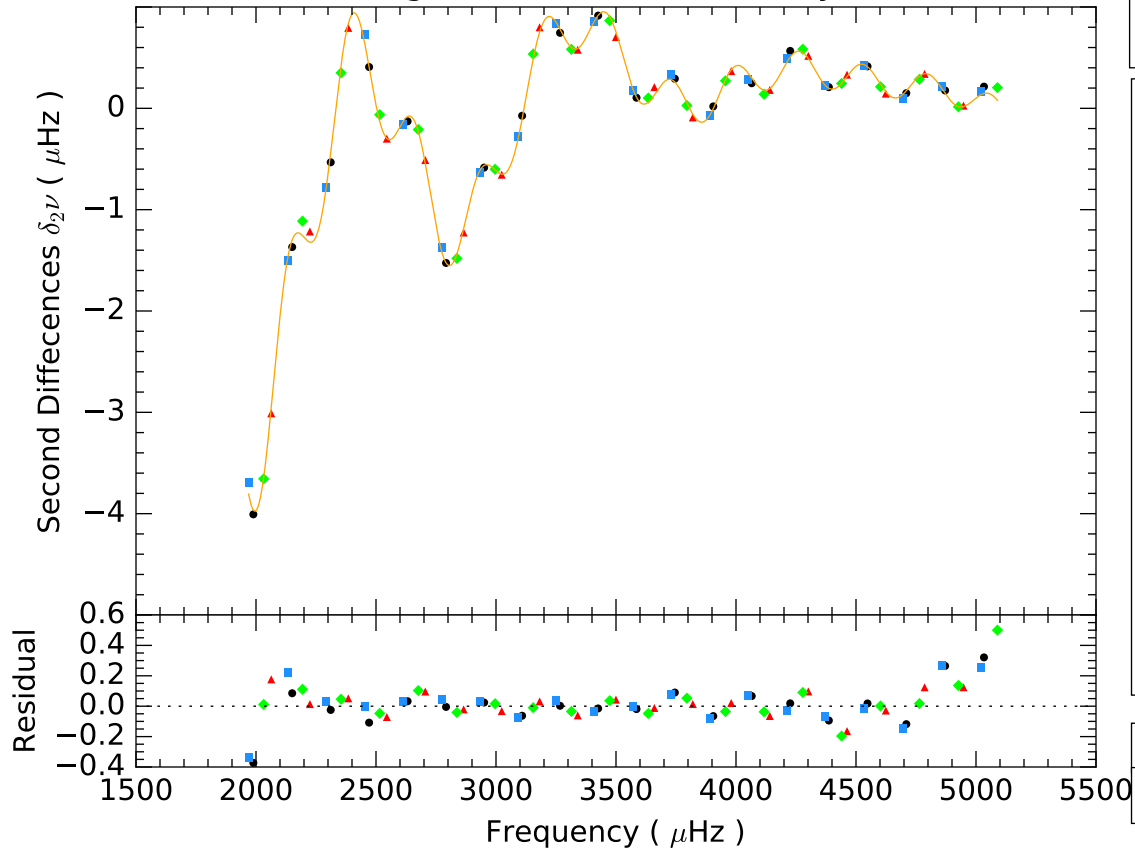


Age after ZAMS: 0.000 Gyr



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

$$a_0 = -6.9685 \mu\text{Hz}$$

$$a_1 = 0.0036466$$

$$a_2 = -4.5135e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002372$$

$$c_2 = 2.4241e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 551.39 \text{ s}$$

$$\phi_{\text{HeII}} = 3.5177$$

$$b_2 = 3.0649e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1881.2 \text{ s}$$

$$\phi_{\text{CZ}} = 1.3167$$

$$d_0 = 9.3052e-05$$

$$d_2 = 6.0614e-08 \mu\text{Hz}^{-2}$$

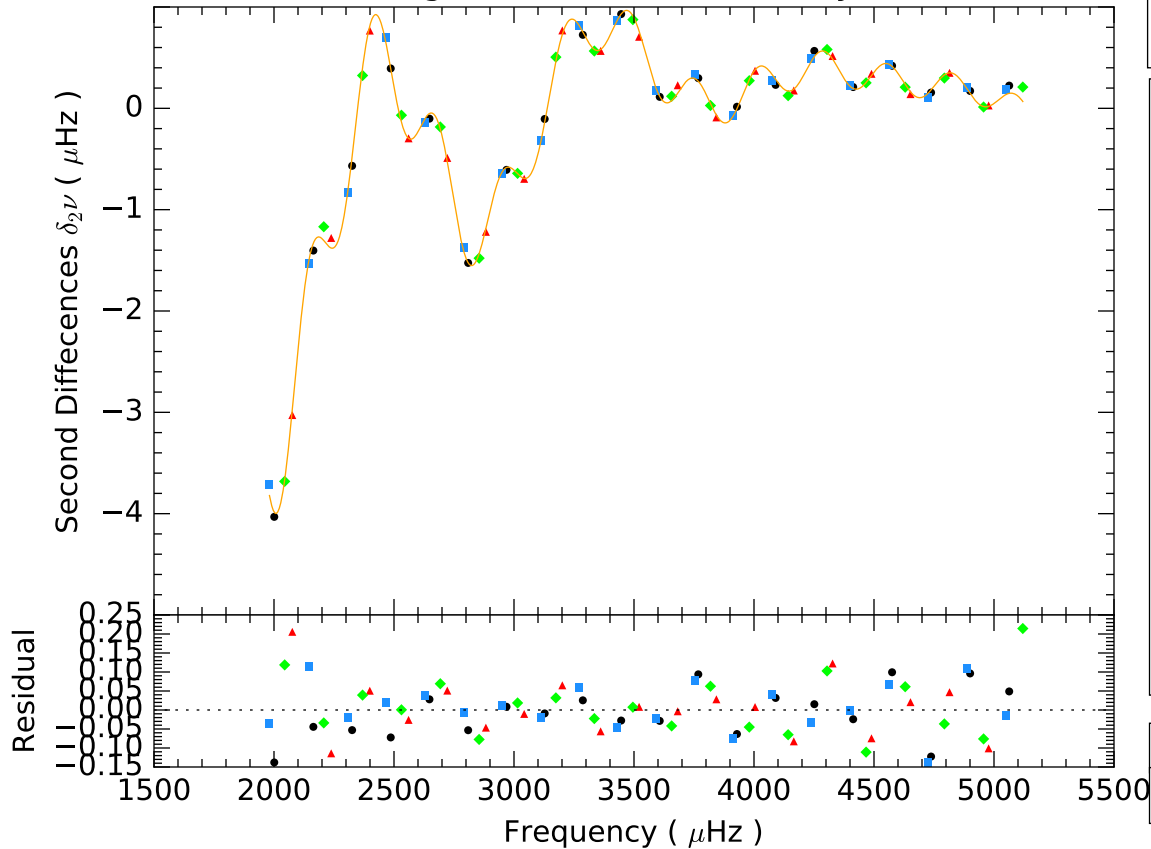
$$\tau_{\text{HI}} = 316.39 \text{ s}$$

$$\phi_{\text{HI}} = 1.0187$$

profile1

$$\chi^2_\nu (\text{dof} = 65) = 0.018719$$

Age after ZAMS: 0.000 Gyr



$$a_0 = -7.1561 \mu\text{Hz}$$

$$a_1 = 0.0037228$$

$$a_2 = -4.5859e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0022885$$

$$c_2 = 2.3667e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 547.84 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4995$$

$$b_2 = 3.1565e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1871.2 \text{ s}$$

$$\phi_{\text{CZ}} = 1.2839$$

$$d_0 = 7.3762e-05$$

$$d_2 = 4.4614e-08 \mu\text{Hz}^{-2}$$

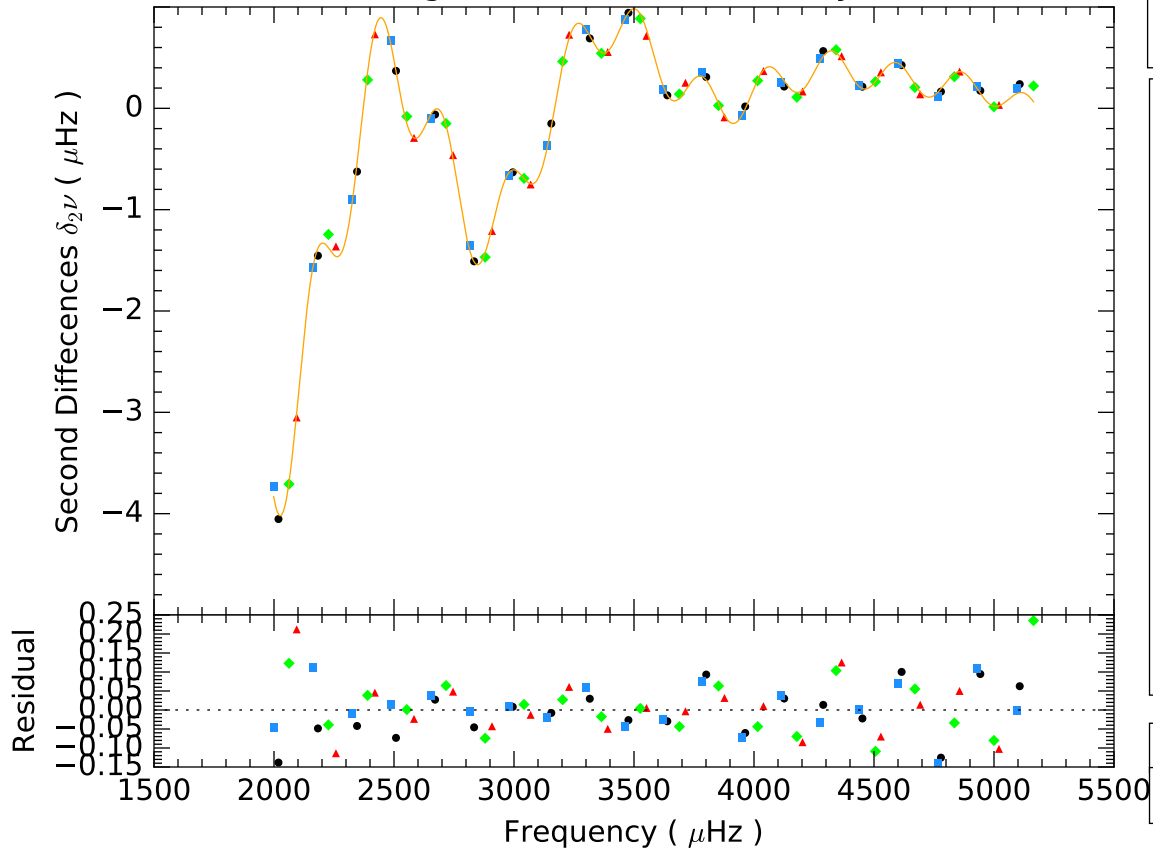
$$\tau_{\text{HI}} = 318.73 \text{ s}$$

$$\phi_{\text{HI}} = 0.80031$$

profile2

$$\chi^2_\nu(\text{dof} = 65) = 0.0060451$$

Age after ZAMS: 0.001 Gyr



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

$$a_0 = -7.3094 \mu\text{Hz}$$

$$a_1 = 0.0037645$$

$$a_2 = -4.5952e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002212$$

$$c_2 = 2.3081e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 542.37 \text{ s}$$

$$\phi_{HeII} = 3.4828$$

$$b_2 = 3.2716e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1856.1 \text{ s}$$

$$\phi_{CZ} = 1.2584$$

$$d_0 = 6.1307e-05$$

$$d_2 = 3.2582e-08 \mu\text{Hz}^{-2}$$

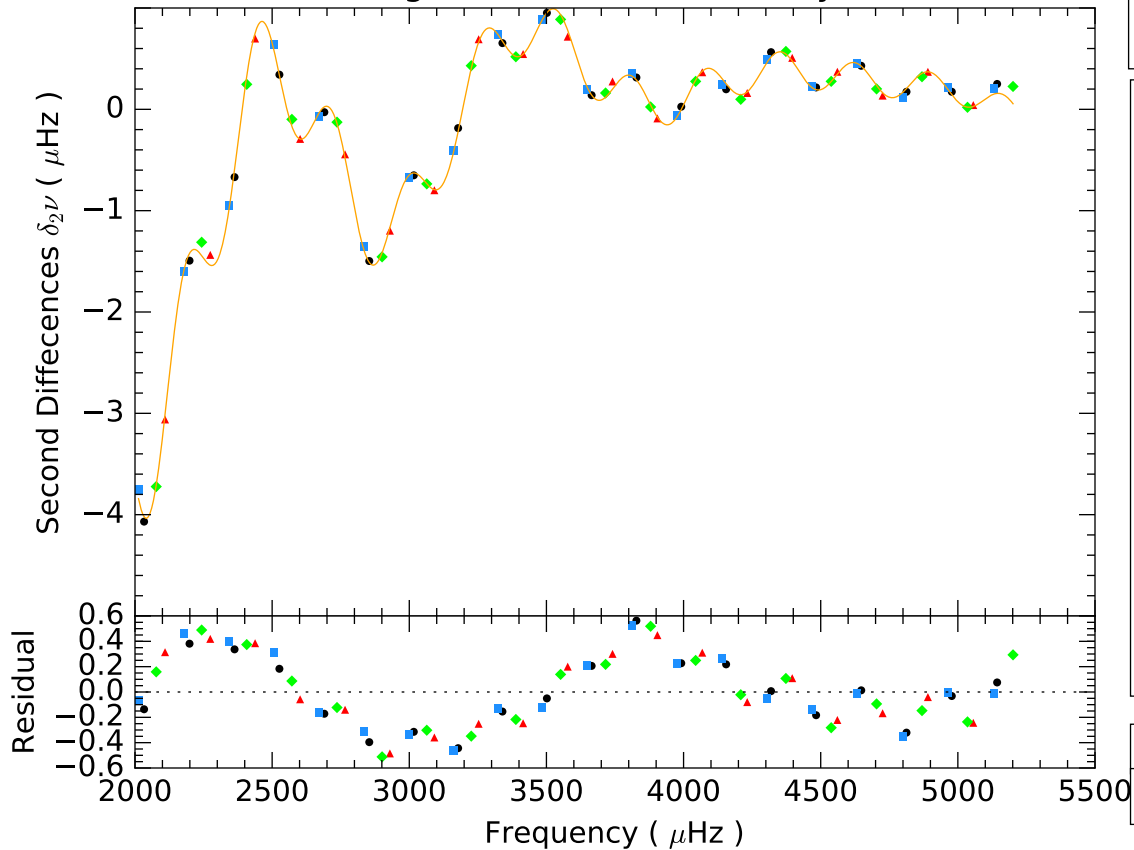
$$\tau_{HI} = 319.99 \text{ s}$$

$$\phi_{HI} = 0.57544$$

profile3

$$\chi^2_\nu(\text{dof} = 65) = 0.0062064$$

Age after ZAMS: 0.002 Gyr



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

$$a_0 = -7.4141 \mu \text{ Hz}$$

$$a_1 = 0.003786$$

$$a_2 = -4.5858e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0021609$$

$$c_2 = 2.2701e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 538.51 \text{ s}$$

$$\phi_{HeII} = 3.4481$$

$$b_2 = 3.3791e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1844.2 \text{ s}$$

$$\phi_{CZ} = 1.2391$$

$$d_0 = 5.5009e-05$$

$$d_2 = 2.5876e-08 \mu\text{Hz}^{-2}$$

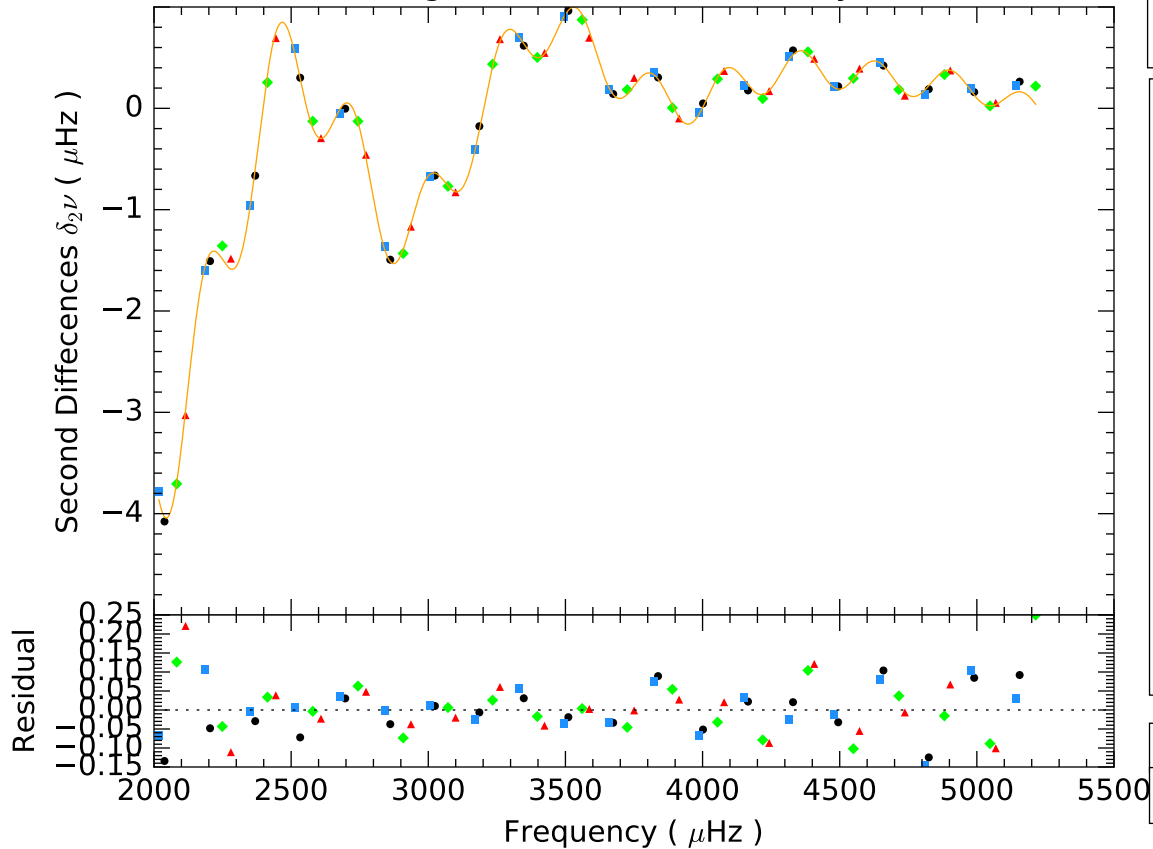
$$\tau_{HI} = 322.96 \text{ s}$$

$$\phi_{HI} = 0.29088$$

profile4

$$\chi^2_\nu(\text{dof} = 65) = 0.093769$$

Age after ZAMS: 0.004 Gyr



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

$$a_0 = -7.4768 \mu\text{Hz}$$

$$a_1 = 0.0038072$$

$$a_2 = -4.6006e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021184$$

$$c_2 = 2.25e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 537.31 \text{ s}$$

$$\phi_{HeII} = 3.4335$$

$$b_2 = 3.4409e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1841.7 \text{ s}$$

$$\phi_{CZ} = 1.2214$$

$$d_0 = 5.0102e-05$$

$$d_2 = 2.0398e-08 \mu\text{Hz}^{-2}$$

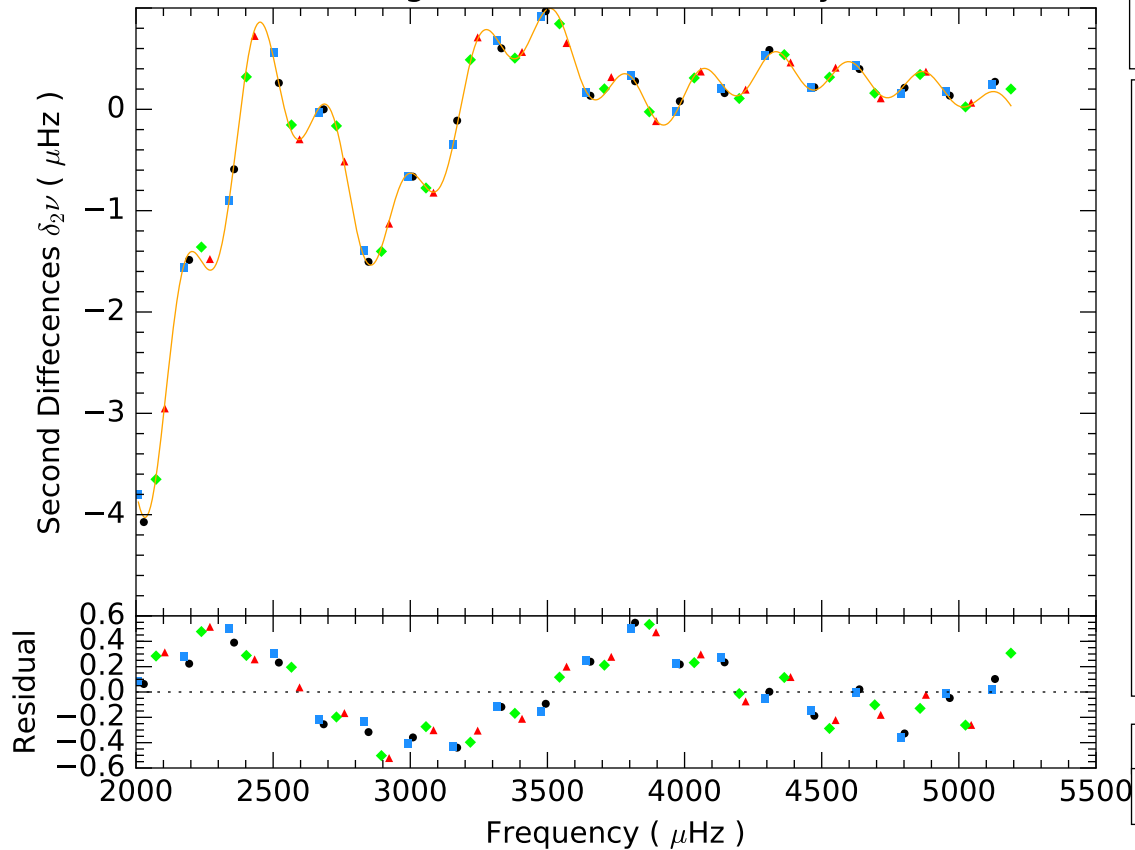
$$\tau_{HI} = 324.82 \text{ s}$$

$$\phi_{HI} = 0.14734$$

profile5

$$\chi^2_\nu (\text{dof} = 65) = 0.0062956$$

Age after ZAMS: 0.007 Gyr



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

$$a_0 = -7.2123 \mu\text{Hz}$$

$$a_1 = 0.0036819$$

$$a_2 = -4.4548e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0022438$$

$$c_2 = 2.3377e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 540.76 \text{ s}$$

$$\phi_{HeII} = 3.4187$$

$$b_2 = 3.4207e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1852.6 \text{ s}$$

$$\phi_{CZ} = 1.2335$$

$$d_0 = 7.6274e-05$$

$$d_2 = 4.6755e-08 \mu\text{Hz}^{-2}$$

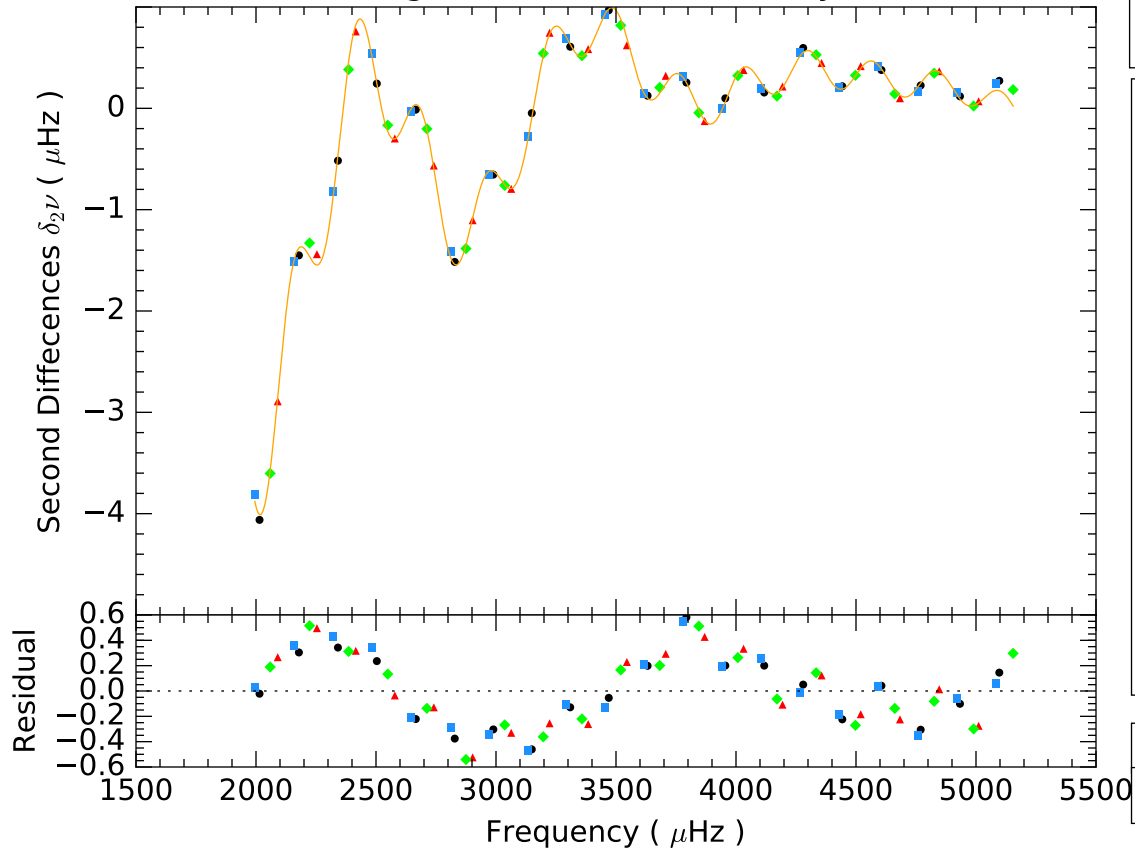
$$\tau_{HI} = 323.02 \text{ s}$$

$$\phi_{HI} = 0.33182$$

profile6

$$\chi^2_\nu(\text{dof} = 65) = 0.094102$$

Age after ZAMS: 0.013 Gyr



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

$$a_0 = -7.1055 \mu\text{Hz}$$

$$a_1 = 0.0036575$$

$$a_2 = -4.4592e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0022848$$

$$c_2 = 2.3816e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 545.68 \text{ s}$$

$$\phi_{HeII} = 3.4134$$

$$b_2 = 3.3663e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1866.9 \text{ s}$$

$$\phi_{CZ} = 1.2237$$

$$d_0 = 8.4883e-05$$

$$d_2 = 5.3823e-08 \mu\text{Hz}^{-2}$$

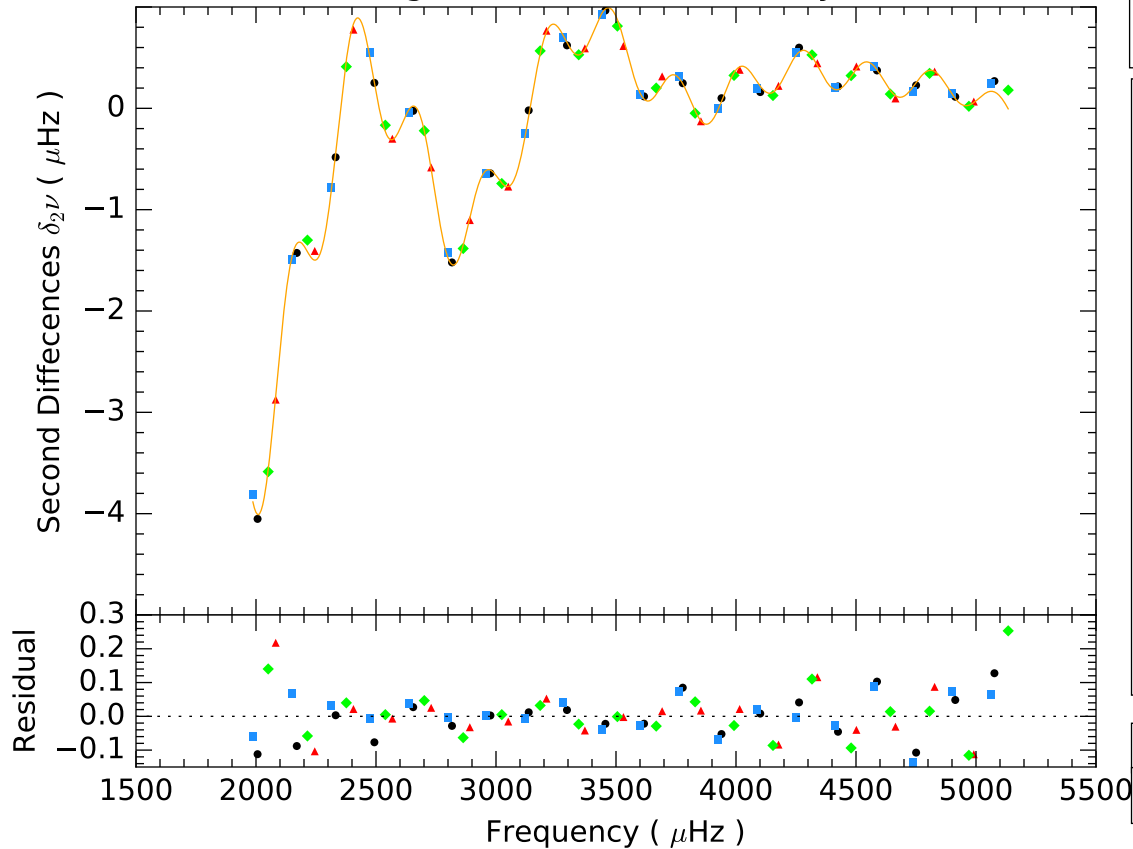
$$\tau_{HI} = 323.65 \text{ s}$$

$$\phi_{HI} = 0.43295$$

profile7

$$\chi^2_\nu(\text{dof} = 65) = 0.095535$$

Age after ZAMS: 0.023 Gyr



$$a_0 = -7.3646 \mu\text{Hz}$$

$$a_1 = 0.0038283$$

$$a_2 = -4.7186e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021375$$

$$c_2 = 2.3125e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 548.51 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4298$$

$$b_2 = 3.3252e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1875.3 \text{ s}$$

$$\phi_{\text{CZ}} = 1.1858$$

$$d_0 = 5.1551e-05$$

$$d_2 = 2.1411e-08 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HI}} = 327.25 \text{ s}$$

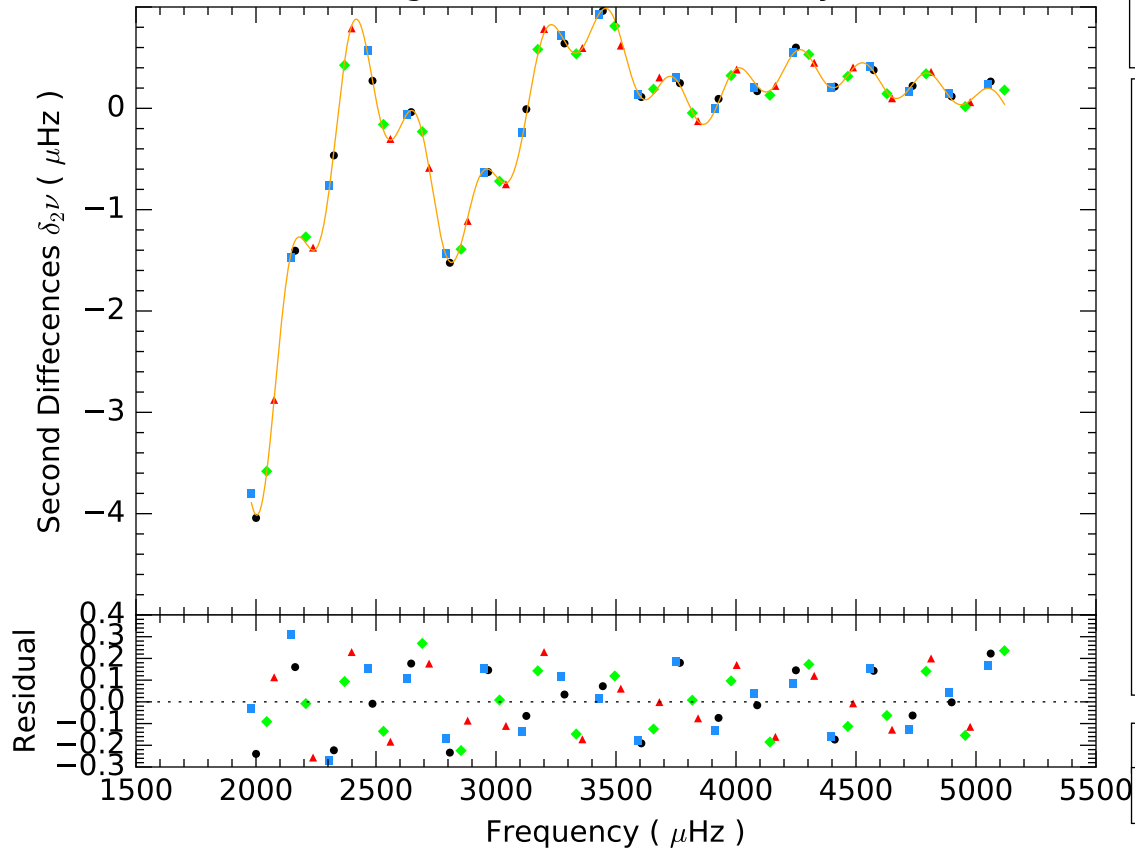
$$\phi_{\text{HI}} = 0.33657$$

profile8

$$\chi^2_{\nu}(\text{dof} = 65) = 0.006108$$



Age after ZAMS: 0.039 Gyr



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

$$a_0 = -7.2458 \mu \text{ Hz}$$

$$a_1 = 0.0037627$$

$$a_2 = -4.6269e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021601$$

$$c_2 = 2.3091e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{He II}} = 543.06 \text{ s}$$

$$\phi_{\text{He II}} = 3.698$$

$$b_2 = 3.1505e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1884.3 \text{ s}$$

$$\phi_{\text{CZ}} = 1.0426$$

$$d_0 = 6.2165e-05$$

$$d_2 = 3.7708e-08 \mu\text{Hz}^{-2}$$

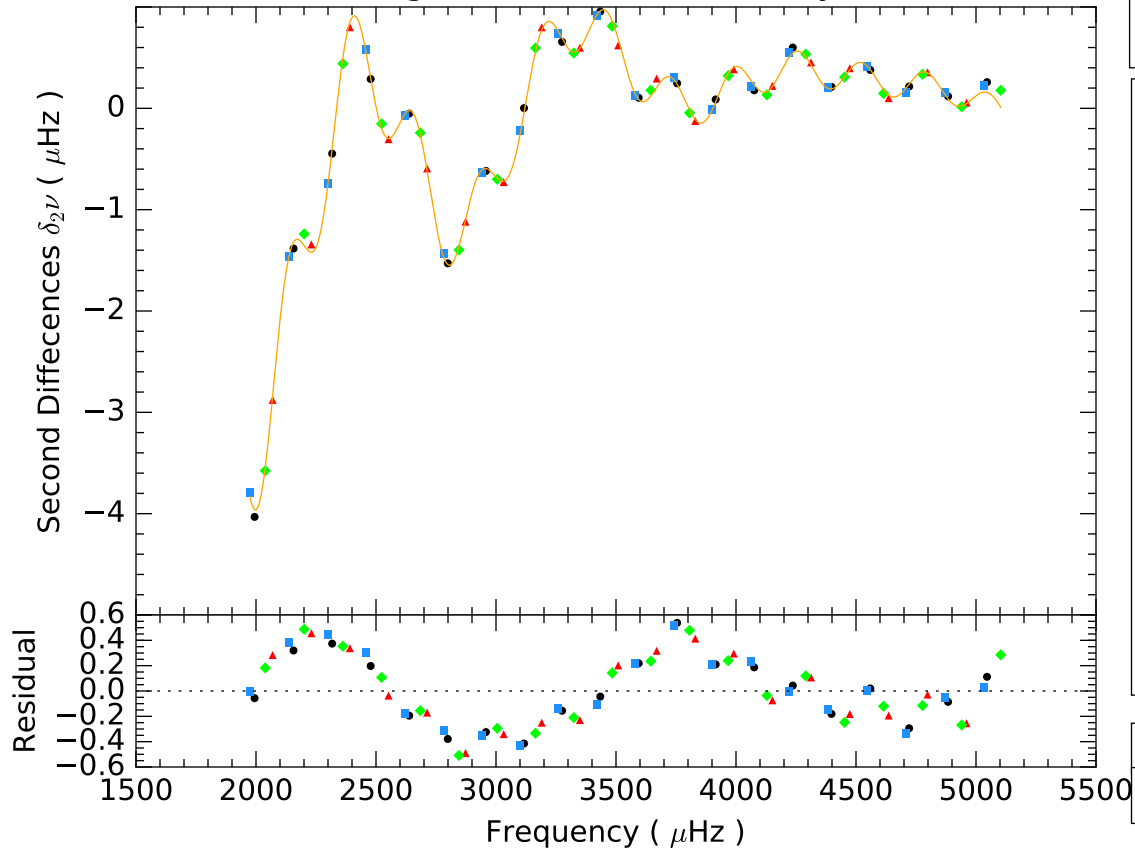
$$\tau_{\text{HI}} = 302.4 \text{ s}$$

$$\phi_{\text{HI}} = 1.6041$$

profile9

$$\chi^2_\nu(\text{dof} = 65) = 0.027567$$

Age after ZAMS: 0.068 Gyr



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

$$a_0 = -7.0246 \mu \text{ Hz}$$

$$a_1 = 0.0036671$$

$$a_2 = -4.5309e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0023377$$

$$c_2 = 2.4295e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 552.6 \text{ s}$$

$$\phi_{HeII} = 3.4196$$

$$b_2 = 3.1526e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1886.4 \text{ s}$$

$$\phi_{CZ} = 1.1685$$

$$d_0 = 8.9363e-05$$

$$d_2 = 5.6954e-08 \mu\text{Hz}^{-2}$$

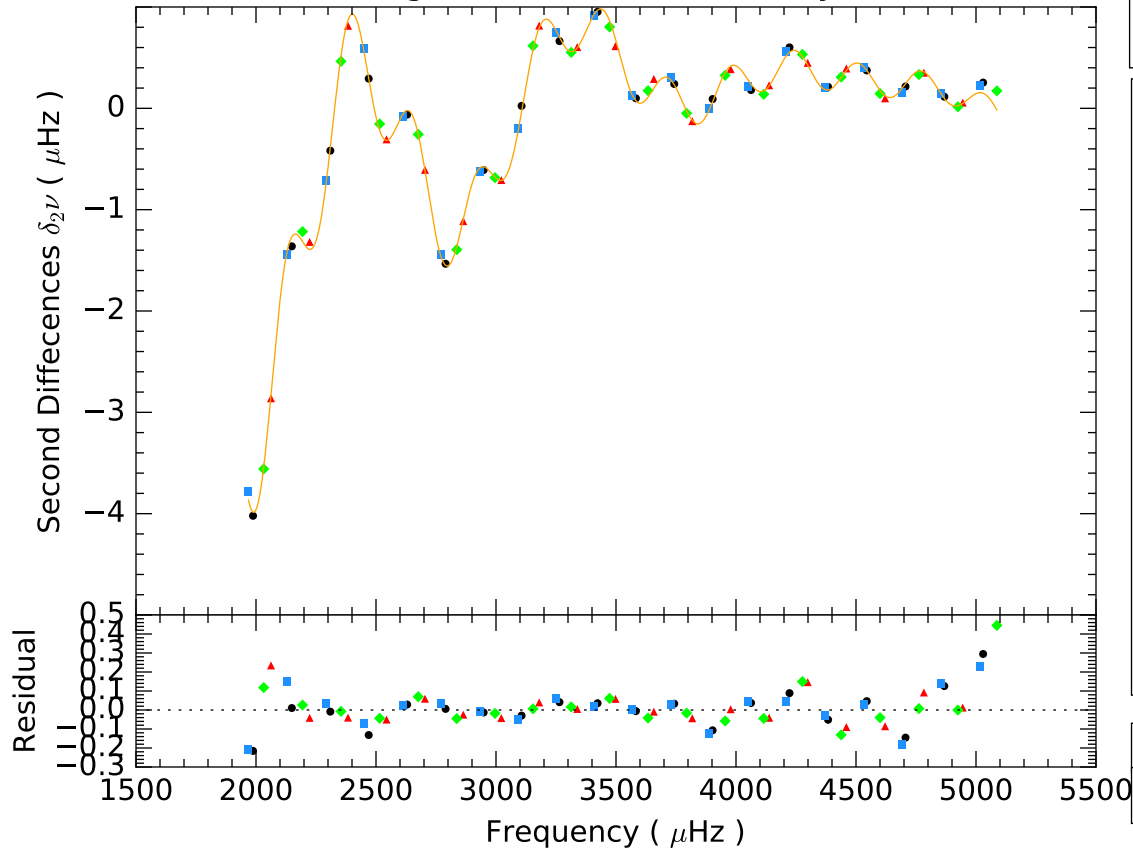
$$\tau_{HI} = 325.5 \text{ s}$$

$$\phi_{HI} = 0.54679$$

profile10

$$\chi^2_\nu(\text{dof} = 65) = 0.089003$$

Age after ZAMS: 0.118 Gyr



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

$$a_0 = -7.3526 \mu\text{Hz}$$

$$a_1 = 0.0038753$$

$$a_2 = -4.8411e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021542$$

$$c_2 = 2.3379e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 554.48 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4537$$

$$b_2 = 3.2058e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1892.7 \text{ s}$$

$$\phi_{\text{CZ}} = 1.1635$$

$$d_0 = 4.8488e-05$$

$$d_2 = 1.6589e-08 \mu\text{Hz}^{-2}$$

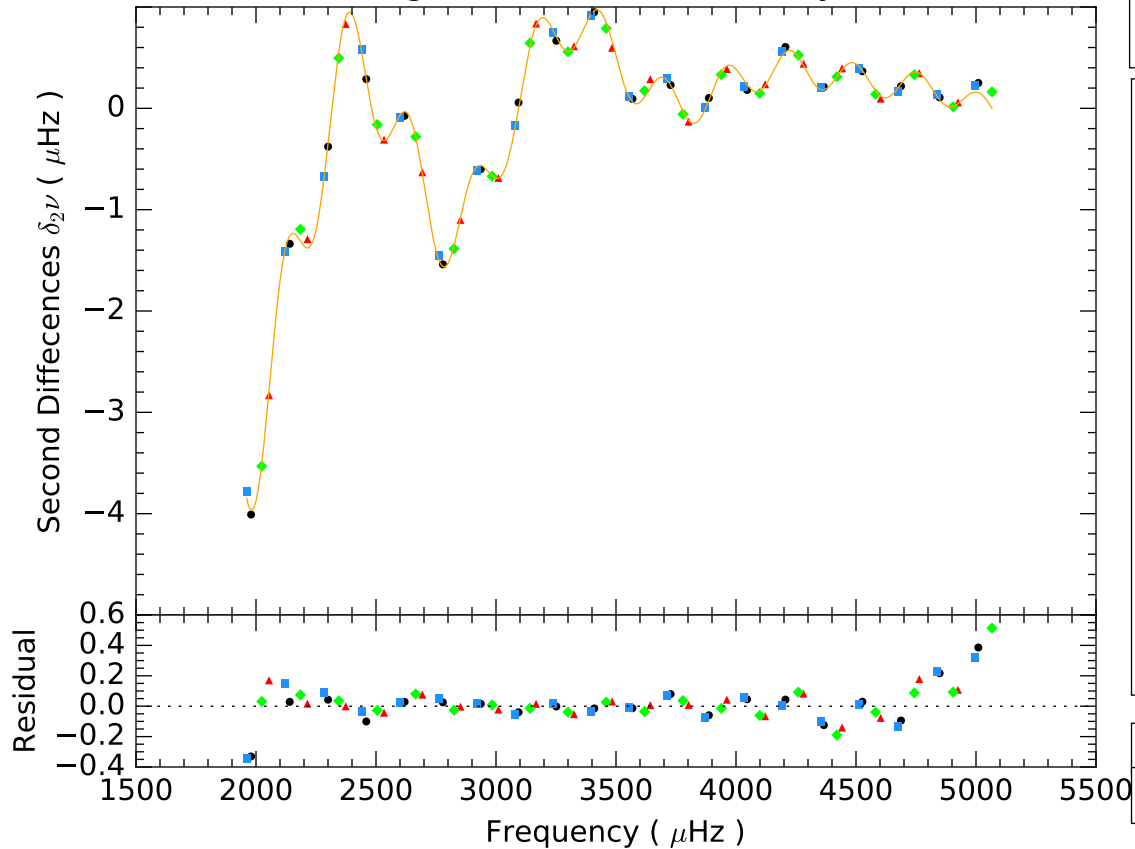
$$\tau_{\text{HI}} = 328.24 \text{ s}$$

$$\phi_{\text{HI}} = 0.48083$$

profile11

$$\chi^2_{\nu}(\text{dof} = 65) = 0.012634$$

Age after ZAMS: 0.205 Gyr



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

$$a_0 = -6.9602 \mu\text{Hz}$$

$$a_1 = 0.0036693$$

$$a_2 = -4.5762e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0023543$$

$$c_2 = 2.461e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 557.92 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4158$$

$$b_2 = 3.1734e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1900.5 \text{ s}$$

$$\phi_{\text{CZ}} = 1.1859$$

$$d_0 = 9.1942e-05$$

$$d_2 = 5.9117e-08 \mu\text{Hz}^{-2}$$

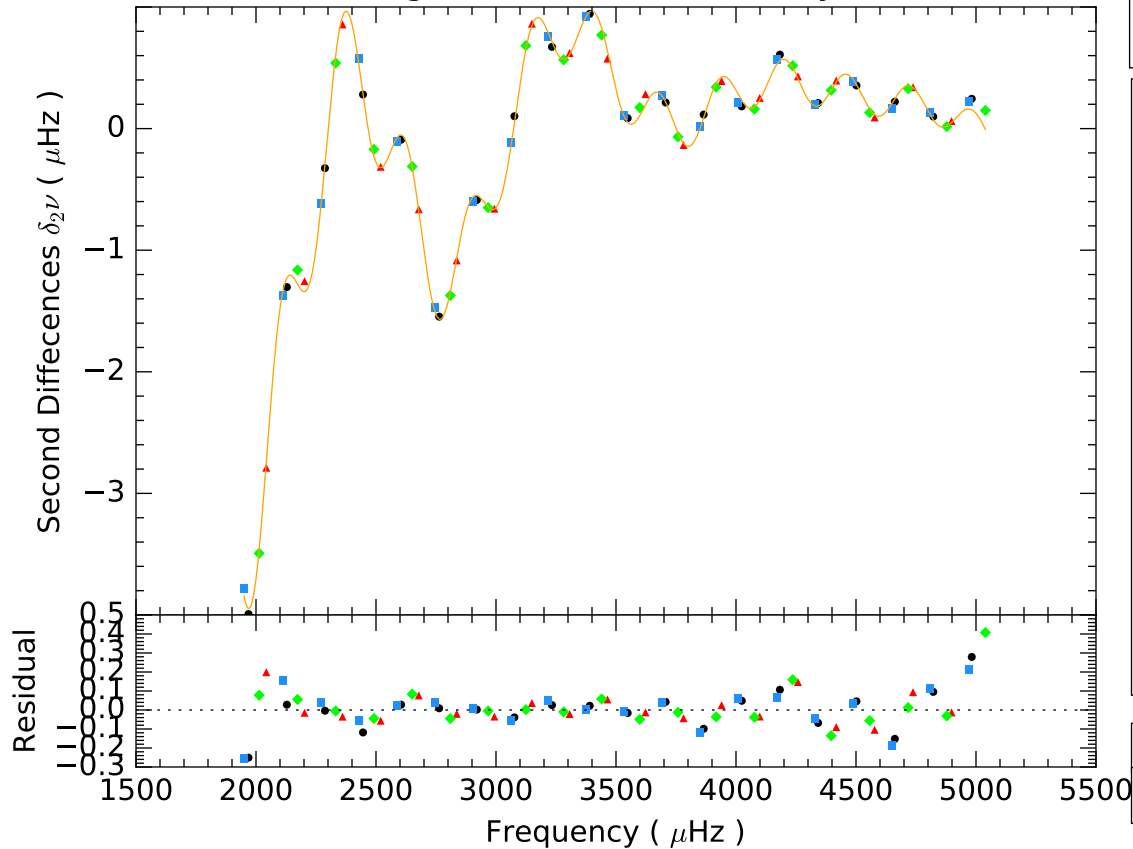
$$\tau_{\text{HI}} = 327.05 \text{ s}$$

$$\phi_{\text{HI}} = 0.61052$$

profile12

$$\chi^2_\nu(\text{dof} = 65) = 0.018352$$

Age after ZAMS: 0.354 Gyr



$$a_0 = -6.798 \mu\text{Hz}$$

$$a_1 = 0.0036044$$

$$a_2 = -4.517e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0024359$$

$$c_2 = 2.5199e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 561.66 \text{ s}$$

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

$$b_2 = 3.1153e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1912.0 \text{ s}$$

$$\phi_{\text{CZ}} = 1.1844$$

$$d_0 = 0.00011344$$

$$d_2 = 7.4357e-08 \mu\text{Hz}^{-2}$$

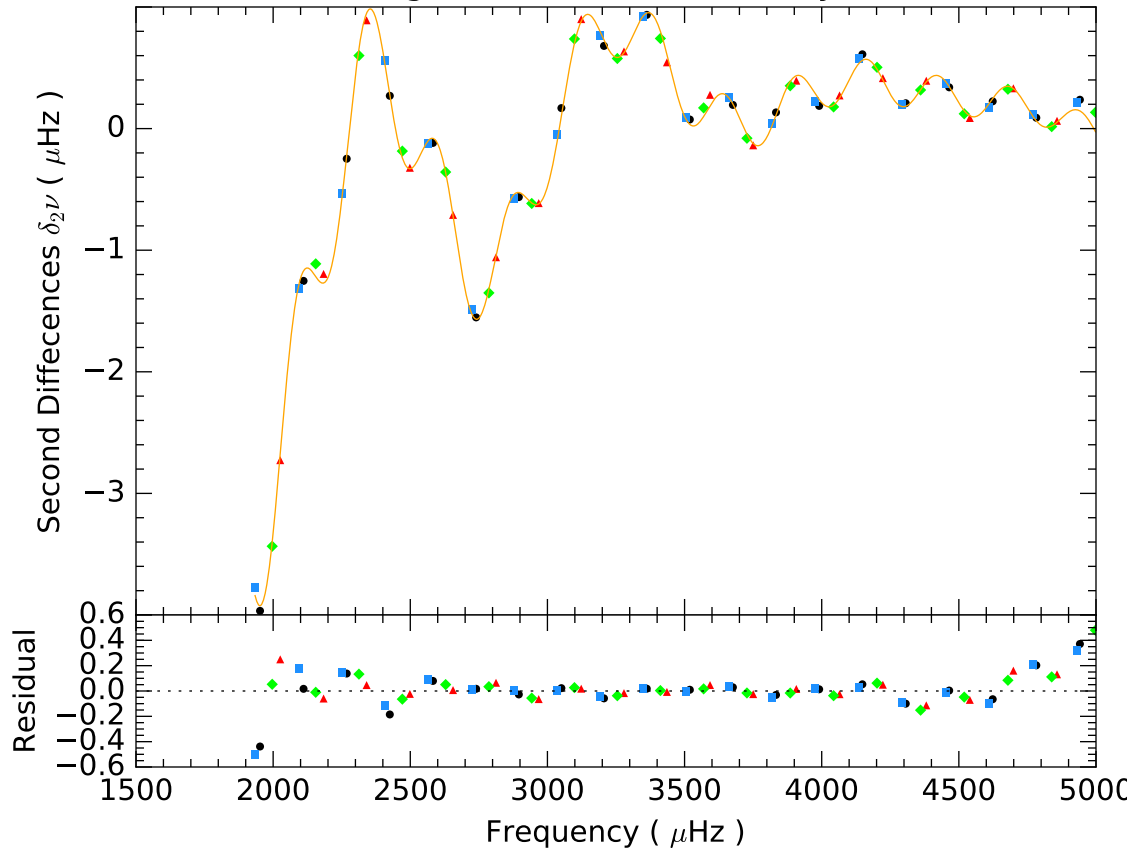
$$\tau_{\text{HI}} = 326.96 \text{ s}$$

$$\phi_{\text{HI}} = 0.7187$$

profile13

$$\chi^2_{\nu}(\text{dof} = 65) = 0.012278$$

Age after ZAMS: 0.610 Gyr



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

$$a_0 = -6.7908 \mu\text{Hz}$$

$$a_1 = 0.0036437$$

$$a_2 = -4.6196e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0024166$$

$$c_2 = 2.5381e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 567.28 \text{ s}$$

$$\phi_{HeII} = 3.4379$$

$$b_2 = 3.0238e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1928.8 \text{ s}$$

$$\phi_{CZ} = 1.1864$$

$$d_0 = 0.00010471$$

$$d_2 = 7.0043e-08 \mu\text{Hz}^{-2}$$

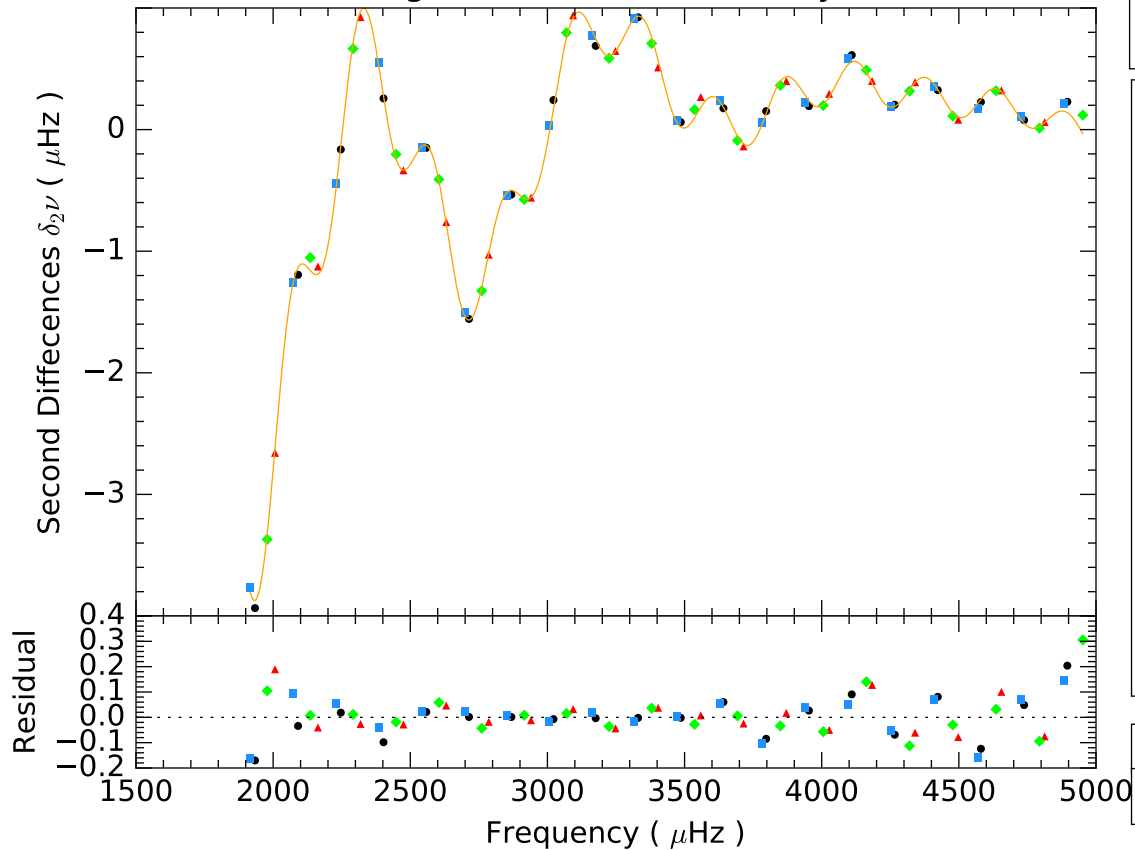
$$\tau_{HI} = 327.7 \text{ s}$$

$$\phi_{HI} = 0.83721$$

profile14

$$\chi^2_\nu(\text{dof} = 65) = 0.021662$$

Age after ZAMS: 0.910 Gyr



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

$$a_0 = -6.4611 \mu\text{Hz}$$

$$a_1 = 0.0035009$$

$$a_2 = -4.4744e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0026123$$

$$c_2 = 2.6672e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 574.03 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4298$$

$$b_2 = 2.8565e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1948.9 \text{ s}$$

$$\phi_{\text{CZ}} = 1.1598$$

$$d_0 = 0.00016244$$

$$d_2 = 1.0283e-07 \mu\text{Hz}^{-2}$$

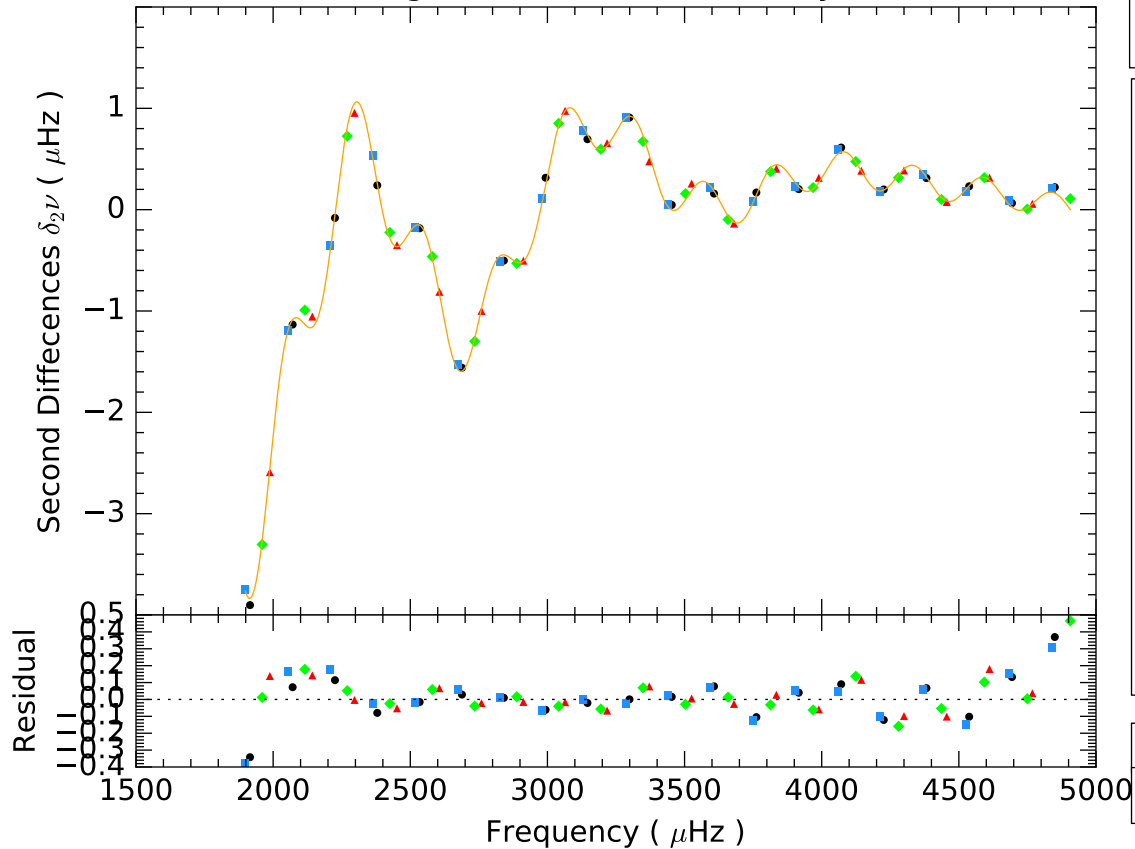
$$\tau_{\text{HI}} = 329.14 \text{ s}$$

$$\phi_{\text{HI}} = 0.94904$$

profile15

$$\chi^2_\nu(\text{dof} = 65) = 0.0077401$$

Age after ZAMS: 1.210 Gyr



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

$$a_0 = -5.3234 \mu\text{Hz}$$

$$a_1 = 0.002909$$

$$a_2 = -3.725e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0035436$$

$$c_2 = 3.0507e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 575.59 \text{ s}$$

$$\phi_{HeII} = 3.5429$$

$$b_2 = 2.9086e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1966.9 \text{ s}$$

$$\phi_{CZ} = 1.226$$

$$d_0 = 0.0007883$$

$$d_2 = 2.4267e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HI} = 336.21 \text{ s}$$

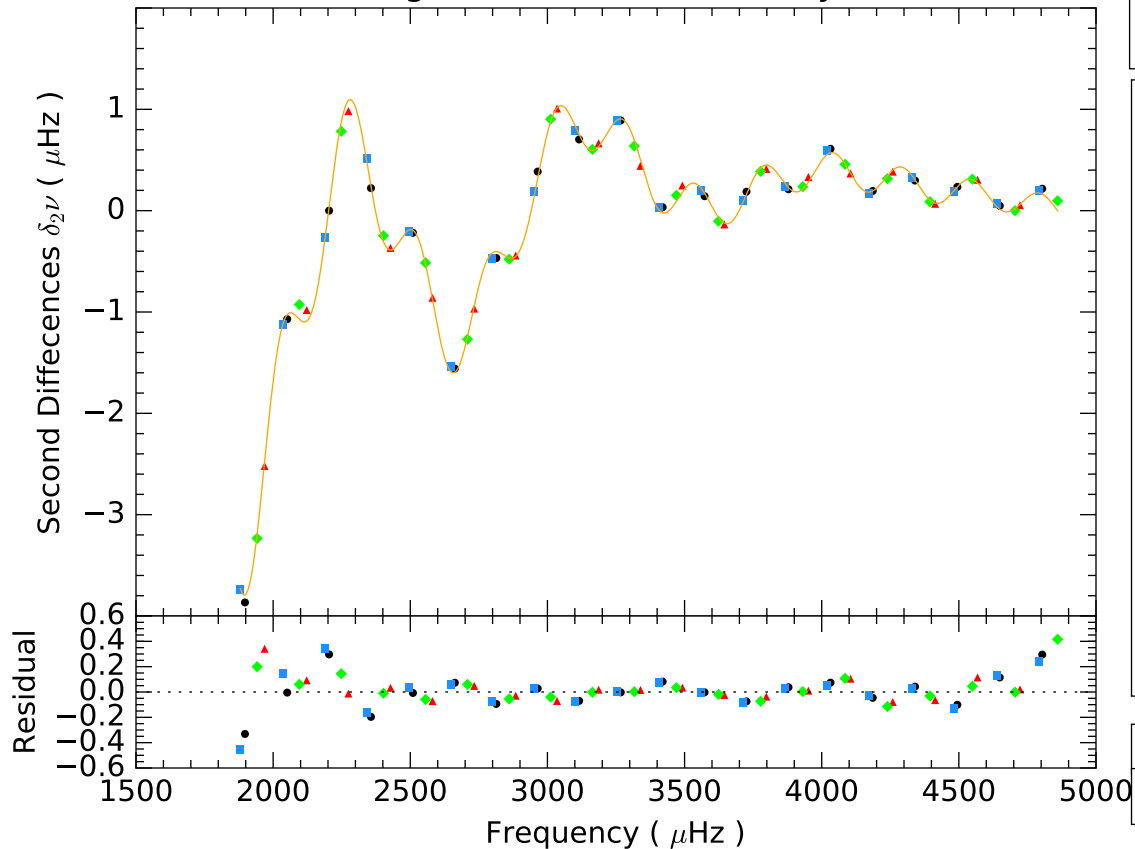
$$\phi_{HI} = 0.88318$$

profile16

$$\chi^2_\nu(\text{dof} = 65) = 0.01863$$



# Age after ZAMS: 1.510 Gyr



$$a_0 = -4.8395 \mu\text{Hz}$$

$$a_1 = 0.0026873$$

$$a_2 = -3.4828e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0041055$$

$$c_2 = 3.2361e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 577.71 \text{ s}$$

$$\phi_{HeII} = 3.6844$$

$$b_2 = 2.8422e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1986.7 \text{ s}$$

$$\phi_{CZ} = 1.2343$$

$$d_0 = 0.0015306$$

$$d_2 = 3.1566e-07 \mu\text{Hz}^{-2}$$

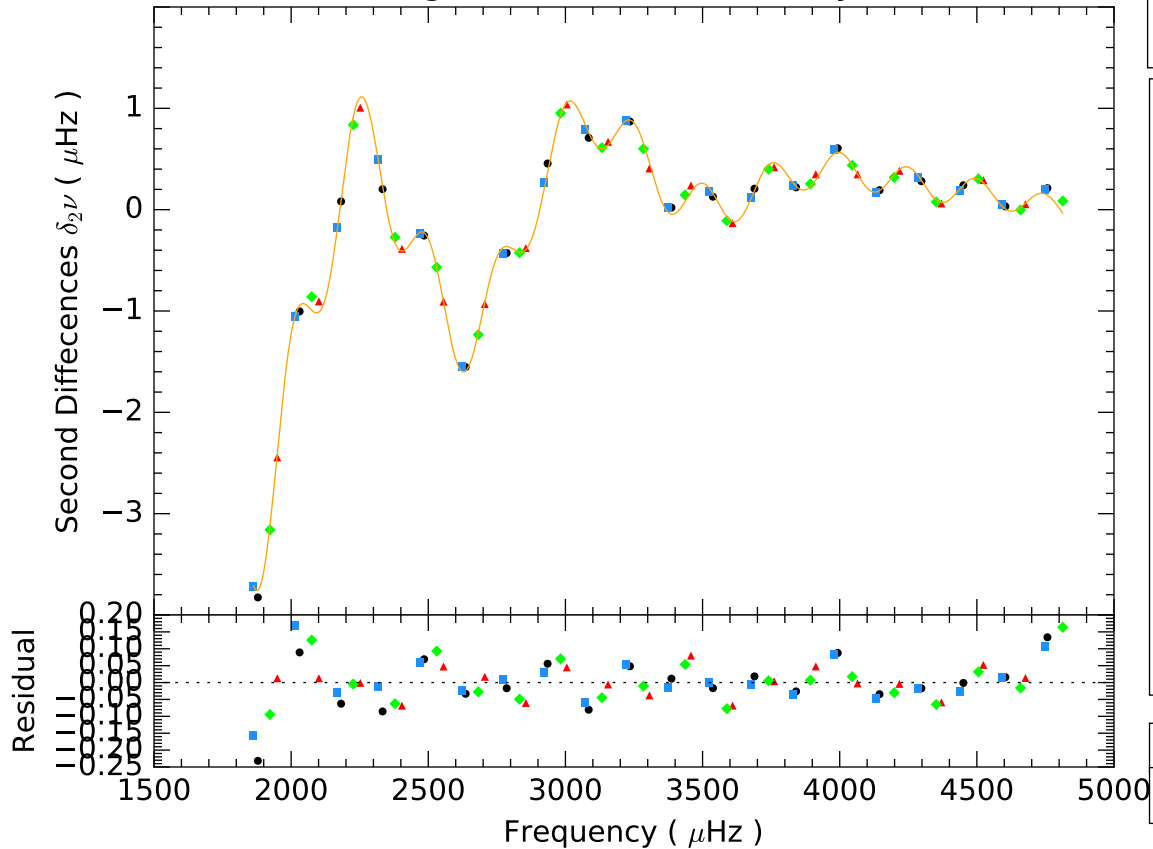
$$\tau_{HI} = 344.72 \text{ s}$$

$$\phi_{HI} = 0.7882$$

profile17

$$\chi^2_\nu(\text{dof} = 65) = 0.020764$$

Age after ZAMS: 1.810 Gyr



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

$$a_0 = -5.0412 \mu\text{Hz}$$

$$a_1 = 0.002835$$

$$a_2 = -3.7267e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.003786$$

$$c_2 = 3.2271e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 590.96 \text{ s}$$

$$\phi_{HeII} = 3.5067$$

$$b_2 = 2.7644e+06 \text{ mHz}^3$$

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

$$\phi_{CZ} = 1.2025$$

$$d_0 = 0.00099225$$

$$d_2 = 2.7411e-07 \mu\text{Hz}^{-2}$$

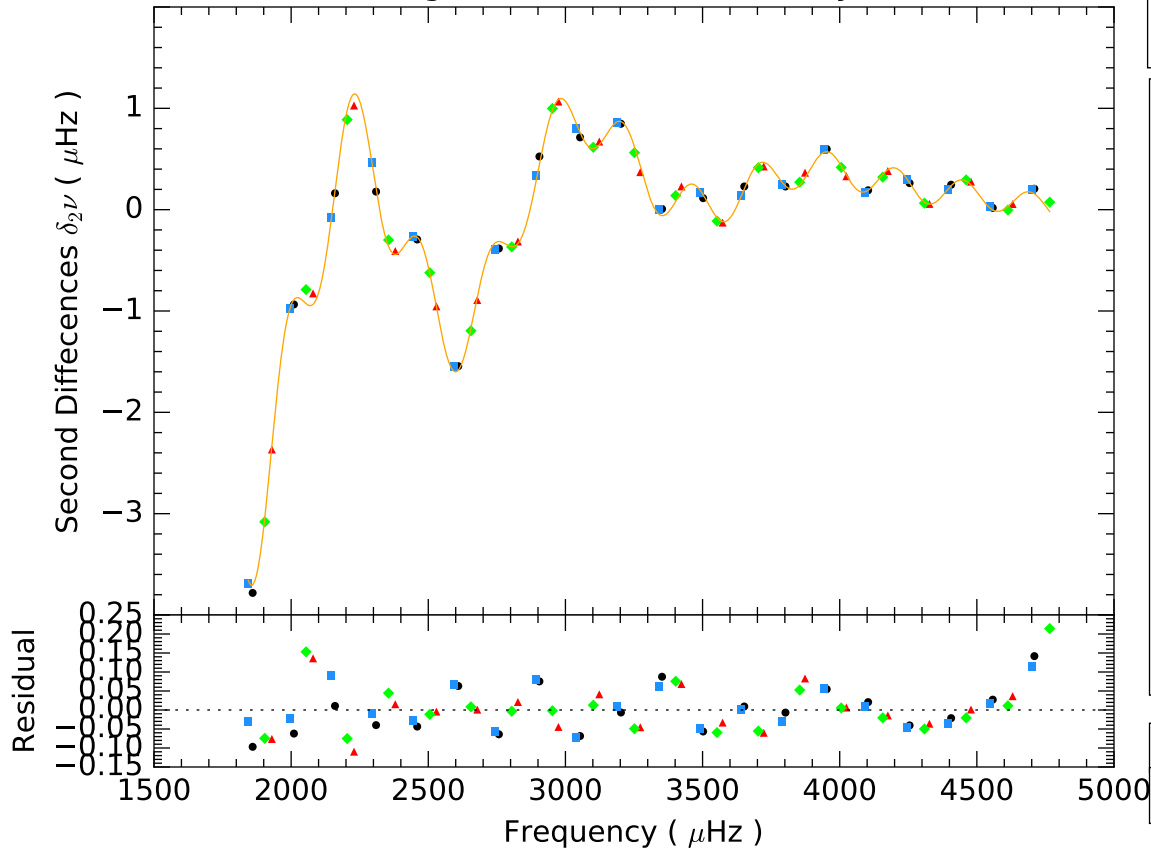
$$\tau_{HI} = 347.06 \text{ s}$$

$$\phi_{HI} = 0.79904$$

profile18

$$\chi^2_\nu(\text{dof} = 65) = 0.0051302$$

# Age after ZAMS: 2.110 Gyr



$$a_0 = -4.1839 \mu\text{Hz}$$

$$a_1 = 0.0024092$$

$$a_2 = -3.2133e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0047725$$

$$c_2 = 3.4453e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 585.2 \text{ s}$$

$$\phi_{HeII} = 3.9285$$

$$b_2 = 2.6966e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2029.6 \text{ s}$$

$$\phi_{CZ} = 1.2101$$

$$d_0 = 0.0035961$$

$$d_2 = 4.353e-07 \mu\text{Hz}^{-2}$$

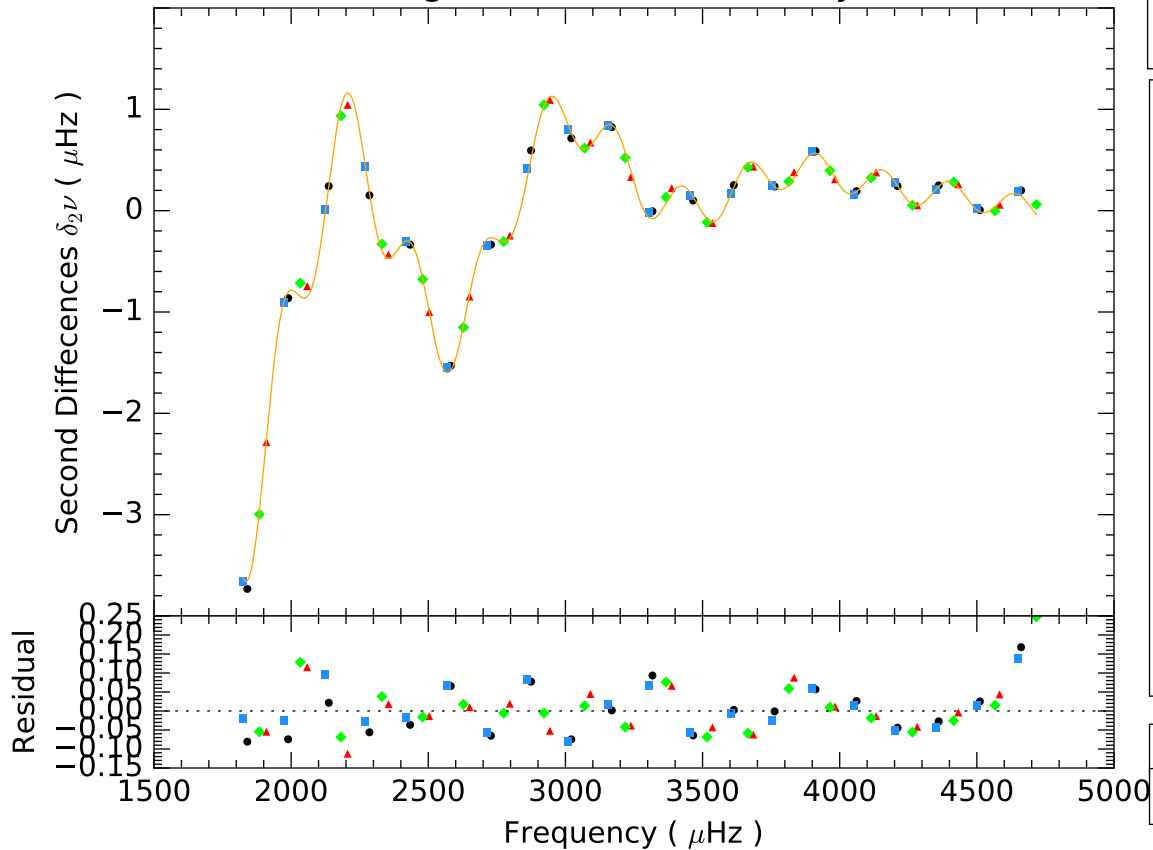
$$\tau_{HI} = 358.05 \text{ s}$$

$$\phi_{HI} = 0.75223$$

profile19

$$\chi^2_\nu(\text{dof} = 65) = 0.004546$$

Age after ZAMS: 2.410 Gyr



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

$$a_0 = -4.1401 \mu\text{Hz}$$

$$a_1 = 0.0024203$$

$$a_2 = -3.275e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0047522$$

$$c_2 = 3.5159e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 595.48 \text{ s}$$

$$\phi_{\text{HeII}} = 3.8489$$

$$b_2 = 2.6203e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2052.8 \text{ s}$$

$$\phi_{\text{CZ}} = 1.1784$$

$$d_0 = 0.0033395$$

$$d_2 = 4.3387e-07 \mu\text{Hz}^{-2}$$

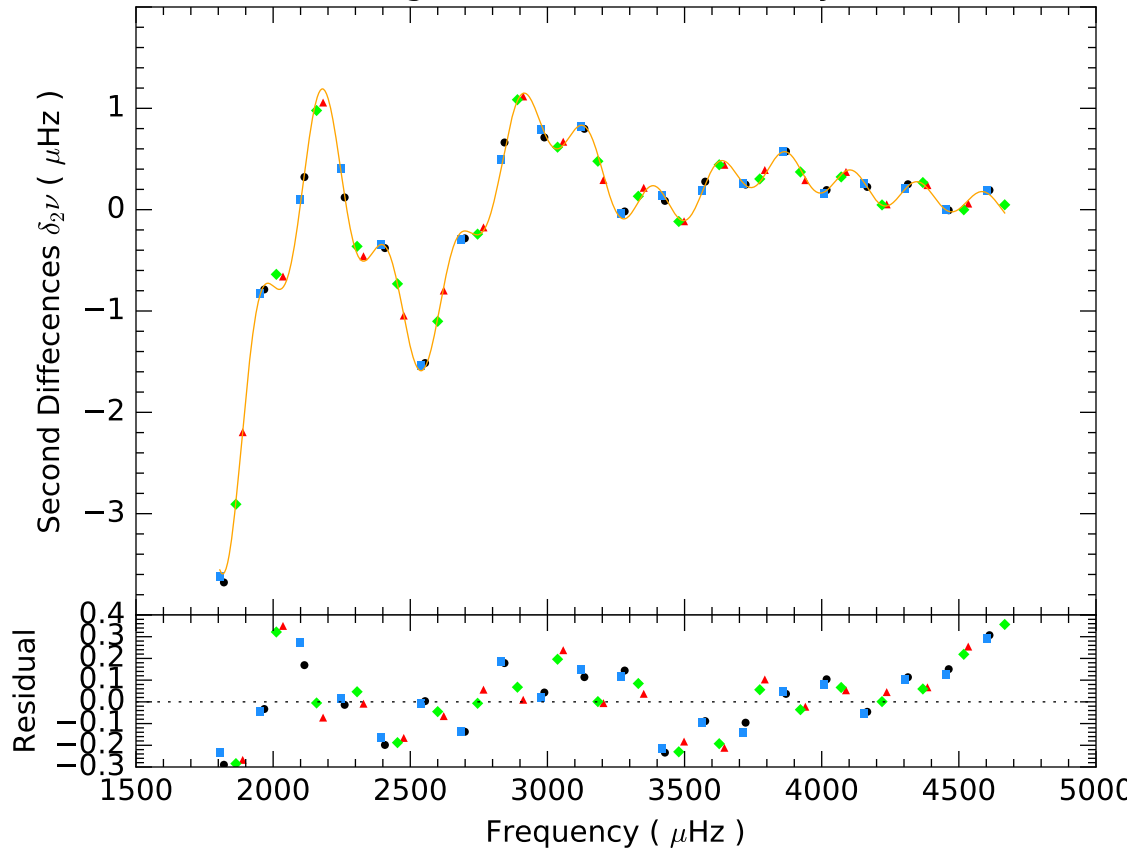
$$\tau_{\text{HI}} = 362.49 \text{ s}$$

$$\phi_{\text{HI}} = 0.73858$$

profile20

$$\chi^2_\nu(\text{dof} = 65) = 0.0049604$$

# Age after ZAMS: 2.710 Gyr



$$a_0 = -3.3053 \mu\text{Hz}$$

$$a_1 = 0.0020133$$

$$a_2 = -2.794e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0055096$$

$$c_2 = 3.5912e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 584.61 \text{ s}$$

$$\phi_{HeII} = 4.5792$$

$$b_2 = 2.5491e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2075.4 \text{ s}$$

$$\phi_{CZ} = 1.2134$$

$$d_0 = 0.018724$$

$$d_2 = 7.3302e-07 \mu\text{Hz}^{-2}$$

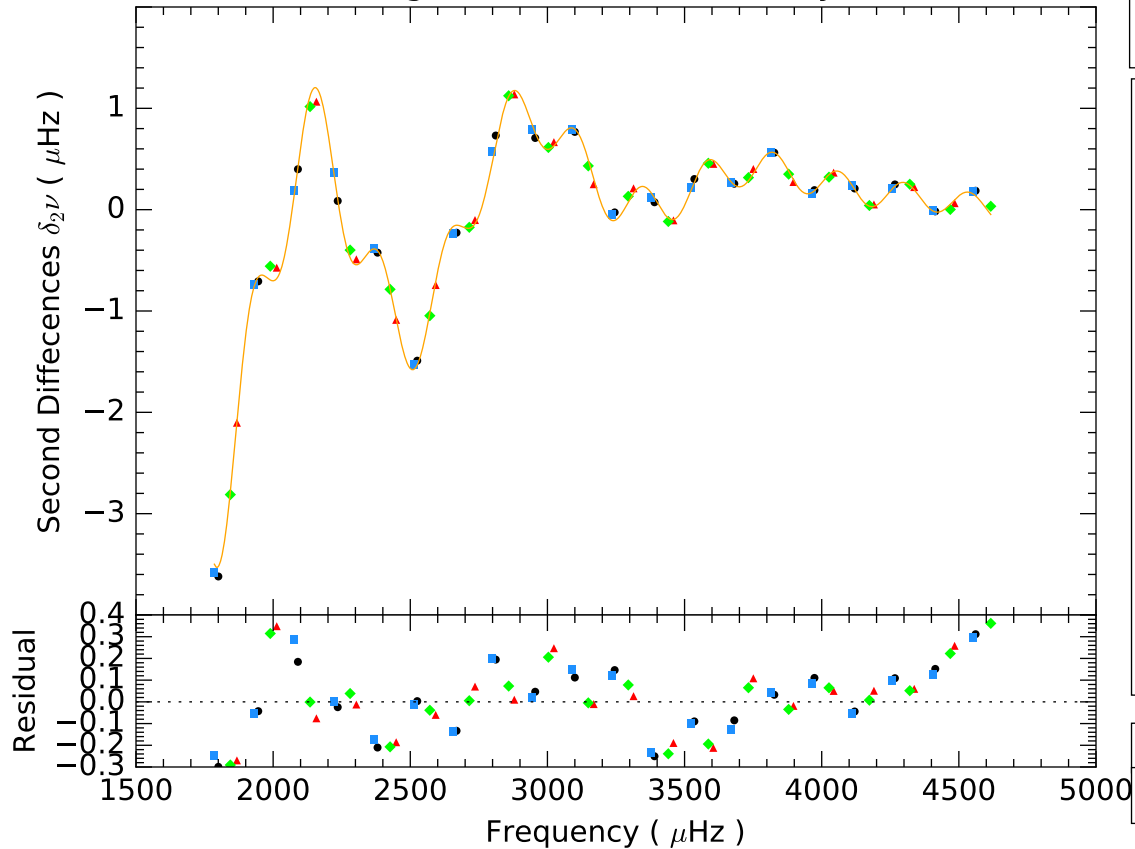
$$\tau_{HI} = 380.41 \text{ s}$$

$$\phi_{HI} = 0.67872$$

profile21

$$\chi^2_\nu(\text{dof} = 65) = 0.029334$$

# Age after ZAMS: 3.010 Gyr



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

$$a_0 = -3.1375 \mu\text{Hz}$$

$$a_1 = 0.0019549$$

$$a_2 = -2.763e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0055931$$

$$c_2 = 3.6714e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 591.34 \text{ s}$$

$$\phi_{HeII} = 4.6562$$

$$b_2 = 2.4633e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2100.1 \text{ s}$$

$$\phi_{CZ} = 1.2033$$

$$d_0 = 0.024535$$

$$d_2 = 8.0491e-07 \mu\text{Hz}^{-2}$$

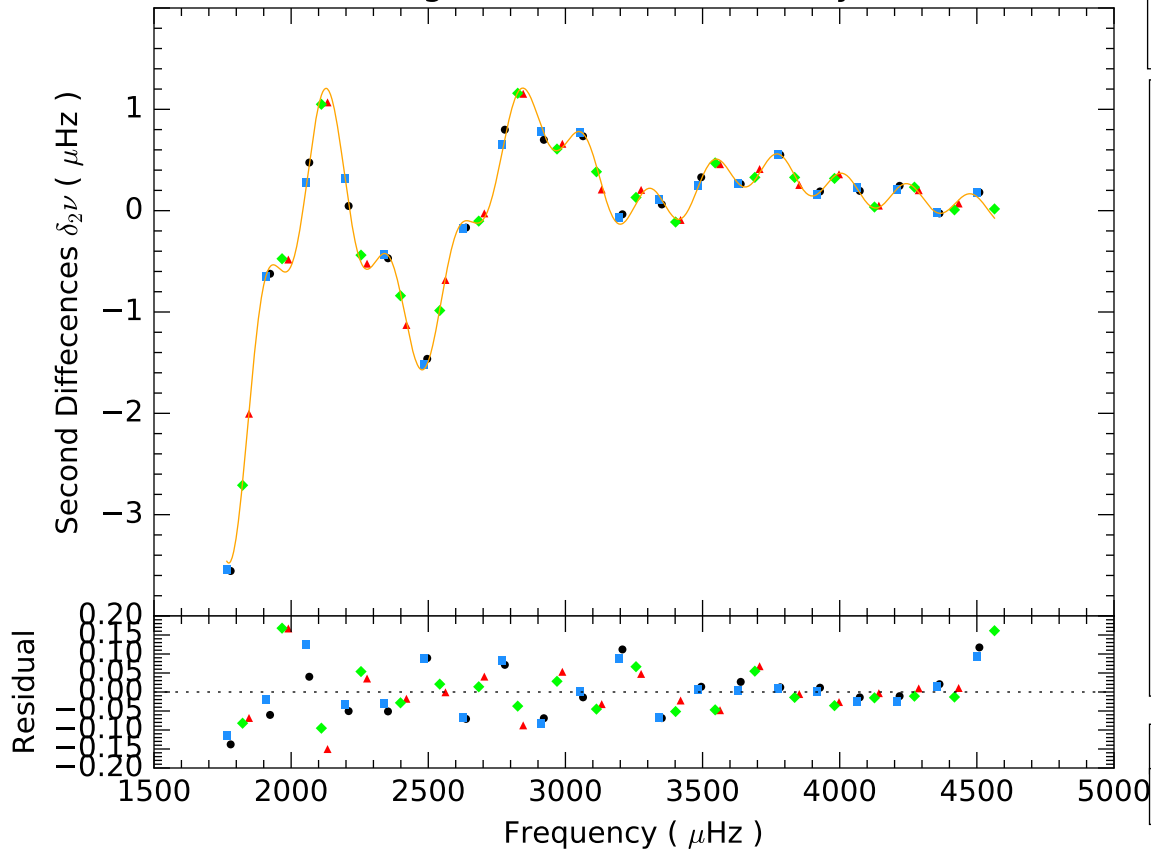
$$\tau_{HI} = 388.79 \text{ s}$$

$$\phi_{HI} = 0.63423$$

profile22

$$\chi^2_\nu(\text{dof} = 65) = 0.0309$$

# Age after ZAMS: 3.310 Gyr



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

$$a_0 = -3.2171 \mu\text{Hz}$$

$$a_1 = 0.0020257$$

$$a_2 = -2.9005e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0054496$$

$$c_2 = 3.755e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 608.54 \text{ s}$$

$$\phi_{HeII} = 4.3333$$

$$b_2 = 2.3903e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2128.1 \text{ s}$$

$$\phi_{CZ} = 1.1157$$

$$d_0 = 0.013535$$

$$d_2 = 7.052e-07 \mu\text{Hz}^{-2}$$

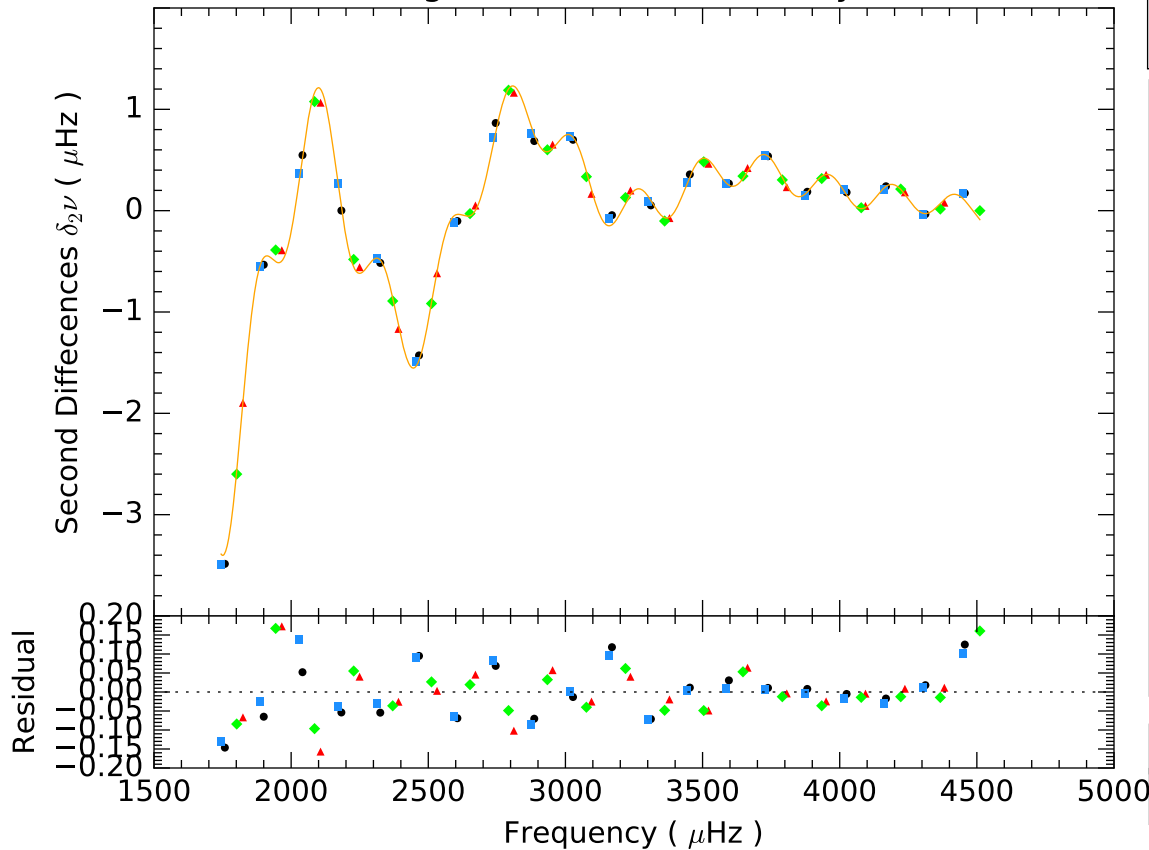
$$\tau_{HI} = 386.75 \text{ s}$$

$$\phi_{HI} = 0.71703$$

profile23

$$\chi^2_\nu(\text{dof} = 65) = 0.0052086$$

Age after ZAMS: 3.610 Gyr



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

$$a_0 = -3.0095 \mu\text{Hz}$$

$$a_1 = 0.0019457$$

$$a_2 = -2.8442e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0055889$$

$$c_2 = 3.8452e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 614.93 \text{ s}$$

$$\phi_{HeII} = 4.4571$$

$$b_2 = 2.2981e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2155.8 \text{ s}$$

$$\phi_{CZ} = 1.0887$$

$$d_0 = 0.019558$$

$$d_2 = 7.9833e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HI} = 396.95 \text{ s}$$

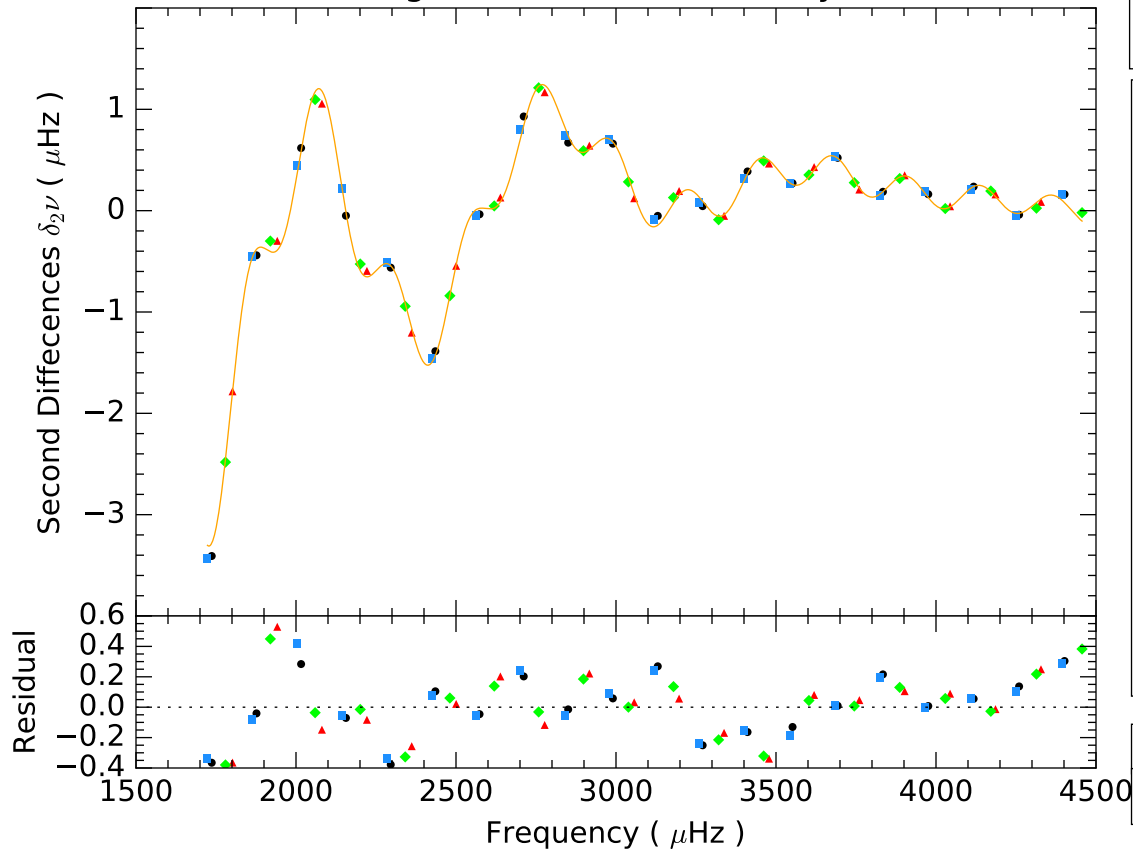
$$\phi_{HI} = 0.6578$$

profile24

$$\chi^2_\nu(\text{dof} = 65) = 0.0056488$$



Age after ZAMS: 3.910 Gyr



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

$$a_0 = -2.8274 \mu\text{Hz}$$

$$a_1 = 0.0018775$$

$$a_2 = -2.8025e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0056631$$

$$c_2 = 3.9397e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 623.22 \text{ s}$$

$$\phi_{HeII} = 4.5261$$

$$b_2 = 2.1515e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2185.8 \text{ s}$$

$$\phi_{CZ} = 1.0396$$

$$d_0 = 0.025423$$

$$d_2 = 8.7796e-07 \mu\text{Hz}^{-2}$$

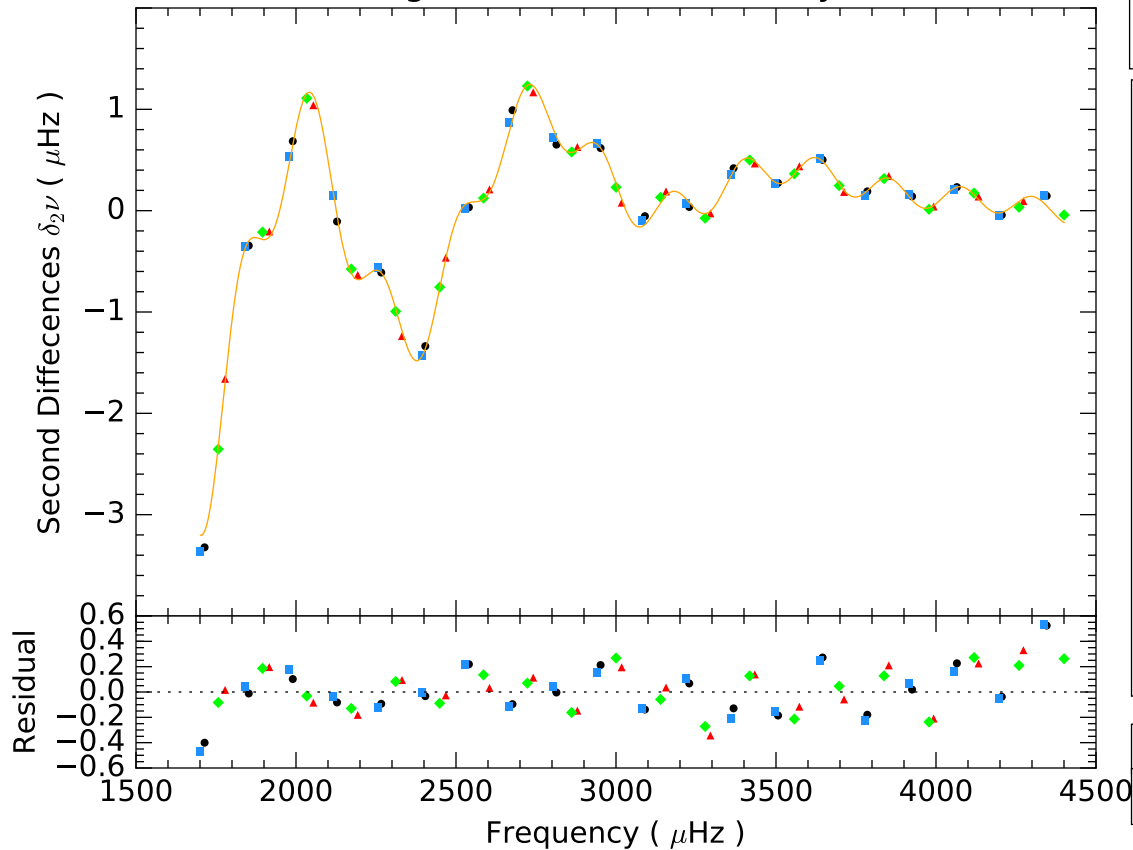
$$\tau_{HI} = 404.92 \text{ s}$$

$$\phi_{HI} = 0.64388$$

profile25

$$\chi^2_\nu(\text{dof} = 65) = 0.050822$$

Age after ZAMS: 4.210 Gyr



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

$$a_0 = -2.7347 \mu\text{Hz}$$

$$a_1 = 0.0018577$$

$$a_2 = -2.828e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.005684$$

$$c_2 = 4.0408e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 634.39 \text{ s}$$

$$\phi_{\text{HeII}} = 4.5026$$

$$b_2 = 1.9304e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2219.5 \text{ s}$$

$$\phi_{\text{CZ}} = 0.92637$$

$$d_0 = 0.025749$$

$$d_2 = 9.0682e-07 \mu\text{Hz}^{-2}$$

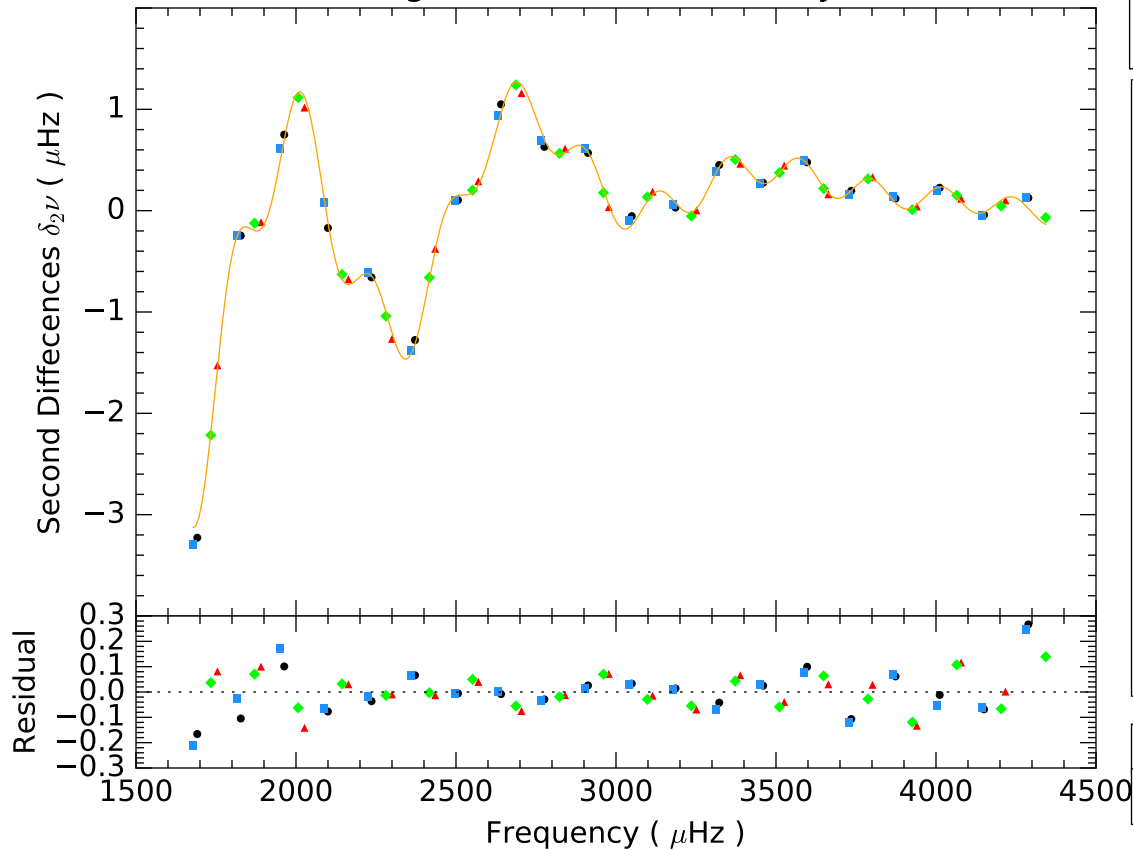
$$\tau_{\text{HI}} = 410.65 \text{ s}$$

$$\phi_{\text{HI}} = 0.66254$$

profile26

$$\chi^2_{\nu}(\text{dof} = 65) = 0.043772$$

Age after ZAMS: 4.510 Gyr



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

$$a_0 = -2.6355 \mu\text{Hz}$$

$$a_1 = 0.0018342$$

$$a_2 = -2.8505e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0057099$$

$$c_2 = 4.1487e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 646.58 \text{ s}$$

$$\phi_{HeII} = 4.4645$$

$$b_2 = 1.894e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2253.8 \text{ s}$$

$$\phi_{CZ} = 0.85318$$

$$d_0 = 0.026093$$

$$d_2 = 9.3653e-07 \mu\text{Hz}^{-2}$$

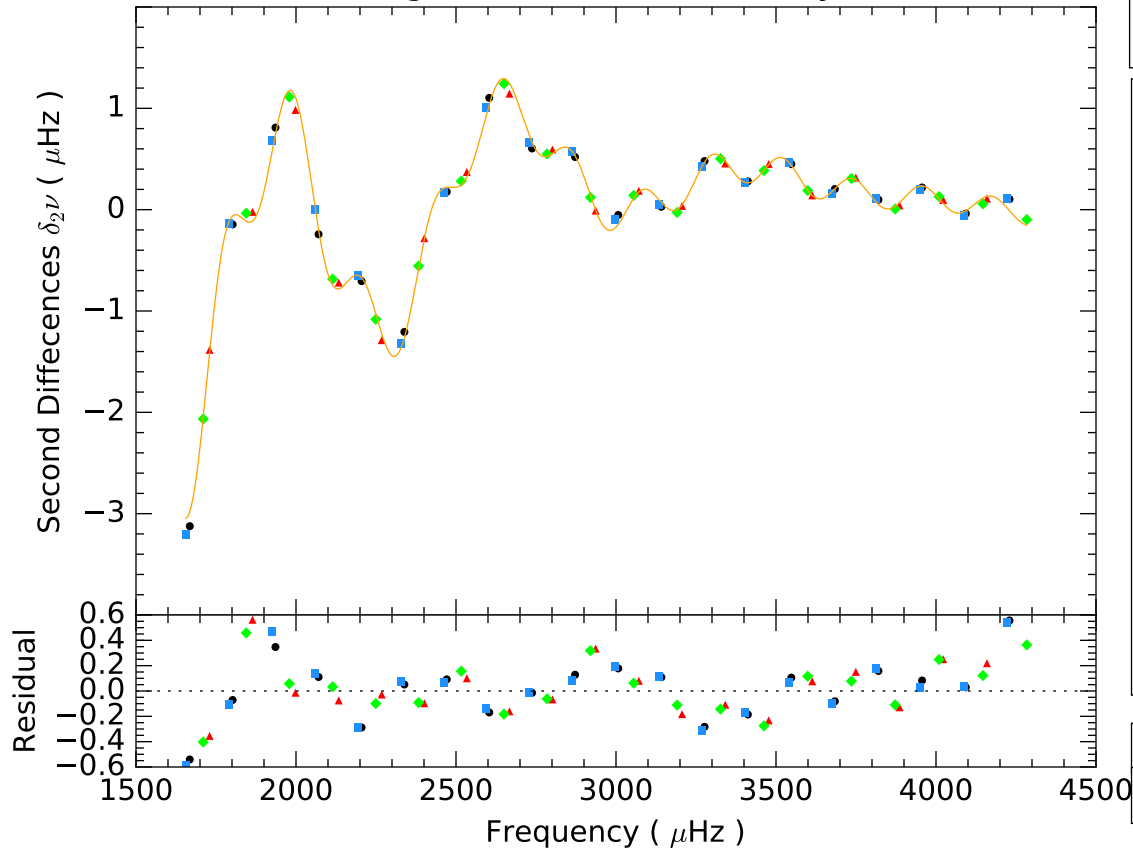
$$\tau_{HI} = 418.3 \text{ s}$$

$$\phi_{HI} = 0.63353$$

profile27

$$\chi^2_\nu(\text{dof} = 65) = 0.0081833$$

# Age after ZAMS: 4.810 Gyr



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

$$a_0 = -2.5424 \mu\text{Hz}$$

$$a_1 = 0.0018144$$

$$a_2 = -2.881e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0057362$$

$$c_2 = 4.2639e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 659.34 \text{ s}$$

$$\phi_{\text{HeII}} = 4.4299$$

$$b_2 = 1.8828e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2290.6 \text{ s}$$

$$\phi_{\text{CZ}} = 0.77111$$

$$d_0 = 0.026455$$

$$d_2 = 9.6845e-07 \mu\text{Hz}^{-2}$$

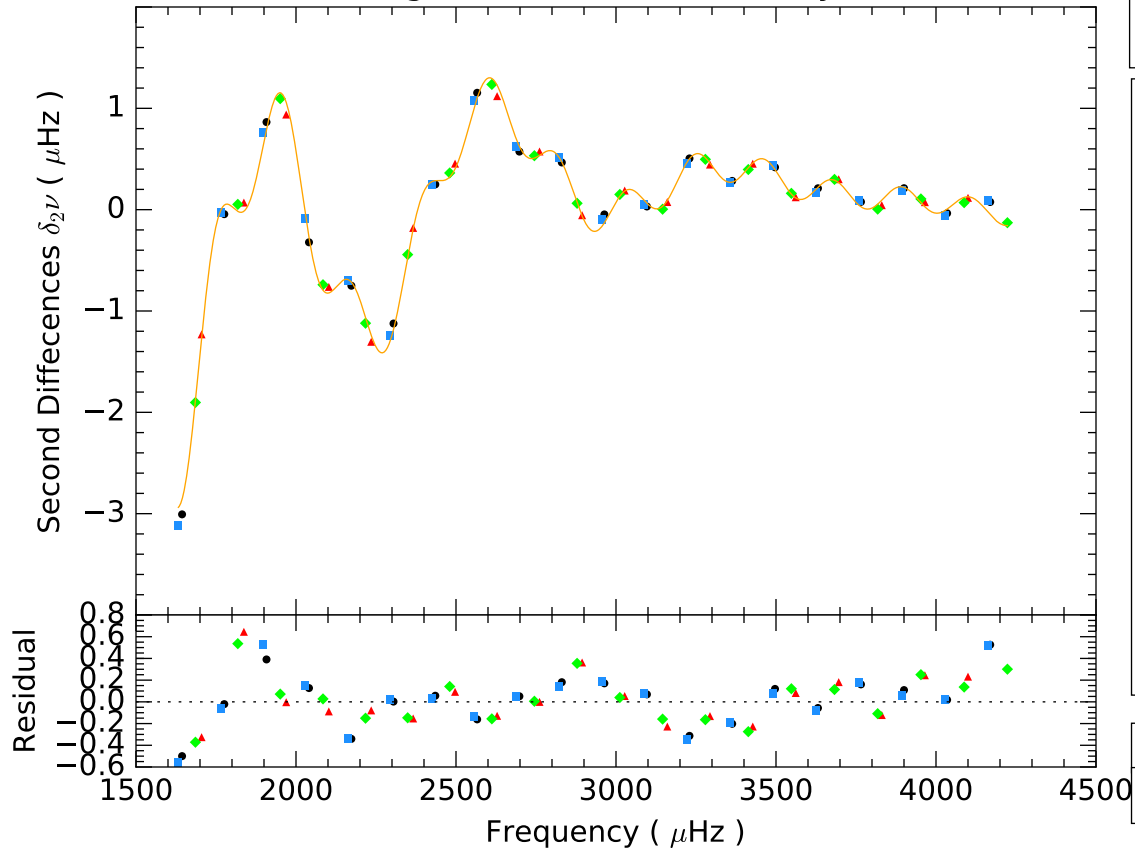
$$\tau_{\text{HI}} = 427.21 \text{ s}$$

$$\phi_{\text{HI}} = 0.585$$

profile28

$$\chi^2_\nu(\text{dof} = 65) = 0.063267$$

Age after ZAMS: 5.110 Gyr



$$a_0 = -2.4609 \mu\text{Hz}$$

$$a_1 = 0.0018019$$

$$a_2 = -2.9256e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.00576$$

$$c_2 = 4.3864e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 672.18 \text{ s}$$

$$\phi_{HeII} = 4.4173$$

$$b_2 = 1.7694e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2331.5 \text{ s}$$

$$\phi_{CZ} = 0.63646$$

$$d_0 = 0.026837$$

$$d_2 = 1.0041e-06 \mu\text{Hz}^{-2}$$

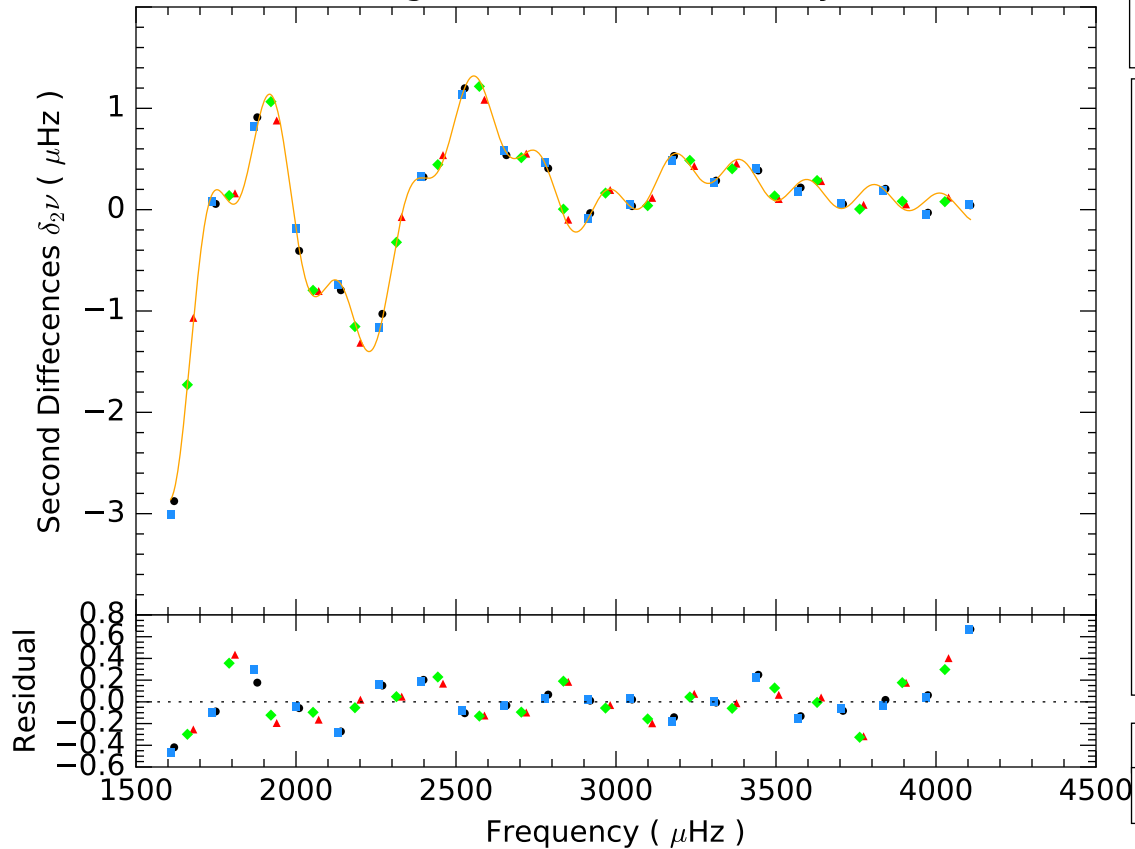
$$\tau_{HI} = 436.29 \text{ s}$$

$$\phi_{HI} = 0.55424$$

profile29

$$\chi^2_\nu(\text{dof} = 65) = 0.067333$$

Age after ZAMS: 5.410 Gyr



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

$$a_0 = -2.0661 \mu\text{Hz}$$

$$a_1 = 0.0015751$$

$$a_2 = -2.6168e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0051104$$

$$c_2 = 4.4334e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 697.16 \text{ s}$$

$$\phi_{HeII} = 4.0492$$

$$b_2 = 1.7401e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2395.4 \text{ s}$$

$$\phi_{CZ} = 0.023779$$

$$d_0 = 0.014689$$

$$d_2 = 8.9597e-07 \mu\text{Hz}^{-2}$$

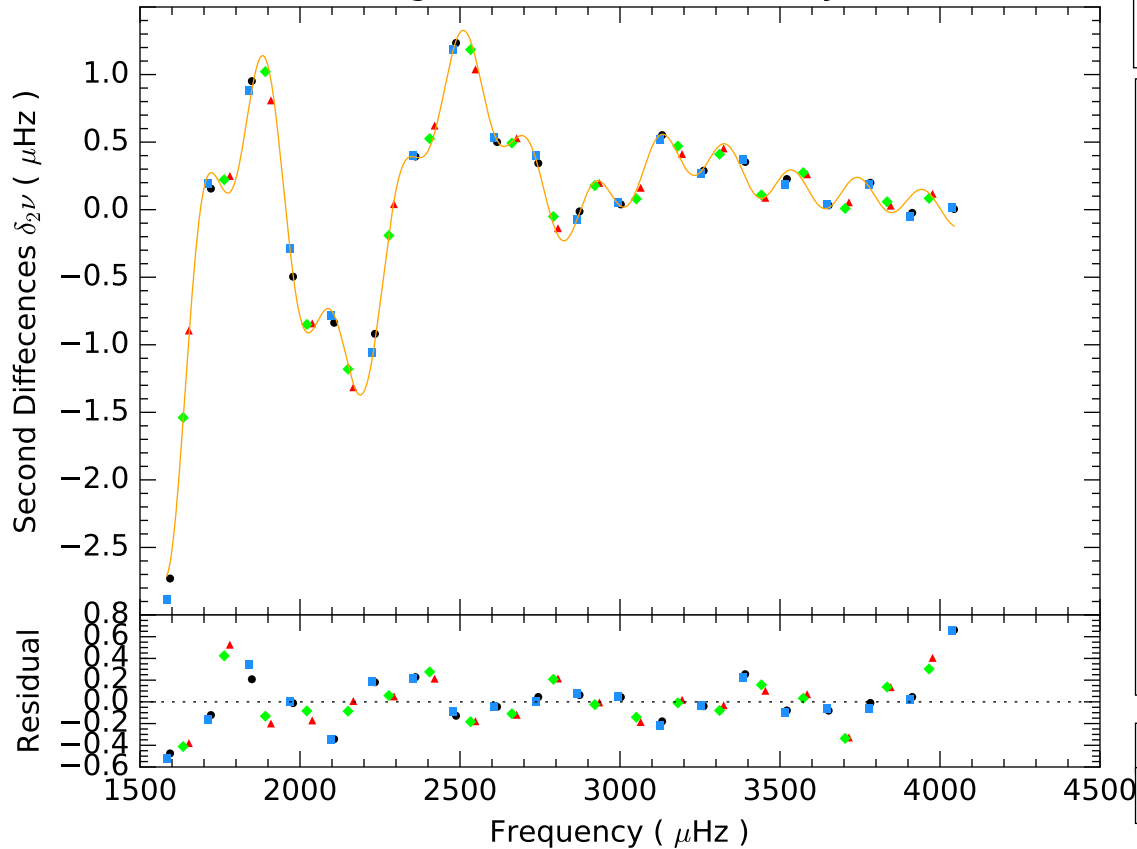
$$\tau_{HI} = 397.2 \text{ s}$$

$$\phi_{HI} = 1.5255$$

profile30

$$\chi^2_\nu(\text{dof} = 64) = 0.052364$$

Age after ZAMS: 5.710 Gyr



$$a_0 = -1.9652 \mu\text{Hz}$$

$$a_1 = 0.001555$$

$$a_2 = -2.6604e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0060764$$

$$c_2 = 4.7818e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 705.05 \text{ s}$$

$$\phi_{\text{HeII}} = 4.2432$$

$$b_2 = 1.673e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2437.3 \text{ s}$$

$$\phi_{\text{CZ}} = 0.018464$$

$$d_0 = 0.027797$$

$$d_2 = 1.0725e-06 \mu\text{Hz}^{-2}$$

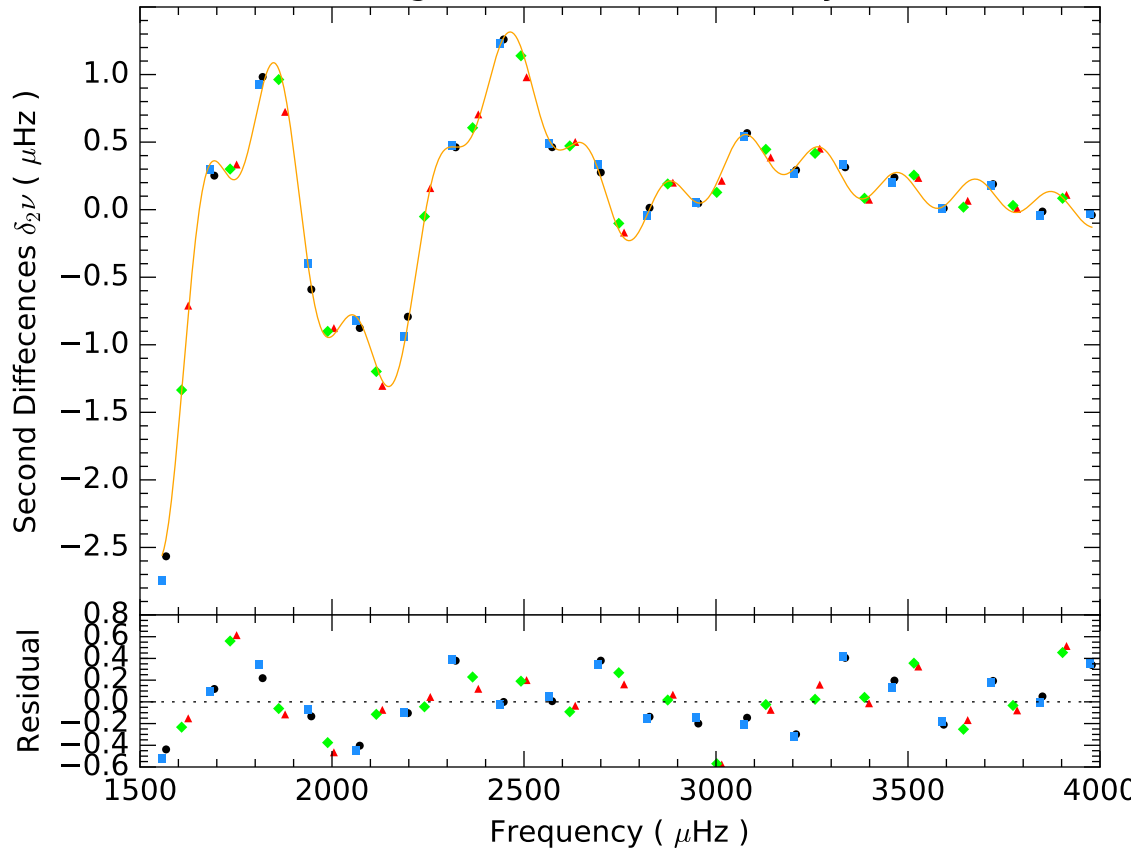
$$\tau_{\text{HI}} = 442.71 \text{ s}$$

$$\phi_{\text{HI}} = 0.71693$$

profile31

$$\chi^2_{\nu}(\text{dof} = 64) = 0.063364$$

Age after ZAMS: 6.010 Gyr



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

$$a_0 = -1.8627 \mu\text{Hz}$$

$$a_1 = 0.001526$$

$$a_2 = -2.6838e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0060632$$

$$c_2 = 4.939e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 720.35 \text{ s}$$

$$\phi_{\text{HeII}} = 4.2384$$

$$b_2 = 1.507e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2481.7 \text{ s}$$

$$\phi_{\text{CZ}} = 1e-10$$

$$d_0 = 0.028251$$

$$d_2 = 1.1195e-06 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HI}} = 450.03 \text{ s}$$

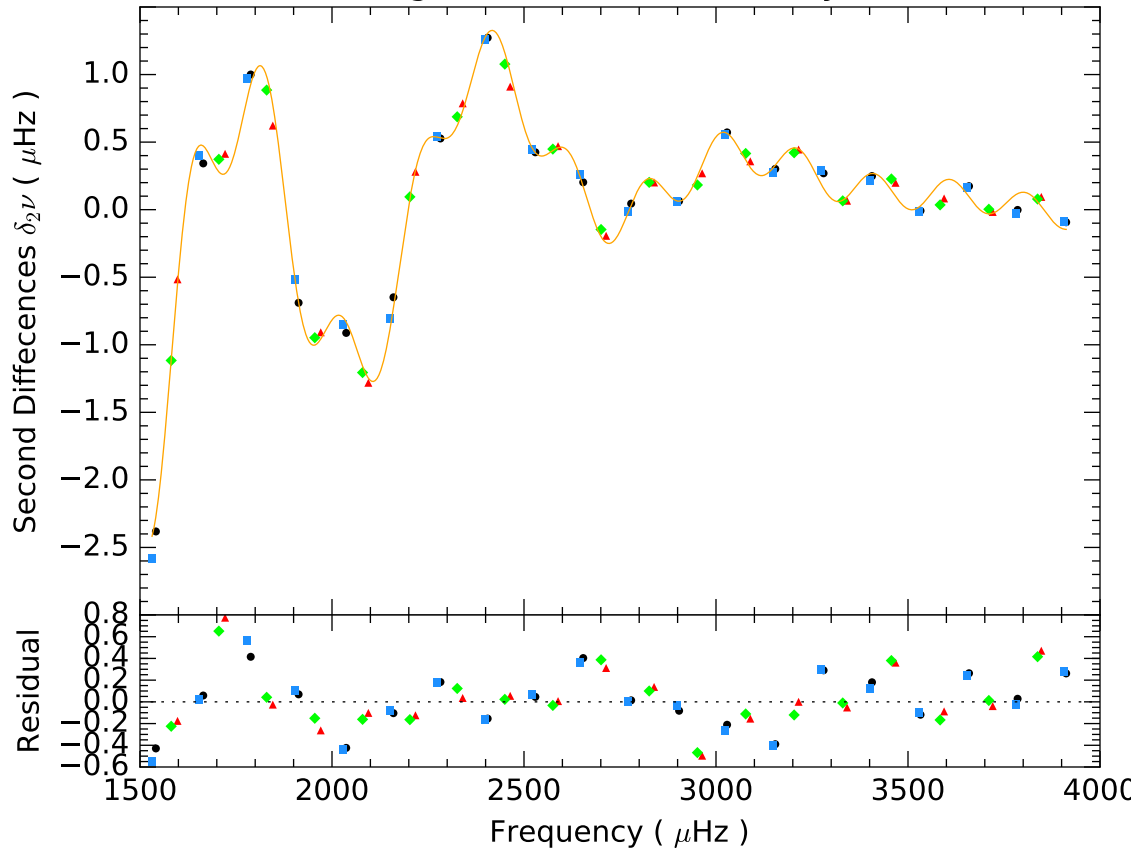
$$\phi_{\text{HI}} = 0.75736$$

profile32

$$\chi^2_\nu (\text{dof} = 64) = 0.088858$$



Age after ZAMS: 6.310 Gyr



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

$$a_0 = -1.7702 \mu \text{ Hz}$$

$$a_1 = 0.0015038$$

$$a_2 = -2.7227e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0059048$$

$$c_2 = 5.0619e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 736.66 \text{ s}$$

$$\phi_{\text{HeII}} = 4.2343$$

$$b_2 = 1.4986e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2528.5 \text{ s}$$

$$\phi_{\text{CZ}} = 1e-10$$

$$d_0 = 0.028732$$

$$d_2 = 1.1741e-06 \mu\text{Hz}^{-2}$$

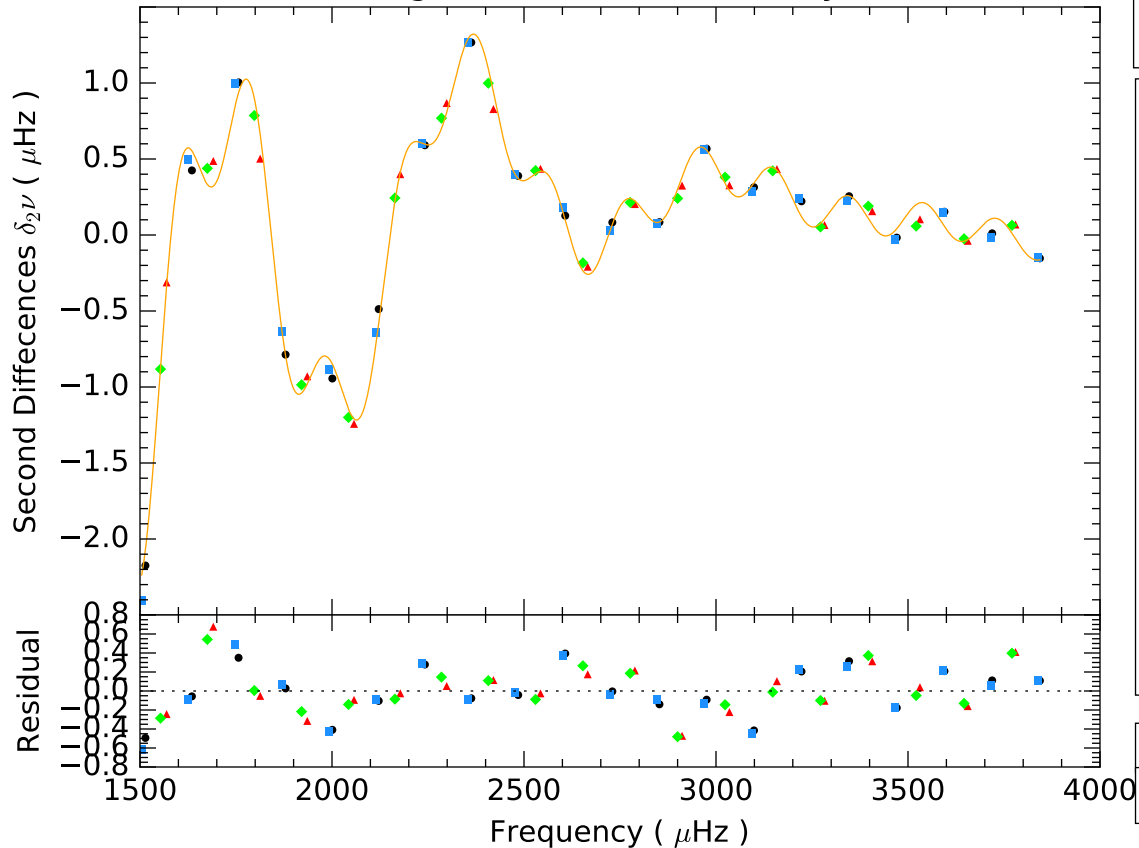
$$\tau_{\text{HI}} = 457.45 \text{ s}$$

$$\phi_{\text{HI}} = 0.80103$$

profile33

$$\chi^2_{\nu}(\text{dof} = 64) = 0.086824$$

# Age after ZAMS: 6.610 Gyr



$$a_0 = -1.8509 \mu\text{Hz}$$

$$a_1 = 0.0015989$$

$$a_2 = -2.9605e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0061693$$

$$c_2 = 5.2947e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 751.32 \text{ s}$$

$$\phi_{\text{HeII}} = 4.3$$

$$b_2 = 1.4202e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2578.5 \text{ s}$$

$$\phi_{\text{CZ}} = 4.2347e-22$$

$$d_0 = 0.029245$$

$$d_2 = 1.2218e-06 \mu\text{Hz}^{-2}$$

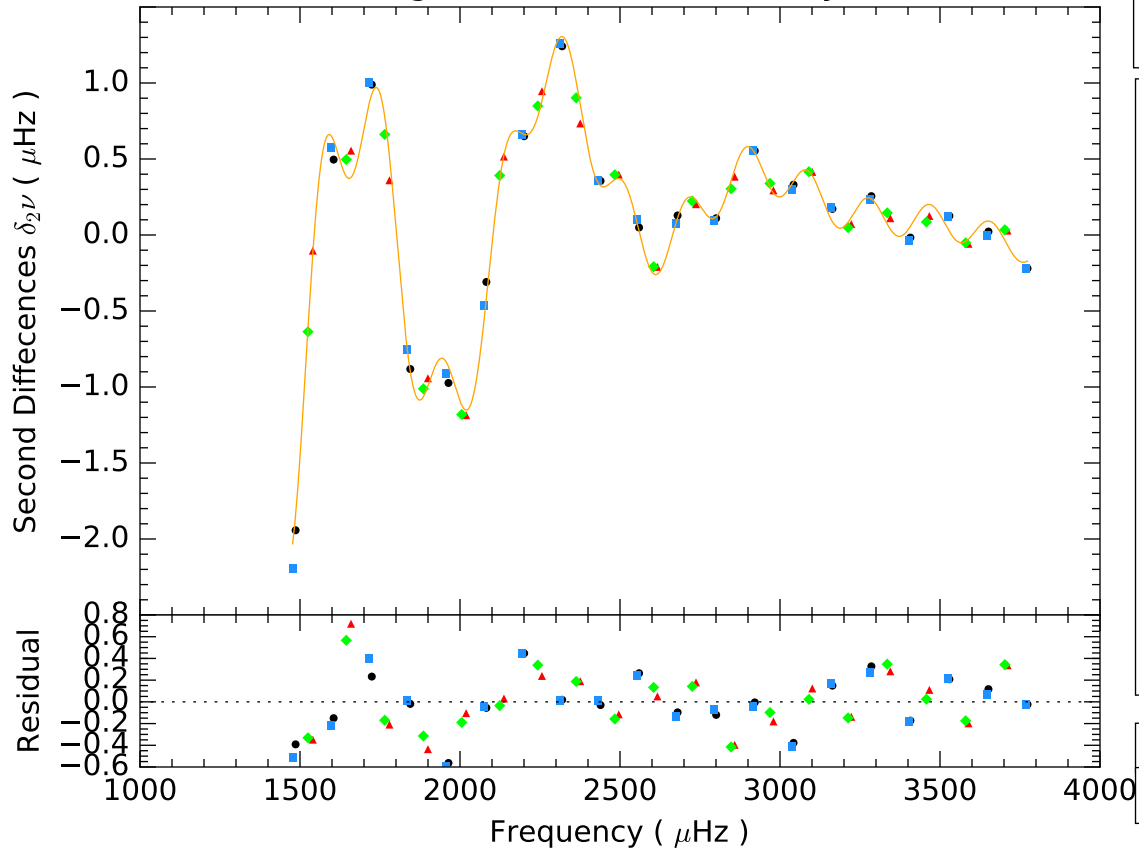
$$\tau_{\text{HI}} = 489.23 \text{ s}$$

$$\phi_{\text{HI}} = 0.37414$$

profile34

$$\chi^2_\nu(\text{dof} = 64) = 0.081383$$

# Age after ZAMS: 6.910 Gyr



$$a_0 = -1.8453 \mu\text{Hz}$$

$$a_1 = 0.0016393$$

$$a_2 = -3.1193e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0061926$$

$$c_2 = 5.492e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 767.94 \text{ s}$$

$$\phi_{HeII} = 4.3482$$

$$b_2 = 1.3136e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2630.6 \text{ s}$$

$$\phi_{CZ} = 0.038137$$

$$d_0 = 0.029787$$

$$d_2 = 1.2836e-06 \mu\text{Hz}^{-2}$$

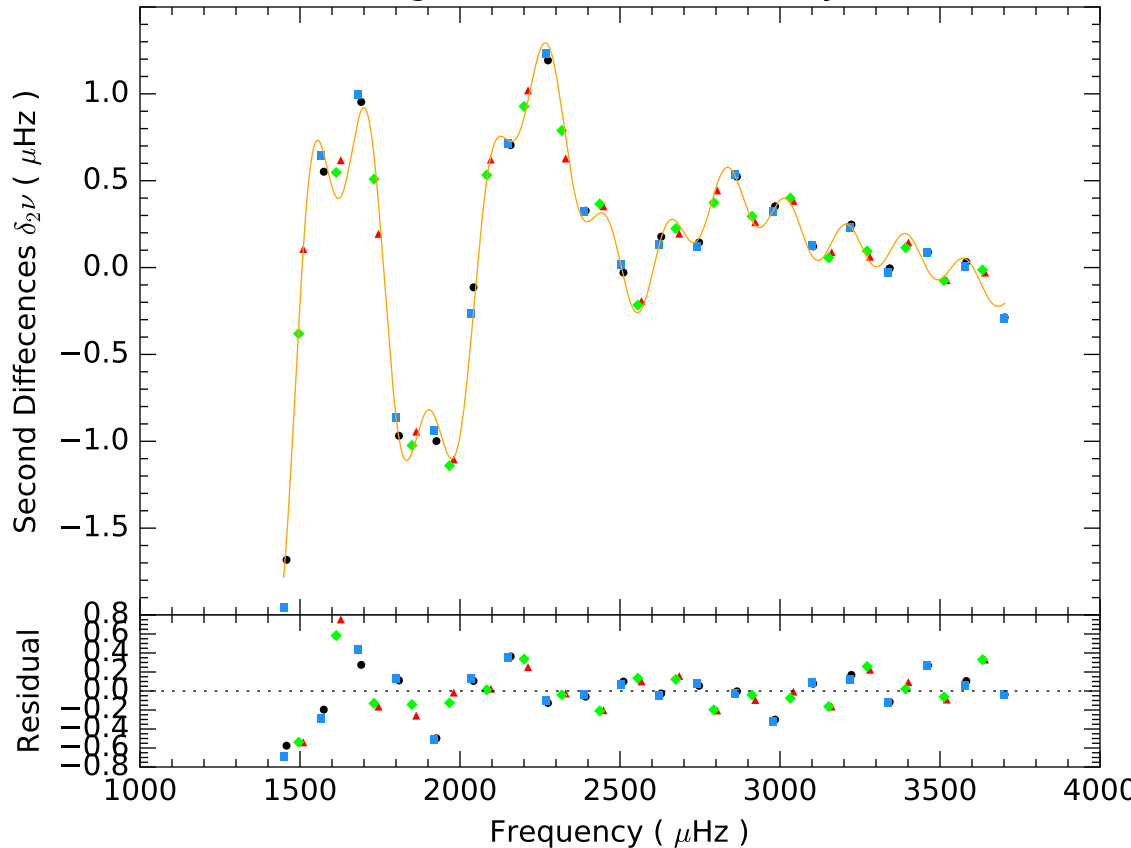
$$\tau_{HI} = 507.76 \text{ s}$$

$$\phi_{HI} = 0.24793$$

profile35

$$\chi^2_\nu(\text{dof} = 64) = 0.084933$$

# Age after ZAMS: 7.210 Gyr

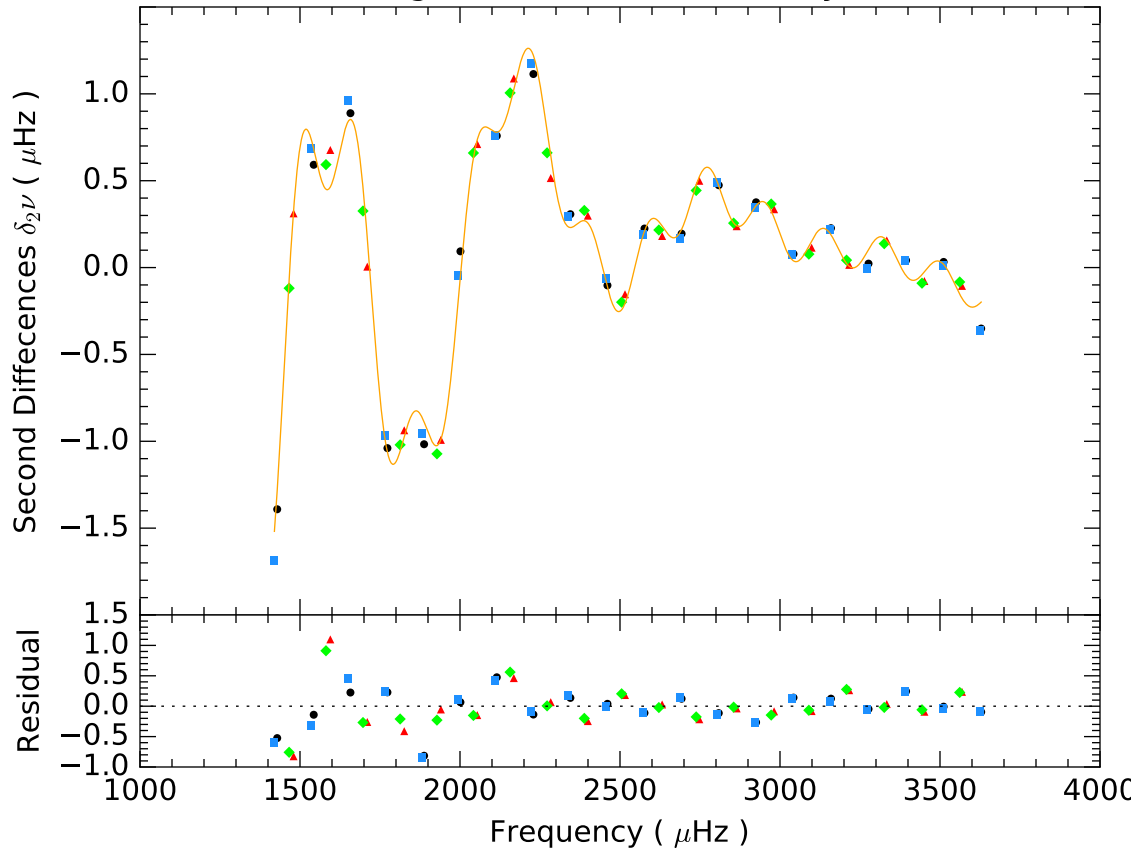


- $\bullet$   $\ell=0$
- $\blacktriangle$   $\ell=1$
- $\blacksquare$   $\ell=2$
- $\blacklozenge$   $\ell=3$
- fit

$a_0 = -2.4124 \mu\text{Hz}$   
 $a_1 = 0.002075$   
 $a_2 = -3.9546e-07 \mu\text{Hz}^{-2}$   
 $c_0 = 0.0054112$   
 $c_2 = 5.7062e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HeII}} = 814.3 \text{ s}$   
 $\phi_{\text{HeII}} = 3.5666$   
 $b_2 = 1.2215e+06 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 2686.5 \text{ s}$   
 $\phi_{\text{CZ}} = 0.081993$   
 $d_0 = 0.0058183$   
 $d_2 = 8.2723e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HI}} = 515.69 \text{ s}$   
 $\phi_{\text{HI}} = 6.2831$

**profile36**  
 $\chi^2_\nu(\text{dof} = 64) = 0.078047$

# Age after ZAMS: 7.510 Gyr



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

$$a_0 = -2.2346 \mu\text{Hz}$$

$$a_1 = 0.0020091$$

$$a_2 = -3.9673e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0056984$$

$$c_2 = 5.9401e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 824.76 \text{ s}$$

$$\phi_{HeII} = 3.8647$$

$$b_2 = 1.0915e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2744.8 \text{ s}$$

$$\phi_{CZ} = 0.19279$$

$$d_0 = 0.0089865$$

$$d_2 = 1.0009e-06 \mu\text{Hz}^{-2}$$

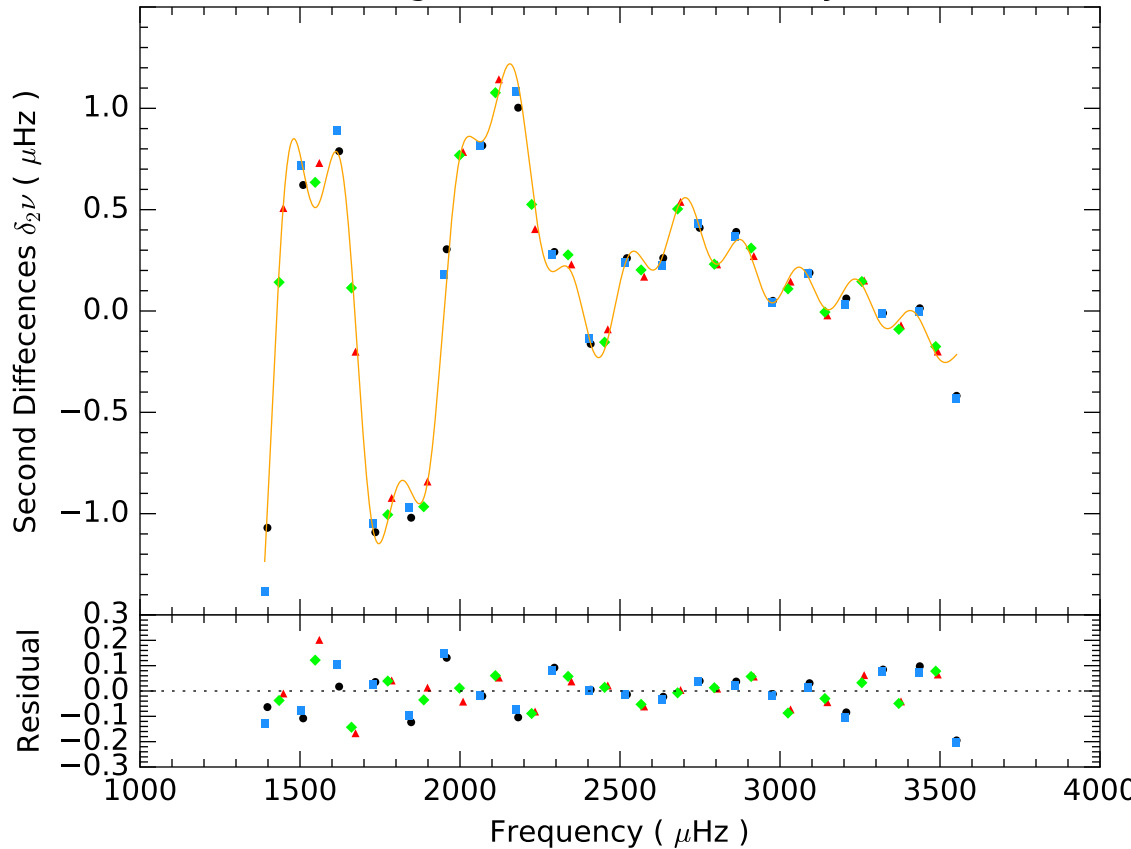
$$\tau_{HI} = 535.14 \text{ s}$$

$$\phi_{HI} = 6.283$$

profile37

$$\chi^2_\nu(\text{dof} = 64) = 0.12928$$

# Age after ZAMS: 7.810 Gyr



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

$$a_0 = -2.4655 \mu\text{Hz}$$

$$a_1 = 0.0022411$$

$$a_2 = -4.523e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0053547$$

$$c_2 = 6.2002e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 852.62 \text{ s}$$

$$\phi_{HeII} = 3.7732$$

$$b_2 = 9.4237e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 2808.4 \text{ s}$$

$$\phi_{CZ} = 0.34893$$

$$d_0 = 0.0050902$$

$$d_2 = 8.8734e-07 \mu\text{Hz}^{-2}$$

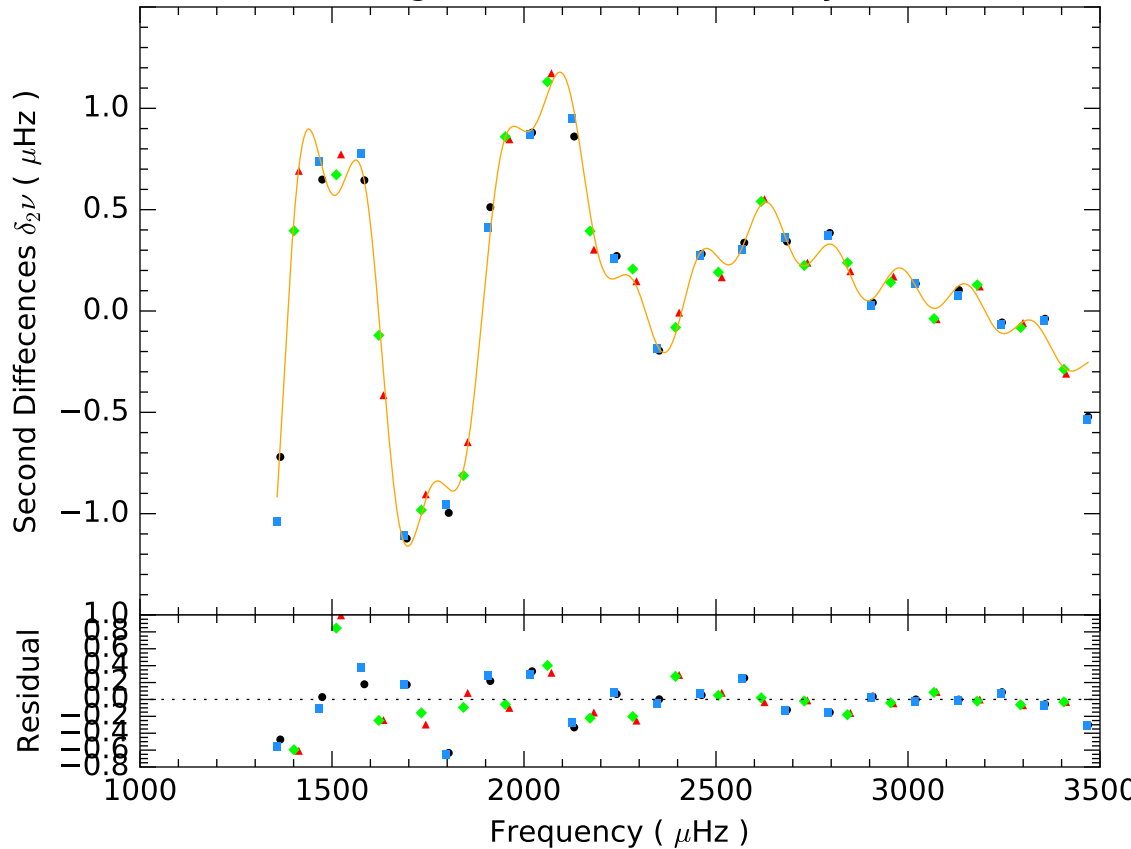
$$\tau_{HI} = 536.35 \text{ s}$$

$$\phi_{HI} = 0.23342$$

profile38

$$\chi^2_\nu(\text{dof} = 64) = 0.0073092$$

Age after ZAMS: 8.110 Gyr



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

$a_0 = -2.815 \mu \text{ Hz}$
$a_1 = 0.0025891$
$a_2 = -5.3518e-07 \mu\text{Hz}^{-2}$
$c_0 = 0.0050635$
$c_2 = 6.4978e-07 \mu\text{Hz}^{-2}$
$\tau_{\text{HeII}} = 884.31 \text{ s}$
$\phi_{\text{HeII}} = 3.6954$
$b_2 = 8.1114e+05 \text{ mHz}^3$
$\tau_{\text{CZ}} = 2879.5 \text{ s}$
$\phi_{\text{CZ}} = 0.56921$
$d_0 = 0.0026379$
$d_2 = 7.5165e-07 \mu\text{Hz}^{-2}$
$\tau_{\text{HI}} = 537.89 \text{ s}$
$\phi_{\text{HI}} = 0.51815$

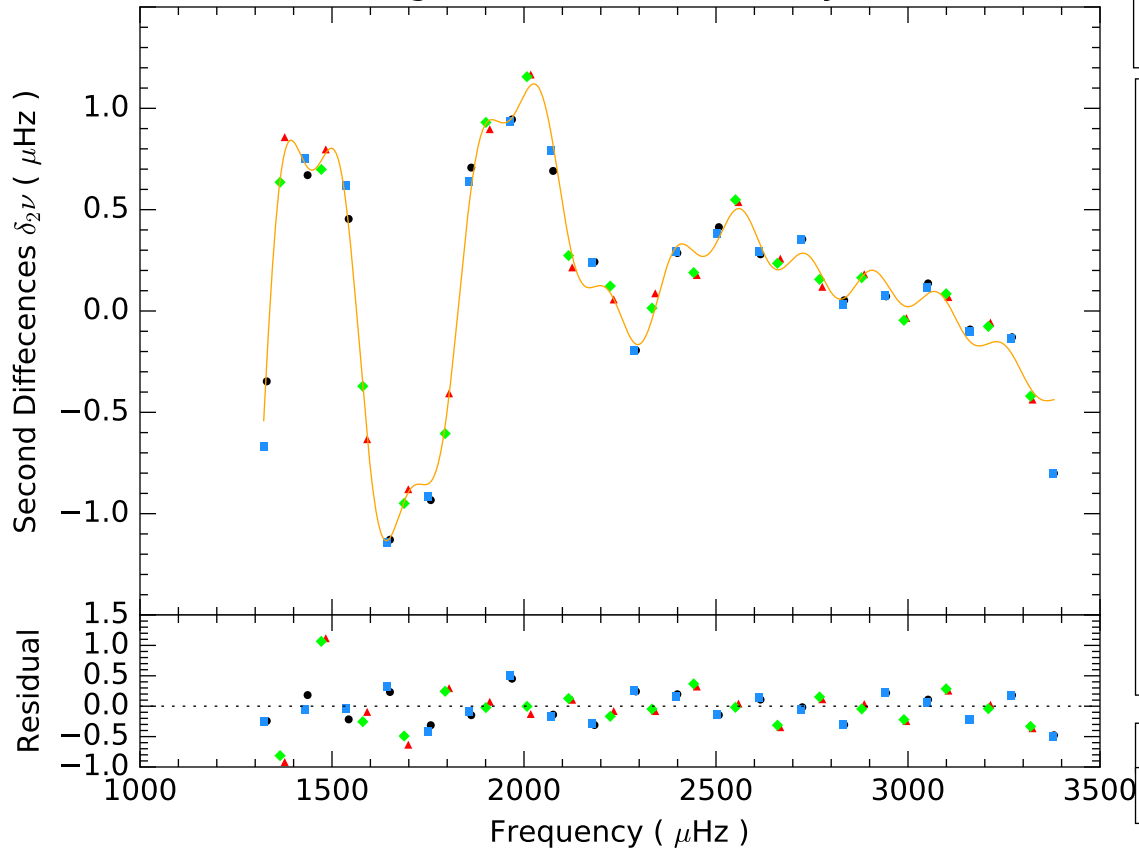
  

profile39
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$\chi^2_{\nu}(\text{dof} = 64) = 0.093051$
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Age after ZAMS: 8.410 Gyr



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

$$a_0 = -4.465 \mu\text{Hz}$$

$$a_1 = 0.0039866$$

$$a_2 = -8.2618e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0050141$$

$$c_2 = 6.7083e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 897.24 \text{ s}$$

$$\phi_{HeII} = 4.2089$$

$$b_2 = 6.4956e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 2907.8 \text{ s}$$

$$\phi_{CZ} = 2.1191$$

$$d_0 = 0.00096212$$

$$d_2 = 5.2583e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HI} = 413.47 \text{ s}$$

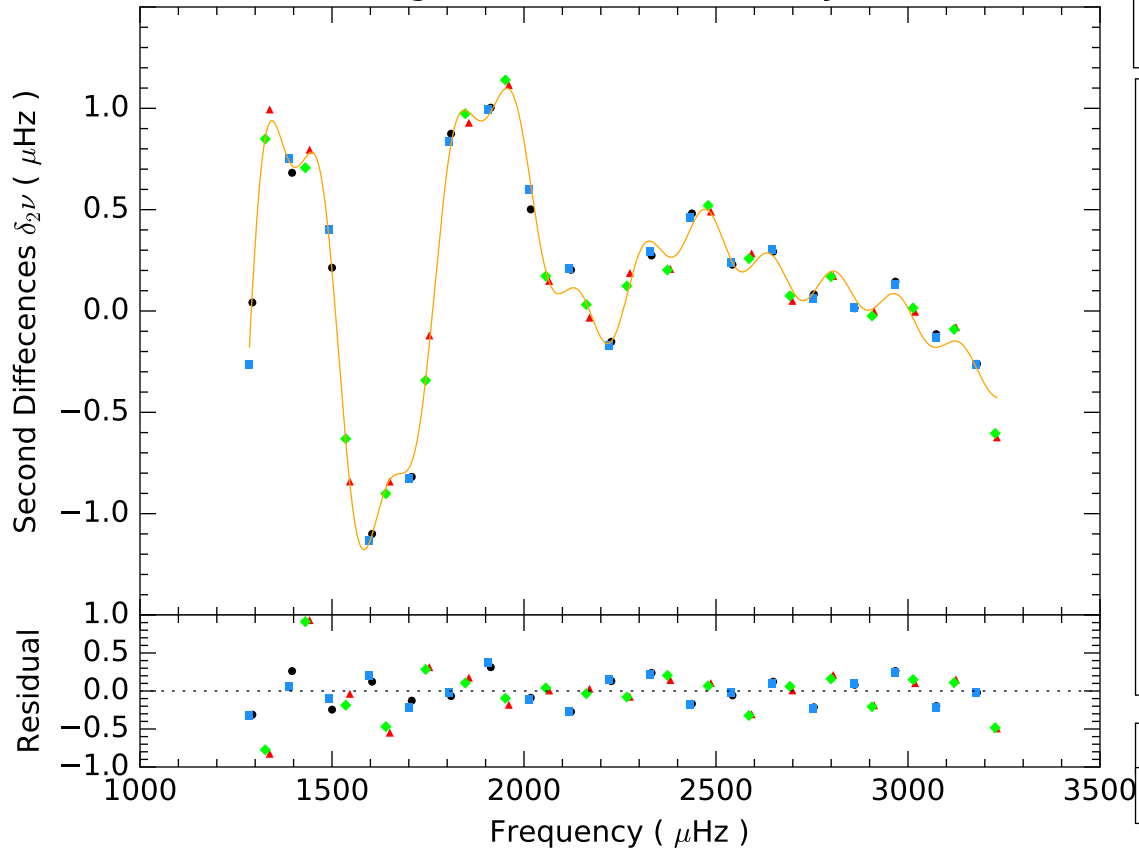
$$\phi_{HI} = 4.2235$$

profile40

$$\chi^2_\nu(\text{dof} = 64) = 0.13108$$



Age after ZAMS: 8.708 Gyr



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

$$a_0 = -4.2451 \mu\text{Hz}$$

$$a_1 = 0.0039381$$

$$a_2 = -8.4711e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0057324$$

$$c_2 = 7.4865e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 927.21 \text{ s}$$

$$\phi_{HeII} = 4.2988$$

$$b_2 = 6.3685e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 3015.2 \text{ s}$$

$$\phi_{CZ} = 2.004$$

$$d_0 = 0.0015104$$

$$d_2 = 6.7272e-07 \mu\text{Hz}^{-2}$$

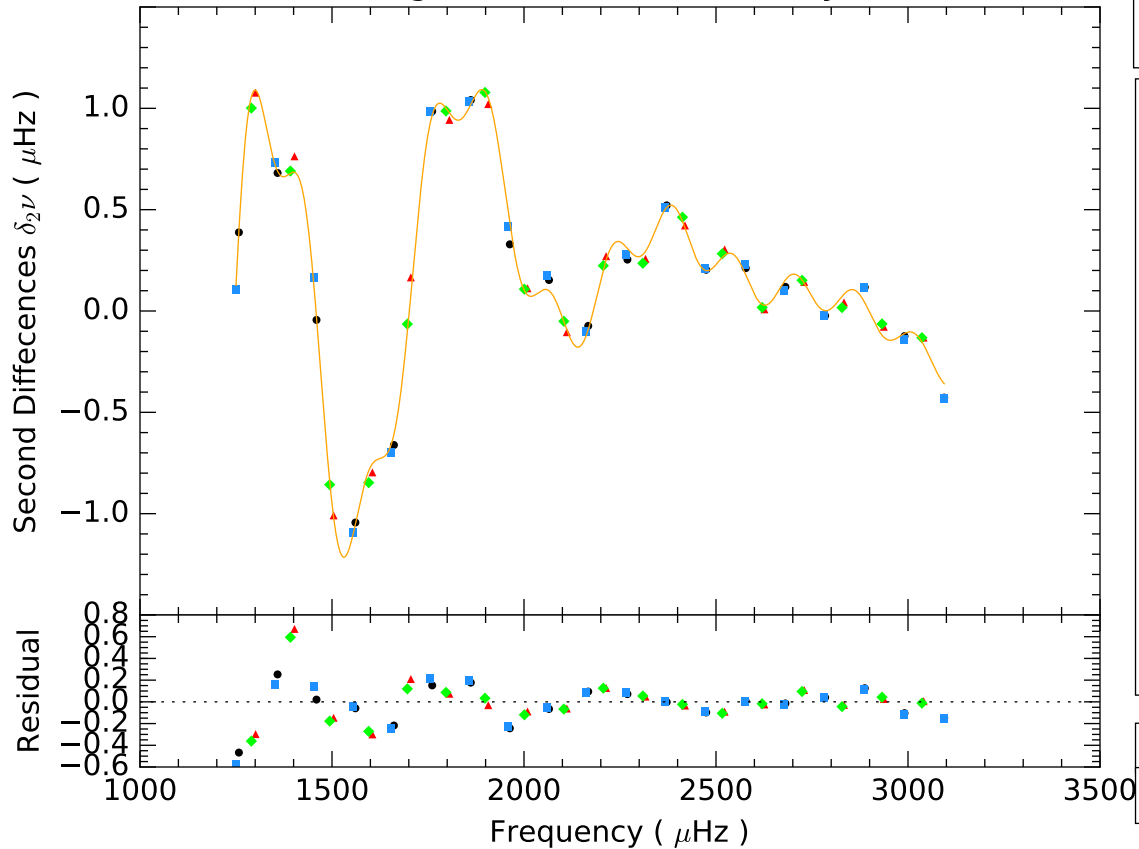
$$\tau_{HI} = 425.24 \text{ s}$$

$$\phi_{HI} = 4.3263$$

profile41

$$\chi^2_\nu(\text{dof} = 62) = 0.10043$$

Age after ZAMS: 8.972 Gyr



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

$$a_0 = -4.6013 \mu \text{ Hz}$$

$$a_1 = 0.0042783$$

$$a_2 = -9.3266e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0056289$$

$$c_2 = 7.7534e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 947.78 \text{ s}$$

$$\phi_{HeII} = 4.6087$$

$$b_2 = 6.108e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 3156.6 \text{ s}$$

$$\phi_{CZ} = 1.1312$$

$$d_0 = 0.0028393$$

$$d_2 = 8.5795e-07 \mu\text{Hz}^{-2}$$

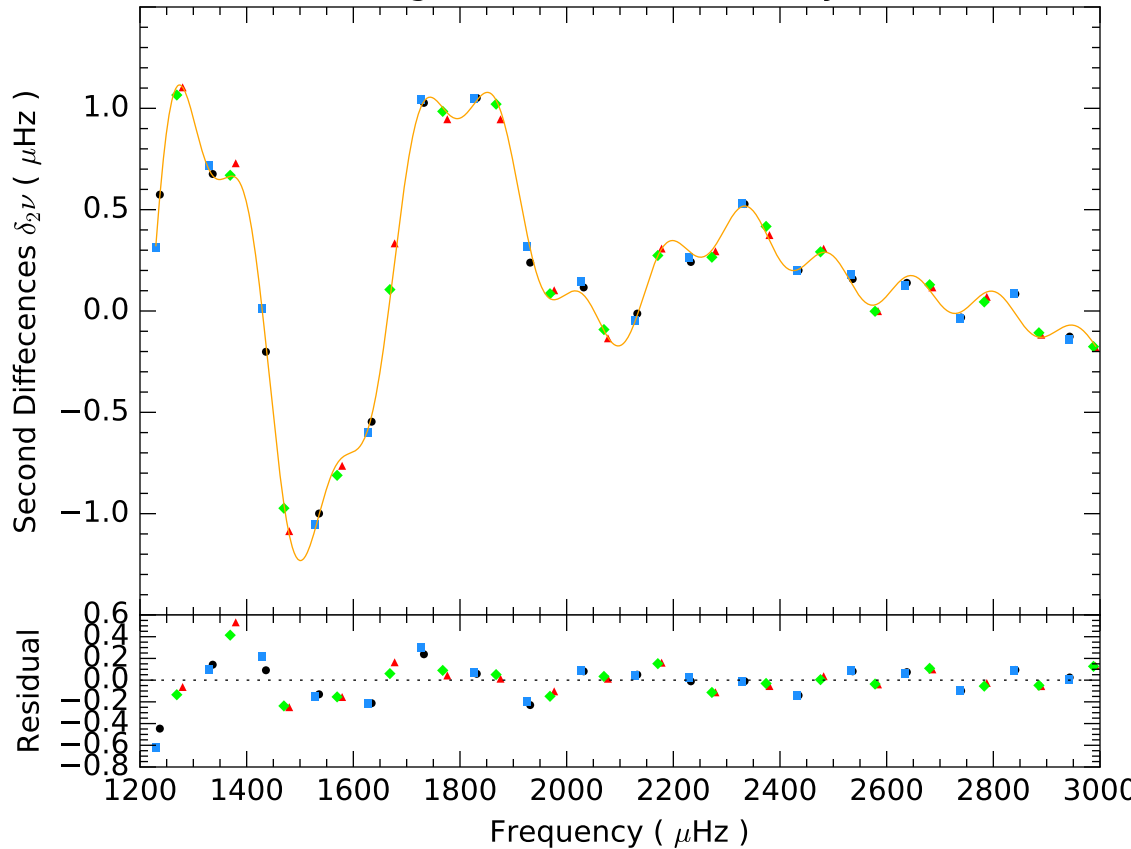
$$\tau_{HI} = 345.1 \text{ s}$$

$$\phi_{HI} = 0.16776$$

profile42

$$\chi^2_\nu(\text{dof} = 60) = 0.043567$$

Age after ZAMS: 9.117 Gyr



$$a_0 = -2.4654 \mu\text{Hz}$$

$$a_1 = 0.0026297$$

$$a_2 = -6.2406e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0071716$$

$$c_2 = 8.7323e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 969.7 \text{ s}$$

$$\phi_{\text{HeII}} = 4.5085$$

$$b_2 = 5.8913e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3229.8 \text{ s}$$

$$\phi_{\text{CZ}} = 0.92014$$

$$d_0 = 0.0073524$$

$$d_2 = 1.3412e-06 \mu\text{Hz}^{-2}$$

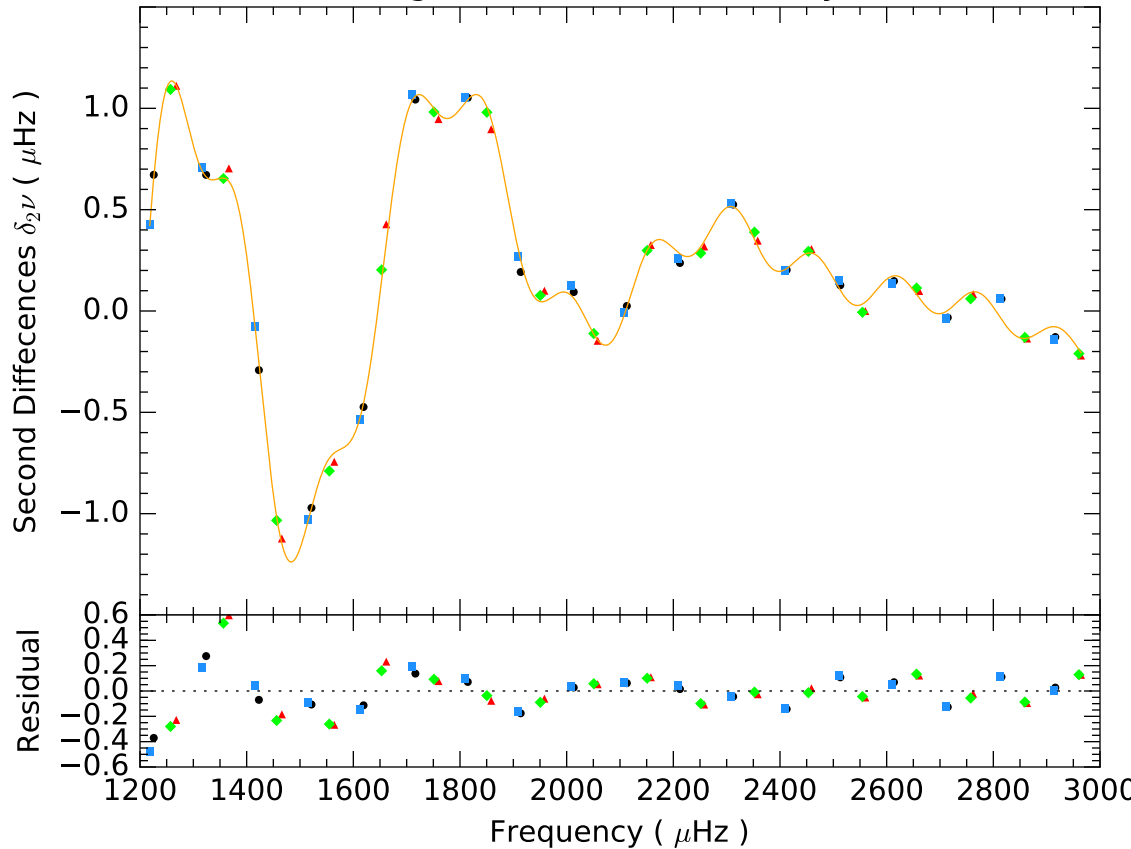
$$\tau_{\text{HI}} = 557.74 \text{ s}$$

$$\phi_{\text{HI}} = 2.0451$$

profile43

$$\chi^2_\nu(\text{dof} = 58) = 0.035032$$

Age after ZAMS: 9.197 Gyr



$$a_0 = -2.5975 \mu\text{Hz}$$

$$a_1 = 0.0027723$$

$$a_2 = -6.6229e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0071356$$

$$c_2 = 8.8954e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 980.03 \text{ s}$$

$$\phi_{HeII} = 4.5569$$

$$b_2 = 5.7486e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 3265.7 \text{ s}$$

$$\phi_{CZ} = 0.93474$$

$$d_0 = 0.0069339$$

$$d_2 = 1.3475e-06 \mu\text{Hz}^{-2}$$

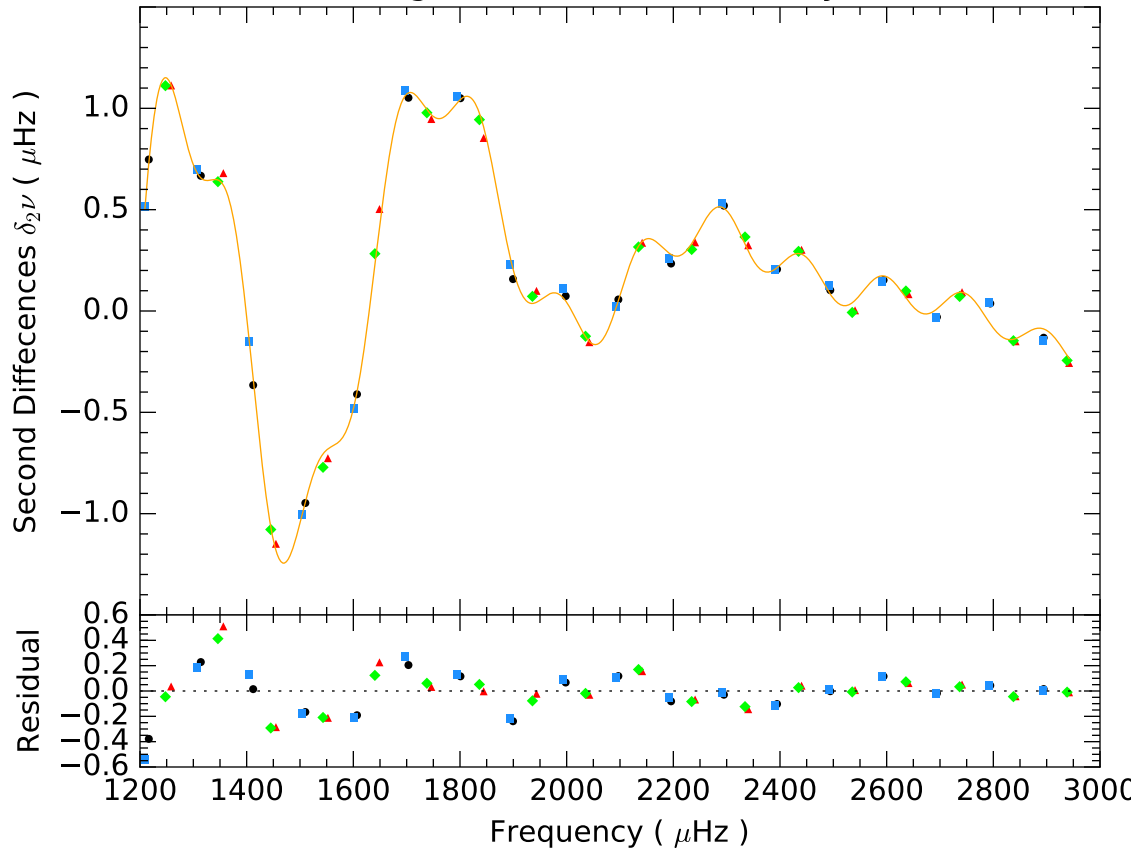
$$\tau_{HI} = 535.45 \text{ s}$$

$$\phi_{HI} = 2.65$$

profile44

$$\chi^2_\nu(\text{dof} = 58) = 0.03571$$

# Age after ZAMS: 9.260 Gyr



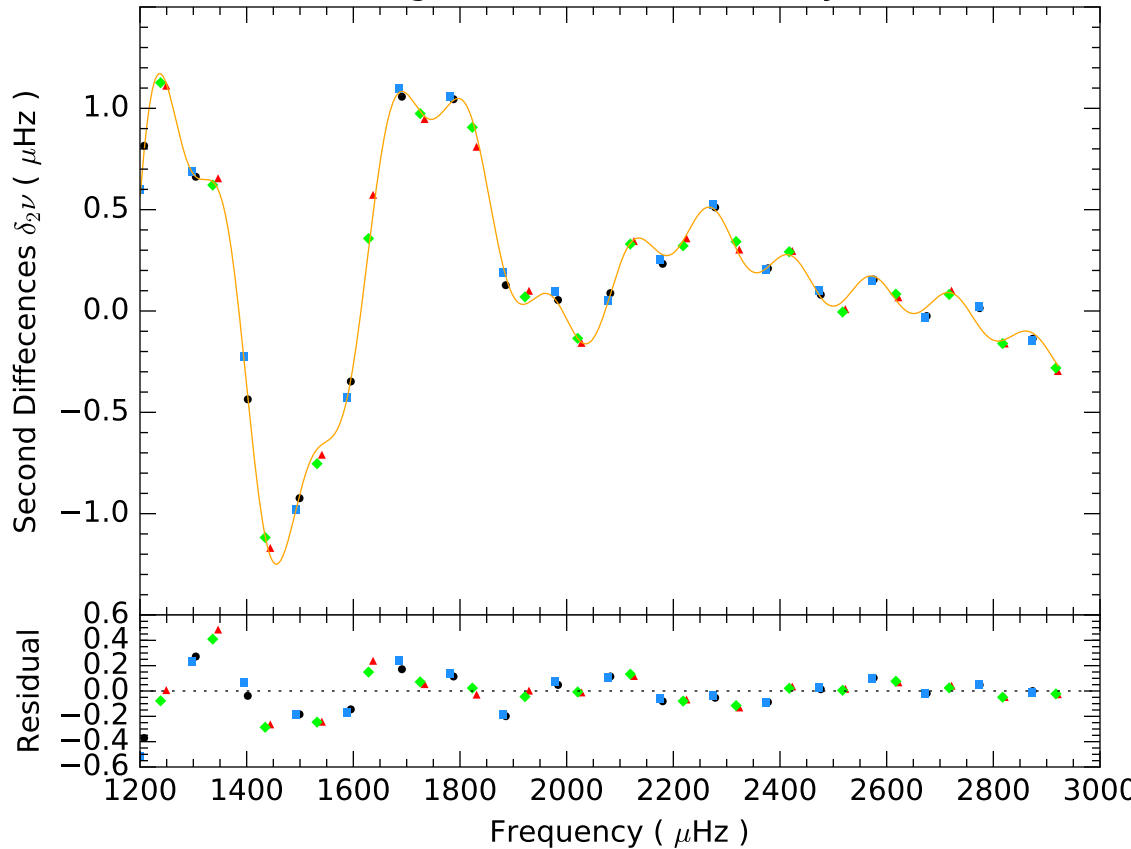
- $\bullet$   $\ell=0$
- $\blacktriangle$   $\ell=1$
- $\blacksquare$   $\ell=2$
- $\blacklozenge$   $\ell=3$
- fit

$a_0 = -2.7601 \mu \text{ Hz}$   
 $a_1 = 0.0029366$   
 $a_2 = -7.04e-07 \mu\text{Hz}^{-1}$   
 $c_0 = 0.007104$   
 $c_2 = 9.0303e-07 \mu\text{Hz}^{-2}$   
 $\tau_{\text{He II}} = 988.74 \text{ s}$   
 $\phi_{\text{He II}} = 4.5932$   
 $b_2 = 5.6469e+05 \text{ mHz}^3$   
 $\tau_{\text{CZ}} = 3295.6 \text{ s}$   
 $\phi_{\text{CZ}} = 0.94379$   
 $d_0 = 0.0065877$   
 $d_2 = 1.3445e-06 \mu\text{Hz}^{-2}$   
 $\tau_{\text{HI}} = 511.49 \text{ s}$   
 $\phi_{\text{HI}} = 3.2552$

profile45

$\chi^2_\nu(\text{dof} = 58) = 0.033296$

Age after ZAMS: 9.319 Gyr



$$a_0 = -3.7603 \mu \text{ Hz}$$

$$a_1 = 0.0037686$$

$$a_2 = -8.7768e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0067562$$

$$c_2 = 8.9887e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 991.86 \text{ s}$$

$$\phi_{HeII} = 4.766$$

$$b_2 = 5.5146e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 3321.4 \text{ s}$$

$$\phi_{CZ} = 1.0186$$

$$d_0 = 0.0076076$$

$$d_2 = 1.322e-06 \mu\text{Hz}^{-2}$$

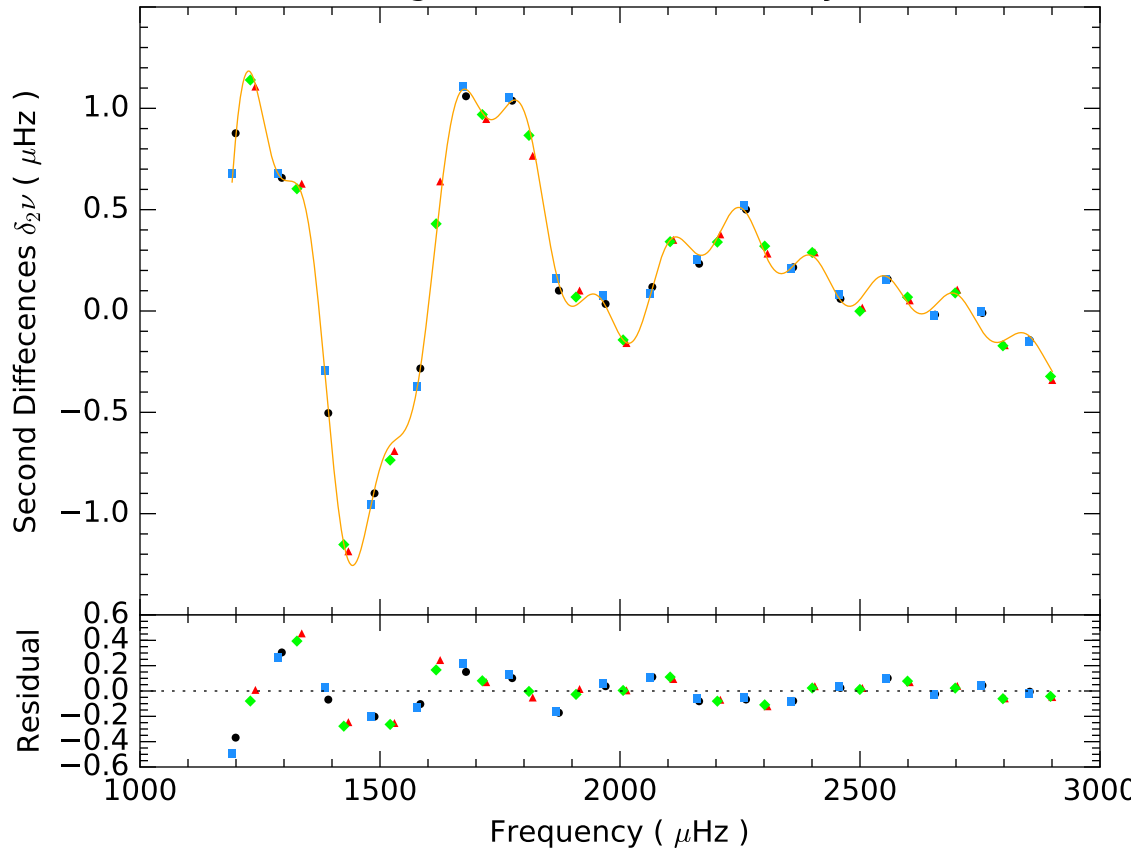
$$\tau_{HI} = 366.51 \text{ s}$$

$$\phi_{HI} = 2.9706e-06$$

profile46

$$\chi^2_\nu(\text{dof} = 58) = 0.031053$$

Age after ZAMS: 9.376 Gyr



$$a_0 = -4.0693 \mu\text{Hz}$$

$$a_1 = 0.0040564$$

$$a_2 = -9.4547e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0068404$$

$$c_2 = 9.166e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1001.2 \text{ s}$$

$$\phi_{\text{HeII}} = 4.769$$

$$b_2 = 5.4554e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3350.1 \text{ s}$$

$$\phi_{\text{CZ}} = 1.0159$$

$$d_0 = 0.0080739$$

$$d_2 = 1.3302e-06 \mu\text{Hz}^{-2}$$

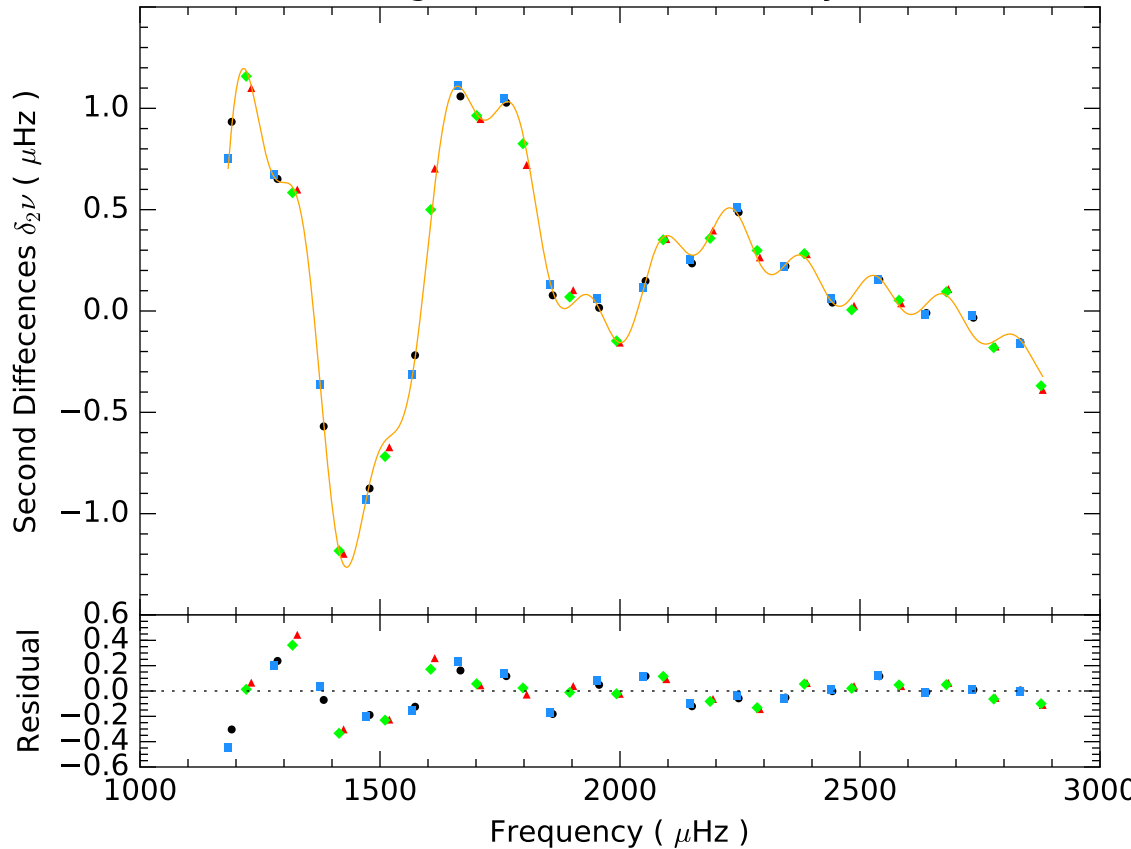
$$\tau_{\text{HI}} = 348.58 \text{ s}$$

$$\phi_{\text{HI}} = 0.4371$$

profile47

$$\chi^2_\nu(\text{dof} = 58) = 0.029747$$

Age after ZAMS: 9.430 Gyr



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

$$a_0 = -3.9802 \mu\text{Hz}$$

$$a_1 = 0.0040359$$

$$a_2 = -9.5417e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0070634$$

$$c_2 = 9.4197e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1012.2 \text{ s}$$

$$\phi_{\text{HeII}} = 4.7272$$

$$b_2 = 5.4389e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3378.9 \text{ s}$$

$$\phi_{\text{CZ}} = 1.0001$$

$$d_0 = 0.0075028$$

$$d_2 = 1.3383e-06 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HI}} = 375.34 \text{ s}$$

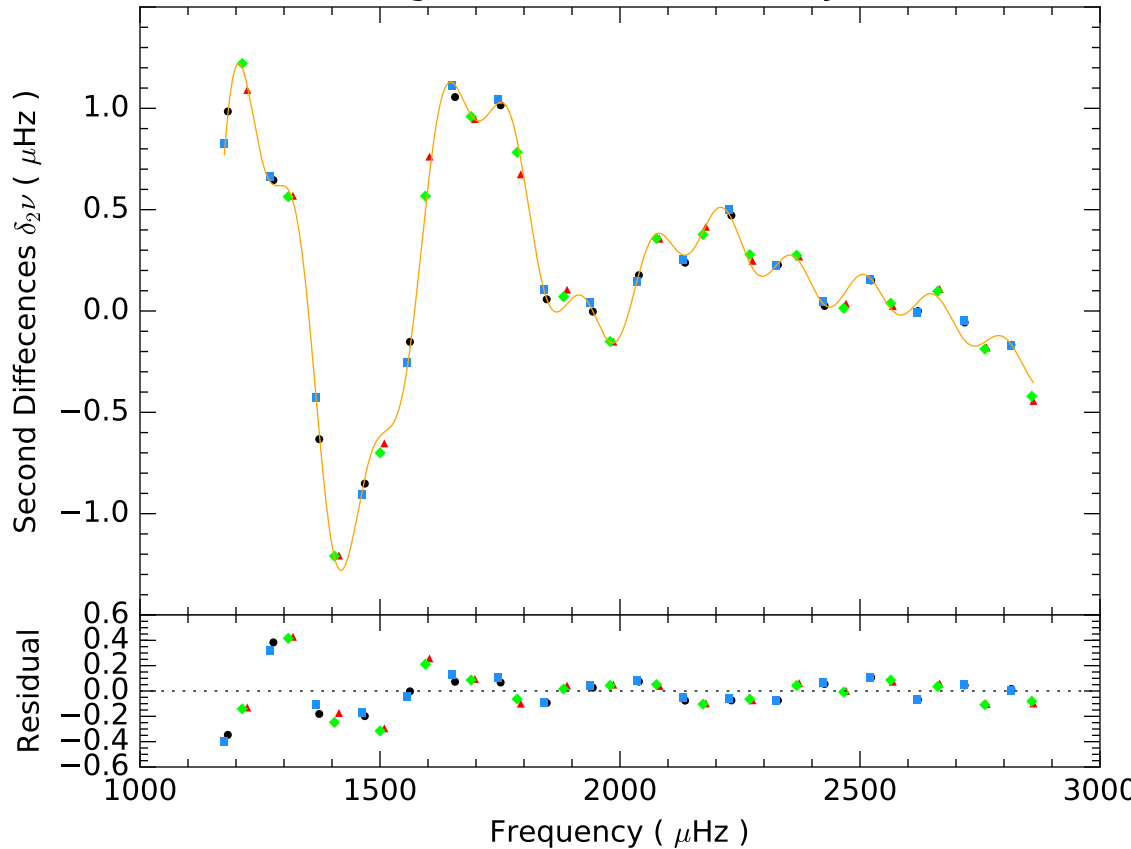
$$\phi_{\text{HI}} = 6.2832$$

profile48

$$\chi^2_\nu(\text{dof} = 58) = 0.028362$$



Age after ZAMS: 9.483 Gyr



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

$$a_0 = -4.1754 \mu\text{Hz}$$

$$a_1 = 0.0042494$$

$$a_2 = -1.0108e-06 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0070405$$

$$c_2 = 9.5475e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1025.0 \text{ s}$$

$$\phi_{\text{HeII}} = 4.6533$$

$$b_2 = 5.5552e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3409.6 \text{ s}$$

$$\phi_{\text{CZ}} = 0.92279$$

$$d_0 = 0.0064564$$

$$d_2 = 1.2871e-06 \mu\text{Hz}^{-2}$$

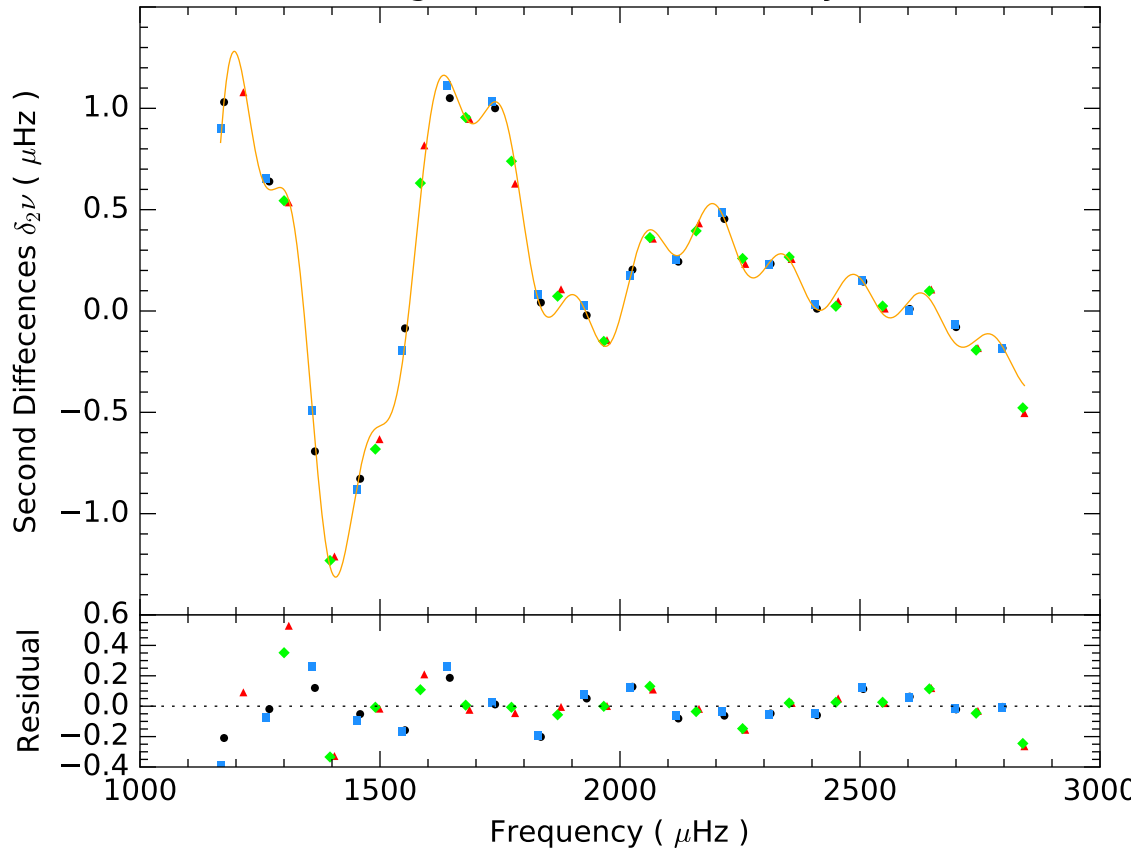
$$\tau_{\text{HI}} = 380.27 \text{ s}$$

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

profile49

$$\chi^2_\nu (\text{dof} = 58) = 0.029427$$

Age after ZAMS: 9.533 Gyr



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

$$a_0 = -3.8408 \mu\text{Hz}$$

$$a_1 = 0.0039924$$

$$a_2 = -9.6544e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0072199$$

$$c_2 = 9.6743e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1030.4 \text{ s}$$

$$\phi_{\text{HeII}} = 4.7243$$

$$b_2 = 5.9881e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3443.2 \text{ s}$$

$$\phi_{\text{CZ}} = 0.75369$$

$$d_0 = 0.010095$$

$$d_2 = 1.5128e-06 \mu\text{Hz}^{-2}$$

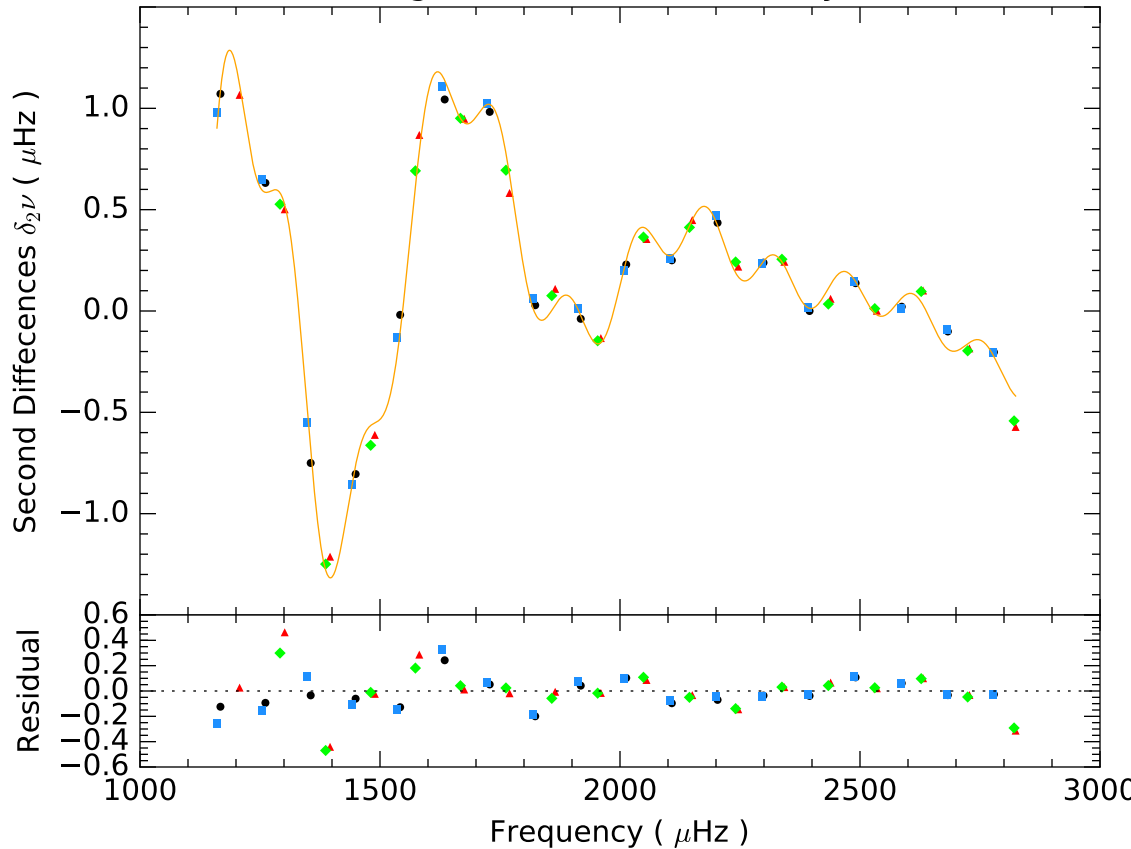
$$\tau_{\text{HI}} = 381.91 \text{ s}$$

$$\phi_{\text{HI}} = 6.2831$$

profile50

$$\chi^2_\nu(\text{dof} = 57) = 0.027495$$

Age after ZAMS: 9.581 Gyr



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

$$a_0 = -4.6782 \mu\text{Hz}$$

$$a_1 = 0.0047989$$

$$a_2 = -1.1555e-06 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0069874$$

$$c_2 = 9.8002e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1052.8 \text{ s}$$

$$\phi_{\text{HeII}} = 4.4585$$

$$b_2 = 5.908e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3469.6 \text{ s}$$

$$\phi_{\text{CZ}} = 0.75531$$

$$d_0 = 0.0043374$$

$$d_2 = 1.1391e-06 \mu\text{Hz}^{-2}$$

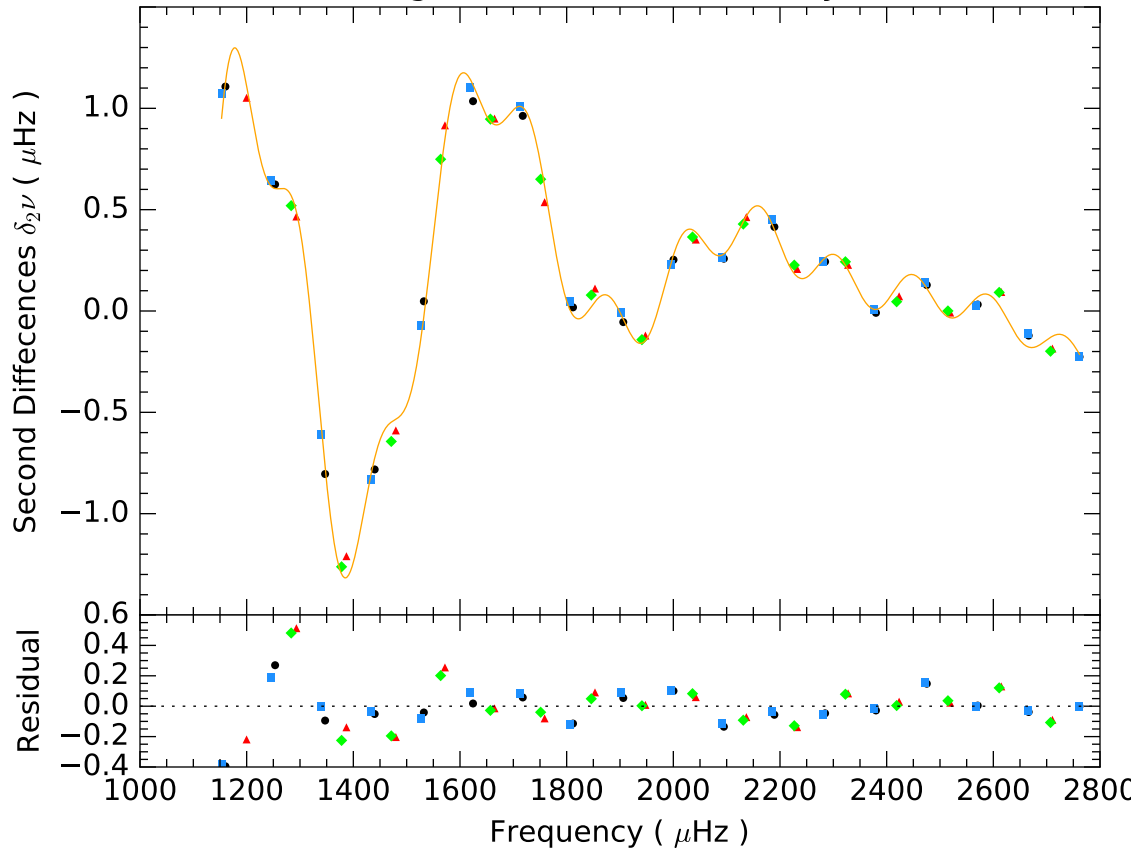
$$\tau_{\text{HI}} = 391.27 \text{ s}$$

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

profile51

$$\chi^2_\nu(\text{dof} = 57) = 0.028744$$

Age after ZAMS: 9.627 Gyr



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

$$a_0 = -3.7643 \mu\text{Hz}$$

$$a_1 = 0.0039878$$

$$a_2 = -9.8179e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.007832$$

$$c_2 = 1.025e-06 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1046.3 \text{ s}$$

$$\phi_{\text{HeII}} = 4.76$$

$$b_2 = 5.6945e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3497.4 \text{ s}$$

$$\phi_{\text{CZ}} = 0.77669$$

$$d_0 = 0.012889$$

$$d_2 = 1.6552e-06 \mu\text{Hz}^{-2}$$

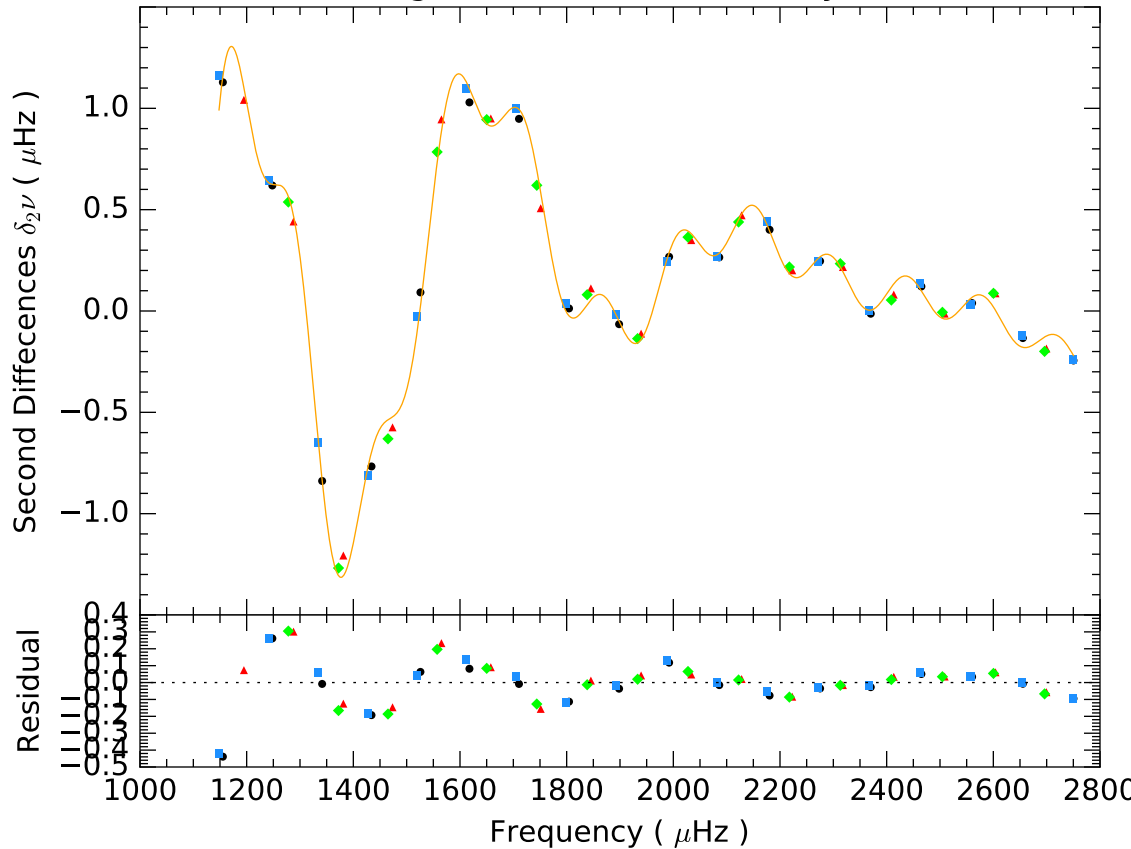
$$\tau_{\text{HI}} = 388.49 \text{ s}$$

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

profile52

$$\chi^2_\nu(\text{dof} = 55) = 0.028107$$

Age after ZAMS: 9.657 Gyr



$$a_0 = -3.8997 \mu\text{Hz}$$

$$a_1 = 0.0040968$$

$$a_2 = -1.006e-06 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0079481$$

$$c_2 = 1.0336e-06 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 1040.2 \text{ s}$$

$$\phi_{\text{HeII}} = 5.0141$$

$$b_2 = 5.6084e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3508.8 \text{ s}$$

$$\phi_{\text{CZ}} = 0.93547$$

$$d_0 = 0.035697$$

$$d_2 = 2.0402e-06 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HI}} = 288.53 \text{ s}$$

$$\phi_{\text{HI}} = 1.7338$$

profile53

$$\chi^2_\nu(\text{dof} = 55) = 0.021576$$