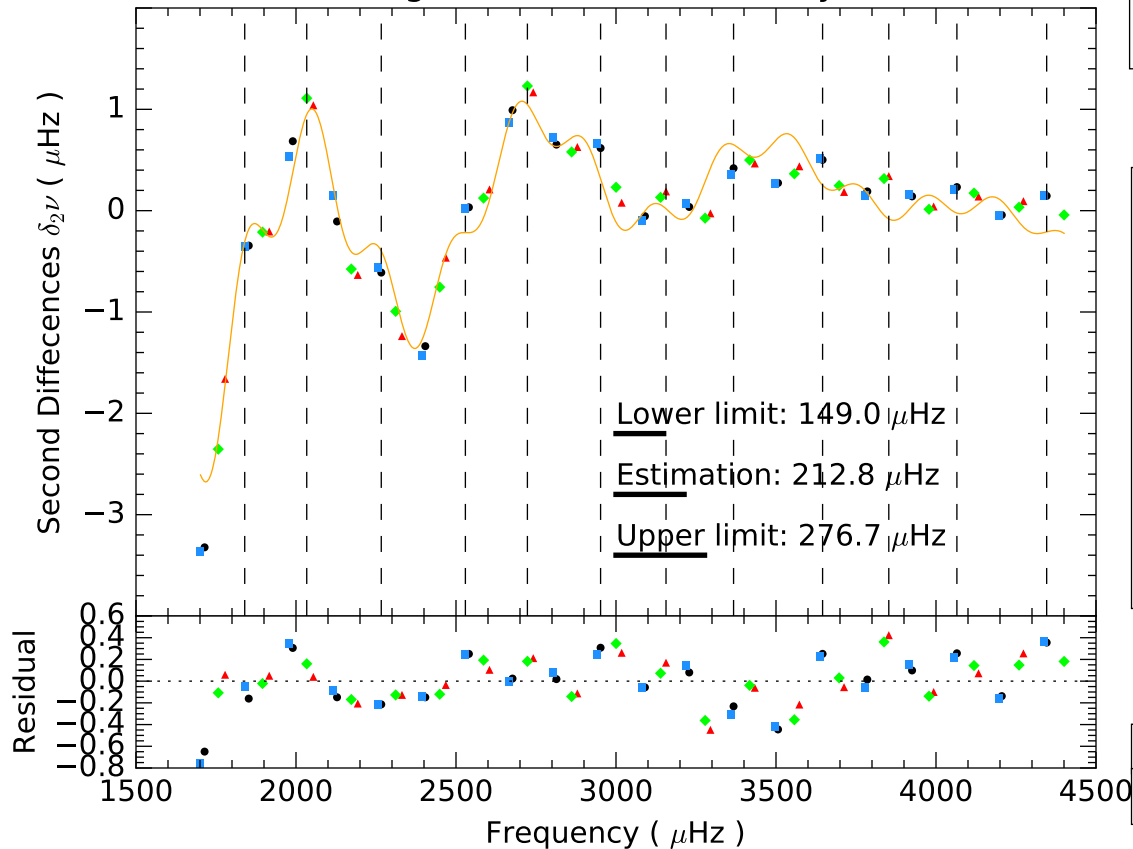


$$\begin{aligned}
 a_0 &= -6.0131 \mu\text{Hz} \\
 a_1 &= 0.0038189 \\
 a_2 &= -5.6929e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0014027 \\
 c_2 &= 2.2243e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 665.11 \text{ s} \\
 \phi_{HeII} &= 3.261 \\
 b_2 &= 2.9873e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2165.8 \text{ s} \\
 \phi_{CZ} &= 1.5756
 \end{aligned}$$

profile25

$$\chi^2_\nu(\text{dof} = 69) = 0.049269$$

Age after ZAMS: 4.210 Gyr

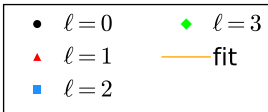
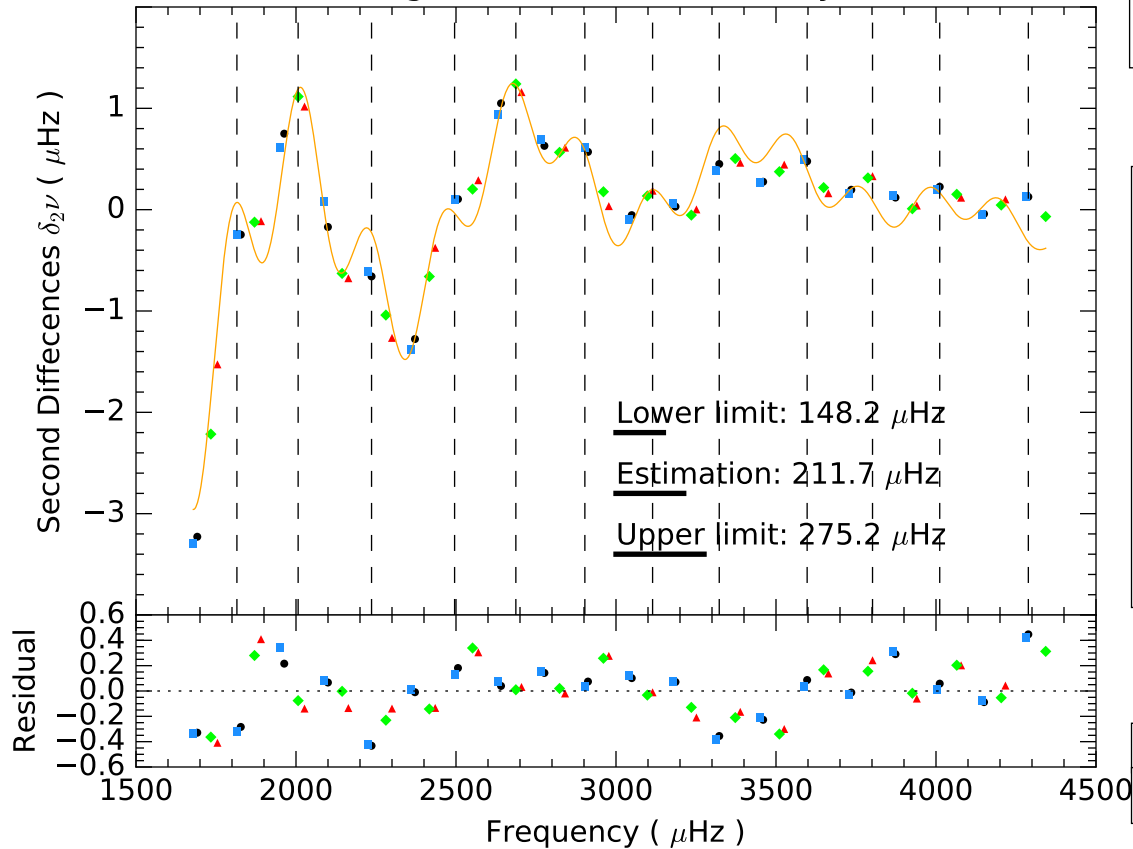


$$\begin{aligned}
 a_0 &= -5.9494 \mu\text{Hz} \\
 a_1 &= 0.0038467 \\
 a_2 &= -5.8343e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0014672 \\
 c_2 &= 2.3082e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 680.73 \text{ s} \\
 \phi_{HeII} &= 3.1308 \\
 b_2 &= 1.7611e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2345.8 \text{ s} \\
 \phi_{CZ} &= 3.8412
 \end{aligned}$$

profile26

$$\chi^2_\nu(\text{dof} = 69) = 0.06322$$

Age after ZAMS: 4.510 Gyr



$$a_0 = -5.7329 \mu\text{Hz}$$

$$a_1 = 0.0037761$$

$$a_2 = -5.8238e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013495$$

$$c_2 = 2.2589e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 684.03 \text{ s}$$

$$\phi_{HeII} = 3.3738$$

$$b_2 = 2.6435e+06 \text{ mHz}^3$$

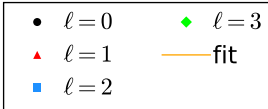
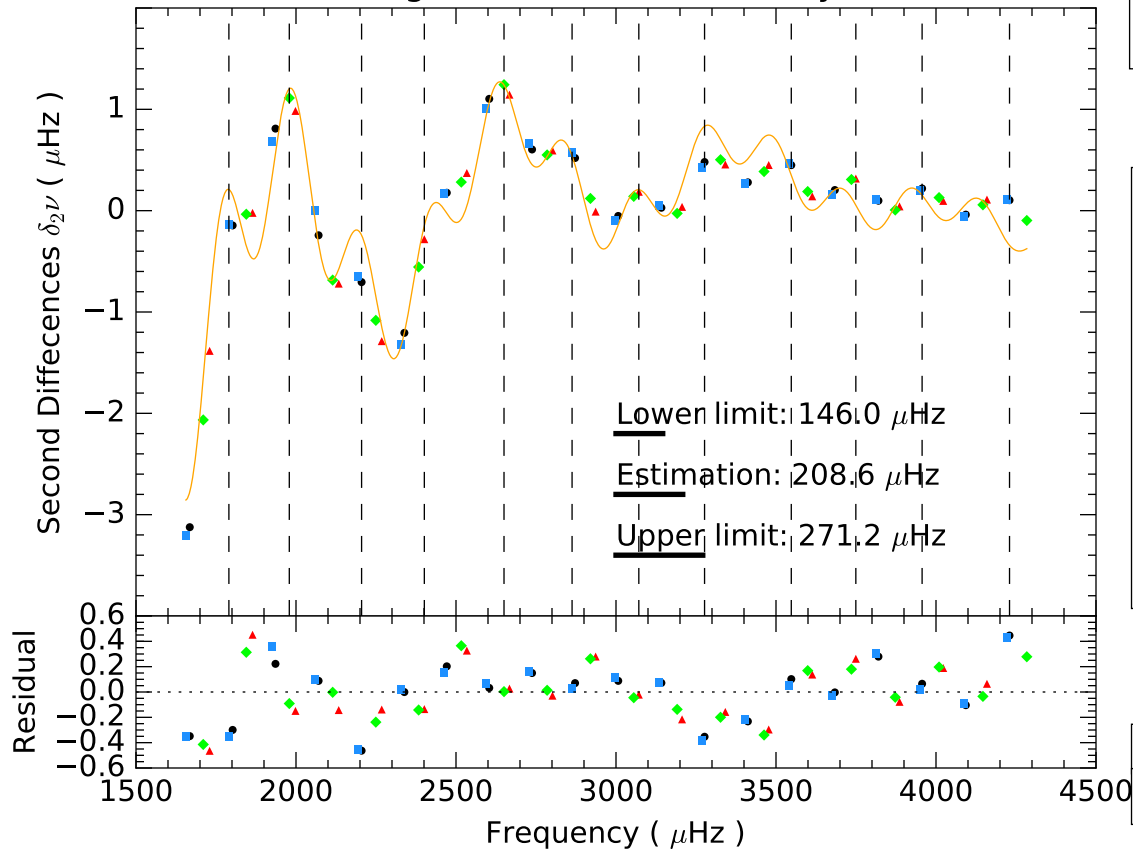
$$\tau_{CZ} = 2292.4 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

profile27

$$\chi^2_\nu(\text{dof} = 69) = 0.054448$$

Age after ZAMS: 4.810 Gyr

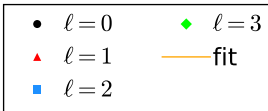
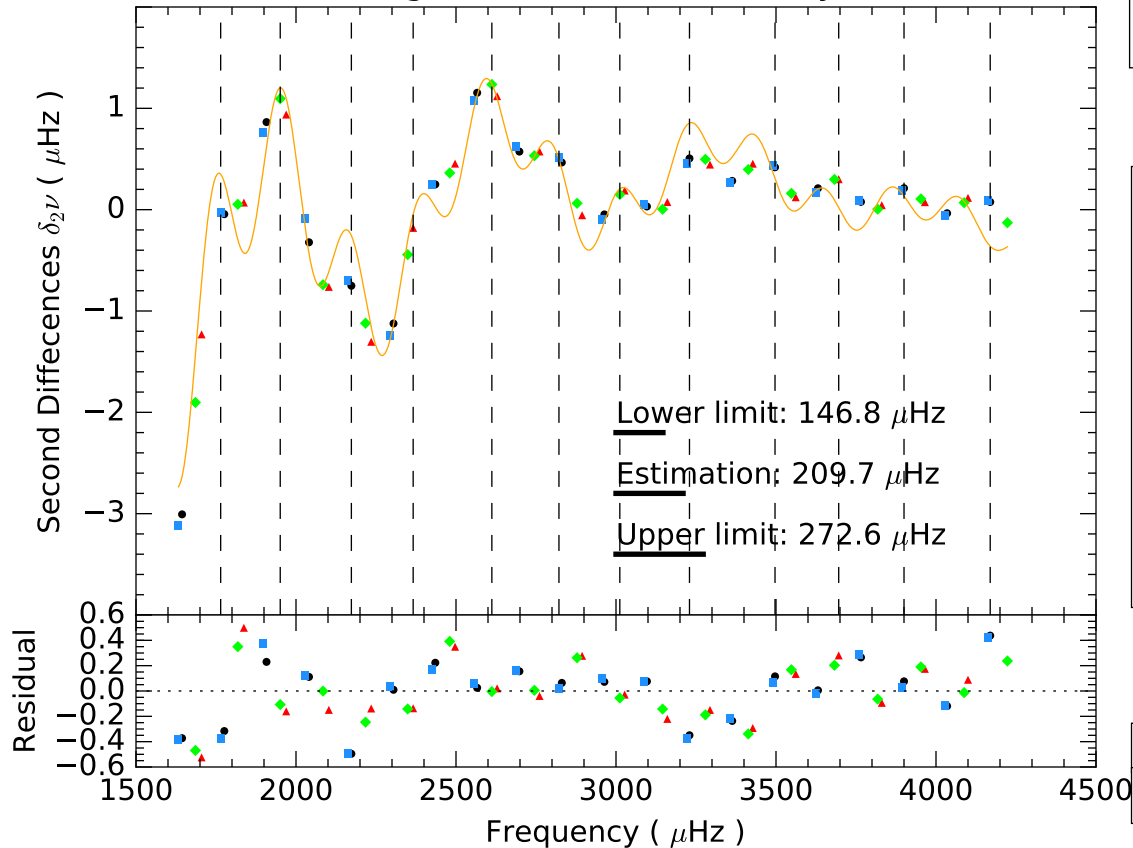


$$\begin{aligned} a_0 &= -5.5734 \mu\text{Hz} \\ a_1 &= 0.0037436 \\ a_2 &= -5.8794e-07 \mu\text{Hz}^{-2} \\ c_0 &= 0.001306 \\ c_2 &= 2.2678e-07 \mu\text{Hz}^{-2} \\ \tau_{HeII} &= 692.18 \text{ s} \\ \phi_{HeII} &= 3.4979 \\ b_2 &= 2.6376e+06 \text{ mHz}^3 \\ \tau_{CZ} &= 2326.9 \text{ s} \\ \phi_{CZ} &= 6.2832 \end{aligned}$$

profile28

$$\chi^2_\nu(\text{dof} = 69) = 0.059186$$

Age after ZAMS: 5.110 Gyr



$$a_0 = -5.4048 \mu\text{Hz}$$

$$a_1 = 0.0037056$$

$$a_2 = -5.9309e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.001262$$

$$c_2 = 2.279e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 699.91 \text{ s}$$

$$\phi_{HeII} = 3.6542$$

$$b_2 = 2.6321e+06 \text{ mHz}^3$$

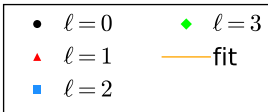
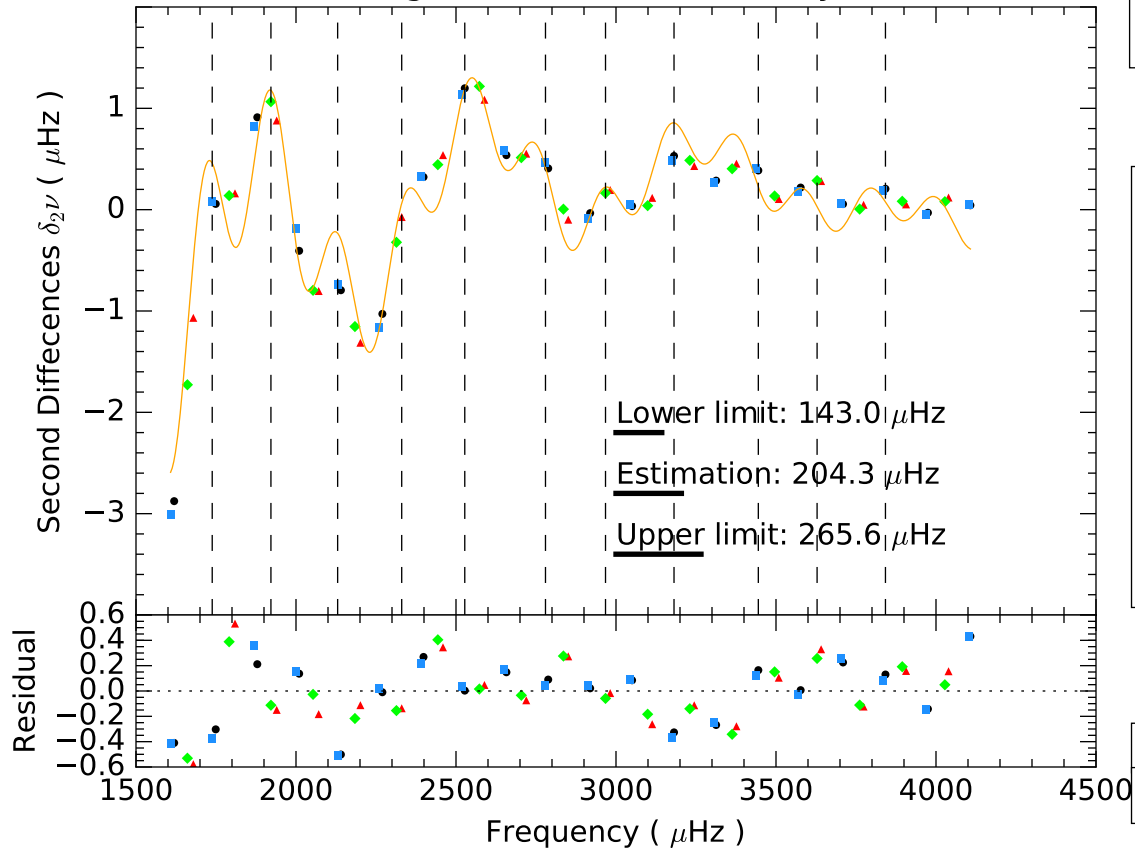
$$\tau_{CZ} = 2363.2 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

profile29

$$\chi^2_\nu(\text{dof} = 69) = 0.064585$$

Age after ZAMS: 5.410 Gyr



$$a_0 = -5.2768 \mu \text{ Hz}$$

$$a_1 = 0.0036989$$

$$a_2 = -6.045e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0012507$$

$$c_2 = 2.3343e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 708.09 \text{ s}$$

$$\phi_{HeII} = 3.8214$$

$$b_2 = 2.552e+06 \text{ mHz}^3$$

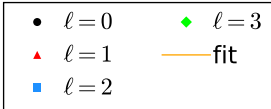
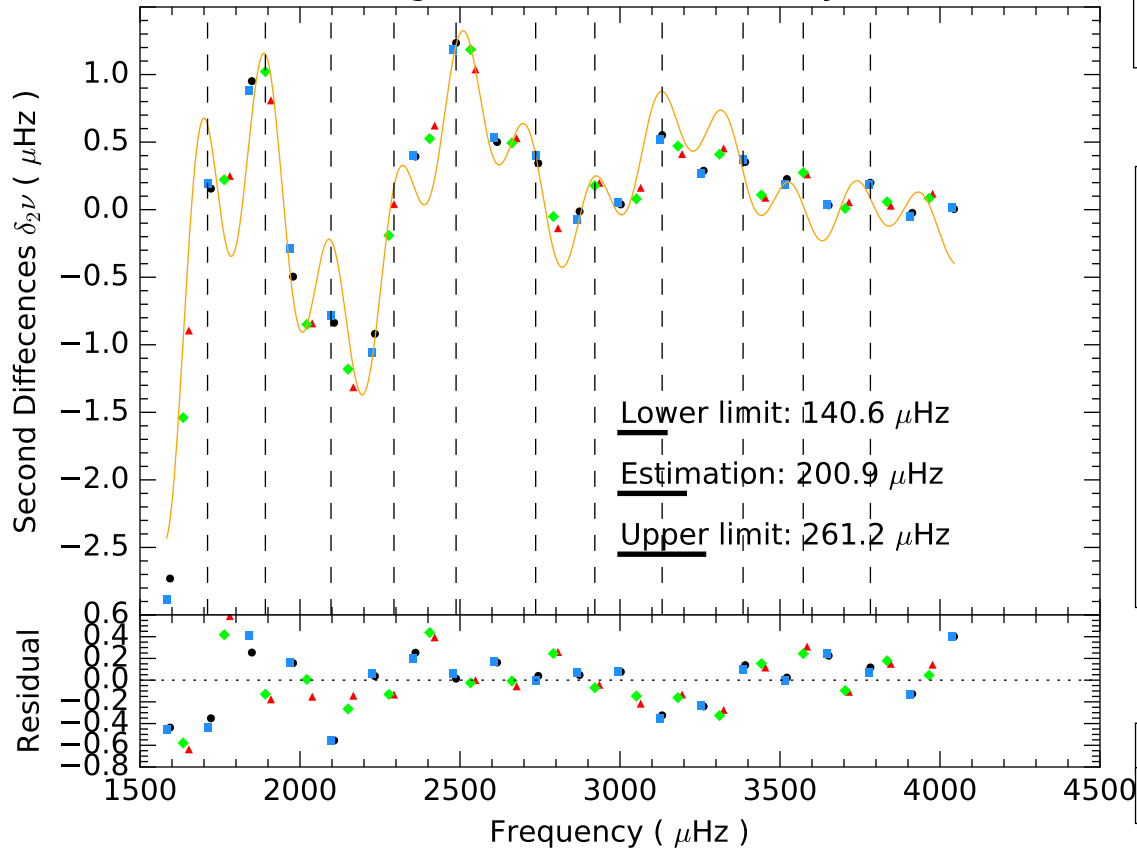
$$\tau_{CZ} = 2407.8 \text{ s}$$

$$\phi_{CZ} = 6.168$$

profile30

$$\chi^2_\nu(\text{dof} = 68) = 0.070383$$

Age after ZAMS: 5.710 Gyr

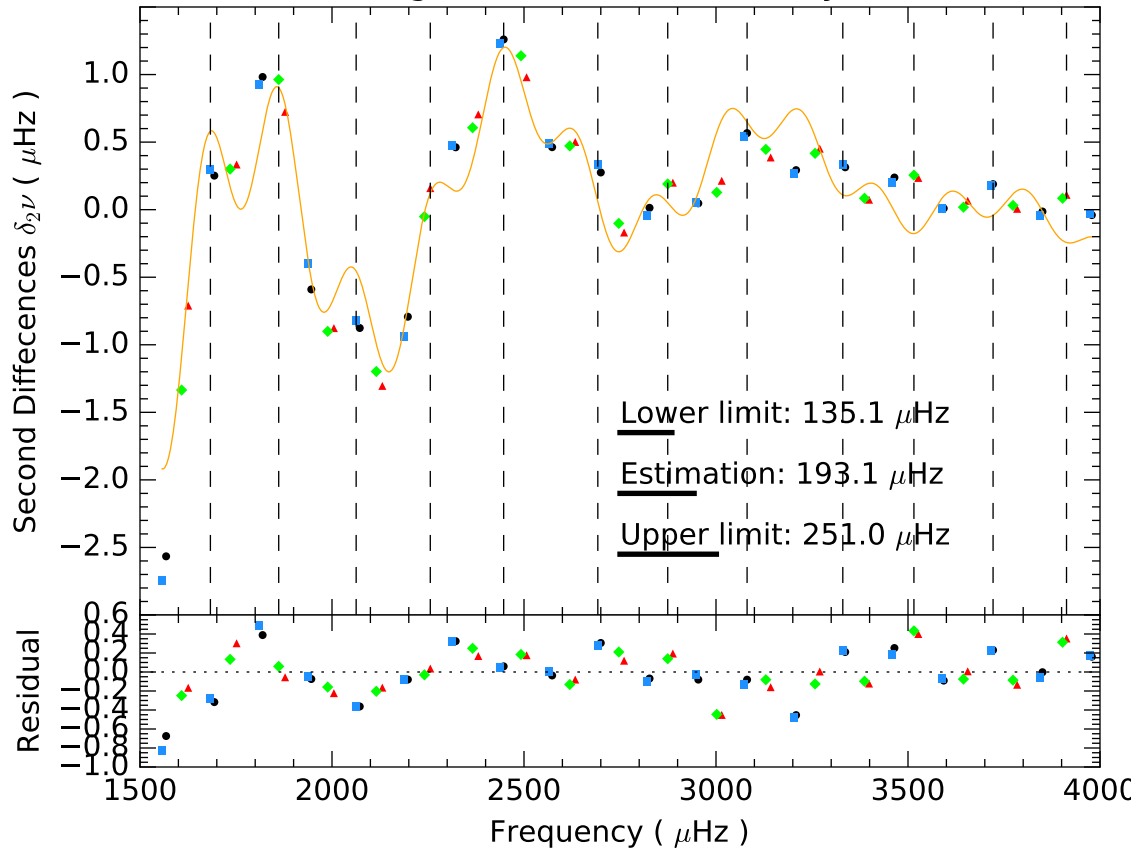


$$\begin{aligned}
 a_0 &= -5.0751 \mu\text{Hz} \\
 a_1 &= 0.0036389 \\
 a_2 &= -6.0708e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0012056 \\
 c_2 &= 2.3562e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 713.93 \text{ s} \\
 \phi_{HeII} &= 4.0732 \\
 b_2 &= 2.5799e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2441.8 \text{ s} \\
 \phi_{CZ} &= 6.2829
 \end{aligned}$$

profile31

$$\chi^2_{\nu}(\text{dof} = 68) = 0.076195$$

# Age after ZAMS: 6.010 Gyr



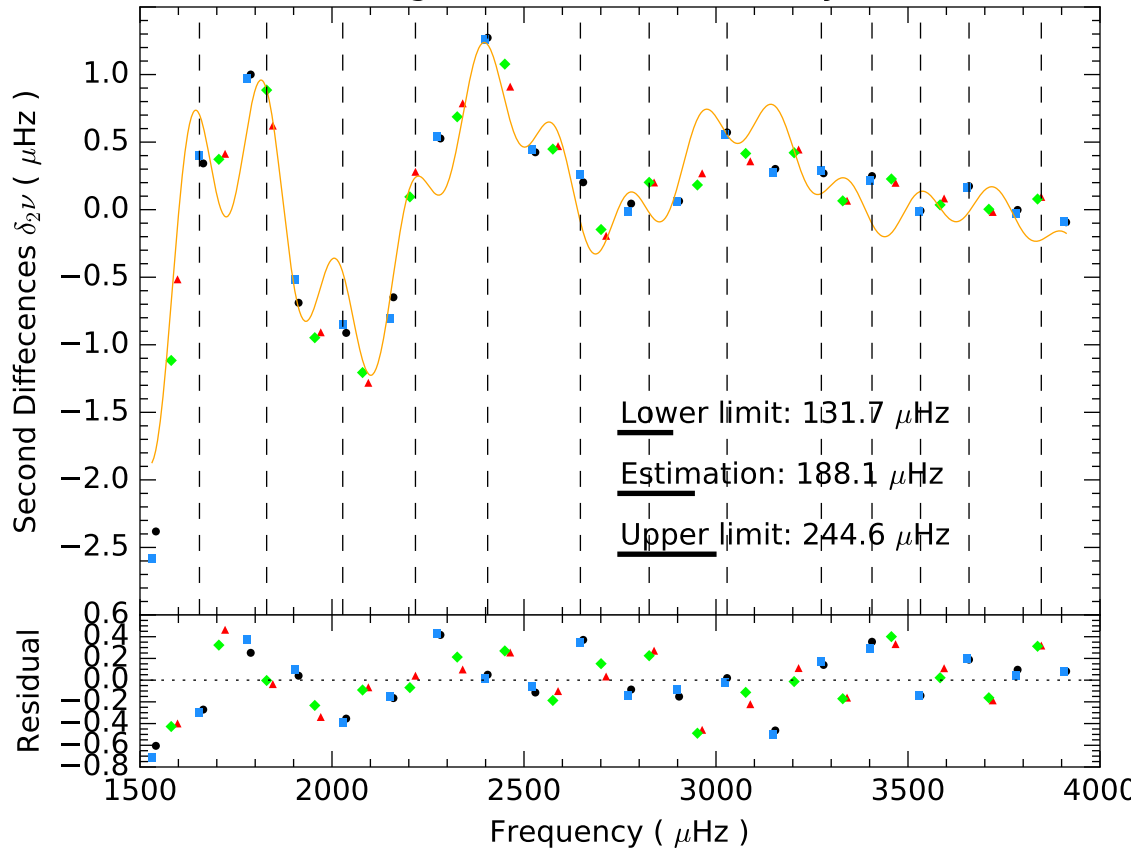
$\bullet$   $\ell=0$        $\blacklozenge$   $\ell=3$   
 $\blacktriangle$   $\ell=1$       — fit  
 $\blacksquare$   $\ell=2$

$a_0 = -4.9696 \mu\text{Hz}$   
 $a_1 = 0.0036479$   
 $a_2 = -6.223e-07 \mu\text{Hz}^{-1}$   
  
 $c_0 = 0.0012507$   
 $c_2 = 2.4582e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HeII}} = 732.92 \text{ s}$   
 $\phi_{\text{HeII}} = 3.9759$   
  
 $b_2 = 1.6782e+06 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 2578.4 \text{ s}$   
 $\phi_{\text{CZ}} = 3.9341$

profile32  
 $\chi^2_{\nu}(\text{dof} = 68) = 0.072639$



Age after ZAMS: 6.310 Gyr

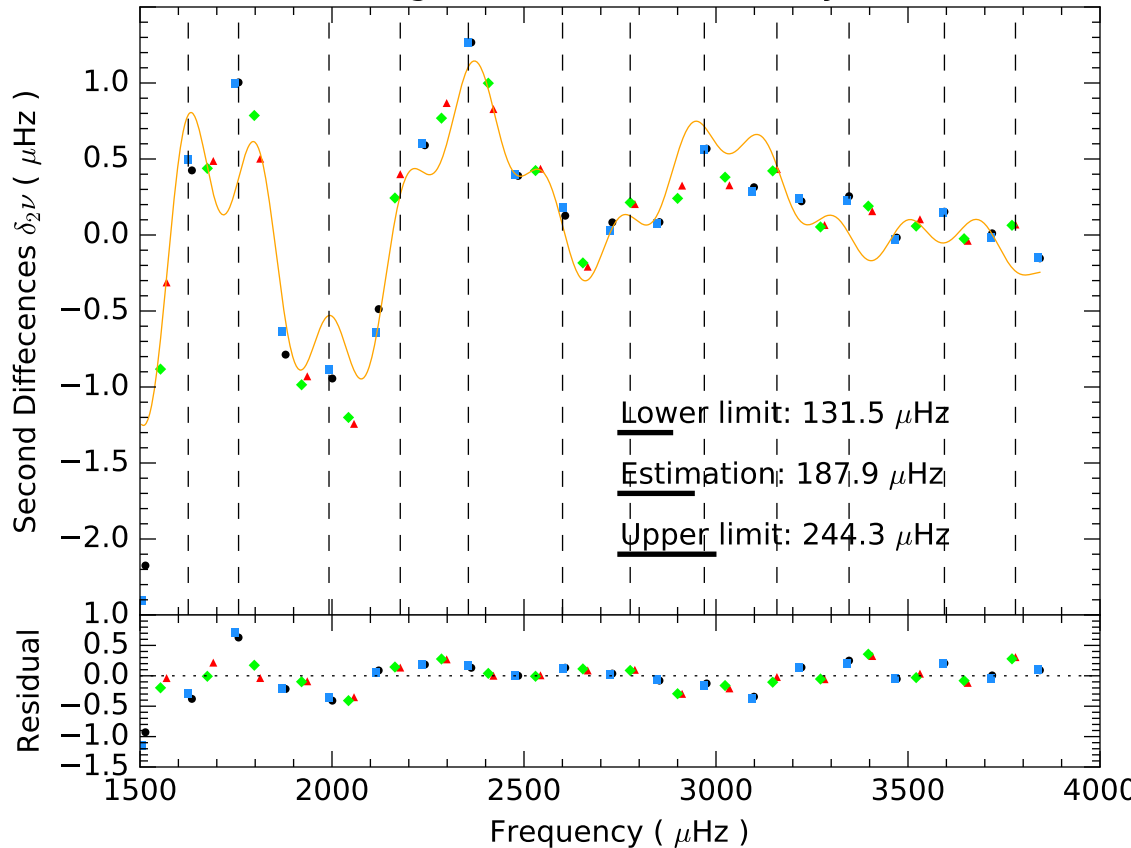


$\bullet$   $\ell=0$      $\blacklozenge$   $\ell=3$   
 $\blacktriangle$   $\ell=1$     — fit  
 $\blacksquare$   $\ell=2$

$a_0 = -4.7832 \mu\text{Hz}$   
 $a_1 = 0.0036005$   
 $a_2 = -6.2852e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0012475$   
 $c_2 = 2.5442e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 739.79 \text{ s}$   
 $\phi_{HeII} = 4.252$   
 $b_2 = 1.8378e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 2632.7 \text{ s}$   
 $\phi_{CZ} = 4.0518$

profile33  
 $\chi^2_{\nu}(\text{dof} = 68) = 0.080832$

Age after ZAMS: 6.610 Gyr



$$a_0 = -4.536 \mu\text{Hz}$$

$$a_1 = 0.0035067$$

$$a_2 = -6.2685e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0011892$$

$$c_2 = 2.5695e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 744.37 \text{ s}$$

$$\phi_{HeII} = 4.5985$$

$$b_2 = 1.2817e+06 \text{ mHz}^3$$

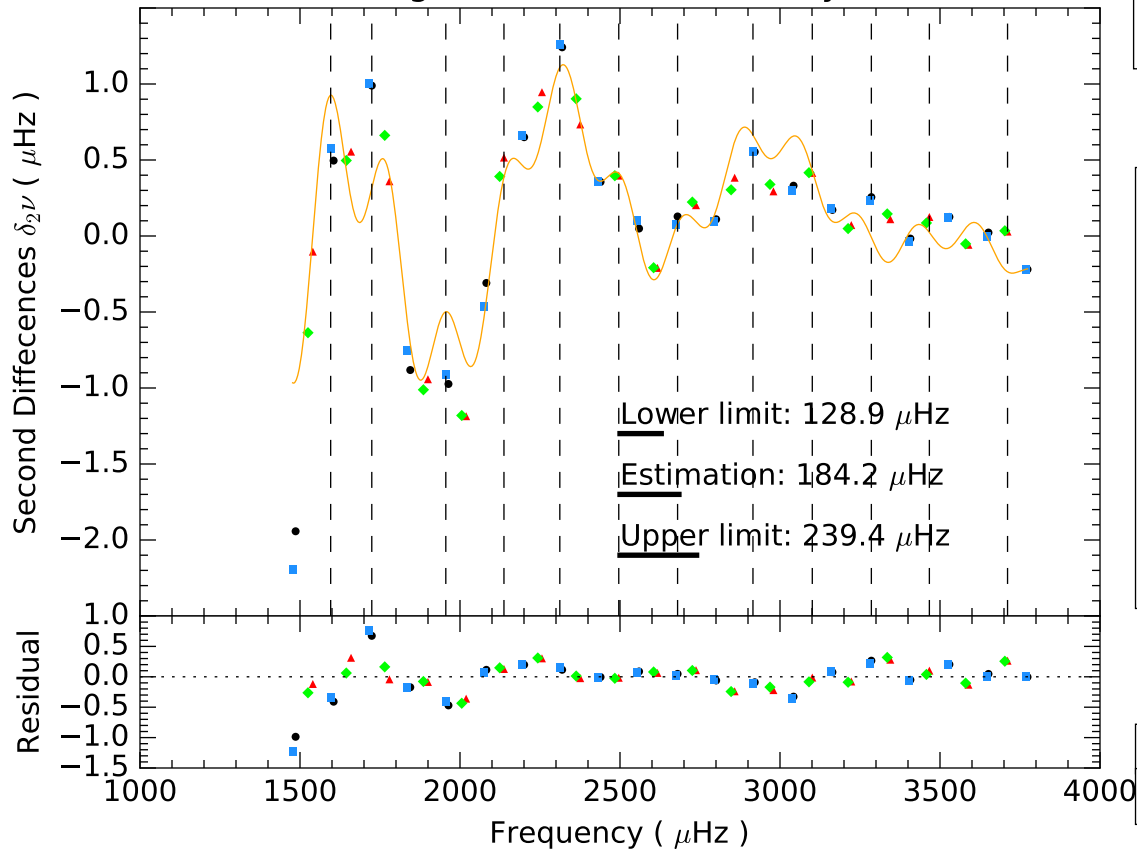
$$\tau_{CZ} = 2663.9 \text{ s}$$

$$\phi_{CZ} = 3.8064$$

profile34

$$\chi^2_\nu(\text{dof} = 68) = 0.084623$$

Age after ZAMS: 6.910 Gyr



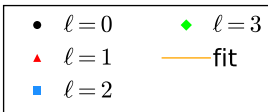
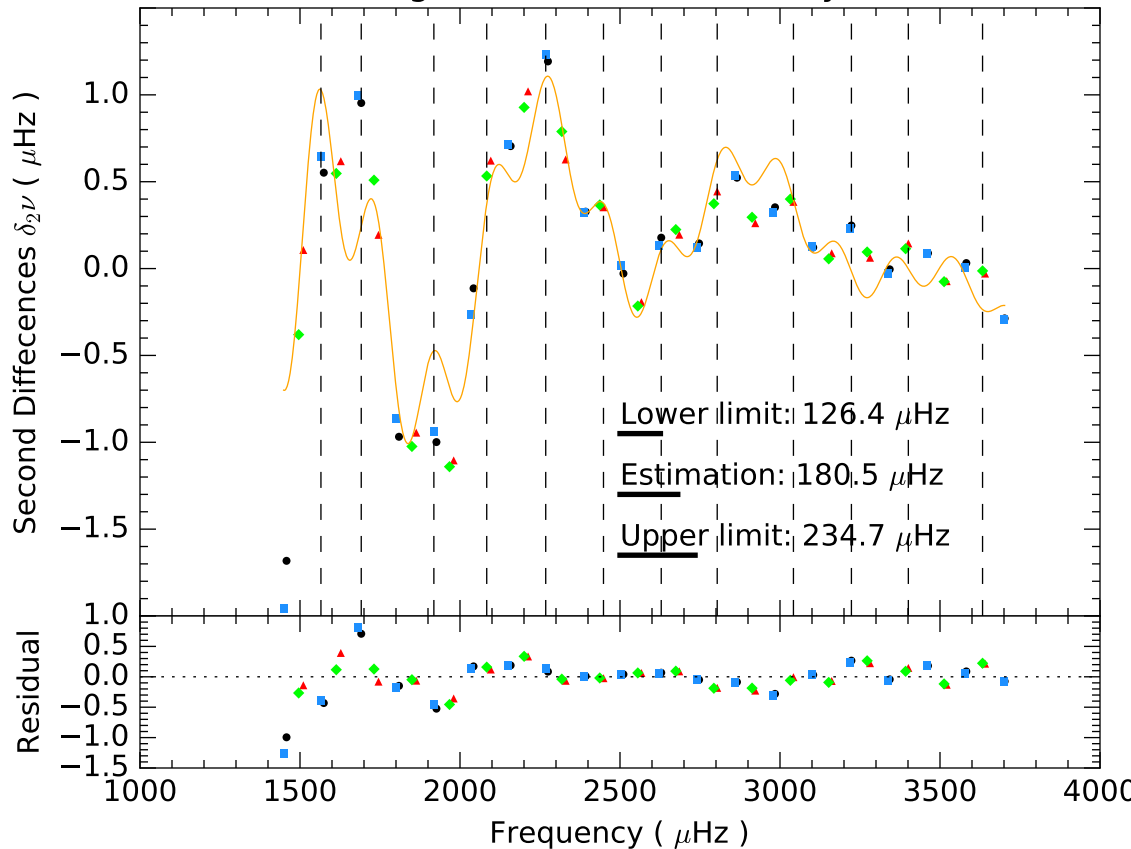
- $\ell=0$
- ▲  $\ell=1$
- $\ell=2$
- ◆  $\ell=3$
- fit

$$\begin{aligned}
 a_0 &= -4.2605 \mu\text{Hz} \\
 a_1 &= 0.0033906 \\
 a_2 &= -6.2169e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0011844 \\
 c_2 &= 2.6967e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 743.39 \text{ s} \\
 \phi_{HeII} &= 5.1284 \\
 b_2 &= 1.2422e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2717.6 \text{ s} \\
 \phi_{CZ} &= 3.8268
 \end{aligned}$$

profile35

$$\chi^2_{\nu}(\text{dof} = 68) = 0.092217$$

# Age after ZAMS: 7.210 Gyr

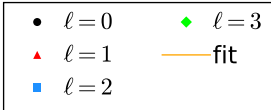
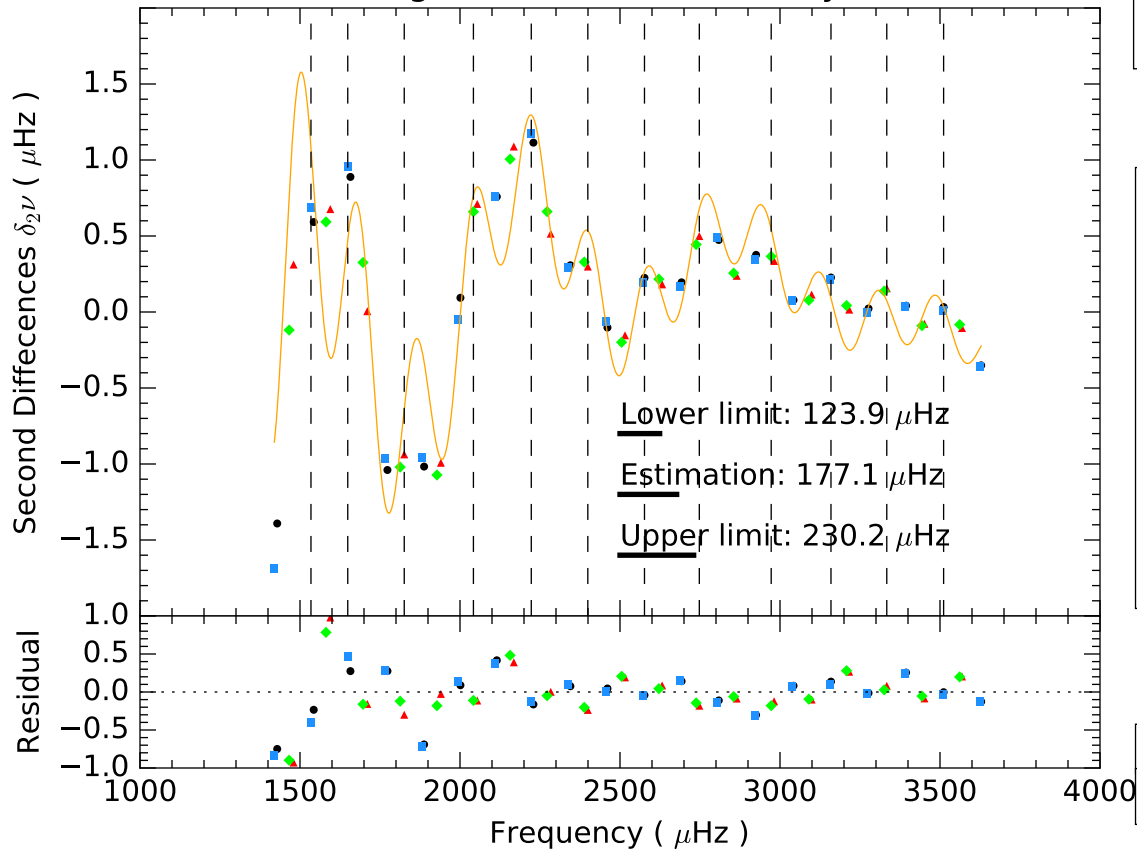


$$\begin{aligned} a_0 &= -4.0053 \mu\text{Hz} \\ a_1 &= 0.0032867 \\ a_2 &= -6.1907e-07 \mu\text{Hz}^{-2} \\ c_0 &= 0.0012438 \\ c_2 &= 2.9129e-07 \mu\text{Hz}^{-2} \\ \tau_{HeII} &= 747.33 \text{ s} \\ \phi_{HeII} &= 5.5434 \\ b_2 &= 1.1844e+06 \text{ mHz}^3 \\ \tau_{CZ} &= 2772.9 \text{ s} \\ \phi_{CZ} &= 3.8325 \end{aligned}$$

profile36

$$\chi^2_\nu(\text{dof} = 68) = 0.096283$$

# Age after ZAMS: 7.510 Gyr

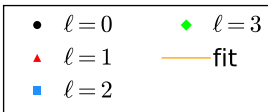
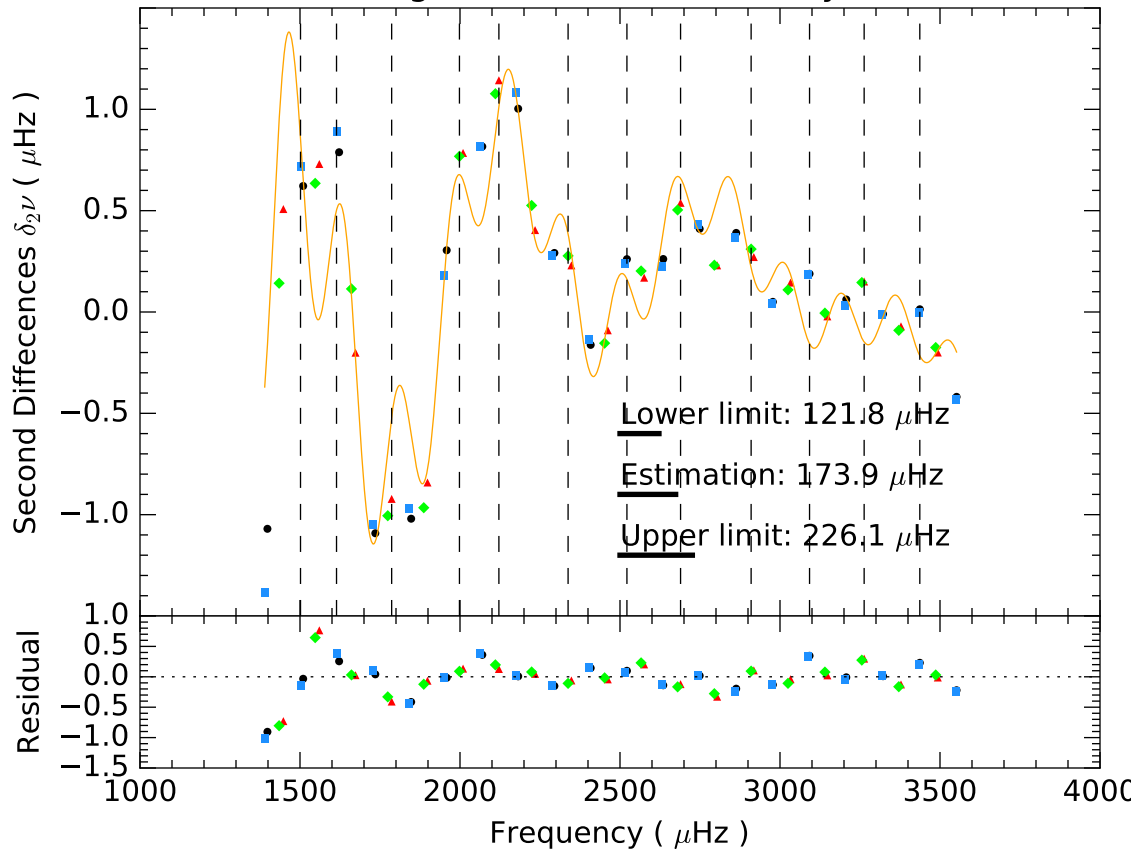


$$\begin{aligned}
 a_0 &= -3.5616 \mu\text{Hz} \\
 a_1 &= 0.0030321 \\
 a_2 &= -5.8814e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0013737 \\
 c_2 &= 3.2451e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 739.37 \text{ s} \\
 \phi_{HeII} &= 6.2832 \\
 b_2 &= 2.1093e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2769.8 \text{ s} \\
 \phi_{CZ} &= 5.8172
 \end{aligned}$$

profile37

$$\chi^2_\nu(\text{dof} = 68) = 0.12041$$

Age after ZAMS: 7.810 Gyr

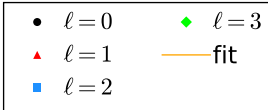
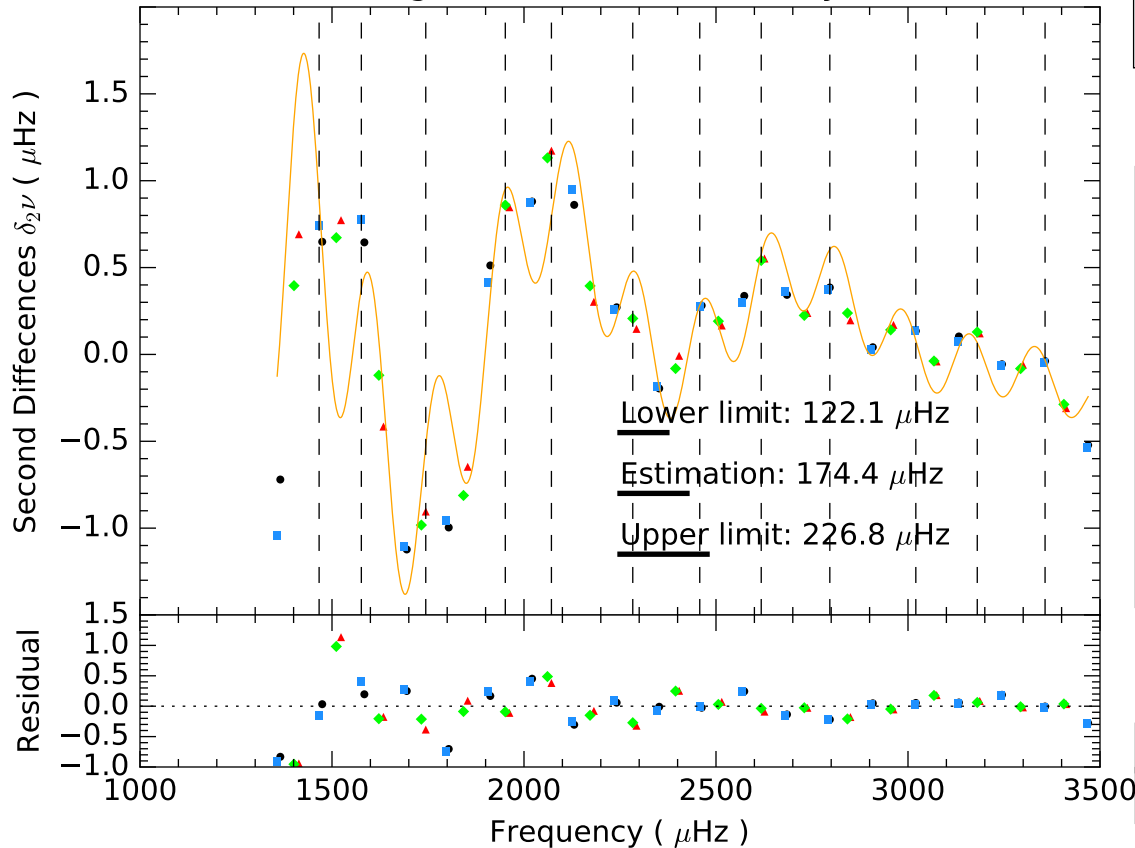


$a_0 = -3.4337 \mu\text{Hz}$   
 $a_1 = 0.0030225$   
 $a_2 = -6.0463e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0015014$   
 $c_2 = 3.5337e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 761.64 \text{ s}$   
 $\phi_{HeII} = 6.2704$   
 $b_2 = 1.4247e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 2895.7 \text{ s}$   
 $\phi_{CZ} = 4.8502$

profile38

$\chi^2_\nu(\text{dof} = 68) = 0.096737$

Age after ZAMS: 8.110 Gyr

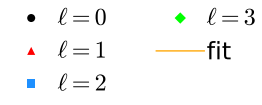
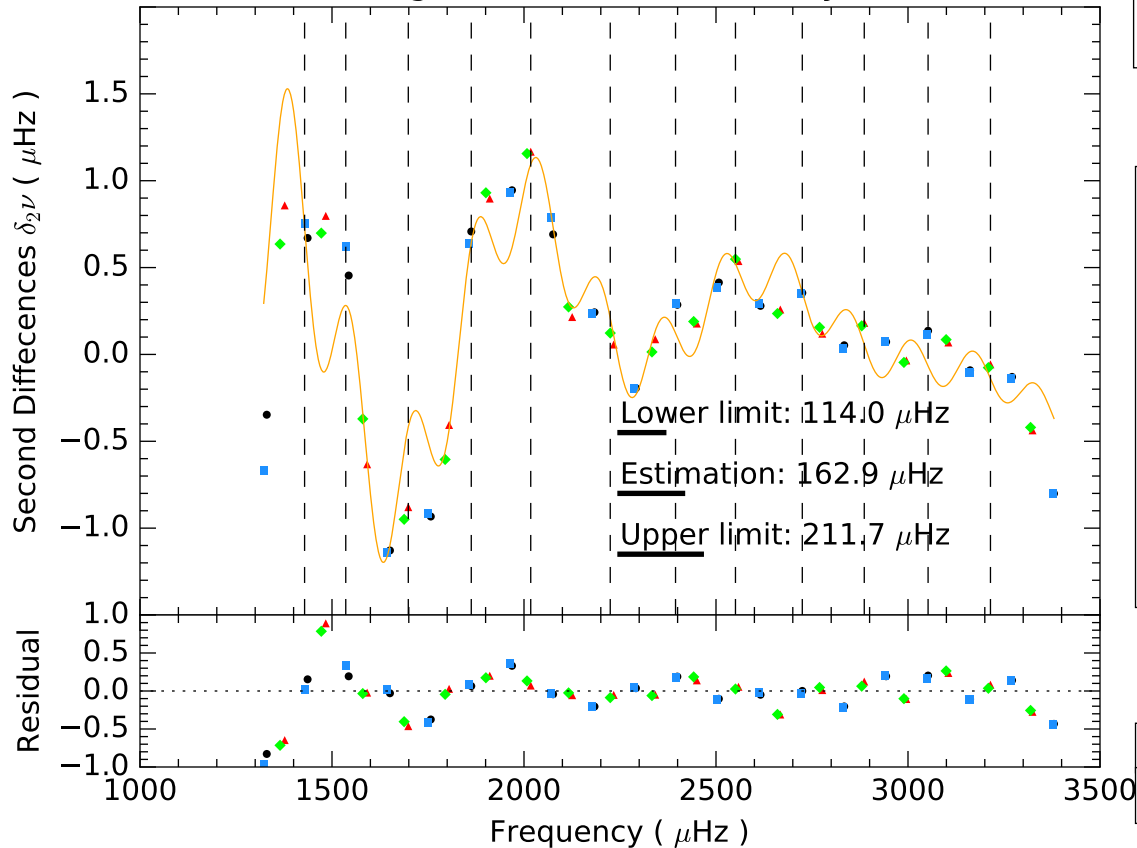


$a_0 = -2.9339 \mu\text{Hz}$   
 $a_1 = 0.0027204$   
 $a_2 = -5.6639e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.001746$   
 $c_2 = 4.1195e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 746.36 \text{ s}$   
 $\phi_{HeII} = 0.93306$   
 $b_2 = 1.7928e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 2887.5 \text{ s}$   
 $\phi_{CZ} = 0.0039306$

profile39

$\chi^2_{\nu}(\text{dof} = 68) = 0.13695$

Age after ZAMS: 8.410 Gyr



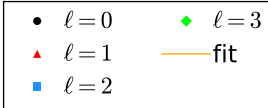
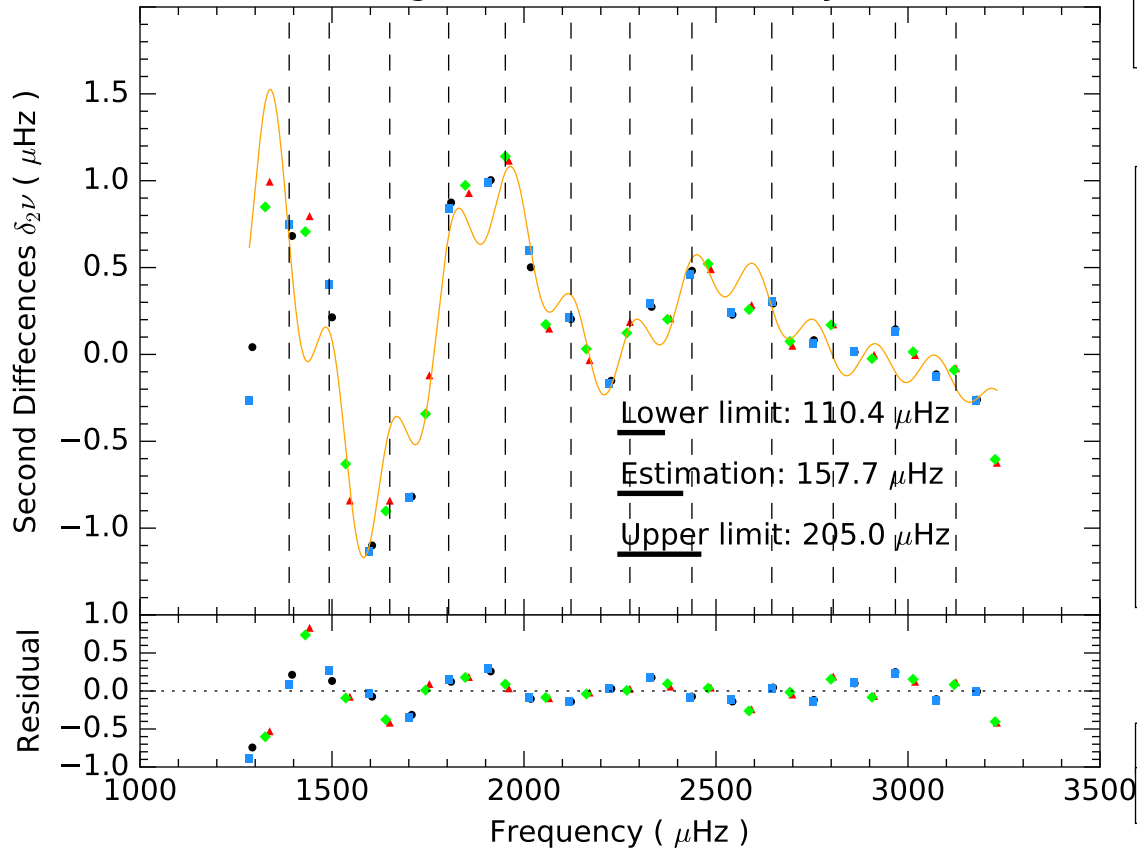
$a_0 = -2.9046 \mu\text{Hz}$   
 $a_1 = 0.0028071$   
 $a_2 = -6.0826e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0020262$   
 $c_2 = 4.7046e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 779.64 \text{ s}$   
 $\phi_{HeII} = 0.7735$   
 $b_2 = 1.1505e+06 \text{ mHz}^3$   
 $\tau_{CZ} = 3081.6 \text{ s}$   
 $\phi_{CZ} = 4.4157$

profile40

$\chi^2_{\nu}(\text{dof} = 68) = 0.097216$



Age after ZAMS: 8.708 Gyr

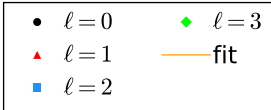
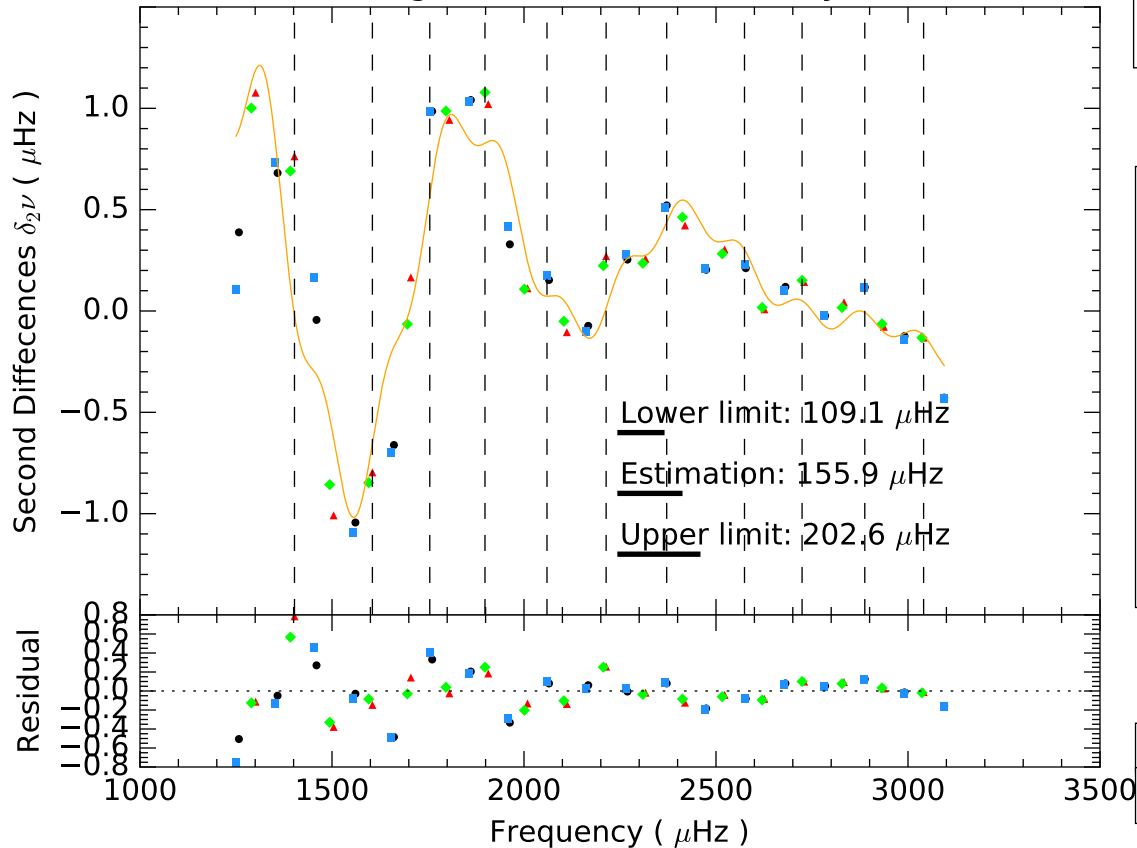


$a_0 = -2.6864 \mu\text{Hz}$   
 $a_1 = 0.0027326$   
 $a_2 = -6.1876e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0022959$   
 $c_2 = 5.2163e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 811.3 \text{ s}$   
 $\phi_{HeII} = 0.73612$   
 $b_2 = 8.9771e+05 \text{ mHz}^3$   
 $\tau_{CZ} = 3180.8 \text{ s}$   
 $\phi_{CZ} = 4.4219$

profile41

$\chi^2_{\nu}(\text{dof} = 66) = 0.078412$

Age after ZAMS: 8.972 Gyr

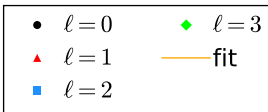
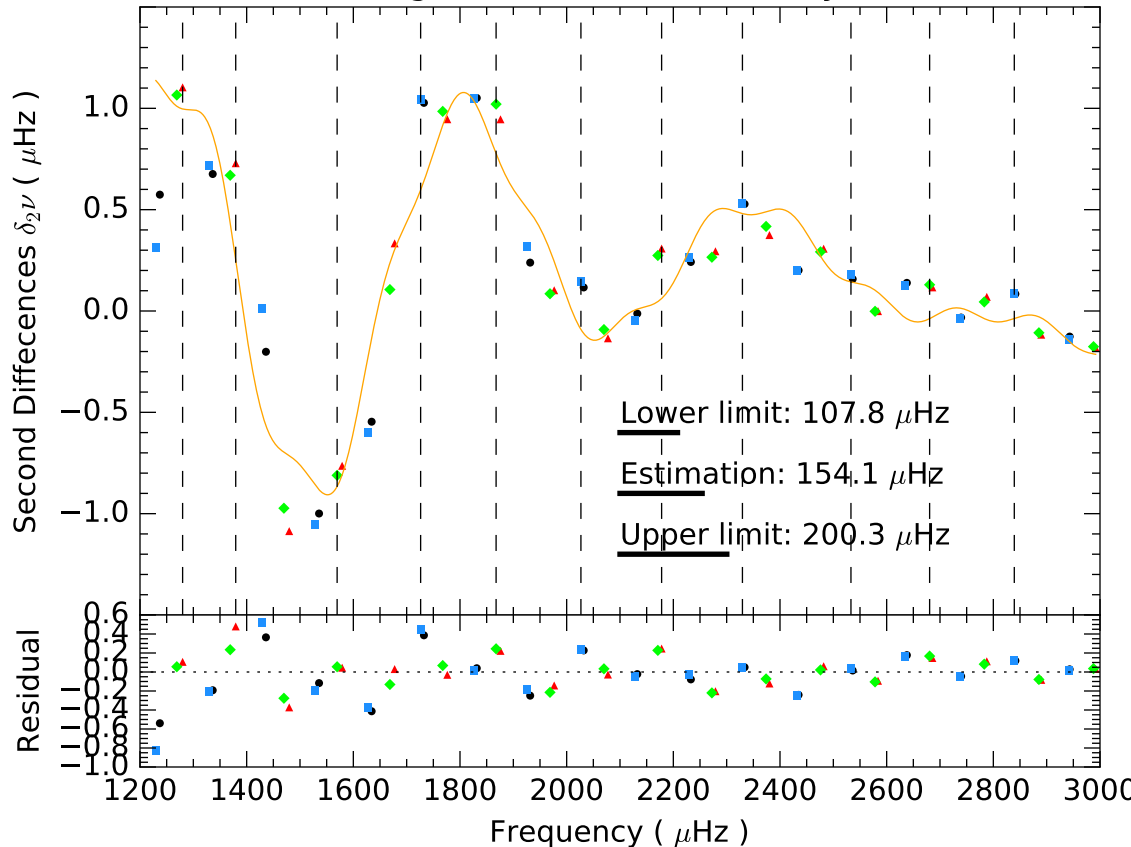


$$\begin{aligned}
 a_0 &= -2.4614 \mu\text{Hz} \\
 a_1 &= 0.0026325 \\
 a_2 &= -6.2145e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.002466 \\
 c_2 &= 5.597e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HeII}} &= 842.33 \text{ s} \\
 \phi_{\text{HeII}} &= 0.71472 \\
 b_2 &= 4.0225e+05 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 3229.8 \text{ s} \\
 \phi_{\text{CZ}} &= 4.2178
 \end{aligned}$$

profile42

$$\chi^2_{\nu}(\text{dof} = 64) = 0.063123$$

Age after ZAMS: 9.117 Gyr

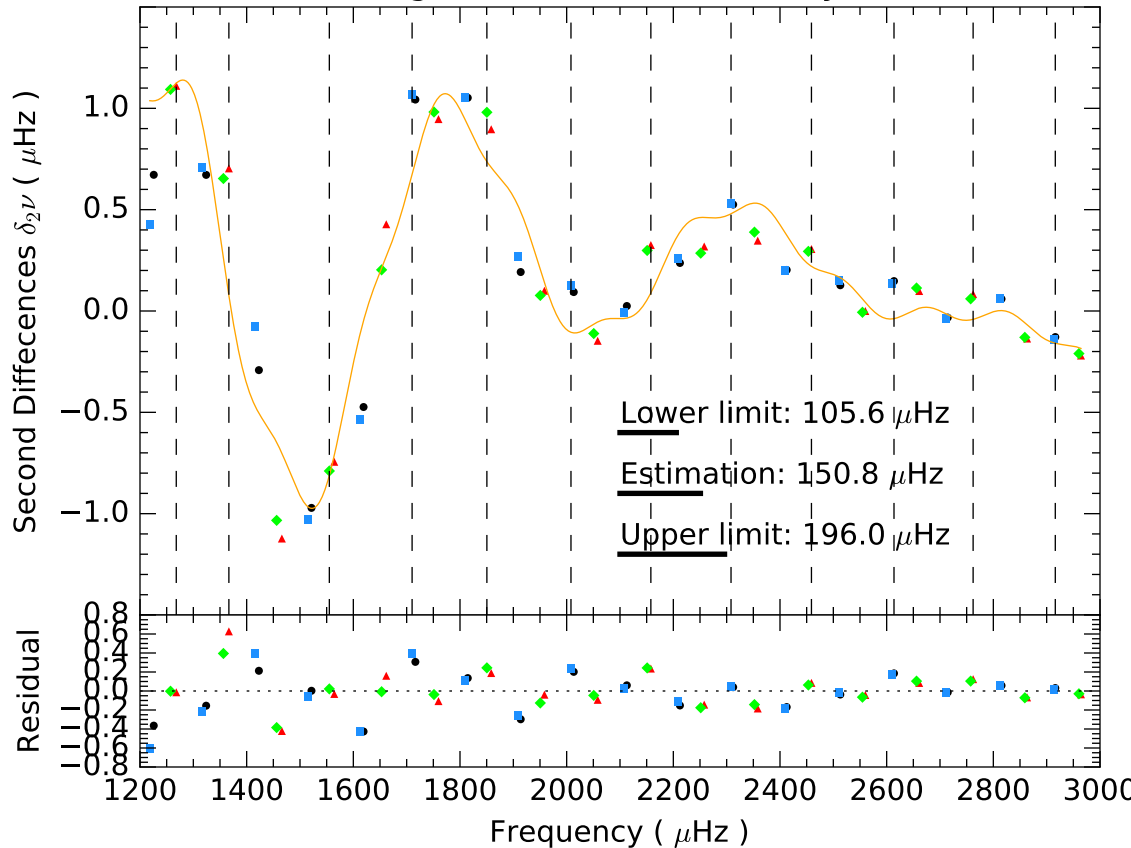


$a_0 = -2.6087 \mu\text{Hz}$   
 $a_1 = 0.0028306$   
 $a_2 = -6.8147e-07 \mu\text{Hz}^{-1}$   
 $c_0 = 0.0026158$   
 $c_2 = 5.7813e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 895.62 \text{ s}$   
 $\phi_{HeII} = 6.2832$   
 $b_2 = 2.7443e+05 \text{ mHz}^3$   
 $\tau_{CZ} = 3254.3 \text{ s}$   
 $\phi_{CZ} = 3.0502$

profile43

$\chi^2_{\nu}(\text{dof} = 62) = 0.05883$

Age after ZAMS: 9.197 Gyr

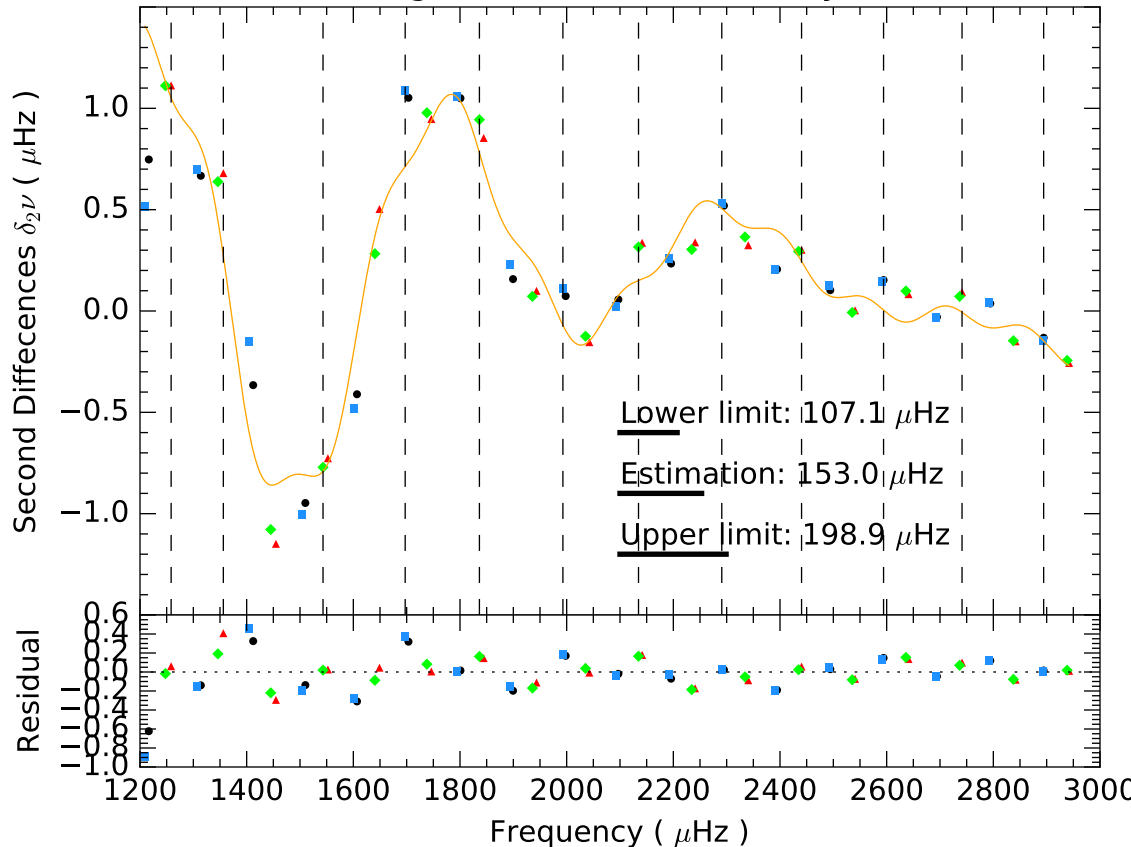


$\bullet$   $\ell=0$      $\blacklozenge$   $\ell=3$   
 $\blacktriangle$   $\ell=1$     — fit  
 $\blacksquare$   $\ell=2$

$a_0 = -2.5138 \mu\text{Hz}$   
 $a_1 = 0.0027762$   
 $a_2 = -6.7783e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0026917$   
 $c_2 = 5.9668e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HeII}} = 907.06 \text{ s}$   
 $\phi_{\text{HeII}} = 6.2832$   
 $b_2 = 2.6377e+05 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 3303.3 \text{ s}$   
 $\phi_{\text{CZ}} = 3.6984$

profile44  
 $\chi^2_\nu(\text{dof} = 62) = 0.051399$

Age after ZAMS: 9.260 Gyr

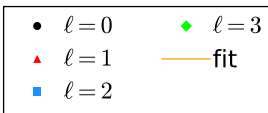
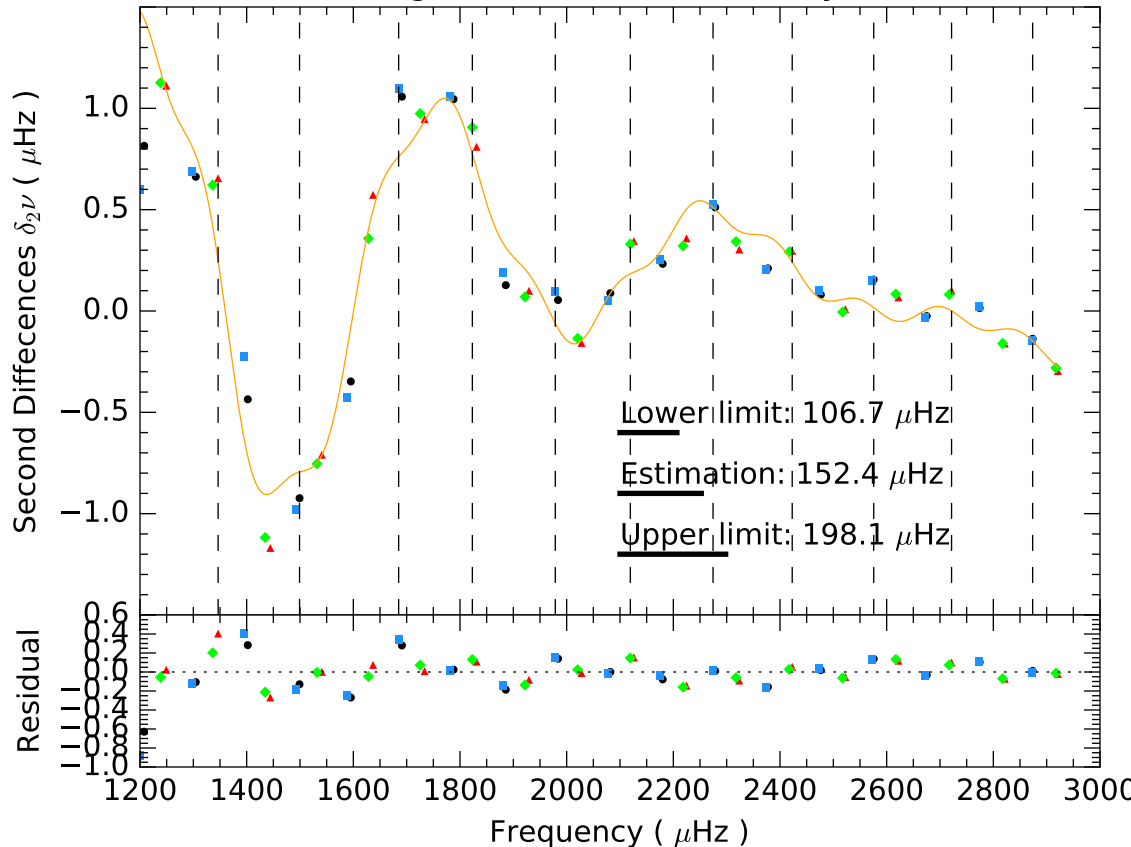


$$\begin{aligned}
 a_0 &= -2.4608 \mu\text{Hz} \\
 a_1 &= 0.0027658 \\
 a_2 &= -6.8536e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0030606 \\
 c_2 &= 6.4547e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 915.98 \text{ s} \\
 \phi_{HeII} &= 6.2832 \\
 b_2 &= 2.9695e+05 \text{ mHz}^3 \\
 \tau_{CZ} &= 3276.5 \text{ s} \\
 \phi_{CZ} &= 3.0079
 \end{aligned}$$

profile45

$$\chi^2_\nu(\text{dof} = 62) = 0.04776$$

Age after ZAMS: 9.319 Gyr

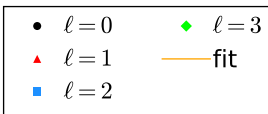
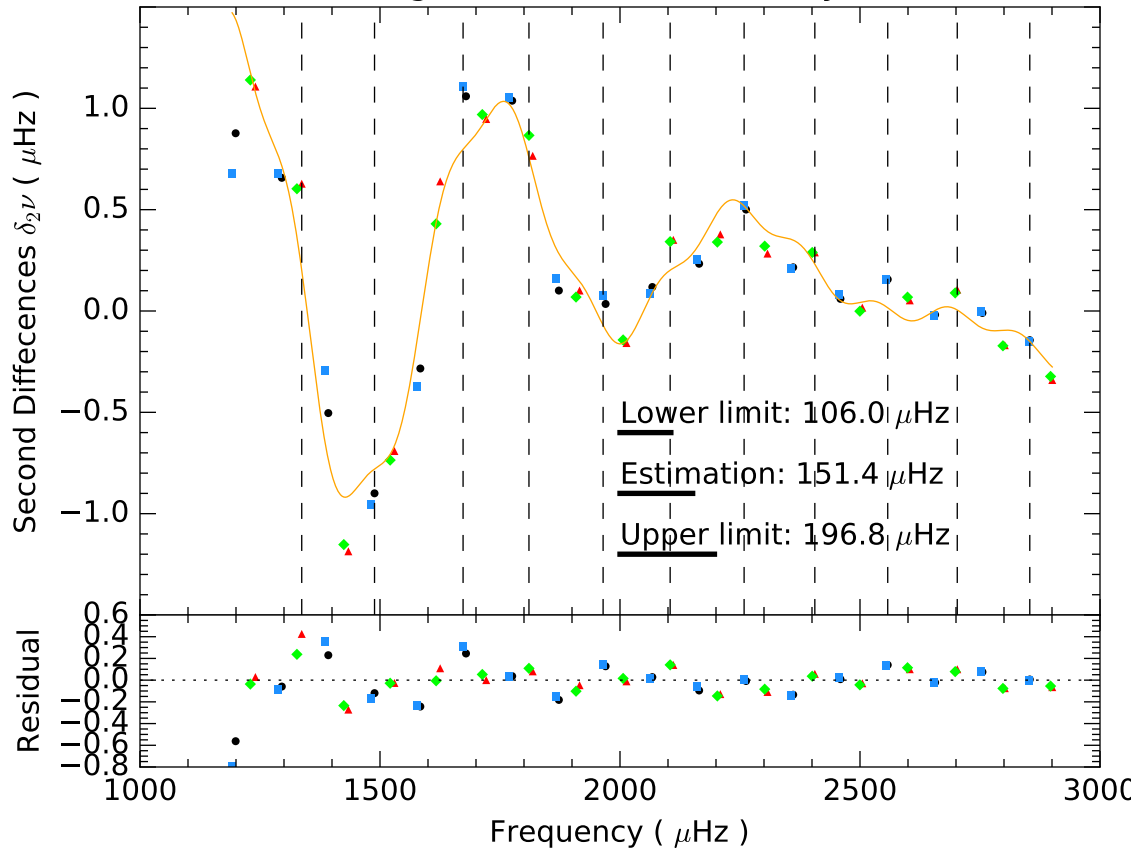


$a_0 = -2.4027 \mu\text{Hz}$   
 $a_1 = 0.0027407$   
 $a_2 = -6.8742e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.003227$   
 $c_2 = 6.714e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HeII}} = 924.77 \text{ s}$   
 $\phi_{\text{HeII}} = 6.2832$   
 $b_2 = 2.8313e+05 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 3290.6 \text{ s}$   
 $\phi_{\text{CZ}} = 3.0218$

profile46

$\chi^2_{\nu}(\text{dof} = 62) = 0.041941$

Age after ZAMS: 9.376 Gyr

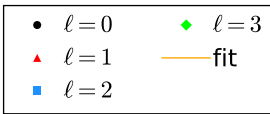
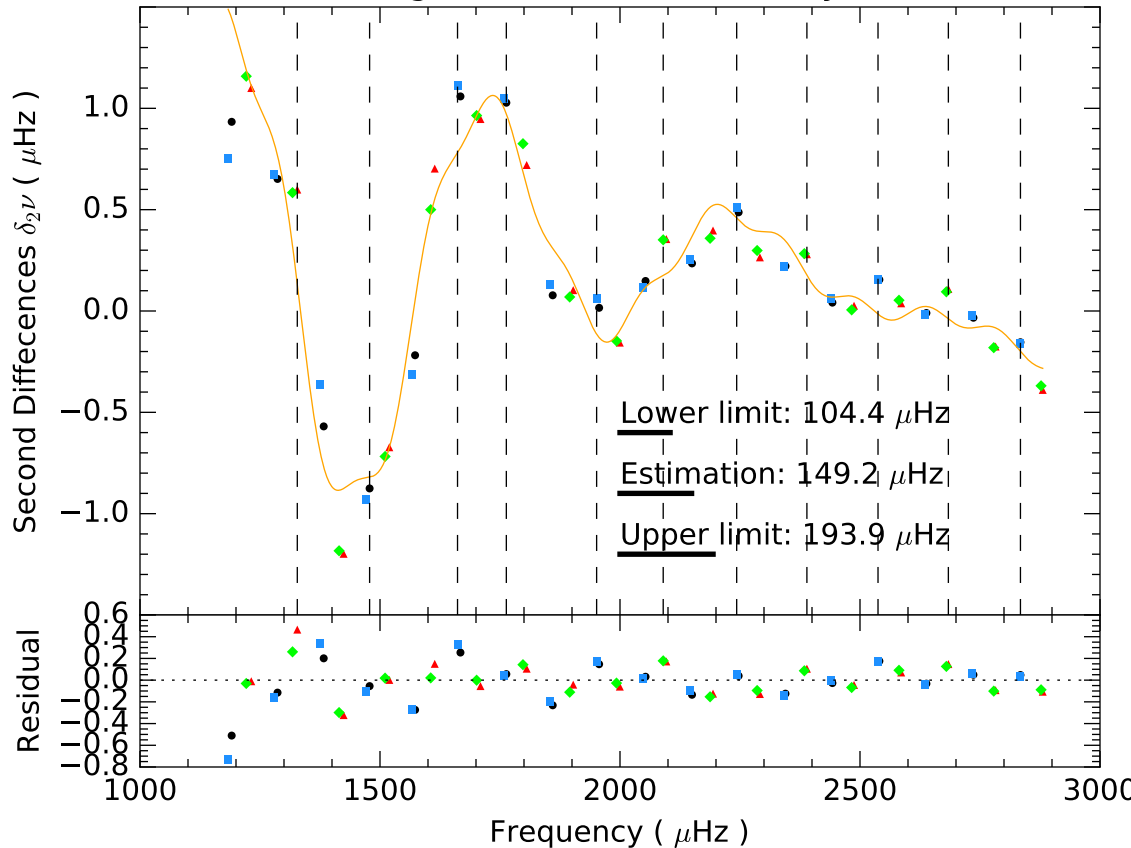


$$\begin{aligned}
 a_0 &= -2.3599 \mu\text{Hz} \\
 a_1 &= 0.0027236 \\
 a_2 &= -6.8992e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0031803 \\
 c_2 &= 6.7433e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 933.56 \text{ s} \\
 \phi_{HeII} &= 6.2832 \\
 b_2 &= 2.5745e+05 \text{ mHz}^3 \\
 \tau_{CZ} &= 3308.3 \text{ s} \\
 \phi_{CZ} &= 3.0703
 \end{aligned}$$

profile47

$$\chi^2_{\nu}(\text{dof} = 62) = 0.035838$$

Age after ZAMS: 9.430 Gyr

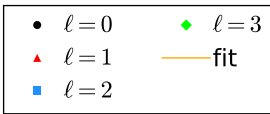
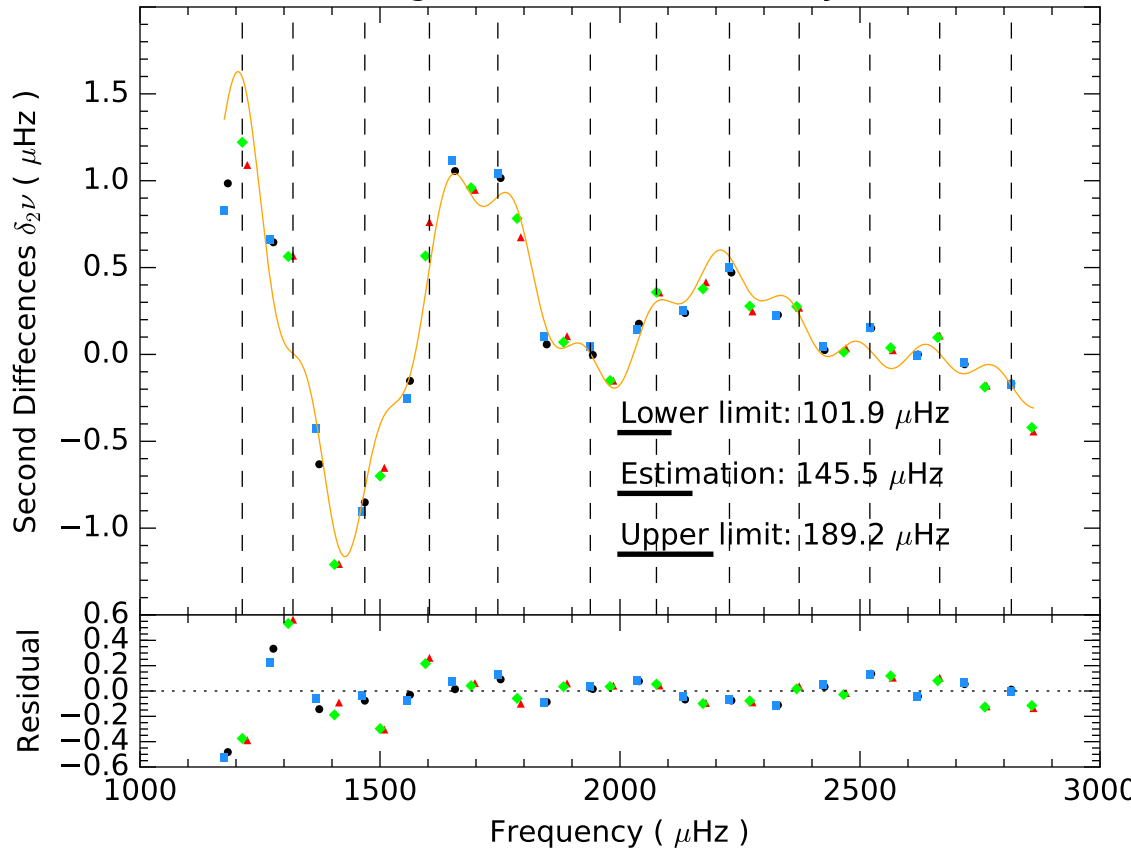


$a_0 = -2.3017 \mu\text{Hz}$   
 $a_1 = 0.0027003$   
 $a_2 = -6.9306e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0034434$   
 $c_2 = 7.1103e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 941.85 \text{ s}$   
 $\phi_{HeII} = 6.2832$   
 $b_2 = 2.5208e+05 \text{ mHz}^3$   
 $\tau_{CZ} = 3372.4 \text{ s}$   
 $\phi_{CZ} = 2.8302$

profile48  
 $\chi^2_{\nu}(\text{dof} = 62) = 0.039002$



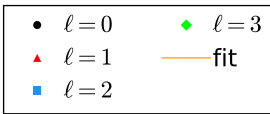
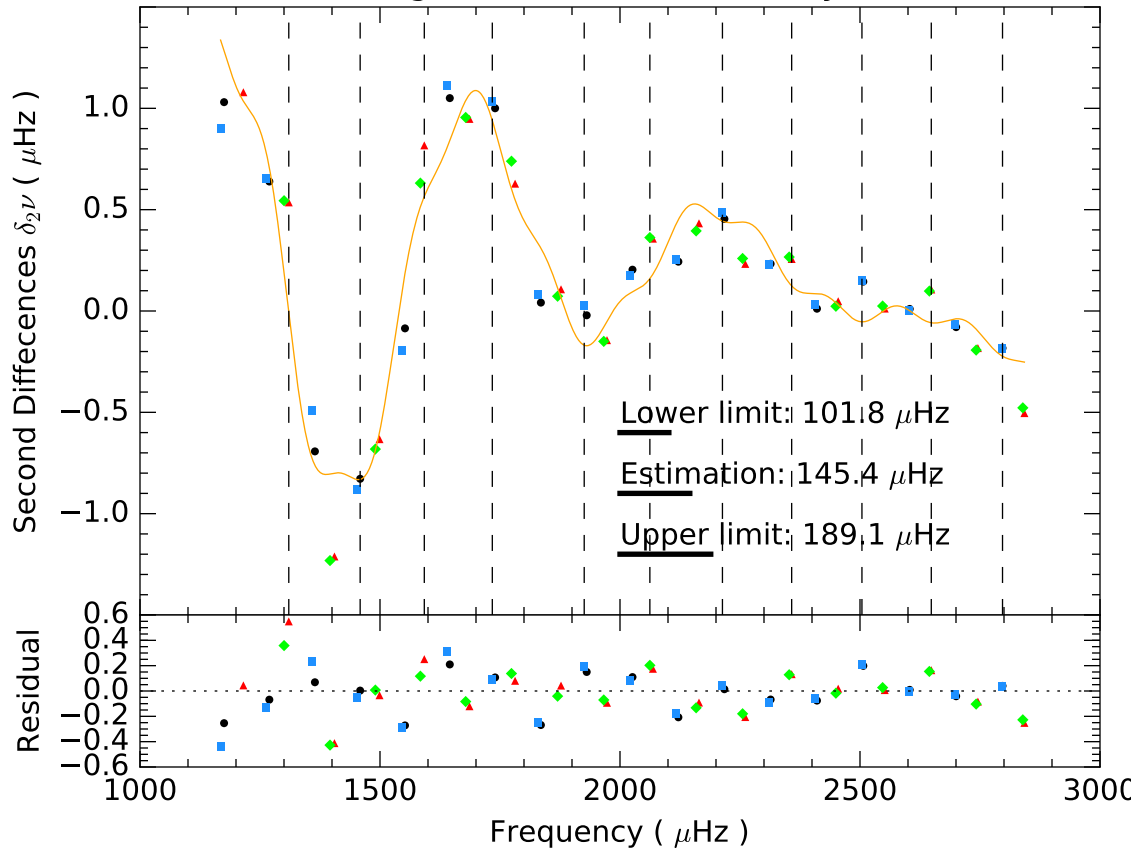
Age after ZAMS: 9.483 Gyr



$a_0 = -2.251 \mu \text{ Hz}$   
 $a_1 = 0.0026664$   
 $a_2 = -6.8966e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0031699$   
 $c_2 = 6.886e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HeII}} = 950.74 \text{ s}$   
 $\phi_{\text{HeII}} = 6.2832$   
 $b_2 = 4.6943e+05 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 3506.2 \text{ s}$   
 $\phi_{\text{CZ}} = 4.7243$

profile49  
 $\chi^2_{\nu}(\text{dof} = 62) = 0.036606$

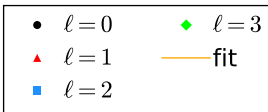
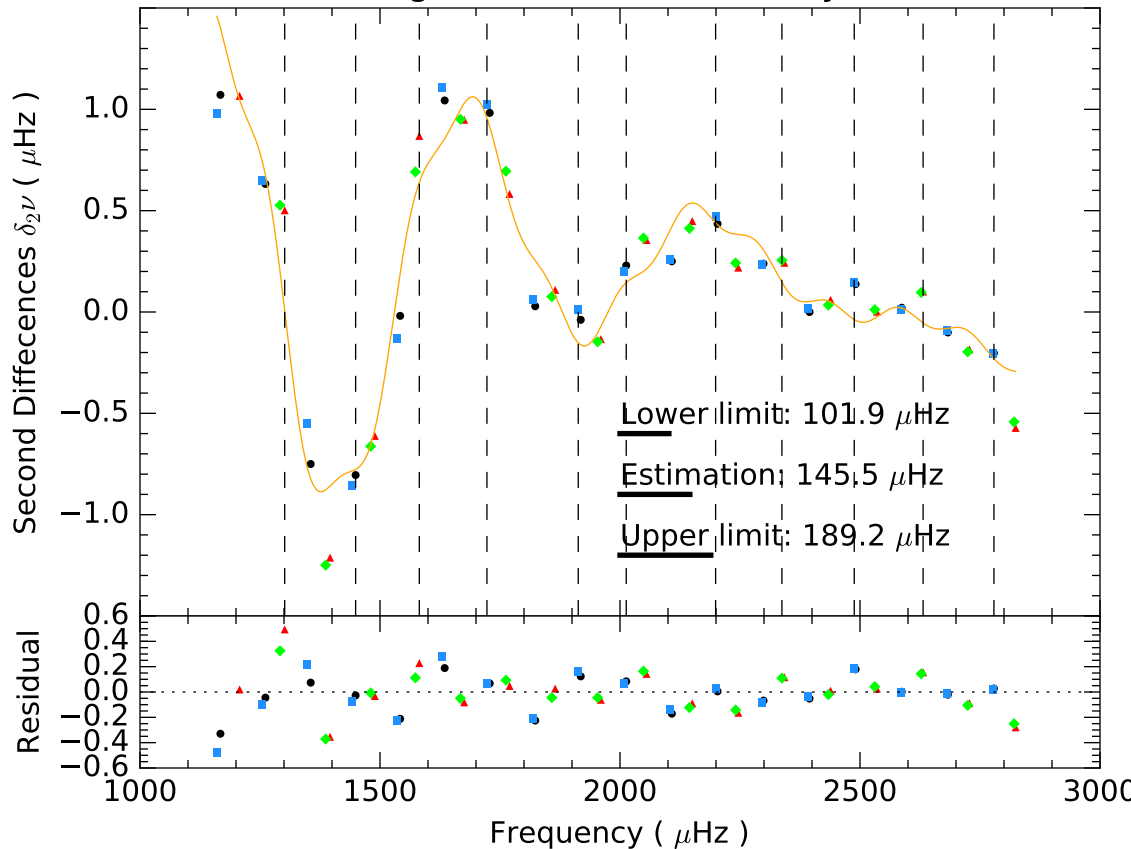
Age after ZAMS: 9.533 Gyr



$a_0 = -2.2435 \mu\text{Hz}$   
 $a_1 = 0.0026863$   
 $a_2 = -7.0196e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0031226$   
 $c_2 = 6.938e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 958.64 \text{ s}$   
 $\phi_{HeII} = 6.2832$   
 $b_2 = 2.4724e+05 \text{ mHz}^3$   
 $\tau_{CZ} = 3458.8 \text{ s}$   
 $\phi_{CZ} = 2.7118$

profile50  
 $\chi^2_\nu(\text{dof} = 61) = 0.038886$

Age after ZAMS: 9.581 Gyr

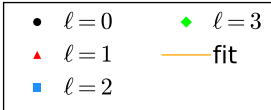
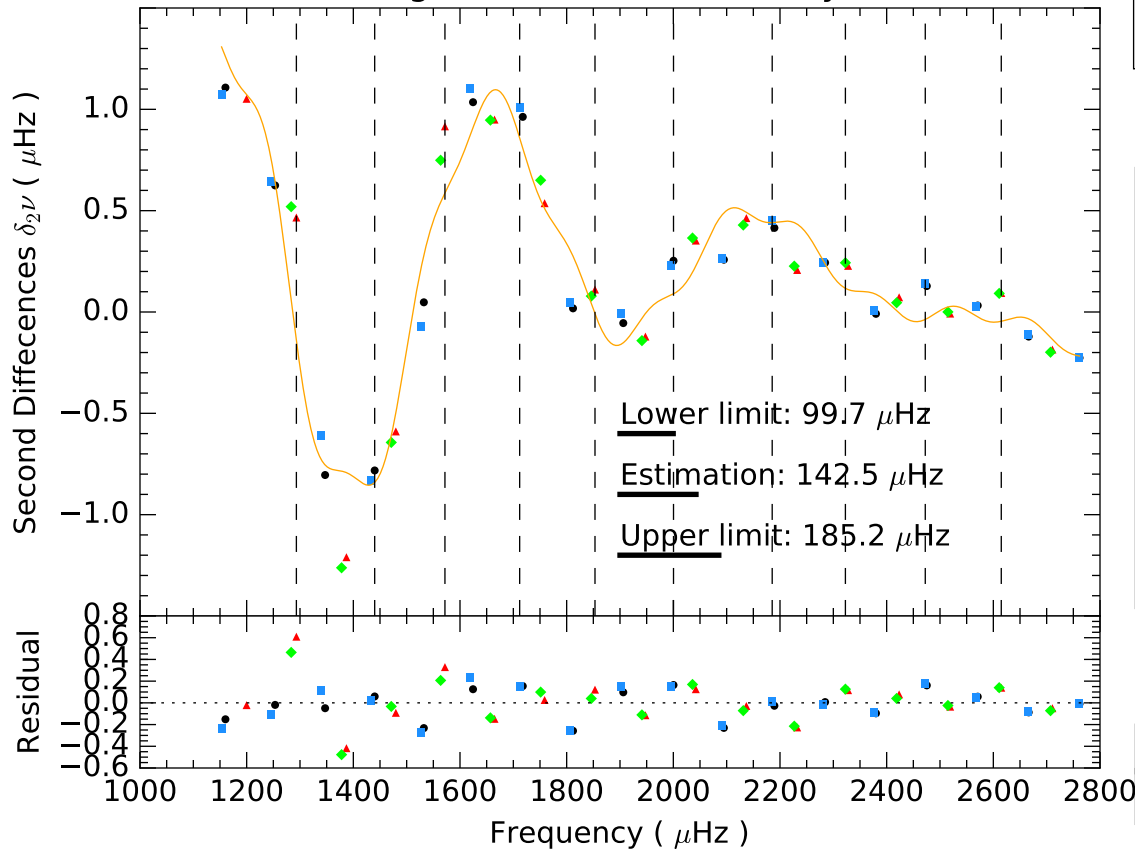


$$\begin{aligned}
 a_0 &= -2.1976 \mu\text{Hz} \\
 a_1 &= 0.0026715 \\
 a_2 &= -7.067e-07 \mu\text{Hz}^{-1} \\
 c_0 &= 0.0033754 \\
 c_2 &= 7.2995e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 966.77 \text{ s} \\
 \phi_{HeII} &= 6.2832 \\
 b_2 &= 2.4407e+05 \text{ mHz}^3 \\
 \tau_{CZ} &= 3450.2 \text{ s} \\
 \phi_{CZ} &= 2.8556
 \end{aligned}$$

profile51

$$\chi^2_{\nu}(\text{dof} = 61) = 0.032212$$

Age after ZAMS: 9.627 Gyr

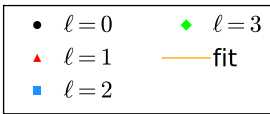
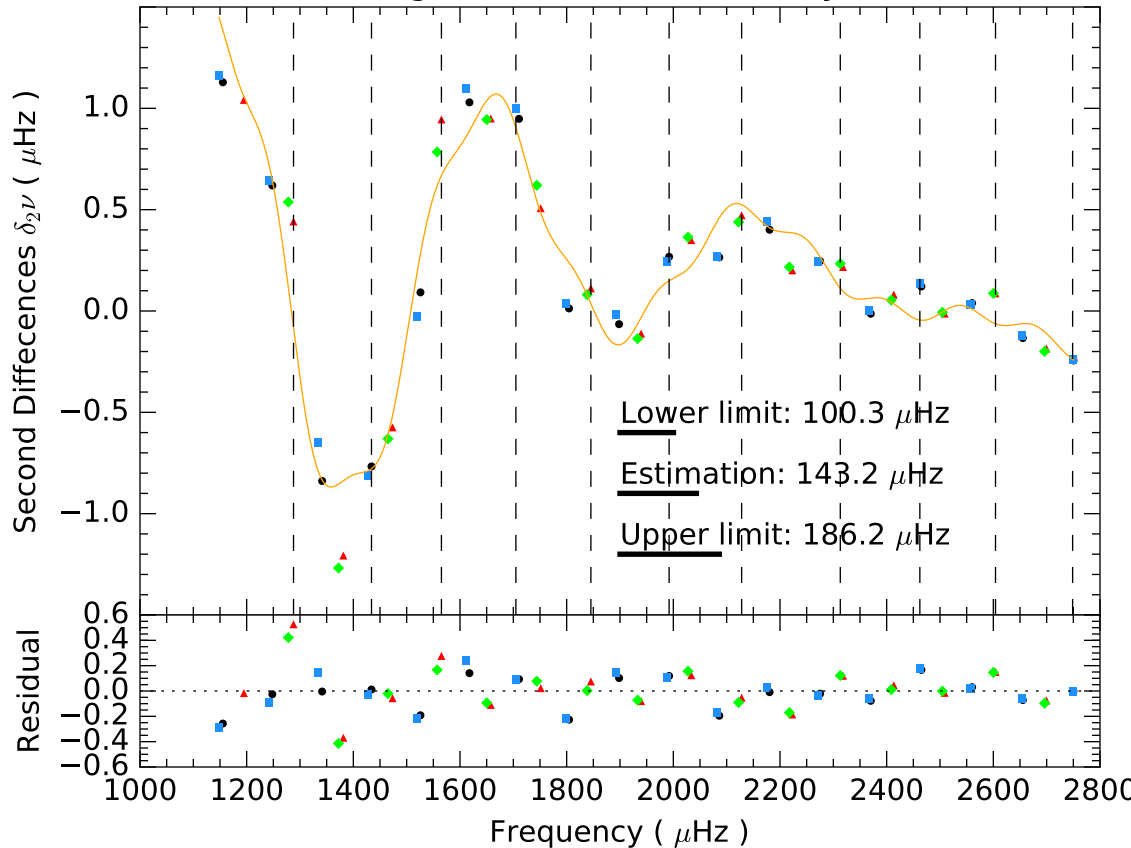


$a_0 = -2.1286 \mu\text{Hz}$   
 $a_1 = 0.0026196$   
 $a_2 = -6.9917e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0032427$   
 $c_2 = 7.2484e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 975.36 \text{ s}$   
 $\phi_{HeII} = 6.2832$   
 $b_2 = 2.3337e+05 \text{ mHz}^3$   
 $\tau_{CZ} = 3527.0 \text{ s}$   
 $\phi_{CZ} = 2.7843$

profile52

$\chi^2_\nu(\text{dof} = 59) = 0.037954$

Age after ZAMS: 9.657 Gyr



$a_0 = -2.0703 \mu\text{Hz}$   
 $a_1 = 0.0025818$   
 $a_2 = -6.9556e-07 \mu\text{Hz}^{-1}$   
 $c_0 = 0.0034749$   
 $c_2 = 7.5509e-07 \mu\text{Hz}^{-2}$   
 $\tau_{HeII} = 980.41 \text{ s}$   
 $\phi_{HeII} = 6.2832$   
 $b_2 = 2.3146e+05 \text{ mHz}^3$   
 $\tau_{CZ} = 3505.1 \text{ s}$   
 $\phi_{CZ} = 2.8504$

profile53  
 $\chi^2_\nu(\text{dof} = 59) = 0.030265$