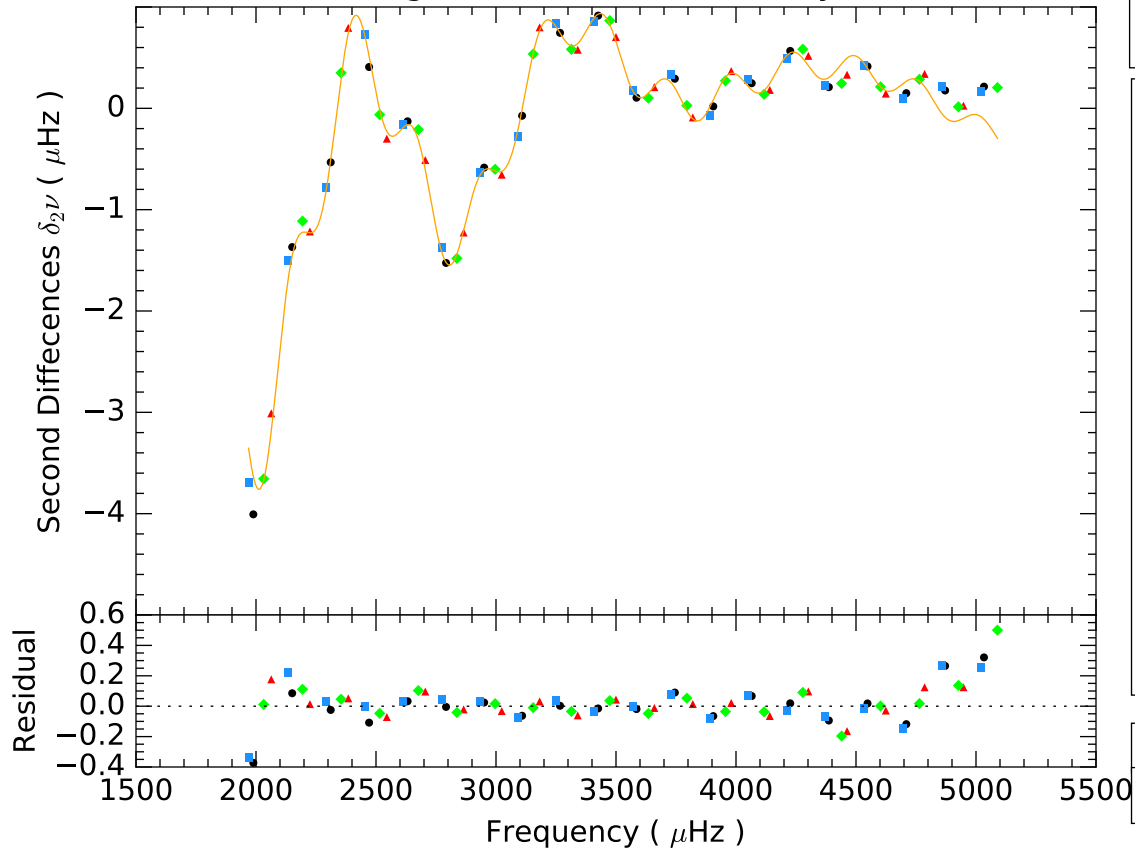


Age after ZAMS: 0.000 Gyr



$$a_0 = -7.2453 \mu \text{ Hz}$$

$$a_1 = 0.0038395$$

$$a_2 = -4.8248e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0032188$$

$$c_2 = 2.9598e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 570.97 \text{ s}$$

$$\phi_{\text{HeII}} = 2.7343$$

$$b_2 = 2.673e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1918.6 \text{ s}$$

$$\phi_{\text{CZ}} = 6.2763$$

$$d_0 = 0.00023477$$

$$d_2 = 9.6704e-08 \mu\text{Hz}^{-2}$$

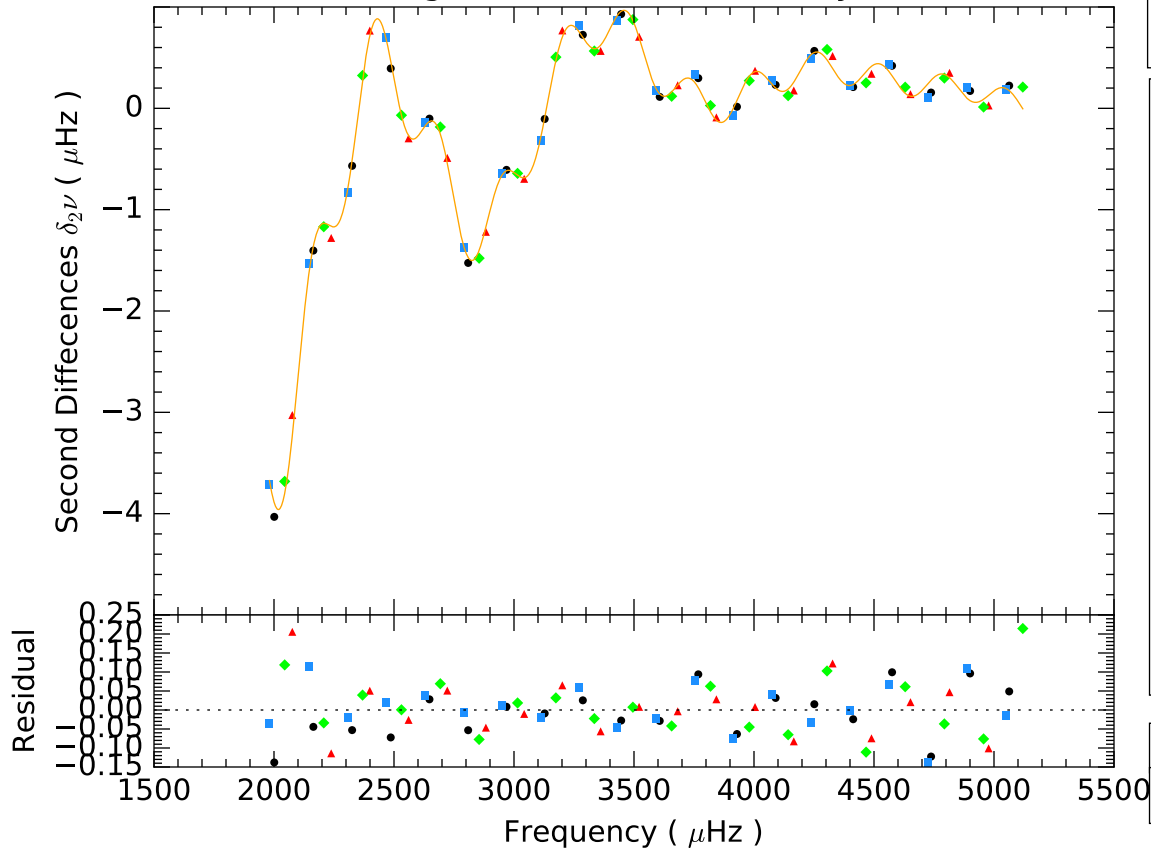
$$\tau_{\text{HI}} = 400.14 \text{ s}$$

$$\phi_{\text{HI}} = 3.7103$$

profile1

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

Age after ZAMS: 0.000 Gyr



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

$$a_0 = -7.3711 \mu \text{ Hz}$$

$$a_1 = 0.0038277$$

$$a_2 = -4.708e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0022958$$

$$c_2 = 2.3472e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{He II}} = 540.51 \text{ s}$$

$$\phi_{\text{He II}} = 3.7771$$

$$b_2 = 2.8049e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1906.7 \text{ s}$$

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

$$d_0 = 6.0705e-05$$

$$d_2 = 3.4092e-08 \mu\text{Hz}^{-2}$$

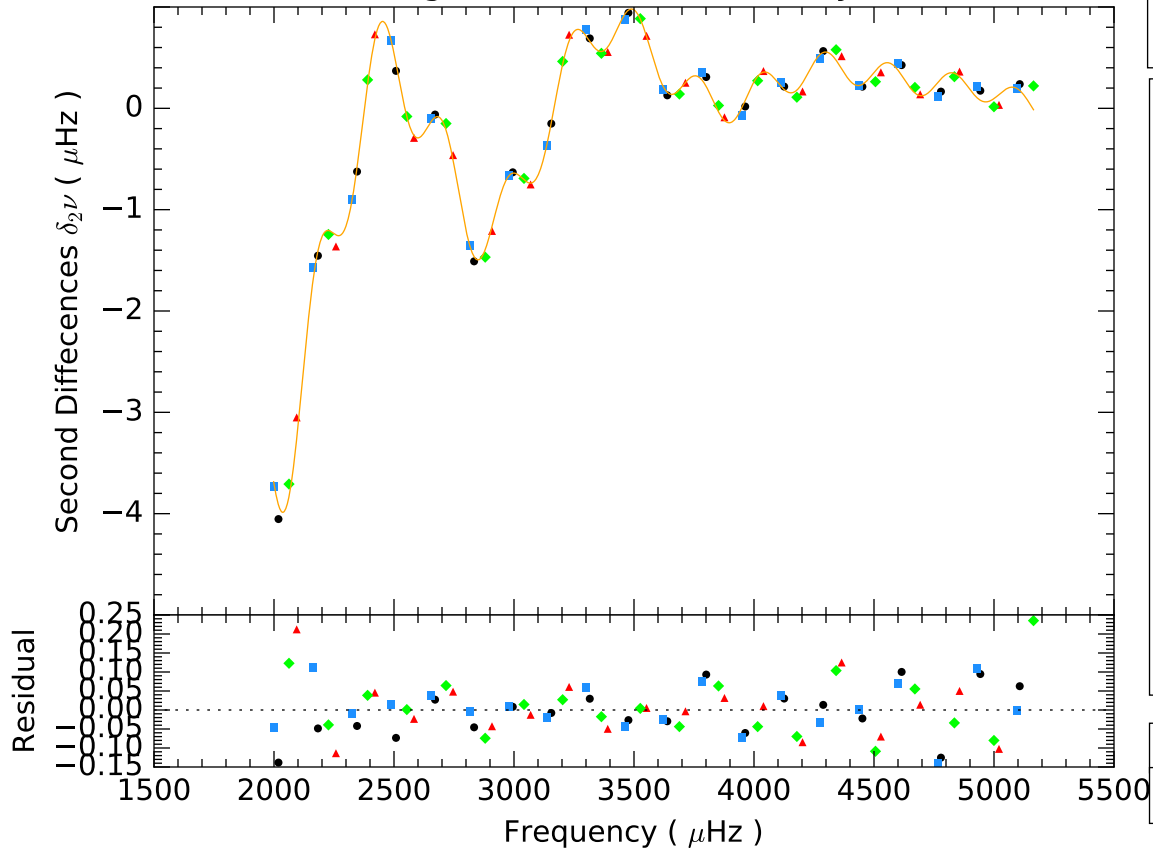
$$\tau_{\text{HI}} = 295.56 \text{ s}$$

$$\phi_{\text{HI}} = 1.9573$$

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

$$a_0 = -7.589 \mu\text{Hz}$$

$$a_1 = 0.0039086$$

$$a_2 = -4.7742e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0022071$$

$$c_2 = 2.283e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 535.33 \text{ s}$$

$$\phi_{HeII} = 3.7529$$

$$b_2 = 2.9194e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1890.6 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 4.4482e-05$$

$$d_2 = 1.4763e-08 \mu\text{Hz}^{-2}$$

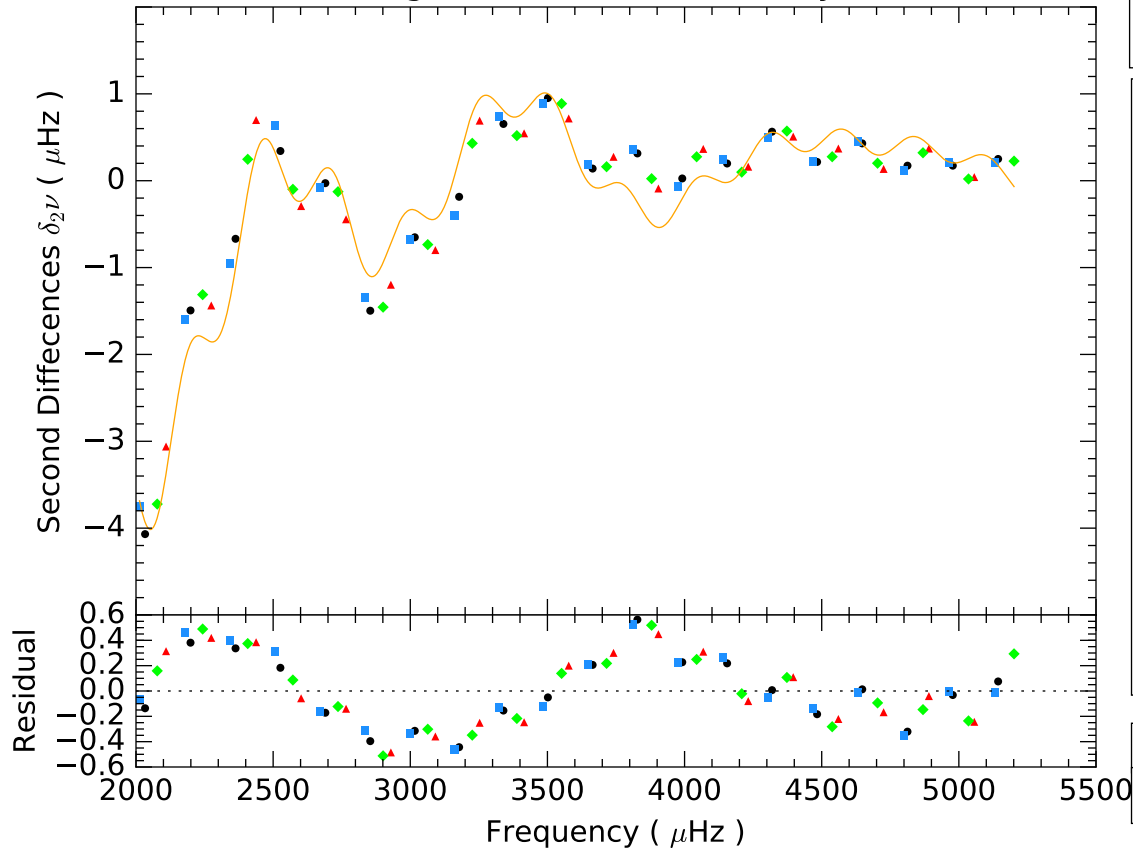
$$\tau_{HI} = 298.99 \text{ s}$$

$$\phi_{HI} = 1.6589$$

profile3

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

Age after ZAMS: 0.002 Gyr



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

$$a_0 = -7.6239 \mu \text{ Hz}$$

$$a_1 = 0.0039134$$

$$a_2 = -4.7731e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015559$$

$$c_2 = 1.877e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 544.58 \text{ s}$$

$$\phi_{HeII} = 3.2354$$

$$b_2 = 2.8192e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1887.9 \text{ s}$$

$$\phi_{CZ} = 6.141$$

$$d_0 = 0.00021759$$

$$d_2 = 4.7344e-08 \mu\text{Hz}^{-2}$$

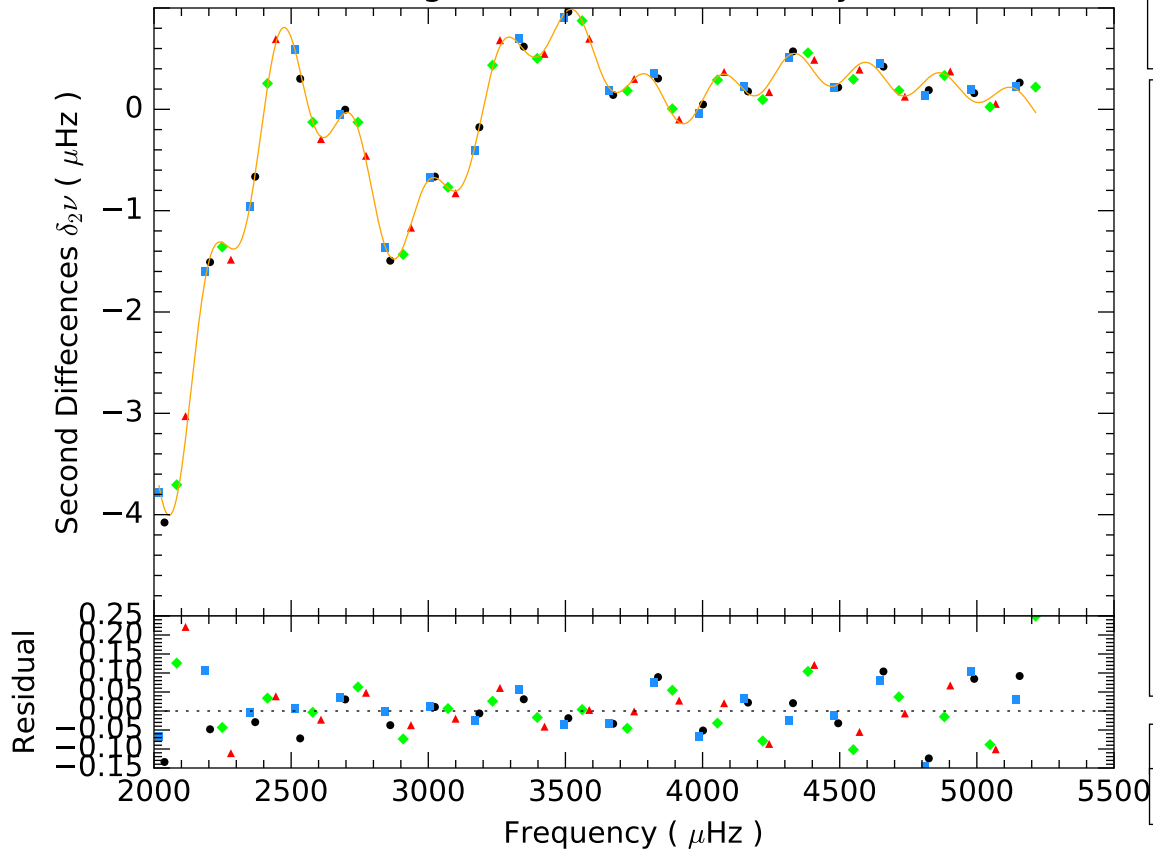
$$\tau_{HI} = 281.43 \text{ s}$$

$$\phi_{HI} = 3.1416$$

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

$$a_0 = -7.6437 \mu\text{Hz}$$

$$a_1 = 0.003886$$

$$a_2 = -4.6889e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0021554$$

$$c_2 = 2.2452e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 529.45 \text{ s}$$

$$\phi_{HeII} = 3.7304$$

$$b_2 = 3.0247e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1874.9 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 4.2307e-05$$

$$d_2 = 1.3355e-08 \mu\text{Hz}^{-2}$$

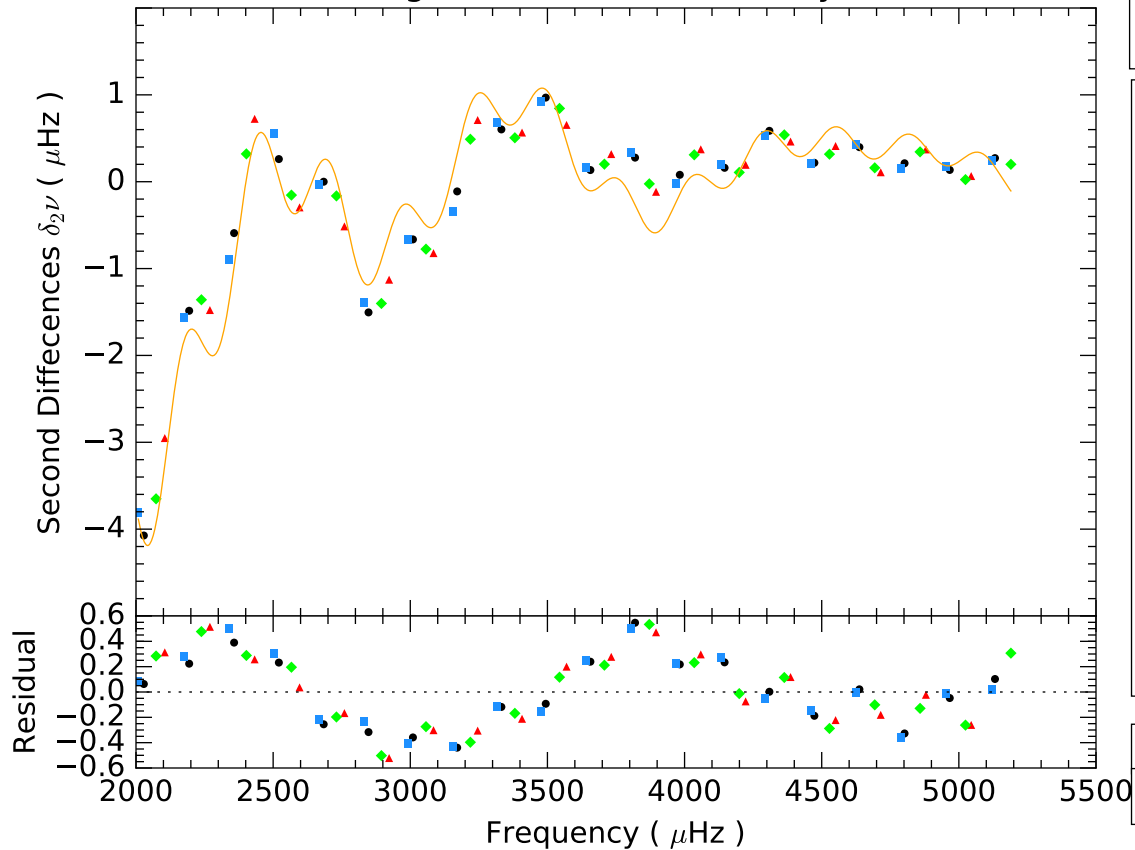
$$\tau_{HI} = 301.23 \text{ s}$$

$$\phi_{HI} = 1.3706$$

profile5

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

Age after ZAMS: 0.007 Gyr



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

$$a_0 = -7.5995 \mu\text{Hz}$$

$$a_1 = 0.0039095$$

$$a_2 = -4.7788e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015326$$

$$c_2 = 1.8854e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 545.77 \text{ s}$$

$$\phi_{HeII} = 3.2551$$

$$b_2 = 3.5919e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1893.2 \text{ s}$$

$$\phi_{CZ} = 6.283$$

$$d_0 = 0.00021807$$

$$d_2 = 4.7554e-08 \mu\text{Hz}^{-2}$$

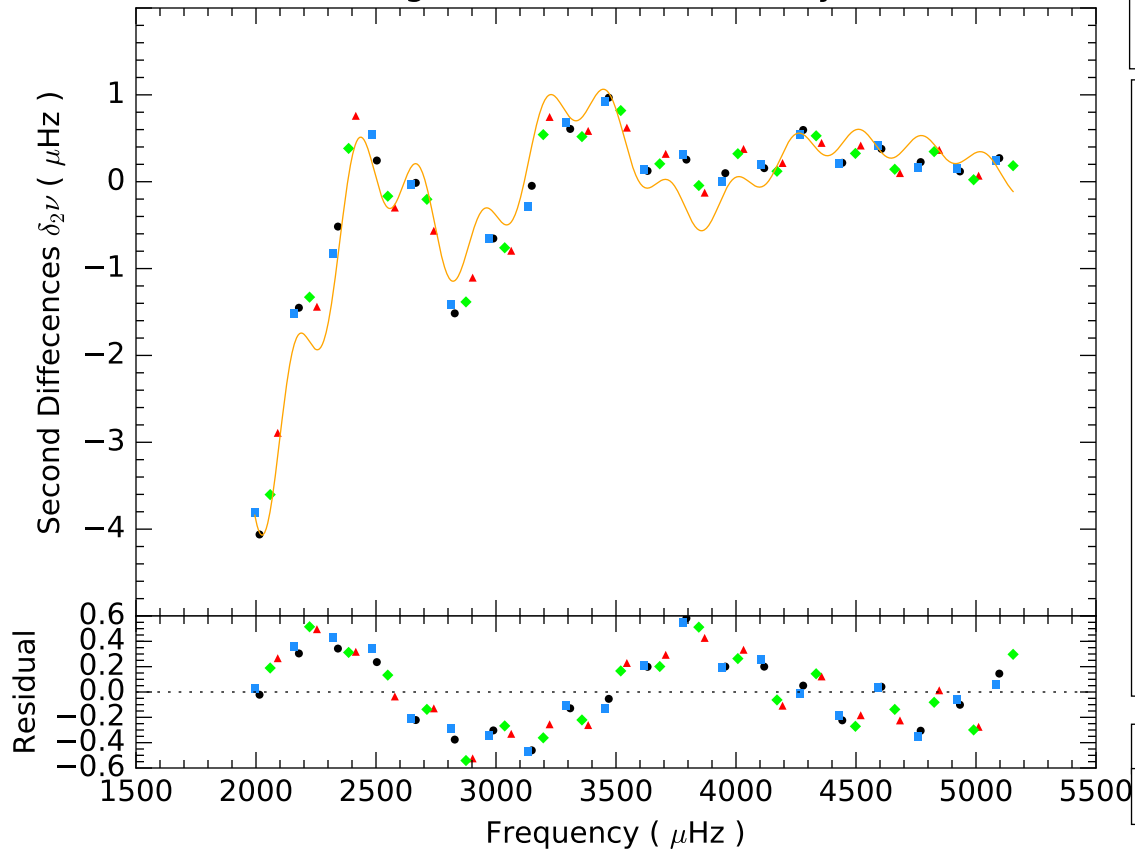
$$\tau_{HI} = 282.1 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile6

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

Age after ZAMS: 0.013 Gyr



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

$$a_0 = -7.5288 \mu\text{Hz}$$

$$a_1 = 0.0039078$$

$$a_2 = -4.8171e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015325$$

$$c_2 = 1.9037e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 551.35 \text{ s}$$

$$\phi_{HeII} = 3.2297$$

$$b_2 = 3.1457e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1912.4 \text{ s}$$

$$\phi_{CZ} = 6.1897$$

$$d_0 = 0.00021956$$

$$d_2 = 4.8206e-08 \mu\text{Hz}^{-2}$$

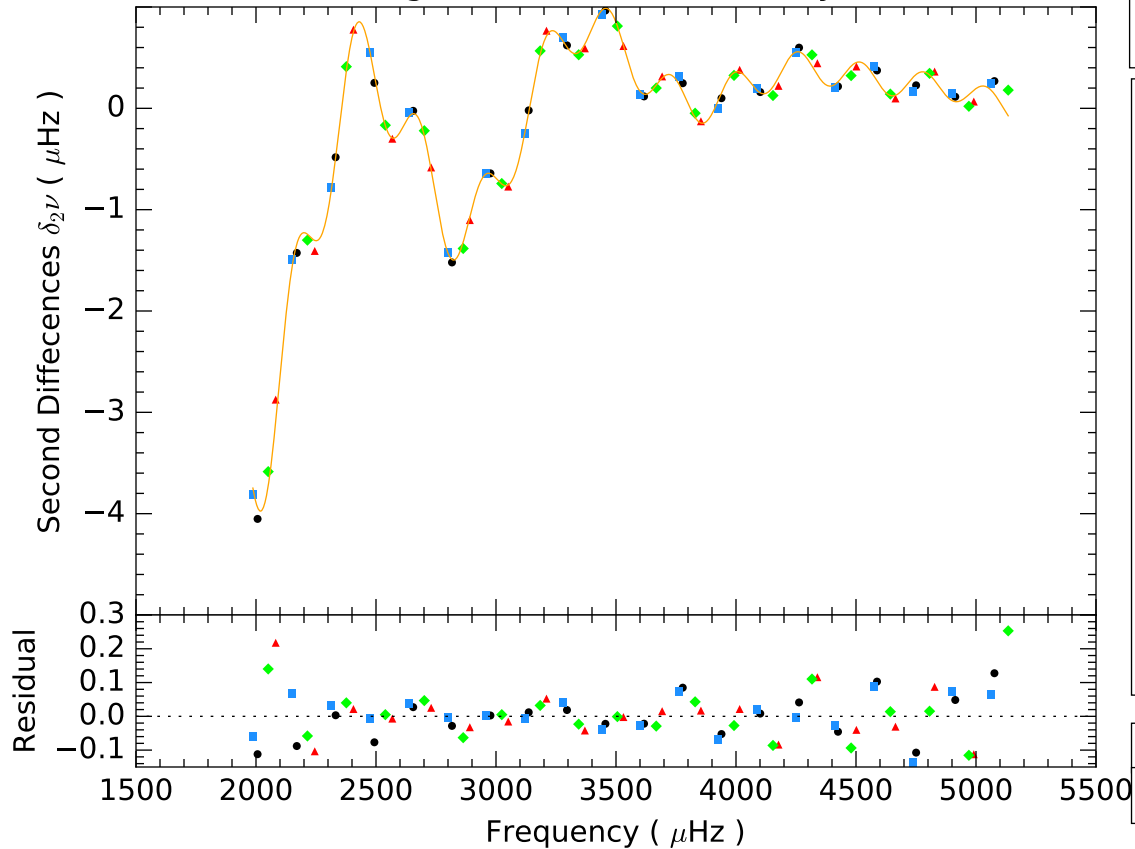
$$\tau_{HI} = 284.04 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile7

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

Age after ZAMS: 0.023 Gyr



$$a_0 = -7.4753 \mu\text{Hz}$$

$$a_1 = 0.003877$$

$$a_2 = -4.7674e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0022051$$

$$c_2 = 2.327e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 541.45 \text{ s}$$

$$\phi_{HeII} = 3.6898$$

$$b_2 = 2.9635e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1908.6 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 4.859e-05$$

$$d_2 = 2.035e-08 \mu\text{Hz}^{-2}$$

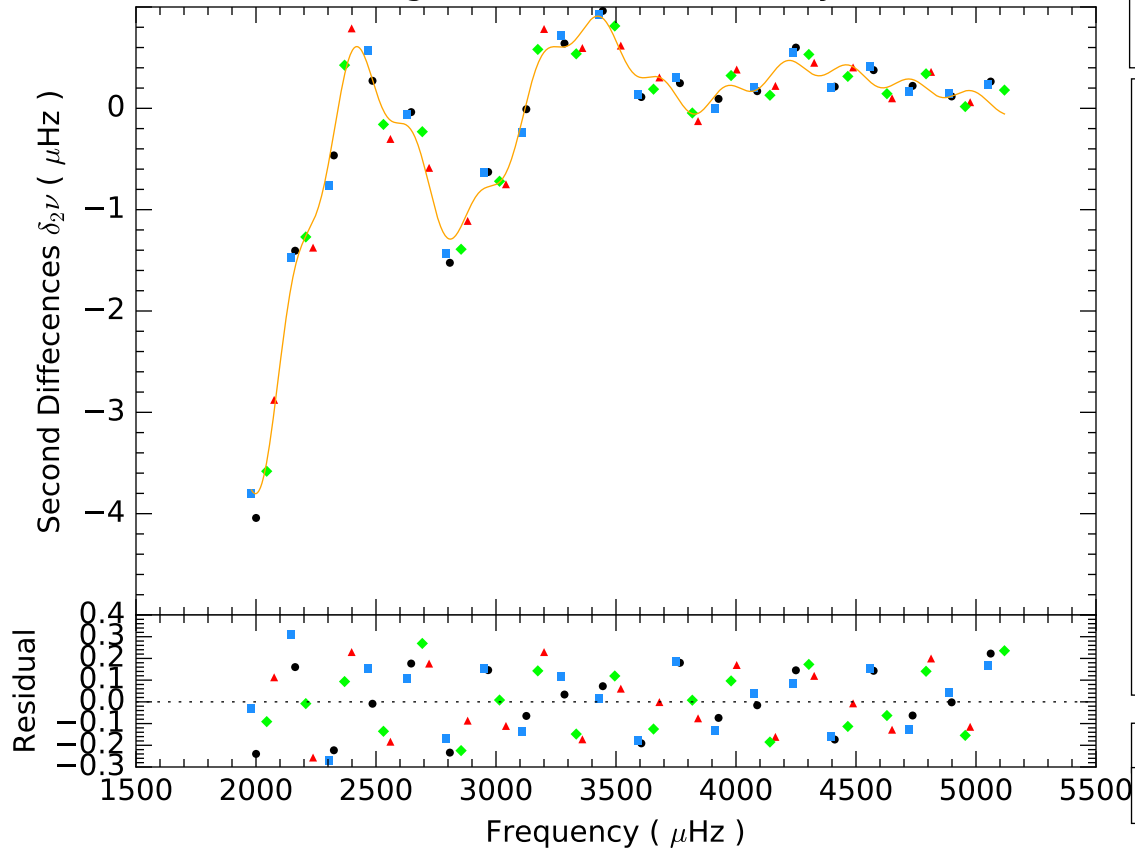
$$\tau_{HI} = 305.79 \text{ s}$$

$$\phi_{HI} = 1.4233$$

profile8

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

Age after ZAMS: 0.039 Gyr



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

$$a_0 = -7.5085 \mu\text{Hz}$$

$$a_1 = 0.0038822$$

$$a_2 = -4.7558e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.002355$$

$$c_2 = 2.3947e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 528.07 \text{ s}$$

$$\phi_{\text{HeII}} = 4.2428$$

$$b_2 = 1.5344e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1939.5 \text{ s}$$

$$\phi_{\text{CZ}} = 5.679$$

$$d_0 = 8.8529e-05$$

$$d_2 = 6.0698e-08 \mu\text{Hz}^{-2}$$

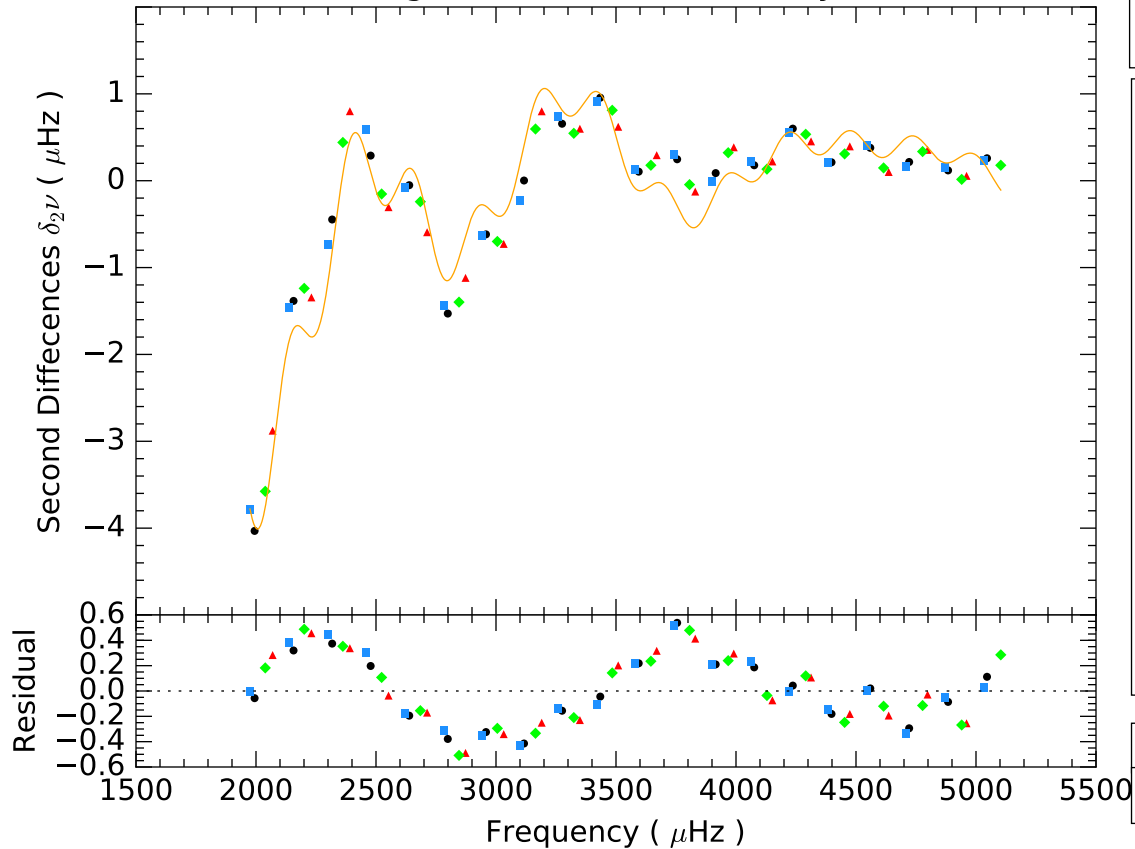
$$\tau_{\text{HI}} = 273.03 \text{ s}$$

$$\phi_{\text{HI}} = 3.1149$$

profile9

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

Age after ZAMS: 0.068 Gyr



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

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

$$a_1 = 0.003928$$

$$a_2 = -4.9084e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015743$$

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

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

$$\phi_{HeII} = 3.2257$$

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

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

$$\phi_{CZ} = 6.2832$$

$$d_0 = 0.00022179$$

$$d_2 = 4.9189e-08 \mu\text{Hz}^{-2}$$

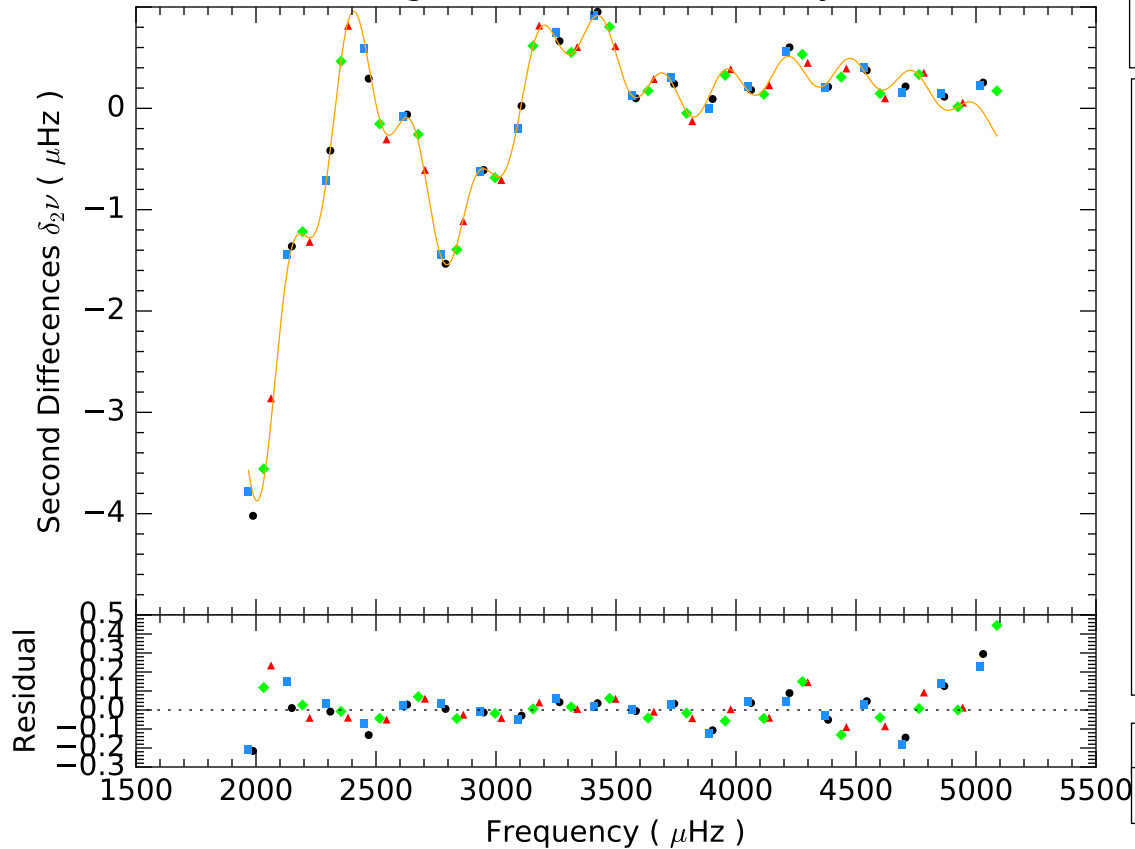
$$\tau_{HI} = 286.97 \text{ s}$$

$$\phi_{HI} = 3.1416$$

profile10

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

Age after ZAMS: 0.118 Gyr



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

$$a_0 = -7.1247 \mu \text{ Hz}$$

$$a_1 = 0.0037644$$

$$a_2 = -4.7139e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0029553$$

$$c_2 = 2.8498e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 572.72 \text{ s}$$

$$\phi_{HeII} = 2.7985$$

$$b_2 = 2.8734e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1926.3 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 0.00012155$$

$$d_2 = 6.4341e-08 \mu\text{Hz}^{-2}$$

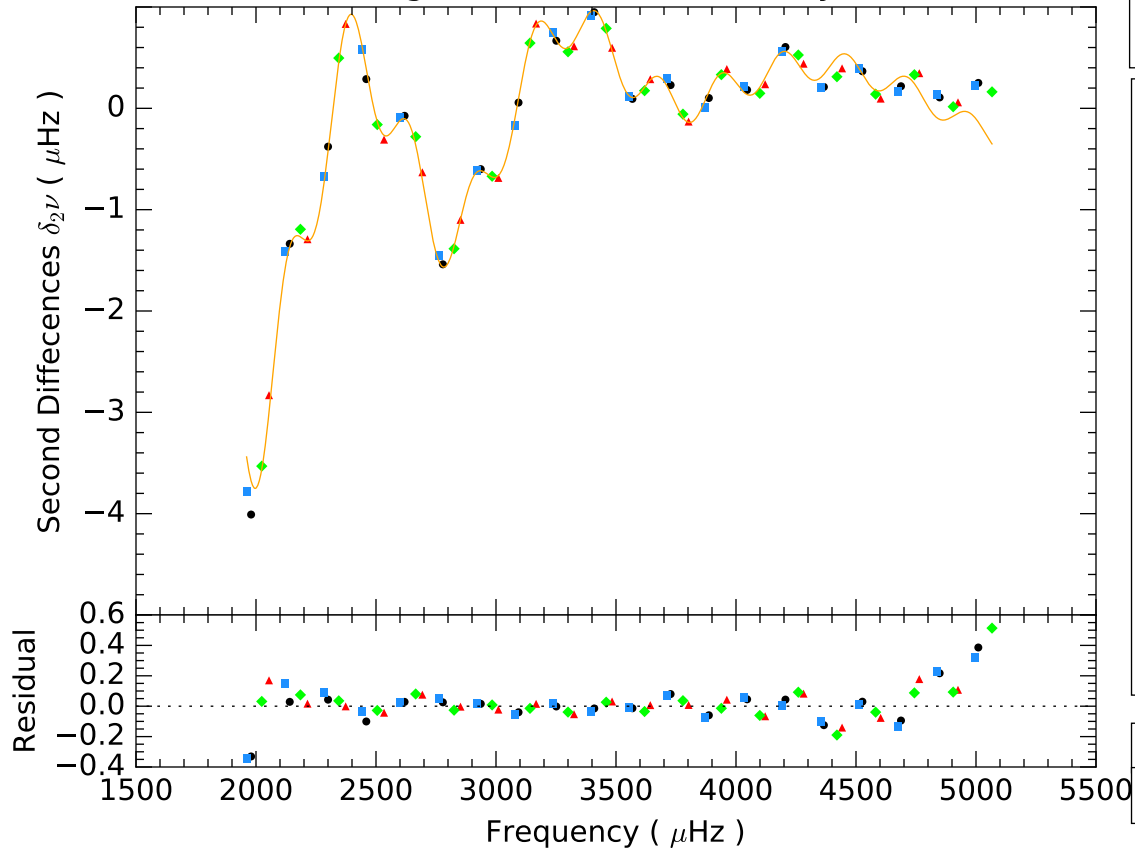
$$\tau_{HI} = 378.51 \text{ s}$$

$$\phi_{HI} = 4.4695$$

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

$$a_0 = -7.1776 \mu\text{Hz}$$

$$a_1 = 0.003824$$

$$a_2 = -4.8297e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0031509$$

$$c_2 = 2.9921e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 578.1 \text{ s}$$

$$\phi_{\text{HeII}} = 2.6145$$

$$b_2 = 2.8349e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1935.3 \text{ s}$$

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

$$d_0 = 0.00024883$$

$$d_2 = 1.0039e-07 \mu\text{Hz}^{-2}$$

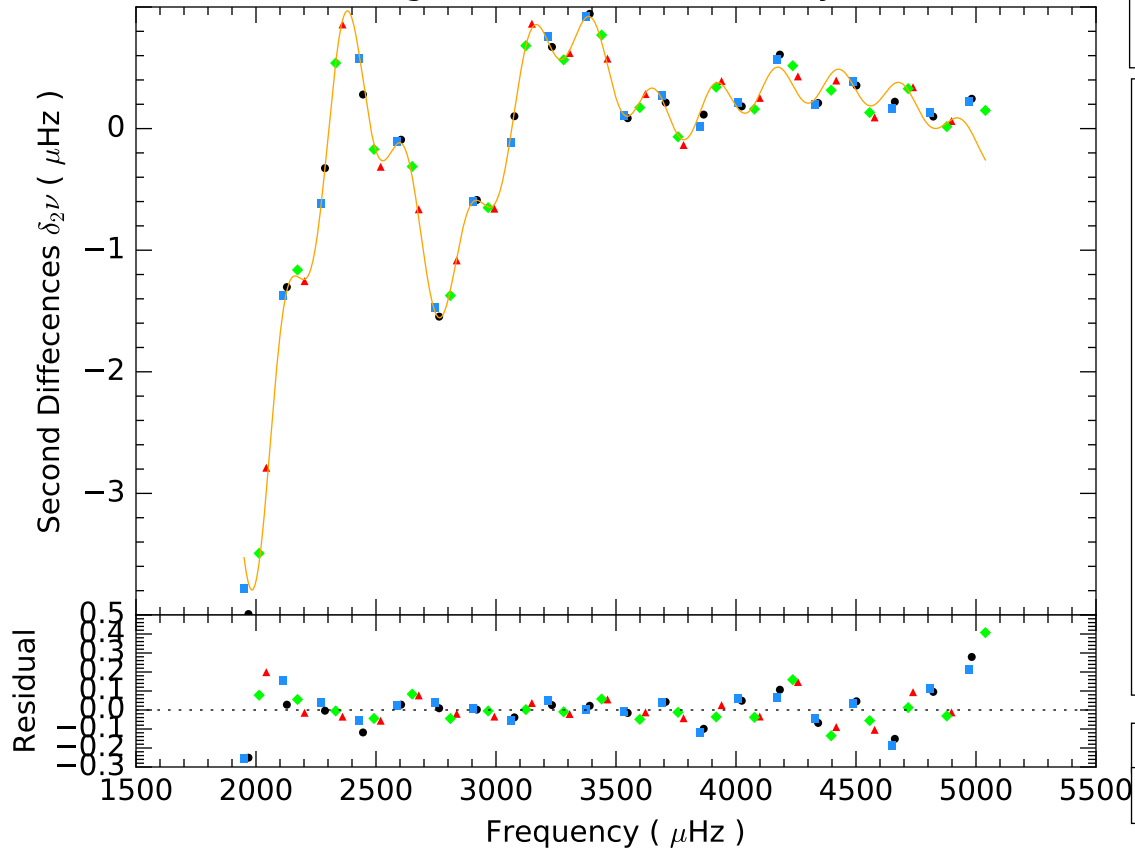
$$\tau_{\text{HI}} = 405.98 \text{ s}$$

$$\phi_{\text{HI}} = 3.5431$$

profile12

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

Age after ZAMS: 0.354 Gyr



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

$$a_0 = -6.8542 \mu\text{Hz}$$

$$a_1 = 0.0036594$$

$$a_2 = -4.6228e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0030971$$

$$c_2 = 2.9428e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 581.18 \text{ s}$$

$$\phi_{\text{HeII}} = 2.7268$$

$$b_2 = 2.7514e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1947.2 \text{ s}$$

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

$$d_0 = 0.00016402$$

$$d_2 = 8.1485e-08 \mu\text{Hz}^{-2}$$

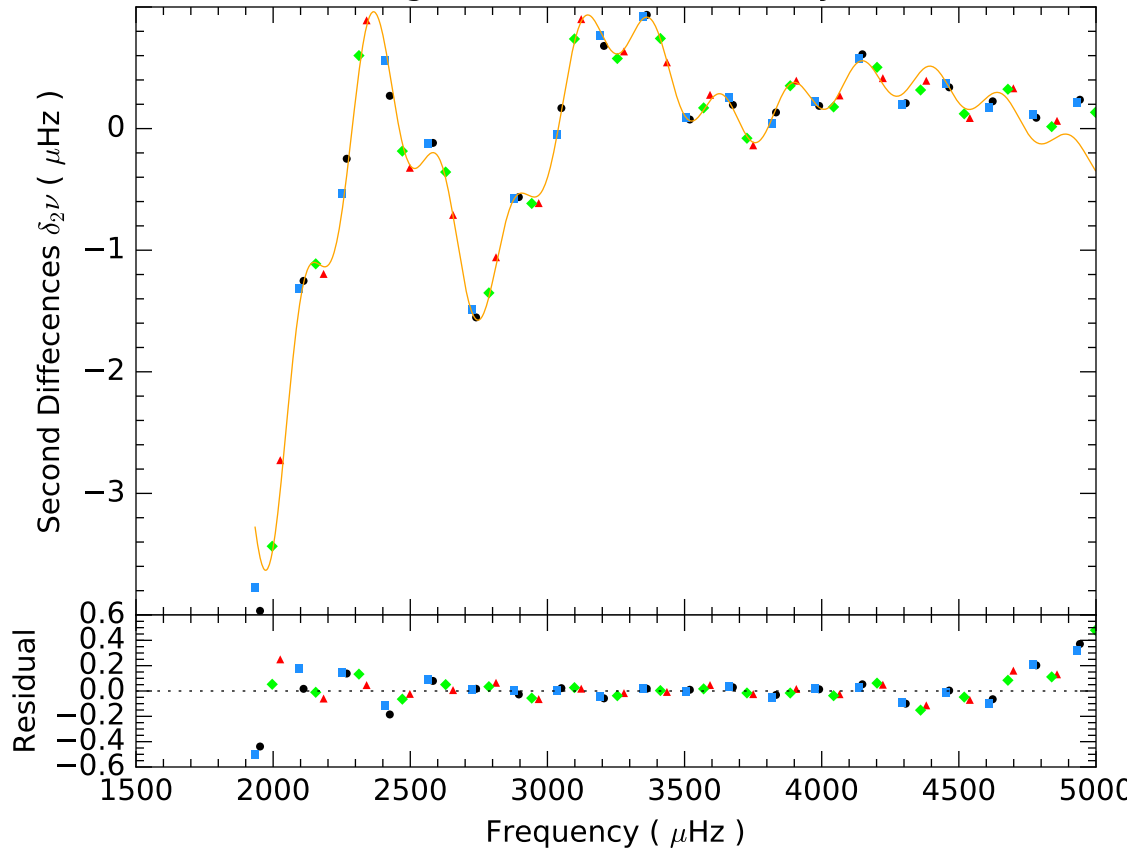
$$\tau_{\text{HI}} = 377.69 \text{ s}$$

$$\phi_{\text{HI}} = 4.7236$$

profile13

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

Age after ZAMS: 0.610 Gyr



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

$$a_0 = -7.019 \mu\text{Hz}$$

$$a_1 = 0.0038102$$

$$a_2 = -4.8977e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0031138$$

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

$$\tau_{\text{HeII}} = 593.44 \text{ s}$$

$$\phi_{\text{HeII}} = 2.4527$$

$$b_2 = 2.68e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 1962.2 \text{ s}$$

$$\phi_{\text{CZ}} = 6.1664$$

$$d_0 = 0.00025926$$

$$d_2 = 1.0663e-07 \mu\text{Hz}^{-2}$$

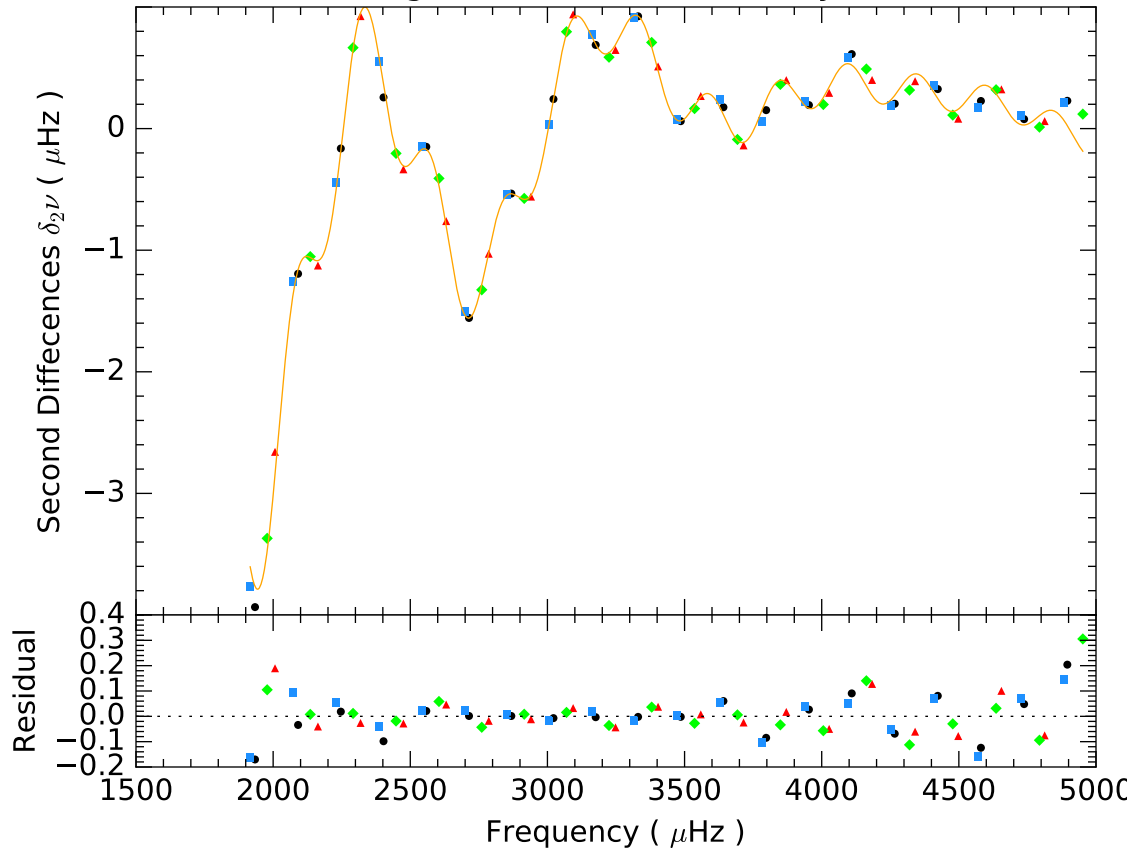
$$\tau_{\text{HI}} = 411.34 \text{ s}$$

$$\phi_{\text{HI}} = 3.5828$$

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

$$a_0 = -6.5225 \mu\text{Hz}$$

$$a_1 = 0.0035473$$

$$a_2 = -4.5533e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0029293$$

$$c_2 = 2.8491e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 581.59 \text{ s}$$

$$\phi_{HeII} = 3.1646$$

$$b_2 = 2.6564e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 1984.1 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 0.00017734$$

$$d_2 = 1.0126e-07 \mu\text{Hz}^{-2}$$

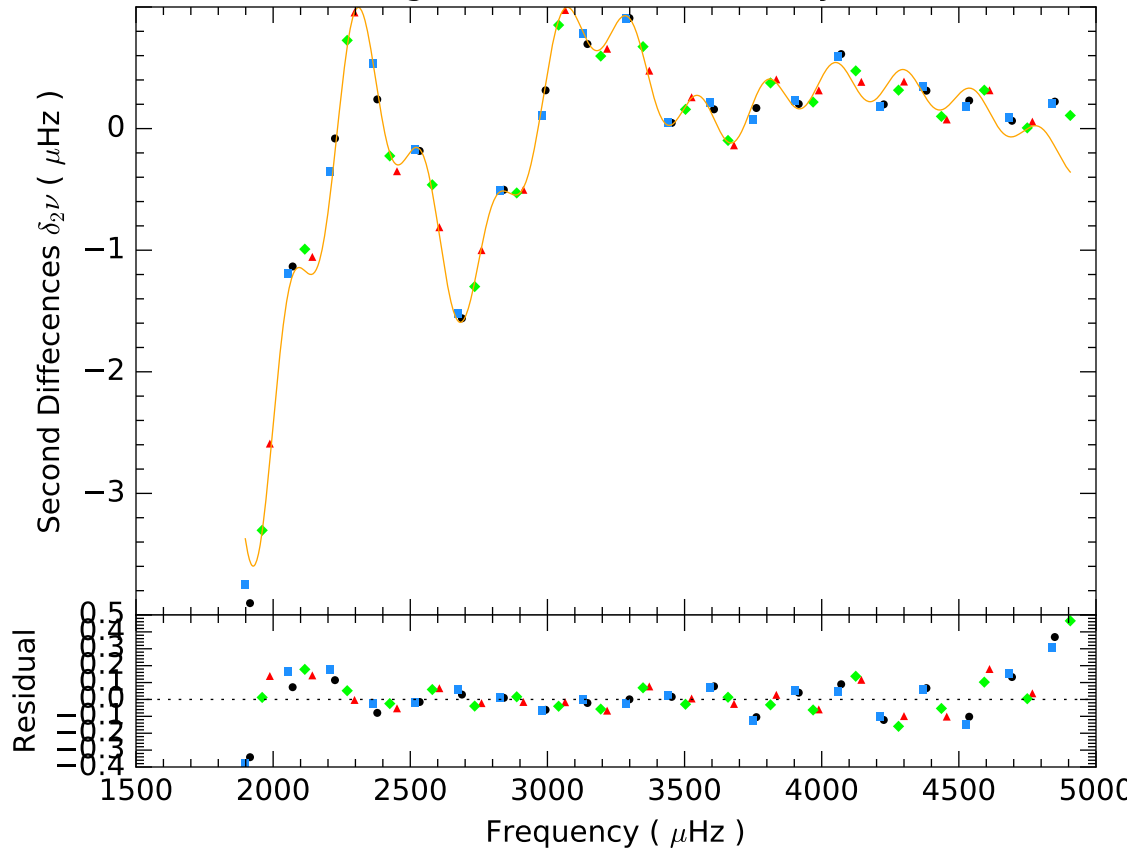
$$\tau_{HI} = 351.17 \text{ s}$$

$$\phi_{HI} = 6.2831$$

profile15

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

Age after ZAMS: 1.210 Gyr



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

$$a_0 = -6.6777 \mu\text{Hz}$$

$$a_1 = 0.003713$$

$$a_2 = -4.878e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0030347$$

$$c_2 = 3.0349e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 611.66 \text{ s}$$

$$\phi_{\text{HeII}} = 2.3403$$

$$b_2 = 2.6561e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2005.9 \text{ s}$$

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

$$d_0 = 0.00025785$$

$$d_2 = 1.1385e-07 \mu\text{Hz}^{-2}$$

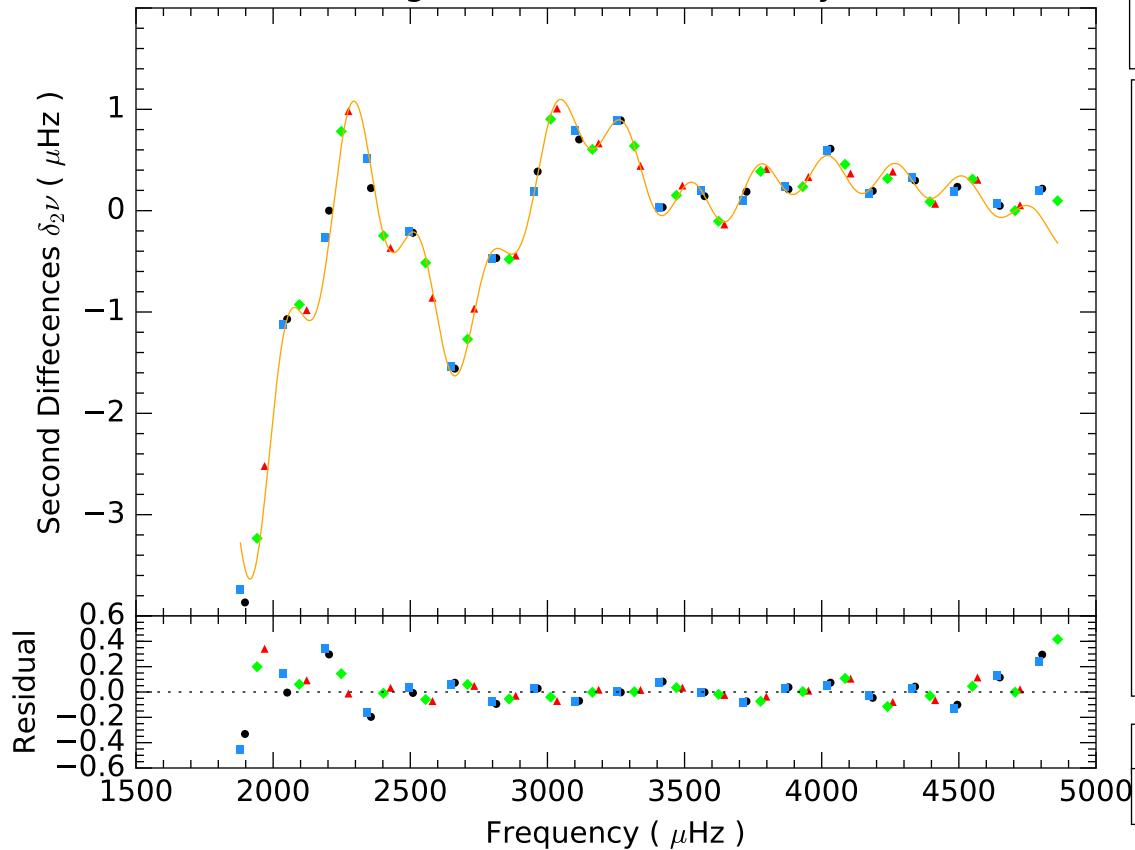
$$\tau_{\text{HI}} = 400.32 \text{ s}$$

$$\phi_{\text{HI}} = 4.4334$$

profile16

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

Age after ZAMS: 1.510 Gyr



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

$$a_0 = -6.4573 \mu\text{Hz}$$

$$a_1 = 0.0036335$$

$$a_2 = -4.8244e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002987$$

$$c_2 = 3.0239e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 619.77 \text{ s}$$

$$\phi_{HeII} = 2.3287$$

$$b_2 = 2.8989e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2022.6 \text{ s}$$

$$\phi_{CZ} = 6.1457$$

$$d_0 = 0.00025206$$

$$d_2 = 1.1856e-07 \mu\text{Hz}^{-2}$$

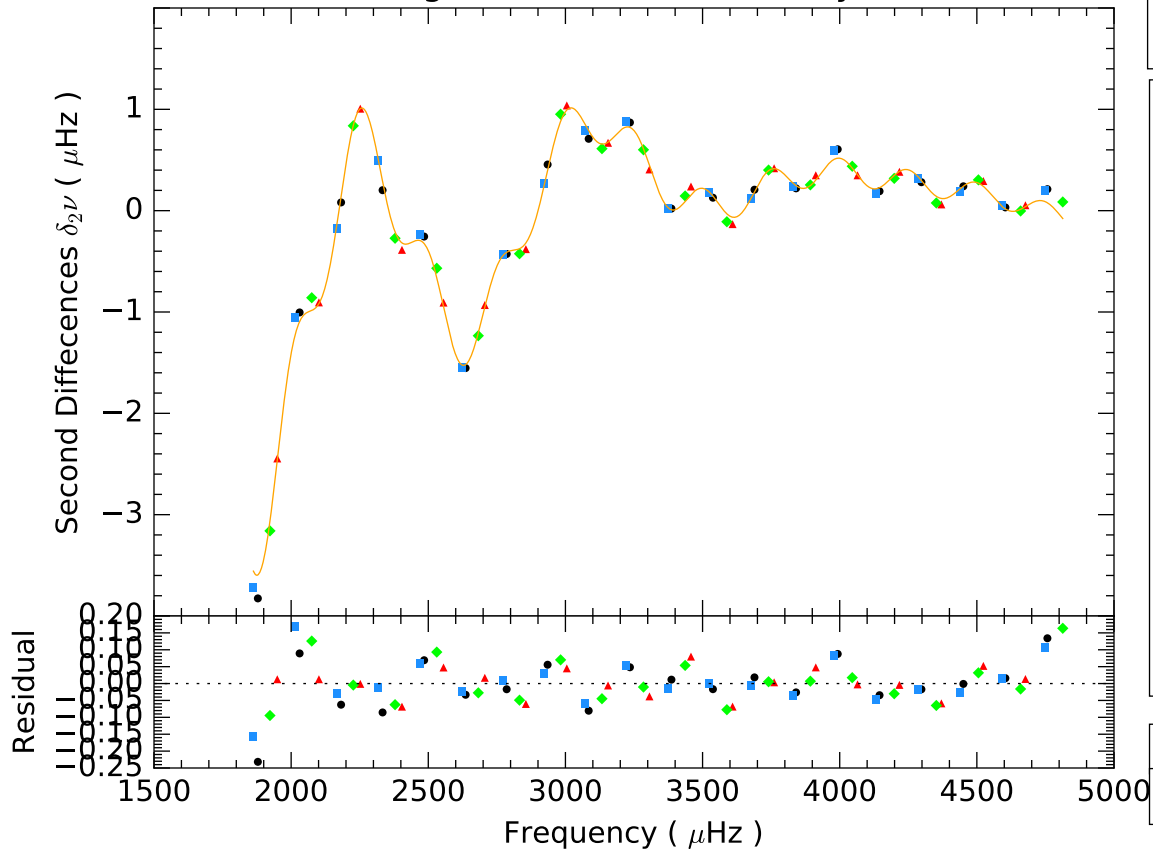
$$\tau_{HI} = 388.91 \text{ s}$$

$$\phi_{HI} = 5.0751$$

profile17

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

Age after ZAMS: 1.810 Gyr



$$a_0 = -5.4292 \mu\text{Hz}$$

$$a_1 = 0.0030613$$

$$a_2 = -4.0459e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0040321$$

$$c_2 = 3.3762e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 598.61 \text{ s}$$

$$\phi_{HeII} = 3.2375$$

$$b_2 = 2.1518e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2008.5 \text{ s}$$

$$\phi_{CZ} = 1.1838$$

$$d_0 = 0.00071485$$

$$d_2 = 2.28e-07 \mu\text{Hz}^{-2}$$

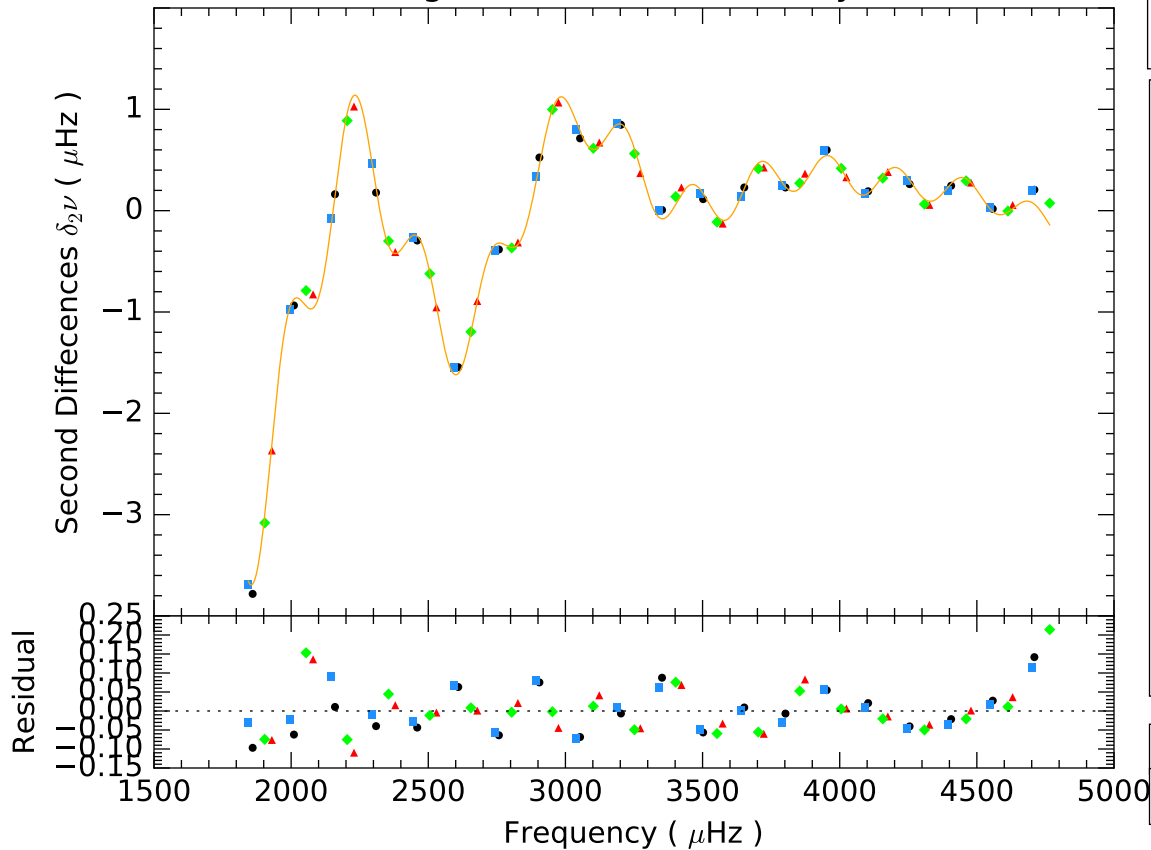
$$\tau_{HI} = 367.43 \text{ s}$$

$$\phi_{HI} = 6.283$$

profile18

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

Age after ZAMS: 2.110 Gyr



$$a_0 = -5.8868 \mu\text{Hz}$$

$$a_1 = 0.0033748$$

$$a_2 = -4.5466e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0030635$$

$$c_2 = 3.0873e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 615.84 \text{ s}$$

$$\phi_{HeII} = 2.9976$$

$$b_2 = 2.7285e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2027.4 \text{ s}$$

$$\phi_{CZ} = 1.2571$$

$$d_0 = 0.00028431$$

$$d_2 = 1.4655e-07 \mu\text{Hz}^{-2}$$

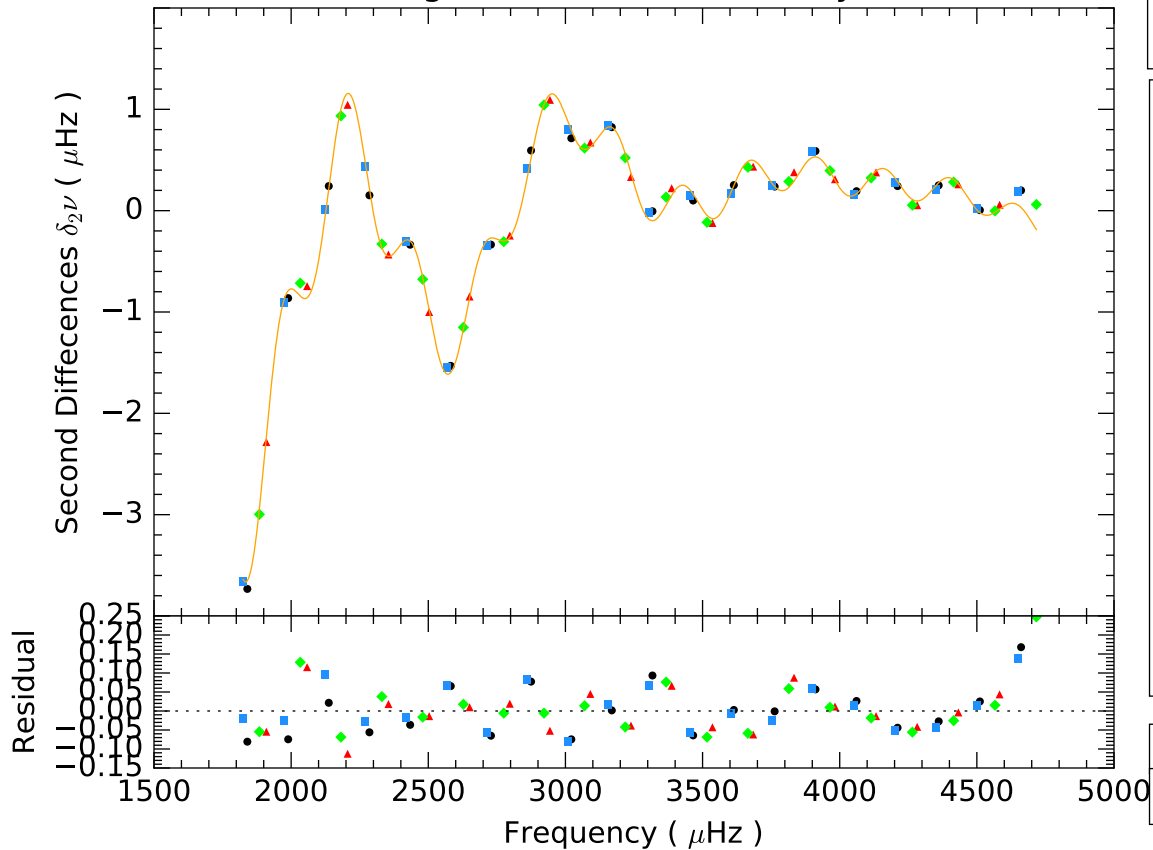
$$\tau_{HI} = 368.71 \text{ s}$$

$$\phi_{HI} = 6.2743$$

profile19

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

Age after ZAMS: 2.410 Gyr



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

$$a_0 = -5.968 \mu\text{Hz}$$

$$a_1 = 0.0034767$$

$$a_2 = -4.7606e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.002964$$

$$c_2 = 3.0897e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 625.7 \text{ s}$$

$$\phi_{HeII} = 2.9674$$

$$b_2 = 2.6204e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2051.0 \text{ s}$$

$$\phi_{CZ} = 1.2008$$

$$d_0 = 0.00022579$$

$$d_2 = 1.2798e-07 \mu\text{Hz}^{-2}$$

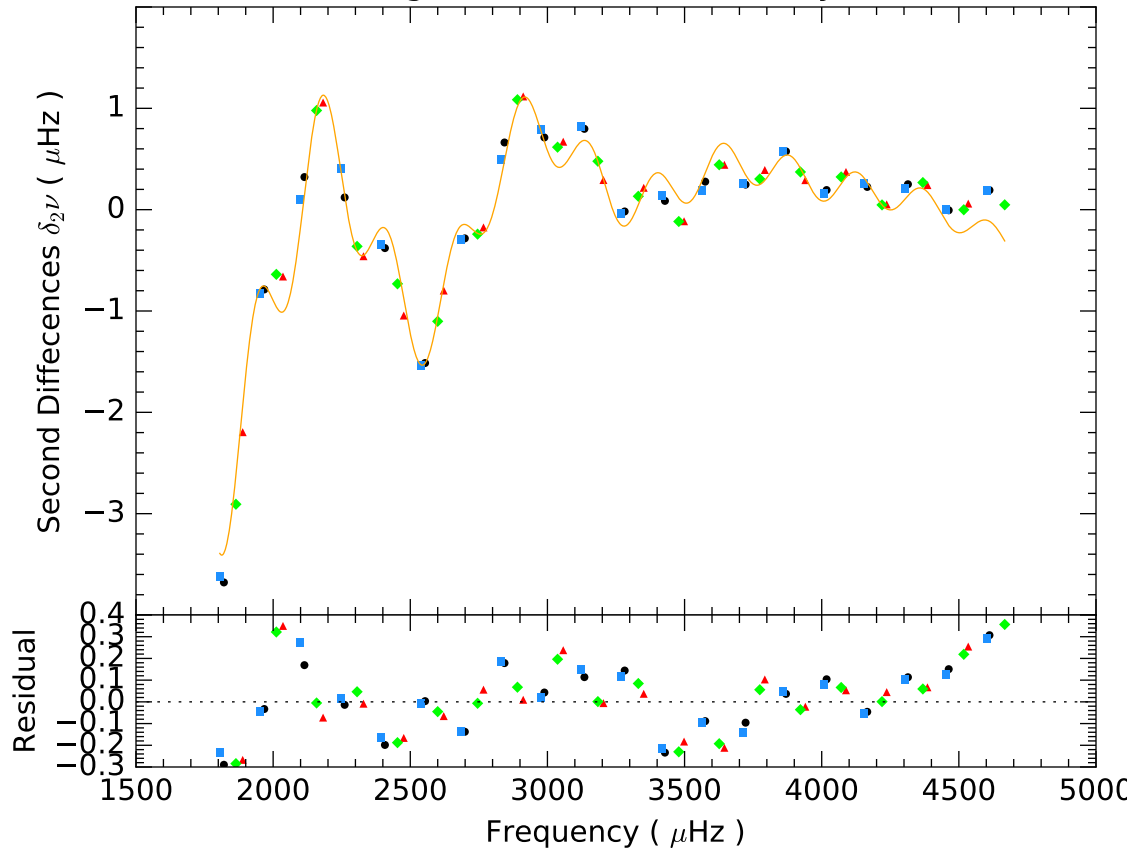
$$\tau_{HI} = 372.8 \text{ s}$$

$$\phi_{HI} = 6.2811$$

profile20

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

Age after ZAMS: 2.710 Gyr



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

$$a_0 = -6.4597 \mu\text{Hz}$$

$$a_1 = 0.0038643$$

$$a_2 = -5.4484e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021669$$

$$c_2 = 2.9397e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 664.34 \text{ s}$$

$$\phi_{\text{HeII}} = 2.0341$$

$$b_2 = 2.817e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2058.7 \text{ s}$$

$$\phi_{\text{CZ}} = 1.6733$$

$$d_0 = 0.00018808$$

$$d_2 = 1.5738e-07 \mu\text{Hz}^{-2}$$

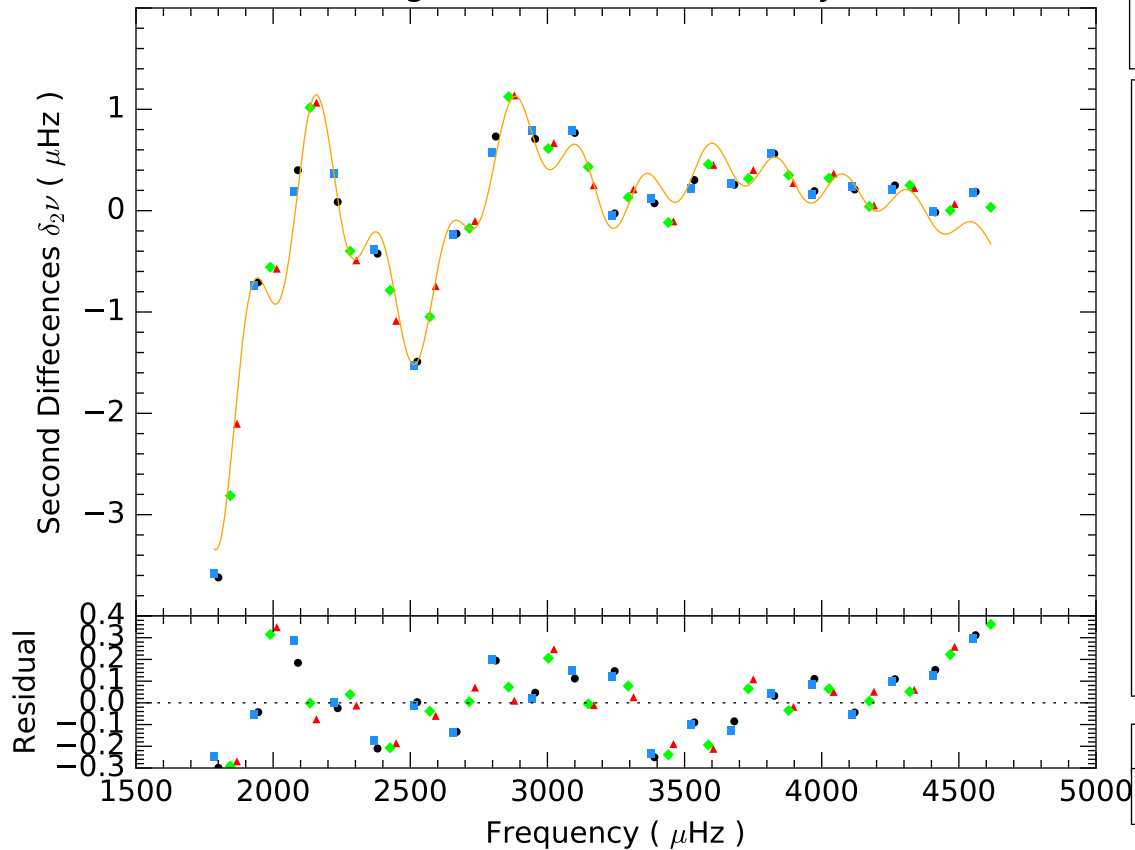
$$\tau_{\text{HI}} = 448.38 \text{ s}$$

$$\phi_{\text{HI}} = 3.361$$

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

$$a_0 = -6.3429 \mu\text{Hz}$$

$$a_1 = 0.0038532$$

$$a_2 = -5.5115e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0021272$$

$$c_2 = 2.9635e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 673.2 \text{ s}$$

$$\phi_{HeII} = 2.0544$$

$$b_2 = 2.7288e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2082.9 \text{ s}$$

$$\phi_{CZ} = 1.6594$$

$$d_0 = 0.00018766$$

$$d_2 = 1.6356e-07 \mu\text{Hz}^{-2}$$

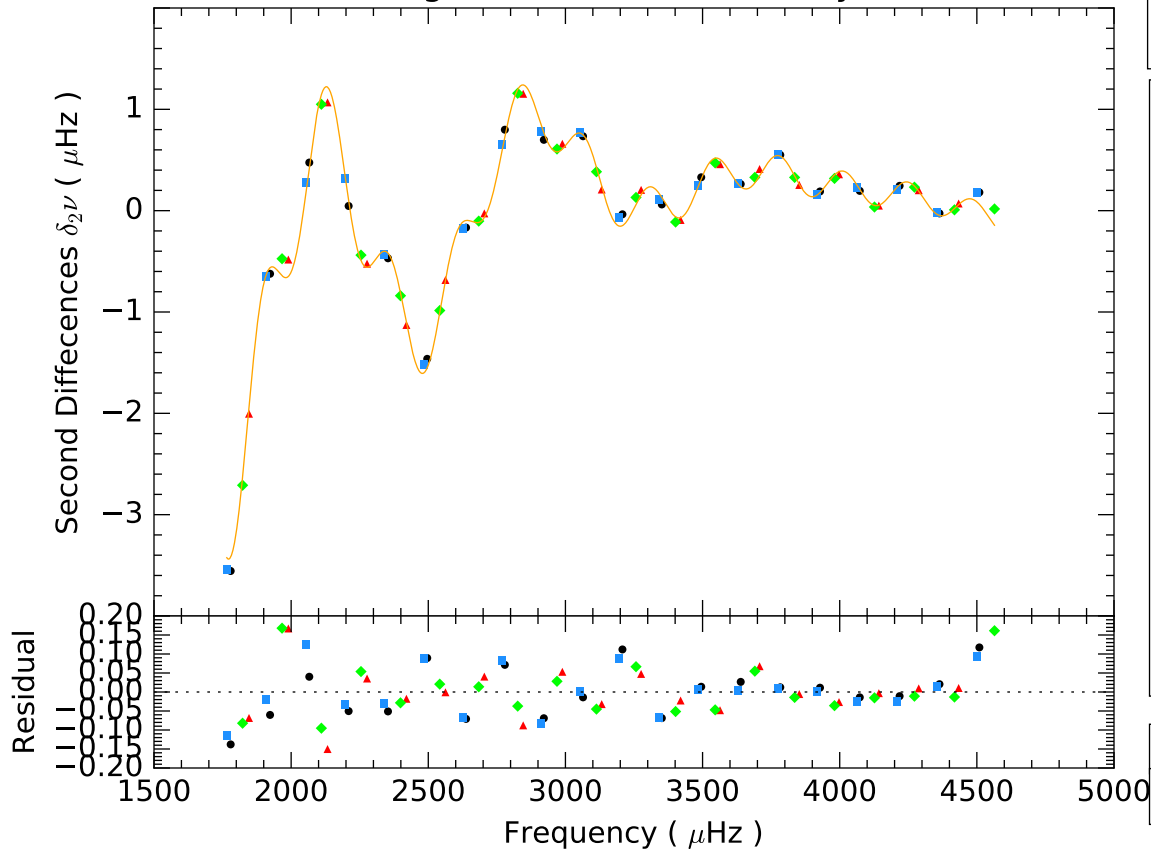
$$\tau_{HI} = 453.84 \text{ s}$$

$$\phi_{HI} = 3.3883$$

profile22

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

Age after ZAMS: 3.310 Gyr



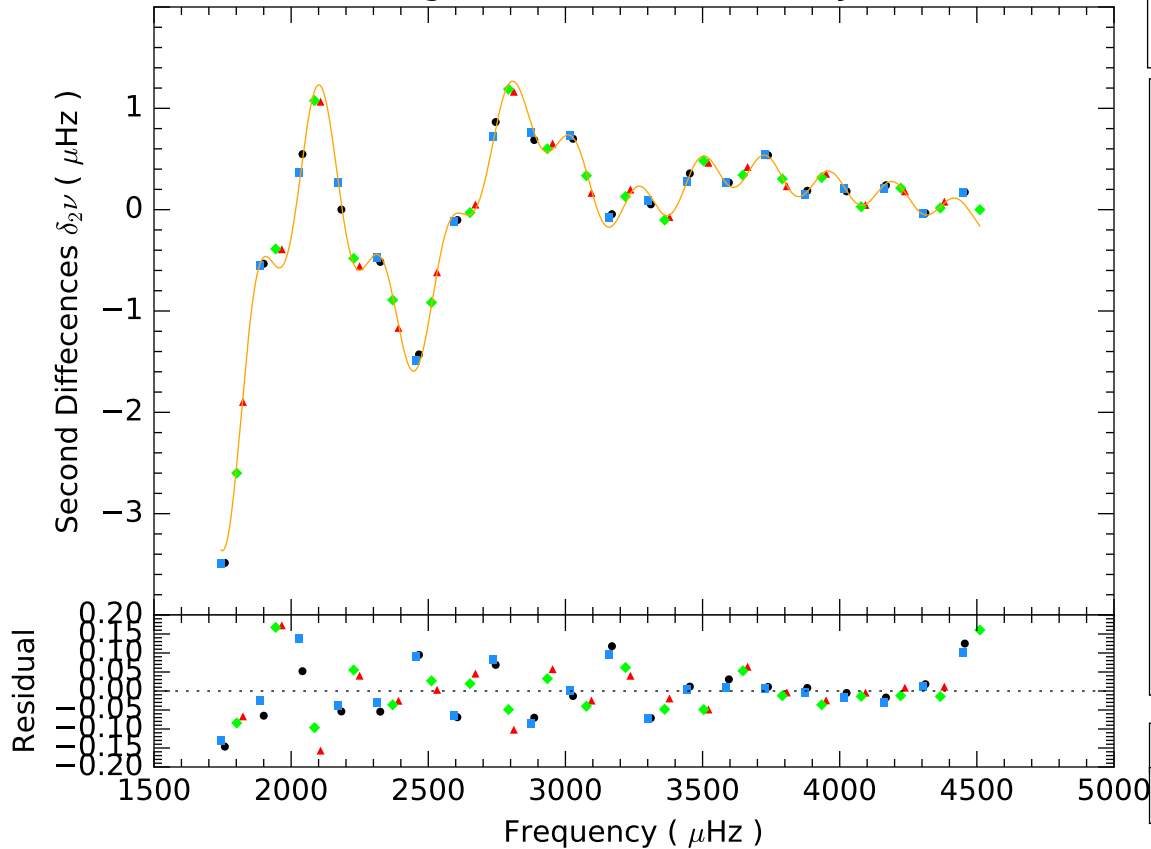
- $\ell=0$
- ◆ $\ell=3$
- ▲ $\ell=1$
- fit
- $\ell=2$

$$\begin{aligned}
 a_0 &= -4.5067 \mu\text{Hz} \\
 a_1 &= 0.0027544 \\
 a_2 &= -3.91e-07 \mu\text{Hz}^{-1} \\
 c_0 &= 0.0043652 \\
 c_2 &= 3.756e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 644.06 \text{ s} \\
 \phi_{HeII} &= 3.1268 \\
 b_2 &= 2.4578e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2125.9 \text{ s} \\
 \phi_{CZ} &= 1.1735 \\
 d_0 &= 0.0013655 \\
 d_2 &= 3.2782e-07 \mu\text{Hz}^{-2} \\
 \tau_{HI} &= 394.24 \text{ s} \\
 \phi_{HI} &= 6.2832
 \end{aligned}$$

profile23

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

Age after ZAMS: 3.610 Gyr



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

$$a_0 = -4.3323 \mu\text{Hz}$$

$$a_1 = 0.0026977$$

$$a_2 = -3.8931e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0044346$$

$$c_2 = 3.8453e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 654.0 \text{ s}$$

$$\phi_{HeII} = 3.1221$$

$$b_2 = 2.3819e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2154.0 \text{ s}$$

$$\phi_{CZ} = 1.1348$$

$$d_0 = 0.0015361$$

$$d_2 = 3.507e-07 \mu\text{Hz}^{-2}$$

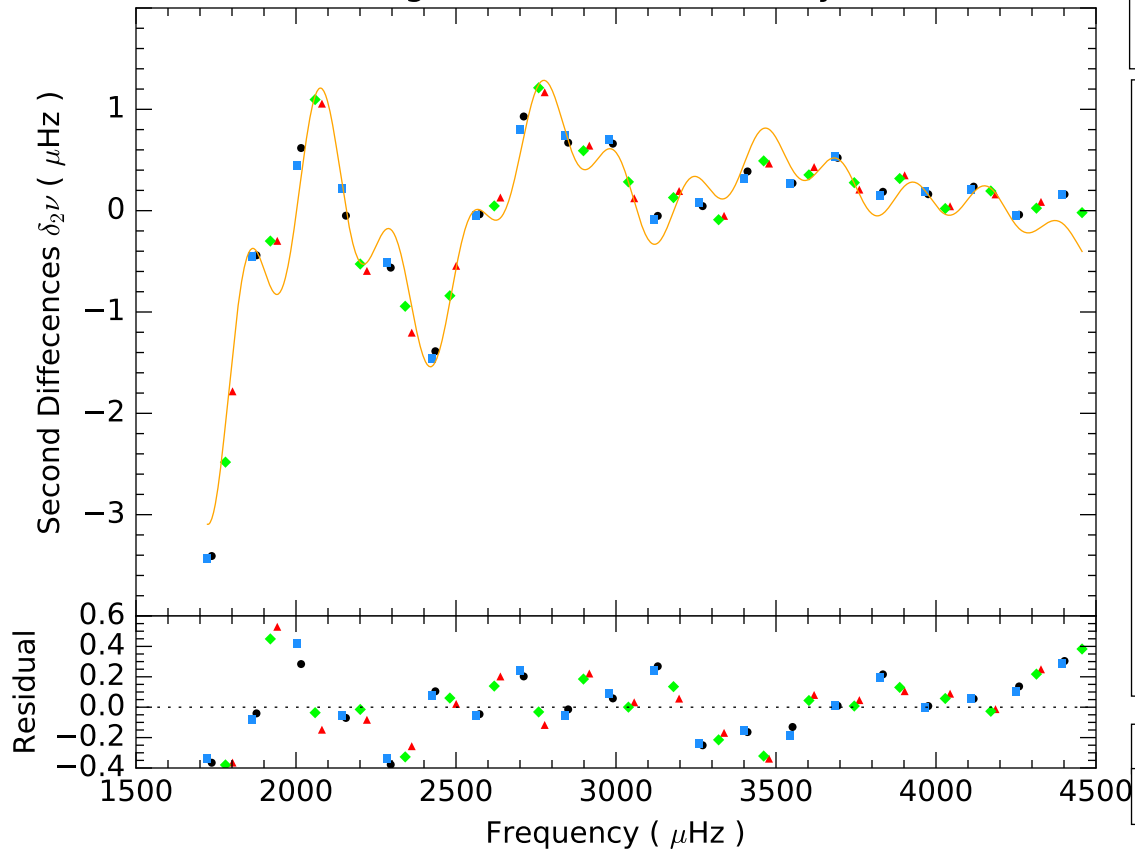
$$\tau_{HI} = 400.54 \text{ s}$$

$$\phi_{HI} = 6.2832$$

profile24

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

Age after ZAMS: 3.910 Gyr



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

$$a_0 = -5.9557 \mu\text{Hz}$$

$$a_1 = 0.0038057$$

$$a_2 = -5.707e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0015059$$

$$c_2 = 2.4472e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 701.07 \text{ s}$$

$$\phi_{\text{HeII}} = 2.0876$$

$$b_2 = 2.7569e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2162.4 \text{ s}$$

$$\phi_{\text{CZ}} = 1.6726$$

$$d_0 = 0.00020254$$

$$d_2 = 2.1096e-07 \mu\text{Hz}^{-2}$$

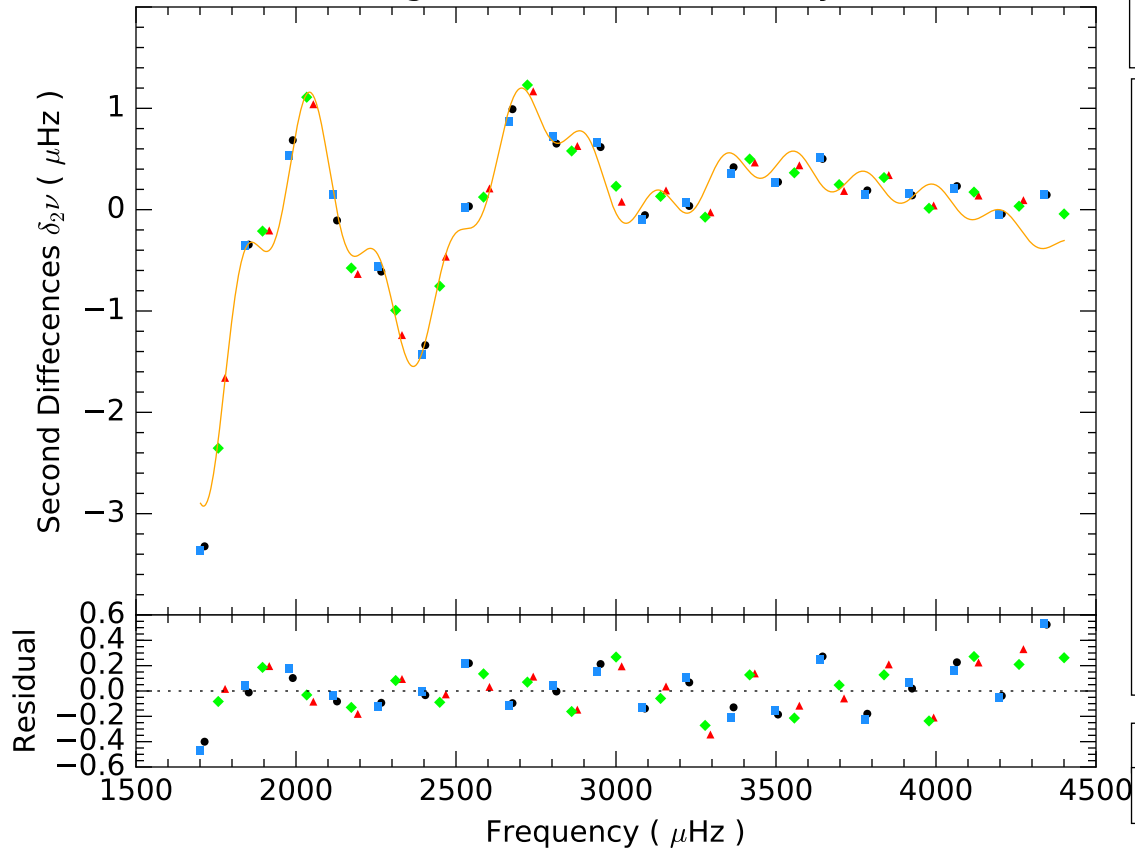
$$\tau_{\text{HI}} = 472.3 \text{ s}$$

$$\phi_{\text{HI}} = 3.4019$$

profile25

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

Age after ZAMS: 4.210 Gyr



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

$$a_0 = -5.8554 \mu\text{Hz}$$

$$a_1 = 0.0038045$$

$$a_2 = -5.7957e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0024483$$

$$c_2 = 3.2968e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 713.0 \text{ s}$$

$$\phi_{HeII} = 2.0757$$

$$b_2 = 1.9361e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2310.5 \text{ s}$$

$$\phi_{CZ} = 5.0$$

$$d_0 = 0.00035787$$

$$d_2 = 1.982e-07 \mu\text{Hz}^{-2}$$

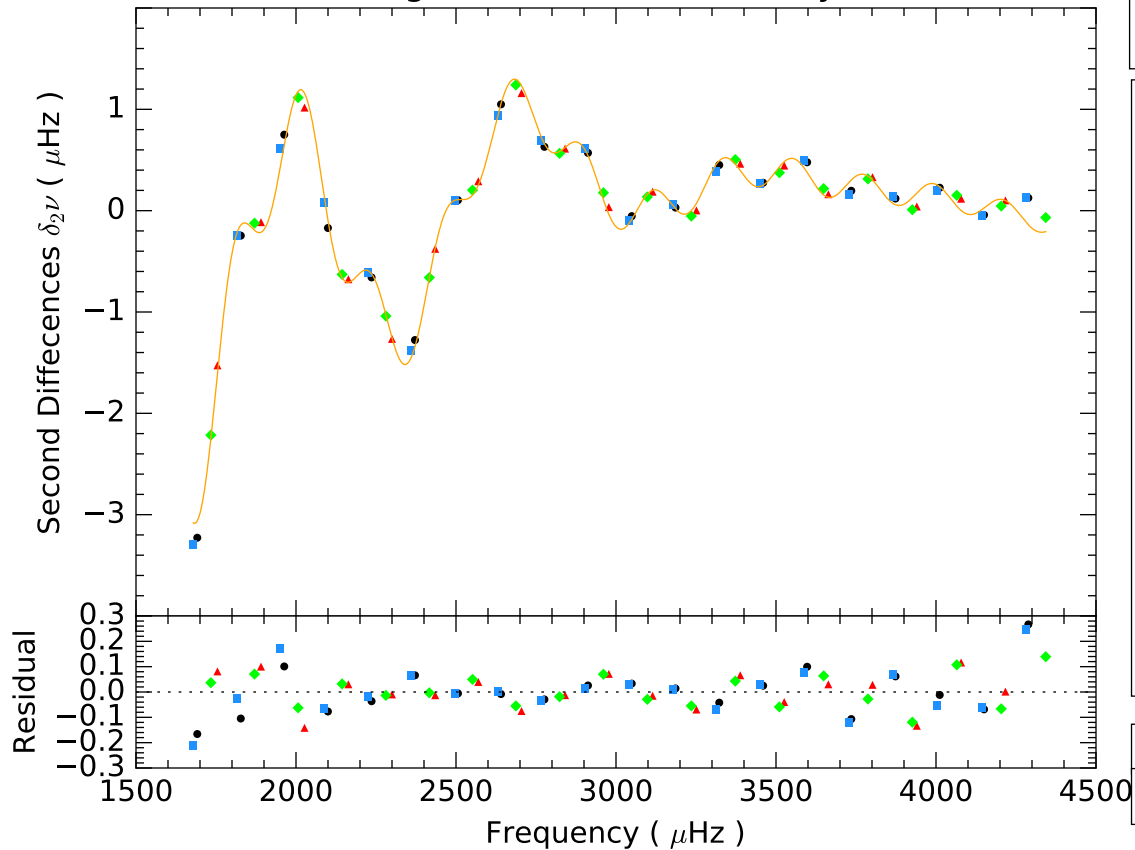
$$\tau_{HI} = 486.79 \text{ s}$$

$$\phi_{HI} = 3.4108$$

profile26

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

Age after ZAMS: 4.510 Gyr



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

$$a_0 = -4.0602 \mu \text{ Hz}$$

$$a_1 = 0.002679$$

$$a_2 = -4.08e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0044875$$

$$c_2 = 4.1488e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 689.65 \text{ s}$$

$$\phi_{HeII} = 3.0586$$

$$b_2 = 1.9819e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2285.9 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 0.0015527$$

$$d_2 = 3.7875e-07 \mu\text{Hz}^{-2}$$

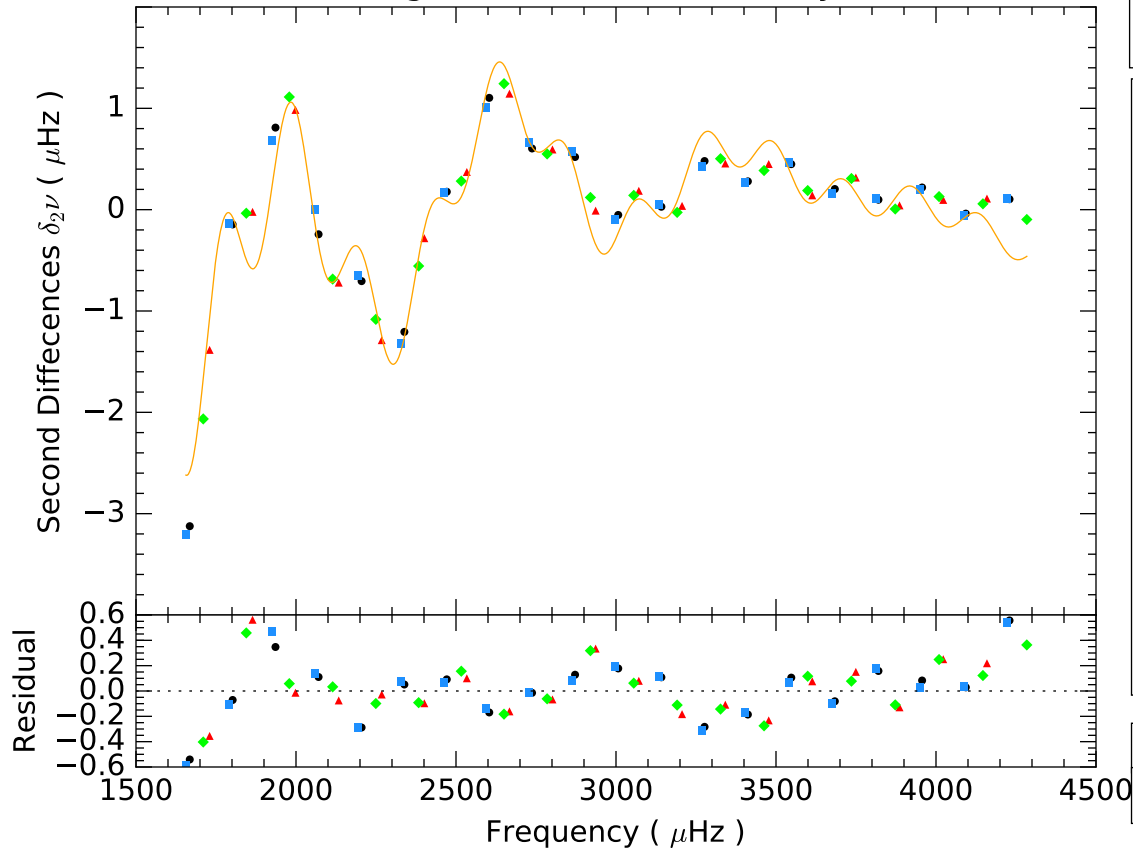
$$\tau_{HI} = 420.27 \text{ s}$$

$$\phi_{HI} = 6.2832$$

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

$$a_0 = -5.5238 \mu\text{Hz}$$

$$a_1 = 0.0037319$$

$$a_2 = -5.8923e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0014432$$

$$c_2 = 2.5204e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 730.52 \text{ s}$$

$$\phi_{HeII} = 2.2473$$

$$b_2 = 2.3895e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2326.8 \text{ s}$$

$$\phi_{CZ} = 6.2832$$

$$d_0 = 0.00036342$$

$$d_2 = 1.8823e-07 \mu\text{Hz}^{-2}$$

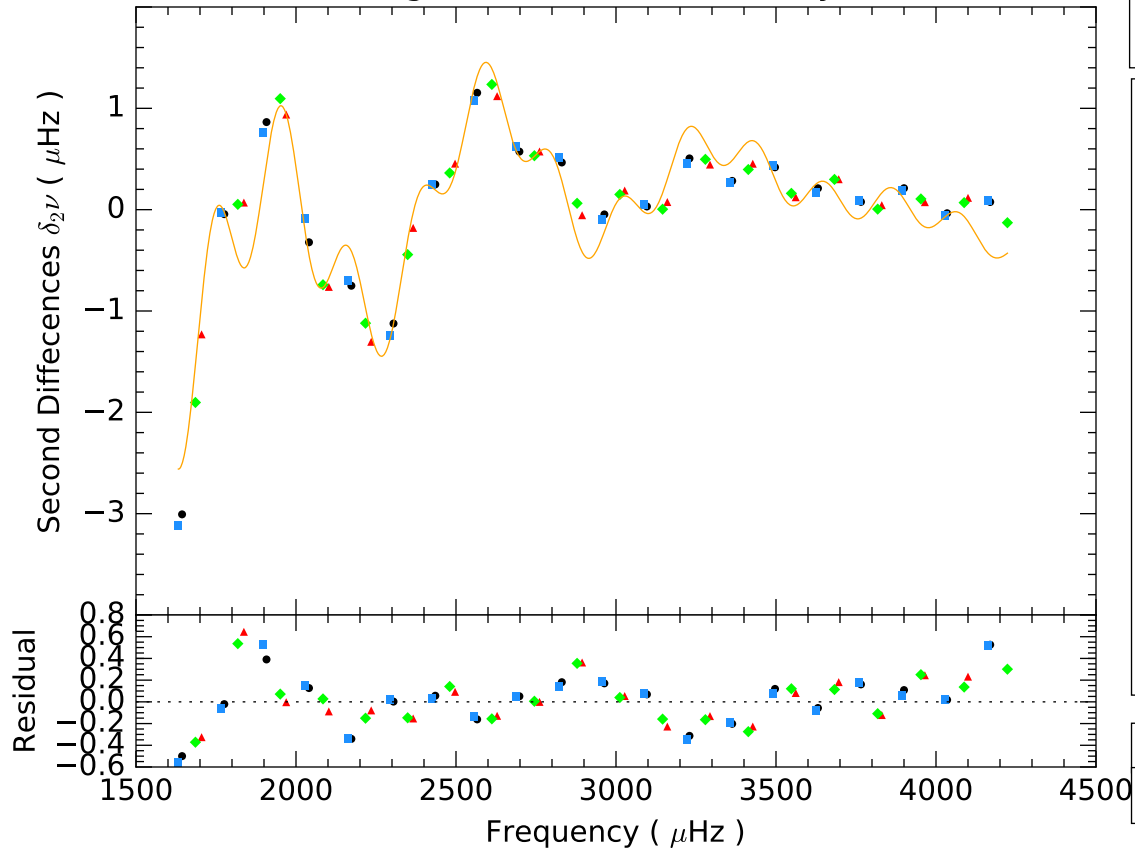
$$\tau_{HI} = 513.2 \text{ s}$$

$$\phi_{HI} = 3.4116$$

profile28

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

Age after ZAMS: 5.110 Gyr



$$a_0 = -5.3583 \mu\text{Hz}$$

$$a_1 = 0.0036945$$

$$a_2 = -5.9438e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0014748$$

$$c_2 = 2.6416e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 742.16 \text{ s}$$

$$\phi_{\text{HeII}} = 2.2974$$

$$b_2 = 2.3574e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2363.0 \text{ s}$$

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

$$d_0 = 0.00039909$$

$$d_2 = 2.0894e-07 \mu\text{Hz}^{-2}$$

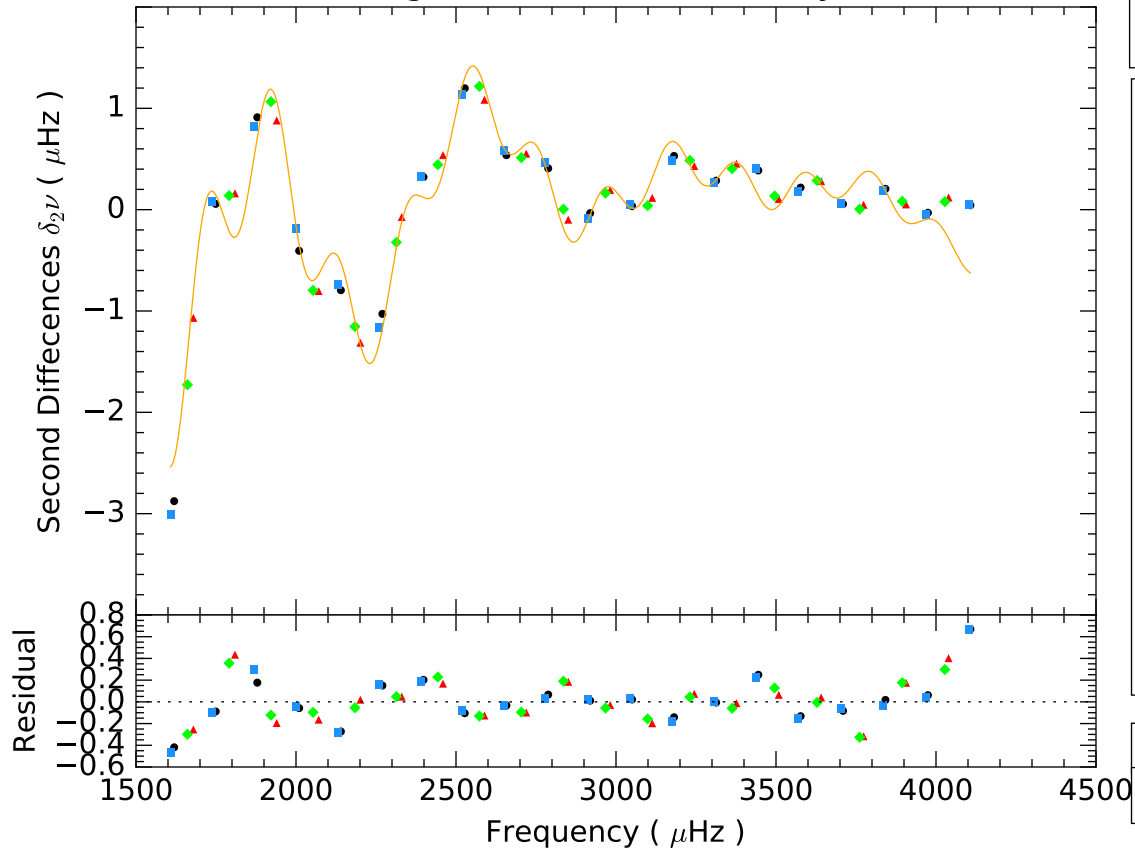
$$\tau_{\text{HI}} = 528.87 \text{ s}$$

$$\phi_{\text{HI}} = 3.4222$$

profile29

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

Age after ZAMS: 5.410 Gyr



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

$$a_0 = -5.2036 \mu\text{Hz}$$

$$a_1 = 0.0036719$$

$$a_2 = -6.0402e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0014075$$

$$c_2 = 2.5808e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 760.5 \text{ s}$$

$$\phi_{HeII} = 2.2771$$

$$b_2 = 2.1159e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2405.9 \text{ s}$$

$$\phi_{CZ} = 6.1577$$

$$d_0 = 0.00017598$$

$$d_2 = 9.5176e-08 \mu\text{Hz}^{-2}$$

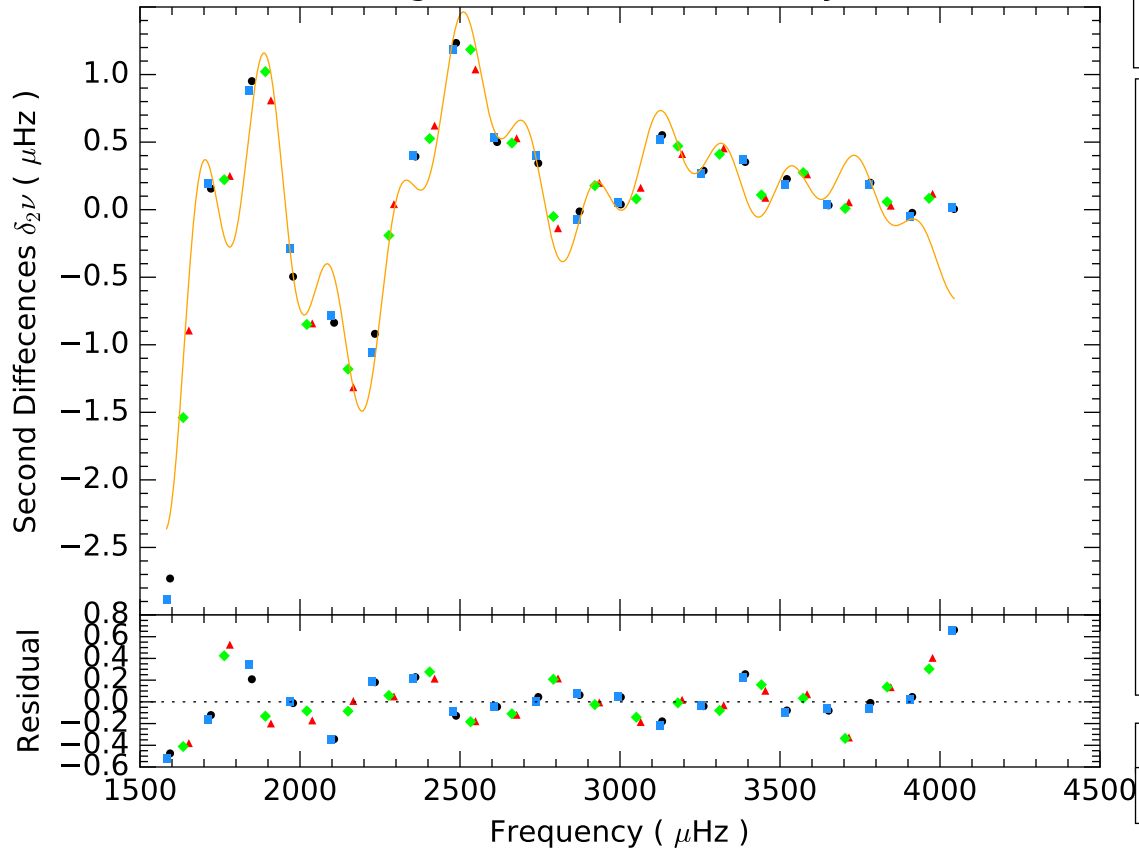
$$\tau_{HI} = 503.54 \text{ s}$$

$$\phi_{HI} = 3.625$$

profile30

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

Age after ZAMS: 5.710 Gyr



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

$$a_0 = -5.0016 \mu\text{Hz}$$

$$a_1 = 0.0036112$$

$$a_2 = -6.065e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0011478$$

$$c_2 = 2.2867e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 765.83 \text{ s}$$

$$\phi_{\text{HeII}} = 2.5461$$

$$b_2 = 2.1883e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2441.8 \text{ s}$$

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

$$d_0 = 0.0001773$$

$$d_2 = 9.7911e-08 \mu\text{Hz}^{-2}$$

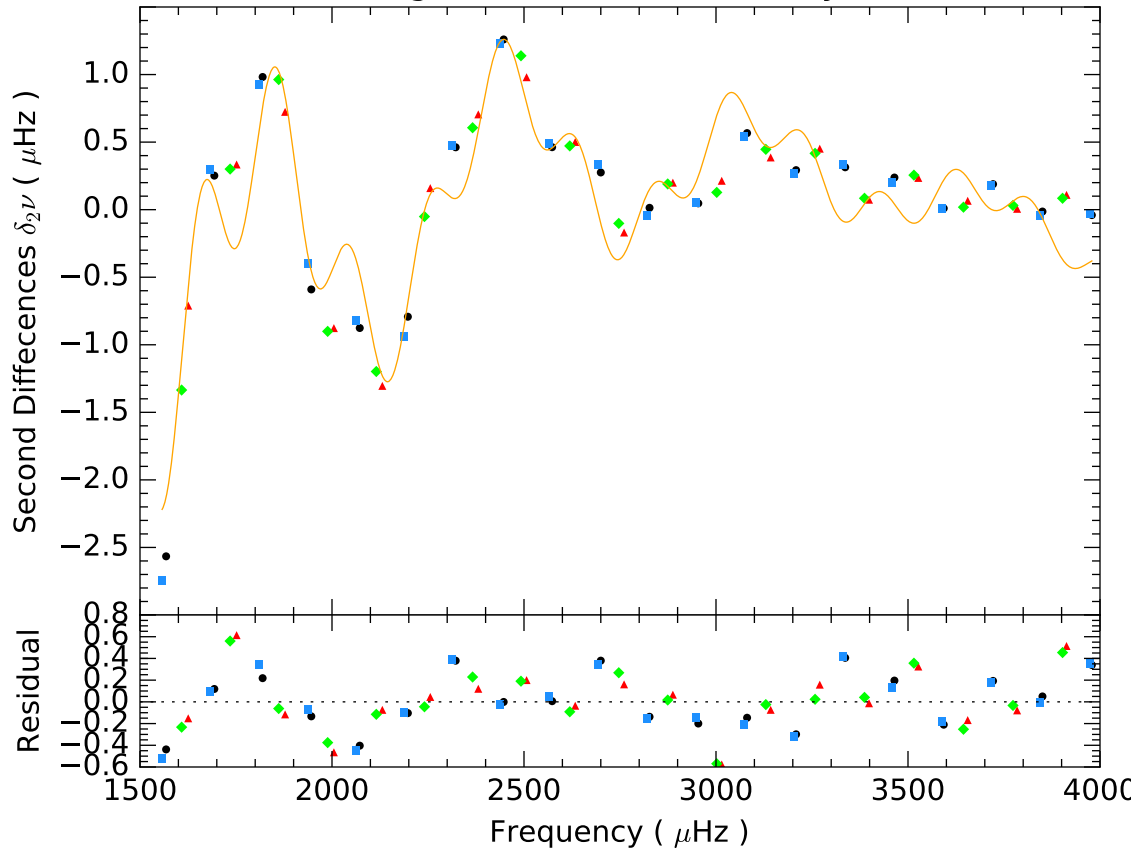
$$\tau_{\text{HI}} = 513.24 \text{ s}$$

$$\phi_{\text{HI}} = 3.5967$$

profile31

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

Age after ZAMS: 6.010 Gyr



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

$$a_0 = -4.9359 \mu\text{Hz}$$

$$a_1 = 0.0036463$$

$$a_2 = -6.2592e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.001076$$

$$c_2 = 2.3026e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 786.69 \text{ s}$$

$$\phi_{HeII} = 2.3986$$

$$b_2 = 1.8462e+06 \text{ mHz}^3$$

$$\tau_{CZ} = 2548.2 \text{ s}$$

$$\phi_{CZ} = 4.9628$$

$$d_0 = 0.00022124$$

$$d_2 = 3.4553e-07 \mu\text{Hz}^{-2}$$

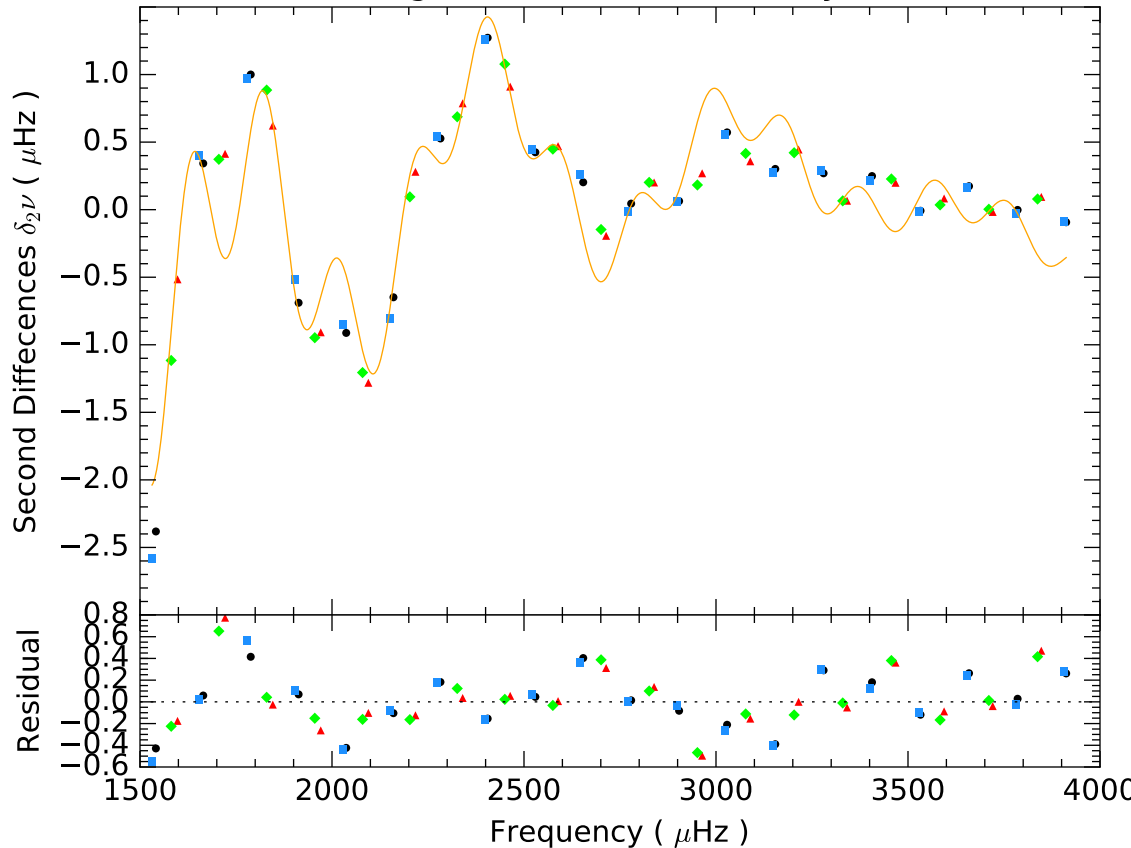
$$\tau_{HI} = 530.84 \text{ s}$$

$$\phi_{HI} = 3.4722$$

profile32

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

Age after ZAMS: 6.310 Gyr



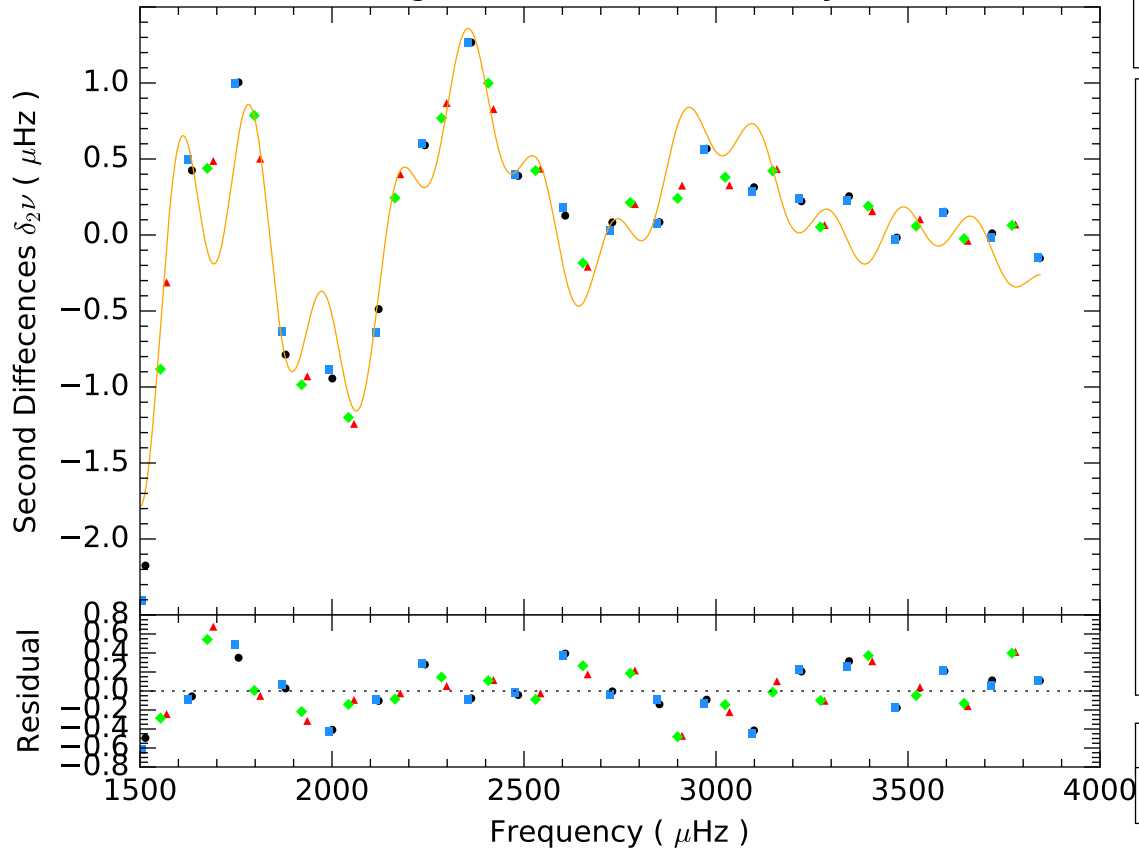
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$a_0 = -4.7558 \mu\text{Hz}$
 $a_1 = 0.0035993$
 $a_2 = -6.3138e-07 \mu\text{Hz}^{-2}$
 $c_0 = 0.0012184$
 $c_2 = 2.5827e-07 \mu\text{Hz}^{-2}$
 $\tau_{HeII} = 787.55 \text{ s}$
 $\phi_{HeII} = 2.7908$
 $b_2 = 1.9607e+06 \text{ mHz}^3$
 $\tau_{CZ} = 2584.1 \text{ s}$
 $\phi_{CZ} = 5.1022$
 $d_0 = 0.00043296$
 $d_2 = 2.6722e-07 \mu\text{Hz}^{-2}$
 $\tau_{HI} = 580.98 \text{ s}$
 $\phi_{HI} = 3.4427$

profile33

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

Age after ZAMS: 6.610 Gyr



$$a_0 = -4.5205 \mu \text{ Hz}$$

$$a_1 = 0.0035081$$

$$a_2 = -6.293e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0011208$$

$$c_2 = 2.5336e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 783.32 \text{ s}$$

$$\phi_{\text{HeII}} = 3.4454$$

$$b_2 = 1.8019e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2657.8 \text{ s}$$

$$\phi_{\text{CZ}} = 4.5868$$

$$d_0 = 0.00026979$$

$$d_2 = 2.5607e-07 \mu\text{Hz}^{-2}$$

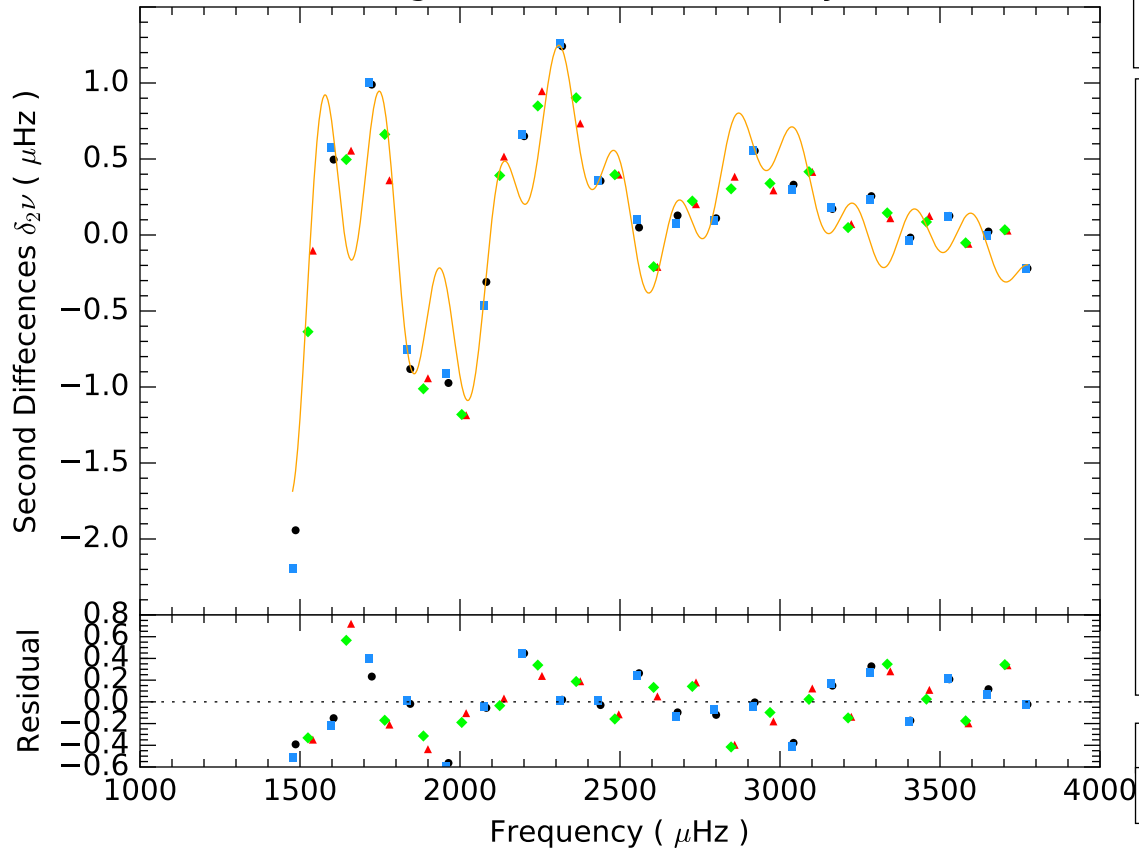
$$\tau_{\text{HI}} = 591.03 \text{ s}$$

$$\phi_{\text{HI}} = 3.394$$

profile34

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

Age after ZAMS: 6.910 Gyr



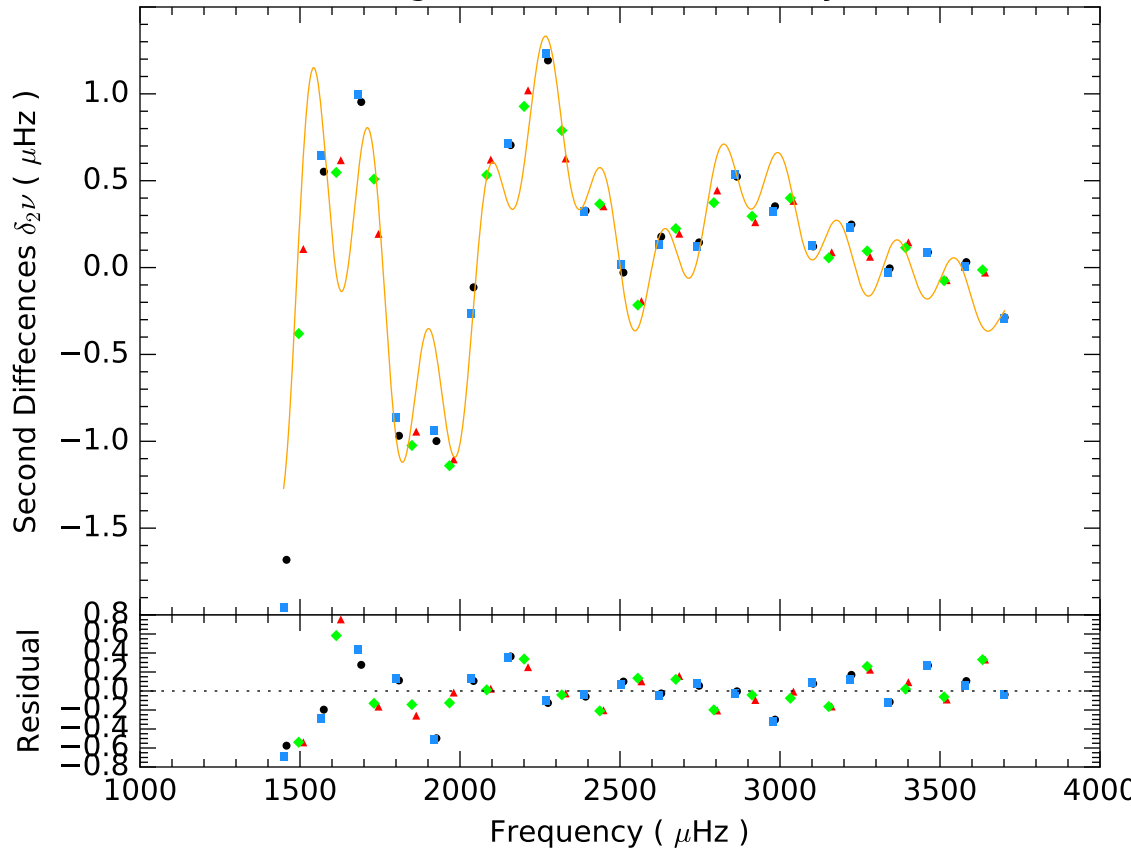
- \bullet $\ell=0$
- \blacktriangle $\ell=1$
- \blacksquare $\ell=2$
- \blacklozenge $\ell=3$
- fit

$$\begin{aligned}
 a_0 &= -4.2221 \mu\text{Hz} \\
 a_1 &= 0.0033692 \\
 a_2 &= -6.1917e-07 \mu\text{Hz}^{-2} \\
 c_0 &= 0.001183 \\
 c_2 &= 2.8238e-07 \mu\text{Hz}^{-2} \\
 \tau_{HeII} &= 771.72 \text{ s} \\
 \phi_{HeII} &= 4.2679 \\
 b_2 &= 1.9396e+06 \text{ mHz}^3 \\
 \tau_{CZ} &= 2707.9 \text{ s} \\
 \phi_{CZ} &= 4.6602 \\
 d_0 &= 6.216e-05 \\
 d_2 &= 2.3597e-07 \mu\text{Hz}^{-2} \\
 \tau_{HI} &= 623.46 \text{ s} \\
 \phi_{HI} &= 3.3083
 \end{aligned}$$

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

$$a_0 = -3.9272 \mu\text{Hz}$$

$$a_1 = 0.0032376$$

$$a_2 = -6.1186e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0014573$$

$$c_2 = 3.5618e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 780.96 \text{ s}$$

$$\phi_{\text{HeII}} = 4.376$$

$$b_2 = 1.864e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2733.9 \text{ s}$$

$$\phi_{\text{CZ}} = 5.2944$$

$$d_0 = 0.00068385$$

$$d_2 = 4.09e-07 \mu\text{Hz}^{-2}$$

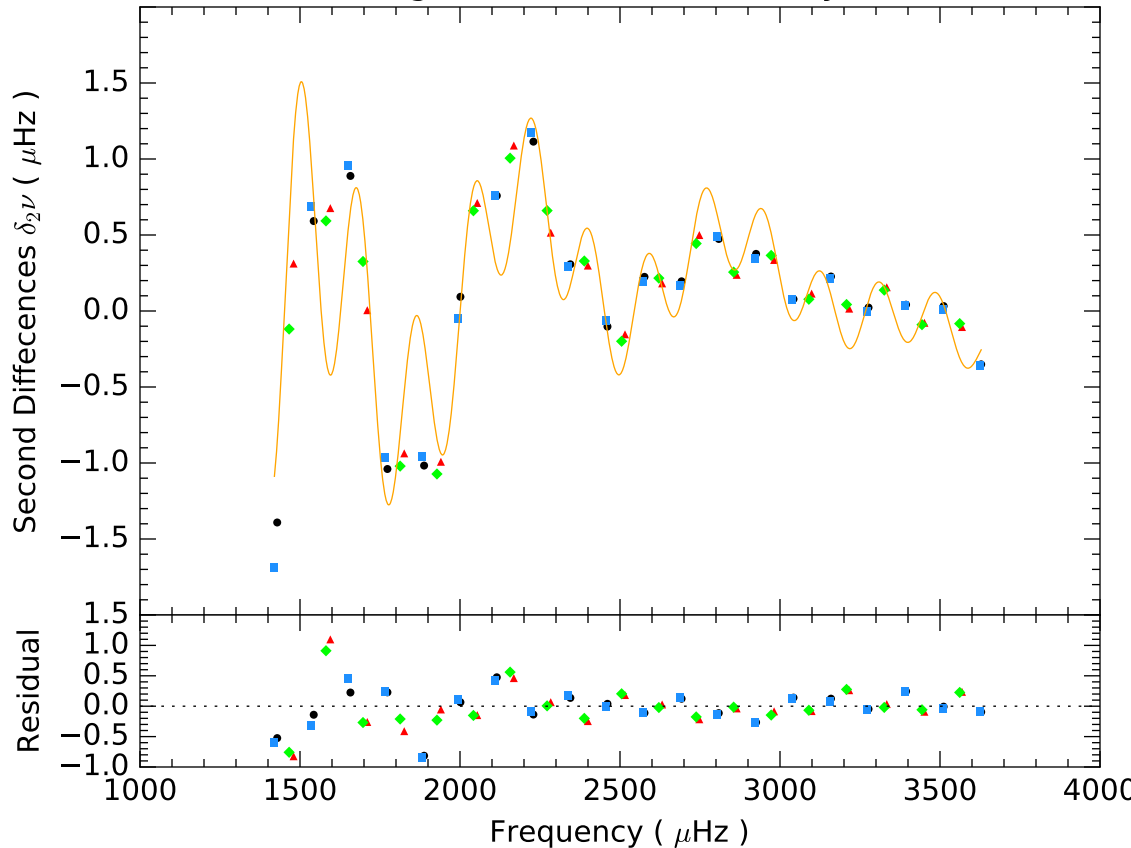
$$\tau_{\text{HI}} = 610.24 \text{ s}$$

$$\phi_{\text{HI}} = 3.4284$$

profile36

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

Age after ZAMS: 7.510 Gyr



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

$$a_0 = -3.5117 \mu\text{Hz}$$

$$a_1 = 0.0029992$$

$$a_2 = -5.8311e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.001124$$

$$c_2 = 3.1367e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 759.63 \text{ s}$$

$$\phi_{\text{HeII}} = 5.7722$$

$$b_2 = 2.2724e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2768.8 \text{ s}$$

$$\phi_{\text{CZ}} = 5.8327$$

$$d_0 = 4.8806e-05$$

$$d_2 = 2.7538e-07 \mu\text{Hz}^{-2}$$

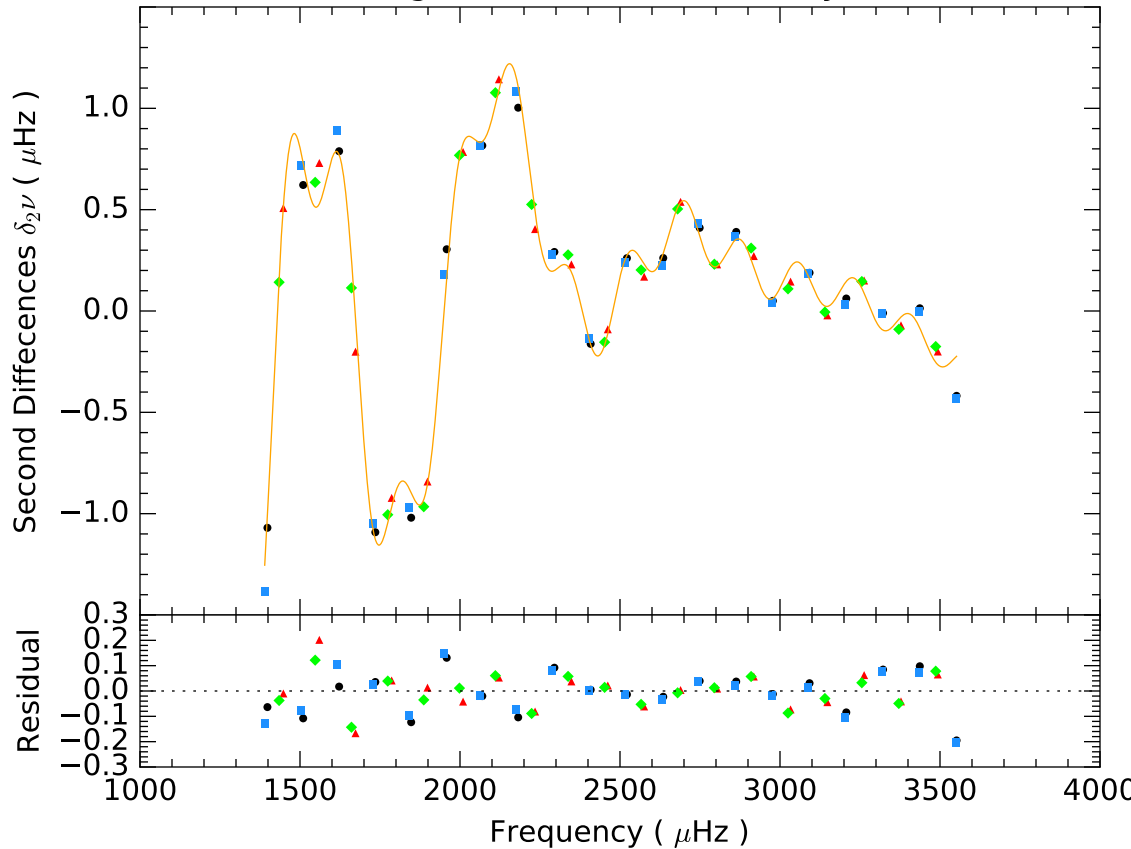
$$\tau_{\text{HI}} = 614.13 \text{ s}$$

$$\phi_{\text{HI}} = 3.2878$$

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

$$a_0 = -2.8332 \mu\text{Hz}$$

$$a_1 = 0.0025204$$

$$a_2 = -5.0401e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.004707$$

$$c_2 = 6.1235e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 871.84 \text{ s}$$

$$\phi_{HeII} = 3.3285$$

$$b_2 = 9.5169e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 2823.1 \text{ s}$$

$$\phi_{CZ} = 6.2828$$

$$d_0 = 0.0022403$$

$$d_2 = 6.5561e-07 \mu\text{Hz}^{-2}$$

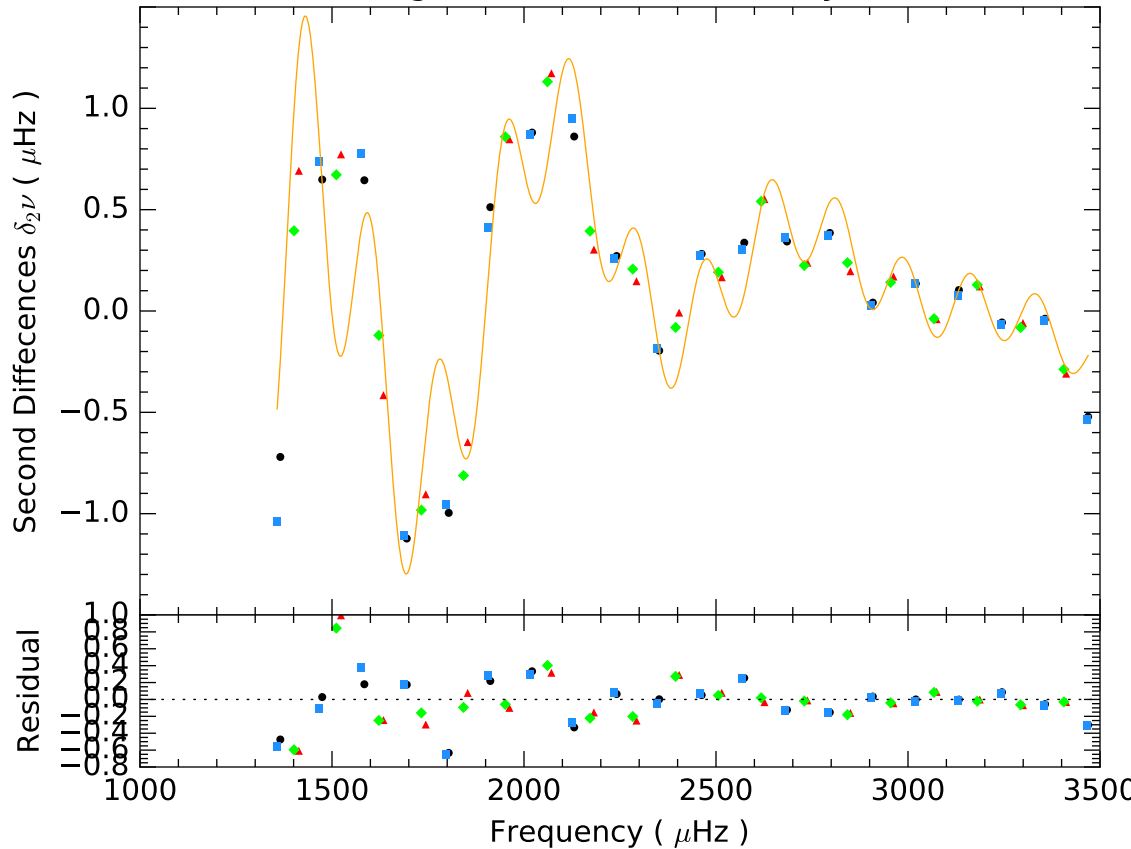
$$\tau_{HI} = 537.3 \text{ s}$$

$$\phi_{HI} = 6.2825$$

profile38

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

Age after ZAMS: 8.110 Gyr



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

$$a_0 = -3.006 \mu\text{Hz}$$

$$a_1 = 0.0027135$$

$$a_2 = -5.5325e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0019834$$

$$c_2 = 4.4158e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 778.97 \text{ s}$$

$$\phi_{\text{HeII}} = 0.012445$$

$$b_2 = 1.5867e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 2885.4 \text{ s}$$

$$\phi_{\text{CZ}} = 0.0022384$$

$$d_0 = 0.00032474$$

$$d_2 = 4.0285e-07 \mu\text{Hz}^{-2}$$

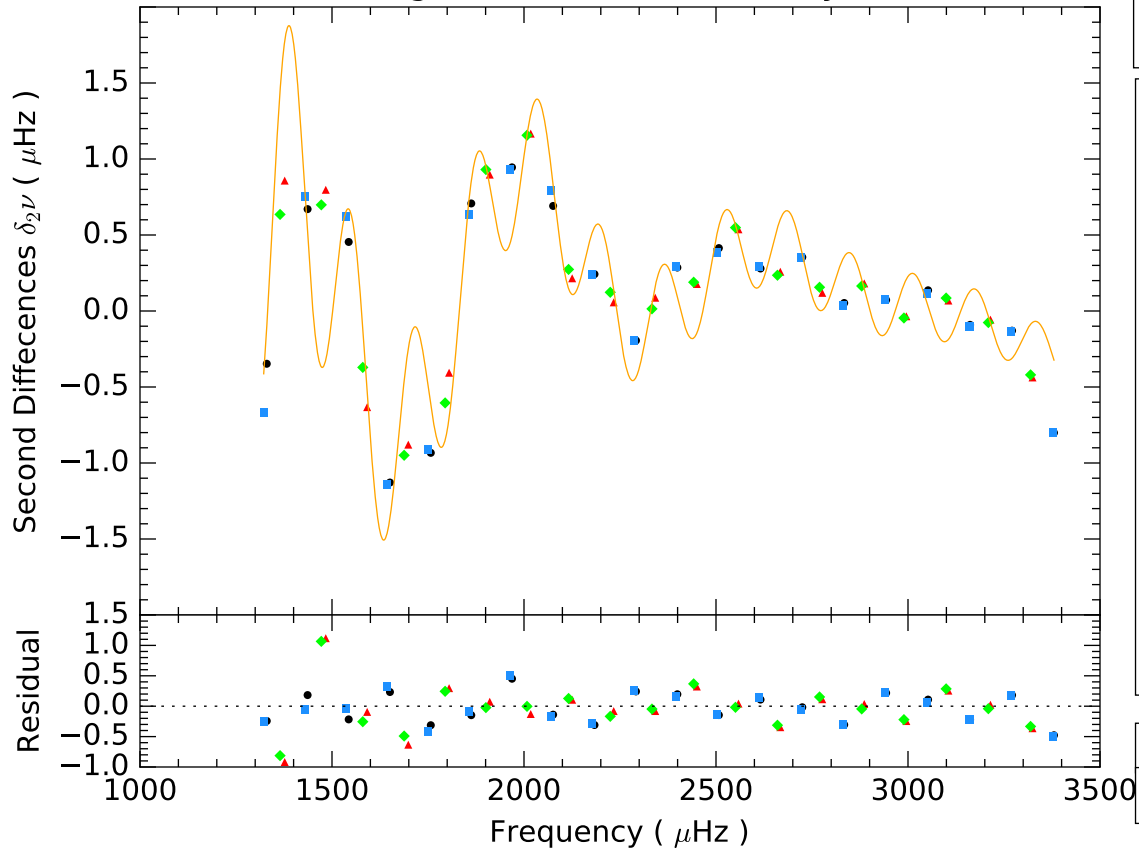
$$\tau_{\text{HI}} = 447.18 \text{ s}$$

$$\phi_{\text{HI}} = 2.9218$$

profile39

$$\chi^2_{\nu}(\text{dof} = 64) = 0.093051$$

Age after ZAMS: 8.410 Gyr



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

$$a_0 = -2.9677 \mu\text{Hz}$$

$$a_1 = 0.0028002$$

$$a_2 = -5.9579e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0025528$$

$$c_2 = 5.2443e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 804.42 \text{ s}$$

$$\phi_{\text{HeII}} = 0.070111$$

$$b_2 = 1.9618e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3077.9 \text{ s}$$

$$\phi_{\text{CZ}} = 4.4216$$

$$d_0 = 0.00032298$$

$$d_2 = 4.1312e-07 \mu\text{Hz}^{-2}$$

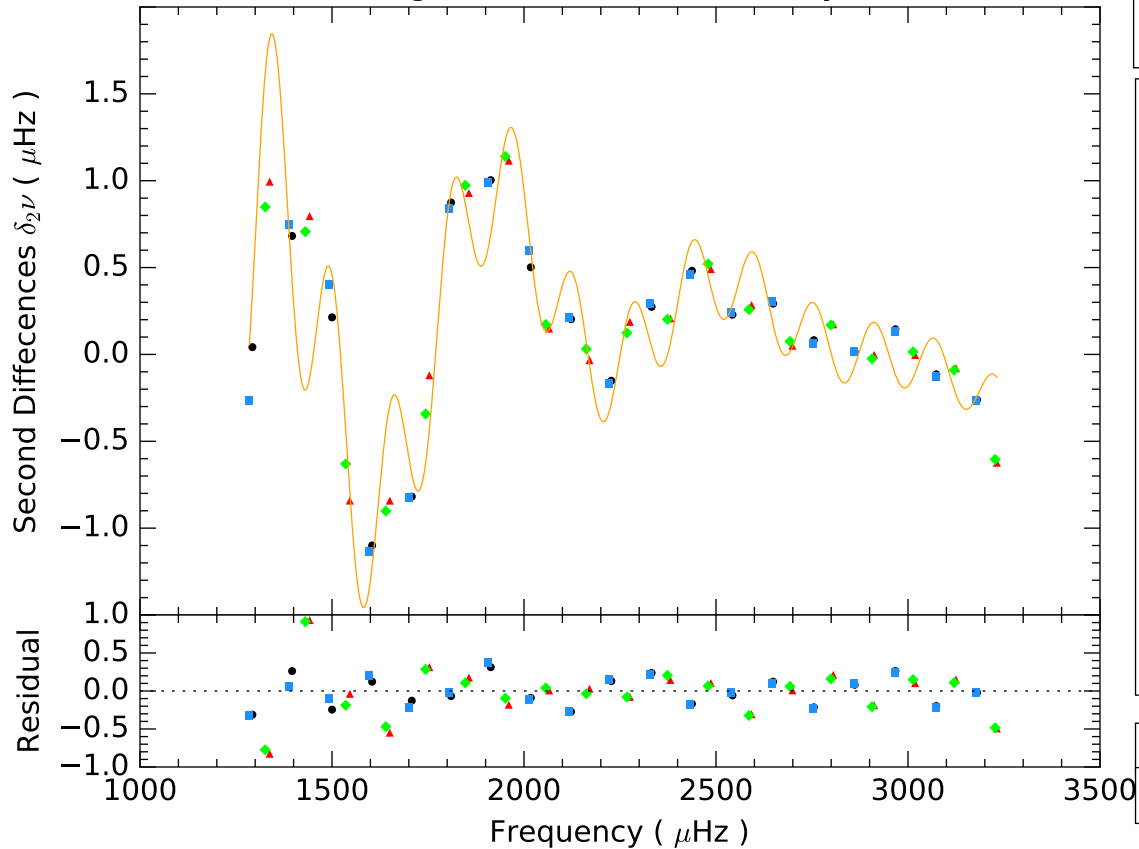
$$\tau_{\text{HI}} = 471.13 \text{ s}$$

$$\phi_{\text{HI}} = 2.8949$$

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

$$a_0 = -2.7609 \mu\text{Hz}$$

$$a_1 = 0.0027508$$

$$a_2 = -6.1422e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0028942$$

$$c_2 = 5.7678e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 838.08 \text{ s}$$

$$\phi_{\text{HeII}} = 0.007175$$

$$b_2 = 1.5447e+06 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3189.8 \text{ s}$$

$$\phi_{\text{CZ}} = 4.2314$$

$$d_0 = 0.00053664$$

$$d_2 = 6.8709e-07 \mu\text{Hz}^{-2}$$

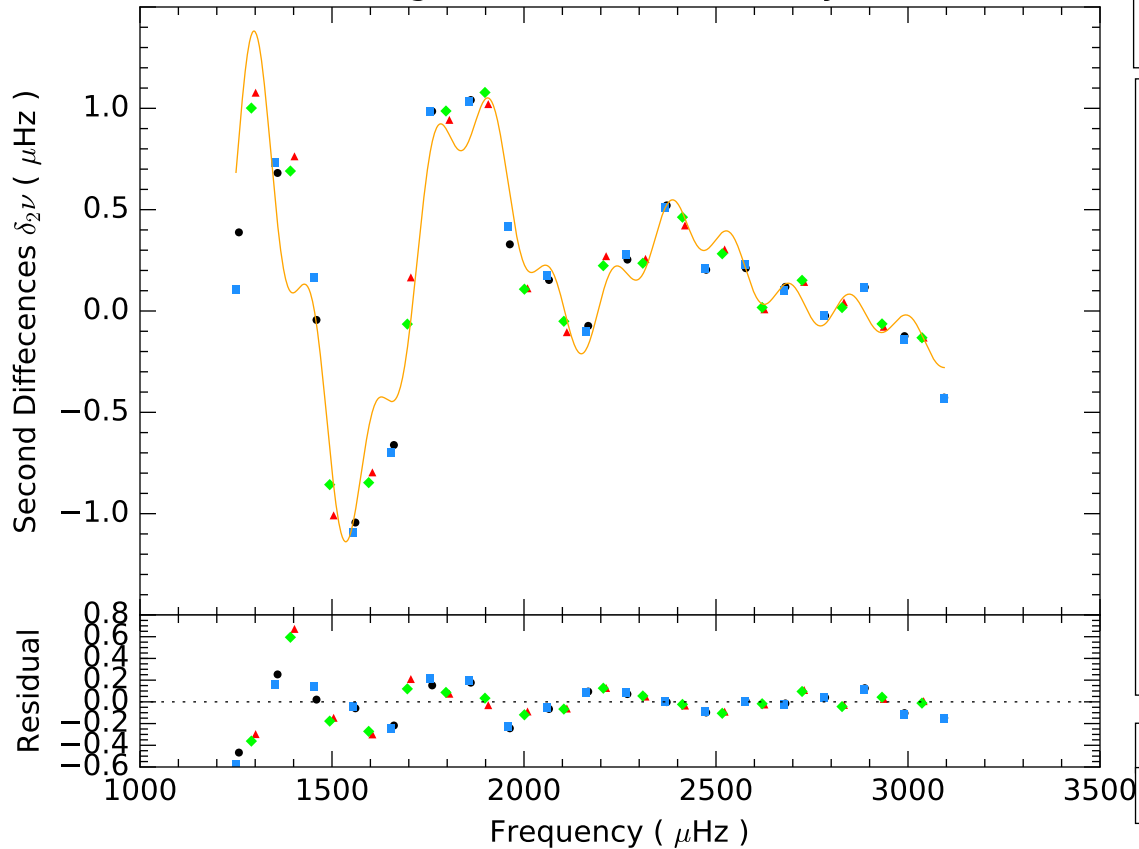
$$\tau_{\text{HI}} = 484.27 \text{ s}$$

$$\phi_{\text{HI}} = 2.8606$$

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

$$a_0 = -2.5085 \mu \text{ Hz}$$

$$a_1 = 0.0026327$$

$$a_2 = -6.1371e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.0027649$$

$$c_2 = 5.9957e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 870.65 \text{ s}$$

$$\phi_{HeII} = 0.00026542$$

$$b_2 = 6.5923e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 3225.6 \text{ s}$$

$$\phi_{CZ} = 5.4756$$

$$d_0 = 0.00043665$$

$$d_2 = 6.499e-07 \mu\text{Hz}^{-2}$$

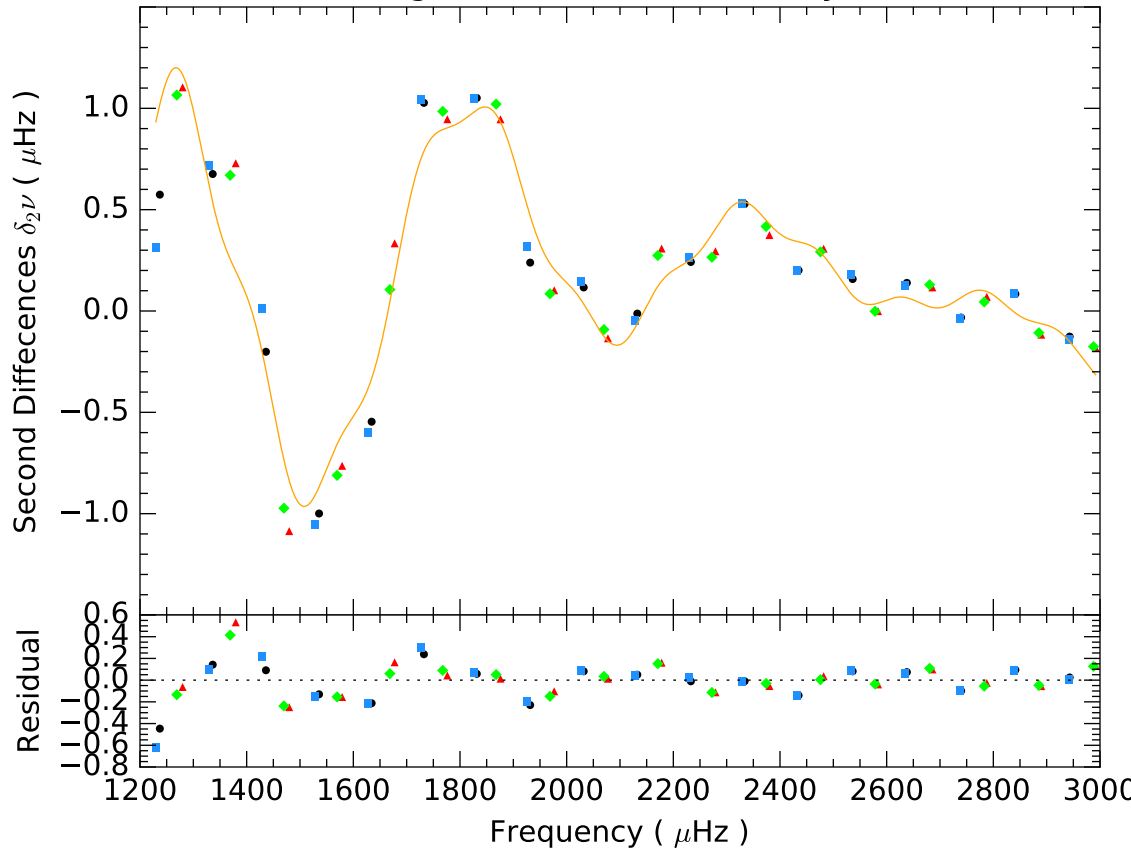
$$\tau_{HI} = 471.28 \text{ s}$$

$$\phi_{HI} = 3.2386$$

profile42

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

Age after ZAMS: 9.117 Gyr



$$a_0 = -2.5549 \mu\text{Hz}$$

$$a_1 = 0.0027853$$

$$a_2 = -6.7261e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015133$$

$$c_2 = 4.306e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 922.0 \text{ s}$$

$$\phi_{\text{HeII}} = 5.8399$$

$$b_2 = 2.6854e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3317.7 \text{ s}$$

$$\phi_{\text{CZ}} = 5.1397$$

$$d_0 = 0.0002209$$

$$d_2 = 2.3907e-07 \mu\text{Hz}^{-2}$$

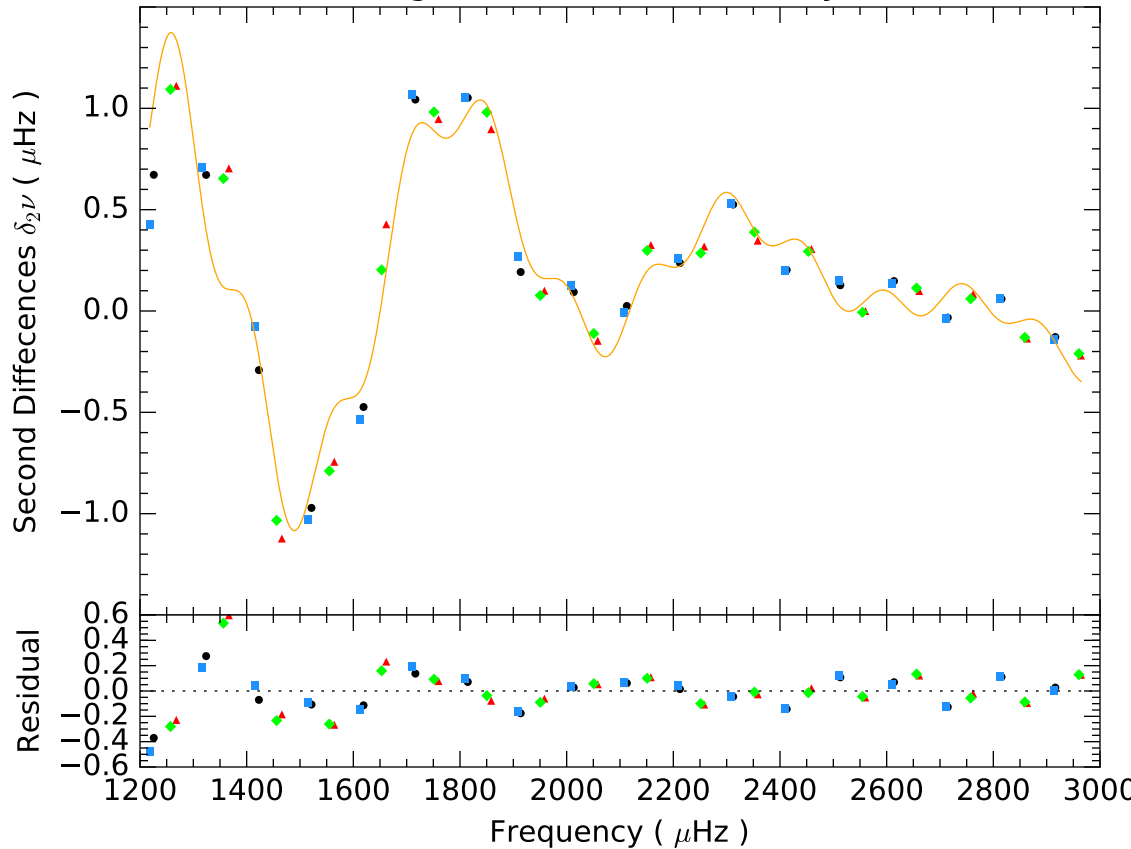
$$\tau_{\text{HI}} = 717.09 \text{ s}$$

$$\phi_{\text{HI}} = 2.9599$$

profile43

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

Age after ZAMS: 9.197 Gyr



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

$$a_0 = -2.4601 \mu\text{Hz}$$

$$a_1 = 0.002731$$

$$a_2 = -6.6901e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0015662$$

$$c_2 = 4.4678e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 931.31 \text{ s}$$

$$\phi_{\text{HeII}} = 5.8843$$

$$b_2 = 5.1207e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3379.6 \text{ s}$$

$$\phi_{\text{CZ}} = 4.5058$$

$$d_0 = 0.00022989$$

$$d_2 = 2.578e-07 \mu\text{Hz}^{-2}$$

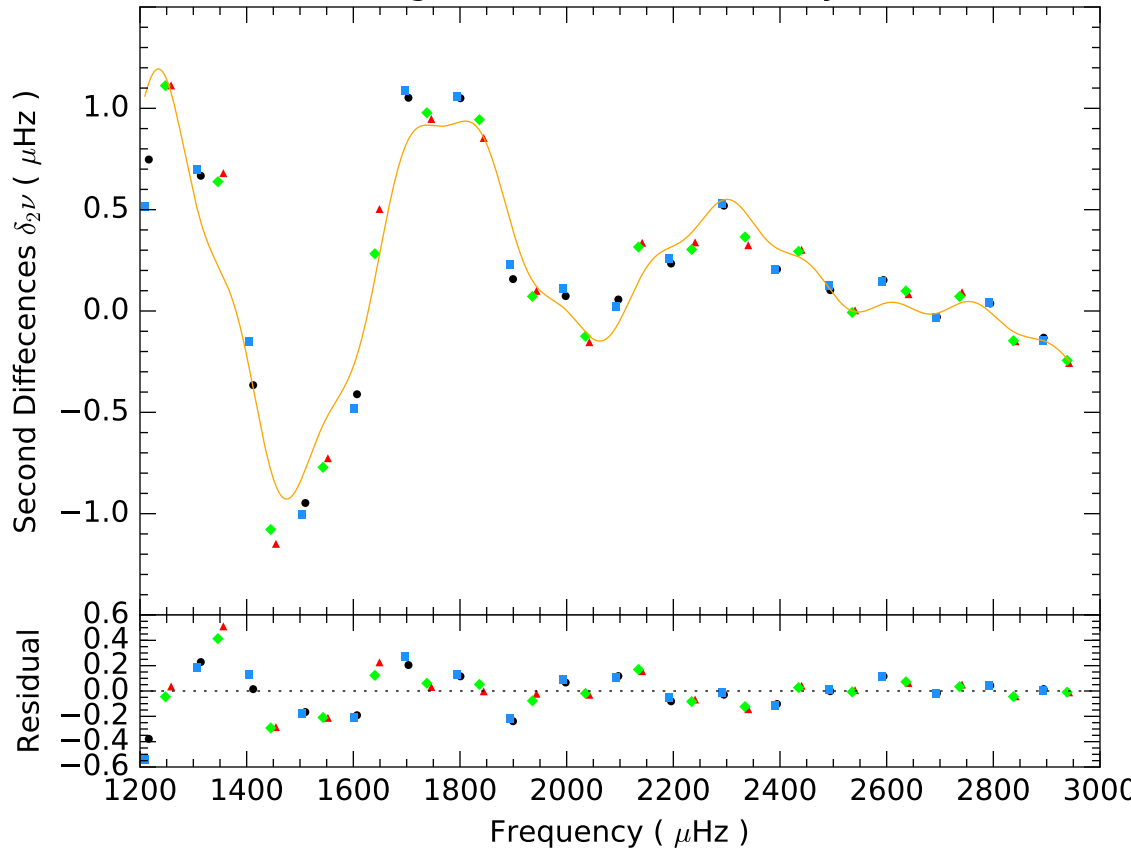
$$\tau_{\text{HI}} = 725.77 \text{ s}$$

$$\phi_{\text{HI}} = 2.9519$$

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

$$a_0 = -2.4519 \mu \text{ Hz}$$

$$a_1 = 0.0027495$$

$$a_2 = -6.8012e-07 \mu\text{Hz}^{-1}$$

$$c_0 = 0.001675$$

$$c_2 = 4.9138e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{He II}} = 935.8 \text{ s}$$

$$\phi_{\text{He II}} = 5.9268$$

$$b_2 = 2.6112e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3275.6 \text{ s}$$

$$\phi_{\text{CZ}} = 0.96096$$

$$d_0 = 0.00020718$$

$$d_2 = 3.3312e-07 \mu\text{Hz}^{-2}$$

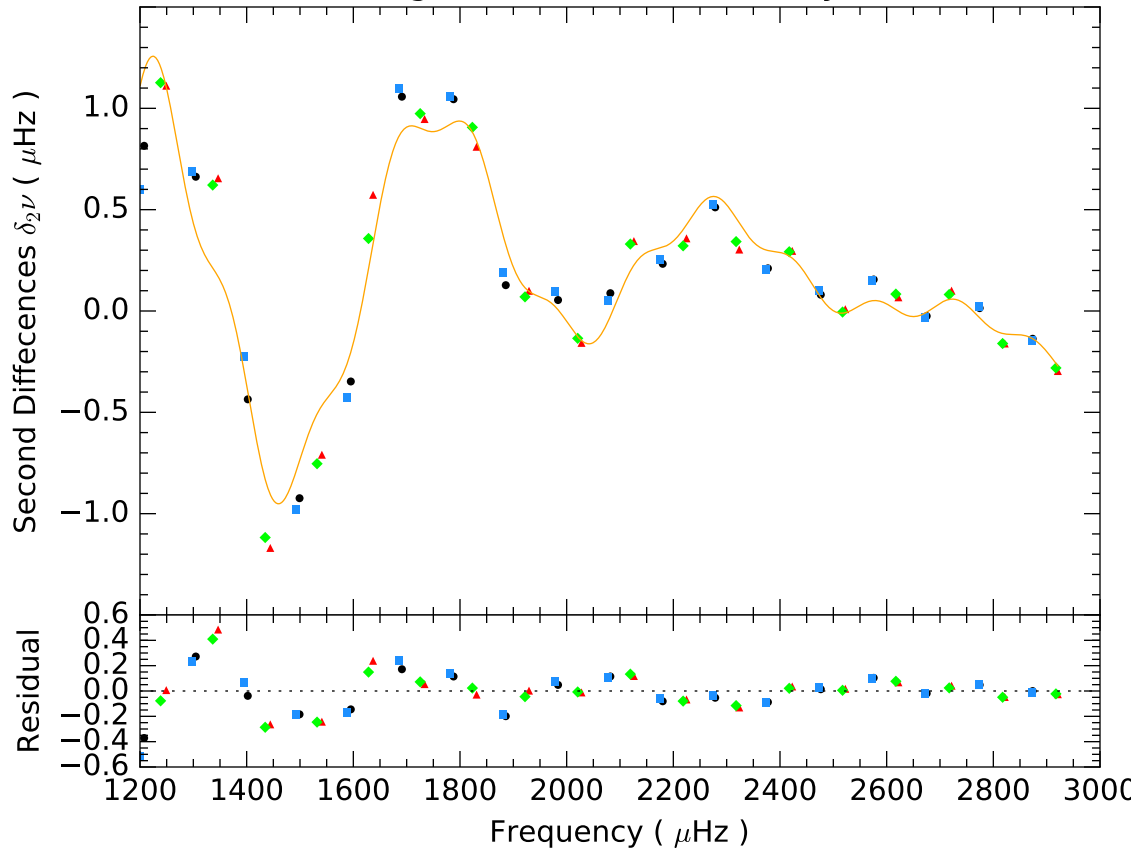
$$\tau_{\text{HI}} = 730.82 \text{ s}$$

$$\phi_{\text{HI}} = 3.2244$$

profile45

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

Age after ZAMS: 9.319 Gyr



$$a_0 = -2.4018 \mu\text{Hz}$$

$$a_1 = 0.002729$$

$$a_2 = -6.8252e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0017808$$

$$c_2 = 5.1502e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 944.49 \text{ s}$$

$$\phi_{\text{HeII}} = 5.9265$$

$$b_2 = 3.2152e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3327.1 \text{ s}$$

$$\phi_{\text{CZ}} = 0.57271$$

$$d_0 = 0.00018118$$

$$d_2 = 3.4195e-07 \mu\text{Hz}^{-2}$$

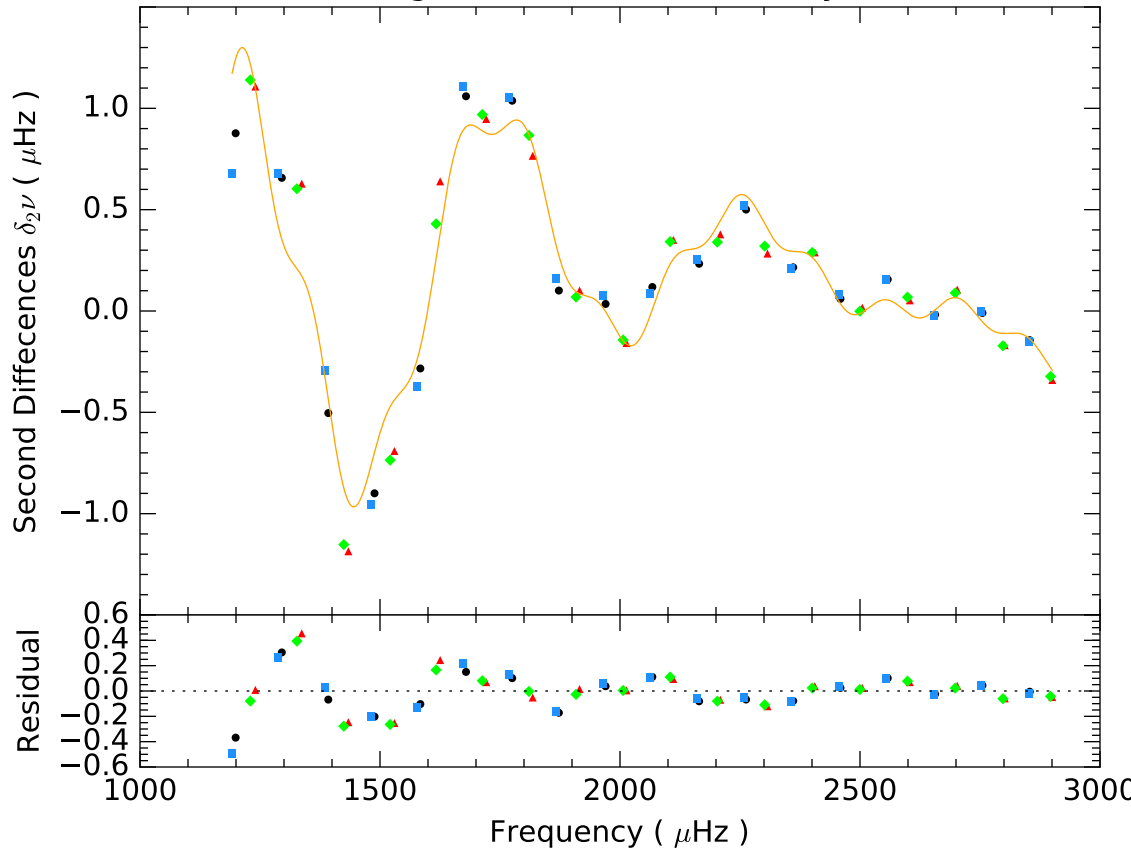
$$\tau_{\text{HI}} = 737.08 \text{ s}$$

$$\phi_{\text{HI}} = 3.2342$$

profile46

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

Age after ZAMS: 9.376 Gyr



$$a_0 = -2.3566 \mu\text{Hz}$$

$$a_1 = 0.0027126$$

$$a_2 = -6.8587e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0018319$$

$$c_2 = 5.2911e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 953.0 \text{ s}$$

$$\phi_{\text{HeII}} = 5.9326$$

$$b_2 = 3.5609e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3362.0 \text{ s}$$

$$\phi_{\text{CZ}} = 0.51279$$

$$d_0 = 0.00017611$$

$$d_2 = 3.5628e-07 \mu\text{Hz}^{-2}$$

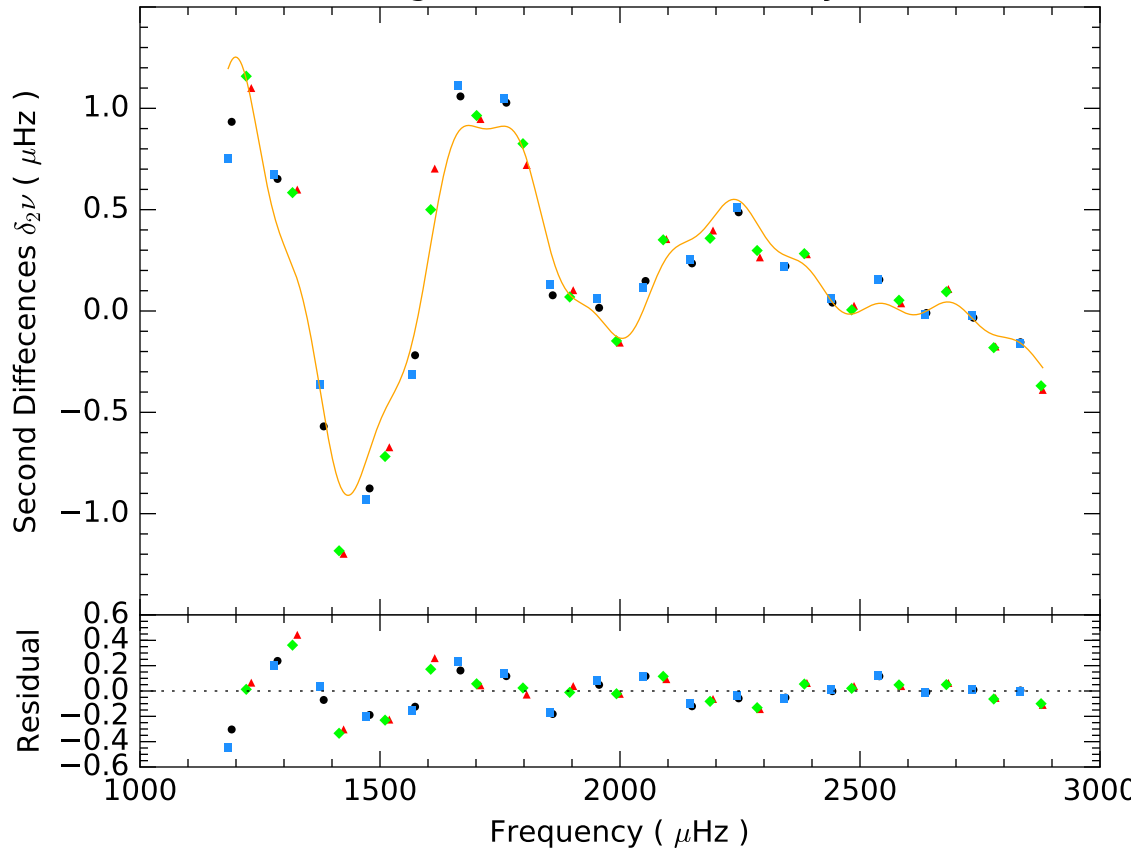
$$\tau_{\text{HI}} = 742.86 \text{ s}$$

$$\phi_{\text{HI}} = 3.2457$$

profile47

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

Age after ZAMS: 9.430 Gyr



$$a_0 = -2.3127 \mu \text{ Hz}$$

$$a_1 = 0.0026965$$

$$a_2 = -6.8918e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0019597$$

$$c_2 = 5.5641e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 961.0 \text{ s}$$

$$\phi_{\text{HeII}} = 5.9397$$

$$b_2 = 2.4902e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3353.3 \text{ s}$$

$$\phi_{\text{CZ}} = 1.2798$$

$$d_0 = 0.0001443$$

$$d_2 = 3.6658e-07 \mu\text{Hz}^{-2}$$

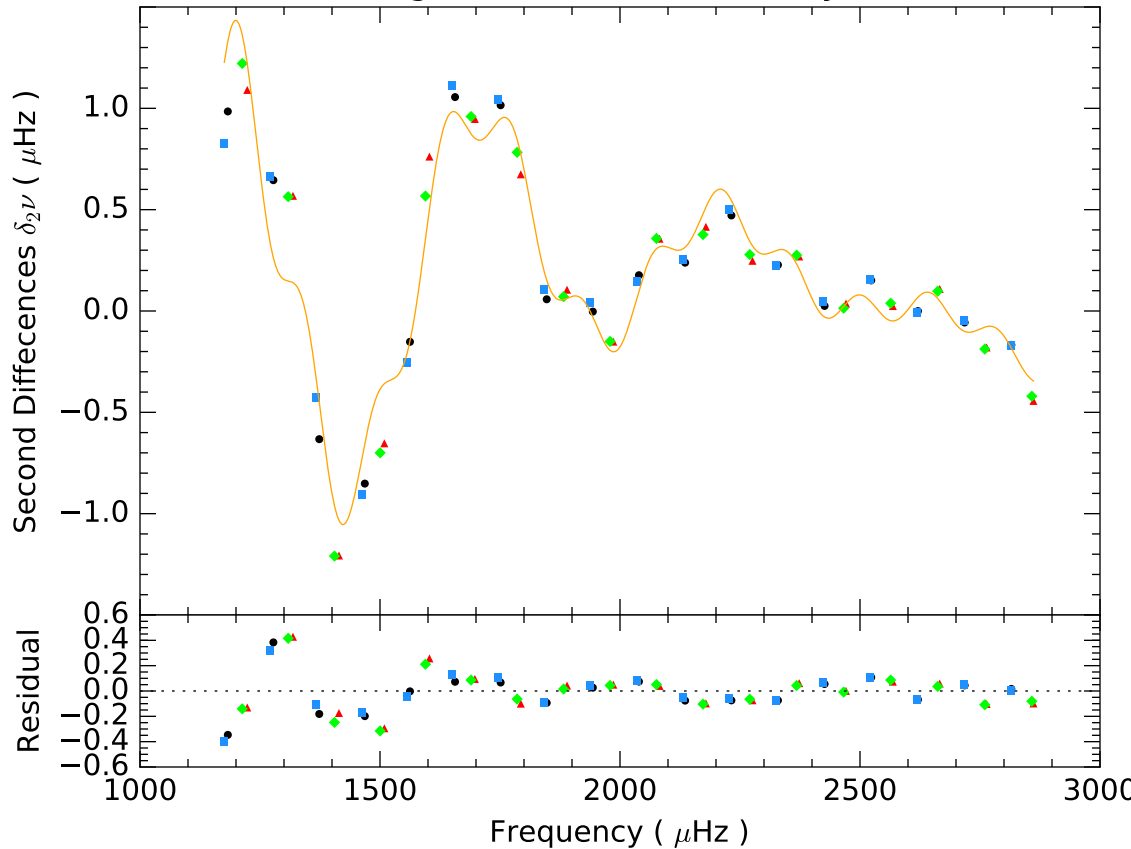
$$\tau_{\text{HI}} = 749.13 \text{ s}$$

$$\phi_{\text{HI}} = 3.2406$$

profile48

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

Age after ZAMS: 9.483 Gyr



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

$$a_0 = -2.2501 \mu\text{Hz}$$

$$a_1 = 0.0026624$$

$$a_2 = -6.8842e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0019887$$

$$c_2 = 5.6814e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 978.62 \text{ s}$$

$$\phi_{\text{HeII}} = 5.7668$$

$$b_2 = 4.6938e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3471.2 \text{ s}$$

$$\phi_{\text{CZ}} = 5.6525$$

$$d_0 = 0.00020423$$

$$d_2 = 4.2199e-07 \mu\text{Hz}^{-2}$$

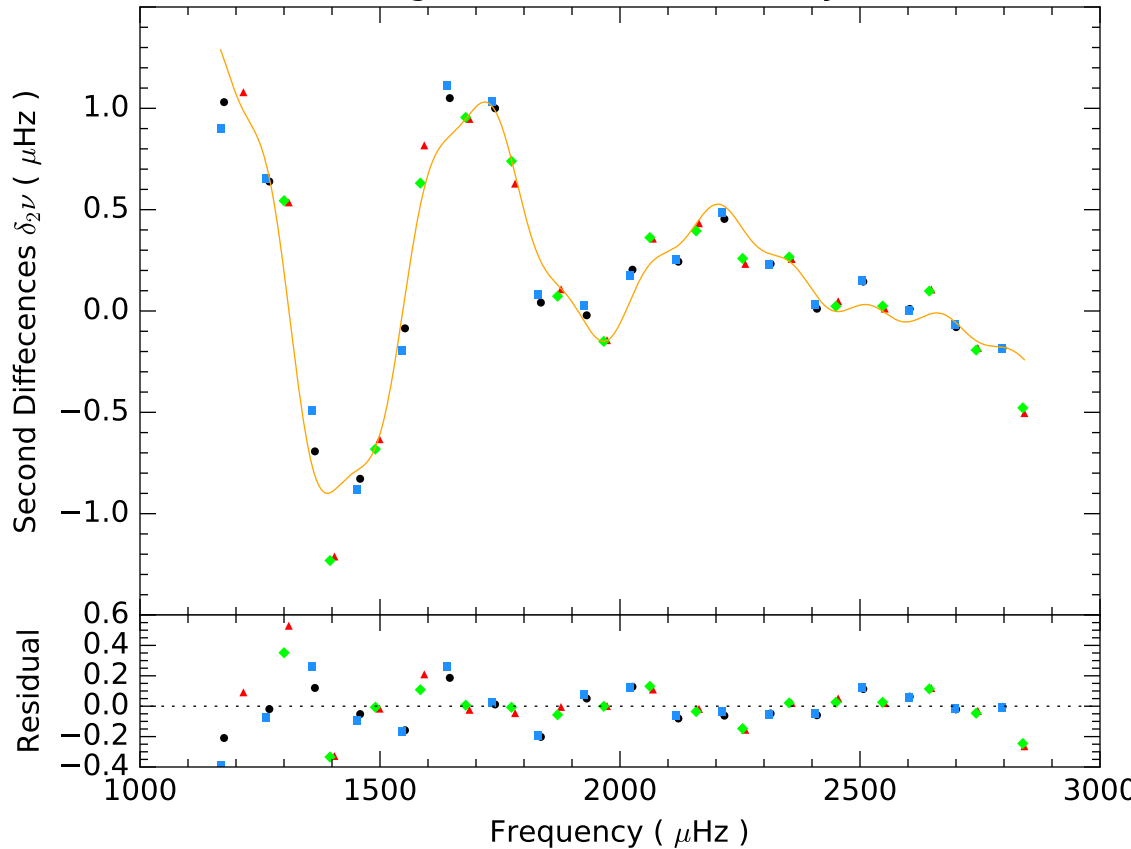
$$\tau_{\text{HI}} = 757.67 \text{ s}$$

$$\phi_{\text{HI}} = 3.3208$$

profile49

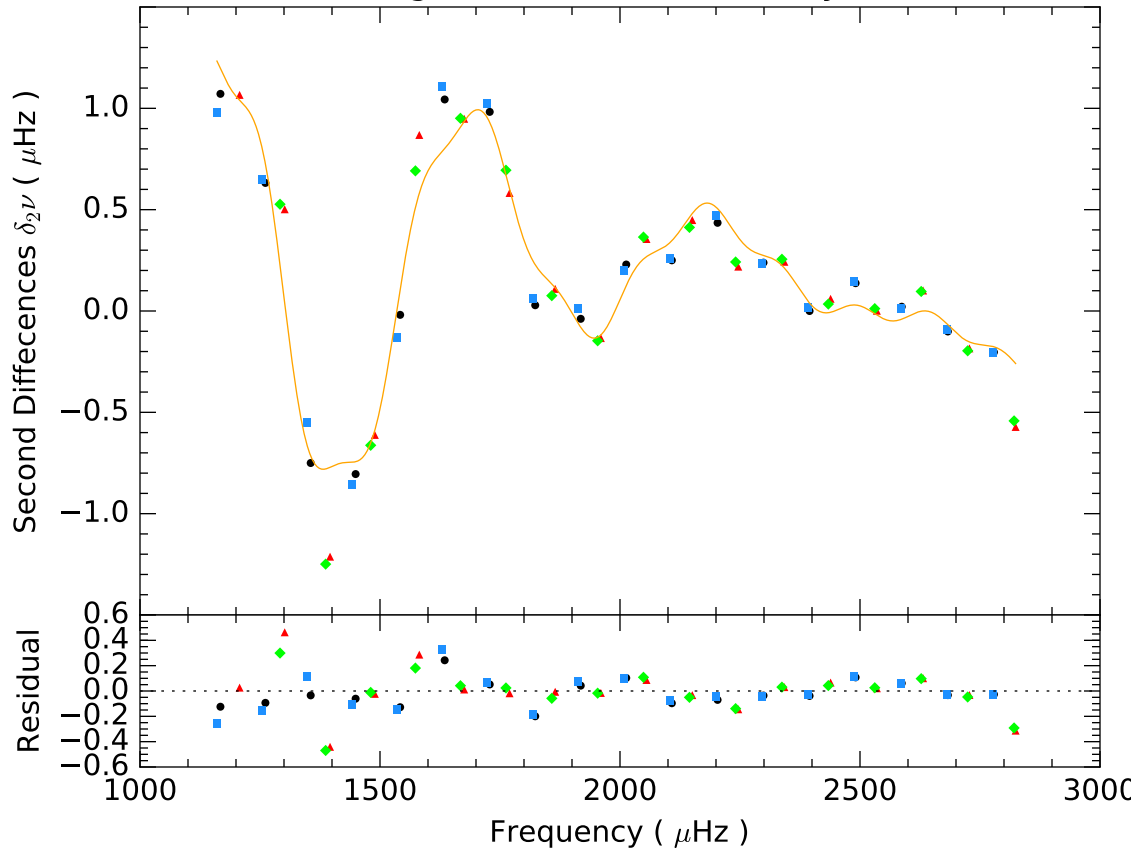
$$\chi^2_\nu(\text{dof} = 58) = 0.029427$$

Age after ZAMS: 9.533 Gyr



\bullet $\ell=0$	\blacklozenge $\ell=3$
\blacktriangle $\ell=1$	— fit
\blacksquare $\ell=2$	
$a_0 = -2.2216 \mu \text{ Hz}$ $a_1 = 0.0026621$ $a_2 = -6.9563e-07 \mu\text{Hz}^{-2}$ $c_0 = 0.0035989$ $c_2 = 7.4312e-07 \mu\text{Hz}^{-2}$ $\tau_{\text{HeII}} = 955.51 \text{ s}$ $\phi_{\text{HeII}} = 6.2156$ $b_2 = 2.424e+05 \text{ mHz}^3$ $\tau_{\text{CZ}} = 3238.2 \text{ s}$ $\phi_{\text{CZ}} = 5.9969$ $d_0 = 0.0012517$ $d_2 = 1.2439e-06 \mu\text{Hz}^{-2}$ $\tau_{\text{HI}} = 809.19 \text{ s}$ $\phi_{\text{HI}} = 4.3407$	
profile50	
$\chi^2_\nu(\text{dof} = 57) = 0.027495$	

Age after ZAMS: 9.581 Gyr



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

$$a_0 = -2.2303 \mu\text{Hz}$$

$$a_1 = 0.0026916$$

$$a_2 = -7.0883e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.0030691$$

$$c_2 = 7.1495e-07 \mu\text{Hz}^{-2}$$

$$\tau_{HeII} = 966.6 \text{ s}$$

$$\phi_{HeII} = 6.2178$$

$$b_2 = 2.393e+05 \text{ mHz}^3$$

$$\tau_{CZ} = 3262.9 \text{ s}$$

$$\phi_{CZ} = 6.23$$

$$d_0 = 0.00032509$$

$$d_2 = 2.2591e-06 \mu\text{Hz}^{-2}$$

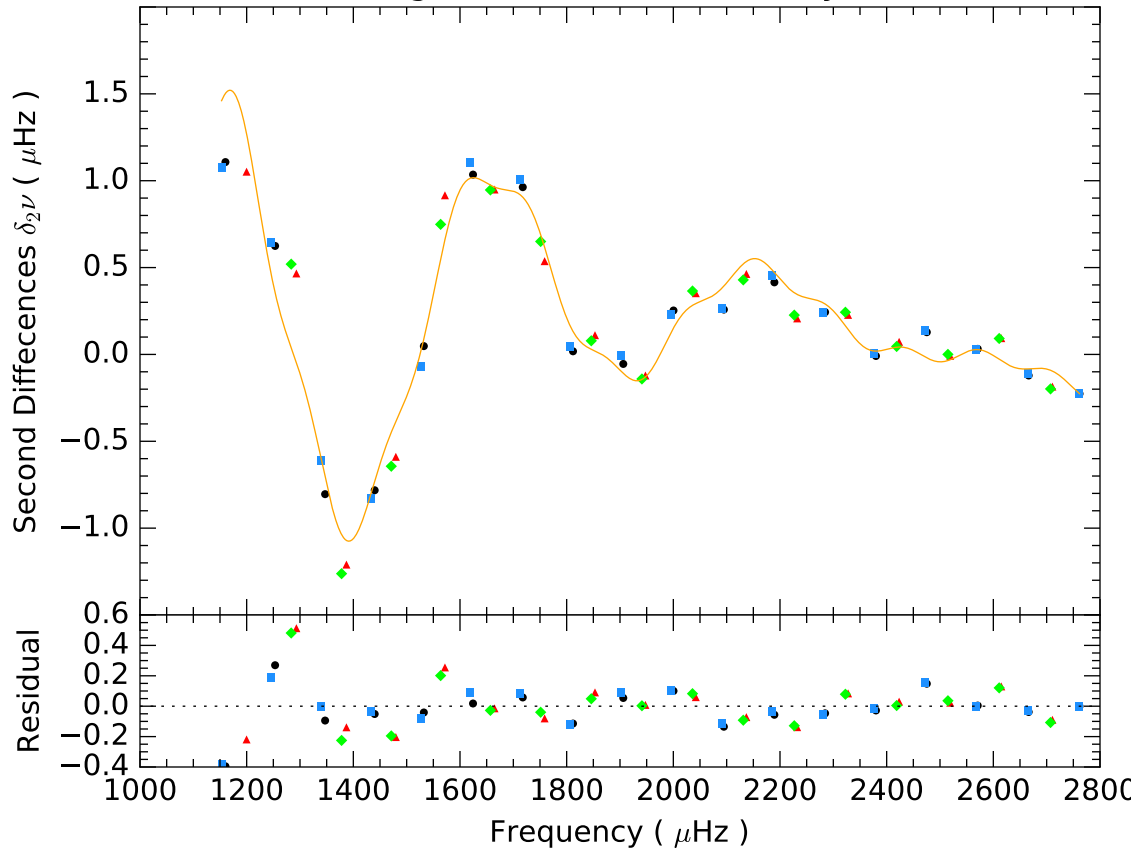
$$\tau_{HI} = 762.08 \text{ s}$$

$$\phi_{HI} = 3.8832$$

profile51

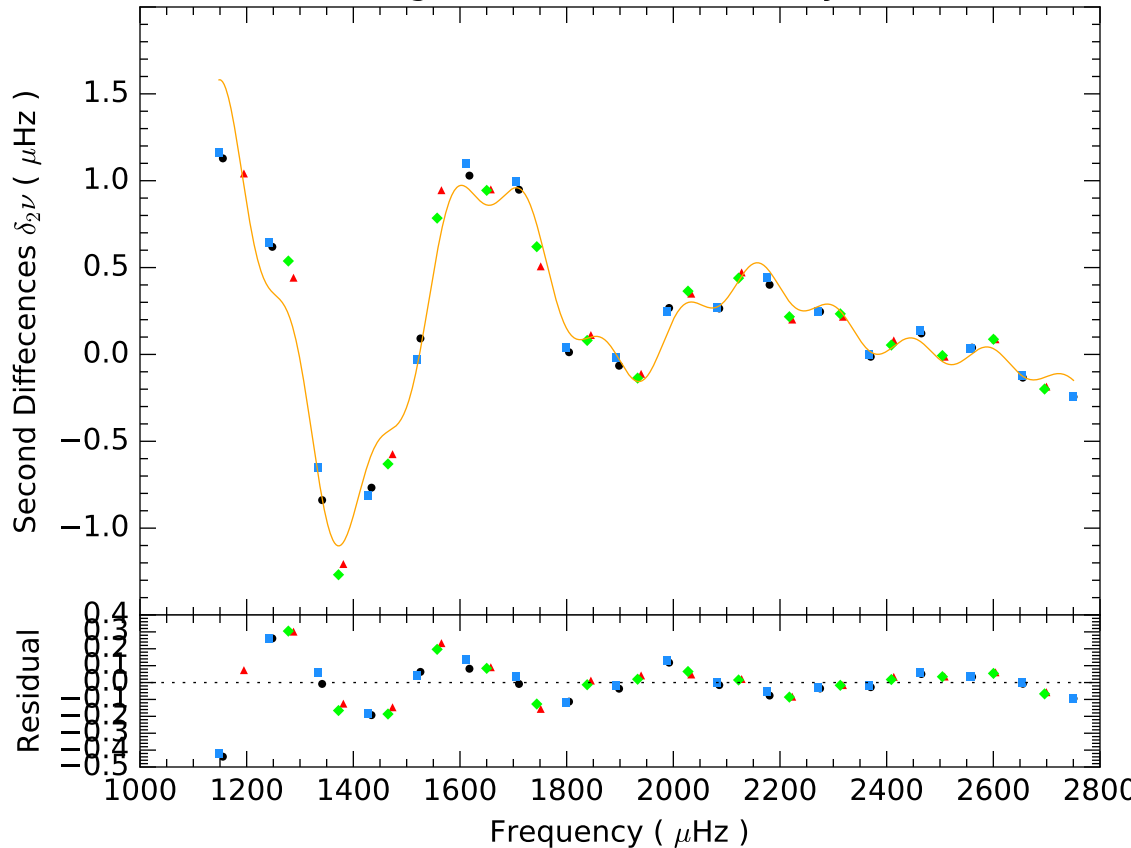
$$\chi^2_\nu(\text{dof} = 57) = 0.028744$$

Age after ZAMS: 9.627 Gyr



\bullet $\ell=0$	\blacklozenge $\ell=3$
\blacktriangle $\ell=1$	— fit
\blacksquare $\ell=2$	
$a_0 = -2.1453 \mu\text{Hz}$ $a_1 = 0.0026354$ $a_2 = -7.0275e-07 \mu\text{Hz}^{-2}$ $c_0 = 0.0035634$ $c_2 = 7.4676e-07 \mu\text{Hz}^{-2}$ $\tau_{\text{HeII}} = 979.85 \text{ s}$ $\phi_{\text{HeII}} = 6.1672$ $b_2 = 2.2881e+05 \text{ mHz}^3$ $\tau_{\text{CZ}} = 3591.0 \text{ s}$ $\phi_{\text{CZ}} = 4.8959$ $d_0 = 0.0006421$ $d_2 = 1.4168e-06 \mu\text{Hz}^{-2}$ $\tau_{\text{HI}} = 830.21 \text{ s}$ $\phi_{\text{HI}} = 4.4899$	
profile52	
$\chi^2_\nu(\text{dof} = 55) = 0.028107$	

Age after ZAMS: 9.657 Gyr



$$a_0 = -2.173 \mu\text{Hz}$$

$$a_1 = 0.0026434$$

$$a_2 = -7.0182e-07 \mu\text{Hz}^{-2}$$

$$c_0 = 0.003864$$

$$c_2 = 8.1584e-07 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HeII}} = 977.62 \text{ s}$$

$$\phi_{\text{HeII}} = 6.2371$$

$$b_2 = 4.1758e+05 \text{ mHz}^3$$

$$\tau_{\text{CZ}} = 3463.5 \text{ s}$$

$$\phi_{\text{CZ}} = 1.8229$$

$$d_0 = 0.00064136$$

$$d_2 = 1.0589e-06 \mu\text{Hz}^{-2}$$

$$\tau_{\text{HI}} = 572.72 \text{ s}$$

$$\phi_{\text{HI}} = 2.6593$$

profile53

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