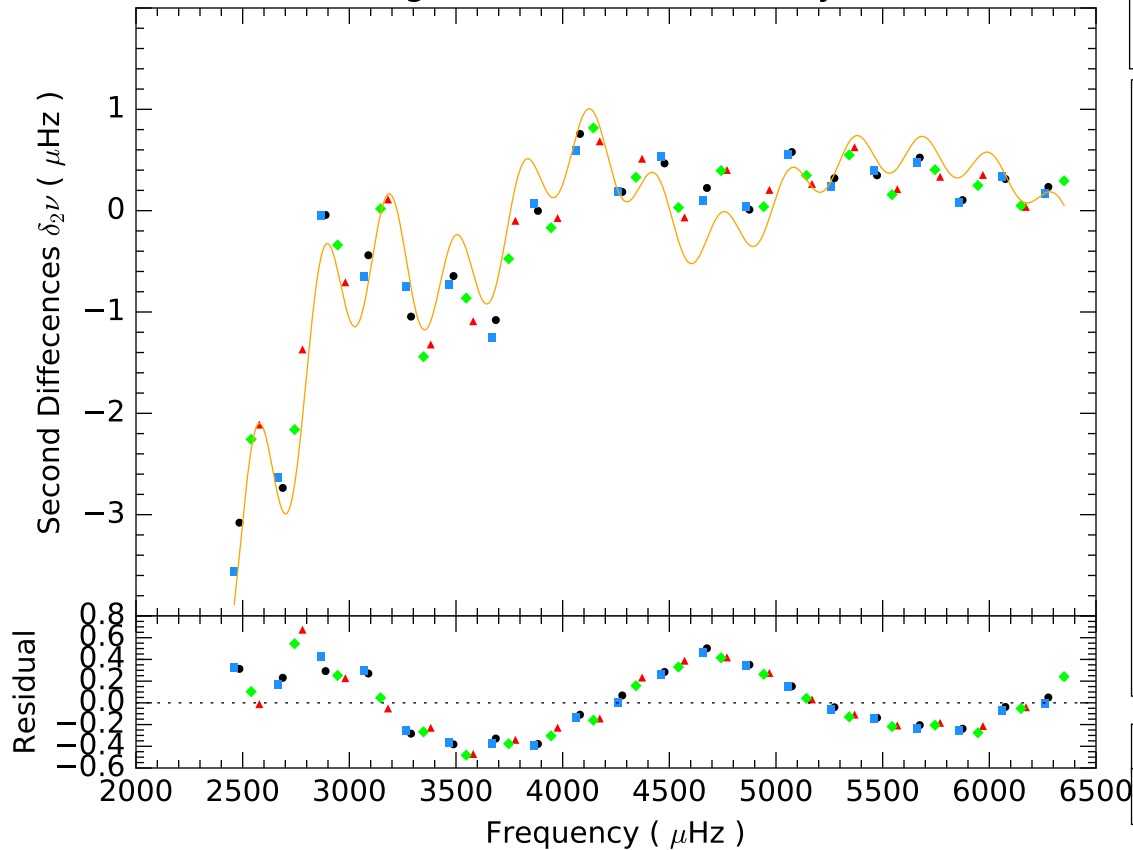


Age after ZAMS: 0.000 Gyr



$$a_0 = -8.7967 \mu\text{Hz}$$

$$a_1 = 0.0036074$$

$$a_2 = -3.5334e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00084518$$

$$c_2 = 1.2532e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 444.19 \text{ s}$$

$$\phi_{HeII} = 3.4979$$

$$b_2 = 5.9827e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1602.2 \text{ s}$$

$$\phi_{CZ} = 0.13444$$

$$d_0 = 0.0001783$$

$$d_2 = 3.1789e-08 \mu\text{Hz}^{-2}$$

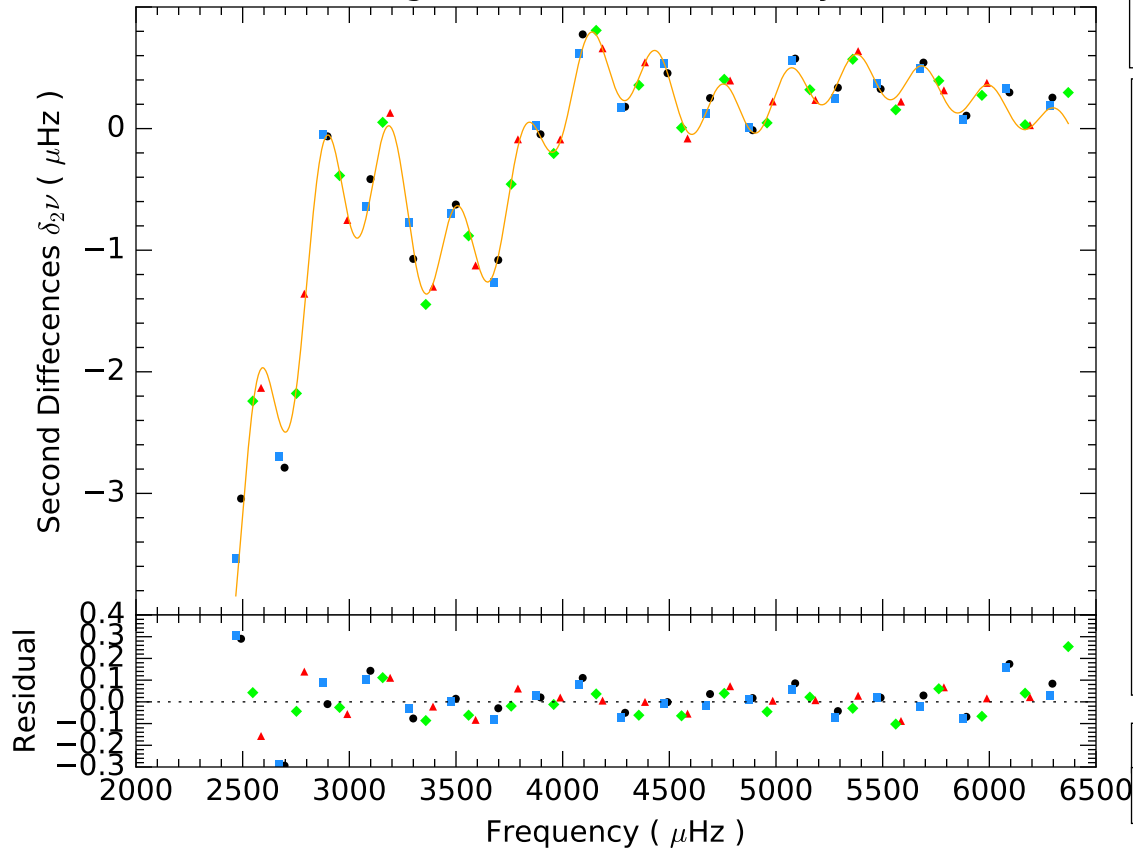
$$\tau_{HI} = 234.18 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile1

$$\chi^2_\nu(\text{dof} = 65) = 0.092501$$

Age after ZAMS: 0.000 Gyr



$$a_0 = -8.637 \mu\text{Hz}$$

$$a_1 = 0.0034861$$

$$a_2 = -3.3547e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013706$$

$$c_2 = 1.5921e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 413.12 \text{ s}$$

$$\phi_{\text{HeII}} = 4.7725$$

$$b_2 = 5.2573e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1604.7 \text{ s}$$

$$\phi_{\text{CZ}} = 6.2262$$

$$d_0 = 0.00010694$$

$$d_2 = 7.3646e-08 \mu\text{Hz}^{-2}$$

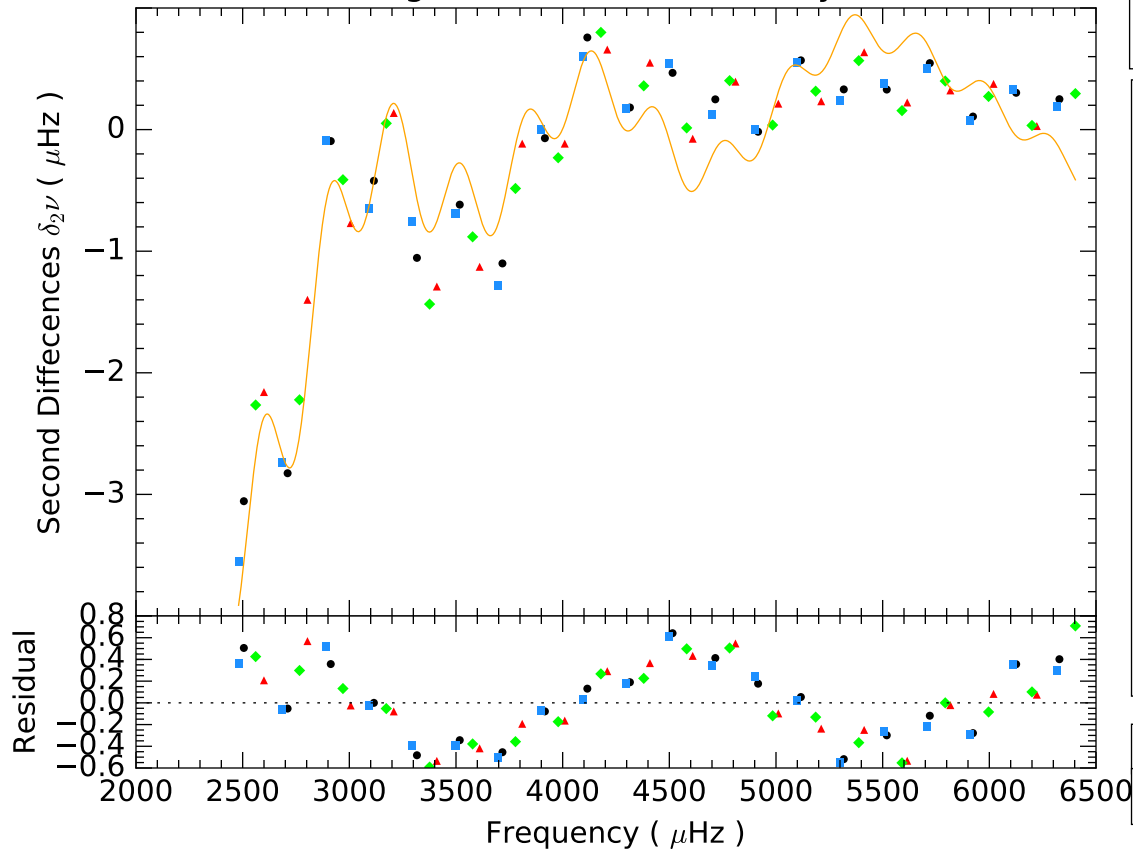
$$\tau_{\text{HI}} = 220.95 \text{ s}$$

$$\phi_{\text{HI}} = 3.1128$$

profile2

$$\chi^2_\nu(\text{dof} = 65) = 0.011489$$

Age after ZAMS: 0.001 Gyr



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

$$a_0 = -8.8467 \mu\text{Hz}$$

$$a_1 = 0.0035884$$

$$a_2 = -3.4818e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00079657$$

$$c_2 = 1.1853e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 439.2 \text{ s}$$

$$\phi_{HeII} = 3.4976$$

$$b_2 = 4.4522e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1625.8 \text{ s}$$

$$\phi_{CZ} = 5.053$$

$$d_0 = 0.00017671$$

$$d_2 = 3.1226e-08 \mu\text{Hz}^{-2}$$

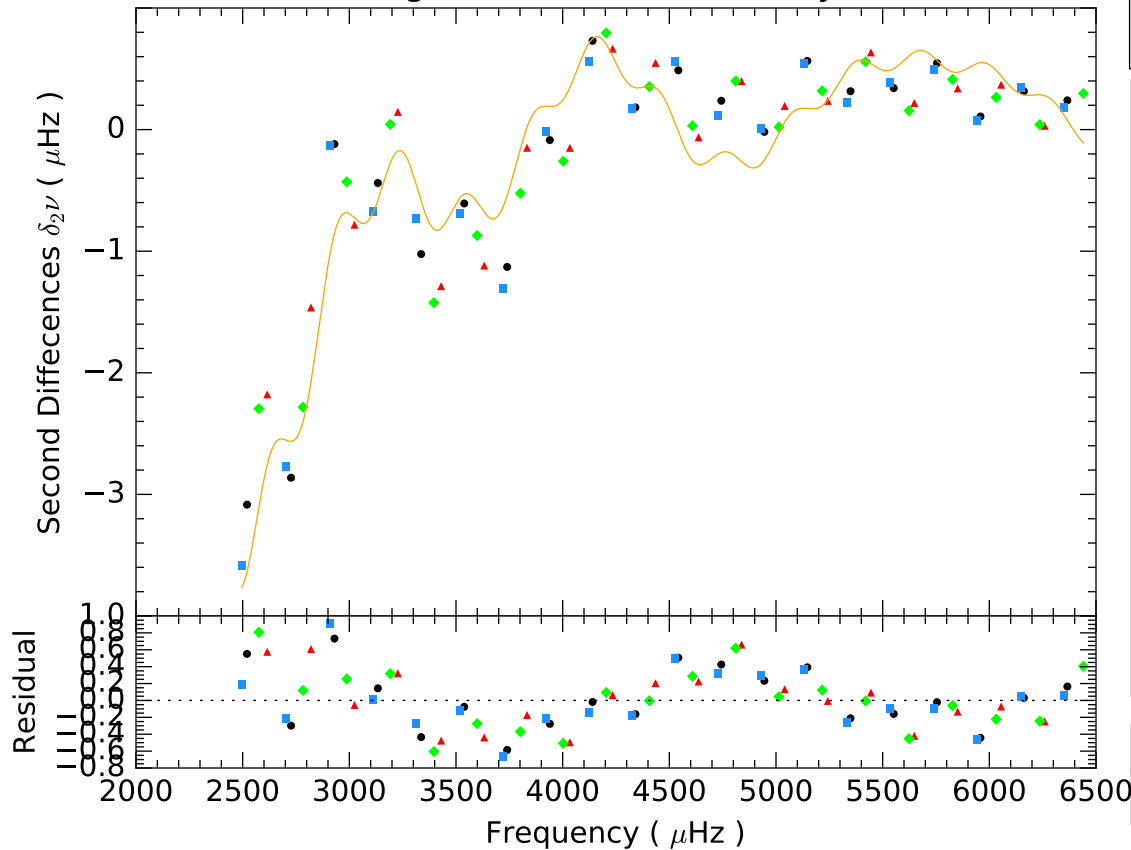
$$\tau_{HI} = 244.24 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile3

$$\chi^2_\nu(\text{dof} = 65) = 0.142$$

Age after ZAMS: 0.002 Gyr



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

$$a_0 = -8.9153 \mu\text{Hz}$$

$$a_1 = 0.0035895$$

$$a_2 = -3.4553e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00085711$$

$$c_2 = 1.2385e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 436.39 \text{ s}$$

$$\phi_{HeII} = 3.4664$$

$$b_2 = 2.4397e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1642.0 \text{ s}$$

$$\phi_{CZ} = 3.7342$$

$$d_0 = 0.00017567$$

$$d_2 = 3.0859e-08 \mu\text{Hz}^{-2}$$

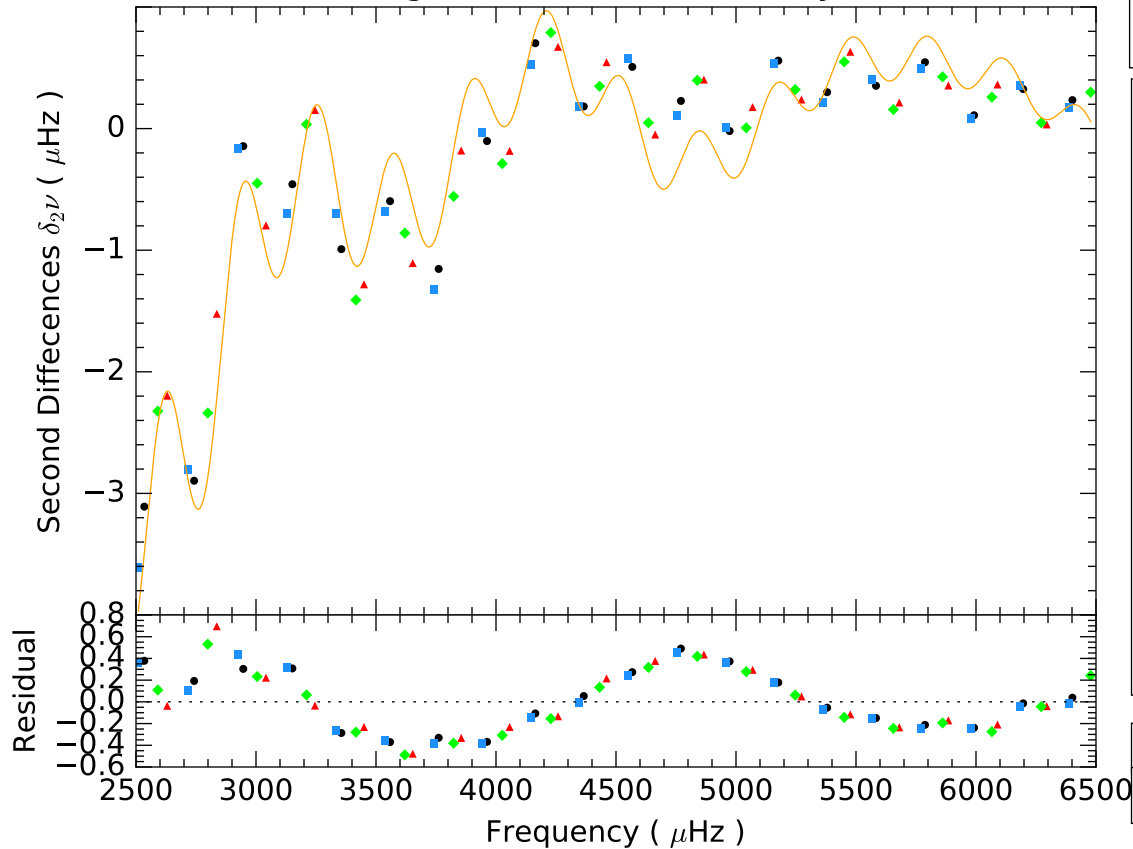
$$\tau_{HI} = 230.8 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile4

$$\chi^2_\nu(\text{dof} = 65) = 0.1527$$

Age after ZAMS: 0.004 Gyr



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

$$a_0 = -8.9367 \mu\text{Hz}$$

$$a_1 = 0.0035728$$

$$a_2 = -3.416e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00080602$$

$$c_2 = 1.1938e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 430.43 \text{ s}$$

$$\phi_{HeII} = 3.5711$$

$$b_2 = 6.3633e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1573.0 \text{ s}$$

$$\phi_{CZ} = 0.011378$$

$$d_0 = 0.00017468$$

$$d_2 = 3.0512e-08 \mu\text{Hz}^{-2}$$

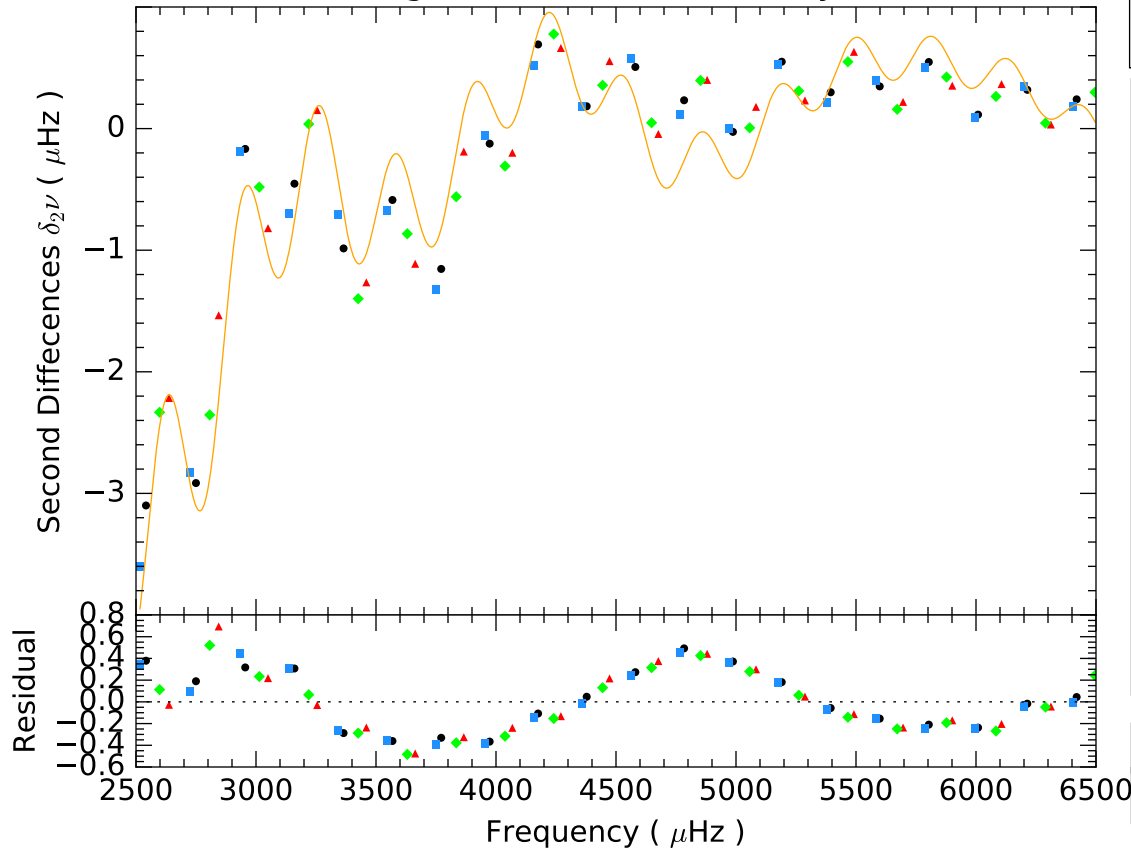
$$\tau_{HI} = 229.47 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile5

$$\chi^2_\nu(\text{dof} = 65) = 0.094776$$

Age after ZAMS: 0.007 Gyr



$$a_0 = -8.9496 \mu\text{Hz}$$

$$a_1 = 0.003565$$

$$a_2 = -3.3971e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0007952$$

$$c_2 = 1.1798e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 428.9 \text{ s}$$

$$\phi_{HeII} = 3.5625$$

$$b_2 = 6.2902e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1568.8 \text{ s}$$

$$\phi_{CZ} = 0.015121$$

$$d_0 = 0.00017419$$

$$d_2 = 3.0343e-08 \mu\text{Hz}^{-2}$$

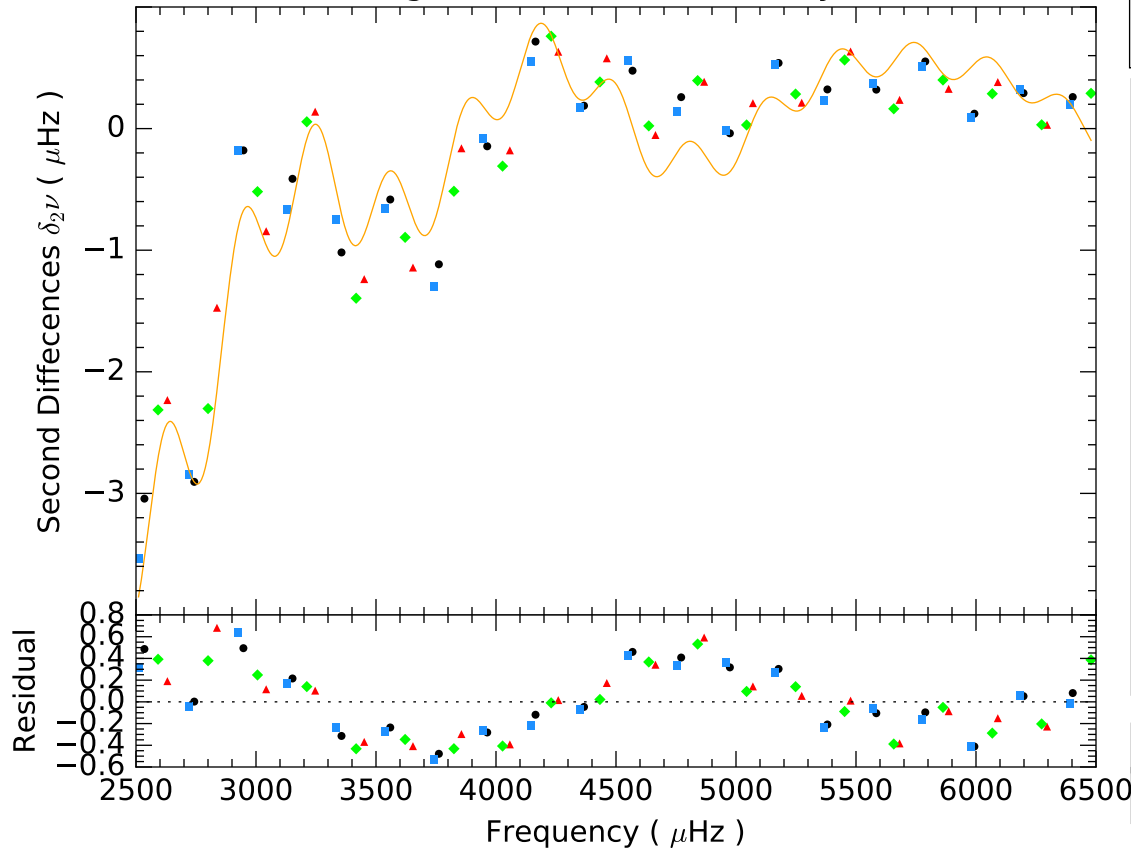
$$\tau_{HI} = 228.81 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile6

$$\chi^2_\nu(\text{dof} = 65) = 0.094683$$

Age after ZAMS: 0.013 Gyr



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

$$a_0 = -8.8311 \mu\text{Hz}$$

$$a_1 = 0.0035236$$

$$a_2 = -3.3617e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00080769$$

$$c_2 = 1.1974e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 435.84 \text{ s}$$

$$\phi_{HeII} = 3.3333$$

$$b_2 = 4.5262e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1604.5 \text{ s}$$

$$\phi_{CZ} = 5.1253$$

$$d_0 = 0.00017464$$

$$d_2 = 3.0498e-08 \mu\text{Hz}^{-2}$$

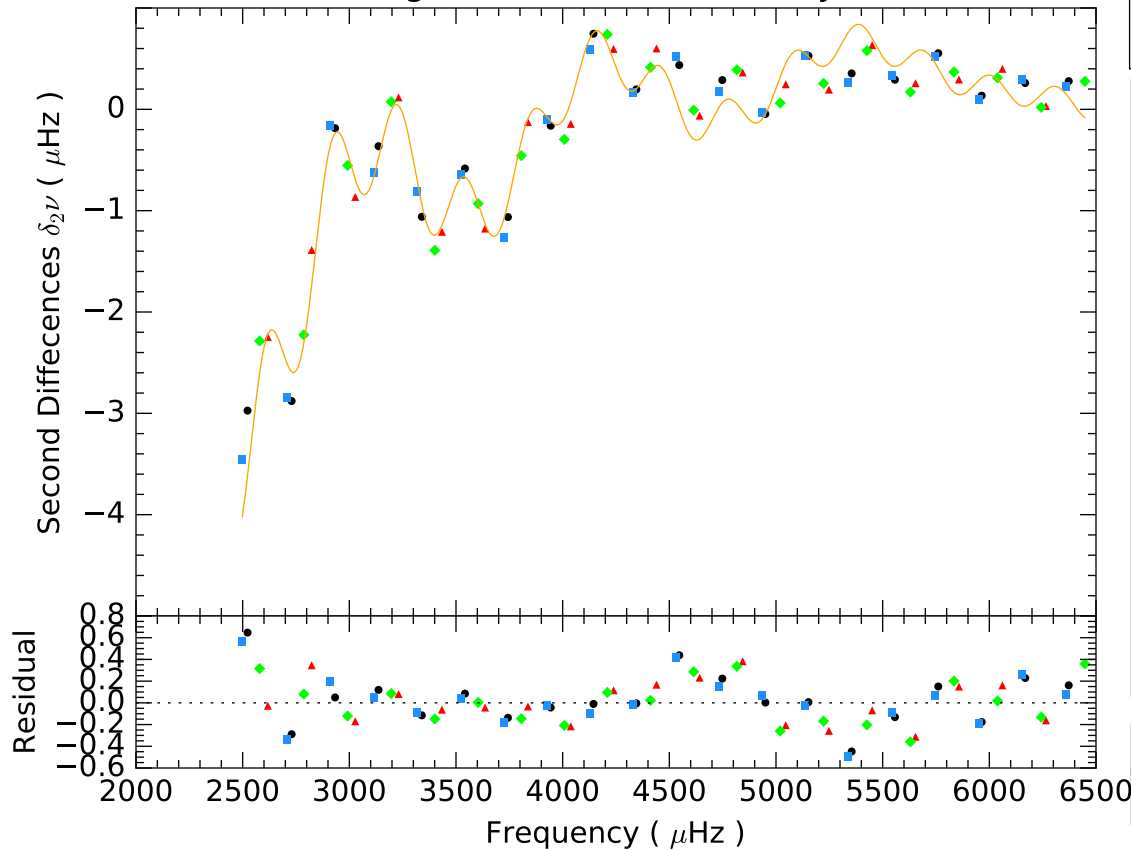
$$\tau_{HI} = 229.39 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile7

$$\chi^2_\nu(\text{dof} = 65) = 0.11377$$

Age after ZAMS: 0.023 Gyr



$$a_0 = -8.9377 \mu\text{Hz}$$

$$a_1 = 0.0035374$$

$$a_2 = -3.3379e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00081611$$

$$c_2 = 1.0756e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 429.63 \text{ s}$$

$$\phi_{\text{HeII}} = 3.9541$$

$$b_2 = 4.798e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1622.7 \text{ s}$$

$$\phi_{\text{CZ}} = 4.7788$$

$$d_0 = 0.0001681$$

$$d_2 = 8.1409e-08 \mu\text{Hz}^{-2}$$

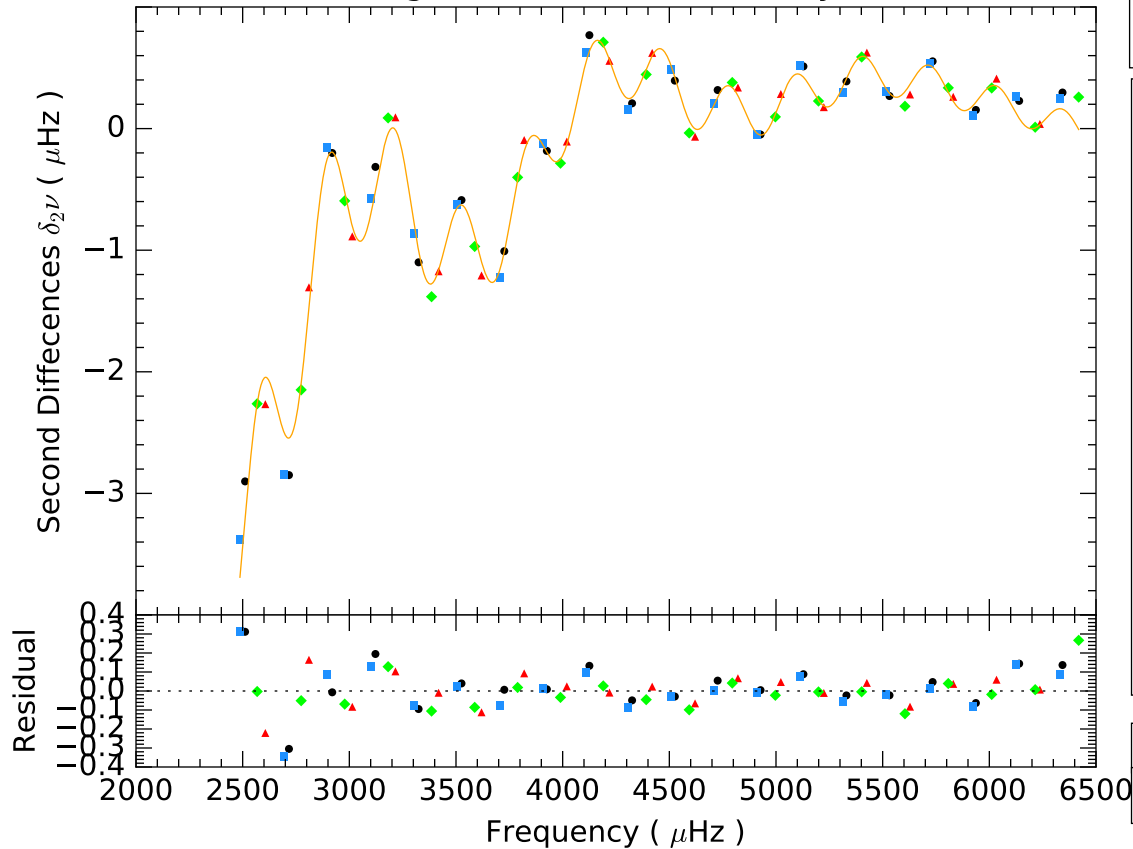
$$\tau_{\text{HI}} = 239.29 \text{ s}$$

$$\phi_{\text{HI}} = 3.2495$$

profile8

$$\chi^2_\nu(\text{dof} = 65) = 0.059331$$

Age after ZAMS: 0.039 Gyr



$$a_0 = -8.6906 \mu\text{Hz}$$

$$a_1 = 0.0034724$$

$$a_2 = -3.3117e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0012395$$

$$c_2 = 1.5123e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 404.16 \text{ s}$$

$$\phi_{HeII} = 4.9529$$

$$b_2 = 5.0017e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1596.7 \text{ s}$$

$$\phi_{CZ} = 6.2016$$

$$d_0 = 0.00010648$$

$$d_2 = 7.3683e-08 \mu\text{Hz}^{-2}$$

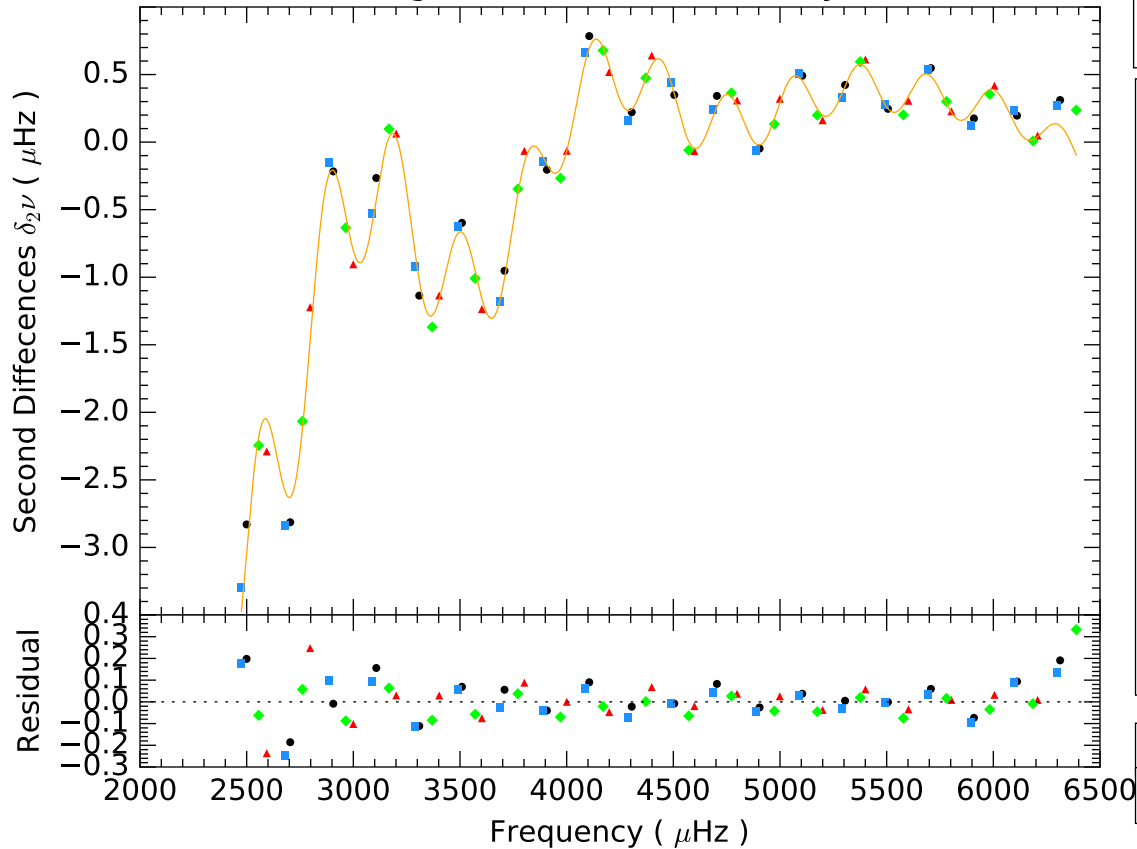
$$\tau_{HI} = 220.11 \text{ s}$$

$$\phi_{HI} = 3.1075$$

profile9

$$\chi^2_\nu(\text{dof} = 65) = 0.014109$$

Age after ZAMS: 0.068 Gyr



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

$$a_0 = -8.9257 \mu\text{Hz}$$

$$a_1 = 0.0036315$$

$$a_2 = -3.5328e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.001158$$

$$c_2 = 1.5224e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 434.91 \text{ s}$$

$$\phi_{HeII} = 3.7326$$

$$b_2 = 5.0076e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1604.1 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 2.1896e-05$$

$$d_2 = 3.0267e-11 \mu\text{Hz}^{-2}$$

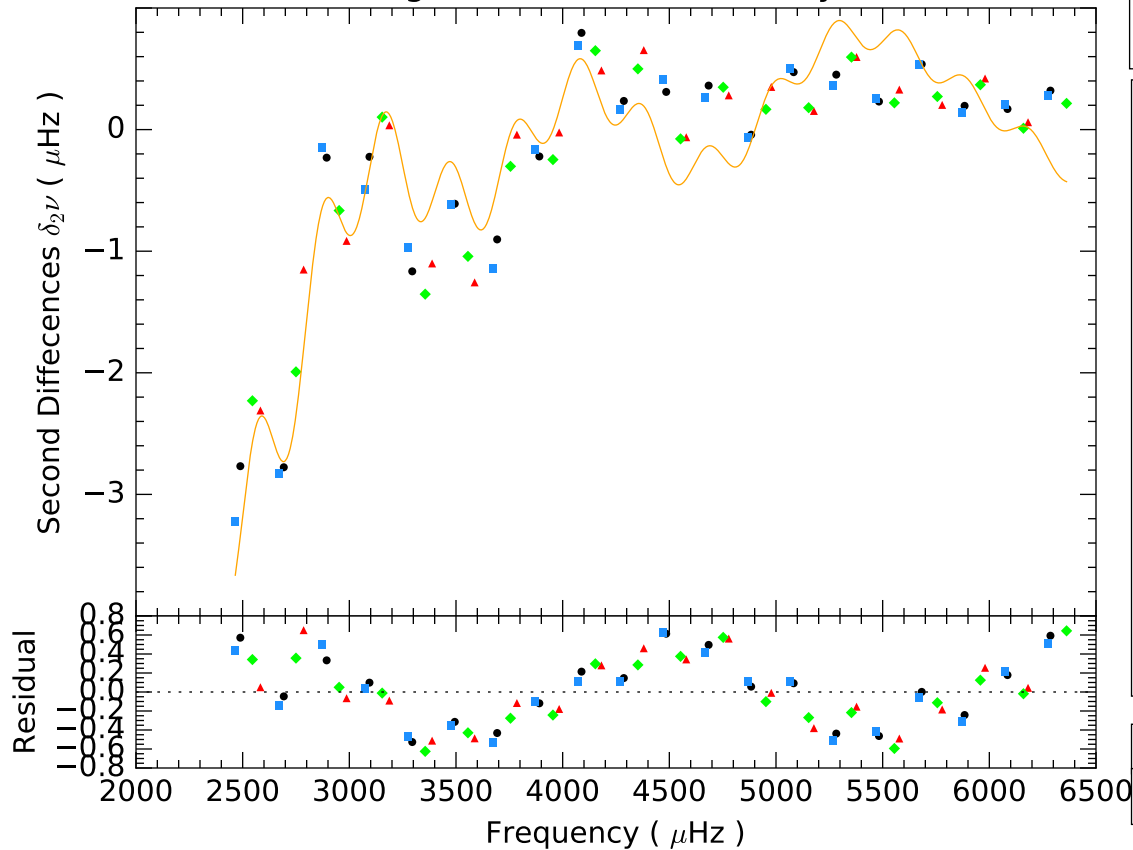
$$\tau_{HI} = 270.9 \text{ s}$$

$$\phi_{HI} = 0.00019118$$

profile10

$$\chi^2_\nu(\text{dof} = 65) = 0.010676$$

Age after ZAMS: 0.118 Gyr



$$a_0 = -8.7071 \mu\text{Hz}$$

$$a_1 = 0.003554$$

$$a_2 = -3.4711e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00072306$$

$$c_2 = 1.1742e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 441.25 \text{ s}$$

$$\phi_{HeII} = 3.5385$$

$$b_2 = 3.8592e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1657.9 \text{ s}$$

$$\phi_{CZ} = 4.5313$$

$$d_0 = 0.00017787$$

$$d_2 = 3.1638e-08 \mu\text{Hz}^{-2}$$

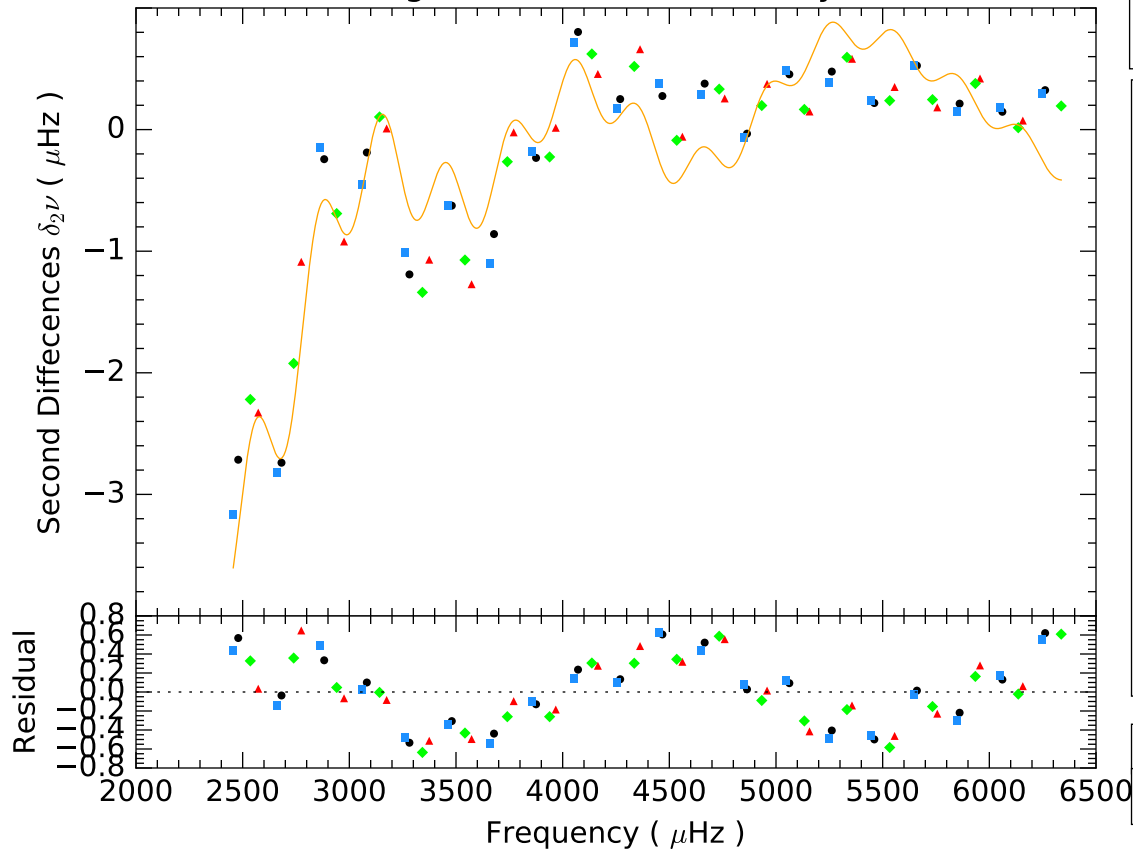
$$\tau_{HI} = 246.1 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile11

$$\chi^2_\nu(\text{dof} = 65) = 0.15186$$

Age after ZAMS: 0.205 Gyr



$$a_0 = -8.6753 \mu\text{Hz}$$

$$a_1 = 0.0035581$$

$$a_2 = -3.4914e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00072105$$

$$c_2 = 1.186e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 443.0 \text{ s}$$

$$\phi_{HeII} = 3.5622$$

$$b_2 = 3.6834e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1669.2 \text{ s}$$

$$\phi_{CZ} = 4.4401$$

$$d_0 = 0.00017858$$

$$d_2 = 3.189e-08 \mu\text{Hz}^{-2}$$

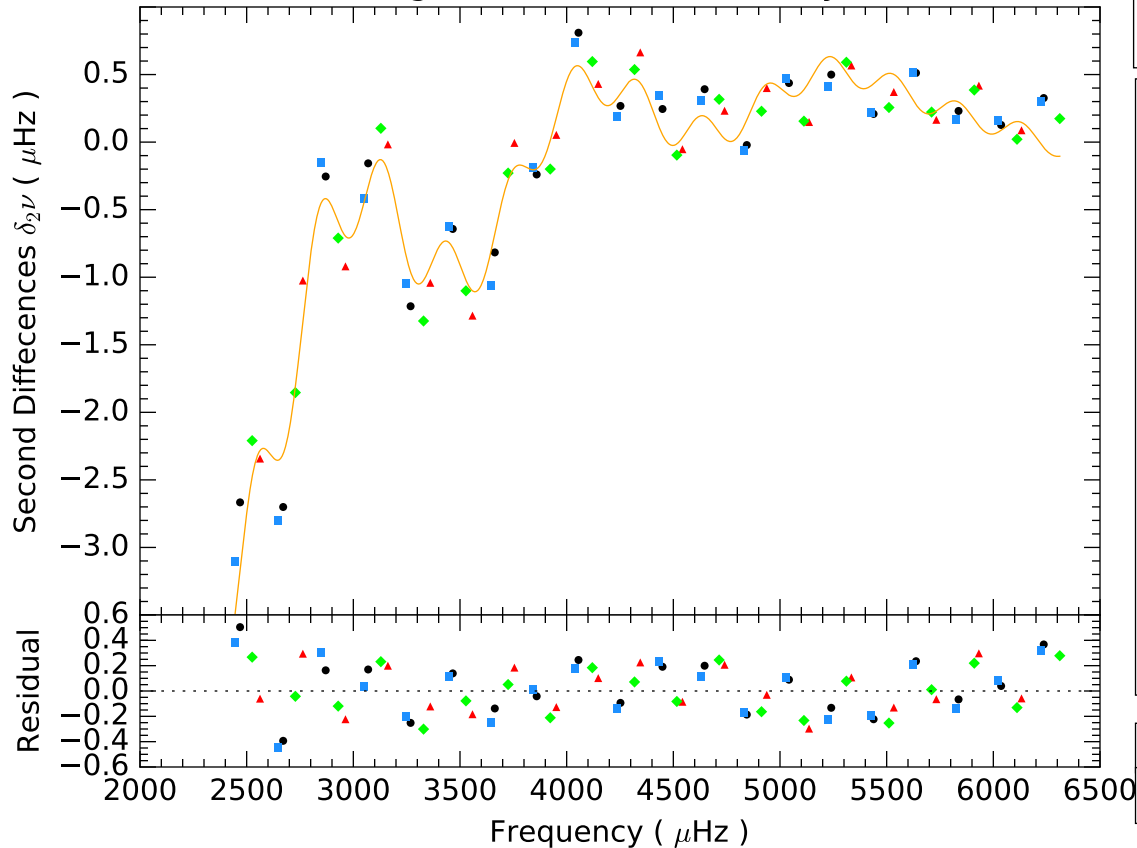
$$\tau_{HI} = 247.12 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile12

$$\chi^2_\nu(\text{dof} = 65) = 0.15345$$

Age after ZAMS: 0.354 Gyr



$$a_0 = -8.6832 \mu\text{Hz}$$

$$a_1 = 0.0035433$$

$$a_2 = -3.4498e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00098257$$

$$c_2 = 1.3881e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 430.36 \text{ s}$$

$$\phi_{HeII} = 4.3275$$

$$b_2 = 2.921e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1672.7 \text{ s}$$

$$\phi_{CZ} = 4.6799$$

$$d_0 = 0.00016491$$

$$d_2 = 1.1748e-07 \mu\text{Hz}^{-2}$$

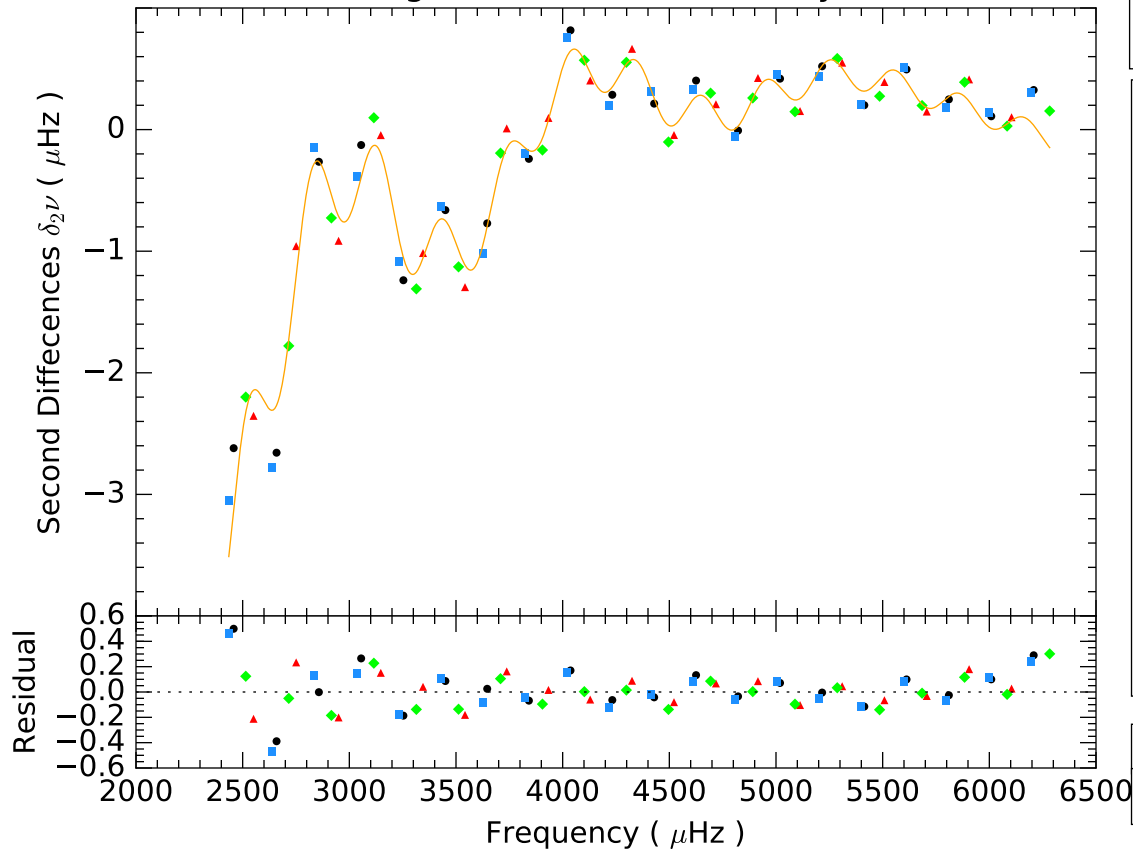
$$\tau_{HI} = 240.58 \text{ s}$$

$$\phi_{HI} = 3.2326$$

profile13

$$\chi^2_\nu(\text{dof} = 65) = 0.050432$$

Age after ZAMS: 0.610 Gyr



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

$$a_0 = -8.7041 \mu \text{ Hz}$$

$$a_1 = 0.0035798$$

$$a_2 = -3.5158e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0012864$$

$$c_2 = 1.5731e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{He II}} = 412.13 \text{ s}$$

$$\phi_{\text{He II}} = 5.1516$$

$$b_2 = 3.5308e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1648.4 \text{ s}$$

$$\phi_{\text{CZ}} = 5.7964$$

$$d_0 = 0.0001771$$

$$d_2 = 1.0938e-07 \mu\text{Hz}^{-2}$$

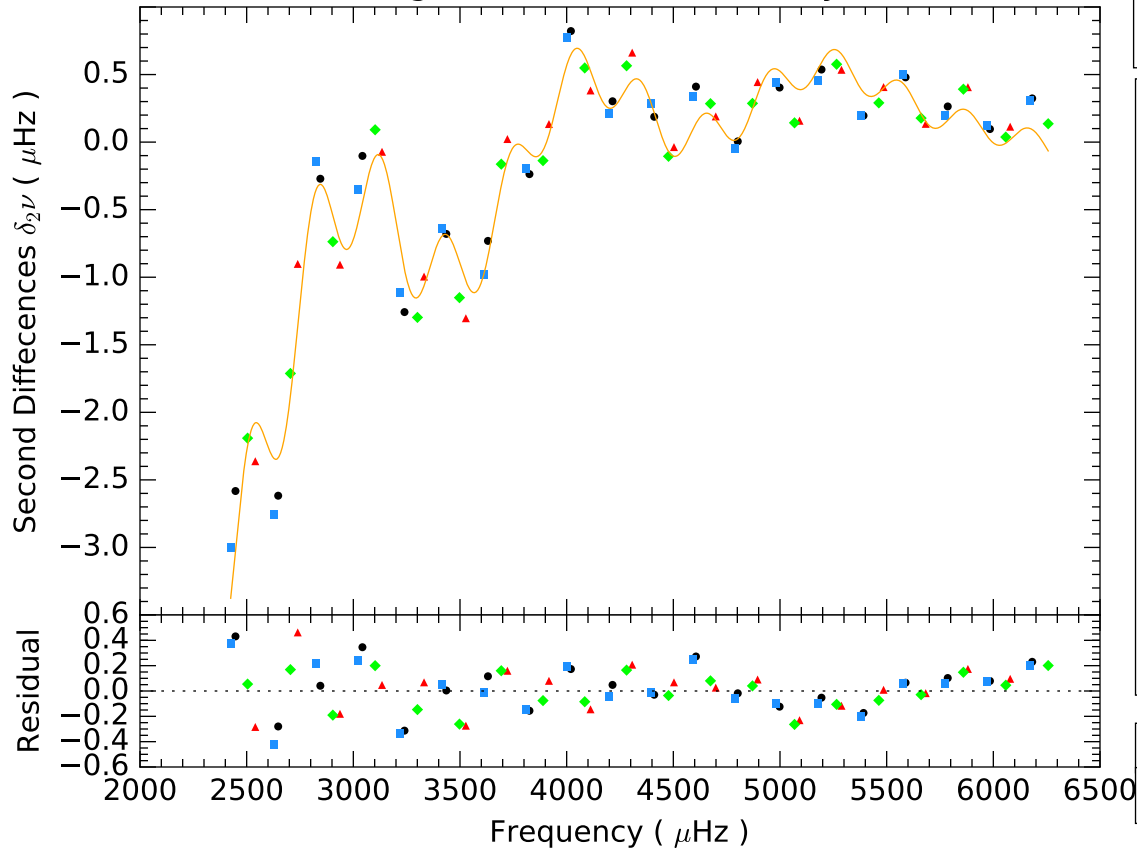
$$\tau_{\text{HI}} = 226.66 \text{ s}$$

$$\phi_{\text{HI}} = 3.3125$$

profile14

$$\chi^2_\nu (\text{dof} = 65) = 0.030865$$

Age after ZAMS: 0.910 Gyr



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

$$a_0 = -8.6742 \mu\text{Hz}$$

$$a_1 = 0.0035832$$

$$a_2 = -3.5307e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00079733$$

$$c_2 = 1.2248e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 433.98 \text{ s}$$

$$\phi_{\text{HeII}} = 4.352$$

$$b_2 = 3.6215e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1642.4 \text{ s}$$

$$\phi_{\text{CZ}} = 6.1121$$

$$d_0 = 0.00017164$$

$$d_2 = 1.3042e-07 \mu\text{Hz}^{-2}$$

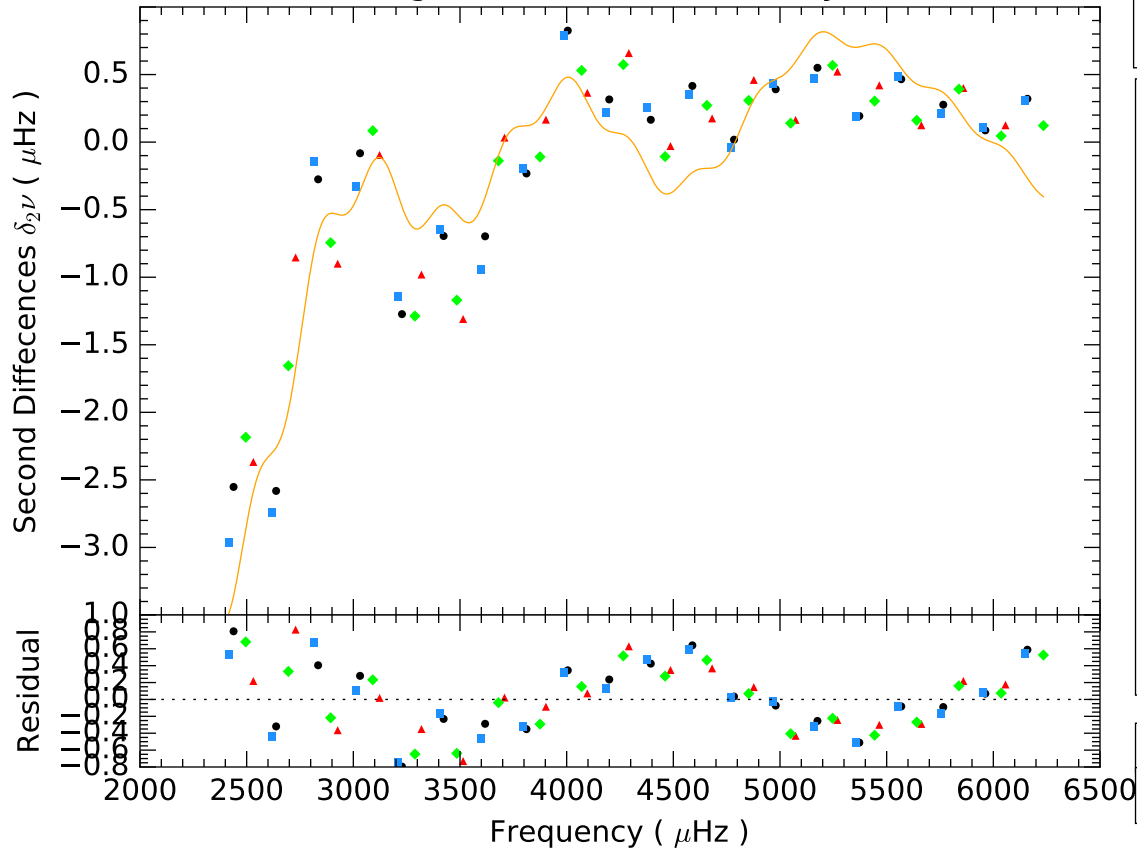
$$\tau_{\text{HI}} = 237.73 \text{ s}$$

$$\phi_{\text{HI}} = 3.4543$$

profile15

$$\chi^2_\nu (\text{dof} = 65) = 0.039608$$

Age after ZAMS: 1.210 Gyr



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

$$a_0 = -8.6047 \mu \text{ Hz}$$

$$a_1 = 0.0036042$$

$$a_2 = -3.6098e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00076158$$

$$c_2 = 1.2617e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 453.06 \text{ s}$$

$$\phi_{HeII} = 3.5612$$

$$b_2 = 1.5876e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1703.1 \text{ s}$$

$$\phi_{CZ} = 3.6556$$

$$d_0 = 0.00018153$$

$$d_2 = 3.2951e-08 \mu\text{Hz}^{-2}$$

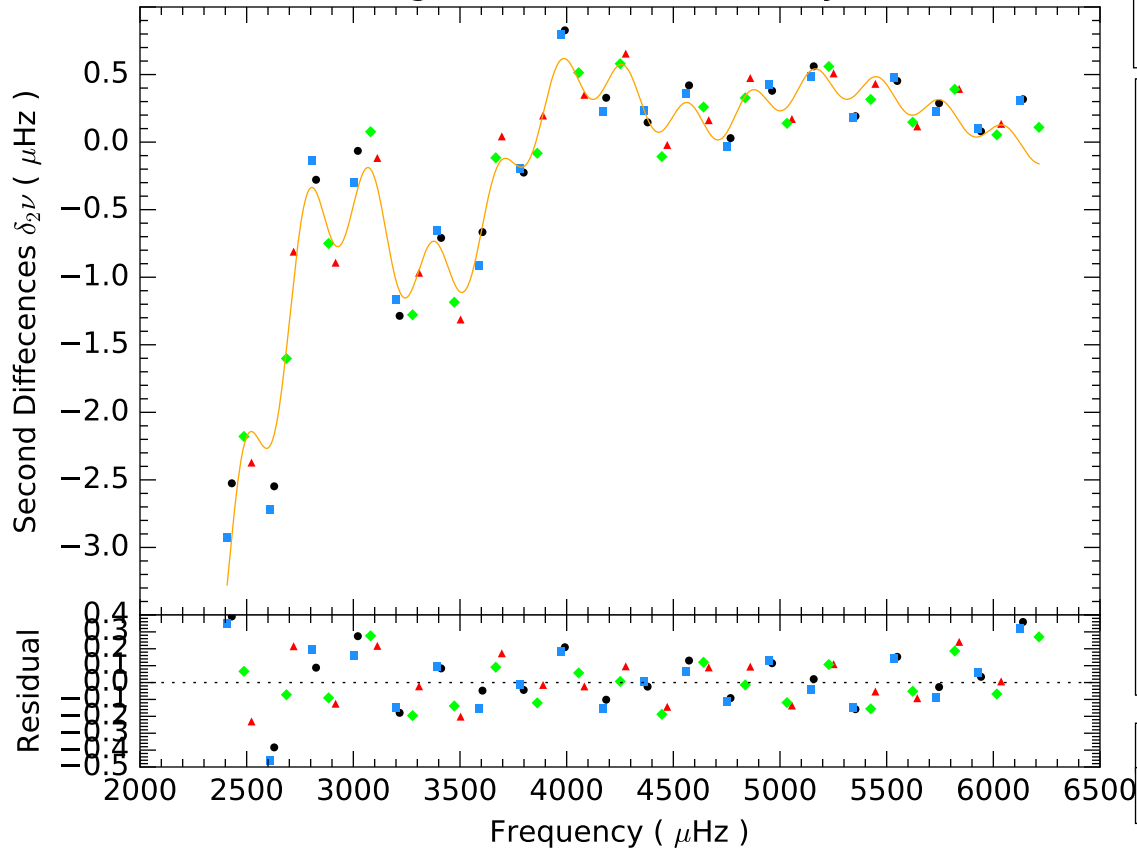
$$\tau_{HI} = 251.41 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile16

$$\chi^2_{\nu}(\text{dof} = 65) = 0.18836$$

Age after ZAMS: 1.510 Gyr



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

$$a_0 = -8.5985 \mu \text{ Hz}$$

$$a_1 = 0.0035843$$

$$a_2 = -3.566e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0013016$$

$$c_2 = 1.6636e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 416.04 \text{ s}$$

$$\phi_{HeII} = 5.2456$$

$$b_2 = 3.1185e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1682.1 \text{ s}$$

$$\phi_{CZ} = 5.5407$$

$$d_0 = 0.00019239$$

$$d_2 = 1.1298e-07 \mu\text{Hz}^{-2}$$

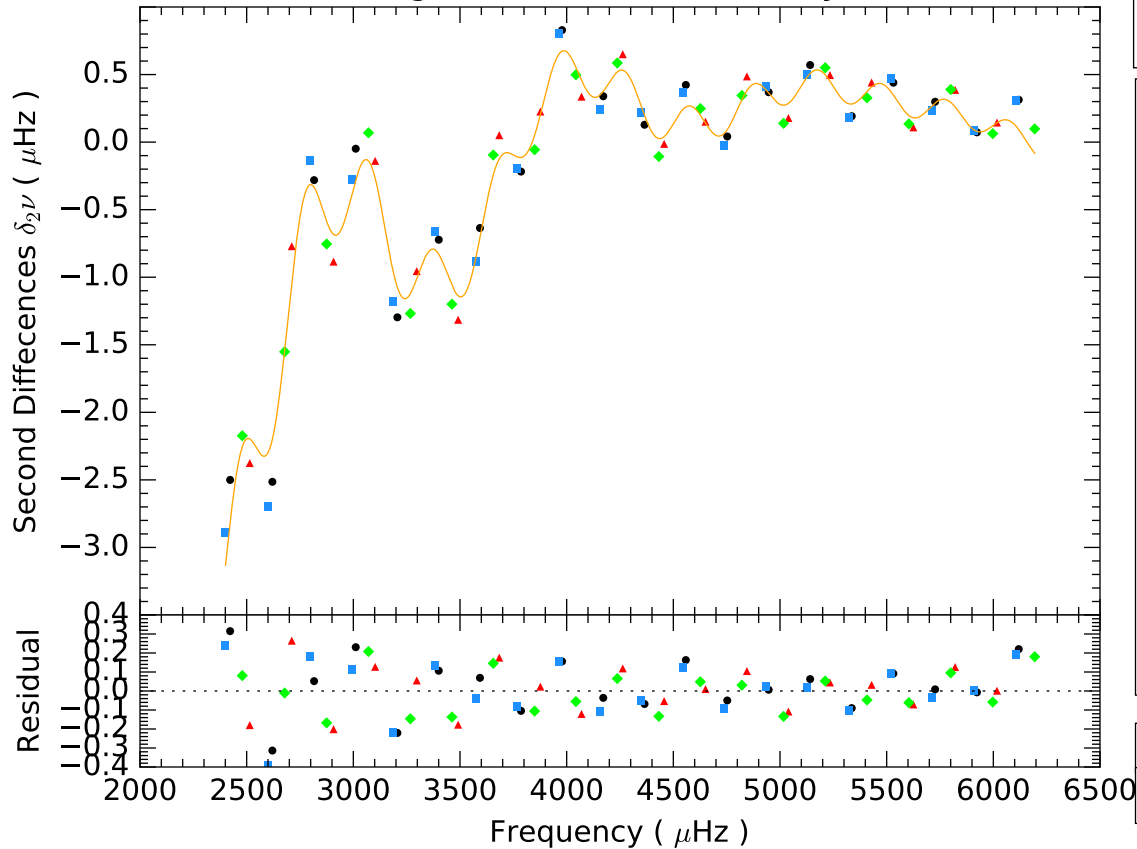
$$\tau_{HI} = 225.41 \text{ s}$$

$$\phi_{HI} = 3.4316$$

profile17

$$\chi^2_\nu(\text{dof} = 65) = 0.033568$$

Age after ZAMS: 1.810 Gyr



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

$$a_0 = -8.519 \mu\text{Hz}$$

$$a_1 = 0.0035701$$

$$a_2 = -3.5663e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0012062$$

$$c_2 = 1.6089e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 440.16 \text{ s}$$

$$\phi_{\text{HeII}} = 4.2919$$

$$b_2 = 3.0314e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1666.6 \text{ s}$$

$$\phi_{\text{CZ}} = 6.2785$$

$$d_0 = 4.8454e-05$$

$$d_2 = 4.0621e-08 \mu\text{Hz}^{-2}$$

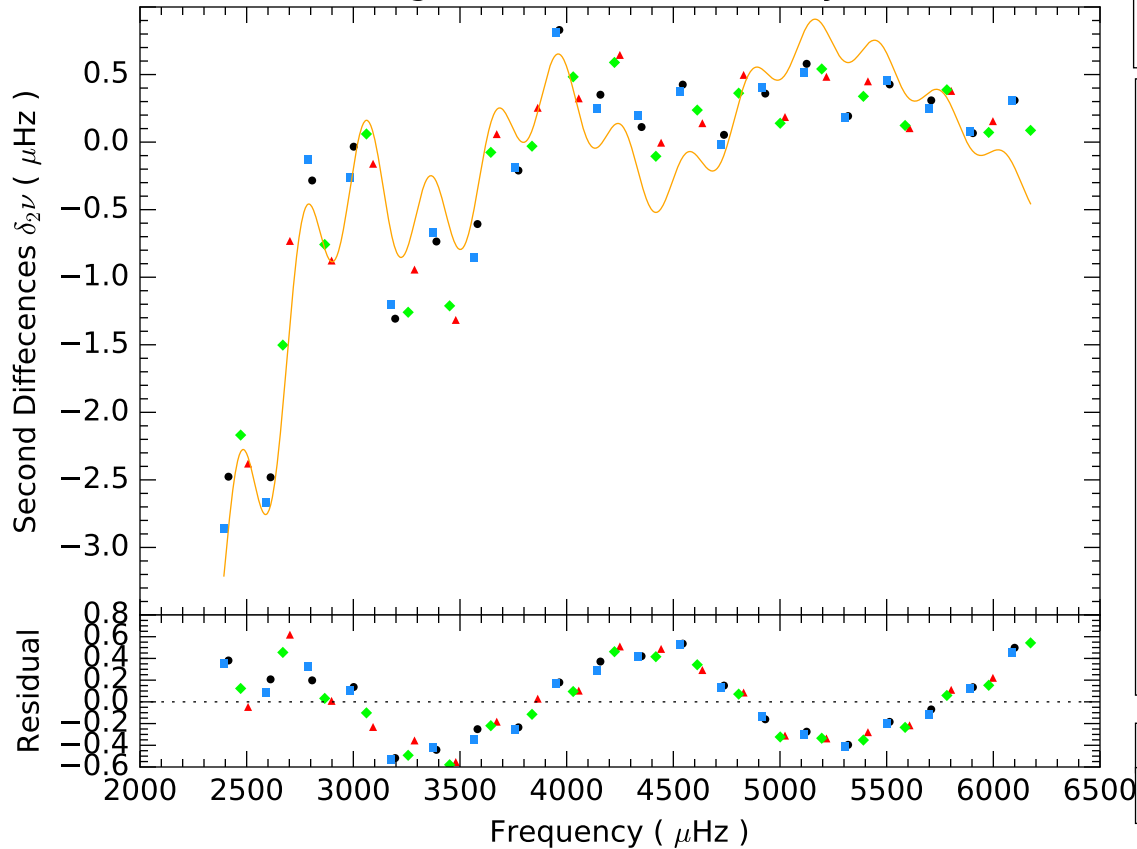
$$\tau_{\text{HI}} = 232.16 \text{ s}$$

$$\phi_{\text{HI}} = 2.822$$

profile18

$$\chi^2_\nu(\text{dof} = 65) = 0.022517$$

Age after ZAMS: 2.110 Gyr



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

$$a_0 = -8.5365 \mu\text{Hz}$$

$$a_1 = 0.0036203$$

$$a_2 = -3.6692e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00078272$$

$$c_2 = 1.3055e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 459.9 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5323$$

$$b_2 = 4.0114e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1670.9 \text{ s}$$

$$\phi_{\text{CZ}} = 0.014578$$

$$d_0 = 0.00018331$$

$$d_2 = 3.3602e-08 \mu\text{Hz}^{-2}$$

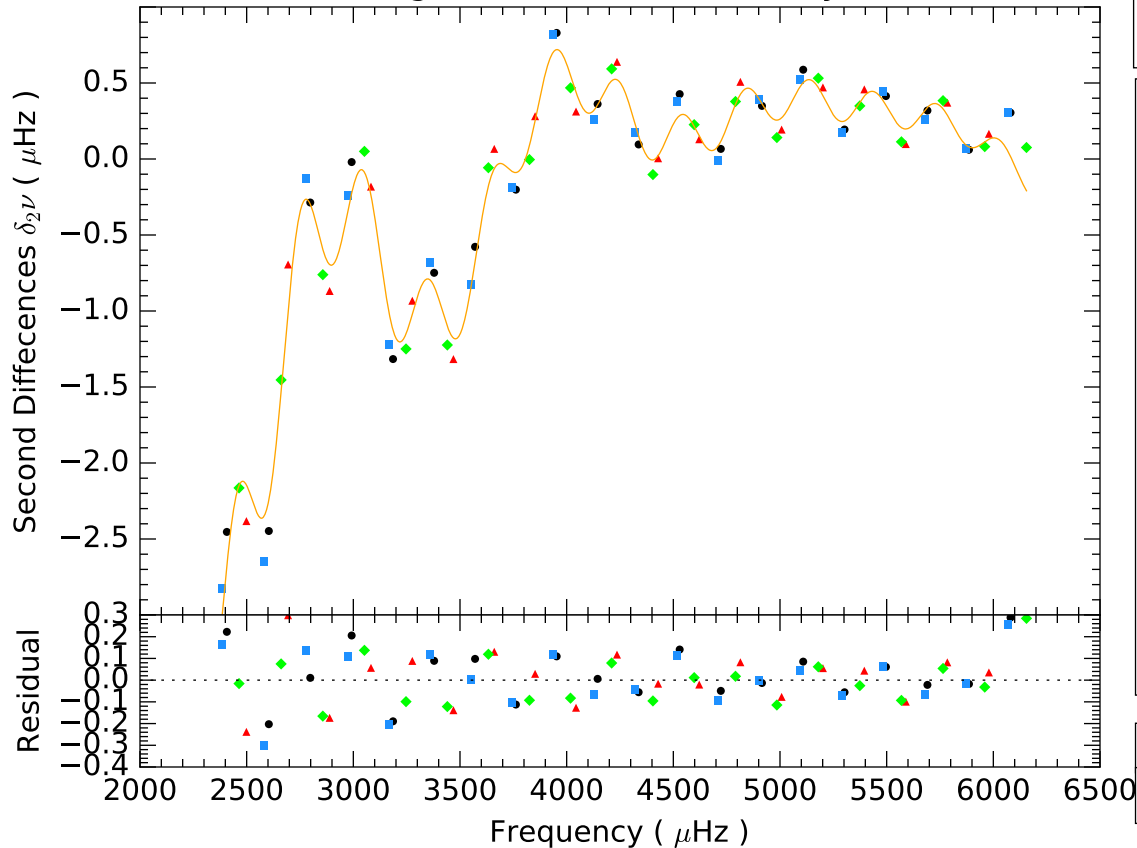
$$\tau_{\text{HI}} = 254.03 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile19

$$\chi^2_\nu(\text{dof} = 65) = 0.12447$$

Age after ZAMS: 2.410 Gyr



$$a_0 = -8.6477 \mu\text{Hz}$$

$$a_1 = 0.0036878$$

$$a_2 = -3.7543e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0011576$$

$$c_2 = 1.6231e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 460.85 \text{ s}$$

$$\phi_{HeII} = 3.5938$$

$$b_2 = 3.3253e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1678.5 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 2.329e-05$$

$$d_2 = 1.469e-10 \mu\text{Hz}^{-2}$$

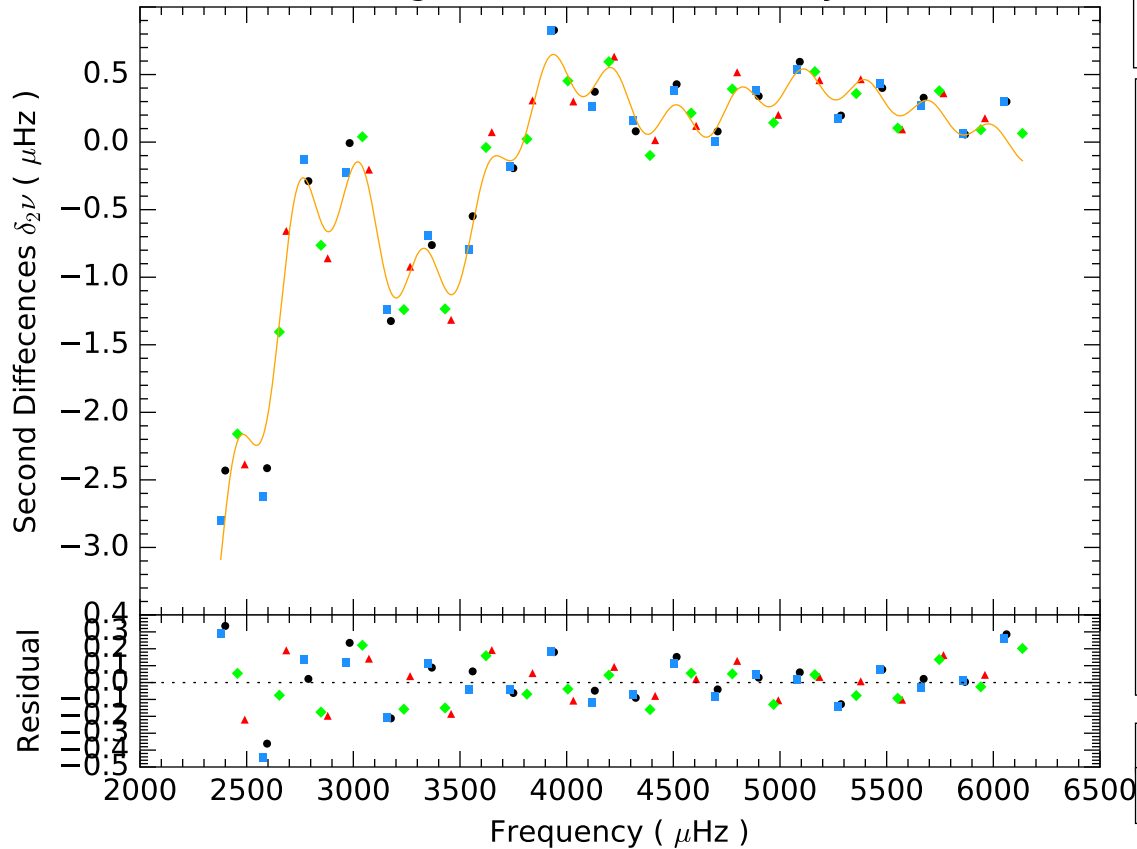
$$\tau_{HI} = 282.2 \text{ s}$$

$$\phi_{HI} = 1.7546e-06$$

profile20

$$\chi^2_\nu(\text{dof} = 65) = 0.018387$$

Age after ZAMS: 2.710 Gyr



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

$$a_0 = -8.458 \mu\text{Hz}$$

$$a_1 = 0.003581$$

$$a_2 = -3.6135e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013819$$

$$c_2 = 1.7279e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 430.29 \text{ s}$$

$$\phi_{\text{HeII}} = 4.9242$$

$$b_2 = 2.888e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1689.7 \text{ s}$$

$$\phi_{\text{CZ}} = 6.1931$$

$$d_0 = 0.00010357$$

$$d_2 = 8.282e-08 \mu\text{Hz}^{-2}$$

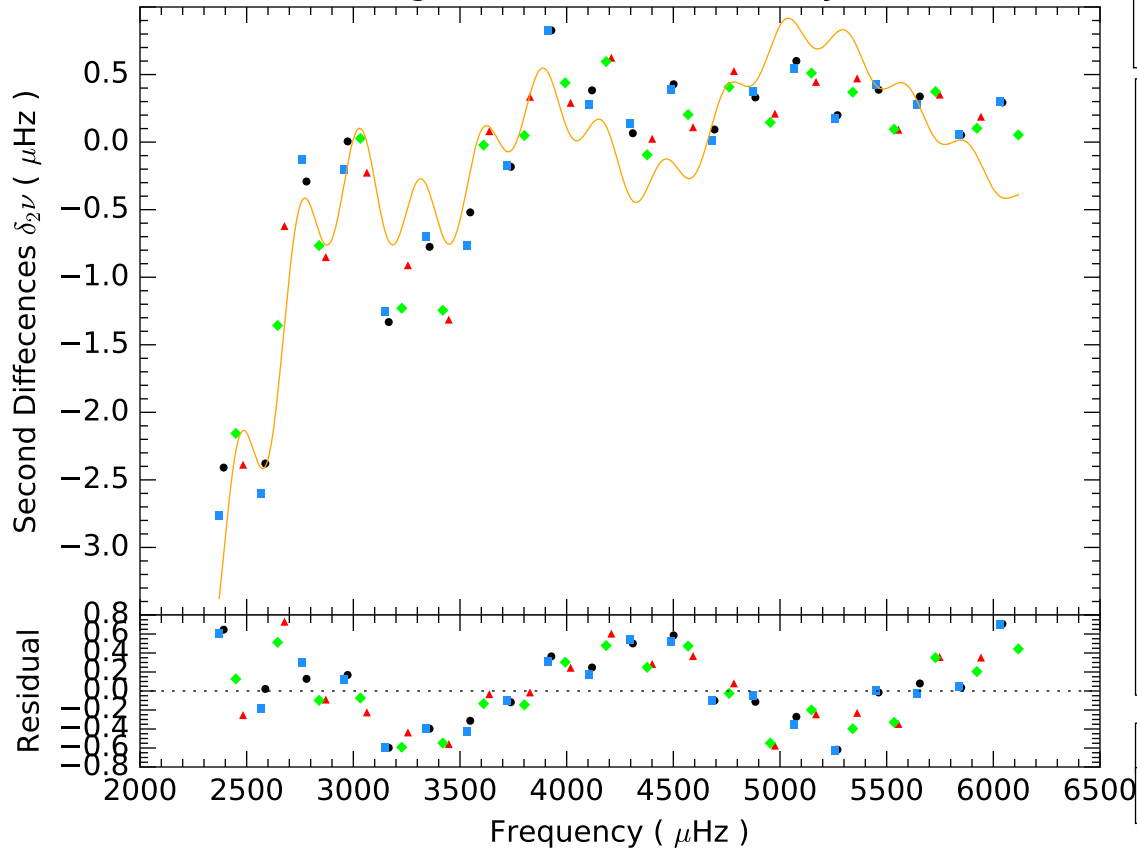
$$\tau_{\text{HI}} = 230.44 \text{ s}$$

$$\phi_{\text{HI}} = 3.2265$$

profile21

$$\chi^2_\nu(\text{dof} = 65) = 0.025905$$

Age after ZAMS: 3.010 Gyr



$$a_0 = -8.4382 \mu\text{Hz}$$

$$a_1 = 0.0036218$$

$$a_2 = -3.7137e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00071311$$

$$c_2 = 1.2747e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 458.86 \text{ s}$$

$$\phi_{\text{HeII}} = 3.8189$$

$$b_2 = 3.2811e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1755.3 \text{ s}$$

$$\phi_{\text{CZ}} = 3.7602$$

$$d_0 = 0.00018503$$

$$d_2 = 3.4237e-08 \mu\text{Hz}^{-2}$$

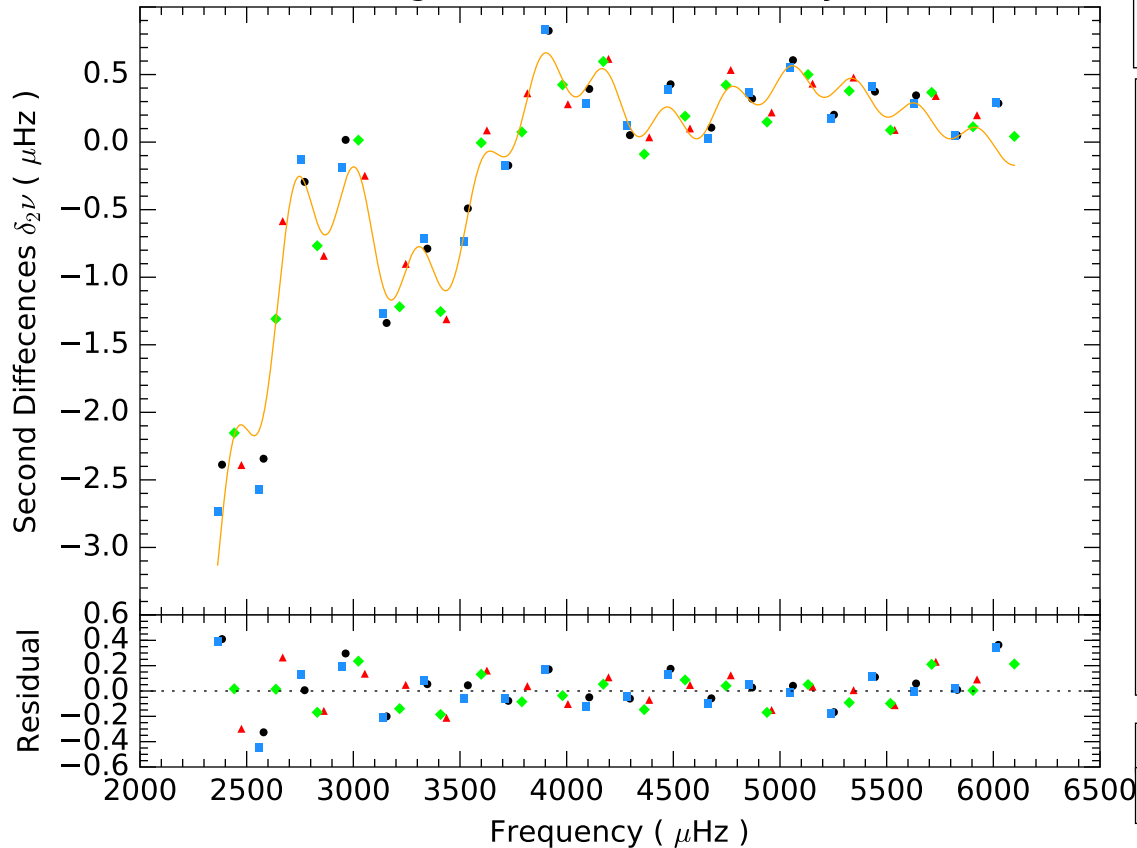
$$\tau_{\text{HI}} = 260.02 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile22

$$\chi^2_\nu(\text{dof} = 65) = 0.16875$$

Age after ZAMS: 3.310 Gyr



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

$$a_0 = -8.3758 \mu\text{Hz}$$

$$a_1 = 0.0035811$$

$$a_2 = -3.6506e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013634$$

$$c_2 = 1.71e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 430.8 \text{ s}$$

$$\phi_{\text{HeII}} = 5.0879$$

$$b_2 = 2.853e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1716.5 \text{ s}$$

$$\phi_{\text{CZ}} = 5.5904$$

$$d_0 = 0.00024334$$

$$d_2 = 1.3786e-07 \mu\text{Hz}^{-2}$$

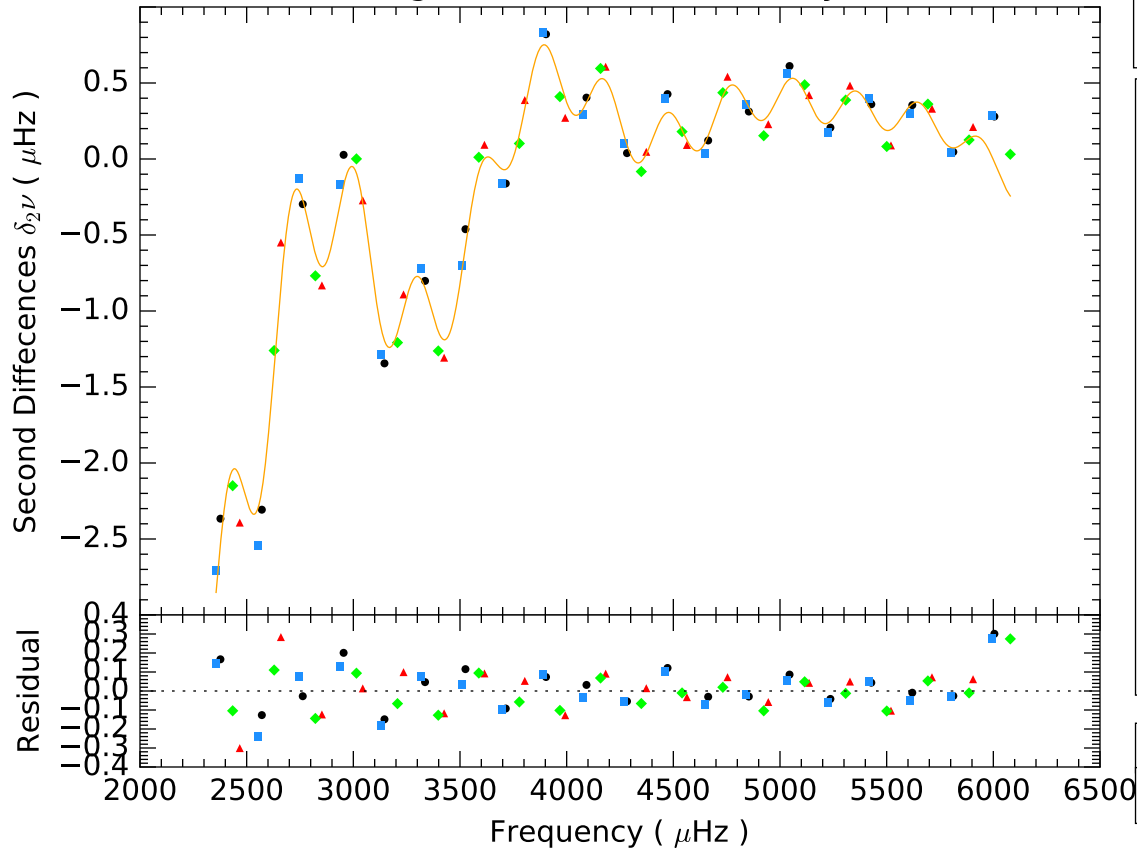
$$\tau_{\text{HI}} = 239.91 \text{ s}$$

$$\phi_{\text{HI}} = 3.0353$$

profile23

$$\chi^2_\nu(\text{dof} = 65) = 0.032555$$

Age after ZAMS: 3.610 Gyr



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

$$a_0 = -8.573 \mu\text{Hz}$$

$$a_1 = 0.0037167$$

$$a_2 = -3.8442e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0011541$$

$$c_2 = 1.6511e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 469.18 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5791$$

$$b_2 = 3.4627e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1703.8 \text{ s}$$

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

$$d_0 = 2.3693e-05$$

$$d_2 = 5.4033e-30 \mu\text{Hz}^{-2}$$

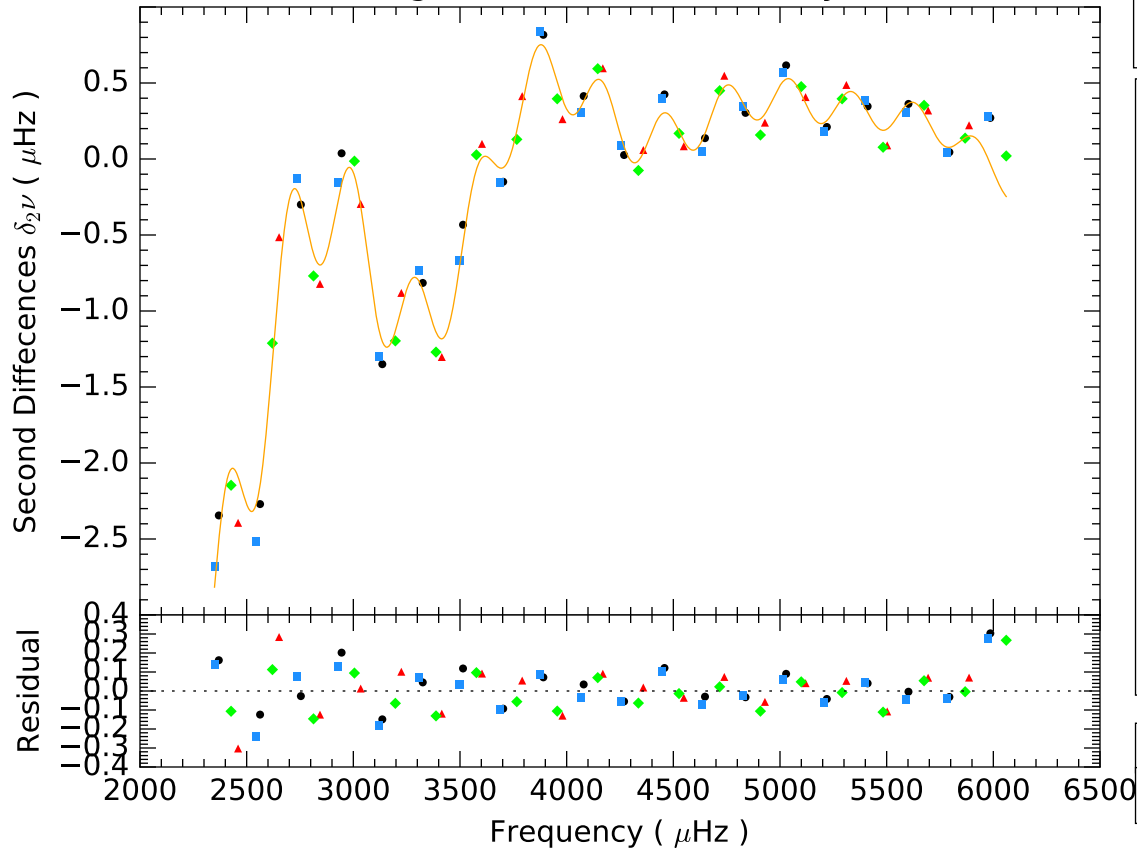
$$\tau_{\text{HI}} = 286.19 \text{ s}$$

$$\phi_{\text{HI}} = 1.0217e-22$$

profile24

$$\chi^2_\nu(\text{dof} = 65) = 0.015565$$

Age after ZAMS: 3.910 Gyr



$$a_0 = -8.5508 \mu\text{Hz}$$

$$a_1 = 0.0037225$$

$$a_2 = -3.8654e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0011529$$

$$c_2 = 1.6575e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 471.4 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5717$$

$$b_2 = 3.3834e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1710.4 \text{ s}$$

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

$$d_0 = 2.3836e-05$$

$$d_2 = 2.5029e-22 \mu\text{Hz}^{-2}$$

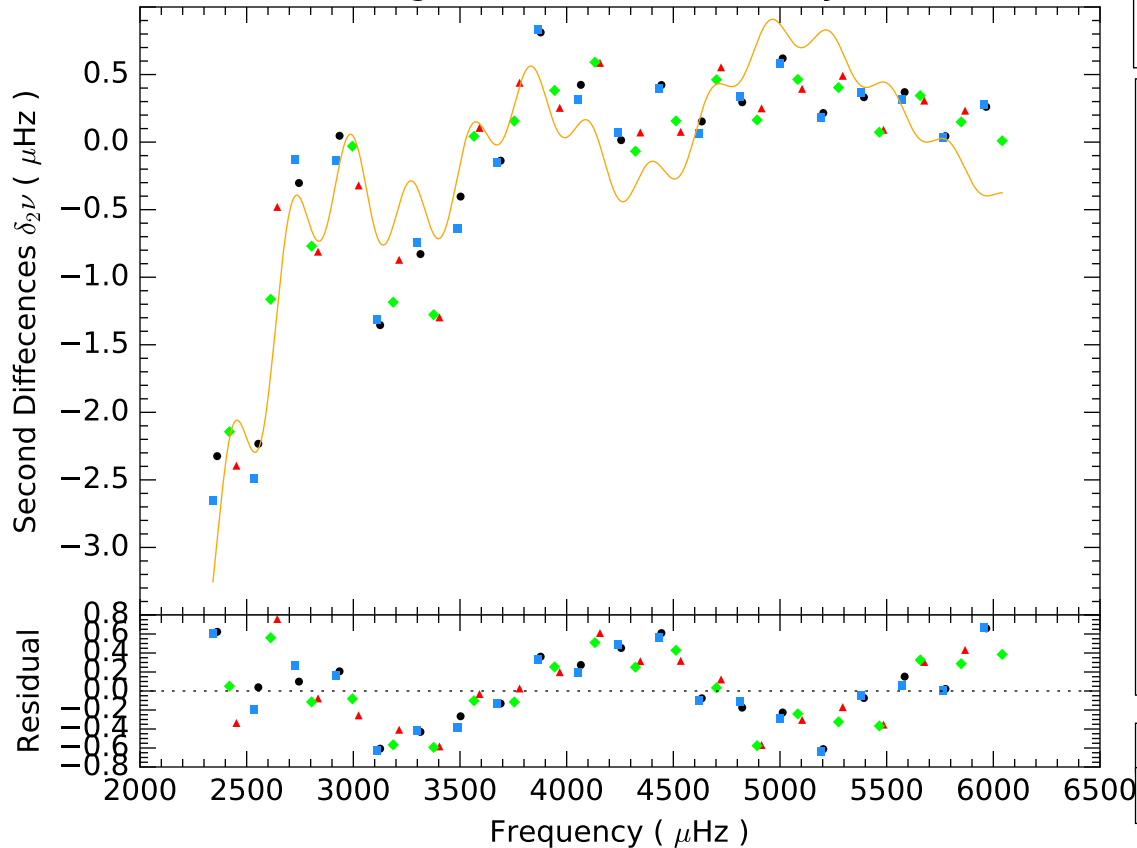
$$\tau_{\text{HI}} = 287.18 \text{ s}$$

$$\phi_{\text{HI}} = 7.2837e-12$$

profile25

$$\chi^2_\nu(\text{dof} = 65) = 0.015733$$

Age after ZAMS: 4.210 Gyr



$$a_0 = -8.3397 \mu \text{ Hz}$$

$$a_1 = 0.0036386$$

$$a_2 = -3.7898e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00068843$$

$$c_2 = 1.2741e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 463.75 \text{ s}$$

$$\phi_{\text{HeII}} = 3.9455$$

$$b_2 = 3.0111e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1784.3 \text{ s}$$

$$\phi_{\text{CZ}} = 3.5964$$

$$d_0 = 0.00018738$$

$$d_2 = 3.5113e-08 \mu\text{Hz}^{-2}$$

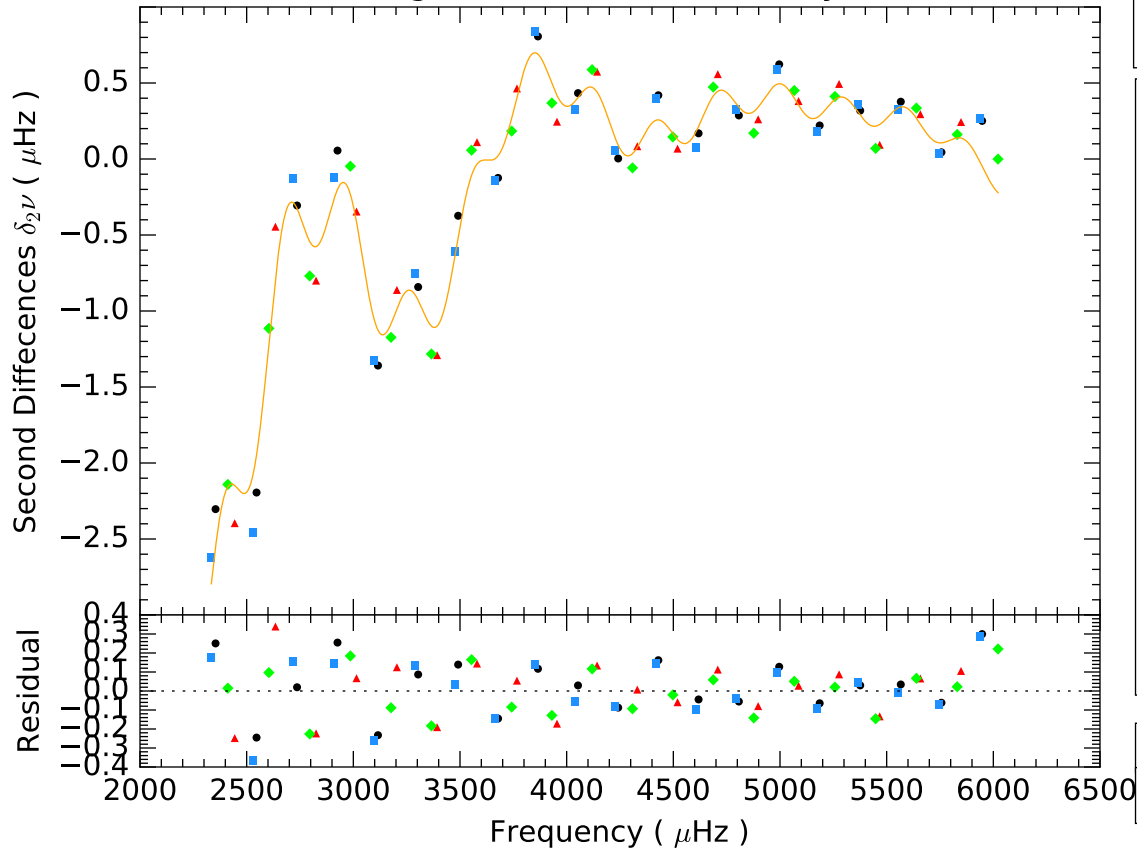
$$\tau_{\text{HI}} = 263.41 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile26

$$\chi^2_\nu(\text{dof} = 65) = 0.16916$$

Age after ZAMS: 4.510 Gyr



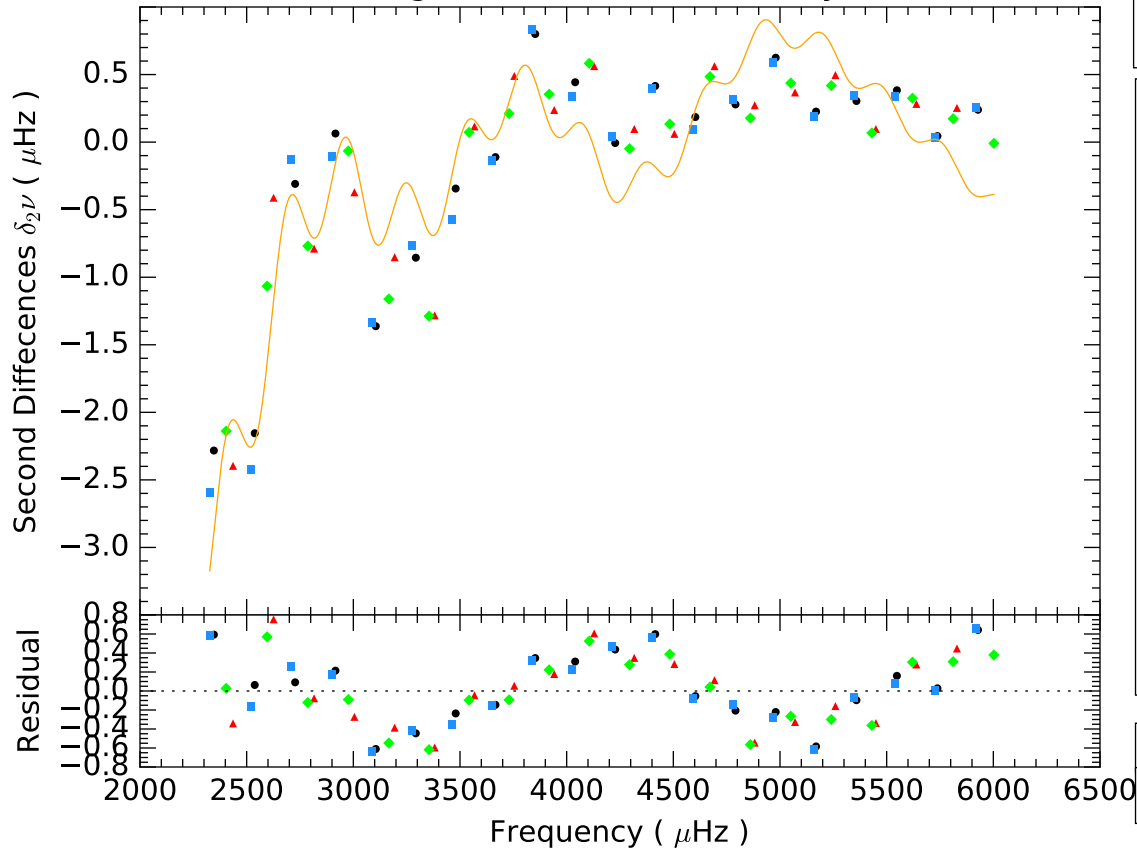
- $\ell=0$
- ▲ $\ell=1$
- $\ell=2$
- ◆ $\ell=3$
- fit

$$\begin{aligned}
 a_0 &= -8.5122 \mu\text{Hz} \\
 a_1 &= 0.0037362 \\
 a_2 &= -3.91e-07 \mu\text{Hz}^{-1} \\
 c_0 &= 0.0011539 \\
 c_2 &= 1.6717e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 474.4 \text{ s} \\
 \phi_{HeII} &= 3.6178 \\
 b_2 &= 2.4263e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 1723.8 \text{ s} \\
 \phi_{CZ} &= 6.2832 \\
 d_0 &= 2.3864e-05 \\
 d_2 &= 3.2766e-10 \mu\text{Hz}^{-2} \\
 \tau_{HI} &= 285.99 \text{ s} \\
 \phi_{HI} &= 0.19367
 \end{aligned}$$

profile27

$$\chi^2_\nu(\text{dof} = 65) = 0.025754$$

Age after ZAMS: 4.810 Gyr



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

$$a_0 = -8.2924 \mu\text{Hz}$$

$$a_1 = 0.0036487$$

$$a_2 = -3.831e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00069775$$

$$c_2 = 1.297e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 468.18 \text{ s}$$

$$\phi_{HeII} = 3.9391$$

$$b_2 = 2.8455e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1792.3 \text{ s}$$

$$\phi_{CZ} = 3.7885$$

$$d_0 = 0.0001886$$

$$d_2 = 3.5572e-08 \mu\text{Hz}^{-2}$$

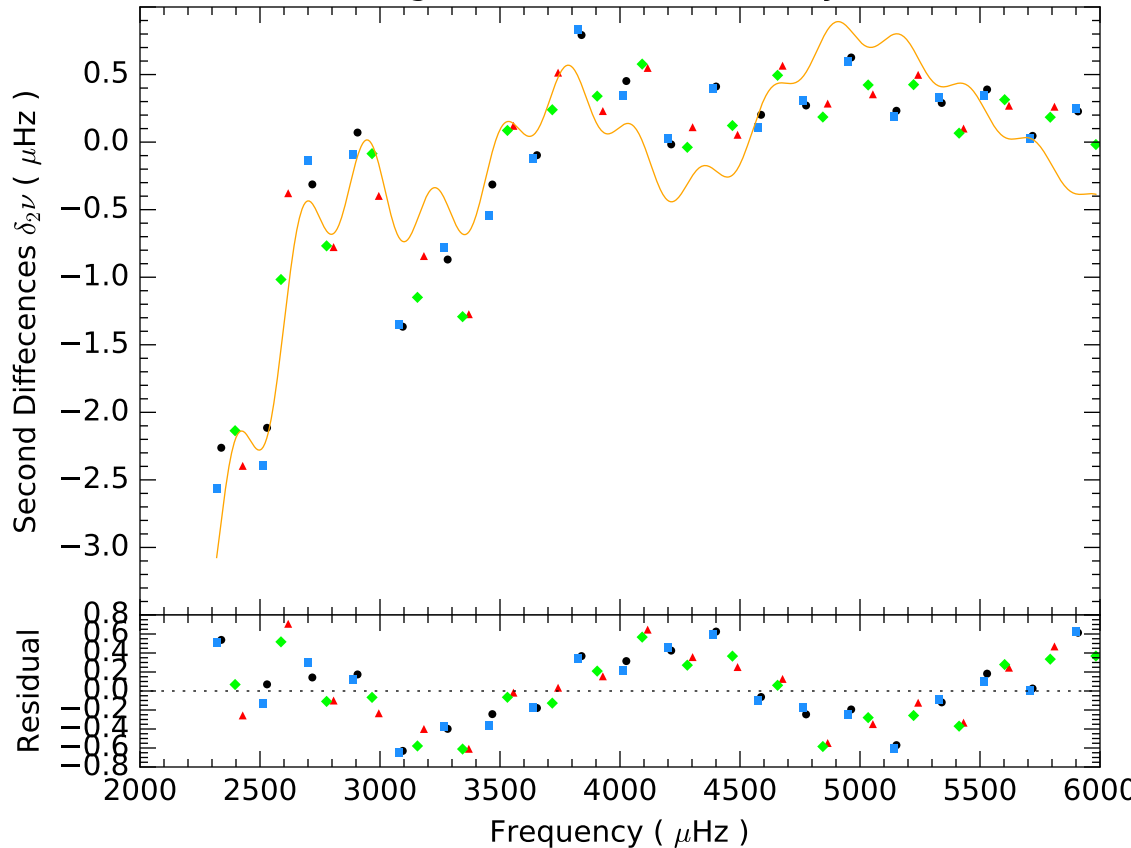
$$\tau_{HI} = 265.16 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile28

$$\chi^2_\nu(\text{dof} = 65) = 0.16545$$

Age after ZAMS: 5.110 Gyr



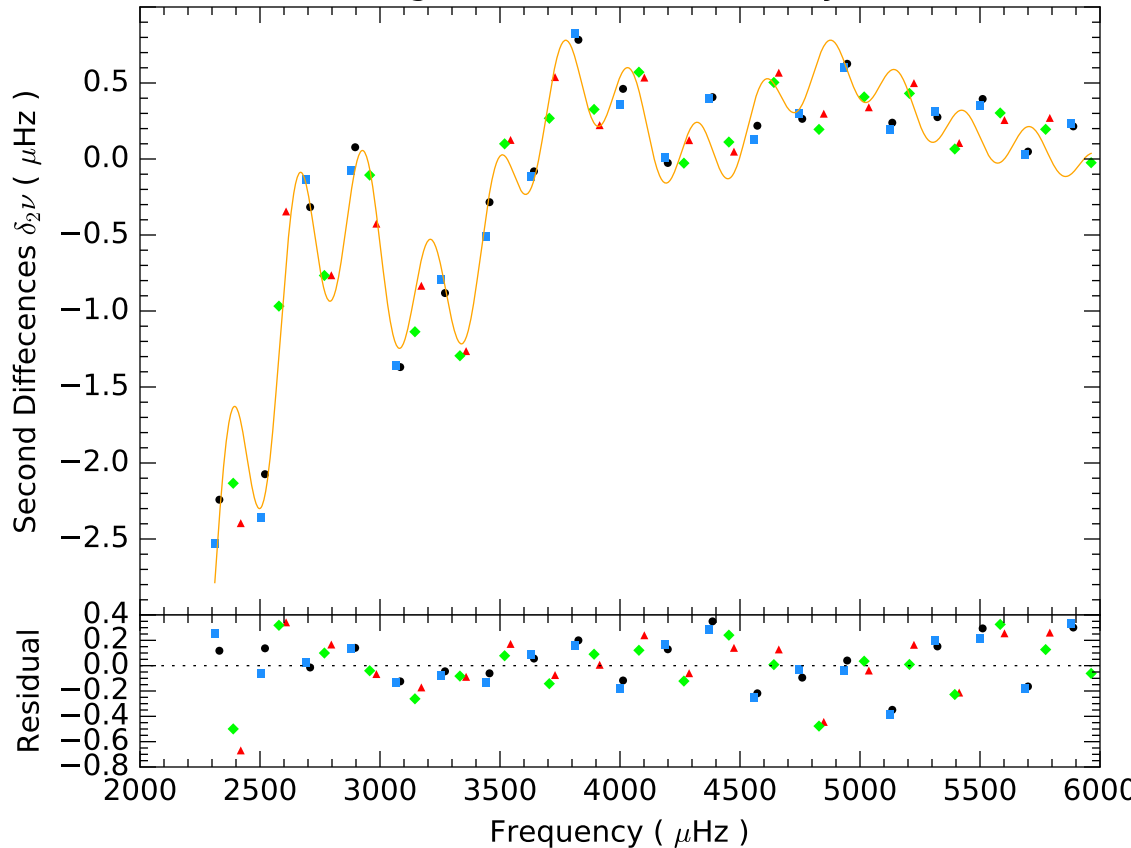
• $\ell=0$	◆ $\ell=3$
▲ $\ell=1$	— fit
■ $\ell=2$	

$a_0 = -8.2722 \mu\text{Hz}$
$a_1 = 0.0036553$
$a_2 = -3.8537e-07 \mu\text{Hz}^{-2}$
$c_0 = 0.00070918$
$c_2 = 1.303e-07 \mu\text{Hz}^{-2}$
$\tau_{HeII} = 472.82 \text{ s}$
$\phi_{HeII} = 3.8433$
$b_2 = 2.5575e+06 \text{ mHz}^3$
$\tau_{CZ} = 1798.9 \text{ s}$
$\phi_{CZ} = 3.9514$
$d_0 = 0.00018923$
$d_2 = 3.5808e-08 \mu\text{Hz}^{-2}$
$\tau_{HI} = 266.06 \text{ s}$
$\phi_{HI} = 3.1416$

profile29

$\chi^2_\nu(\text{dof} = 65) = 0.16241$

Age after ZAMS: 5.410 Gyr



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

$$a_0 = -8.2822 \mu\text{Hz}$$

$$a_1 = 0.0036431$$

$$a_2 = -3.8132e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00071128$$

$$c_2 = 1.2377e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 461.21 \text{ s}$$

$$\phi_{HeII} = 4.436$$

$$b_2 = 4.4079e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1802.4 \text{ s}$$

$$\phi_{CZ} = 4.21$$

$$d_0 = 0.00017815$$

$$d_2 = 1.468e-07 \mu\text{Hz}^{-2}$$

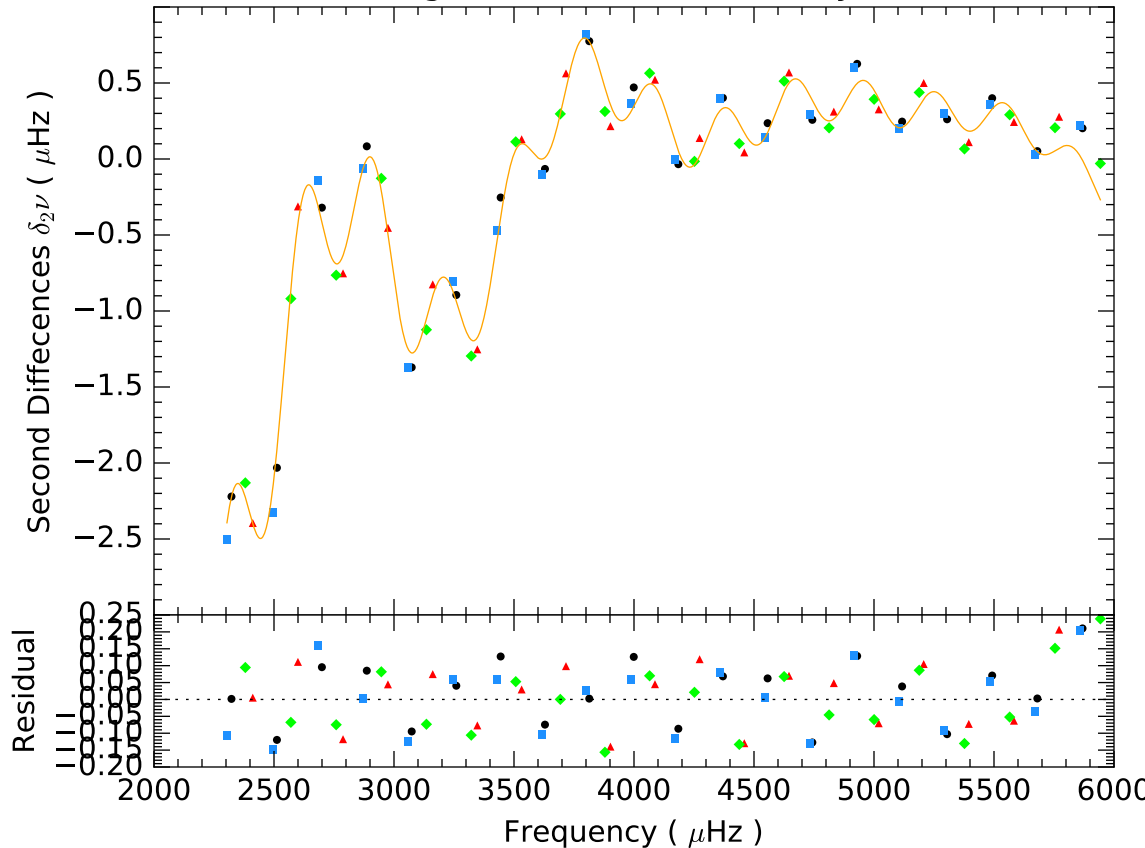
$$\tau_{HI} = 256.28 \text{ s}$$

$$\phi_{HI} = 3.3727$$

profile30

$$\chi^2_\nu(\text{dof} = 65) = 0.054798$$

Age after ZAMS: 5.710 Gyr



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

$$a_0 = -8.4921 \mu\text{Hz}$$

$$a_1 = 0.0037963$$

$$a_2 = -4.045e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.001273$$

$$c_2 = 1.7823e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 487.64 \text{ s}$$

$$\phi_{\text{HeII}} = 3.441$$

$$b_2 = 3.4662e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1711.8 \text{ s}$$

$$\phi_{\text{CZ}} = 1.6962$$

$$d_0 = 2.5583e-05$$

$$d_2 = 8.7595e-18 \mu\text{Hz}^{-2}$$

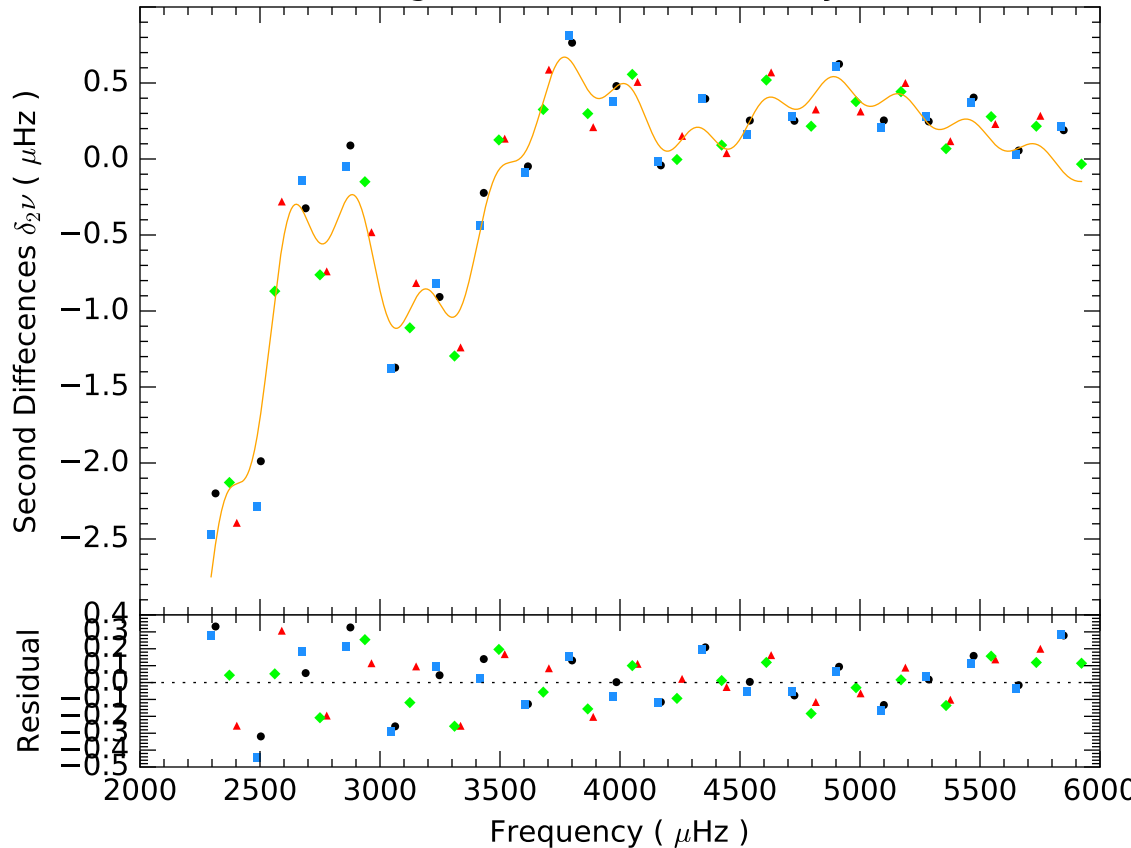
$$\tau_{\text{HI}} = 294.12 \text{ s}$$

$$\phi_{\text{HI}} = 4.7866e-05$$

profile31

$$\chi^2_\nu(\text{dof} = 65) = 0.012024$$

Age after ZAMS: 6.010 Gyr



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

$$a_0 = -8.1388 \mu\text{Hz}$$

$$a_1 = 0.0036137$$

$$a_2 = -3.819e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0013624$$

$$c_2 = 1.7923e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 453.34 \text{ s}$$

$$\phi_{\text{HeII}} = 4.8767$$

$$b_2 = 1.9746e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1763.6 \text{ s}$$

$$\phi_{\text{CZ}} = 6.2781$$

$$d_0 = 0.00020618$$

$$d_2 = 1.3108e-07 \mu\text{Hz}^{-2}$$

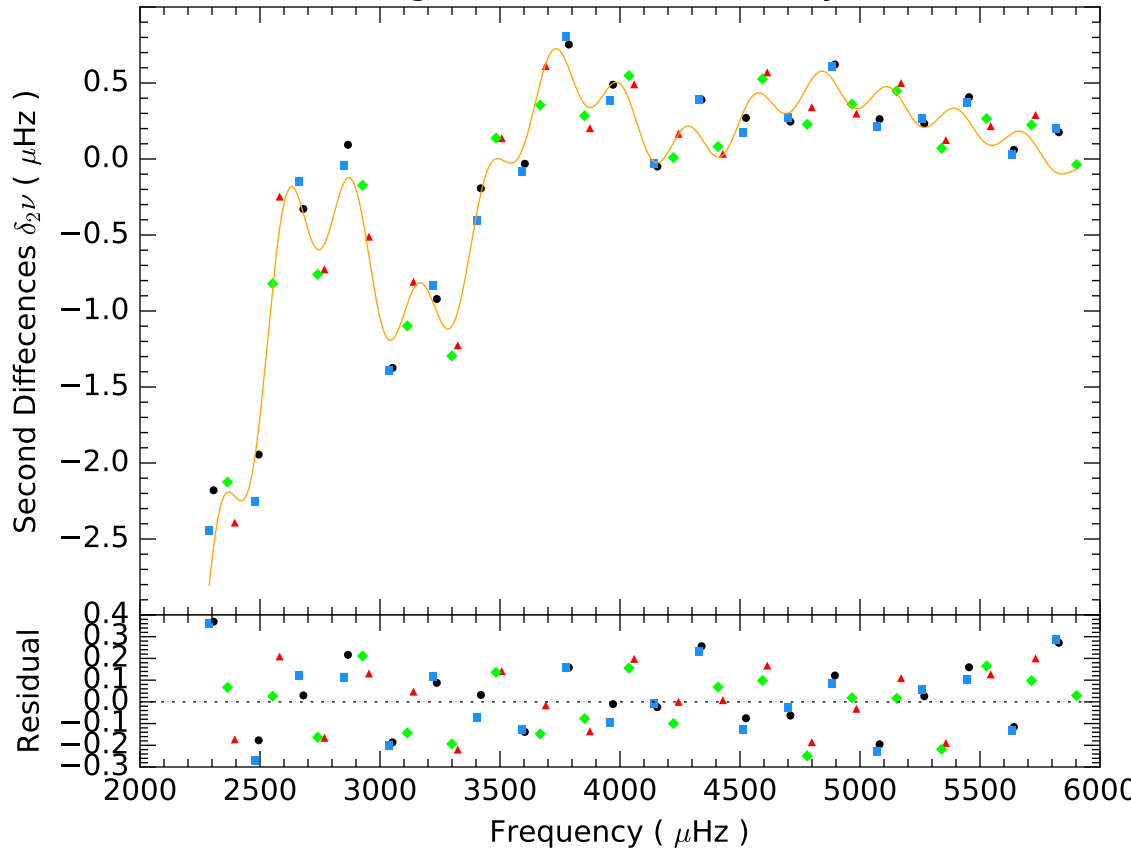
$$\tau_{\text{HI}} = 243.08 \text{ s}$$

$$\phi_{\text{HI}} = 3.1762$$

profile32

$$\chi^2_\nu(\text{dof} = 65) = 0.033945$$

Age after ZAMS: 6.310 Gyr



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

$$a_0 = -8.1879 \mu\text{Hz}$$

$$a_1 = 0.0036408$$

$$a_2 = -3.8506e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015183$$

$$c_2 = 1.8754e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 465.42 \text{ s}$$

$$\phi_{HeII} = 4.5275$$

$$b_2 = 2.6367e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1791.7 \text{ s}$$

$$\phi_{CZ} = 5.6534$$

$$d_0 = 0.00017706$$

$$d_2 = 1.1179e-07 \mu\text{Hz}^{-2}$$

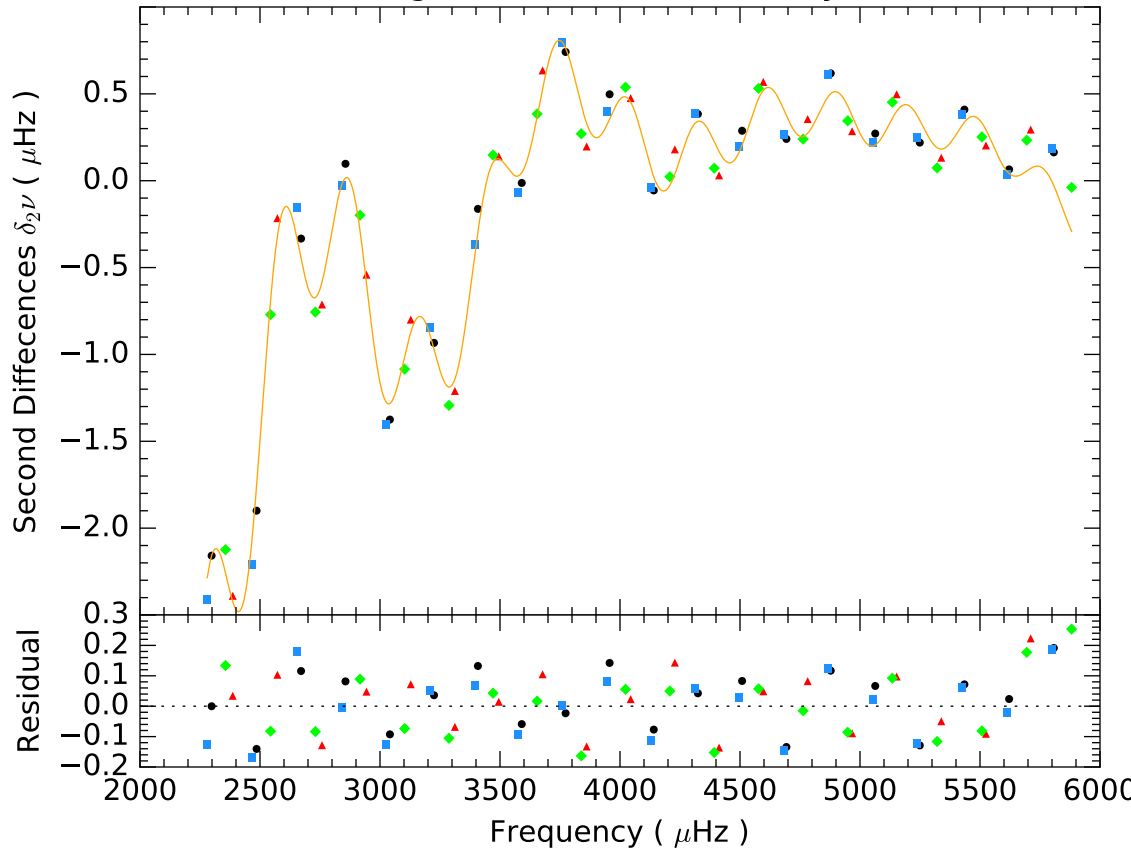
$$\tau_{HI} = 245.47 \text{ s}$$

$$\phi_{HI} = 3.2634$$

profile33

$$\chi^2_\nu(\text{dof} = 65) = 0.029589$$

Age after ZAMS: 6.610 Gyr



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

$$a_0 = -8.422 \mu\text{Hz}$$

$$a_1 = 0.0038169$$

$$a_2 = -4.121e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0012718$$

$$c_2 = 1.8071e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 494.99 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4265$$

$$b_2 = 3.3782e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1728.0 \text{ s}$$

$$\phi_{\text{CZ}} = 1.9315$$

$$d_0 = 2.6093e-05$$

$$d_2 = 7.5978e-11 \mu\text{Hz}^{-2}$$

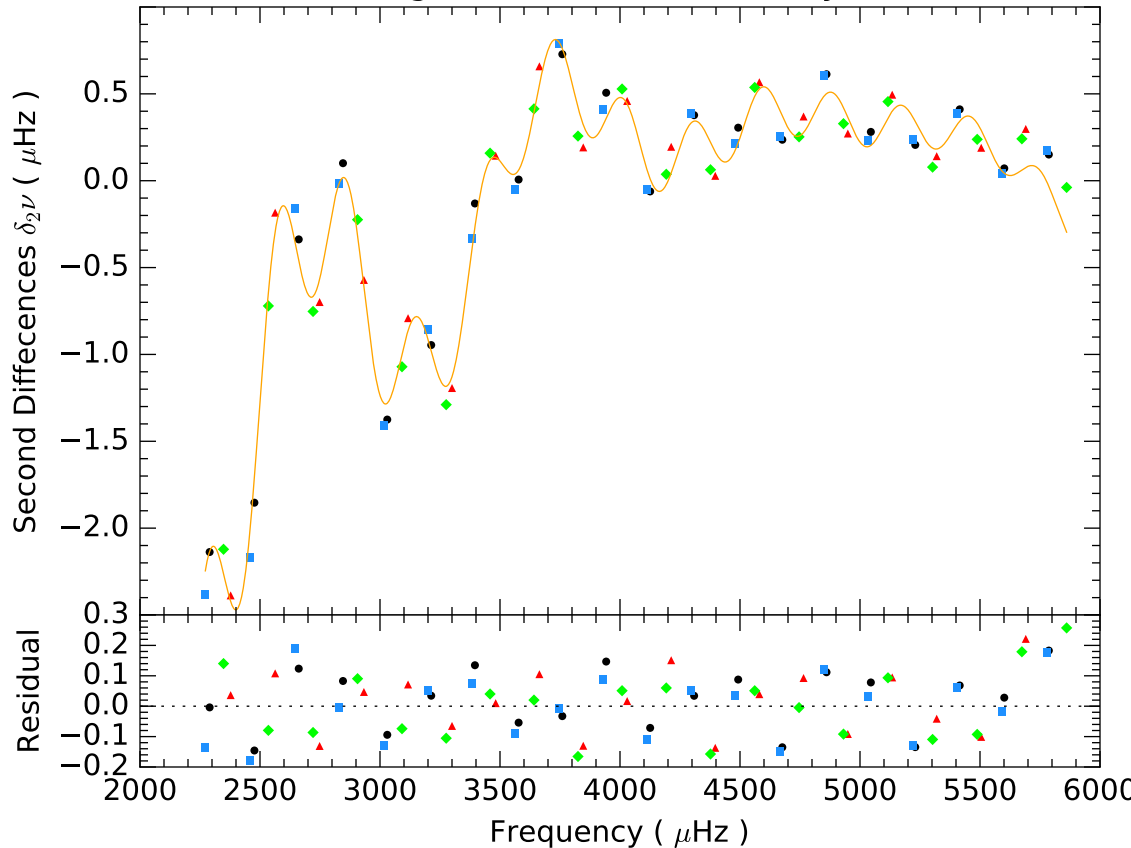
$$\tau_{\text{HI}} = 297.59 \text{ s}$$

$$\phi_{\text{HI}} = 0.00049731$$

profile34

$$\chi^2_\nu(\text{dof} = 65) = 0.013387$$

Age after ZAMS: 6.910 Gyr



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

$$a_0 = -8.3849 \mu\text{Hz}$$

$$a_1 = 0.0038175$$

$$a_2 = -4.1395e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0012542$$

$$c_2 = 1.8033e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 497.84 \text{ s}$$

$$\phi_{HeII} = 3.4086$$

$$b_2 = 3.3422e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1734.0 \text{ s}$$

$$\phi_{CZ} = 1.993$$

$$d_0 = 2.6293e-05$$

$$d_2 = 3.299e-18 \mu\text{Hz}^{-2}$$

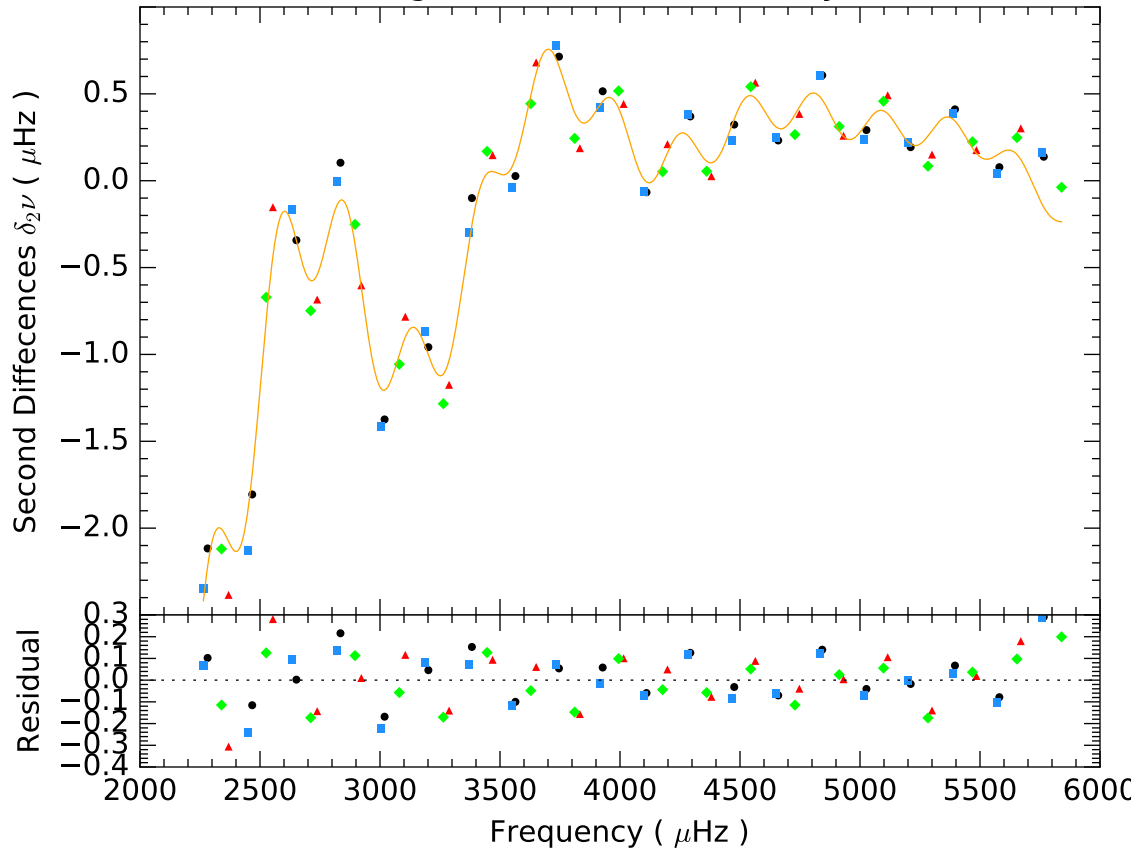
$$\tau_{HI} = 298.61 \text{ s}$$

$$\phi_{HI} = 0.0005354$$

profile35

$$\chi^2_\nu(\text{dof} = 65) = 0.013757$$

Age after ZAMS: 7.210 Gyr



$$a_0 = -8.2855 \mu\text{Hz}$$

$$a_1 = 0.0037884$$

$$a_2 = -4.1236e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0011304$$

$$c_2 = 1.7279e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 497.26 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5265$$

$$b_2 = 2.5514e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1792.4 \text{ s}$$

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

$$d_0 = 2.5701e-05$$

$$d_2 = 5.5614e-17 \mu\text{Hz}^{-2}$$

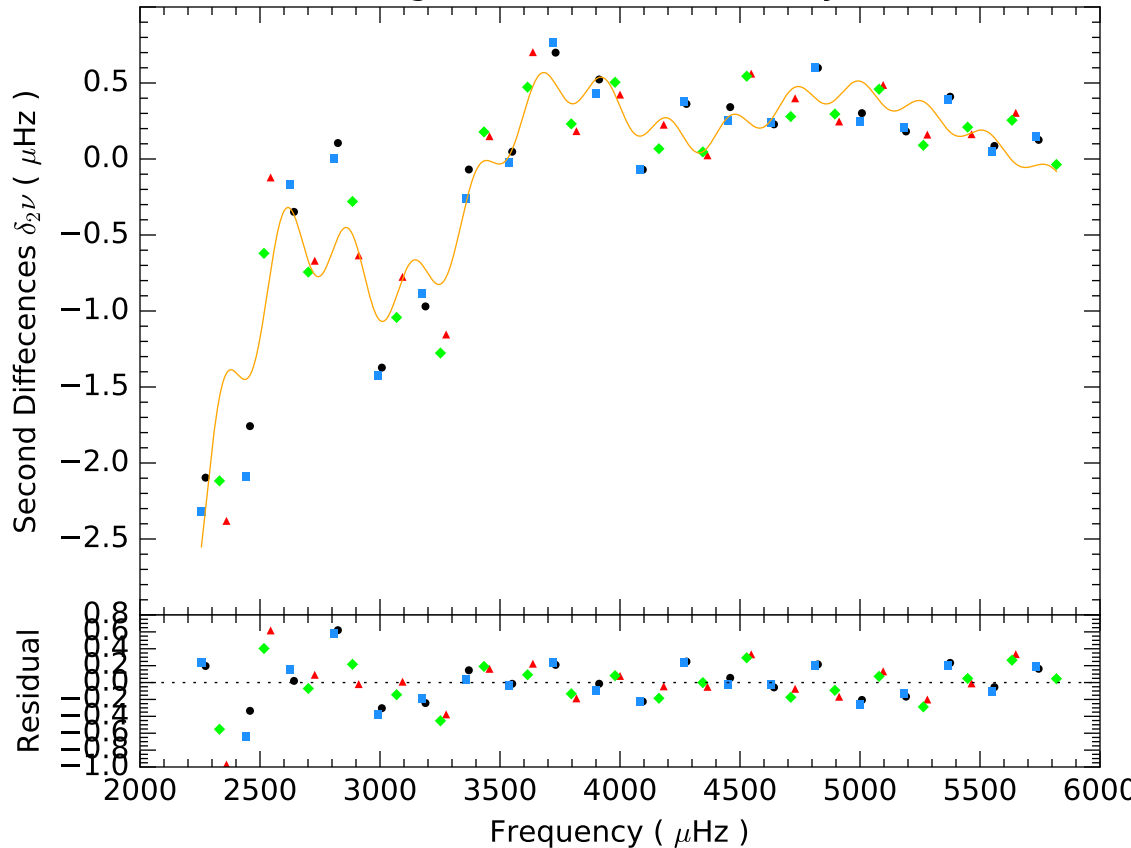
$$\tau_{\text{HI}} = 299.32 \text{ s}$$

$$\phi_{\text{HI}} = 5.7725e-11$$

profile36

$$\chi^2_\nu(\text{dof} = 65) = 0.018671$$

Age after ZAMS: 7.510 Gyr



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

$$a_0 = -8.1015 \mu \text{ Hz}$$

$$a_1 = 0.0036771$$

$$a_2 = -3.9662e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010926$$

$$c_2 = 1.8435e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{He II}} = 423.58 \text{ s}$$

$$\phi_{\text{He II}} = 0.18099$$

$$b_2 = 1.8658e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1882.3 \text{ s}$$

$$\phi_{\text{CZ}} = 2.7486$$

$$d_0 = 0.00019079$$

$$d_2 = 1.0816e-07 \mu\text{Hz}^{-2}$$

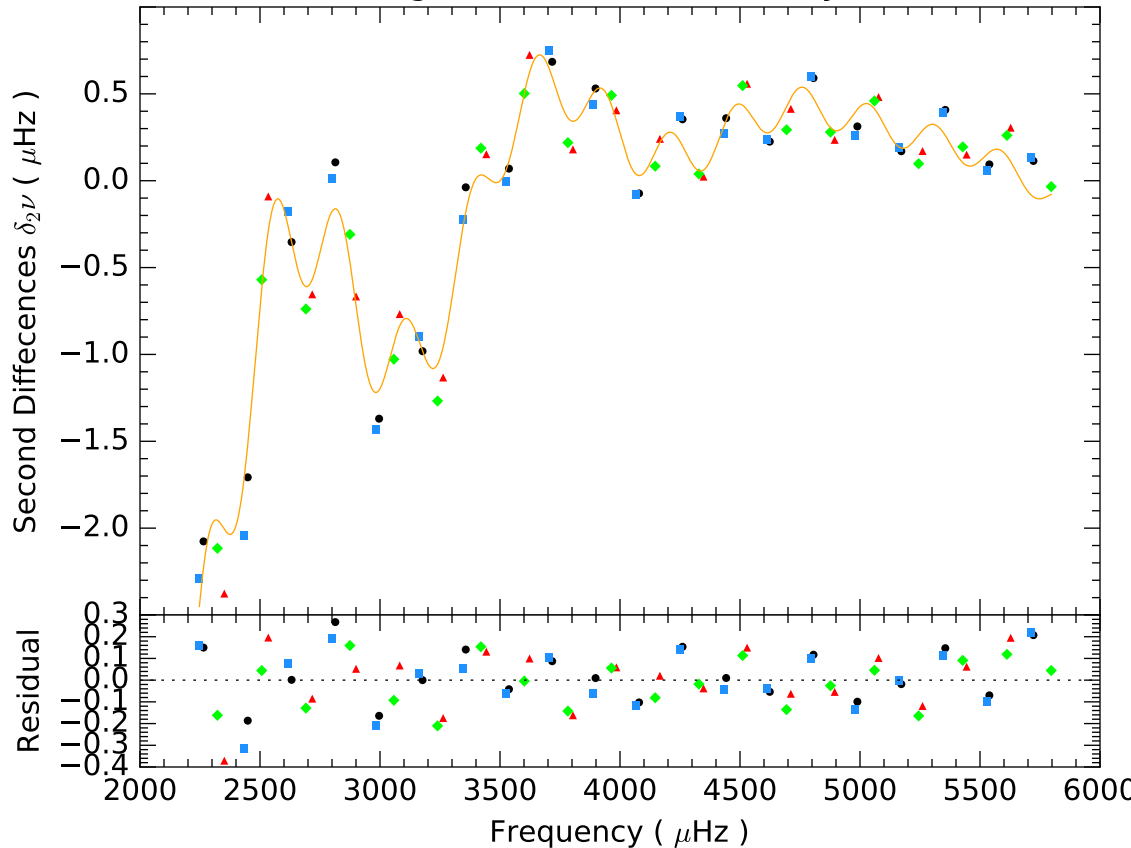
$$\tau_{\text{HI}} = 250.24 \text{ s}$$

$$\phi_{\text{HI}} = 3.3641$$

profile37

$$\chi^2_{\nu}(\text{dof} = 65) = 0.084695$$

Age after ZAMS: 7.810 Gyr



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

$$a_0 = -8.0423 \mu\text{Hz}$$

$$a_1 = 0.003664$$

$$a_2 = -3.9656e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015039$$

$$c_2 = 1.9972e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 469.48 \text{ s}$$

$$\phi_{\text{HeII}} = 4.7807$$

$$b_2 = 2.5768e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1815.5 \text{ s}$$

$$\phi_{\text{CZ}} = 6.0797$$

$$d_0 = 0.00010428$$

$$d_2 = 8.3696e-08 \mu\text{Hz}^{-2}$$

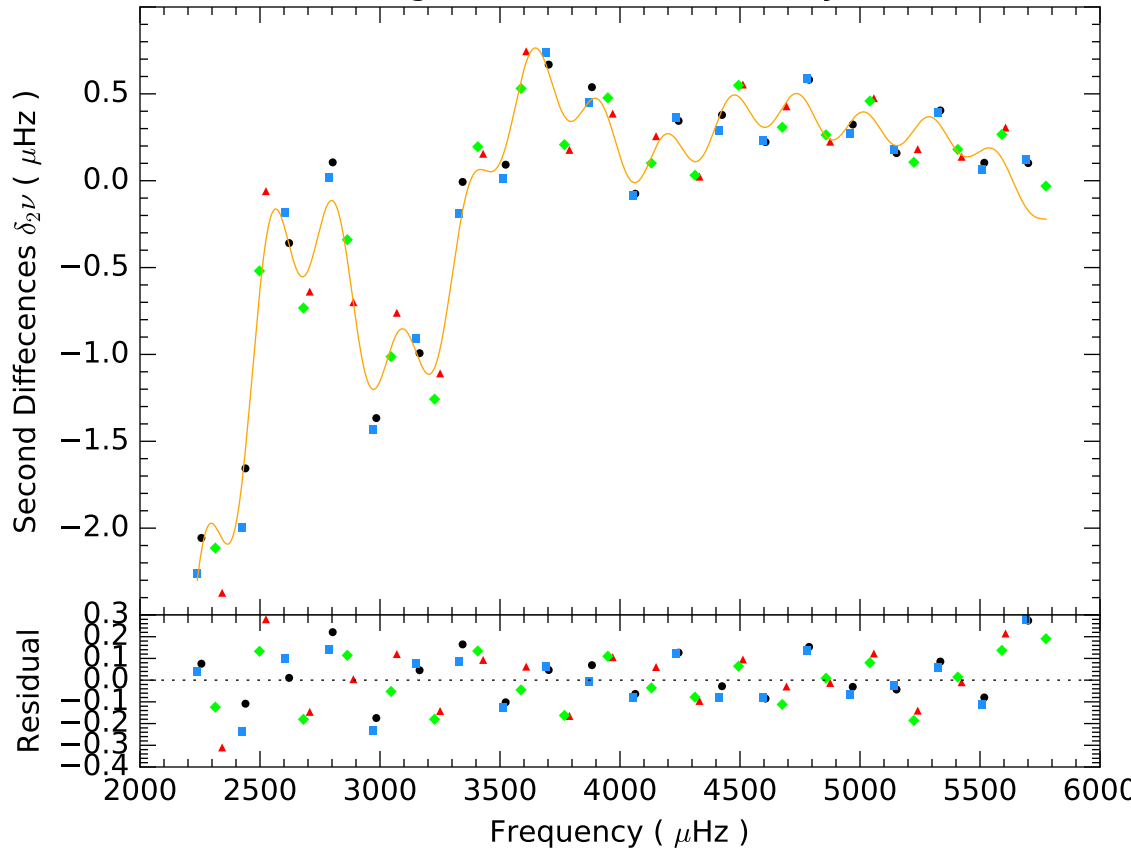
$$\tau_{\text{HI}} = 238.02 \text{ s}$$

$$\phi_{\text{HI}} = 3.5426$$

profile38

$$\chi^2_\nu(\text{dof} = 65) = 0.020331$$

Age after ZAMS: 8.110 Gyr



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

$a_0 = -8.1975 \mu\text{Hz}$
 $a_1 = 0.0038048$
 $a_2 = -4.2011e-07 \mu\text{Hz}^{-2}$

$c_0 = 0.0011182$
 $c_2 = 1.745e-07 \mu\text{Hz}^{-2}$
 $\tau_{HeII} = 505.05 \text{ s}$
 $\phi_{HeII} = 3.5226$

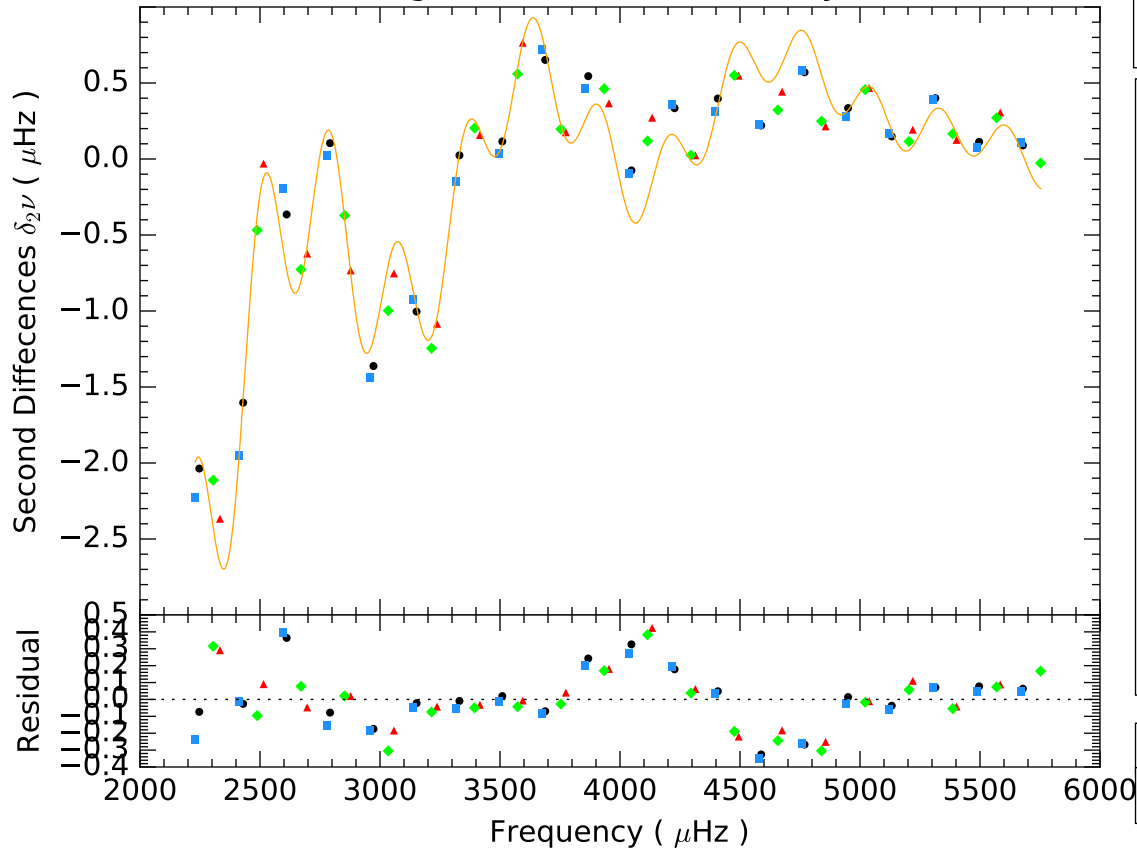
$b_2 = 2.4097e+06 \text{ mHz}^3$
 $\tau_{CZ} = 1818.7 \text{ s}$
 $\phi_{CZ} = 6.2832$

$d_0 = 2.6401e-05$
 $d_2 = 6.469e-20 \mu\text{Hz}^{-2}$
 $\tau_{HI} = 303.04 \text{ s}$
 $\phi_{HI} = 9.2757e-07$

profile39

$\chi^2_\nu(\text{dof} = 65) = 0.019886$

Age after ZAMS: 8.410 Gyr



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

$$a_0 = -8.0865 \mu\text{Hz}$$

$$a_1 = 0.0037037$$

$$a_2 = -4.0237e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00081923$$

$$c_2 = 1.2766e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 493.75 \text{ s}$$

$$\phi_{HeII} = 4.088$$

$$b_2 = 4.2576e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1775.3 \text{ s}$$

$$\phi_{CZ} = 2.0688$$

$$d_0 = 0.00018785$$

$$d_2 = 1.033e-07 \mu\text{Hz}^{-2}$$

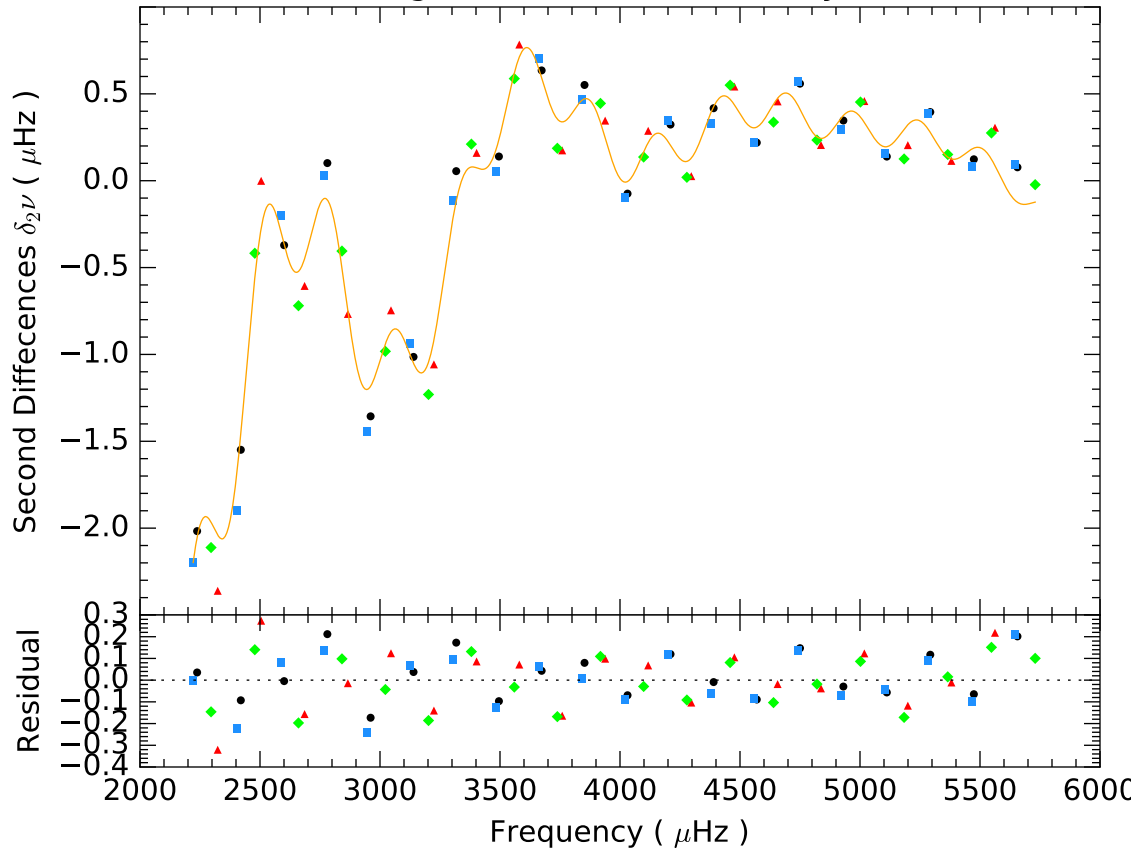
$$\tau_{HI} = 275.06 \text{ s}$$

$$\phi_{HI} = 3.155$$

profile40

$$\chi^2_\nu(\text{dof} = 65) = 0.036249$$

Age after ZAMS: 8.710 Gyr



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

$$a_0 = -7.6386 \mu\text{Hz}$$

$$a_1 = 0.0035565$$

$$a_2 = -3.9289e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00127$$

$$c_2 = 1.903e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 511.72 \text{ s}$$

$$\phi_{HeII} = 3.4312$$

$$b_2 = 2.3564e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1836.5 \text{ s}$$

$$\phi_{CZ} = 6.2831$$

$$d_0 = 7.3096e-05$$

$$d_2 = 5.7222e-08 \mu\text{Hz}^{-2}$$

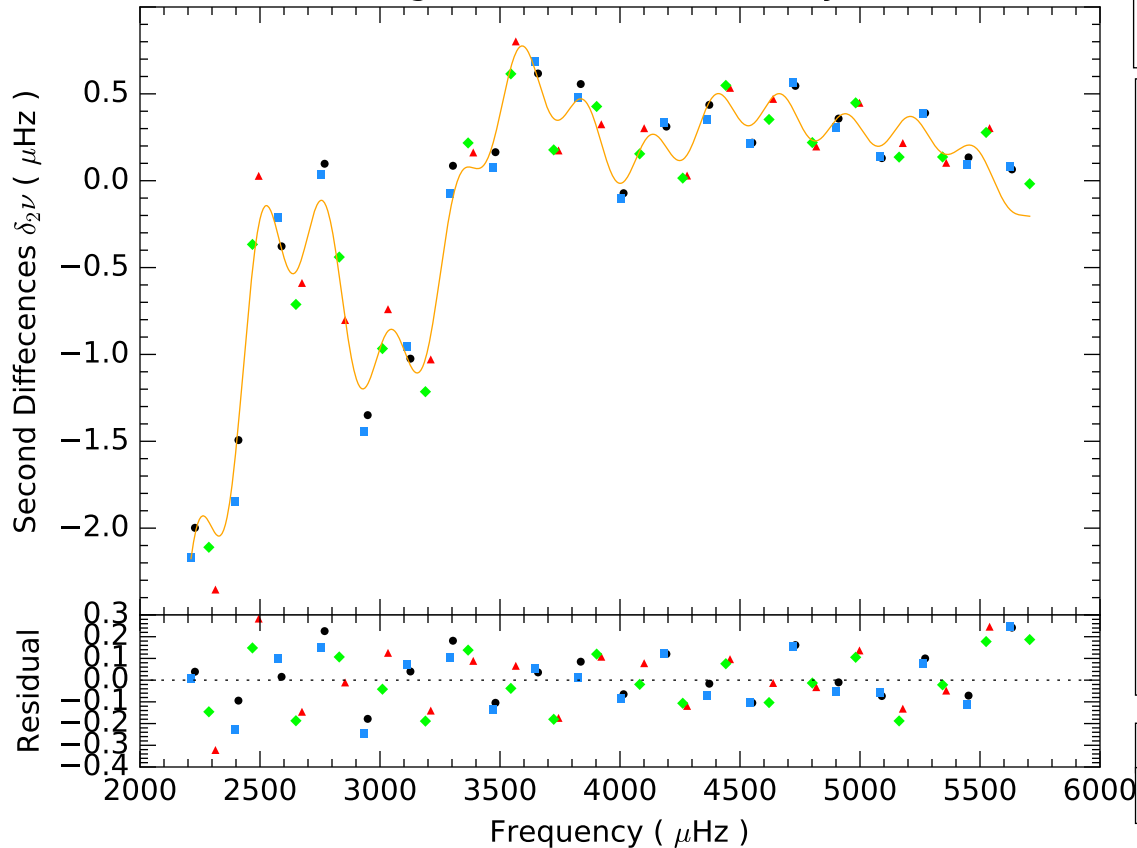
$$\tau_{HI} = 297.1 \text{ s}$$

$$\phi_{HI} = 0.46468$$

profile41

$$\chi^2_\nu(\text{dof} = 65) = 0.018527$$

Age after ZAMS: 9.010 Gyr



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

$$a_0 = -8.0851 \mu\text{Hz}$$

$$a_1 = 0.0038117$$

$$a_2 = -4.2716e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010921$$

$$c_2 = 1.7507e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 513.37 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5178$$

$$b_2 = 2.3056e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1846.4 \text{ s}$$

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

$$d_0 = 2.7162e-05$$

$$d_2 = 2.2899e-10 \mu\text{Hz}^{-2}$$

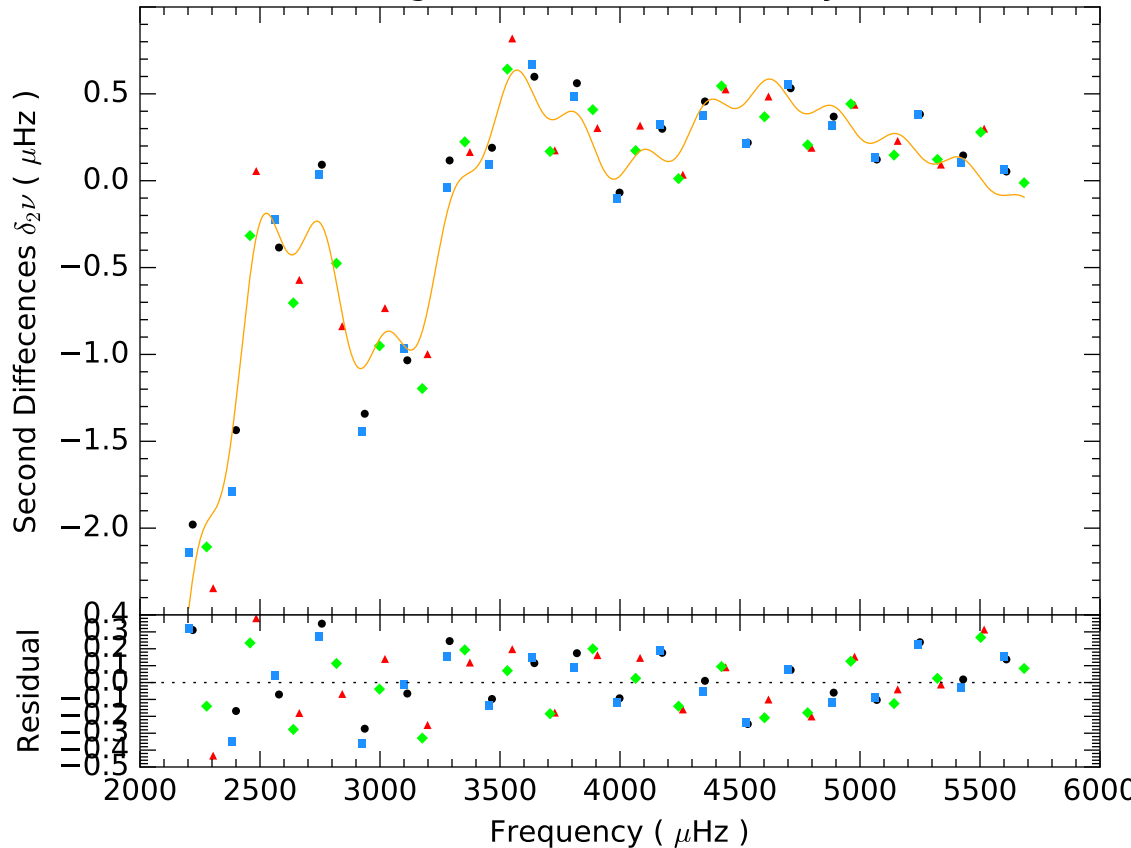
$$\tau_{\text{HI}} = 306.86 \text{ s}$$

$$\phi_{\text{HI}} = 8.0987e-06$$

profile42

$$\chi^2_\nu(\text{dof} = 65) = 0.021088$$

Age after ZAMS: 9.310 Gyr



$$a_0 = -7.8889 \mu\text{Hz}$$

$$a_1 = 0.0036946$$

$$a_2 = -4.1062e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013321$$

$$c_2 = 1.9093e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 489.53 \text{ s}$$

$$\phi_{HeII} = 4.5425$$

$$b_2 = 1.4956e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1879.1 \text{ s}$$

$$\phi_{CZ} = 5.3964$$

$$d_0 = 0.00018896$$

$$d_2 = 1.6566e-07 \mu\text{Hz}^{-2}$$

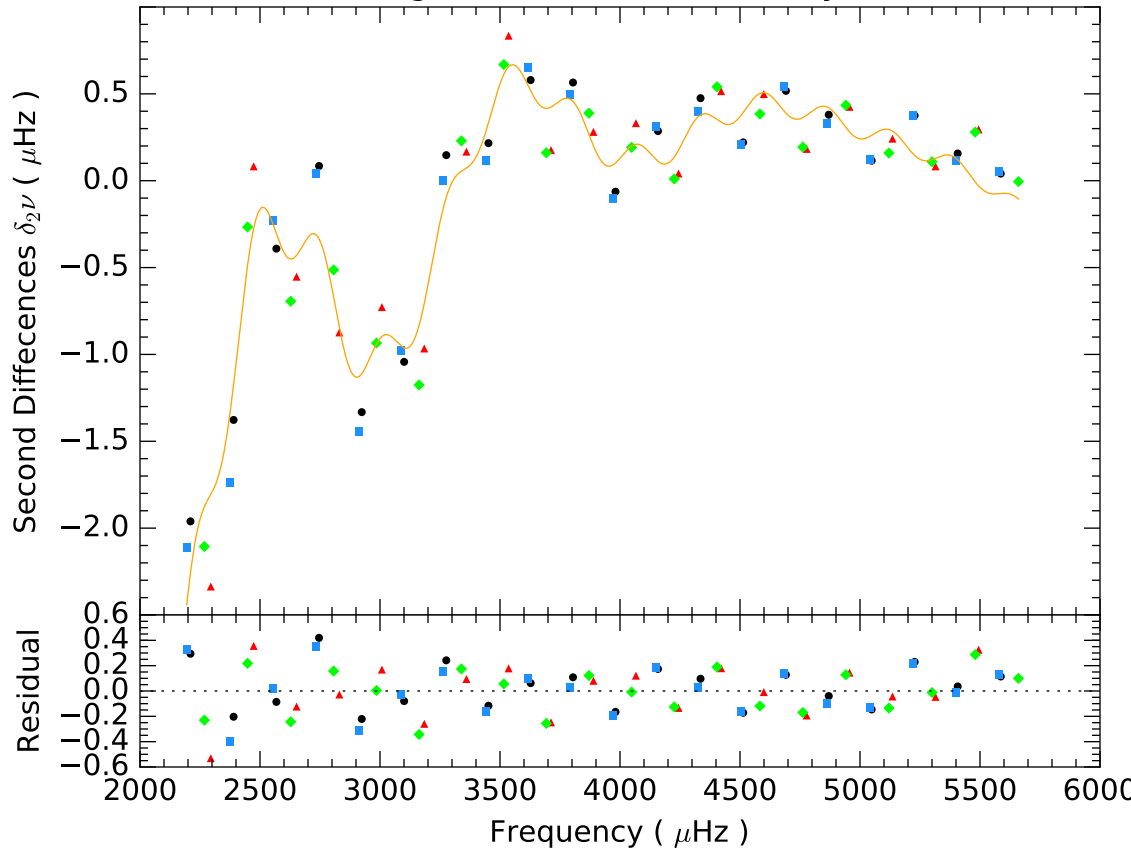
$$\tau_{HI} = 269.61 \text{ s}$$

$$\phi_{HI} = 3.035$$

profile43

$$\chi^2_\nu(\text{dof} = 65) = 0.042358$$

Age after ZAMS: 9.610 Gyr



$$a_0 = -7.7804 \mu \text{ Hz}$$

$$a_1 = 0.0036669$$

$$a_2 = -4.1016e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0017116$$

$$c_2 = 2.1954e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 481.1 \text{ s}$$

$$\phi_{HeII} = 4.9305$$

$$b_2 = 1.4375e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1897.5 \text{ s}$$

$$\phi_{CZ} = 5.0483$$

$$d_0 = 0.00020323$$

$$d_2 = 1.3189e-07 \mu\text{Hz}^{-2}$$

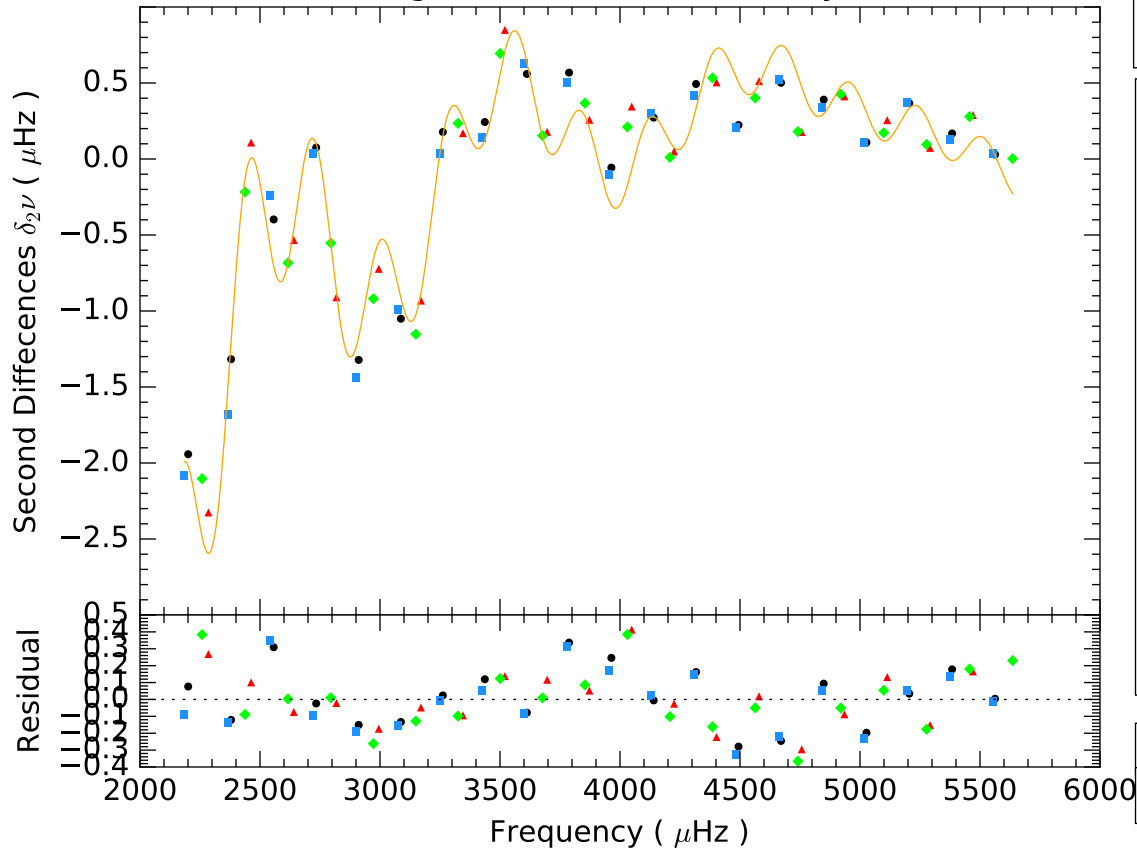
$$\tau_{HI} = 259.99 \text{ s}$$

$$\phi_{HI} = 2.9925$$

profile44

$$\chi^2_\nu(\text{dof} = 65) = 0.044844$$

Age after ZAMS: 9.910 Gyr



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

$$a_0 = -7.8917 \mu \text{ Hz}$$

$$a_1 = 0.003709$$

$$a_2 = -4.1292e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0011484$$

$$c_2 = 1.7319e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 502.8 \text{ s}$$

$$\phi_{HeII} = 4.2686$$

$$b_2 = 3.9125e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1794.7 \text{ s}$$

$$\phi_{CZ} = 2.8489$$

$$d_0 = 0.00019316$$

$$d_2 = 1.0717e-07 \mu\text{Hz}^{-2}$$

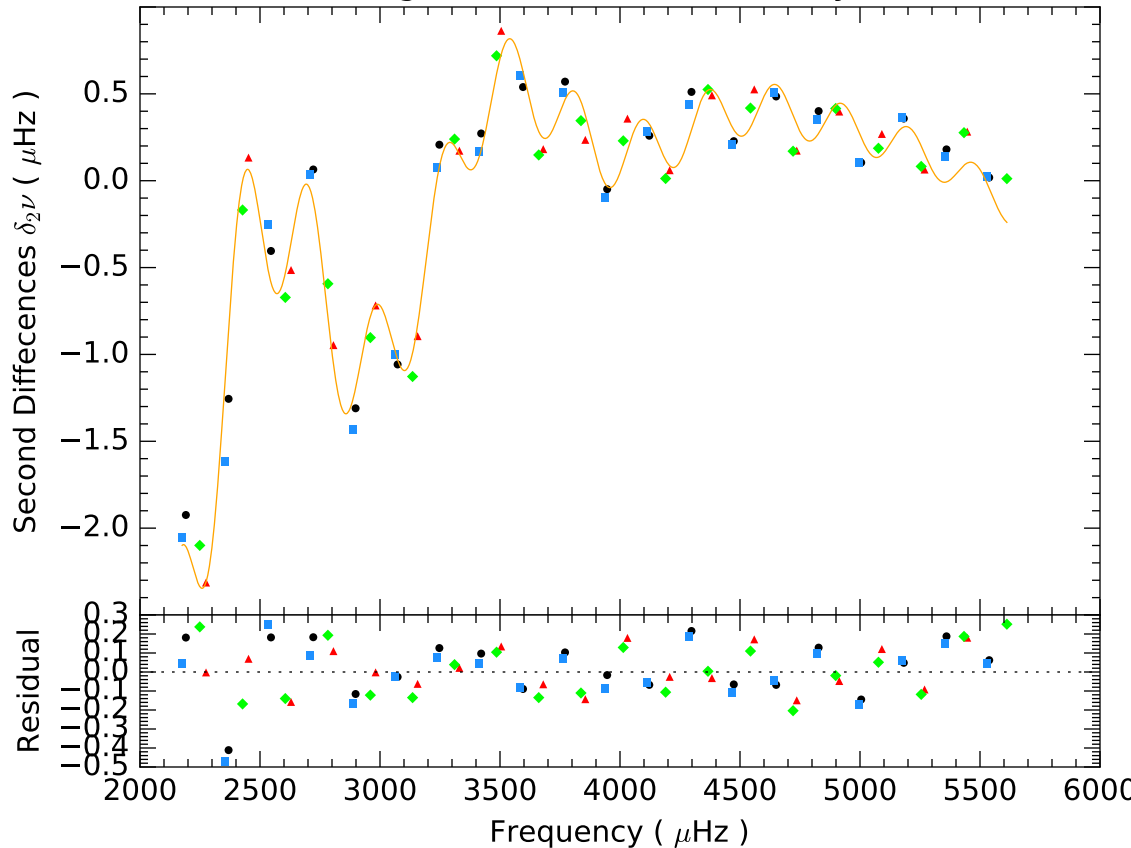
$$\tau_{HI} = 282.48 \text{ s}$$

$$\phi_{HI} = 3.0496$$

profile45

$$\chi^2_\nu(\text{dof} = 65) = 0.037977$$

Age after ZAMS: 10.210 Gyr



$$a_0 = -7.7307 \mu \text{ Hz}$$

$$a_1 = 0.003677$$

$$a_2 = -4.1481e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0020494$$

$$c_2 = 2.4173e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 487.83 \text{ s}$$

$$\phi_{HeII} = 4.868$$

$$b_2 = 3.163e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1805.8 \text{ s}$$

$$\phi_{CZ} = 2.9257$$

$$d_0 = 0.00018794$$

$$d_2 = 1.2237e-07 \mu\text{Hz}^{-2}$$

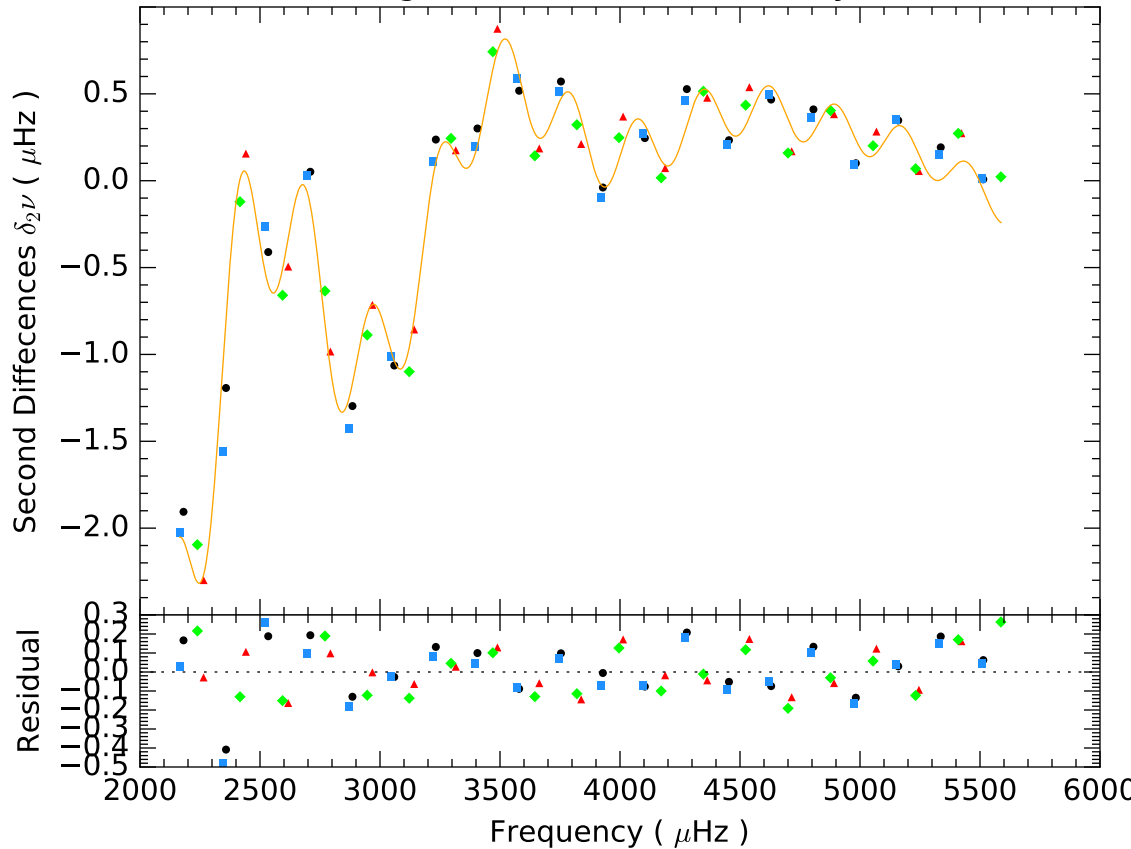
$$\tau_{HI} = 258.56 \text{ s}$$

$$\phi_{HI} = 3.0719$$

profile46

$$\chi^2_\nu(\text{dof} = 65) = 0.024306$$

Age after ZAMS: 10.510 Gyr



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

$$a_0 = -7.7066 \mu\text{Hz}$$

$$a_1 = 0.0036906$$

$$a_2 = -4.1901e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0019342$$

$$c_2 = 2.3996e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 494.42 \text{ s}$$

$$\phi_{HeII} = 4.7372$$

$$b_2 = 3.0895e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1815.0 \text{ s}$$

$$\phi_{CZ} = 2.9618$$

$$d_0 = 0.00014484$$

$$d_2 = 1.0557e-07 \mu\text{Hz}^{-2}$$

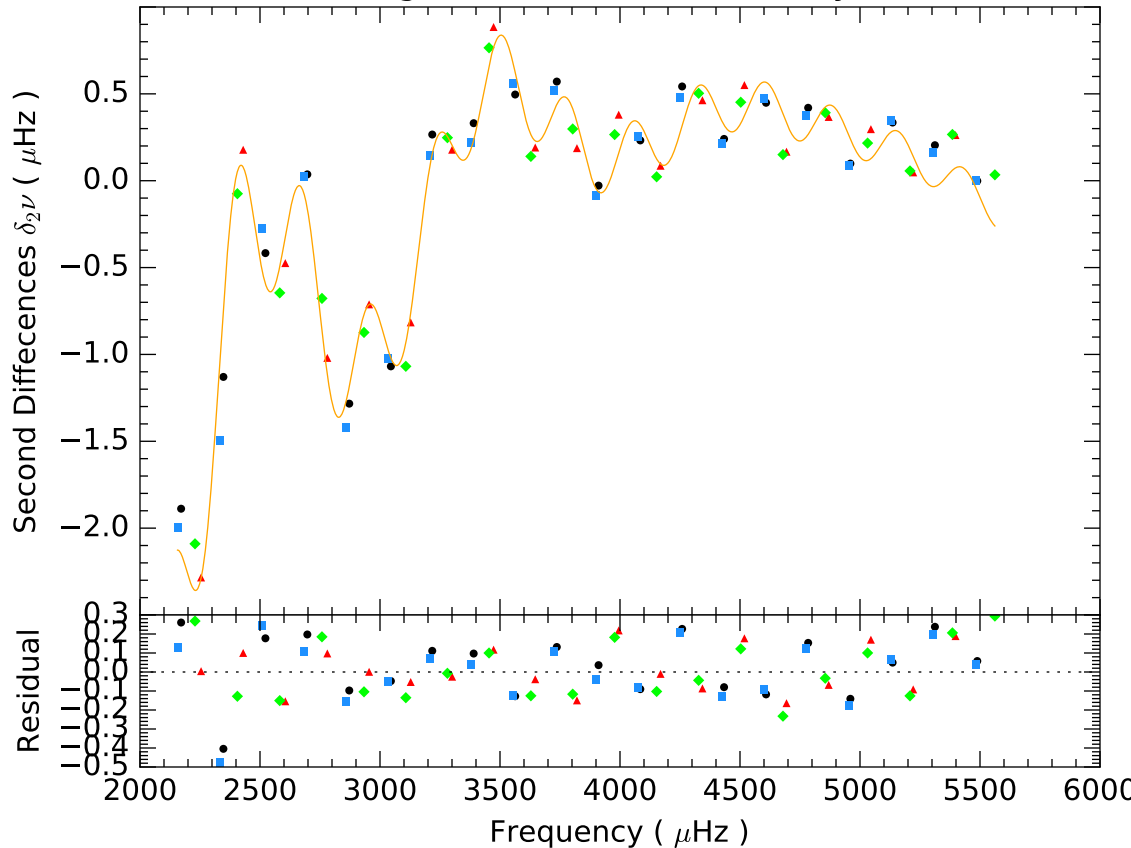
$$\tau_{HI} = 261.36 \text{ s}$$

$$\phi_{HI} = 2.9556$$

profile47

$$\chi^2_\nu(\text{dof} = 65) = 0.024076$$

Age after ZAMS: 10.810 Gyr



$$a_0 = -7.6487 \mu\text{Hz}$$

$$a_1 = 0.003683$$

$$a_2 = -4.2054e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002084$$

$$c_2 = 2.4244e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 493.43 \text{ s}$$

$$\phi_{\text{HeII}} = 4.9047$$

$$b_2 = 3.1021e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1817.3 \text{ s}$$

$$\phi_{\text{CZ}} = 3.1937$$

$$d_0 = 0.00029438$$

$$d_2 = 1.6006e-07 \mu\text{Hz}^{-2}$$

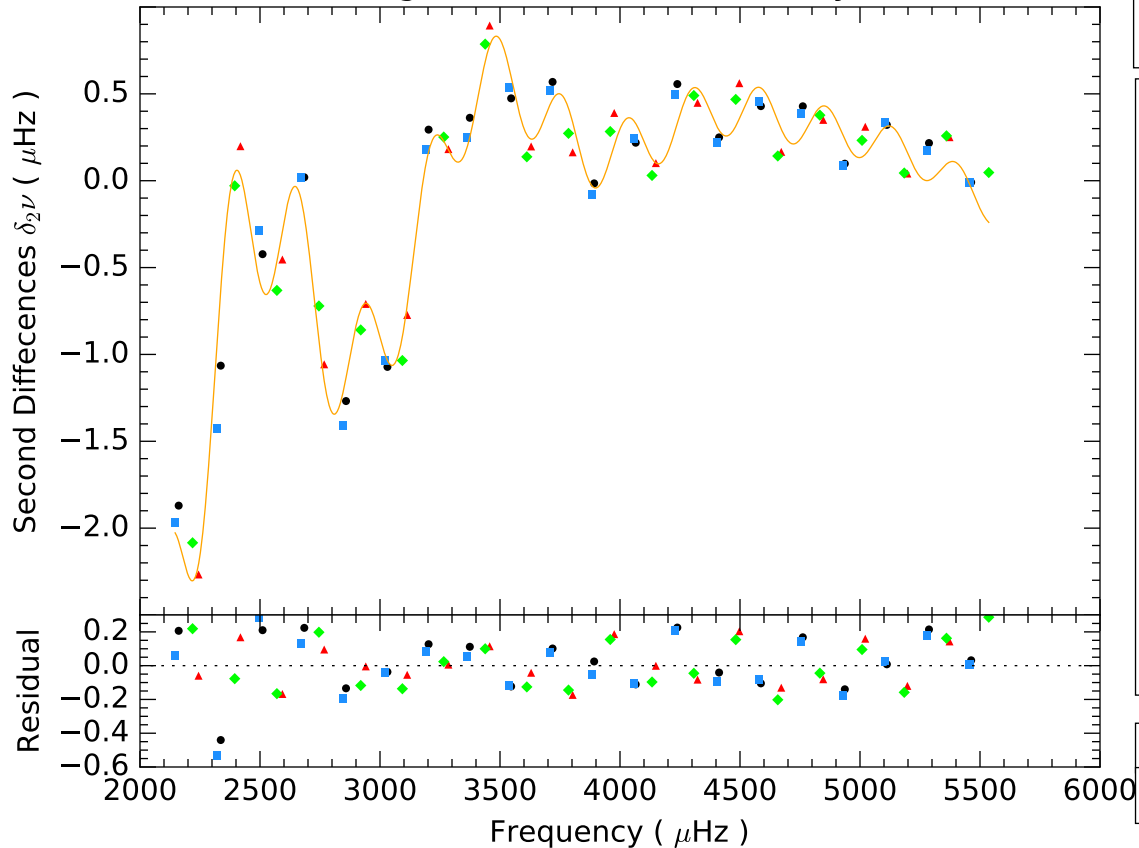
$$\tau_{\text{HI}} = 262.63 \text{ s}$$

$$\phi_{\text{HI}} = 3.1463$$

profile48

$$\chi^2_\nu(\text{dof} = 65) = 0.028571$$

Age after ZAMS: 11.110 Gyr



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

$$a_0 = -7.6062 \mu\text{Hz}$$

$$a_1 = 0.0036867$$

$$a_2 = -4.233e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0018556$$

$$c_2 = 2.4019e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 502.06 \text{ s}$$

$$\phi_{\text{HeII}} = 4.7$$

$$b_2 = 3.0311e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1824.0 \text{ s}$$

$$\phi_{\text{CZ}} = 3.3785$$

$$d_0 = 0.00014214$$

$$d_2 = 1.0362e-07 \mu\text{Hz}^{-2}$$

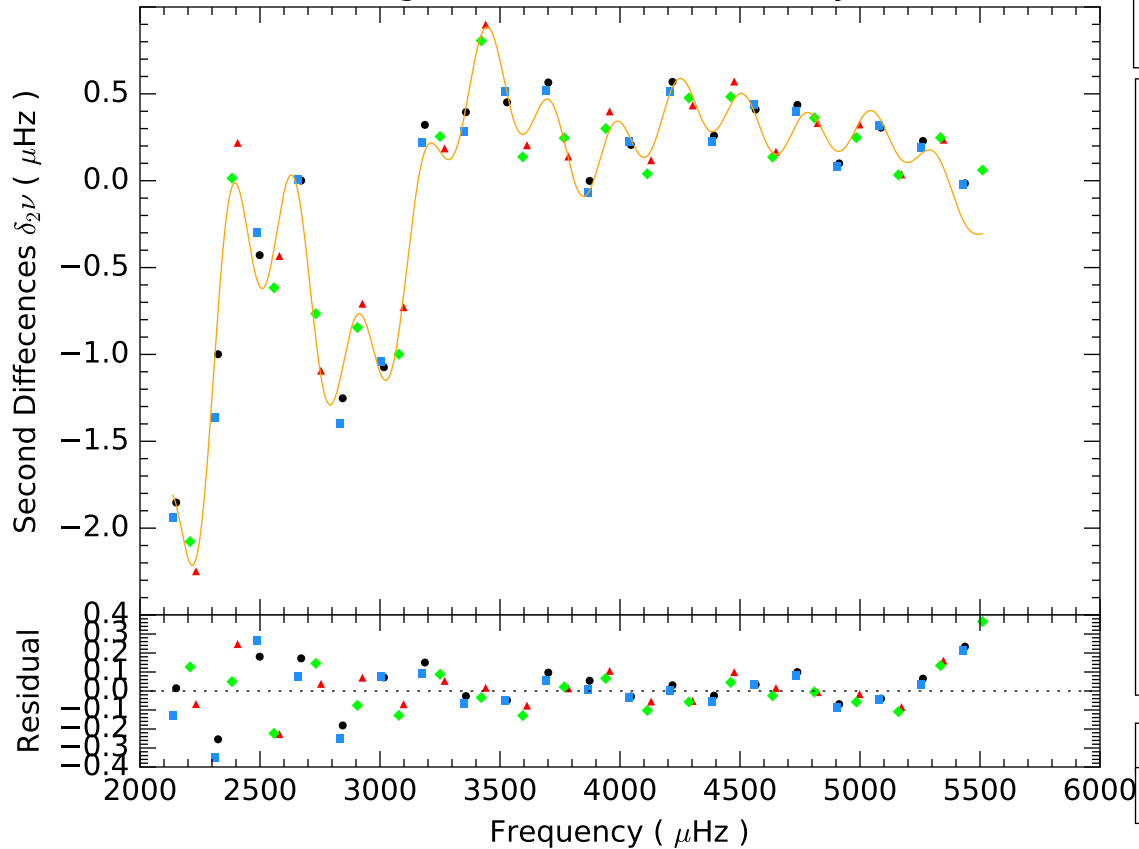
$$\tau_{\text{HI}} = 261.23 \text{ s}$$

$$\phi_{\text{HI}} = 3.047$$

profile49

$$\chi^2_{\nu}(\text{dof} = 65) = 0.029444$$

Age after ZAMS: 11.410 Gyr



$$a_0 = -7.7847 \mu \text{Hz}$$

$$a_1 = 0.0038474$$

$$a_2 = -4.5097e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010621$$

$$c_2 = 1.806e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 539.01 \text{ s}$$

$$\phi_{HeII} = 3.4992$$

$$b_2 = 2.8841e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1873.1 \text{ s}$$

$$\phi_{CZ} = 2.1268$$

$$d_0 = 3.1321e-05$$

$$d_2 = 2.4943e-09 \mu\text{Hz}^{-2}$$

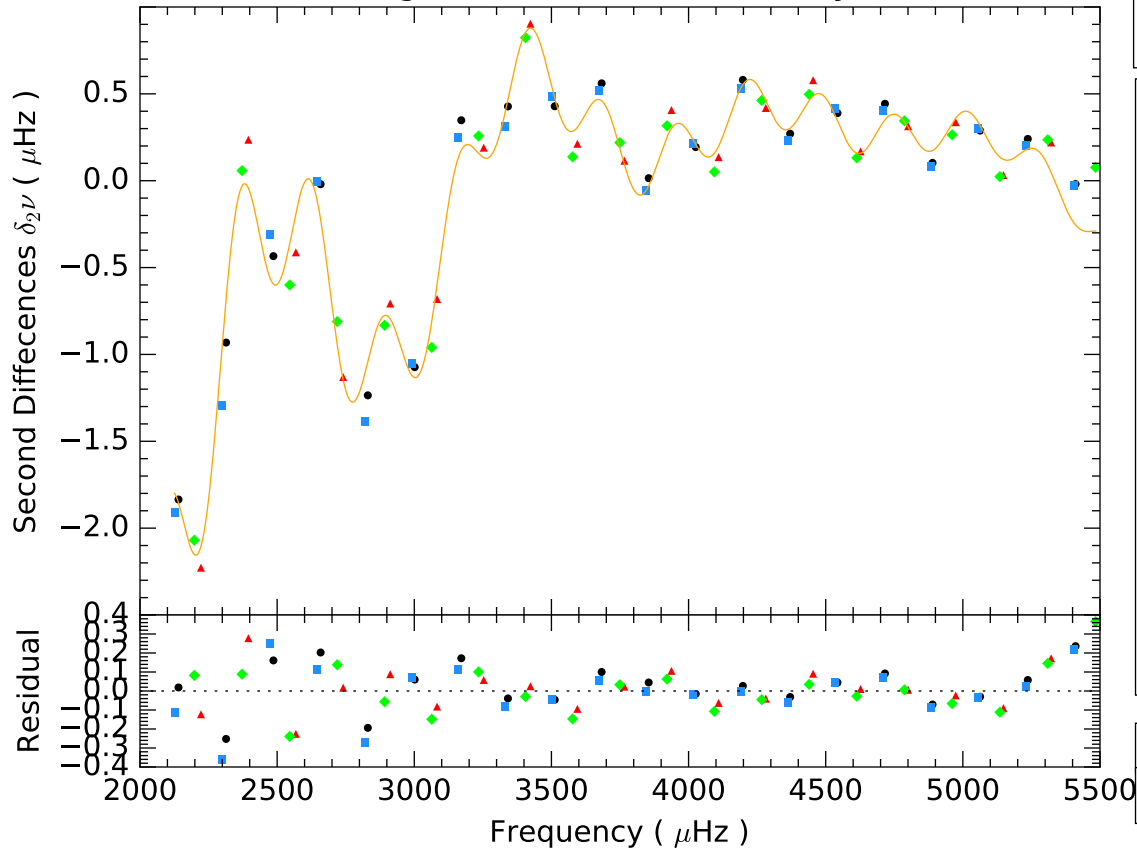
$$\tau_{HI} = 319.08 \text{ s}$$

$$\phi_{HI} = 0.00024247$$

profile50

$$\chi^2_\nu(\text{dof} = 65) = 0.018081$$

Age after ZAMS: 11.710 Gyr



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

$$a_0 = -7.7575 \mu\text{Hz}$$

$$a_1 = 0.0038603$$

$$a_2 = -4.5549e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010405$$

$$c_2 = 1.7995e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 540.58 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5736$$

$$b_2 = 2.7261e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1887.6 \text{ s}$$

$$\phi_{\text{CZ}} = 2.0328$$

$$d_0 = 3.0142e-05$$

$$d_2 = 1.1983e-17 \mu\text{Hz}^{-2}$$

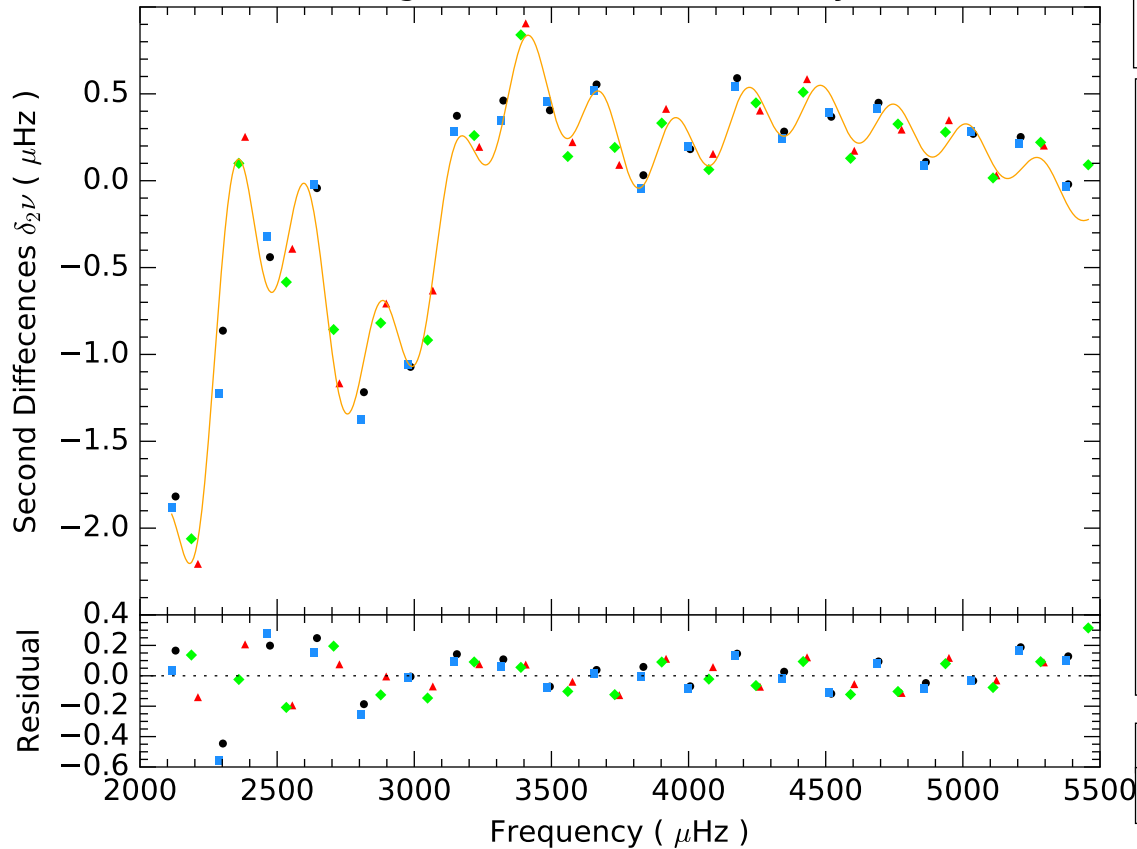
$$\tau_{\text{HI}} = 320.79 \text{ s}$$

$$\phi_{\text{HI}} = 4.5861e-05$$

profile51

$$\chi^2_\nu(\text{dof} = 65) = 0.01938$$

Age after ZAMS: 12.010 Gyr



$$a_0 = -7.4552 \mu\text{Hz}$$

$$a_1 = 0.0036854$$

$$a_2 = -4.3118e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0018667$$

$$c_2 = 2.4805e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 509.94 \text{ s}$$

$$\phi_{\text{HeII}} = 4.7696$$

$$b_2 = 2.9832e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1870.9 \text{ s}$$

$$\phi_{\text{CZ}} = 2.9675$$

$$d_0 = 0.00013921$$

$$d_2 = 1.084e-07 \mu\text{Hz}^{-2}$$

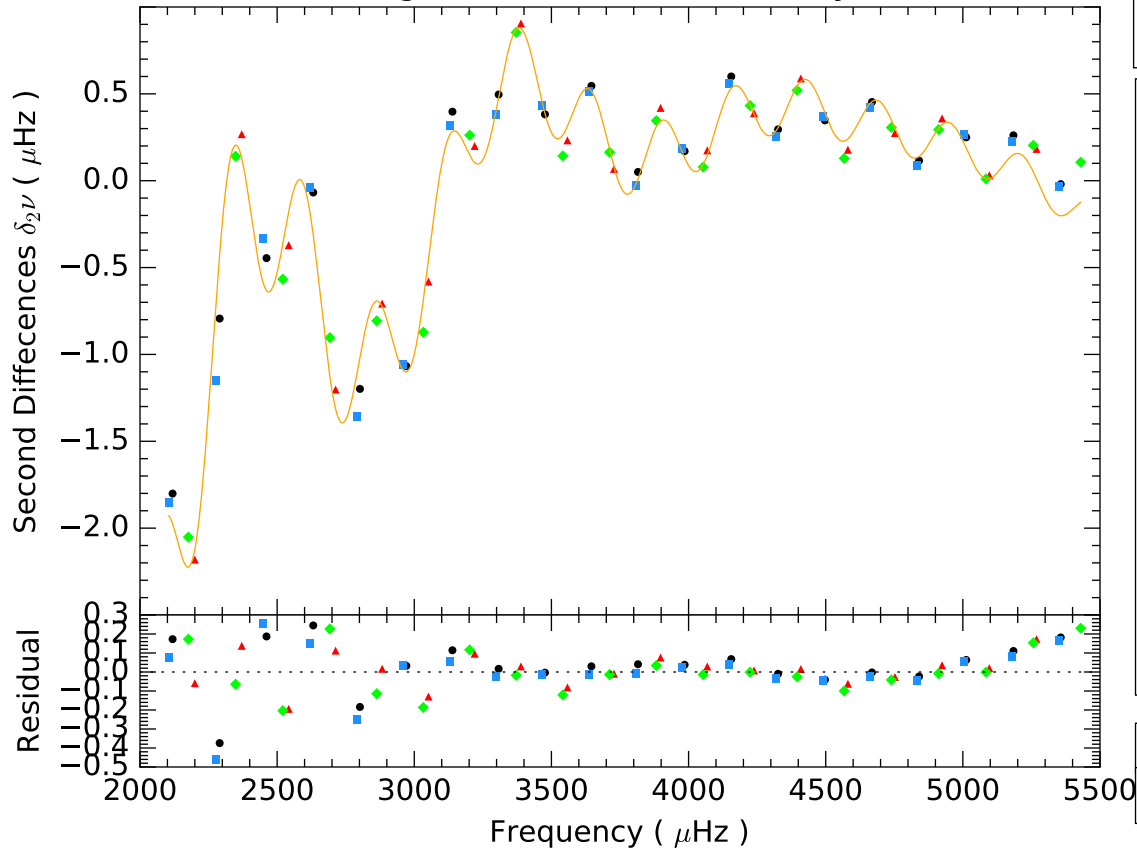
$$\tau_{\text{HI}} = 268.04 \text{ s}$$

$$\phi_{\text{HI}} = 2.9595$$

profile52

$$\chi^2_\nu(\text{dof} = 65) = 0.02532$$

Age after ZAMS: 12.310 Gyr



$$a_0 = -7.3891 \mu\text{Hz}$$

$$a_1 = 0.0036732$$

$$a_2 = -4.3223e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002155$$

$$c_2 = 2.5746e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 512.26 \text{ s}$$

$$\phi_{\text{HeII}} = 4.824$$

$$b_2 = 3.122e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1912.7 \text{ s}$$

$$\phi_{\text{CZ}} = 1.9579$$

$$d_0 = 0.00029536$$

$$d_2 = 1.6544e-07 \mu\text{Hz}^{-2}$$

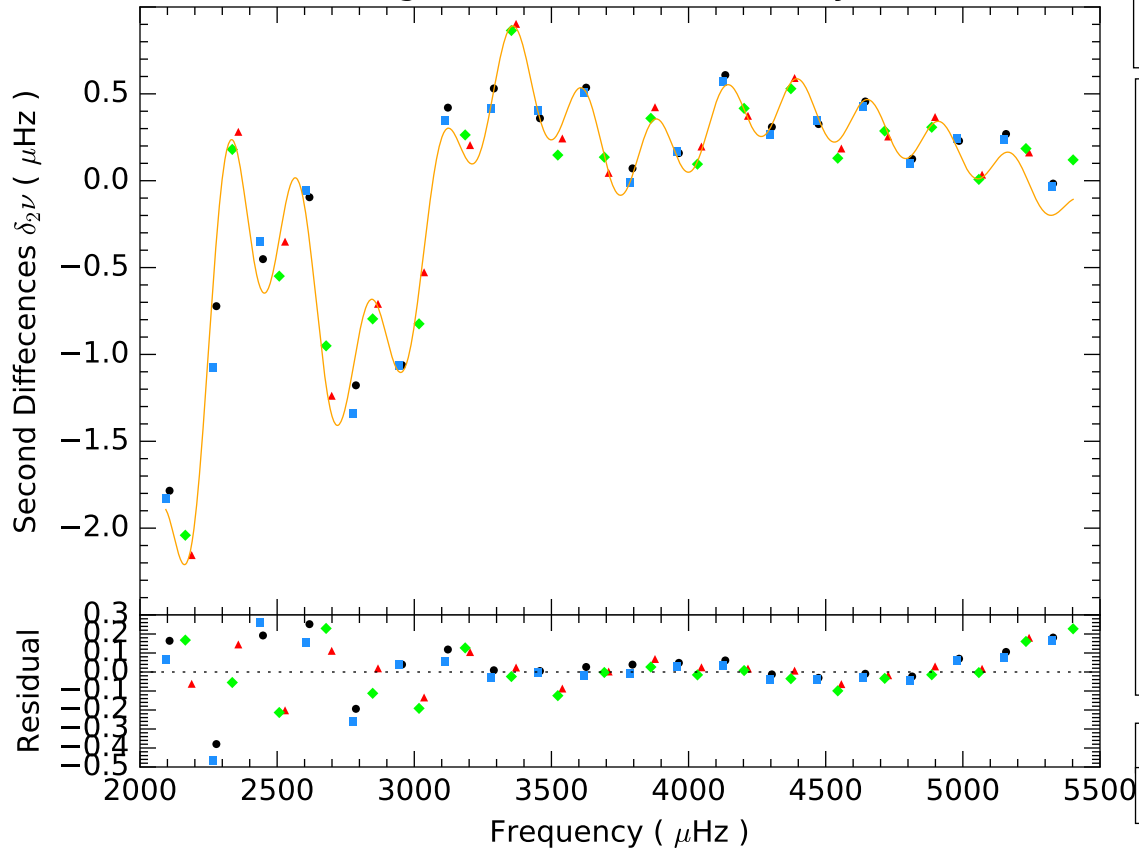
$$\tau_{\text{HI}} = 268.18 \text{ s}$$

$$\phi_{\text{HI}} = 3.1789$$

profile53

$$\chi^2_\nu(\text{dof} = 65) = 0.018958$$

Age after ZAMS: 12.610 Gyr



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

$$a_0 = -7.3419 \mu\text{Hz}$$

$$a_1 = 0.0036752$$

$$a_2 = -4.3533e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021717$$

$$c_2 = 2.6087e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 516.27 \text{ s}$$

$$\phi_{\text{HeII}} = 4.8107$$

$$b_2 = 3.1628e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1926.8 \text{ s}$$

$$\phi_{\text{CZ}} = 1.899$$

$$d_0 = 0.00029448$$

$$d_2 = 1.6667e-07 \mu\text{Hz}^{-2}$$

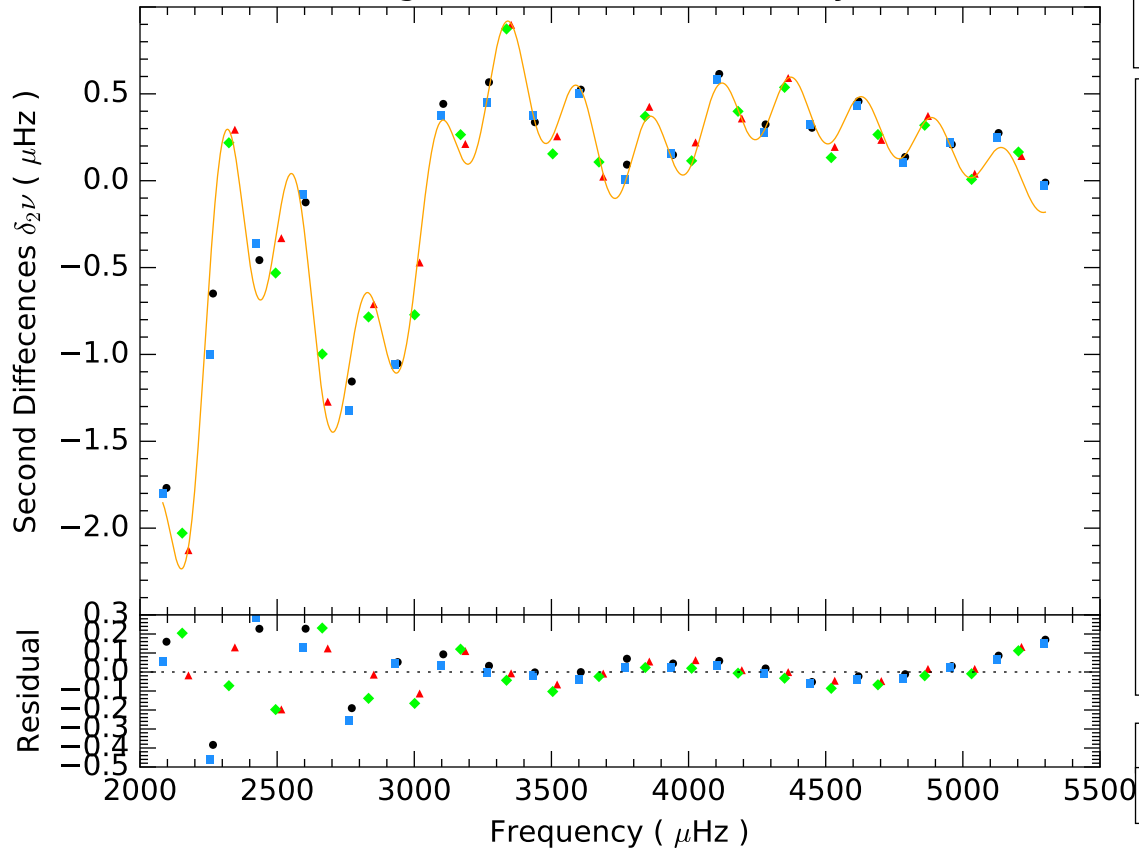
$$\tau_{\text{HI}} = 269.93 \text{ s}$$

$$\phi_{\text{HI}} = 3.1687$$

profile54

$$\chi^2_\nu(\text{dof} = 65) = 0.019644$$

Age after ZAMS: 12.910 Gyr



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

$$a_0 = -7.1429 \mu\text{Hz}$$

$$a_1 = 0.0035881$$

$$a_2 = -4.2595e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0022848$$

$$c_2 = 2.6878e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 517.9 \text{ s}$$

$$\phi_{\text{HeII}} = 4.872$$

$$b_2 = 3.3678e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1934.7 \text{ s}$$

$$\phi_{\text{CZ}} = 2.01$$

$$d_0 = 0.00035549$$

$$d_2 = 1.7782e-07 \mu\text{Hz}^{-2}$$

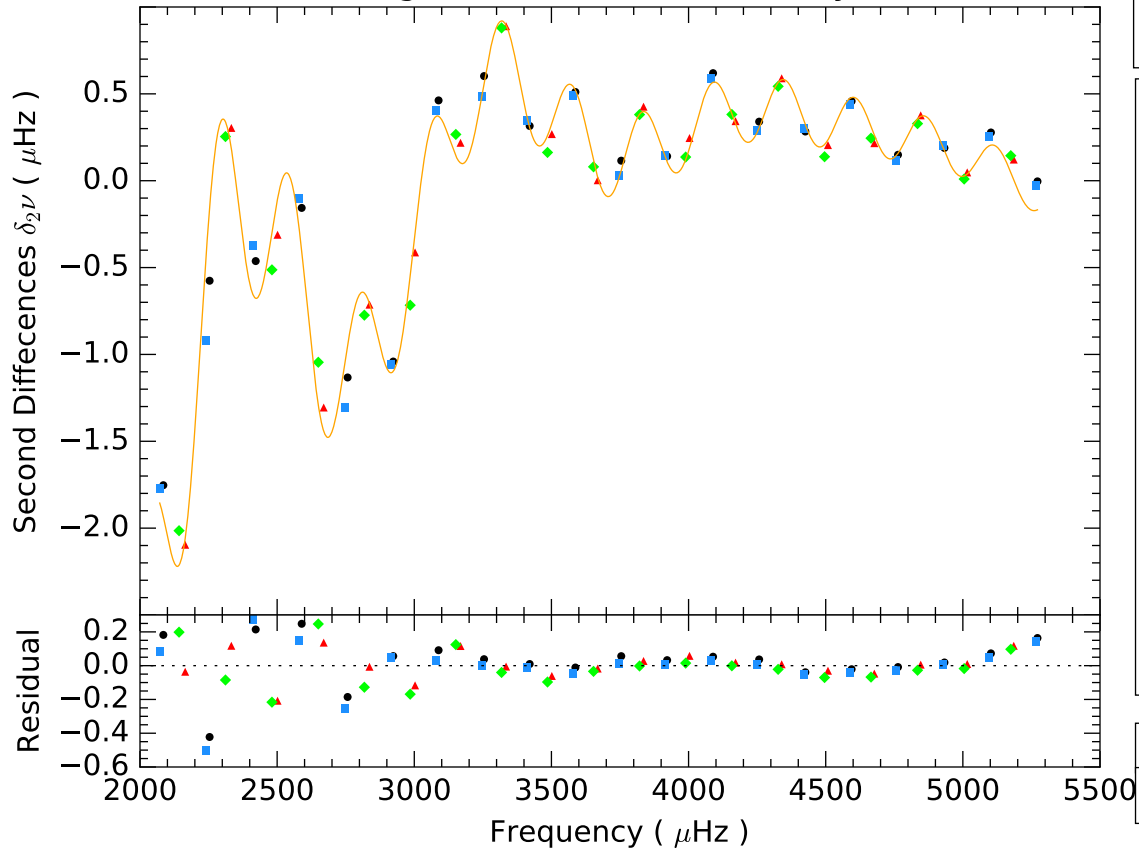
$$\tau_{\text{HI}} = 269.95 \text{ s}$$

$$\phi_{\text{HI}} = 3.2281$$

profile55

$$\chi^2_\nu(\text{dof} = 64) = 0.018281$$

Age after ZAMS: 13.210 Gyr



$$a_0 = -7.1369 \mu\text{Hz}$$

$$a_1 = 0.0036051$$

$$a_2 = -4.3021e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002435$$

$$c_2 = 2.8064e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 523.84 \text{ s}$$

$$\phi_{\text{HeII}} = 4.8176$$

$$b_2 = 3.3937e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1946.4 \text{ s}$$

$$\phi_{\text{CZ}} = 2.052$$

$$d_0 = 0.00030697$$

$$d_2 = 1.6501e-07 \mu\text{Hz}^{-2}$$

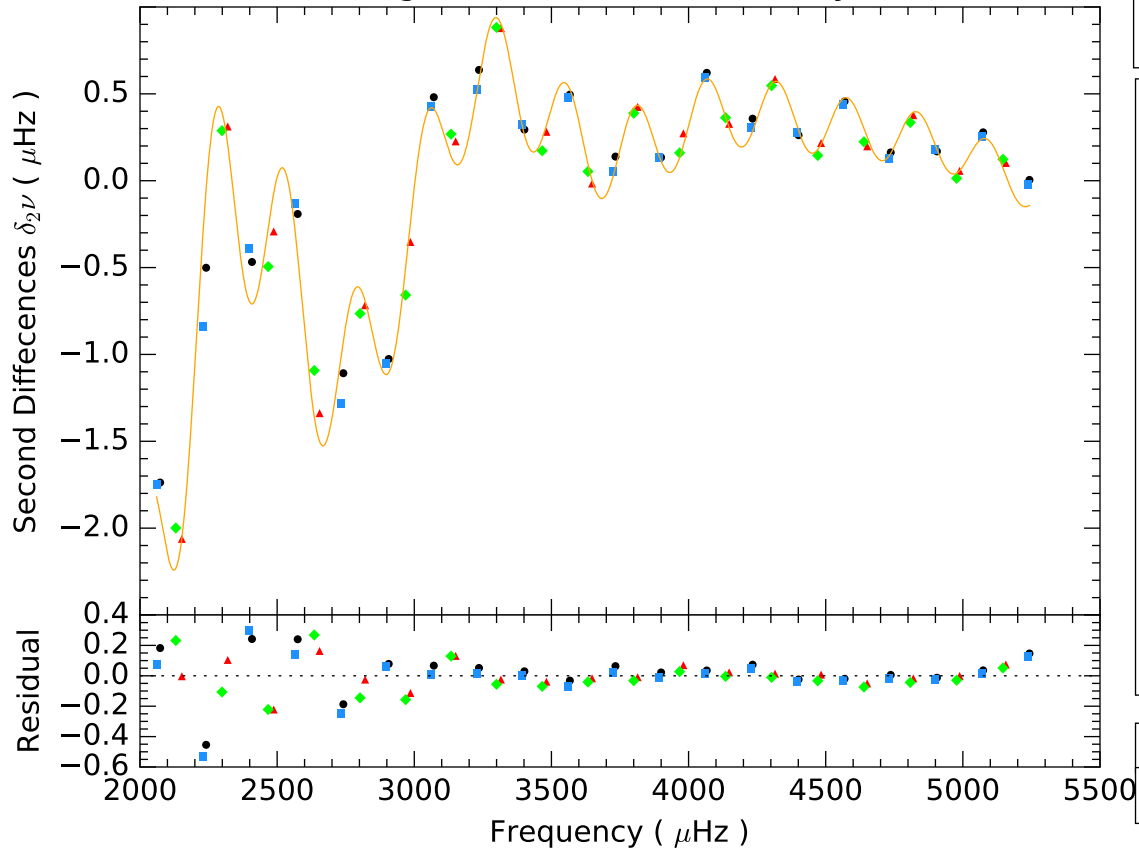
$$\tau_{\text{HI}} = 260.86 \text{ s}$$

$$\phi_{\text{HI}} = 3.6031$$

profile56

$$\chi^2_{\nu}(\text{dof} = 64) = 0.019434$$

Age after ZAMS: 13.510 Gyr



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

$$a_0 = -7.1955 \mu\text{Hz}$$

$$a_1 = 0.0036492$$

$$a_2 = -4.3699e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0023922$$

$$c_2 = 2.8352e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 532.86 \text{ s}$$

$$\phi_{\text{HeII}} = 4.6708$$

$$b_2 = 3.5986e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1956.5 \text{ s}$$

$$\phi_{\text{CZ}} = 2.1353$$

$$d_0 = 0.00020541$$

$$d_2 = 1.2787e-07 \mu\text{Hz}^{-2}$$

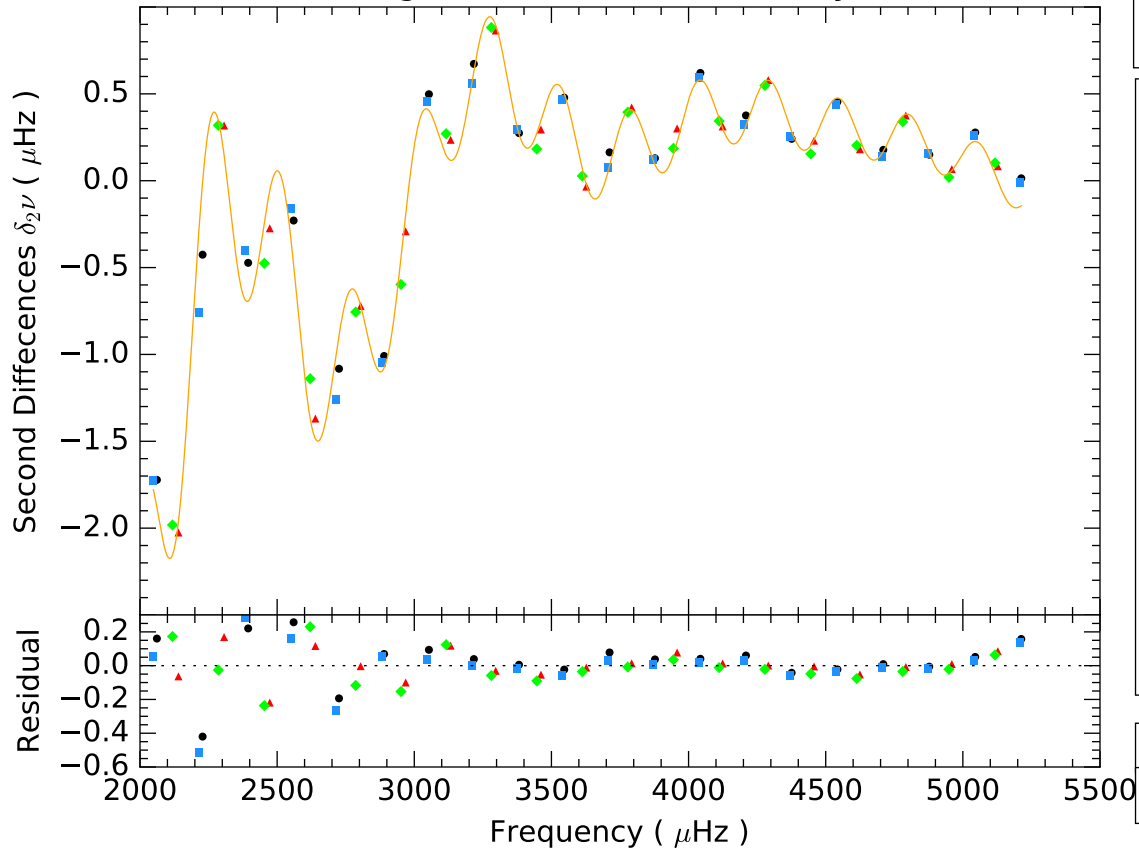
$$\tau_{\text{HI}} = 247.88 \text{ s}$$

$$\phi_{\text{HI}} = 4.1652$$

profile57

$$\chi^2_\nu(\text{dof} = 64) = 0.02088$$

Age after ZAMS: 13.810 Gyr



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

$$a_0 = -6.8178 \mu\text{Hz}$$

$$a_1 = 0.0034915$$

$$a_2 = -4.2166e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0023002$$

$$c_2 = 2.8112e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 535.61 \text{ s}$$

$$\phi_{\text{HeII}} = 4.6851$$

$$b_2 = 3.4177e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1968.5 \text{ s}$$

$$\phi_{\text{CZ}} = 2.191$$

$$d_0 = 0.00029407$$

$$d_2 = 1.6336e-07 \mu\text{Hz}^{-2}$$

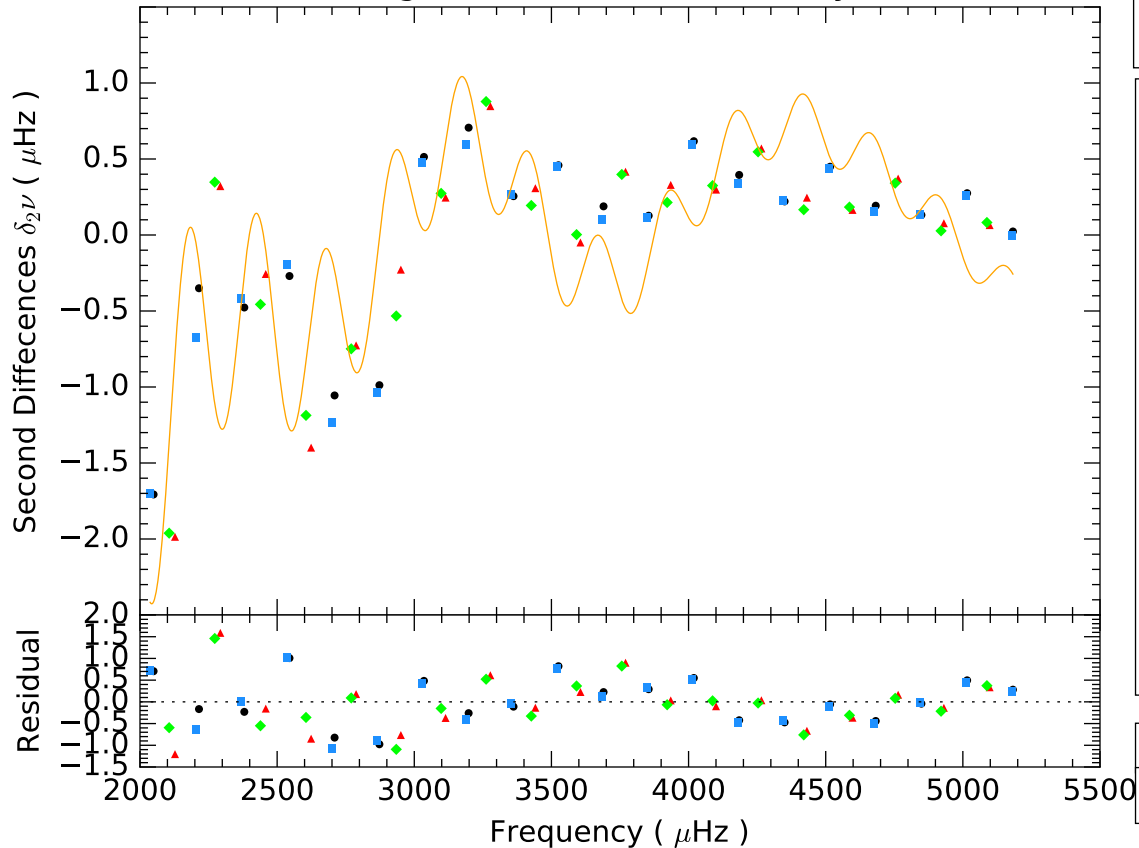
$$\tau_{\text{HI}} = 266.36 \text{ s}$$

$$\phi_{\text{HI}} = 3.4182$$

profile58

$$\chi^2_\nu(\text{dof} = 64) = 0.019555$$

Age after ZAMS: 14.110 Gyr



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

$$a_0 = -6.8039 \mu\text{Hz}$$

$$a_1 = 0.0035733$$

$$a_2 = -4.4303e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00078131$$

$$c_2 = 1.8014e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 500.82 \text{ s}$$

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

$$b_2 = 4.0287e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2008.1 \text{ s}$$

$$\phi_{\text{CZ}} = 3.1416$$

$$d_0 = 0.00021708$$

$$d_2 = 4.7125e-08 \mu\text{Hz}^{-2}$$

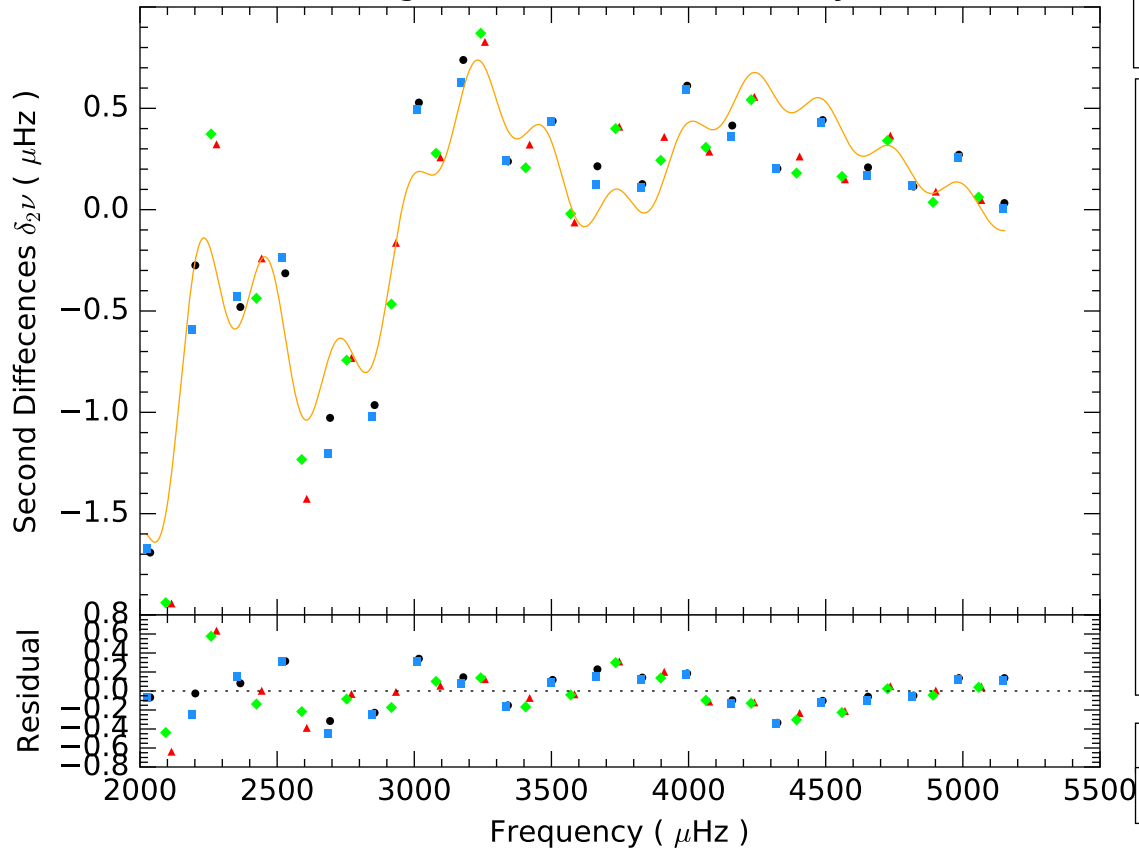
$$\tau_{\text{HI}} = 302.65 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile59

$$\chi^2_{\nu}(\text{dof} = 64) = 0.39711$$

Age after ZAMS: 14.410 Gyr



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

$$a_0 = -6.9419 \mu \text{ Hz}$$

$$a_1 = 0.0036015$$

$$a_2 = -4.3957e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010416$$

$$c_2 = 1.9499e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{He II}} = 496.58 \text{ s}$$

$$\phi_{\text{He II}} = 6.2832$$

$$b_2 = 1.5799e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1980.6 \text{ s}$$

$$\phi_{\text{CZ}} = 2.8979$$

$$d_0 = 0.00021427$$

$$d_2 = 1.2425e-07 \mu\text{Hz}^{-2}$$

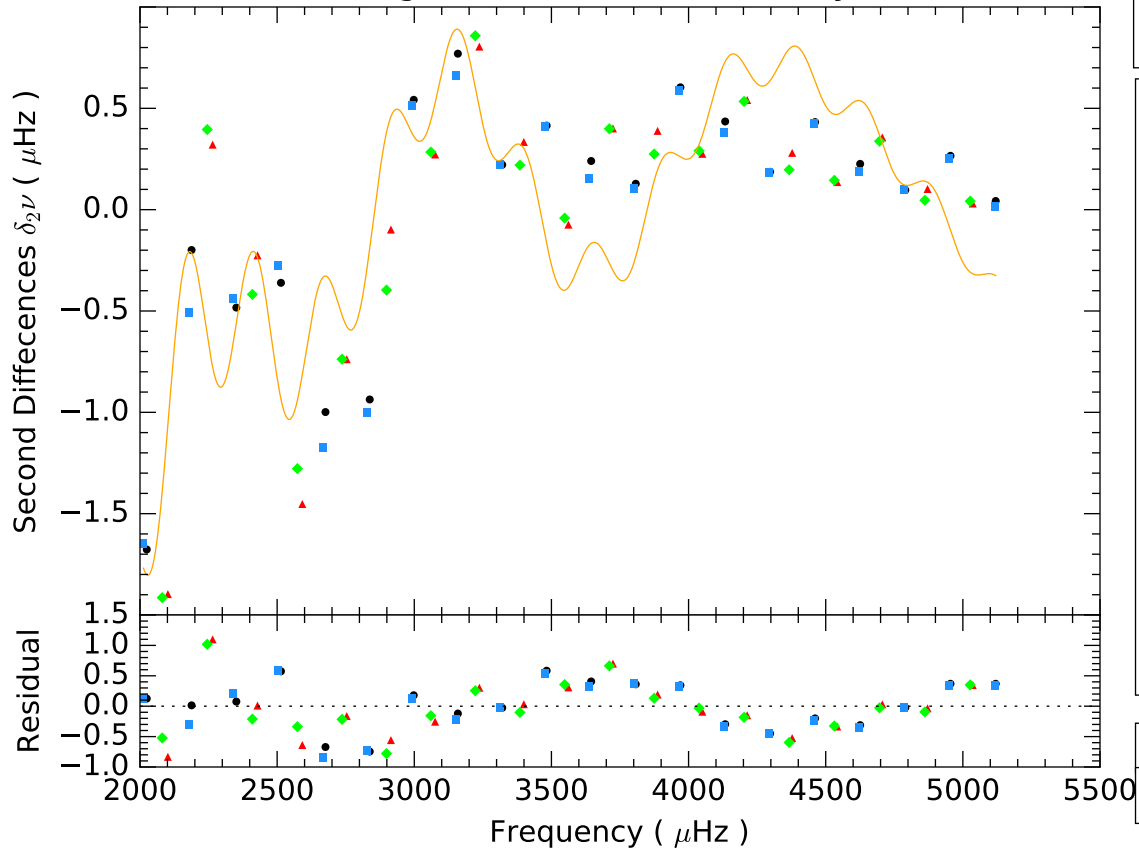
$$\tau_{\text{HI}} = 300.31 \text{ s}$$

$$\phi_{\text{HI}} = 3.2093$$

profile60

$$\chi^2_{\nu}(\text{dof} = 64) = 0.059183$$

Age after ZAMS: 14.710 Gyr



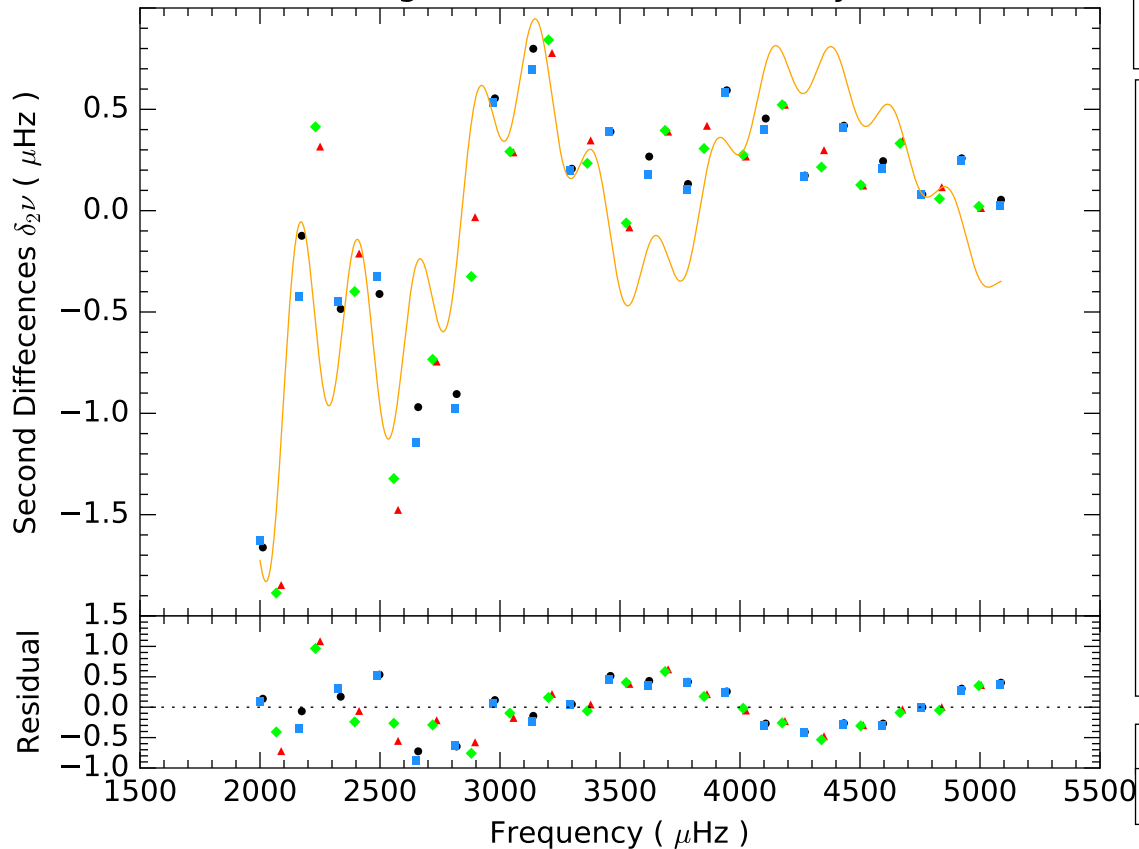
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$$\begin{aligned}
 a_0 &= -6.7084 \mu \text{Hz} \\
 a_1 &= 0.0035801 \\
 a_2 &= -4.5064e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.00080579 \\
 c_2 &= 1.8163e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HeII}} &= 509.02 \text{ s} \\
 \phi_{\text{HeII}} &= 6.2832 \\
 b_2 &= 2.1186e+06 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 2024.0 \text{ s} \\
 \phi_{\text{CZ}} &= 2.8633 \\
 d_0 &= 0.00021933 \\
 d_2 &= 4.8105e-08 \mu\text{Hz}^{-2} \\
 \tau_{\text{HI}} &= 306.4 \text{ s} \\
 \phi_{\text{HI}} &= 3.1416
 \end{aligned}$$

profile61

$$\chi^2_\nu(\text{dof} = 64) = 0.20936$$

Age after ZAMS: 15.010 Gyr



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

$$a_0 = -6.6331 \mu\text{Hz}$$

$$a_1 = 0.0035705$$

$$a_2 = -4.5308e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00081733$$

$$c_2 = 1.8365e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 513.67 \text{ s}$$

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

$$b_2 = 2.5988e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2025.1 \text{ s}$$

$$\phi_{\text{CZ}} = 3.0357$$

$$d_0 = 0.00022072$$

$$d_2 = 4.8716e-08 \mu\text{Hz}^{-2}$$

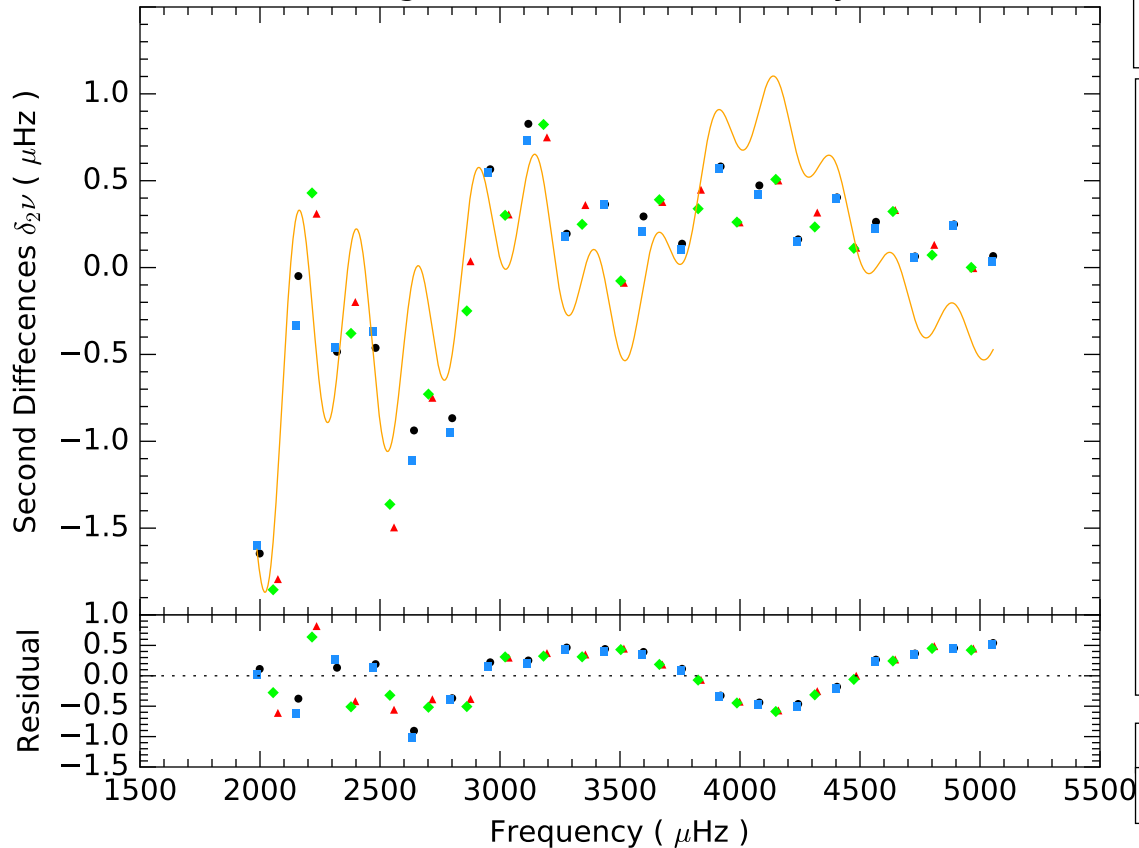
$$\tau_{\text{HI}} = 308.37 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile62

$$\chi^2_{\nu}(\text{dof} = 64) = 0.19076$$

Age after ZAMS: 15.310 Gyr



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

$$a_0 = -6.5011 \mu\text{Hz}$$

$$a_1 = 0.0035306$$

$$a_2 = -4.516e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00080105$$

$$c_2 = 1.8442e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 518.65 \text{ s}$$

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

$$b_2 = 3.4091e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2013.8 \text{ s}$$

$$\phi_{\text{CZ}} = 3.4929$$

$$d_0 = 0.00022215$$

$$d_2 = 4.9349e-08 \mu\text{Hz}^{-2}$$

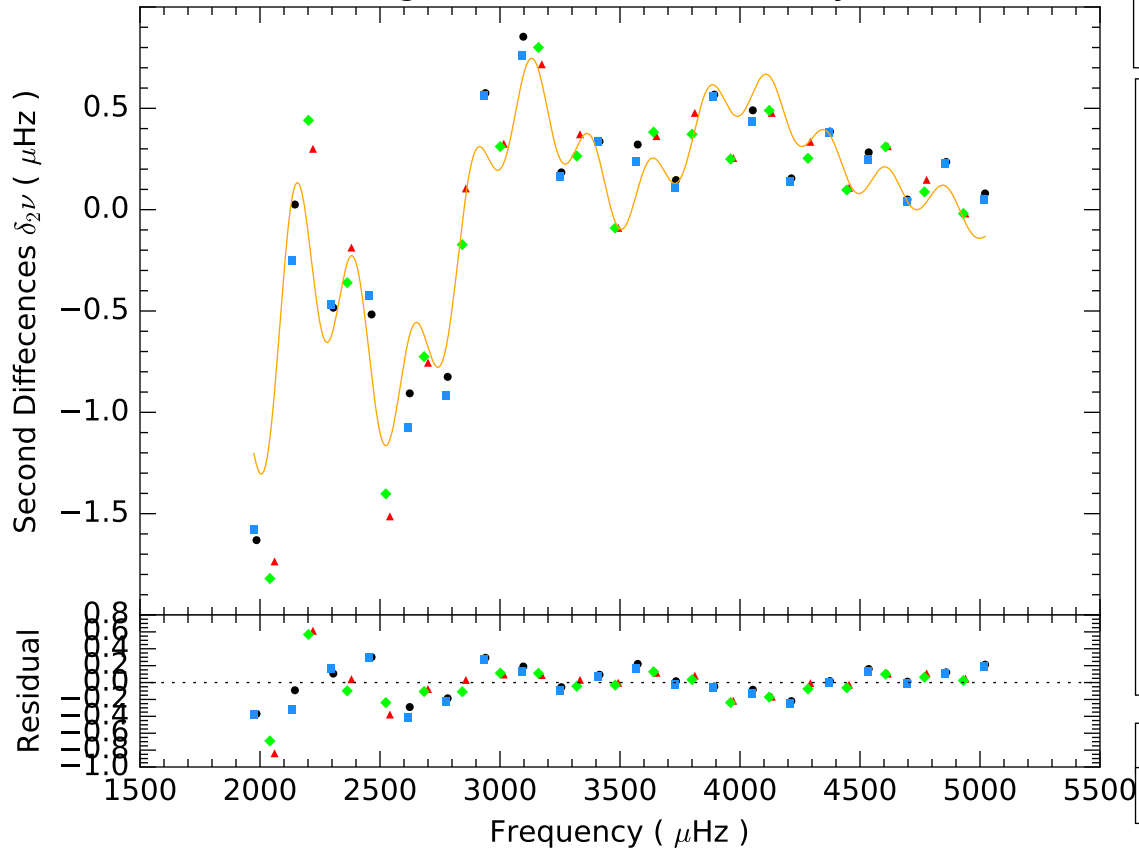
$$\tau_{\text{HI}} = 332.18 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile63

$$\chi^2_\nu(\text{dof} = 64) = 0.20388$$

Age after ZAMS: 15.610 Gyr



$$a_0 = -6.4634 \mu\text{Hz}$$

$$a_1 = 0.0035188$$

$$a_2 = -4.5e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00082349$$

$$c_2 = 1.8161e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 522.28 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2828$$

$$b_2 = 1.9206e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2033.9 \text{ s}$$

$$\phi_{\text{CZ}} = 3.1497$$

$$d_0 = 0.00021431$$

$$d_2 = 2.7958e-07 \mu\text{Hz}^{-2}$$

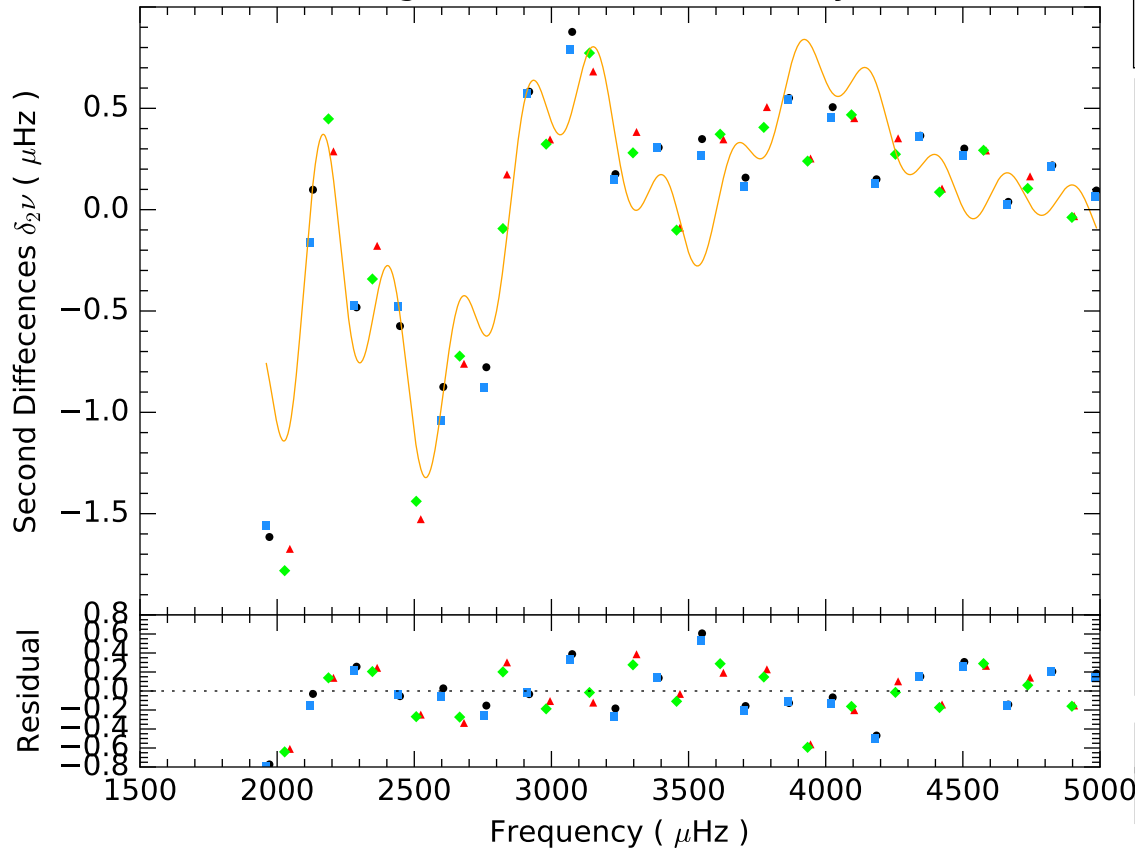
$$\tau_{\text{HI}} = 348.7 \text{ s}$$

$$\phi_{\text{HI}} = 2.5237$$

profile64

$$\chi^2_\nu(\text{dof} = 64) = 0.061927$$

Age after ZAMS: 15.910 Gyr



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

$$a_0 = -6.4336 \mu\text{Hz}$$

$$a_1 = 0.0035279$$

$$a_2 = -4.5409e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00083856$$

$$c_2 = 1.5749e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 528.48 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 2.3735e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2005.3 \text{ s}$$

$$\phi_{CZ} = 3.5035$$

$$d_0 = 0.00021043$$

$$d_2 = 1.8785e-07 \mu\text{Hz}^{-2}$$

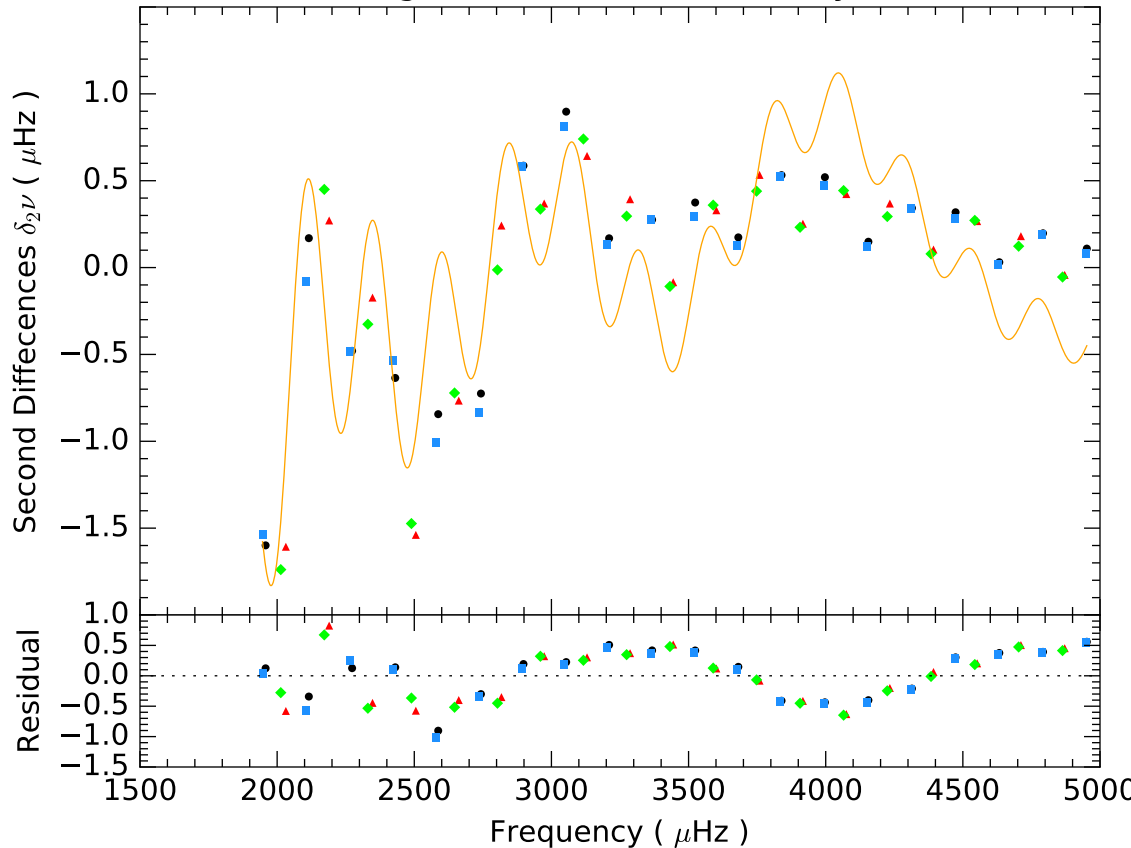
$$\tau_{HI} = 348.13 \text{ s}$$

$$\phi_{HI} = 2.8051$$

profile65

$$\chi^2_\nu(\text{dof} = 64) = 0.10005$$

Age after ZAMS: 16.210 Gyr



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

$$a_0 = -6.2673 \mu\text{Hz}$$

$$a_1 = 0.0035012$$

$$a_2 = -4.5975e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00085816$$

$$c_2 = 1.9383e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 533.87 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 3.6777e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2060.3 \text{ s}$$

$$\phi_{CZ} = 3.4705$$

$$d_0 = 0.00022675$$

$$d_2 = 5.1417e-08 \mu\text{Hz}^{-2}$$

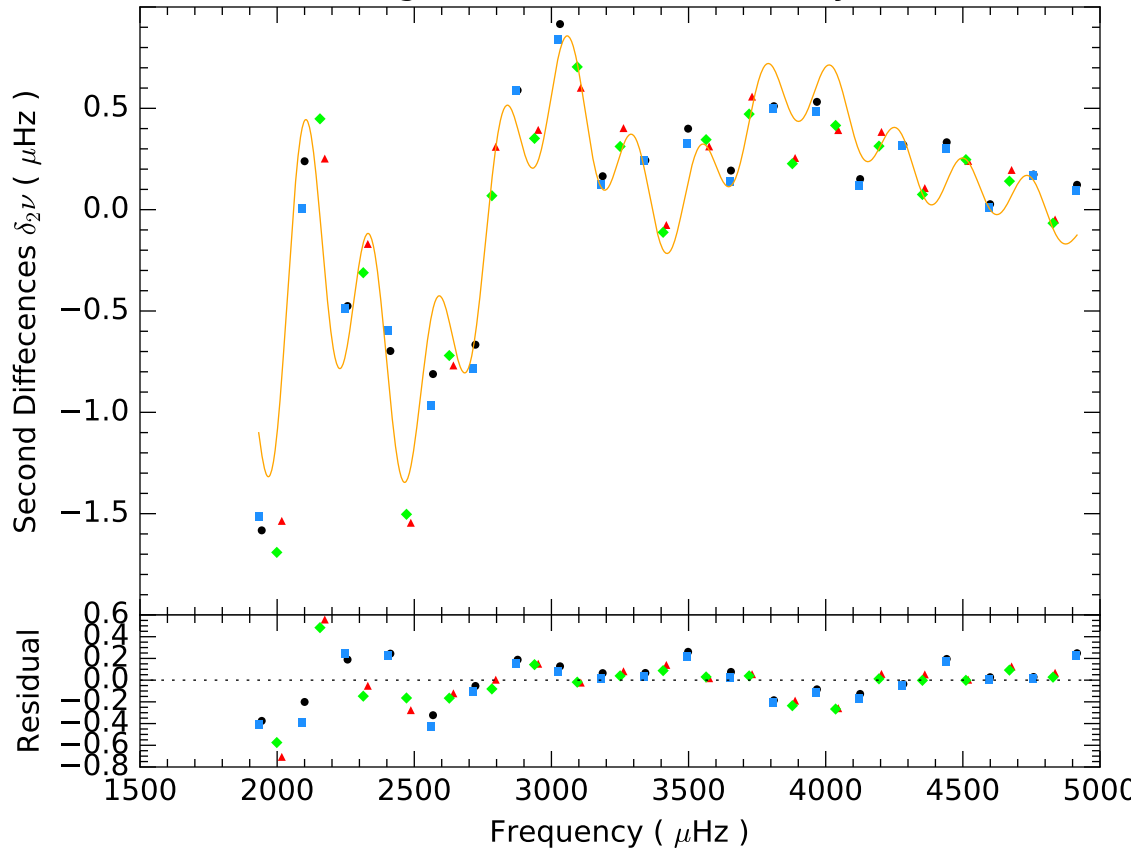
$$\tau_{HI} = 339.48 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile66

$$\chi^2_\nu(\text{dof} = 64) = 0.20439$$

Age after ZAMS: 16.510 Gyr



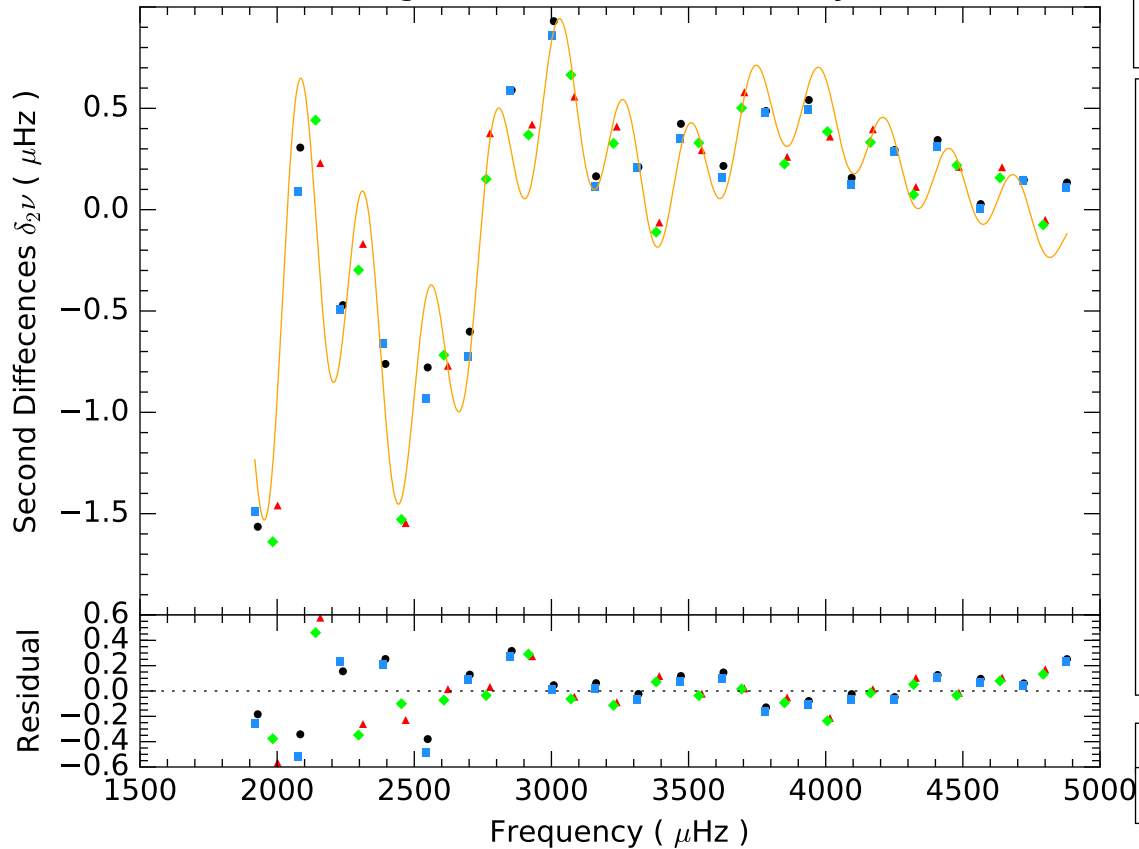
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$a_0 = -6.2372 \mu\text{Hz}$
 $a_1 = 0.0034942$
 $a_2 = -4.5892e-07 \mu\text{Hz}^{-2}$
 $c_0 = 0.00094159$
 $c_2 = 1.939e-07 \mu\text{Hz}^{-2}$
 $\tau_{\text{HeII}} = 540.31 \text{ s}$
 $\phi_{\text{HeII}} = 6.2301$
 $b_2 = 2.6518e+06 \text{ mHz}^3$
 $\tau_{\text{CZ}} = 2084.7 \text{ s}$
 $\phi_{\text{CZ}} = 3.0262$
 $d_0 = 0.0002142$
 $d_2 = 2.6245e-07 \mu\text{Hz}^{-2}$
 $\tau_{\text{HI}} = 356.23 \text{ s}$
 $\phi_{\text{HI}} = 2.6013$

profile67

 $\chi^2_{\nu}(\text{dof} = 64) = 0.053934$

Age after ZAMS: 16.810 Gyr



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

$$a_0 = -6.1523 \mu \text{ Hz}$$

$$a_1 = 0.0034989$$

$$a_2 = -4.6656e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010844$$

$$c_2 = 2.2662e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 552.87 \text{ s}$$

$$\phi_{HeII} = 5.8167$$

$$b_2 = 3.3397e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2111.4 \text{ s}$$

$$\phi_{CZ} = 2.8255$$

$$d_0 = 0.00035454$$

$$d_2 = 5.218e-07 \mu\text{Hz}^{-2}$$

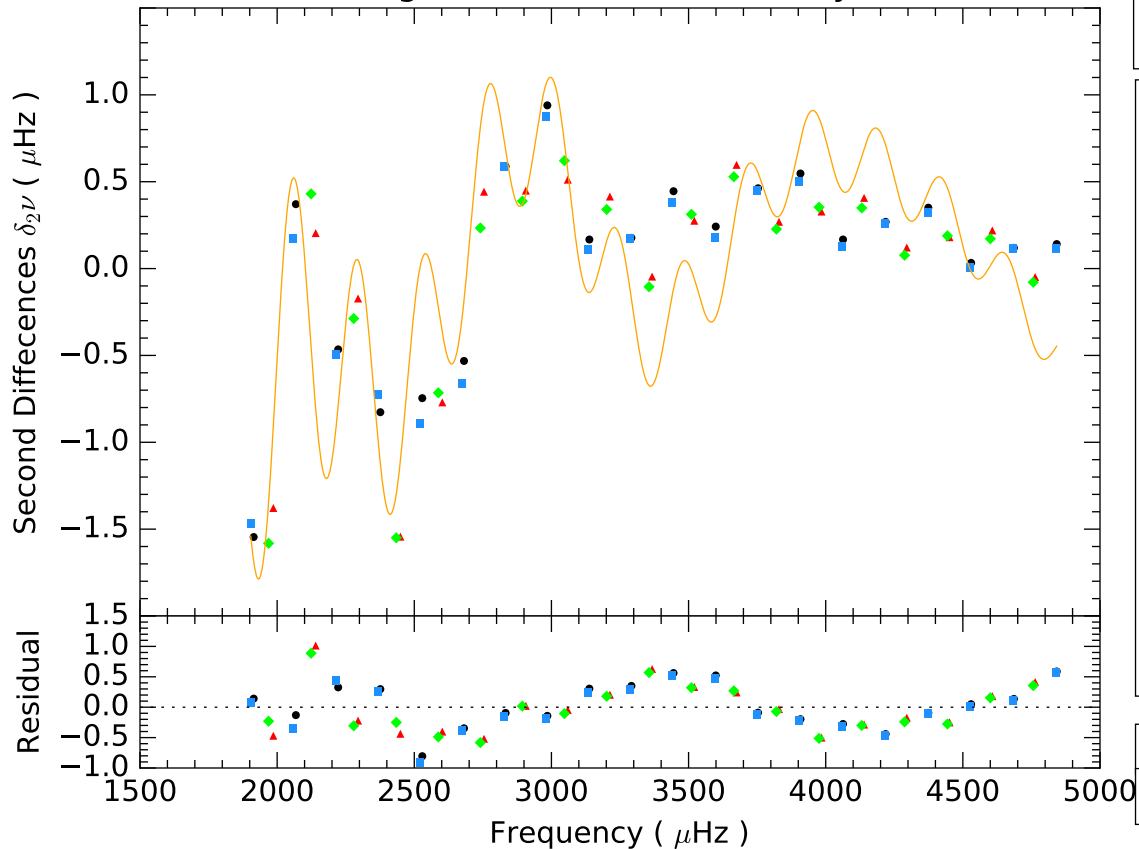
$$\tau_{HI} = 322.41 \text{ s}$$

$$\phi_{HI} = 2.2129$$

profile68

$$\chi^2_\nu(\text{dof} = 64) = 0.050282$$

Age after ZAMS: 17.110 Gyr



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

$$a_0 = -6.0271 \mu\text{Hz}$$

$$a_1 = 0.0034754$$

$$a_2 = -4.7012e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00097573$$

$$c_2 = 2.1148e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 551.1 \text{ s}$$

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

$$b_2 = 3.7603e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2114.4 \text{ s}$$

$$\phi_{\text{CZ}} = 3.3948$$

$$d_0 = 0.00023188$$

$$d_2 = 5.3768e-08 \mu\text{Hz}^{-2}$$

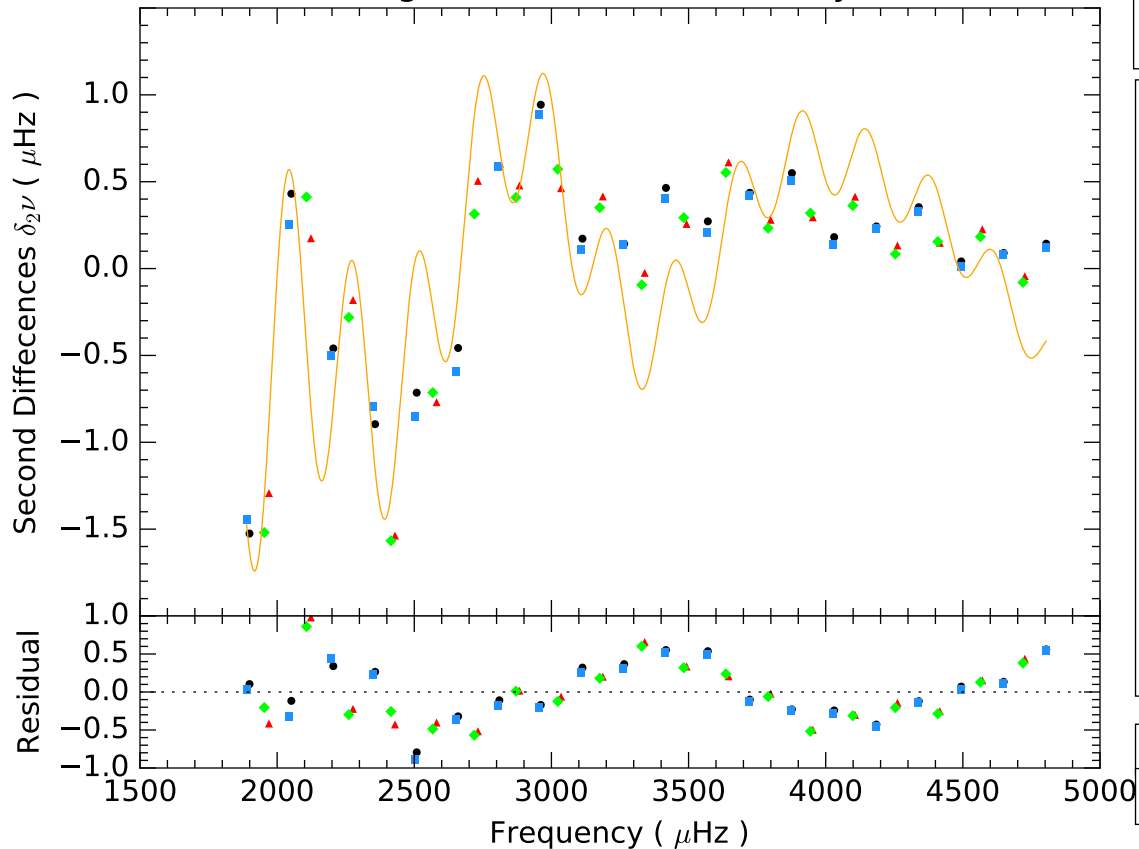
$$\tau_{\text{HI}} = 326.55 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile69

$$\chi^2_\nu(\text{dof} = 64) = 0.17569$$

Age after ZAMS: 17.410 Gyr



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

$$a_0 = -5.9529 \mu\text{Hz}$$

$$a_1 = 0.0034709$$

$$a_2 = -4.7445e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00099601$$

$$c_2 = 2.1321e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 557.2 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2826$$

$$b_2 = 3.7658e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2138.1 \text{ s}$$

$$\phi_{\text{CZ}} = 3.219$$

$$d_0 = 0.00023373$$

$$d_2 = 5.4631e-08 \mu\text{Hz}^{-2}$$

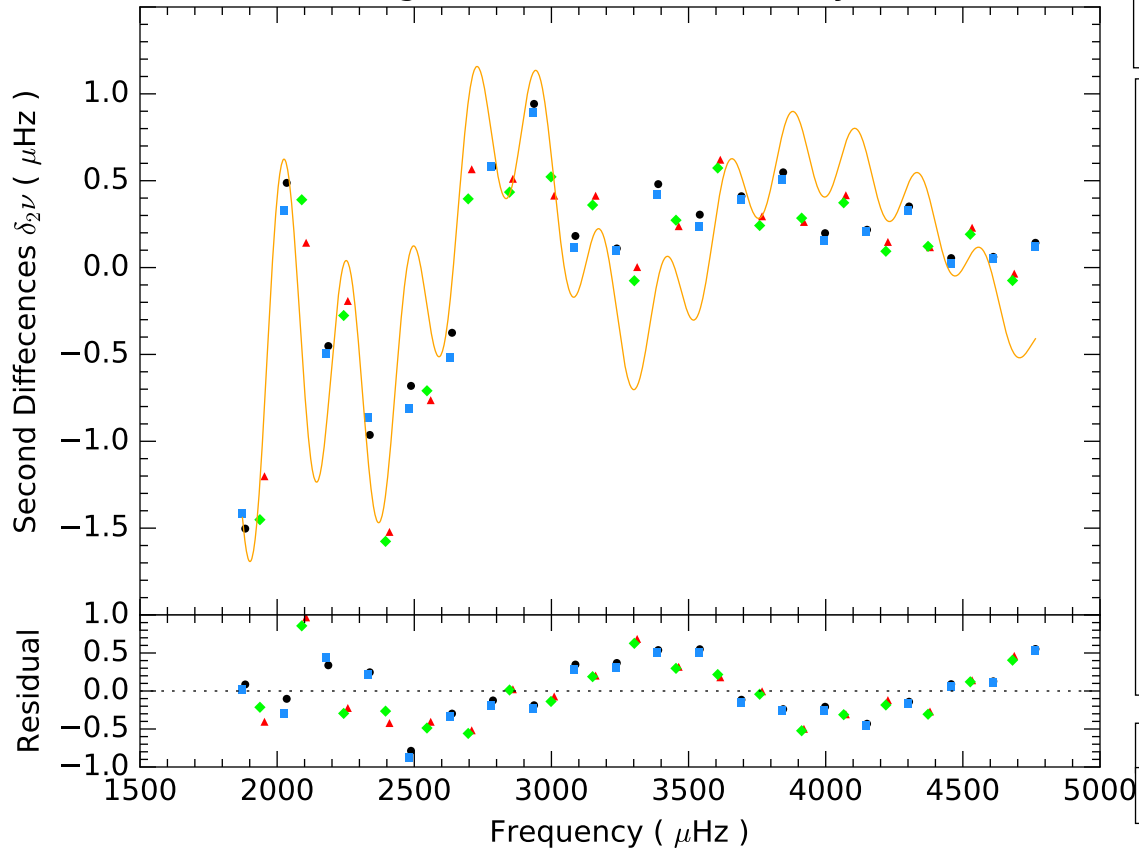
$$\tau_{\text{HI}} = 329.23 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile70

$$\chi^2_\nu(\text{dof} = 64) = 0.17153$$

Age after ZAMS: 17.710 Gyr



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

$$a_0 = -5.8631 \mu\text{Hz}$$

$$a_1 = 0.0034593$$

$$a_2 = -4.7808e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010463$$

$$c_2 = 2.2047e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 563.68 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2829$$

$$b_2 = 3.764e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2157.9 \text{ s}$$

$$\phi_{\text{CZ}} = 3.2003$$

$$d_0 = 0.00023565$$

$$d_2 = 5.5531e-08 \mu\text{Hz}^{-2}$$

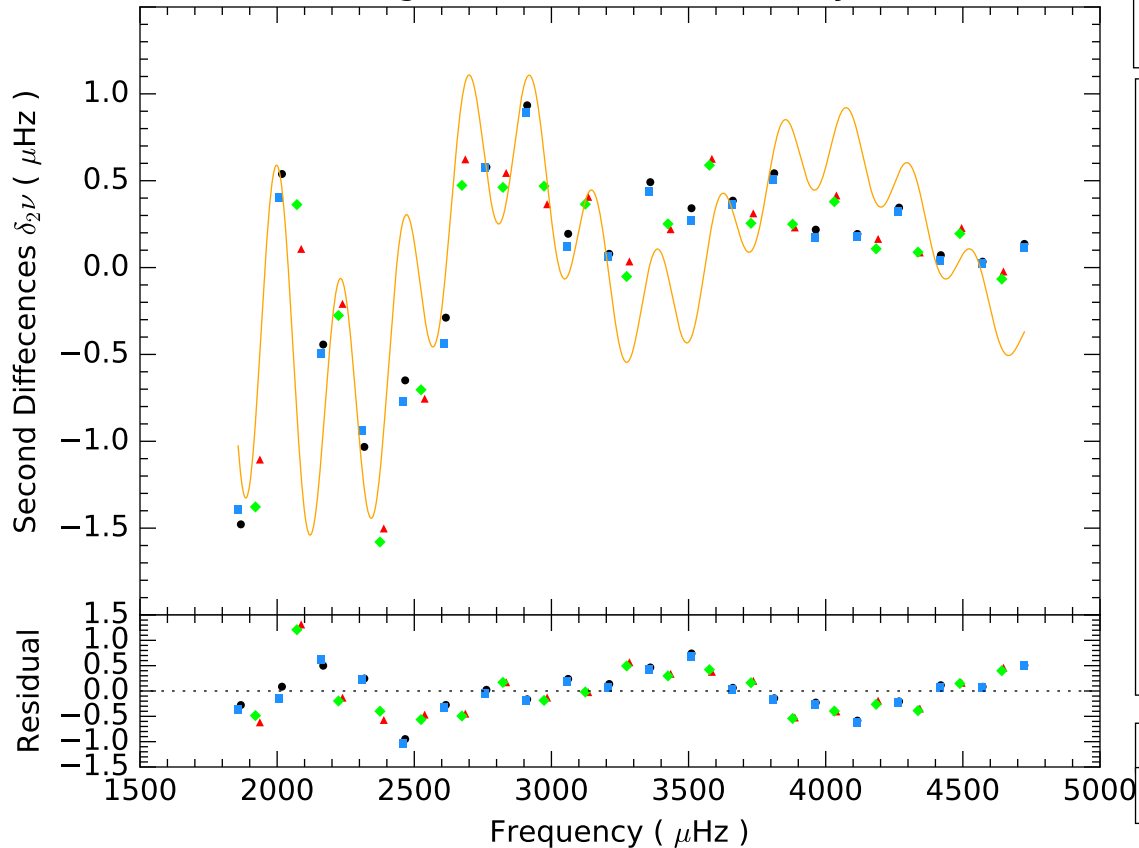
$$\tau_{\text{HI}} = 332.01 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile71

$$\chi^2_\nu(\text{dof} = 64) = 0.17104$$

Age after ZAMS: 18.010 Gyr



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

$$a_0 = -4.8753 \mu\text{Hz}$$

$$a_1 = 0.0029225$$

$$a_2 = -4.0707e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0014053$$

$$c_2 = 2.8817e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 475.73 \text{ s}$$

$$\phi_{HeII} = 3.0103$$

$$b_2 = 3.8817e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2168.5 \text{ s}$$

$$\phi_{CZ} = 3.5502$$

$$d_0 = 0.00023765$$

$$d_2 = 5.6479e-08 \mu\text{Hz}^{-2}$$

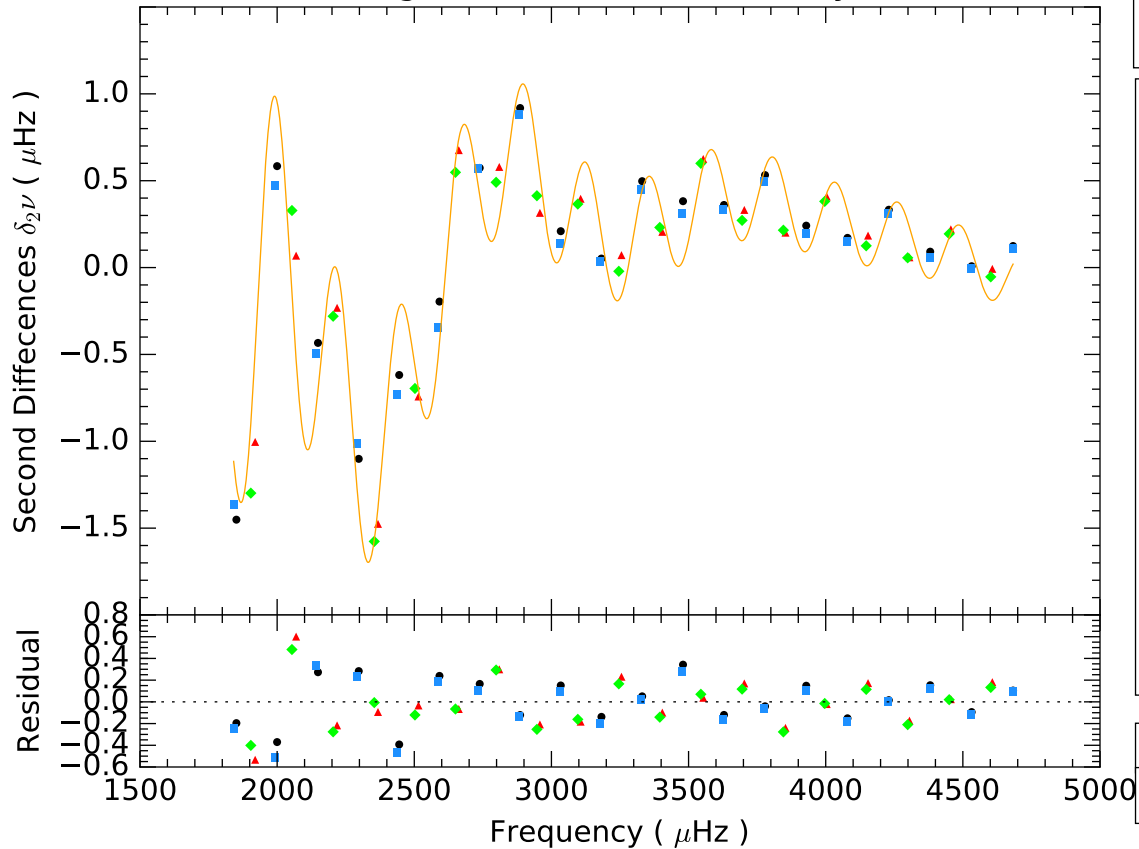
$$\tau_{HI} = 334.91 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile72

$$\chi^2_\nu(\text{dof} = 64) = 0.22732$$

Age after ZAMS: 18.310 Gyr



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

$$a_0 = -4.318 \mu\text{Hz}$$

$$a_1 = 0.0026171$$

$$a_2 = -3.6583e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002517$$

$$c_2 = 3.5659e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 568.74 \text{ s}$$

$$\phi_{HeII} = 0.00081904$$

$$b_2 = 3.624e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2202.3 \text{ s}$$

$$\phi_{CZ} = 2.9954$$

$$d_0 = 0.0023874$$

$$d_2 = 5.2802e-07 \mu\text{Hz}^{-2}$$

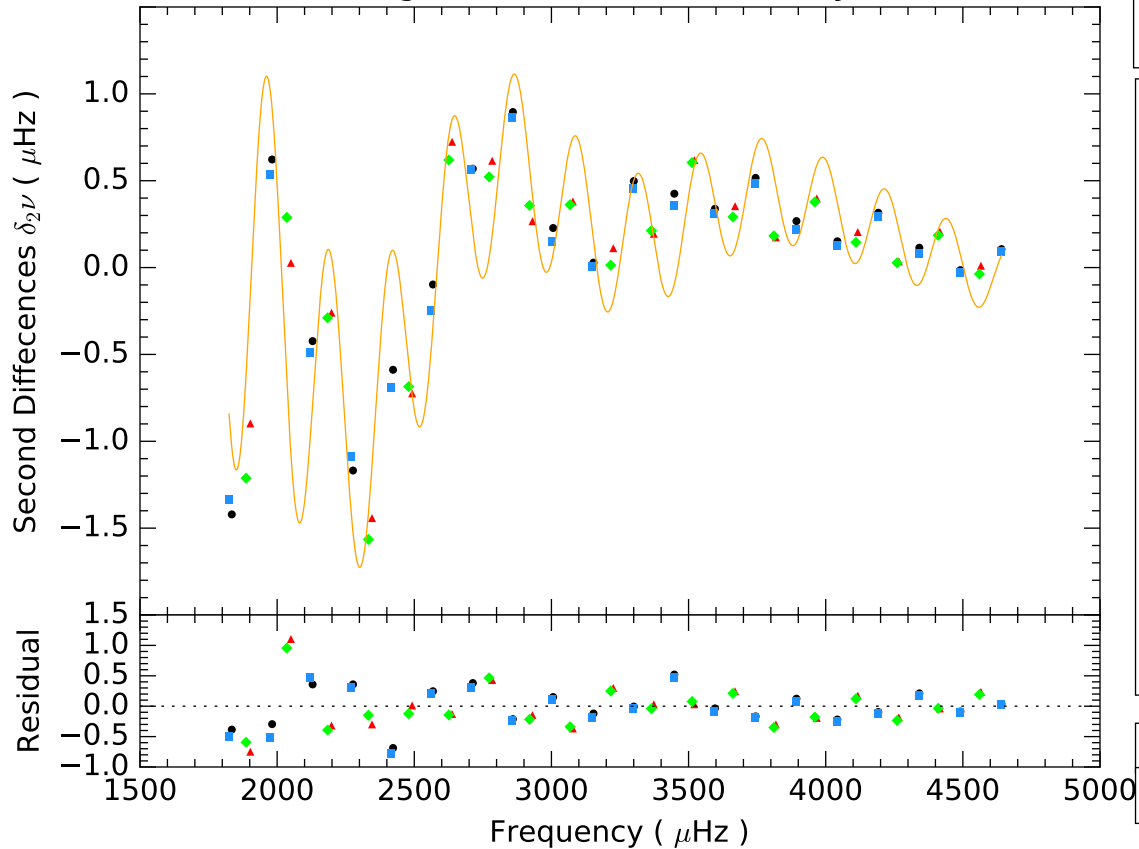
$$\tau_{HI} = 284.82 \text{ s}$$

$$\phi_{HI} = 3.7755$$

profile73

$$\chi^2_\nu(\text{dof} = 64) = 0.060504$$

Age after ZAMS: 18.610 Gyr



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

$$a_0 = -4.6943 \mu\text{Hz}$$

$$a_1 = 0.0028473$$

$$a_2 = -3.9922e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0017499$$

$$c_2 = 3.1378e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 489.91 \text{ s}$$

$$\phi_{HeII} = 2.7857$$

$$b_2 = 4.3795e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2220.9 \text{ s}$$

$$\phi_{CZ} = 3.257$$

$$d_0 = 0.00029877$$

$$d_2 = 2.8791e-07 \mu\text{Hz}^{-2}$$

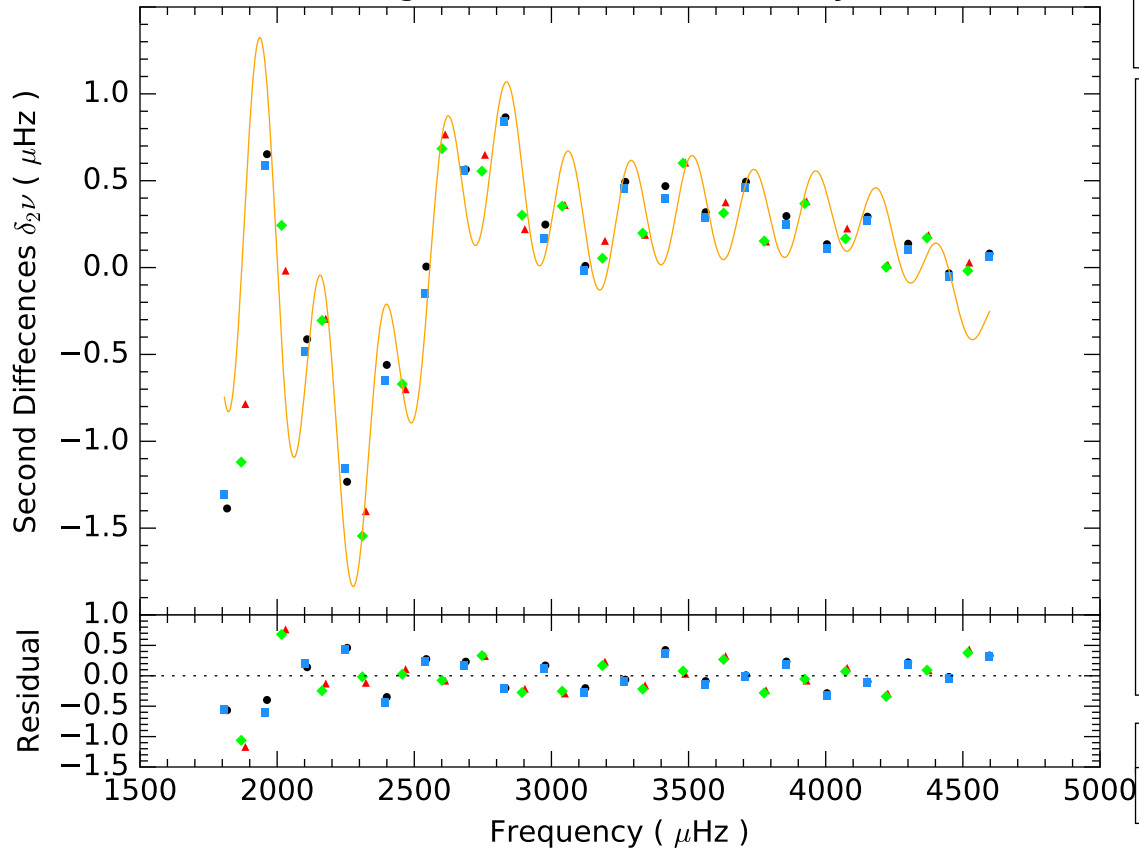
$$\tau_{HI} = 341.81 \text{ s}$$

$$\phi_{HI} = 3.2414$$

profile74

$$\chi^2_\nu(\text{dof} = 64) = 0.13621$$

Age after ZAMS: 18.910 Gyr



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

$$a_0 = -5.2924 \mu\text{Hz}$$

$$a_1 = 0.0033017$$

$$a_2 = -4.7884e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.001268$$

$$c_2 = 2.7667e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 600.24 \text{ s}$$

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

$$b_2 = 3.672e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2225.0 \text{ s}$$

$$\phi_{\text{CZ}} = 3.8455$$

$$d_0 = 0.00022946$$

$$d_2 = 1.1542e-07 \mu\text{Hz}^{-2}$$

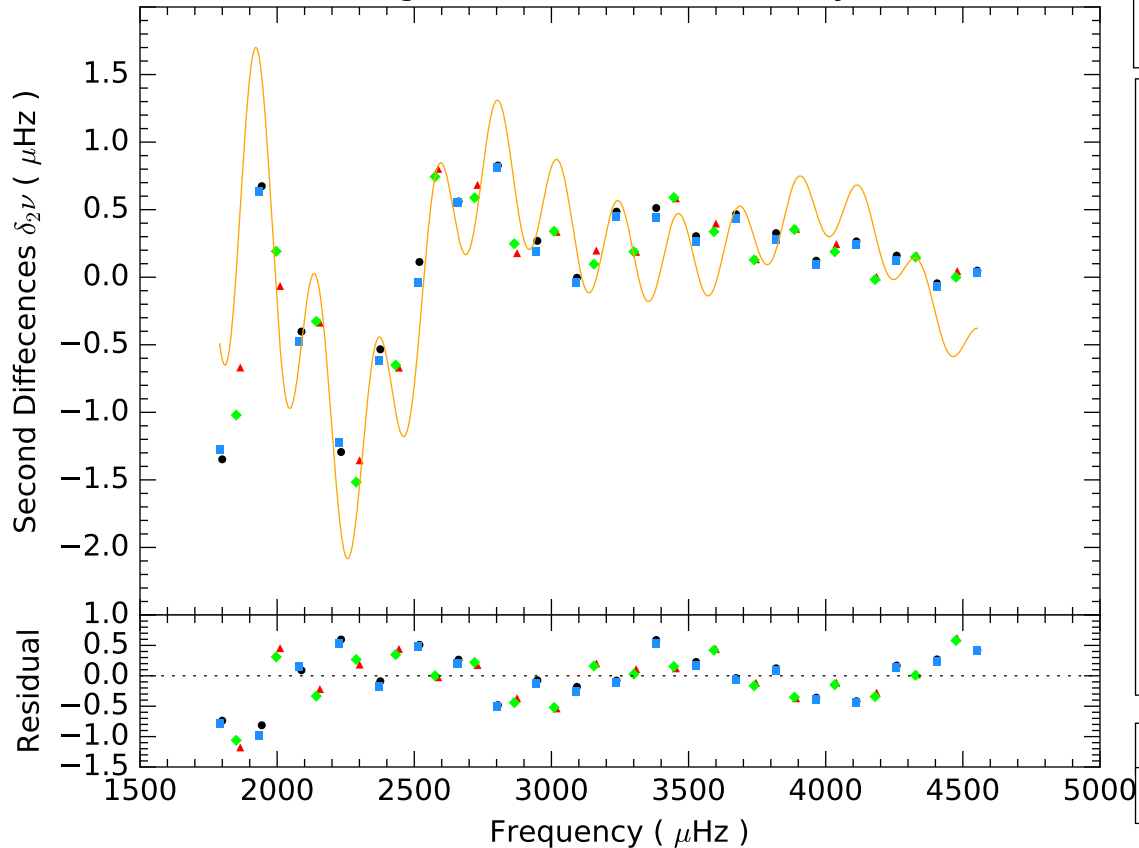
$$\tau_{\text{HI}} = 453.76 \text{ s}$$

$$\phi_{\text{HI}} = 3.4348$$

profile75

$$\chi^2_\nu(\text{dof} = 64) = 0.13327$$

Age after ZAMS: 19.210 Gyr



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

$$a_0 = -5.33 \mu\text{Hz}$$

$$a_1 = 0.0033614$$

$$a_2 = -4.9284e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0016303$$

$$c_2 = 2.899e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 603.42 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2561$$

$$b_2 = 3.8742e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2277.0 \text{ s}$$

$$\phi_{\text{CZ}} = 2.9893$$

$$d_0 = 0.0002466$$

$$d_2 = 6.0811e-08 \mu\text{Hz}^{-2}$$

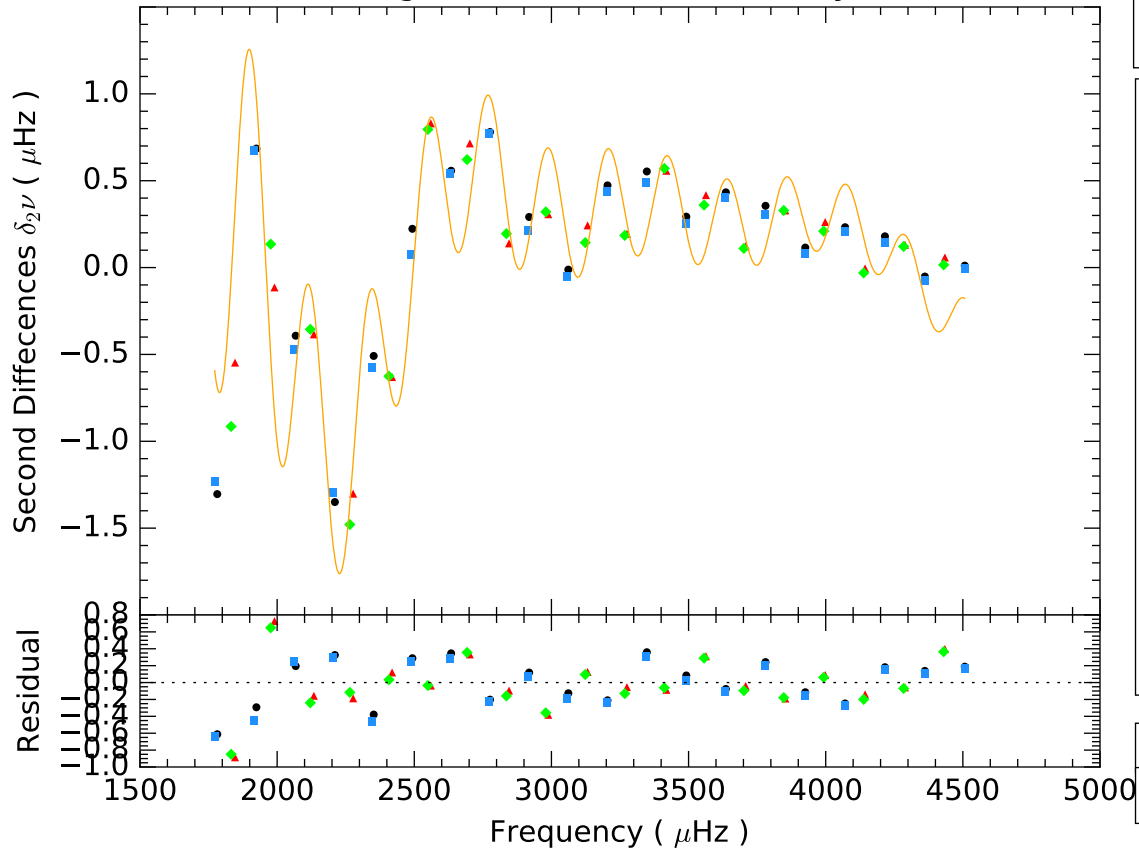
$$\tau_{\text{HI}} = 465.67 \text{ s}$$

$$\phi_{\text{HI}} = 3.1416$$

profile76

$$\chi^2_\nu(\text{dof} = 64) = 0.19945$$

Age after ZAMS: 19.510 Gyr



$$a_0 = -5.1971 \mu\text{Hz}$$

$$a_1 = 0.0033377$$

$$a_2 = -4.9756e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013544$$

$$c_2 = 3.0409e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 617.77 \text{ s}$$

$$\phi_{HeII} = 6.2826$$

$$b_2 = 3.4294e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2301.7 \text{ s}$$

$$\phi_{CZ} = 3.0624$$

$$d_0 = 0.00022671$$

$$d_2 = 1.2014e-07 \mu\text{Hz}^{-2}$$

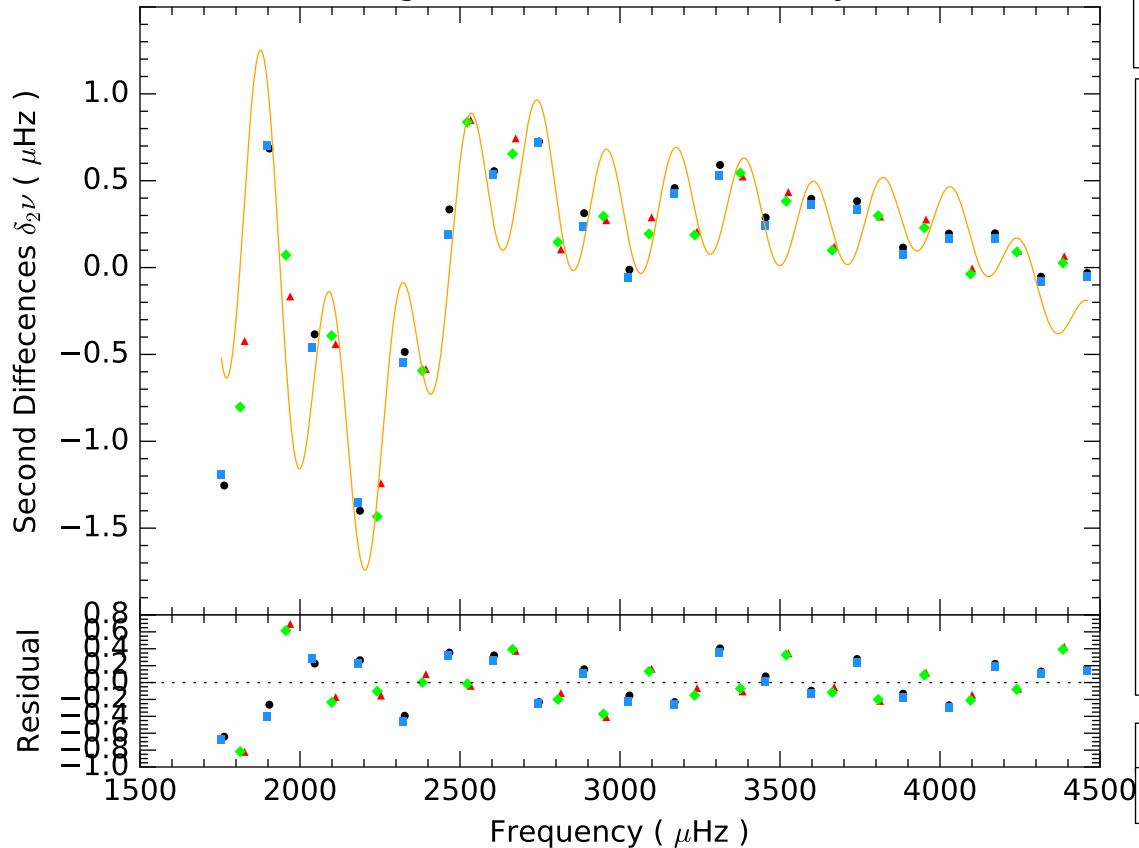
$$\tau_{HI} = 453.0 \text{ s}$$

$$\phi_{HI} = 3.7039$$

profile77

$$\chi^2_\nu(\text{dof} = 64) = 0.10697$$

Age after ZAMS: 19.810 Gyr



$$a_0 = -5.1026 \mu\text{Hz}$$

$$a_1 = 0.0033271$$

$$a_2 = -5.0299e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0014602$$

$$c_2 = 3.22e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 626.53 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 3.289e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2322.1 \text{ s}$$

$$\phi_{CZ} = 3.1803$$

$$d_0 = 0.00022892$$

$$d_2 = 1.2436e-07 \mu\text{Hz}^{-2}$$

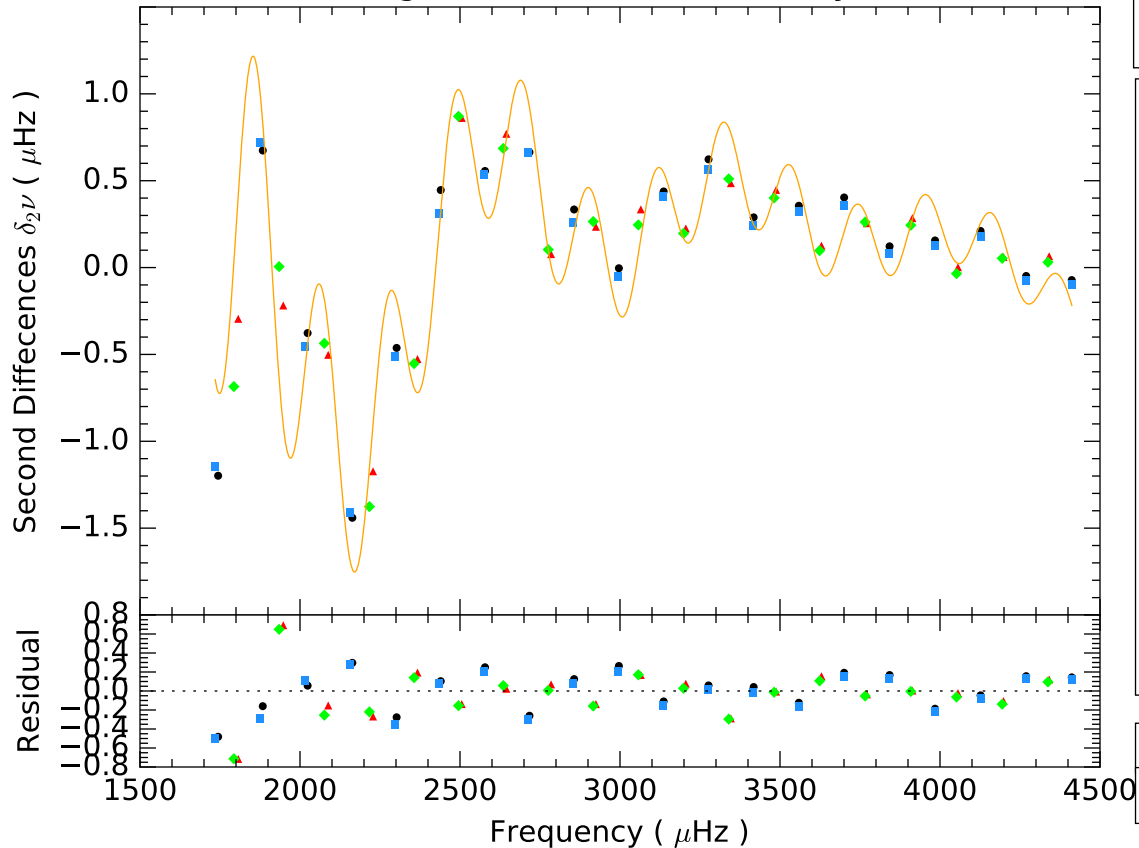
$$\tau_{HI} = 456.74 \text{ s}$$

$$\phi_{HI} = 3.7676$$

profile78

$$\chi^2_\nu(\text{dof} = 64) = 0.11101$$

Age after ZAMS: 20.110 Gyr



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

$$a_0 = -4.7275 \mu\text{Hz}$$

$$a_1 = 0.0031288$$

$$a_2 = -4.784e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0010965$$

$$c_2 = 2.3697e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 629.82 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2791$$

$$b_2 = 3.1723e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2386.5 \text{ s}$$

$$\phi_{\text{CZ}} = 2.3954$$

$$d_0 = 0.00011282$$

$$d_2 = 1.1638e-07 \mu\text{Hz}^{-2}$$

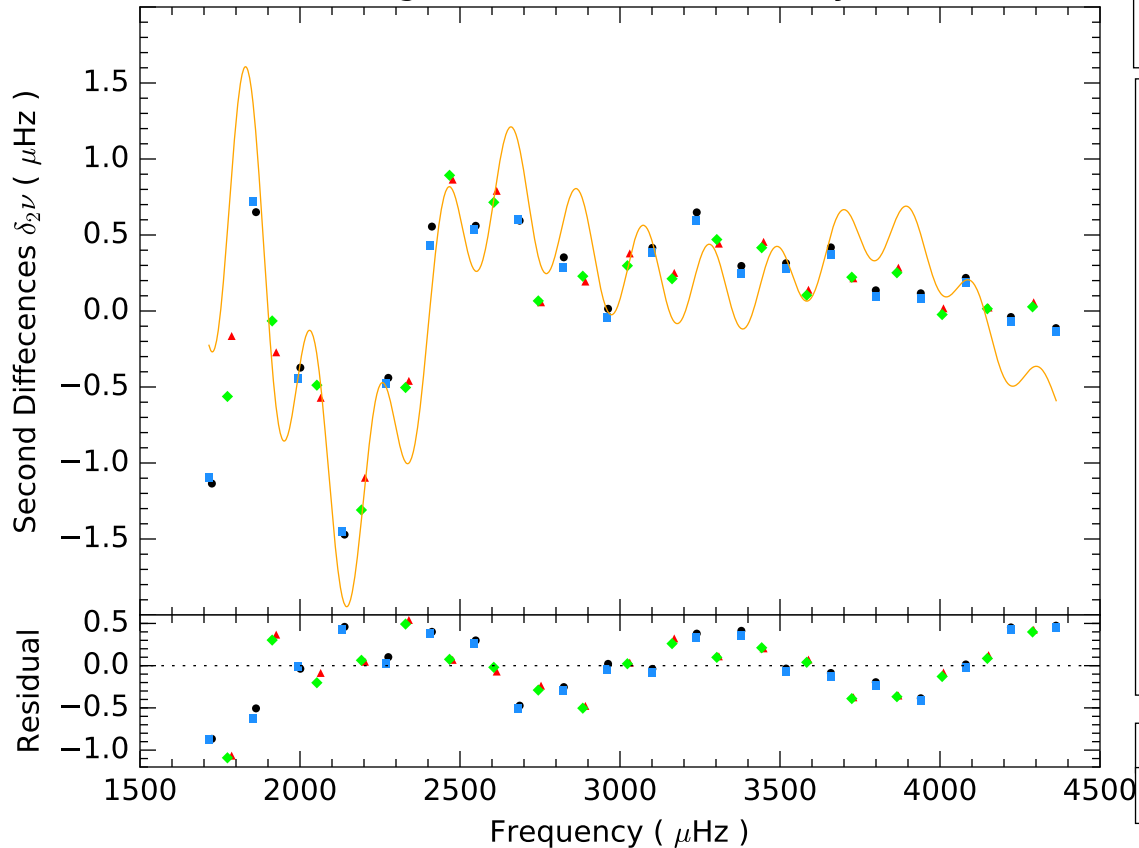
$$\tau_{\text{HI}} = 430.27 \text{ s}$$

$$\phi_{\text{HI}} = 4.9265$$

profile79

$$\chi^2_\nu(\text{dof} = 64) = 0.068135$$

Age after ZAMS: 20.410 Gyr

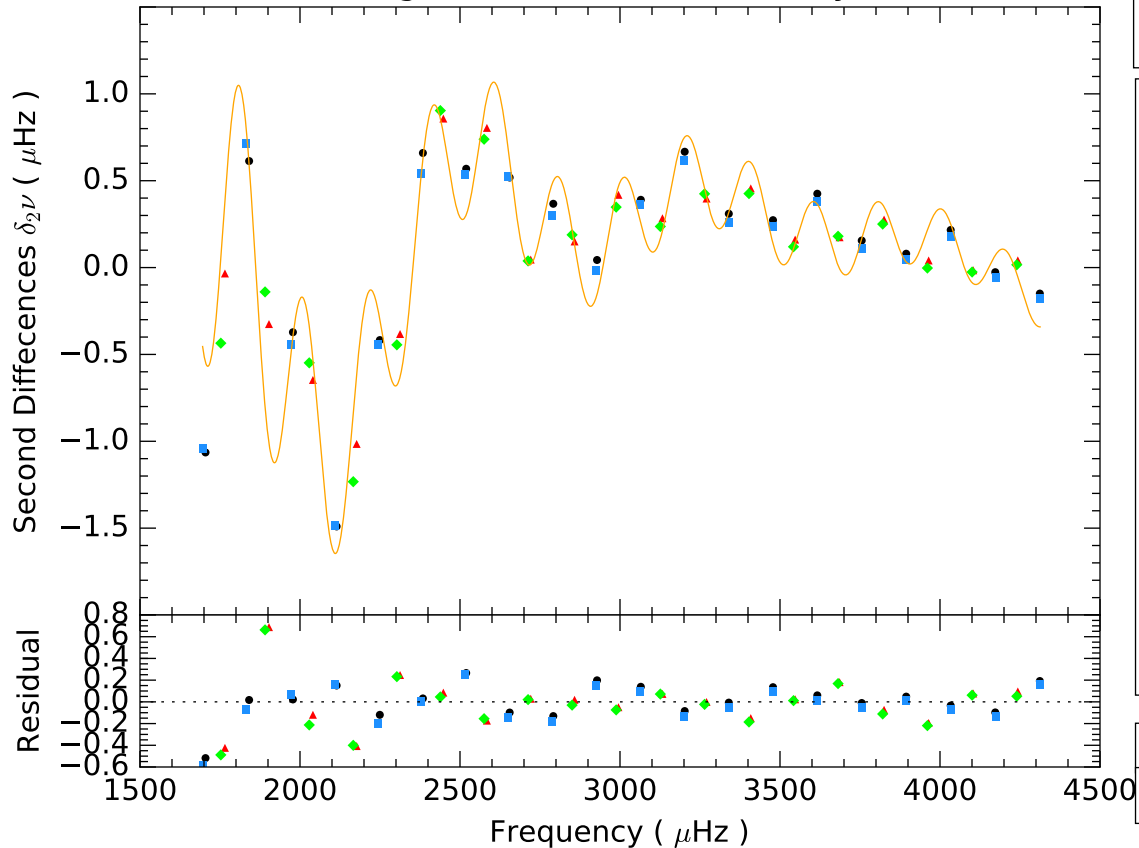


- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$a_0 = -4.9802 \mu \text{ Hz}$
 $a_1 = 0.0033383$
 $a_2 = -5.1803e-07 \mu\text{Hz}^{-2}$
 $c_0 = 0.001811$
 $c_2 = 3.2388e-07 \mu\text{Hz}^{-2}$
 $\tau_{HeII} = 637.25 \text{ s}$
 $\phi_{HeII} = 6.2786$
 $b_2 = 2.96e+06 \text{ mHz}^3$
 $\tau_{CZ} = 2421.6 \text{ s}$
 $\phi_{CZ} = 2.2553$
 $d_0 = 0.00025733$
 $d_2 = 6.6218e-08 \mu\text{Hz}^{-2}$
 $\tau_{HI} = 488.35 \text{ s}$
 $\phi_{HI} = 3.1416$

profile80
 $\chi^2_\nu(\text{dof} = 64) = 0.16413$

Age after ZAMS: 20.710 Gyr



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

$$a_0 = -3.9719 \mu\text{Hz}$$

$$a_1 = 0.0027254$$

$$a_2 = -4.2786e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.00094061$$

$$c_2 = 2.5355e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 647.81 \text{ s}$$

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

$$b_2 = 2.77e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2509.4 \text{ s}$$

$$\phi_{\text{CZ}} = 0.92958$$

$$d_0 = 0.00039874$$

$$d_2 = 2.6036e-07 \mu\text{Hz}^{-2}$$

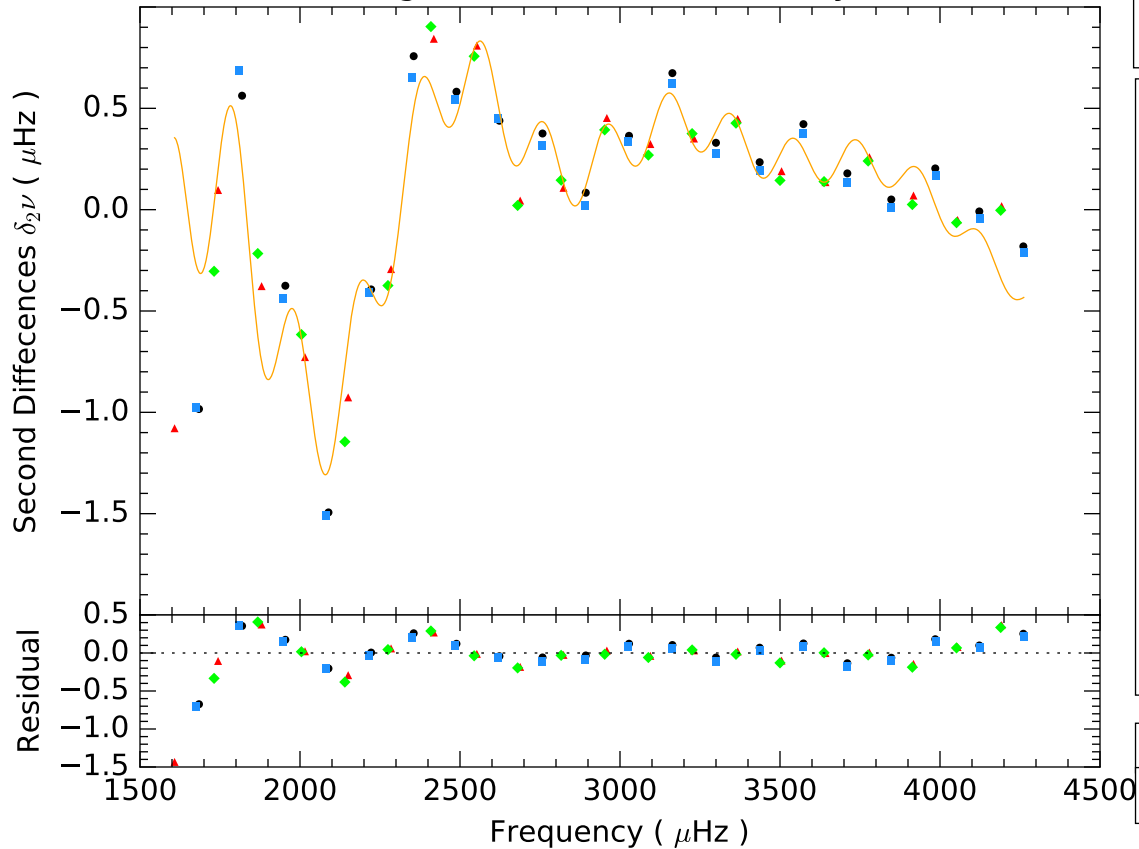
$$\tau_{\text{HI}} = 409.43 \text{ s}$$

$$\phi_{\text{HI}} = 6.2827$$

profile81

$$\chi^2_\nu(\text{dof} = 64) = 0.052384$$

Age after ZAMS: 21.010 Gyr



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

$$a_0 = -5.0989 \mu \text{ Hz}$$

$$a_1 = 0.003532$$

$$a_2 = -5.6677e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00097001$$

$$c_2 = 2.8378e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 659.92 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 1.4075e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2570.1 \text{ s}$$

$$\phi_{CZ} = 0.27495$$

$$d_0 = 0.00019584$$

$$d_2 = 1.5119e-07 \mu\text{Hz}^{-2}$$

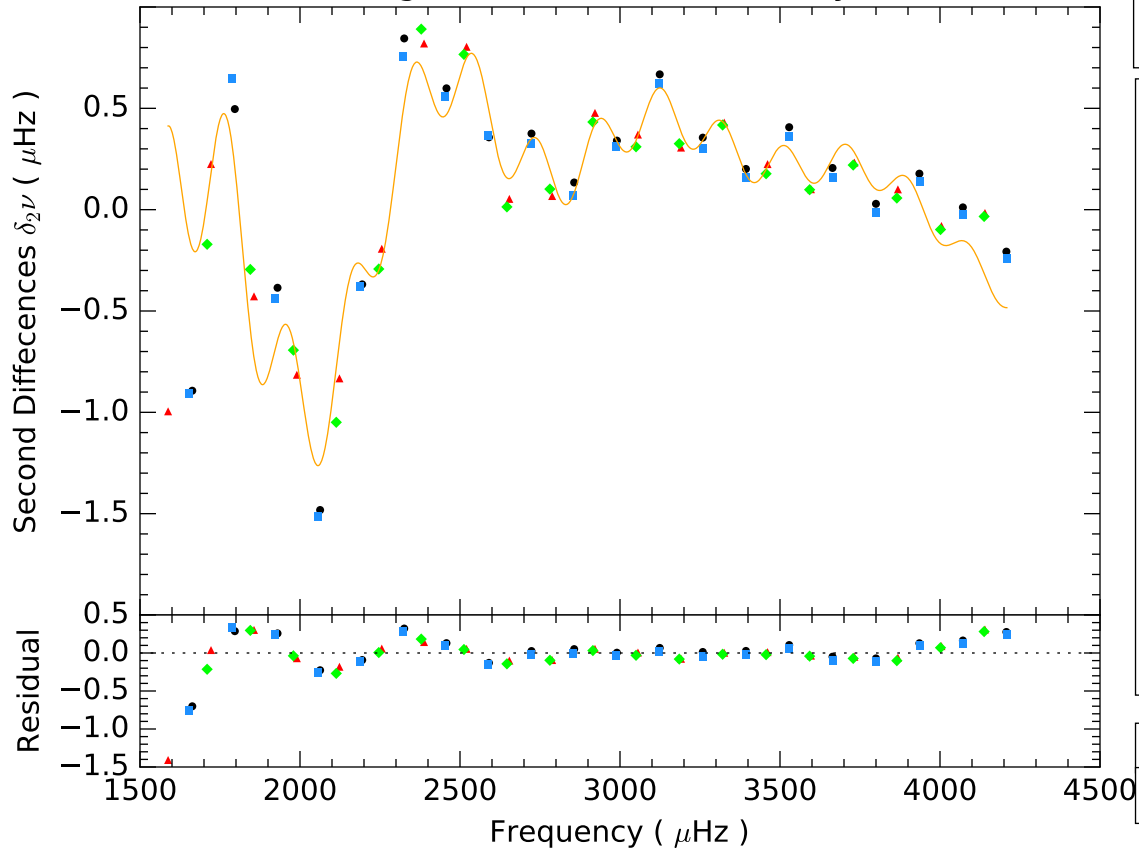
$$\tau_{HI} = 466.92 \text{ s}$$

$$\phi_{HI} = 4.6063$$

profile82

$$\chi^2_\nu(\text{dof} = 65) = 0.079177$$

Age after ZAMS: 21.310 Gyr

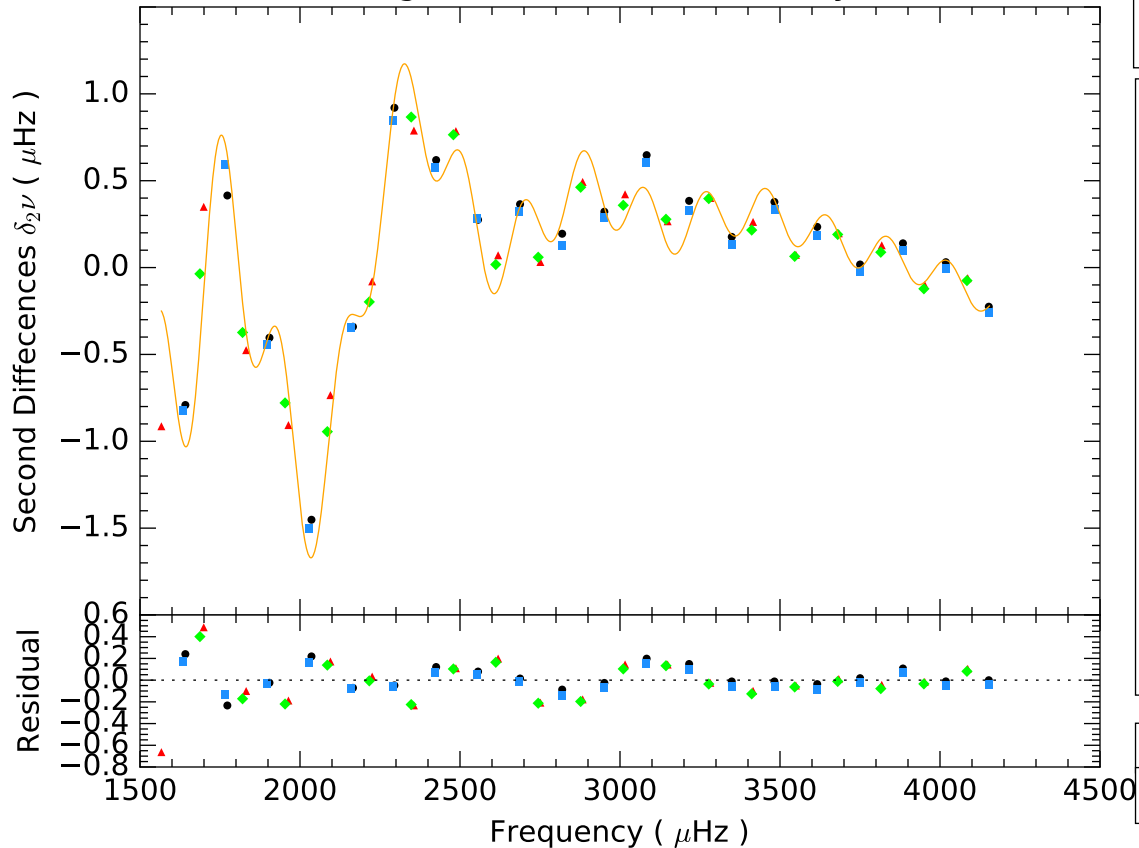


$\ell=0$ $\ell=3$
 $\ell=1$ fit
 $\ell=2$

$a_0 = -5.0086 \mu\text{Hz}$
 $a_1 = 0.0035367$
 $a_2 = -5.7783e-07 \mu\text{Hz}^{-2}$
 $c_0 = 0.00099832$
 $c_2 = 2.8385e-07 \mu\text{Hz}^{-2}$
 $\tau_{HeII} = 672.57 \text{ s}$
 $\phi_{HeII} = 6.2832$
 $b_2 = 1.2557e+06 \text{ mHz}^3$
 $\tau_{CZ} = 2586.0 \text{ s}$
 $\phi_{CZ} = 0.53424$
 $d_0 = 0.00019534$
 $d_2 = 1.6407e-07 \mu\text{Hz}^{-2}$
 $\tau_{HI} = 477.43 \text{ s}$
 $\phi_{HI} = 4.4499$

profile83
 $\chi^2_\nu(\text{dof} = 65) = 0.072309$

Age after ZAMS: 21.610 Gyr



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

$$a_0 = -3.274 \mu \text{ Hz}$$

$$a_1 = 0.0024184$$

$$a_2 = -4.0305e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0026643$$

$$c_2 = 4.5394e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 902.51 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 1.6529e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2640.1 \text{ s}$$

$$\phi_{CZ} = 1.8194e-12$$

$$d_0 = 0.0042026$$

$$d_2 = 6.3644e-07 \mu\text{Hz}^{-2}$$

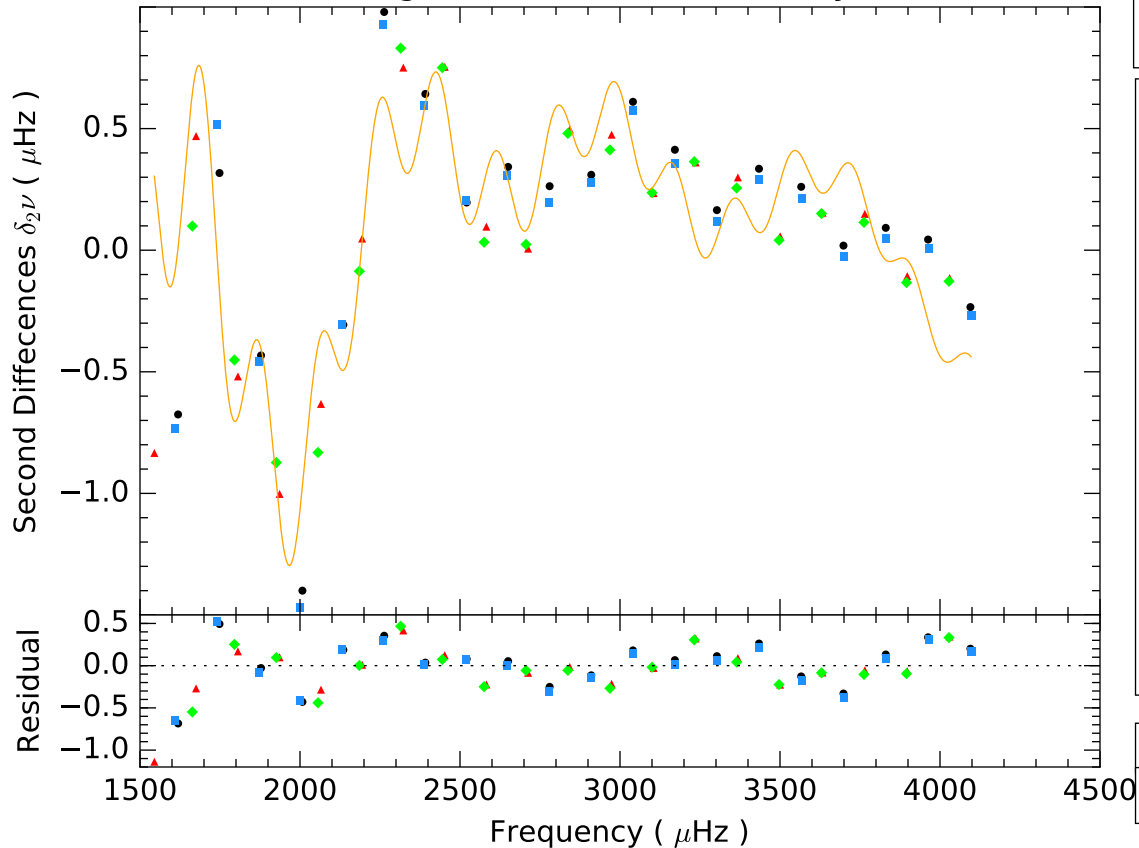
$$\tau_{HI} = 463.26 \text{ s}$$

$$\phi_{HI} = 5.9989$$

profile84

$$\chi^2_\nu(\text{dof} = 65) = 0.029799$$

Age after ZAMS: 21.910 Gyr



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

$$a_0 = -4.7519 \mu \text{ Hz}$$

$$a_1 = 0.0034907$$

$$a_2 = -5.9147e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010231$$

$$c_2 = 2.7702e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 703.62 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 1.336e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2704.4 \text{ s}$$

$$\phi_{CZ} = 0.63147$$

$$d_0 = 0.00024708$$

$$d_2 = 1.3485e-07 \mu\text{Hz}^{-2}$$

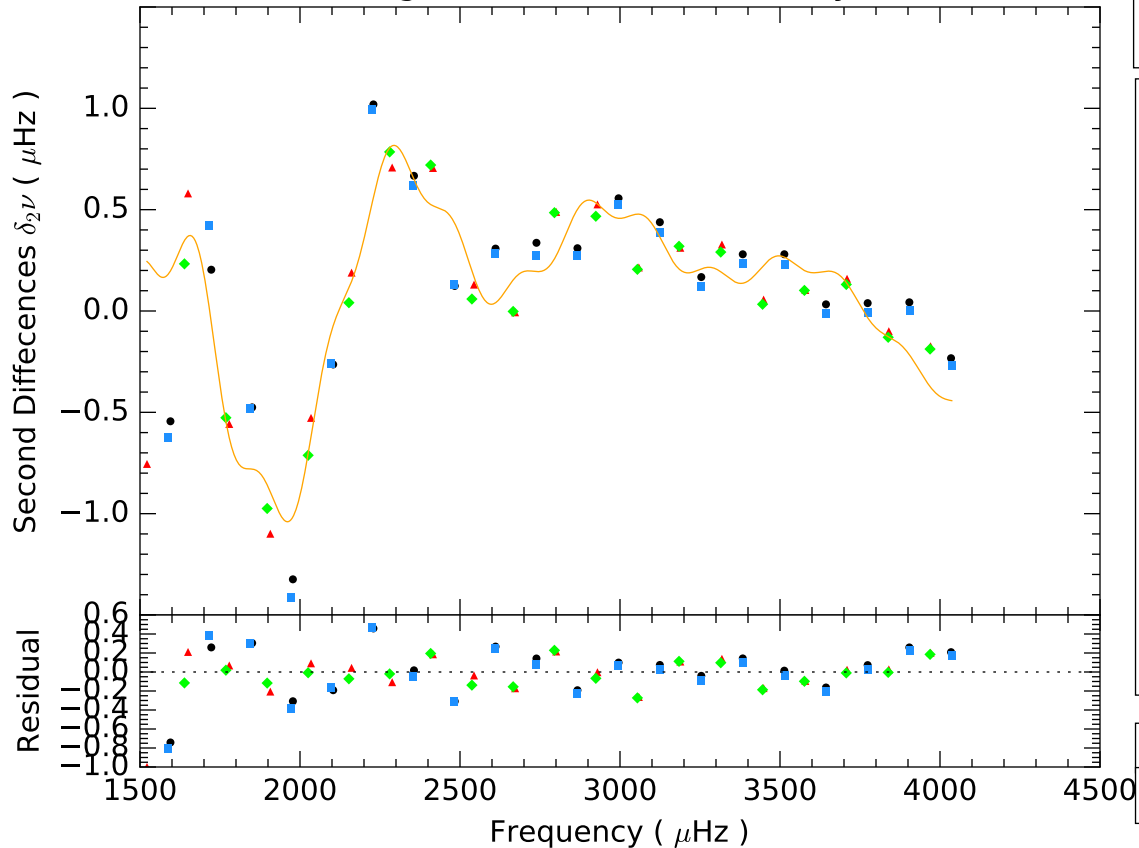
$$\tau_{HI} = 502.66 \text{ s}$$

$$\phi_{HI} = 3.6136$$

profile85

$$\chi^2_\nu(\text{dof} = 65) = 0.097523$$

Age after ZAMS: 22.210 Gyr



$$a_0 = -4.4377 \mu\text{Hz}$$

$$a_1 = 0.0033328$$

$$a_2 = -5.7537e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0010495$$

$$c_2 = 2.887e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 711.66 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2553$$

$$b_2 = 4.9213e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2491.5 \text{ s}$$

$$\phi_{\text{CZ}} = 5.4485$$

$$d_0 = 0.00018023$$

$$d_2 = 1.7678e-07 \mu\text{Hz}^{-2}$$

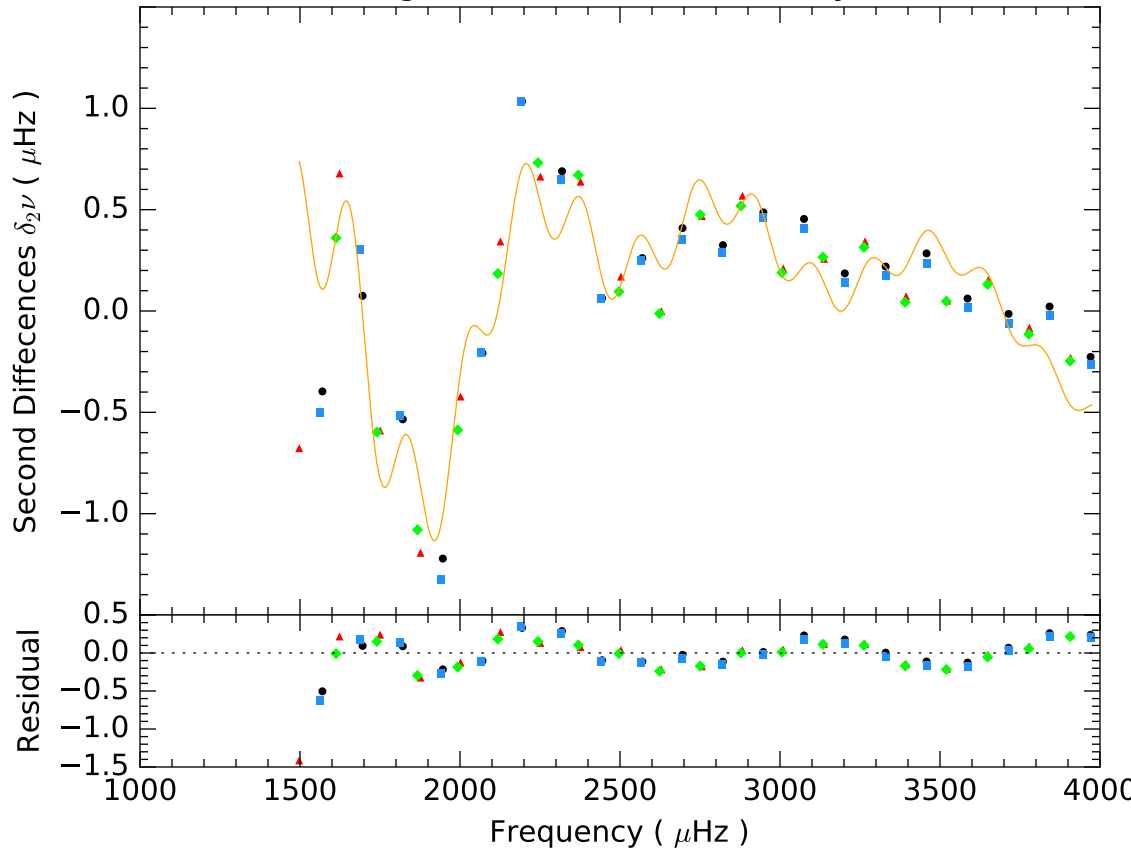
$$\tau_{\text{HI}} = 495.76 \text{ s}$$

$$\phi_{\text{HI}} = 4.696$$

profile86

$$\chi^2_\nu(\text{dof} = 65) = 0.074405$$

Age after ZAMS: 22.510 Gyr



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

$$a_0 = -4.3757 \mu\text{Hz}$$

$$a_1 = 0.0033673$$

$$a_2 = -5.9491e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0012202$$

$$c_2 = 3.3021e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 734.68 \text{ s}$$

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

$$b_2 = 9.9441e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2770.5 \text{ s}$$

$$\phi_{\text{CZ}} = 0.35802$$

$$d_0 = 0.00025711$$

$$d_2 = 1.592e-07 \mu\text{Hz}^{-2}$$

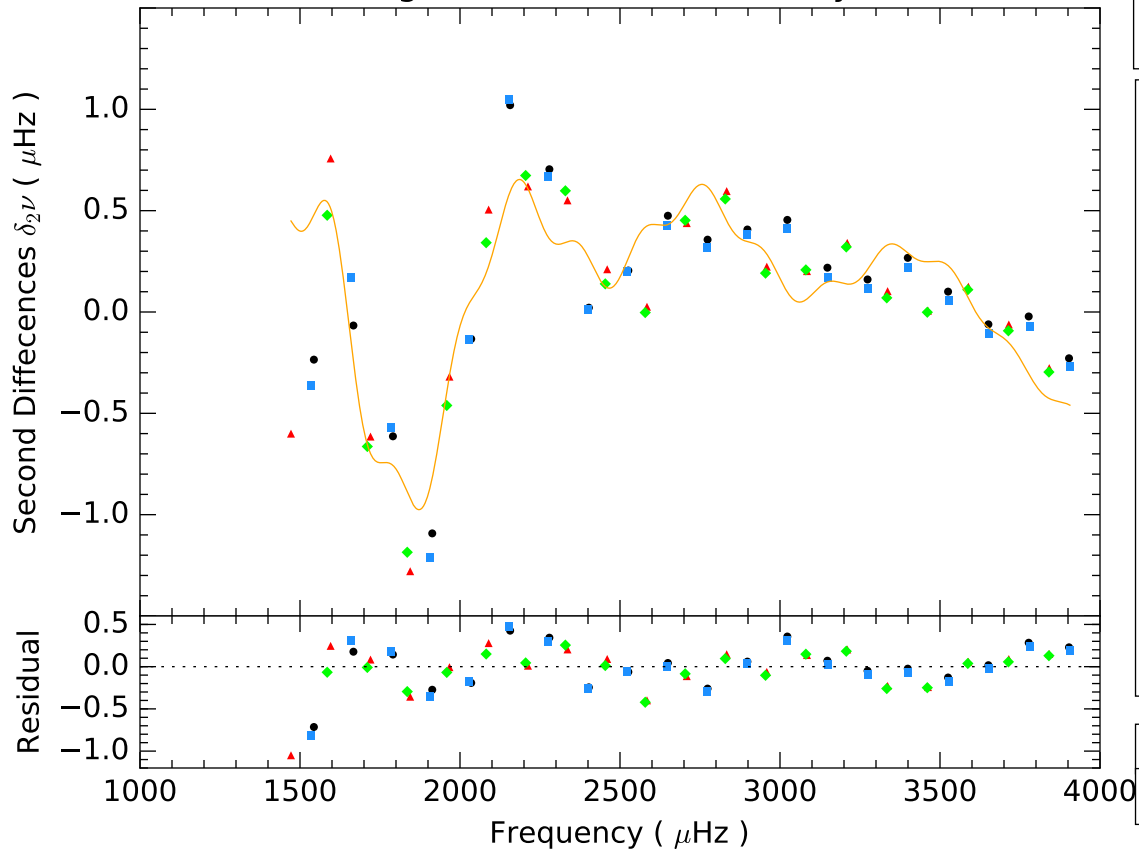
$$\tau_{\text{HI}} = 516.74 \text{ s}$$

$$\phi_{\text{HI}} = 3.8209$$

profile87

$$\chi^2_\nu(\text{dof} = 65) = 0.073561$$

Age after ZAMS: 22.810 Gyr



$$a_0 = -4.1867 \mu\text{Hz}$$

$$a_1 = 0.0033081$$

$$a_2 = -5.9853e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0013936$$

$$c_2 = 3.6544e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 752.76 \text{ s}$$

$$\phi_{HeII} = 6.2832$$

$$b_2 = 4.6591e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 2596.7 \text{ s}$$

$$\phi_{CZ} = 5.7064$$

$$d_0 = 0.00026261$$

$$d_2 = 1.6748e-07 \mu\text{Hz}^{-2}$$

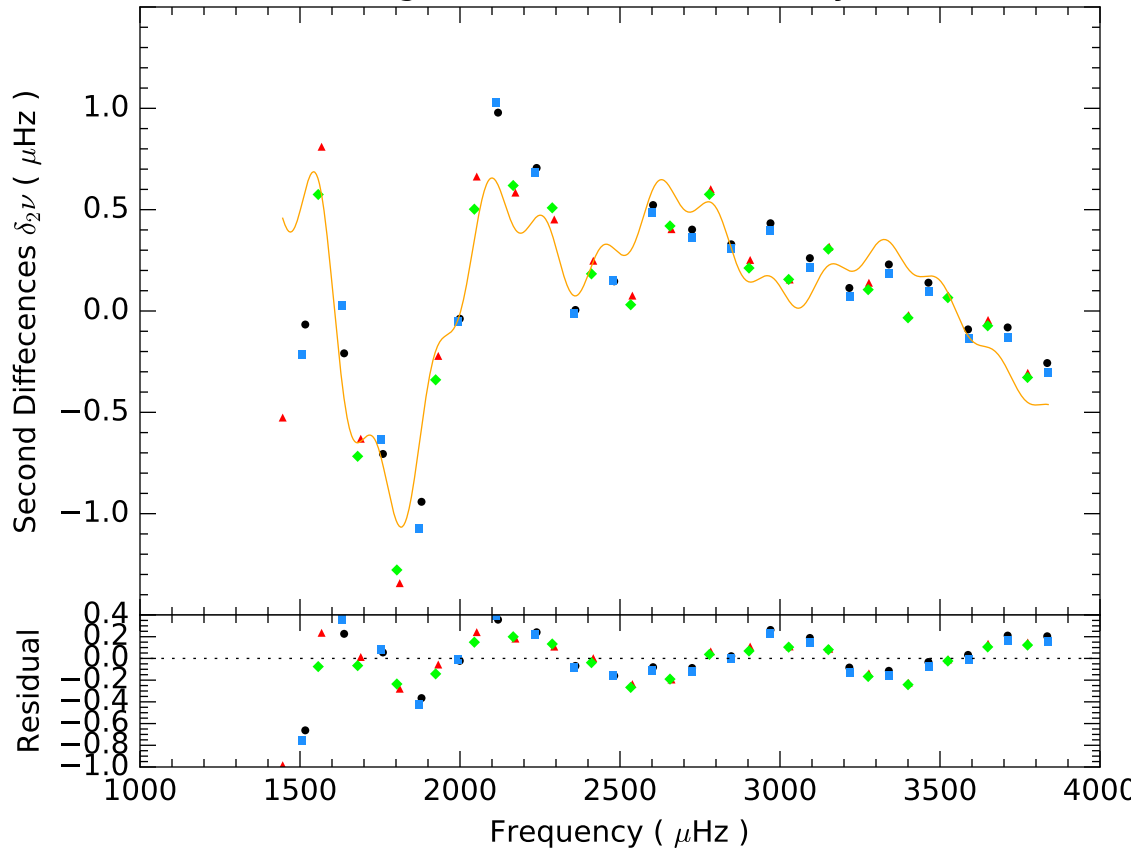
$$\tau_{HI} = 525.18 \text{ s}$$

$$\phi_{HI} = 3.8404$$

profile88

$$\chi^2_\nu(\text{dof} = 65) = 0.084236$$

Age after ZAMS: 23.098 Gyr



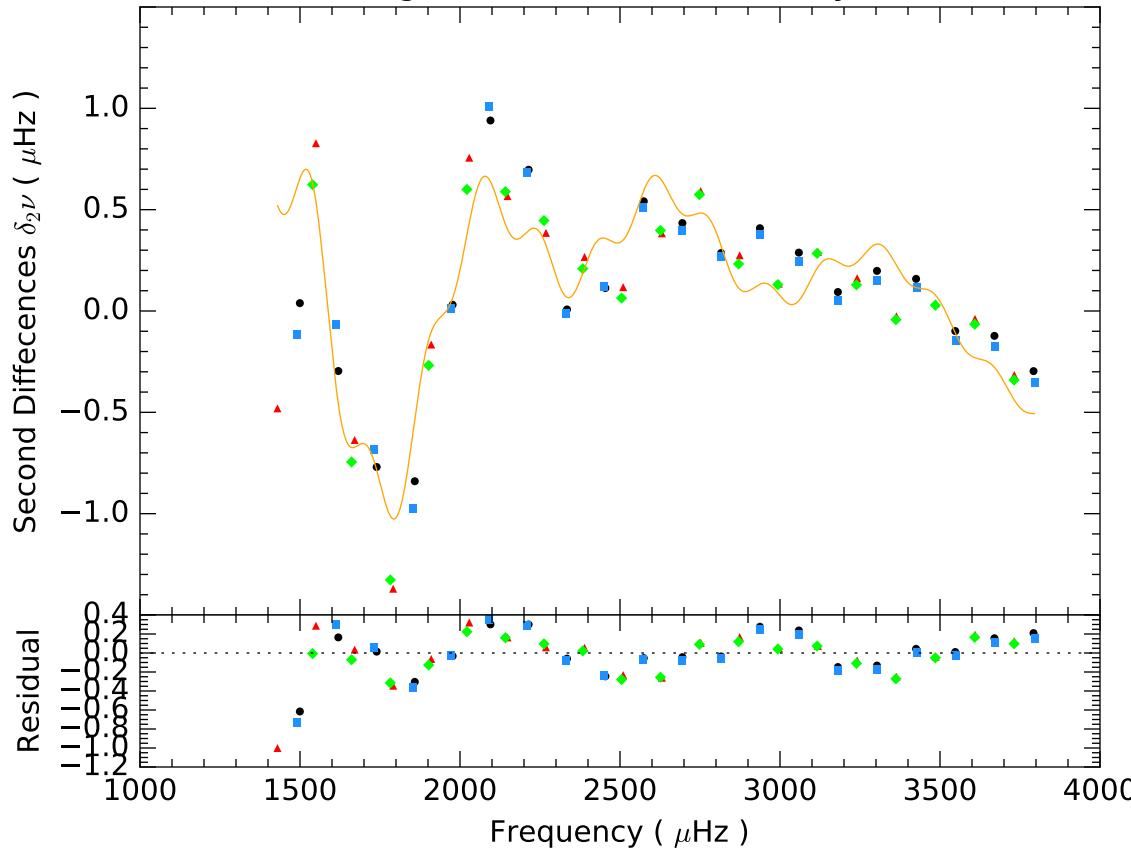
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$$\begin{aligned}
 a_0 &= -4.0061 \mu\text{Hz} \\
 a_1 &= 0.0032551 \\
 a_2 &= -6.0394e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0015306 \\
 c_2 &= 3.9523e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 771.03 \text{ s} \\
 \phi_{HeII} &= 6.2832 \\
 b_2 &= 6.1508e+05 \text{ mHz}^3 \\
 \tau_{CZ} &= 2831.7 \text{ s} \\
 \phi_{CZ} &= 2.5492 \\
 d_0 &= 0.00026759 \\
 d_2 &= 1.751e-07 \mu\text{Hz}^{-2} \\
 \tau_{HI} &= 534.81 \text{ s} \\
 \phi_{HI} &= 3.8352
 \end{aligned}$$

profile89

$$\chi^2_\nu(\text{dof} = 65) = 0.065327$$

Age after ZAMS: 23.271 Gyr



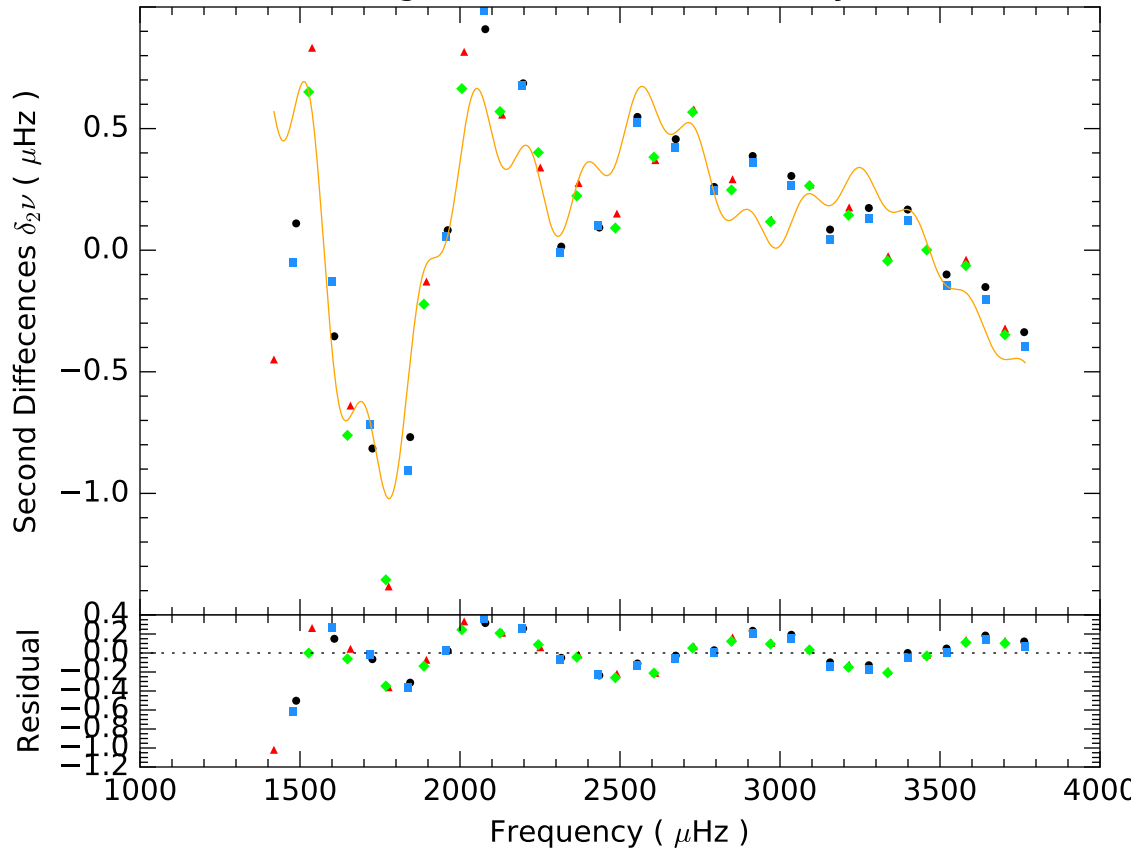
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- — fit

$$\begin{aligned}
 a_0 &= -3.8946 \mu \text{ Hz} \\
 a_1 &= 0.0032224 \\
 a_2 &= -6.0772e-07 \mu \text{ Hz}^{-2} \\
 c_0 &= 0.0016717 \\
 c_2 &= 4.2049e-07 \mu \text{ Hz}^{-2} \\
 \tau_{\text{HeII}} &= 783.05 \text{ s} \\
 \phi_{\text{HeII}} &= 6.2832 \\
 b_2 &= 5.4707e+05 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 2821.9 \text{ s} \\
 \phi_{\text{CZ}} &= 3.4601 \\
 d_0 &= 0.00027077 \\
 d_2 &= 1.7989e-07 \mu \text{ Hz}^{-2} \\
 \tau_{\text{HI}} &= 541.38 \text{ s} \\
 \phi_{\text{HI}} &= 3.818
 \end{aligned}$$

profile90

$$\chi^2_\nu(\text{dof} = 65) = 0.067369$$

Age after ZAMS: 23.385 Gyr



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

$$a_0 = -3.8332 \mu\text{Hz}$$

$$a_1 = 0.0032119$$

$$a_2 = -6.1278e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0017453$$

$$c_2 = 4.4255e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 791.19 \text{ s}$$

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

$$b_2 = 6.2569e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2911.8 \text{ s}$$

$$\phi_{\text{CZ}} = 2.0329$$

$$d_0 = 0.00027542$$

$$d_2 = 1.841e-07 \mu\text{Hz}^{-2}$$

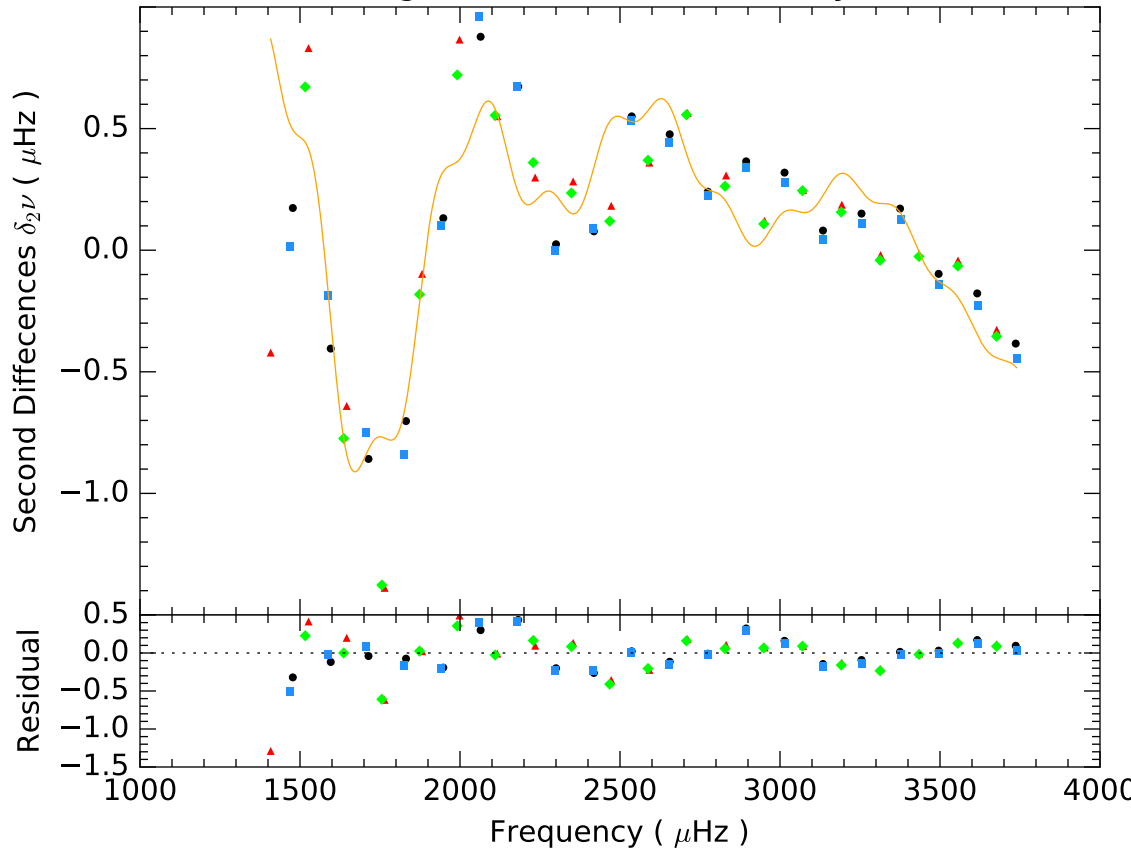
$$\tau_{\text{HI}} = 546.85 \text{ s}$$

$$\phi_{\text{HI}} = 3.7805$$

profile91

$$\chi^2_{\nu}(\text{dof} = 65) = 0.059888$$

Age after ZAMS: 23.487 Gyr



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

$$a_0 = -3.7731 \mu\text{Hz}$$

$$a_1 = 0.0031985$$

$$a_2 = -6.1668e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0018891$$

$$c_2 = 4.5948e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 798.58 \text{ s}$$

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

$$b_2 = 4.2005e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2748.1 \text{ s}$$

$$\phi_{\text{CZ}} = 4.43$$

$$d_0 = 0.00027705$$

$$d_2 = 1.8688e-07 \mu\text{Hz}^{-2}$$

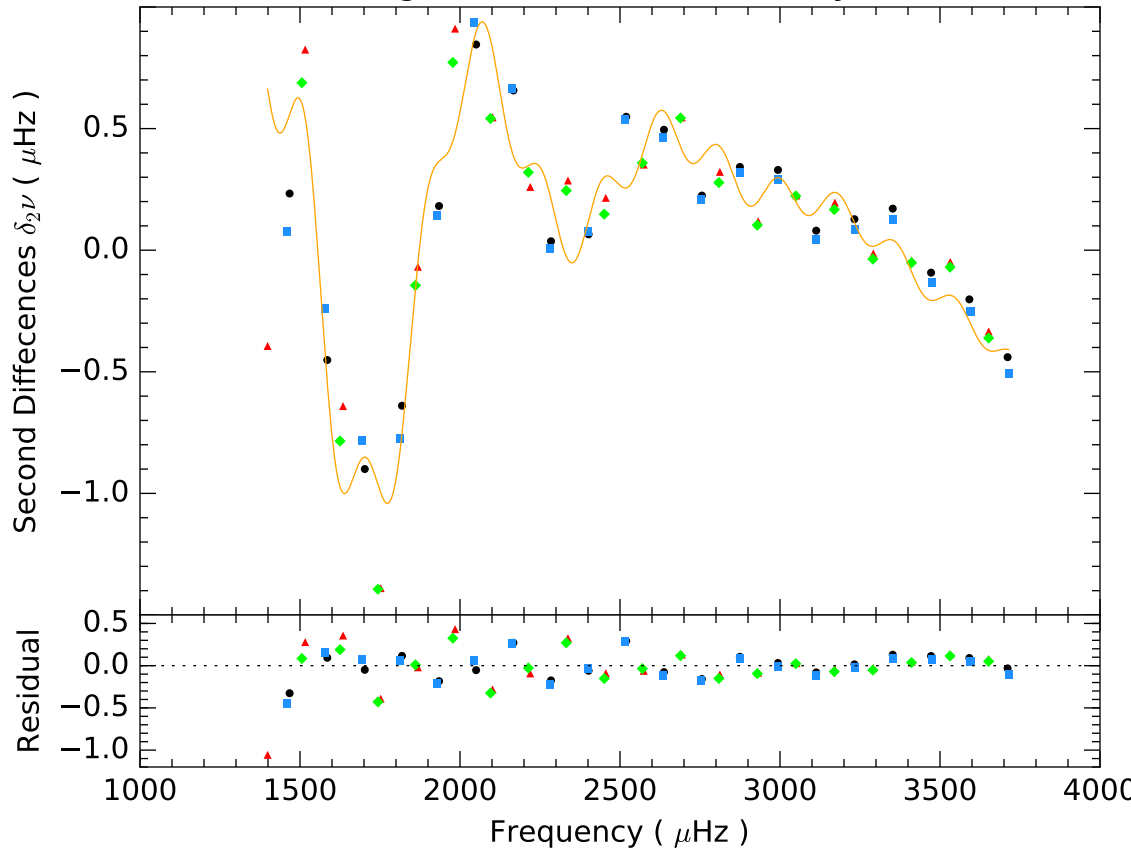
$$\tau_{\text{HI}} = 551.4 \text{ s}$$

$$\phi_{\text{HI}} = 3.7598$$

profile92

$$\chi^2_{\nu}(\text{dof} = 65) = 0.085144$$

Age after ZAMS: 23.583 Gyr



$$a_0 = -3.8104 \mu\text{Hz}$$

$$a_1 = 0.0032589$$

$$a_2 = -6.3417e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0011121$$

$$c_2 = 4.1336e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 824.07 \text{ s}$$

$$\phi_{HeII} = 5.802$$

$$b_2 = 6.5238e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 2714.9 \text{ s}$$

$$\phi_{CZ} = 6.1846$$

$$d_0 = 0.0012067$$

$$d_2 = 5.044e-07 \mu\text{Hz}^{-2}$$

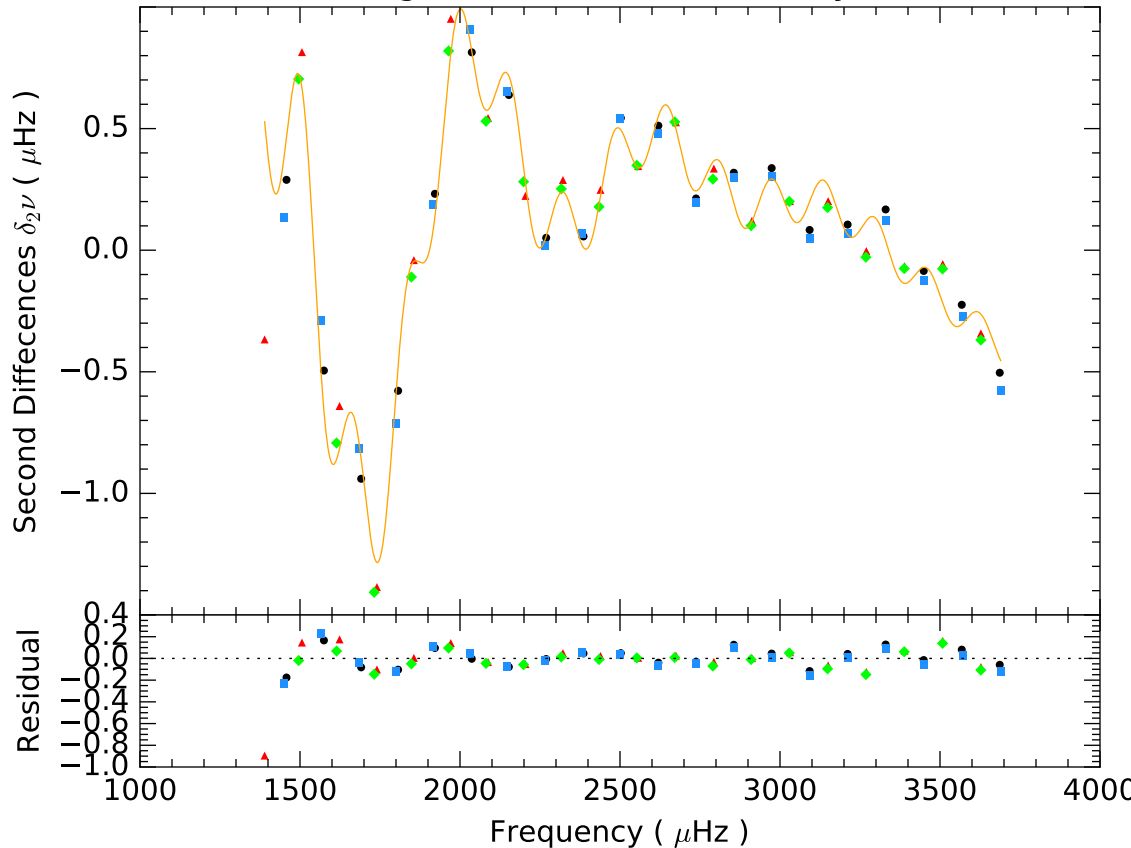
$$\tau_{HI} = 663.68 \text{ s}$$

$$\phi_{HI} = 2.534$$

profile93

$$\chi^2_\nu(\text{dof} = 65) = 0.054794$$

Age after ZAMS: 23.674 Gyr



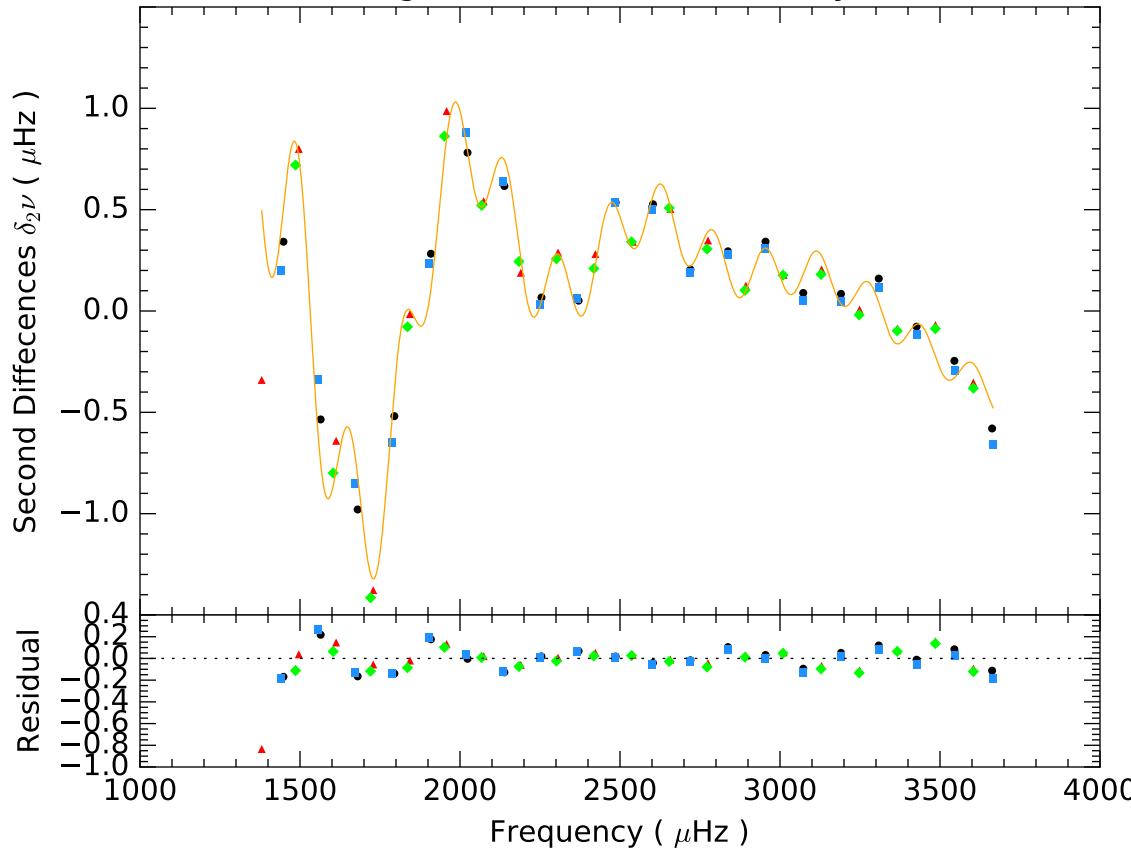
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$$\begin{aligned}
 a_0 &= -3.3448 \mu\text{Hz} \\
 a_1 &= 0.0029192 \\
 a_2 &= -5.7511e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.0017683 \\
 c_2 &= 4.7632e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HeII}} &= 843.21 \text{ s} \\
 \phi_{\text{HeII}} &= 5.1917 \\
 b_2 &= 8.8568e+05 \text{ mHz}^3 \\
 \tau_{\text{CZ}} &= 3067.5 \text{ s} \\
 \phi_{\text{CZ}} &= 0.071754 \\
 d_0 &= 0.00099578 \\
 d_2 &= 5.8301e-07 \mu\text{Hz}^{-2} \\
 \tau_{\text{HI}} &= 517.78 \text{ s} \\
 \phi_{\text{HI}} &= 6.2743
 \end{aligned}$$

profile94

$$\chi^2_\nu(\text{dof} = 65) = 0.022179$$

Age after ZAMS: 23.761 Gyr



$$a_0 = -3.3121 \mu\text{Hz}$$

$$a_1 = 0.0029245$$

$$a_2 = -5.8233e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0018341$$

$$c_2 = 4.9167e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 843.12 \text{ s}$$

$$\phi_{\text{HeII}} = 5.3519$$

$$b_2 = 1.0757e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3081.4 \text{ s}$$

$$\phi_{\text{CZ}} = 0.28696$$

$$d_0 = 0.00093678$$

$$d_2 = 6.0101e-07 \mu\text{Hz}^{-2}$$

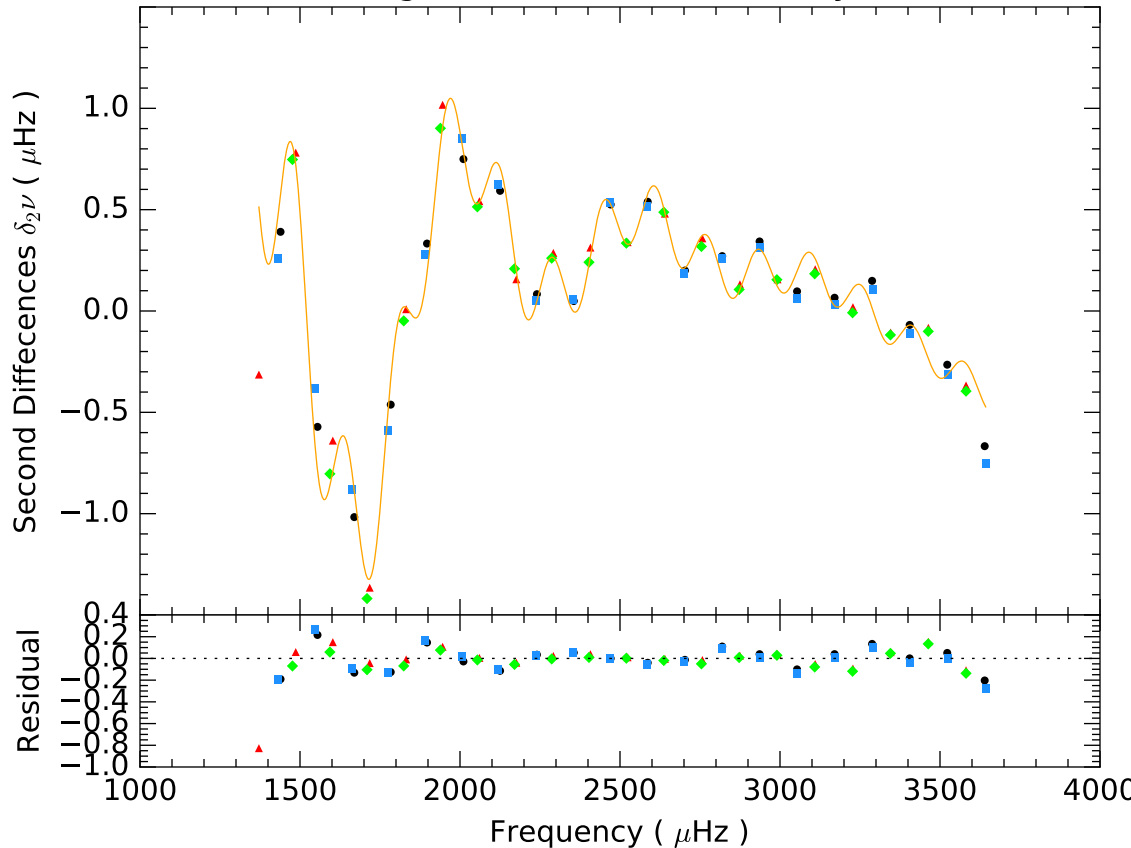
$$\tau_{\text{HI}} = 519.79 \text{ s}$$

$$\phi_{\text{HI}} = 6.2759$$

profile95

$$\chi^2_\nu(\text{dof} = 65) = 0.022266$$

Age after ZAMS: 23.844 Gyr



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

$$a_0 = -3.1263 \mu\text{Hz}$$

$$a_1 = 0.0028106$$

$$a_2 = -5.6711e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0018444$$

$$c_2 = 4.987e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 860.48 \text{ s}$$

$$\phi_{\text{HeII}} = 5.1219$$

$$b_2 = 1.0139e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3101.7 \text{ s}$$

$$\phi_{\text{CZ}} = 0.37634$$

$$d_0 = 0.001475$$

$$d_2 = 7.0906e-07 \mu\text{Hz}^{-2}$$

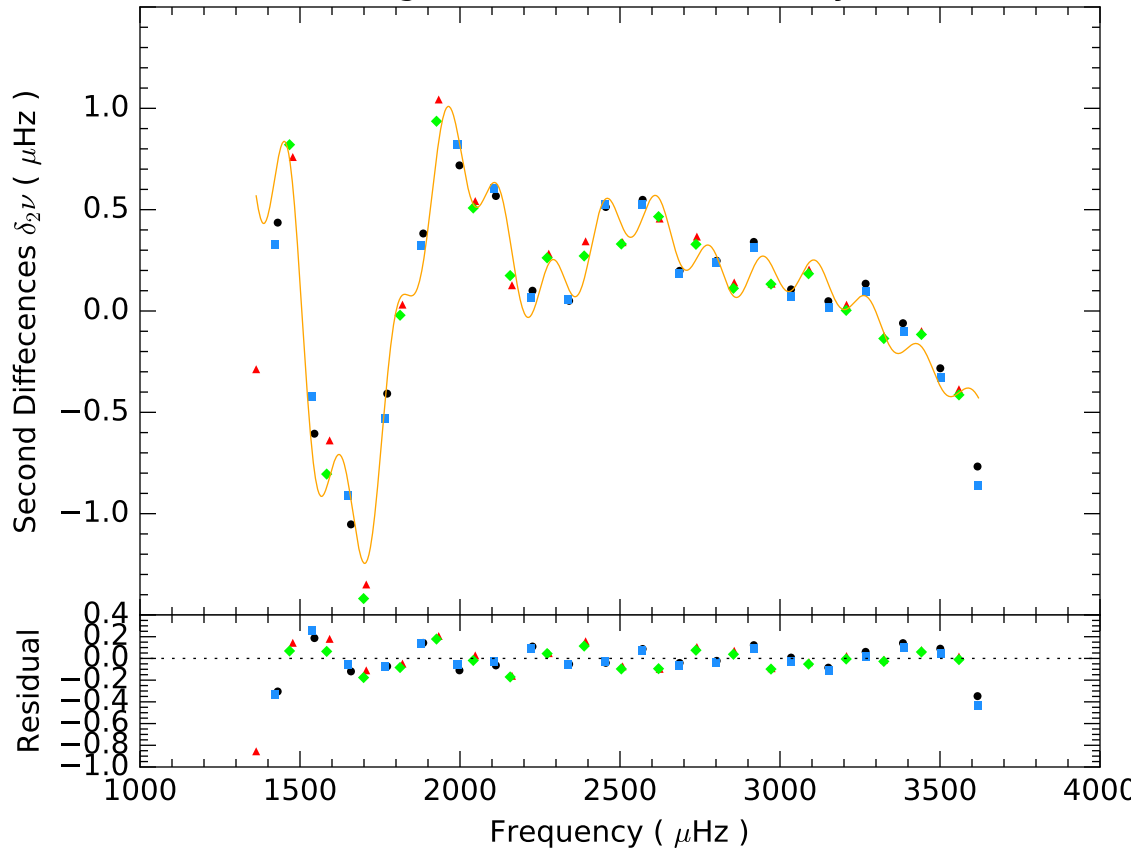
$$\tau_{\text{HI}} = 525.49 \text{ s}$$

$$\phi_{\text{HI}} = 6.2823$$

profile96

$$\chi^2_\nu(\text{dof} = 65) = 0.021825$$

Age after ZAMS: 23.923 Gyr



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

$$a_0 = -3.4792 \mu\text{Hz}$$

$$a_1 = 0.0031123$$

$$a_2 = -6.2989e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0023346$$

$$c_2 = 5.3251e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 830.25 \text{ s}$$

$$\phi_{\text{HeII}} = 6.0577$$

$$b_2 = 8.3542e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3043.6 \text{ s}$$

$$\phi_{\text{CZ}} = 2.0121$$

$$d_0 = 0.00024581$$

$$d_2 = 3.4315e-07 \mu\text{Hz}^{-2}$$

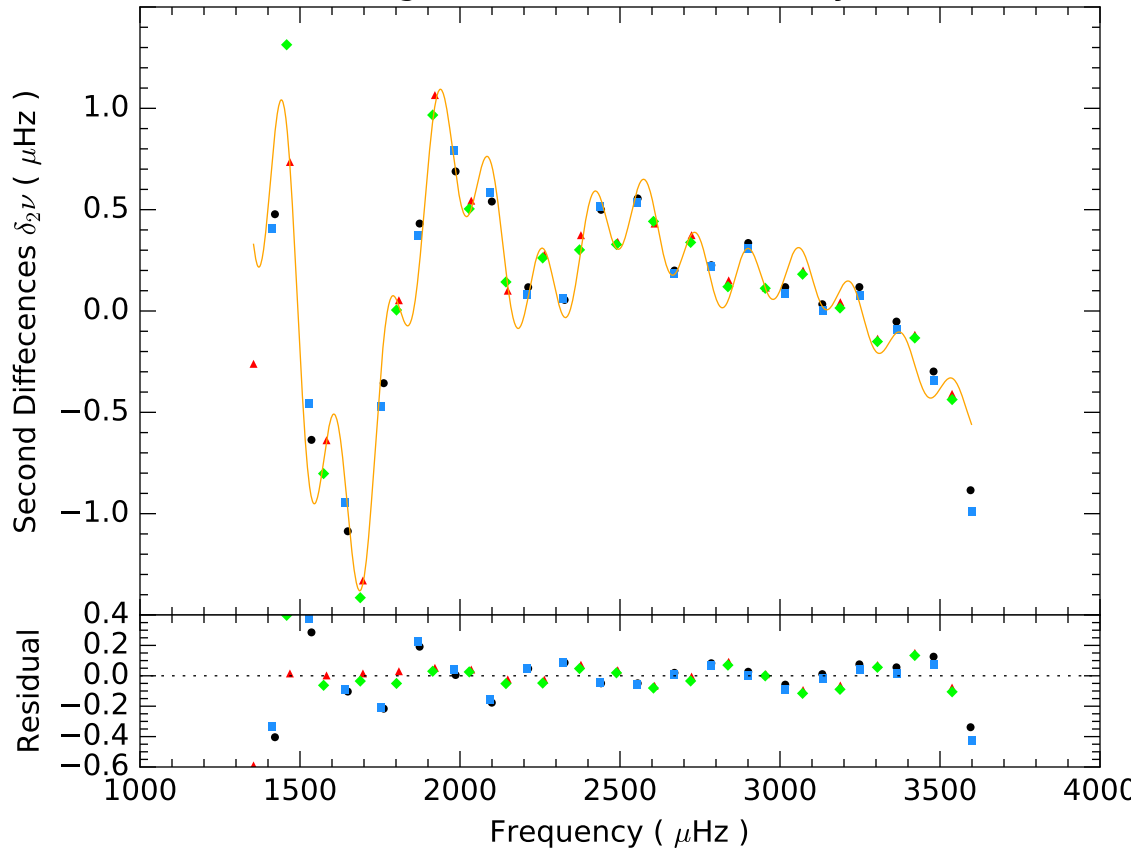
$$\tau_{\text{HI}} = 513.02 \text{ s}$$

$$\phi_{\text{HI}} = 6.2764$$

profile97

$$\chi^2_\nu(\text{dof} = 65) = 0.029907$$

Age after ZAMS: 23.998 Gyr



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

$$a_0 = -3.5203 \mu\text{Hz}$$

$$a_1 = 0.0031763$$

$$a_2 = -6.4874e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0022435$$

$$c_2 = 5.2479e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 840.84 \text{ s}$$

$$\phi_{\text{HeII}} = 5.9469$$

$$b_2 = 1.1871e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3109.7 \text{ s}$$

$$\phi_{\text{CZ}} = 1.3662$$

$$d_0 = 0.00018924$$

$$d_2 = 2.937e-07 \mu\text{Hz}^{-2}$$

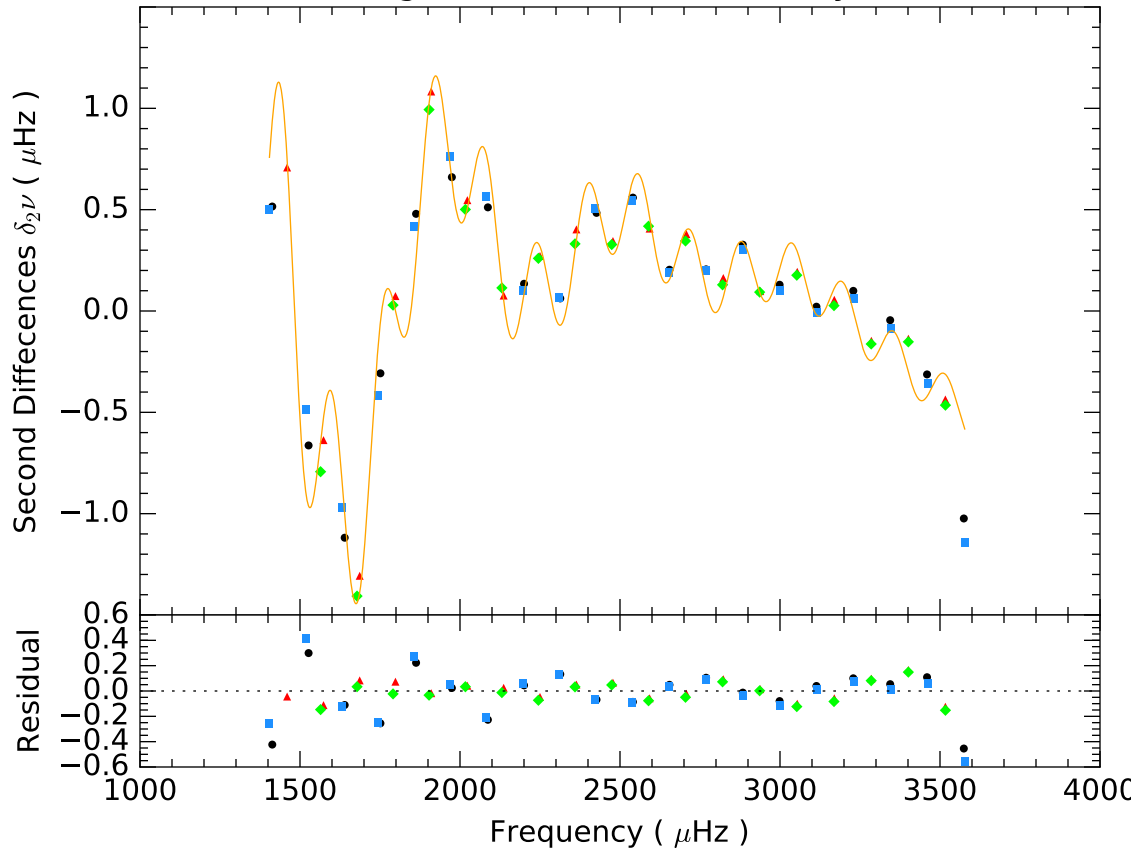
$$\tau_{\text{HI}} = 525.86 \text{ s}$$

$$\phi_{\text{HI}} = 6.0385$$

profile98

$$\chi^2_\nu(\text{dof} = 65) = 0.027738$$

Age after ZAMS: 24.070 Gyr



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

$$a_0 = -3.4856 \mu\text{Hz}$$

$$a_1 = 0.0031749$$

$$a_2 = -6.5423e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0020207$$

$$c_2 = 5.1196e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 866.33 \text{ s}$$

$$\phi_{\text{HeII}} = 5.4778$$

$$b_2 = 1.3654e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3132.5 \text{ s}$$

$$\phi_{\text{CZ}} = 1.3883$$

$$d_0 = 0.00031086$$

$$d_2 = 3.9279e-07 \mu\text{Hz}^{-2}$$

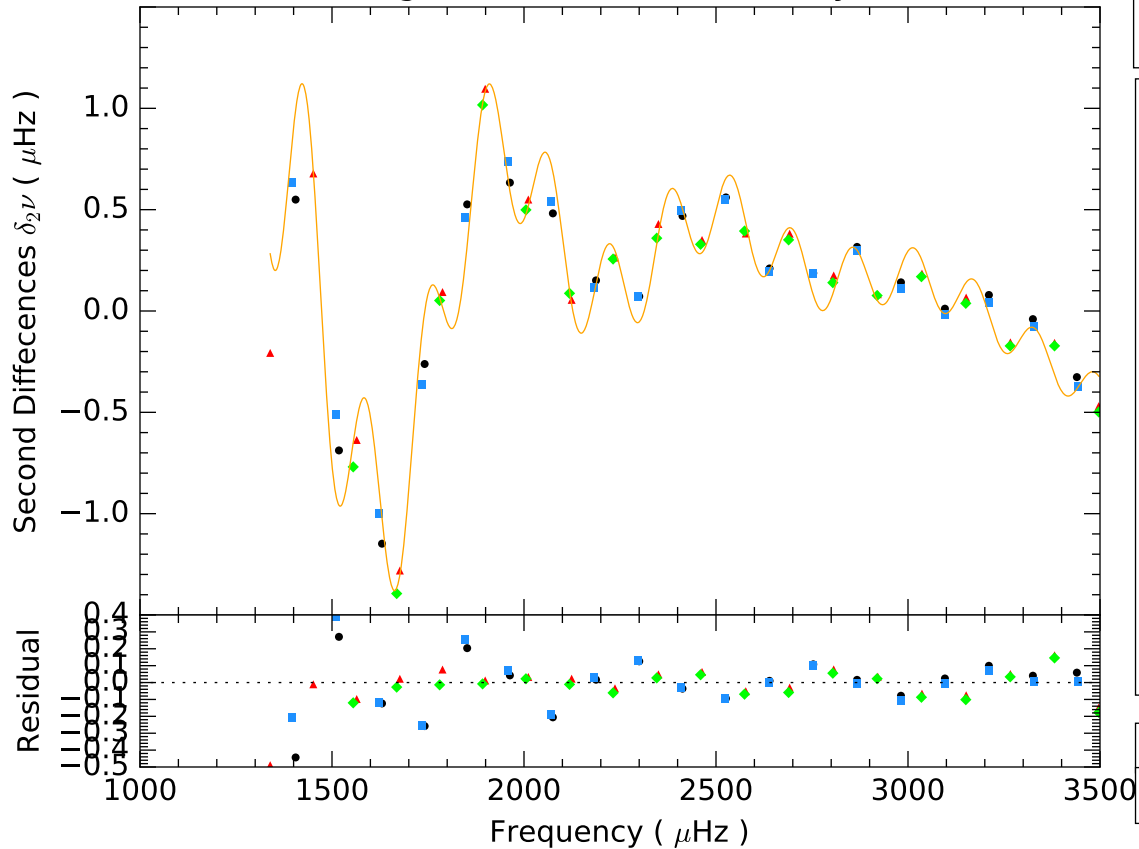
$$\tau_{\text{HI}} = 529.68 \text{ s}$$

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

profile99

$$\chi^2_\nu(\text{dof} = 63) = 0.028321$$

Age after ZAMS: 24.138 Gyr



$$a_0 = -3.3201 \mu\text{Hz}$$

$$a_1 = 0.003068$$

$$a_2 = -6.3881e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0023077$$

$$c_2 = 5.4705e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 850.06 \text{ s}$$

$$\phi_{HeII} = 6.0165$$

$$b_2 = 1.2638e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 3159.7 \text{ s}$$

$$\phi_{CZ} = 1.2758$$

$$d_0 = 0.00018787$$

$$d_2 = 3.2481e-07 \mu\text{Hz}^{-2}$$

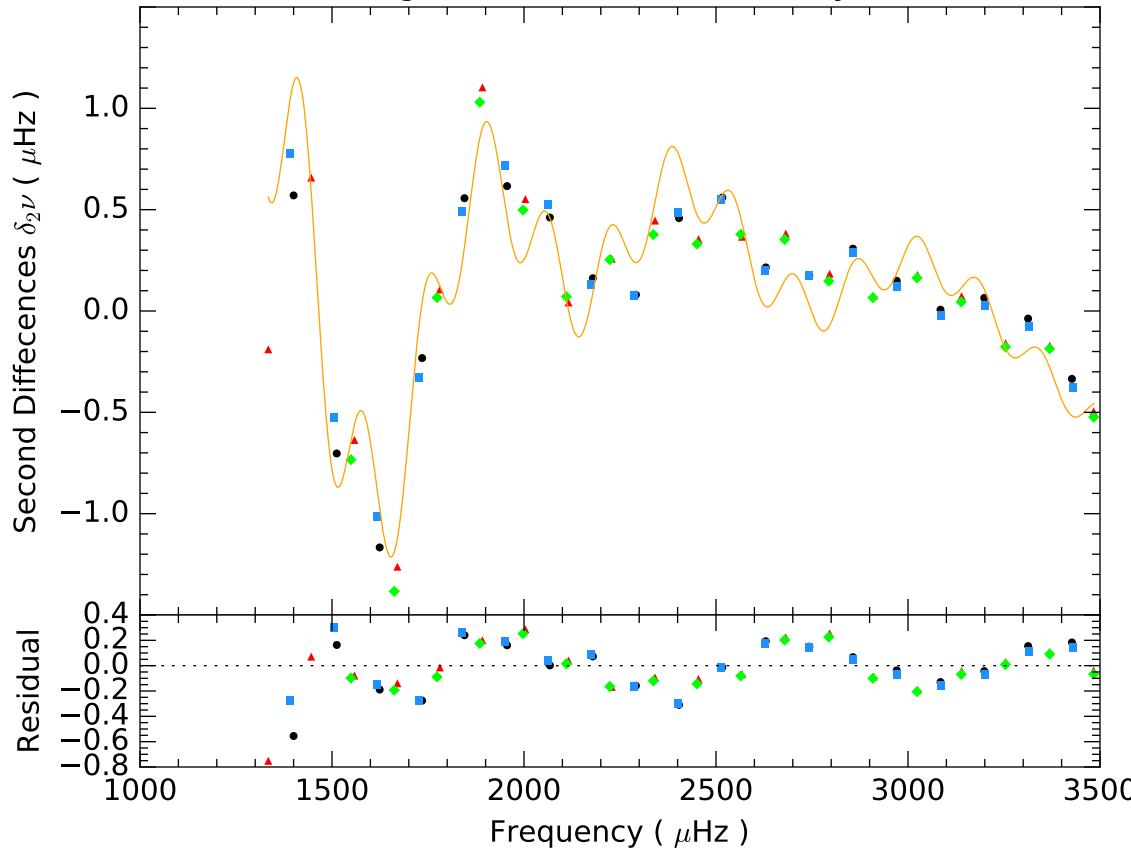
$$\tau_{HI} = 530.49 \text{ s}$$

$$\phi_{HI} = 6.0558$$

profile100

$$\chi^2_\nu(\text{dof} = 62) = 0.022159$$

Age after ZAMS: 24.182 Gyr



• $\ell=0$	◆ $\ell=3$
▲ $\ell=1$	— fit
■ $\ell=2$	

$a_0 = -3.3712 \mu\text{Hz}$
$a_1 = 0.0031405$
$a_2 = -6.5919e-07 \mu\text{Hz}^{-2}$
$c_0 = 0.002545$
$c_2 = 5.434e-07 \mu\text{Hz}^{-2}$
$\tau_{HeII} = 853.92 \text{ s}$
$\phi_{HeII} = 6.2832$
$b_2 = 1.0361e+06 \text{ mHz}^3$
$\tau_{CZ} = 3120.5 \text{ s}$
$\phi_{CZ} = 2.3628$
$d_0 = 0.00029841$
$d_2 = 2.0827e-07 \mu\text{Hz}^{-2}$
$\tau_{HI} = 599.15 \text{ s}$
$\phi_{HI} = 3.3473$

profile101
$\chi^2_\nu(\text{dof} = 62) = 0.04402$