# The Stagger-grid: A grid of 3D stellar atmosphere models V. Synthetic stellar spectra and broad-band photometry

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#### **ABSTRACT**

Context. The surface structures and dynamics of cool stars are characterised by the presence of convective motions and turbulent flows which shape the emergent spectrum.

Aims. We used realistic three-dimensional (3D) radiative hydrodynamical simulations from the STAGGER-grid to calculate synthetic spectra with the radiative transfer code Optim3D for stars with different stellar parameters to predict photometric colours and convective velocity shifts.

*Methods.* We calculated spectra from 1000 to 200 000 Å with a constant resolving power of  $\lambda/\Delta\lambda = 20~000$  and from 8470 and 8710 Å (Gaia Radial Velocity Spectrometer - RVS - spectral range) with a constant resolving power of  $\lambda/\Delta\lambda = 300~000$ .

Results. We used synthetic spectra to compute theoretical colours in the Johnson-Cousins  $UBV(RI)_C$ , SDSS, 2MASS, Gaia, SkyMapper, Strömgren systems, and HST-WFC3. Our synthetic magnitudes are compared with those obtained using 1D hydrostatic models. We showed that 1D versus 3D differences are limited to a small percent except for the narrow filters that span the optical and UV region of the spectrum. In addition, we derived the effect of the convective velocity fields on selected Fe I lines. We found the overall convective shift for 3D simulations with respect to the reference 1D hydrostatic models, revealing line shifts of between -0.235 and +0.361 km/s. We showed a net correlation of the convective shifts with the effective temperature: lower effective temperatures denote redshifts and higher effective temperatures denote blueshifts. We conclude that the extraction of accurate radial velocities from RVS spectra need an appropriate wavelength correction from convection shifts.

Conclusions. The use of realistic 3D hydrodynamical stellar atmosphere simulations has a small but significant impact on the predicted photometry compared with classical 1D hydrostatic models for late-type stars. We make all the spectra publicly available for the community through the POLLUX database.

**Key words.** stars: atmospheres – stars: fundamental parameters – Techniques: photometric – Techniques: radial velocities – hydrodynamics – radiative transfer

#### 1. Introduction

The stellar atmosphere is the boundary to the opaque stellar interior, and serves as the link between observations and the models of stellar structure and evolution. The phenomena of stellar evolution manifest themselves in the stellar surface as changes in chemical composition and in fundamental stellar parameters such as radius, surface gravity, effective temperature, and luminosity. The information we use to study distant stars comes from the flux they have emitted. However, the atmospheric layers where this flux forms is the transition region between convective and radiative regime. Thus, the surface structures and dynamics of cool stars are characterised by the presence of convective motions and turbulent flows. Convection manifests in the surface layers as a particular pattern of downflowing cooler plasma and bright areas where hot plasma rises (Nordlund et al. 2009). The size of granules depends on the stellar parameters of the star and, as a consequence, on the extension of their atmosphere (e.g. Magic et al. 2013). Eventually, the convection causes an inhomogeneous stellar surface that changes with time. They affect the atmospheric stratification in the region where the flux forms and also affect the emergent spectral energy distribution (SED), with potential effects on the precise determinations of stellar parameters (e.g. Bigot et al. 2011; Creevey et al. 2012; Chiavassa et al. 2012), radial velocity (e.g. Bigot & Thévenin 2008; Chiavassa et al. 2011; Allende Prieto et al. 2013), chemical abundance (e.g. Asplund et al. 2005, 2009; Caffau et al. 2011), photometric colours (Bonifacio et al. 2017), and on planet detection (Magic et al. 2015; Chiavassa et al. 2017).

Convection is a difficult process to understand because it is non-local, and 3D, and it involves non-linear interactions over many disparate length scales. In this context, the use of numerical 3D radiative hydrodynamical simulations of stellar convection is extremely important. In recent years, with increased computational power, it has been possible to compute grids of 3D simulations that cover a substantial portion of the Hertzsprung—

Russell diagram (Magic et al. 2013; Trampedach et al. 2013; Ludwig et al. 2009). With these tools it is possible to predict reliable synthetic spectra for several stellar types.

Photometric systems and filters are designed to be sensitive to temperature, gravity, and metal abundance indicators and thereby to complement spectroscopic determinations of the fundamental properties of stars. In addition, the integrated magnitudes and colours of stars can be used to infer the ages, metallicities, and other properties of the underlying stellar populations (e.g. Casagrande & VandenBerg 2014). For these purposes, several broad-band, or intermediate- and/or narrow-band filters have been designed to probe different regions of stellar spectra sensitive to different atmospheric parameters (Bessell & Murphy 2012; Gunn et al. 2006; Cohen et al. 2003). Additionally, there are the photometric systems used by the Gaia mission.

Gaia (Gaia Collaboration et al. 2016) is an astrometric, photometric, and spectroscopic spaceborne mission of a large part of the Milky Way. Apart from the astrometric instrument, Gaia carries on board two low-resolution spectrophotometers (Blue and Red Prism, BP/RP, Bailer-Jones et al. 2013) and the Radial Velocity Spectrometer (RVS, Katz et al. 2004). The photometric instrument measures the SED over 120 pixels of all detected objects at the same angular resolution and at the same epoch as the astrometric observations. The BP operates in the range 3300-6800 Å, while the RP uses the range 6400-10500 Å. The main aims of this instrument are to provide proper classifications (e.g. distinguish between stars, galaxies, and quasars) and characterisations (e.g. reddenings and stellar parameters), and to enable chromatic corrections of the astrometric centroid data. Finally, the integral-field spectrograph RVS provides spectra between 8470 and 8710 Å at a spectral resolving power of  $\approx$  11 200. The RVS is expected to produce radial velocities through Dopplershift measurements; interstellar reddening, atmospheric parameters, and projected rotational velocities; and individual element abundances for some elements.

In this work, we calculated synthetic stellar spectra and photometry for broad-band and Gaia systems obtained using realistic 3D radiative hydrodynamical simulations of stellar convection from the STAGGER-grid. The predicted photometric 3D colours and the 3D spectra are publicly available for the community through the POLLUX database. The spectra corresponding to the RVS/Gaia spectral range will be used for the calibration of the instrument to preserve the measured radial velocities from the convection shift (see forthcoming paper of Gaia-DataRelease2/RVS).

#### 2. Methods

#### 2.1. Stellar model atmospheres

Magic et al. (2013) described the STAGGER-grid of realistic 3D radiative hydrodynamical simulations of stellar convection for cool stars using the STAGGER-code (originally developed by Nordlund & Galsgaard 1995<sup>1</sup>, and continuously improved over the years by its user community), a state-of-the-art (magneto)hydrodynamic code that solves the time-dependent hydrodynamic equations for mass-, momentum-, and energy-conservation, coupled with the 3D radiative transfer equation in order to account correctly for the interaction between the radiation field and the plasma. The code uses periodic boundary conditions horizontally and open boundaries vertically. At the bottom of the simulation, the inflows have a constant entropy.

The outflows are not tightly constrained and are free to pass through the boundary. The code is based on a sixth-order explicit finite-difference scheme and a fifth-order interpolation. The considered large number over wavelength points is merged into 12 opacity bins (Nordlund 1982; Skartlien 2000; Magic et al. 2013). Stagger simulations are based on a realistic equation of state that accounts for ionisation, recombination, and dissociation (Mihalas et al. 1988); continuous absorption and scattering coefficients listed in Hayek et al. (2010); and the line opacities listed in Gustafsson et al. (2008). These are in turn based on the VALD-2 database (Stempels et al. 2001) of atomic lines and the SCAN-base (Jørgensen 1997) of molecular lines.

#### 2.2. Three-dimensional radiative transfer

We used the 3D pure-LTE radiative transfer code Optim3D (Chiavassa et al. 2009) to compute synthetic spectrum from the snapshots of the RHD simulations of the Stagger-grid (see Fig. 1 in Magic et al. 2013). The code takes into account the Doppler shifts due to convective motions. The radiative transfer equation is solved monochromatically using pre-tabulated extinction coefficients as a function of temperature, density, and wavelength. The lookup tables were computed for the same chemical compositions as the RHD simulations using the same extensive atomic and molecular continuum and line opacity data as the latest generation of MARCS models (Gustafsson et al. 2008) with the addition—with respect to Table 2 of Gustafsson's paper—of the SiS molecule (Cami et al. 2009), which is particularly important for the far-infrared region of the spectrum. While the sources of line opacities used in the RHD simulations of Magic et al. (2013) and in Optim3D are the same, the data for the continuum opacities are almost the same: Hayek et al. (2010) reported that the data used in RHD simulations are mostly identical to those used in the MARCS models, but include additional bound-free data from the Opacity Project and the Iron Project (Trampedach et al., private communication) as well as some opacities of the second ionisation stage for many metals.

For the computation of the spectra from RHD simulations, the assumed microturbulence is equal to zero since the velocity fields inherent in RHD models are expected to self-consistently and adequately account for non-thermal Doppler broadening of spectral lines (Asplund 2000). The temperature and density ranges spanned by the tables are optimised for the values encountered in the RHD simulations. The detailed methods used in the code are explained in Chiavassa et al. (2009, 2010). Optim3D has already been employed in synergy with the Stagger simulations in several works (Chiavassa et al. 2010, 2011, 2012, 2014a; Magic et al. 2015; Chiavassa et al. 2015, 2017) either concerning the extraction of synthetic spectra or interferometric observables.

#### 2.3. One-dimensional radiative transfer

For all the following comparisons with 3D simulations, we used plane-parallel, hydrostatic, 1D atmosphere models computed with a similar physical treatment to the MARCS code and the same equation of state and opacities as in the individual 3D simulations (ATMO, Magic et al. 2013). Moreover, we used a 1D version of Optim3D, and the chemical compositions, the opacities, and numerics of the radiative transfer calculations for the emergent intensities are the same as used in the 1D and 3D approaches.

<sup>1</sup> http://www.astro.ku.dk/~kg/Papers/MHDcode.ps.gz

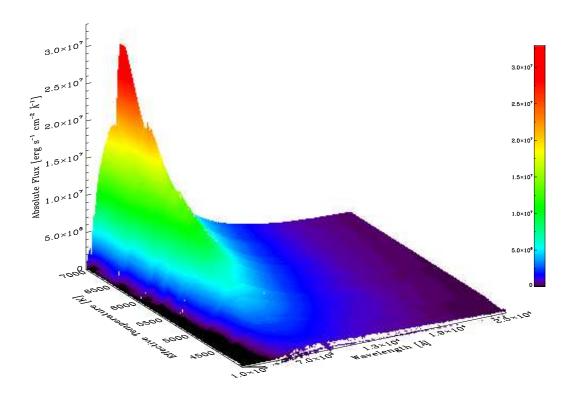
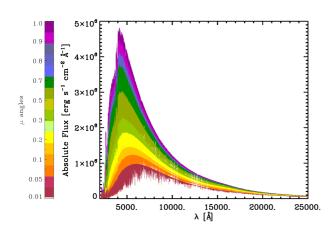


Fig. 1. Surface rendering for all the synthetic spectra computed for the 3D RHD simulations in Table 4. The vertical bar on the right displays the colour scale for the emerging flux in erg/s/cm<sup>2</sup>/Å. For clarity, the wavelength range has been reduced to  $1000 - 25\ 000\ \text{Å}$ 



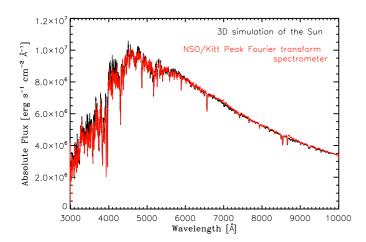
**Fig. 2.** Synthetic spectra of the solar simulation in the spectral range  $2000 - 25\,000\,\text{Å}$  and for the different  $\mu = \cos(\theta)$  inclination angles used in the computation, where  $\theta$  is the angle with respect to the line of sight (vertical axis).

#### 3. Synthetic spectra from 0.1 to 20 $\mu$ m

The STAGGER-grid includes 3D stellar atmosphere simulations with metallicities [Fe/H] = +0.5, 0.0, -0.5, -1.0, -2.0, -3.0, and -4.0; surface gravity  $\log g$  between 1.5 and 5.0 in steps of 0.5 dex; and effective temperature  $T_{\rm eff}$  from 4000 to 7000 K in steps of 500 K (Fig. 1 of Paper I). In this work we present the synthetic spectra computed for the STAGGER-grid for a total of 181 simulations (Table 4). The spectra have been calculated with a constant

resolving power of  $\lambda/\Delta\lambda$  =20 000 ( $n_{\lambda}$  = 105 767 wavelength points) from 1000 to 200 000 Å. Optim3D computes the emerging intensities for vertical rays cast through the computational box for all required wavelengths. The procedure is repeated after tilting the computational box by an angle  $\theta$  with respect to the line of sight (vertical axis) and rotating it azimuthally by an angle  $\phi$ . The final result is a spatially resolved intensity spectrum at different angles. In addition, a temporal average is also performed. We performed the calculations for ten snapshots of the 3D RHD simulations of Table 4, adequately spaced so as to capture several convective turnovers, for ten different inclination angles  $\mu =$  $cos(\theta) = [1.00, 0.90, 0.80, 0.70, 0.50, 0.30, 0.20, 0.10, 0.05, 0.01]$ (see Fig. 4), and four  $\phi$ -angles  $[0^{\circ}, 90^{\circ}, 180^{\circ}, 270^{\circ}]$ . The strongest decline in the limb darkening is usually found towards the limb; therefore, we decided to resolve with more  $\mu$ -angles at the limb instead of having an equidistant scale in  $\mu$ . We tested the discrepancy between the temporal average using a large number of snapshots (e.g. 20) and using only 10 snapshots is lower than 0.3%. The number of ten snapshots was chosen because it represents the best compromise in terms of computational time and accuracy among the whole set of stellar parameters. All things considered, we computed 400 spectra in the range 1000 - 200000 Å for every simulation.

Figure 1 displays the set of all synthetic spectra computed. We determined the  $T_{\rm eff}$  from the integration of the SED of the spectra from 0.1 to 20  $\mu$ m. The effective temperature has been



**Fig. 3.** Comparison of the solar simulation (black) with the observed flux of the Sun (red, Kurucz 2005). The solar irradiance is converted to flux at the solar surface using the multiplicative factor of  $[(1AU)/R_{\odot}]^2 = 46202$ . For clarity, the spectra have been resampled to a lower spectral resolution with fewer frequency points ( $n_{\lambda} = 2115$ ).

computed using Stefan-Boltzmann law as

$$T_{\text{eff\_spectra}} = \left\{ \left[ \int_{\lambda_1}^{\lambda_2} f(\lambda) \, d\lambda \right] / \sigma \right\}^{0.25}, \tag{1}$$

where  $\lambda_1$  =1010Å and  $\lambda_2$ =199 960 Å,  $f(\lambda)$  is the synthetic flux, and  $\sigma$  is the Stefan–Boltzmann constant. The values of the effective temperature are listed in Table 4.

Figure 1 shows that increasing  $T_{\rm eff}$  returns higher radiated energy per surface area and the peak of the radiation curve moves to shorter wavelengths, as expected by Planck law. Pereira et al. (2013) provided excellent agreement of their 3D solar simulation of the Stagger-grid with the continuum observation of the Sun. As they did, we used the Kurucz (2005) irradiance<sup>2</sup> and normalised flux atlases for the Sun between 3000 and 10000 Å and found a good agreement (Fig. 3), reinforcing the view that the simulation of thermodynamic structure and post-processing detailed radiative transfer are realistic. This conclusion was also reported by Hayek et al. (2012), who determined that the numerical resolution of the STAGGER 3D RHD models and the spectral resolution for the flux computations are sufficient to predict realistic observables. In particular, some of the RHD simulations presented in this work and for a limited spectral region between 2000 and 10 000 Å have been used in Magic et al. (2015) to provide appropriate coefficients for various bi-parametric and nonlinear limb darkening laws.

#### 4. Photometric synthetic observables

Photometric systems and filters are designed to probe fundamental physical parameters, such as the effective temperature, surface gravity, and metallicity of stars. Colour and magnitude relations are used for a variety of purposes: interpreting the observed distribution of stars in colour-colour and colour-magnitude diagrams, deriving distances to stars and star clusters, and testing stellar evolutionary theory by comparing with observations to name just a few. Thus, it is important to have realistic model fluxes to generate colours which match the observed values. In

addition to synthetic model fluxes, details on the photometric standardisation are also a part of this quest.

In essence, photometry condenses the information encoded in a spectrum  $f(\lambda)$  over a system response function  $T(\lambda)$ , i.e.  $\int f(\lambda) T(\lambda) d\lambda$ . Each existing photometric system then varies in the details. Most notably,  $T(\lambda)$  will depend on the filter under consideration and the response function of the detector. This means that a distinction must be made between photo-counting and energy-integration detectors, meaning that a measurement of energy  $\int f(\lambda) T(\lambda) d\lambda$  will correspond to  $(hc)^{-1} \int f(\lambda) \lambda T(\lambda) d\lambda$  photons (see e.g. Bessell 2000) Another aspect that often varies among different photometric systems is how their standardisation (zero-point and absolute calibration) is achieved. Here, for all systems but Gaia we adopted the exact same procedure as used by Casagrande & VandenBerg (2014), where details on the adopted filter transmission curves, the photo-counting and energy-integration formalism, and zeropoints and absolute calibration can be found<sup>3</sup>. We computed synthetic colours in the Johnson-Cousins, SDSS, 2MASS, Gaia, SkyMapper, Strömgren, HST-WFC3, and Gaia systems (Table 1 and Fig. 4 for a comparison of the solar spectrum with the filter transmission curves studied here). For the HST-WFC3 systems our tables are provided in the VEGA, ST, and AB systems.

A full characterisation of the Gaia photometric system, including zero-points and standardisation is expected to be released in 2018. In this work, we used the transmission curves available from the ESA website<sup>4</sup>, and computed Gaia colours following Jordi et al. (2010). We fixed Vega's magnitudes to be G=BP=RP=0.03, and for the absolute calibration used a Kurucz synthetic Vega spectrum rescaled to the measured flux value at 5556 Å from Megessier (1995).

Similarly to Casagrande & VandenBerg (2014), instead of colour indices we provide bolometric corrections in different bands (Table 4 – Table 8) because they are more versatile and can be rearranged in any colour combination, as follows from Eqs. (3) and (4). The bolometric magnitude is defined as

$$M_{\rm Bol} = -2.5 \log \frac{L}{L_{\odot}} + M_{\rm Bol,\odot},\tag{2}$$

where we adopt  $M_{\text{Bol},\odot} = 4.74$ . It follows that the bolometric correction in a given band  $BC_{\zeta}$  is

$$BC_{\zeta} = m_{Bol} - m_{\zeta} = M_{Bol} - M_{\zeta}, \tag{3}$$

where the lower and upper cases refer to apparent and absolute magnitudes, respectively. From this it follows that colour indices can be obtained from the difference in bolometric corrections, where  $\zeta$  and  $\eta$  are two given bands:

$$\zeta - \eta = m_{\zeta} - m_{\eta} = BC_{\eta} - BC_{\zeta}. \tag{4}$$

Thus, in the rest of the paper when we talk about synthetic colours, these have been obtained as differences in bolometric corrections from our tables.

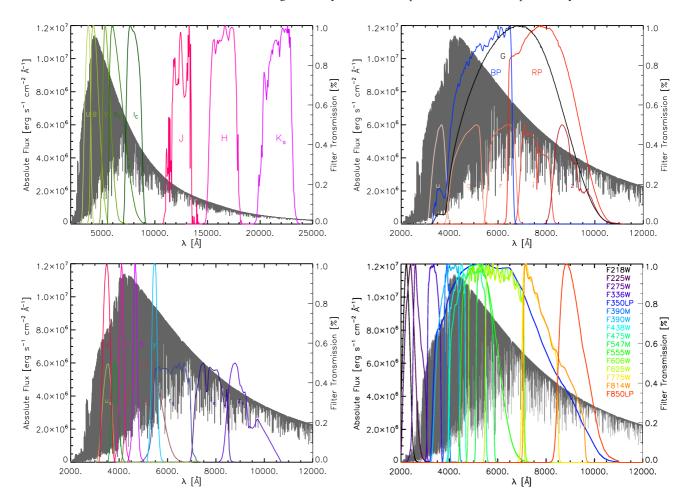
#### 4.1. Microturbulence

The stellar surface convection produces a velocity field where the emerging spectral lines form. The Doppler broadening of these lines is a direct consequence of the velocity field in these

<sup>&</sup>lt;sup>2</sup> Available at http://kurucz.harvard.edu/sun.html

 $<sup>^3</sup>$  The only difference with respect to Casagrande & VandenBerg (2014) is that here we have adopted  $M_{\rm Bol\odot} = 4.74$ 

<sup>4</sup> https://www.cosmos.esa.int/web/gaia/transmissionwithoriginal



**Fig. 4.** Synthetic spectrum of the solar simulation at full spectral resolution in the spectral range  $2000 - 25\ 000\ \text{Å}$  (grey, top panel) and  $2000 - 12\ 000\ \text{Å}$  (central and bottom panels). Several system response functions (Table 1), from which synthetic colours have been computed, are overplotted. Johnson-Cousins system response functions (U, B, V, Rc, Ic) are plotted in green and 2MASS in pink-violet (top left panel); SDSS (u, g, r, i, z) in yellow-red and Gaia (BP, RP, G) (top right panel); Strömgren (uvby) in red-blue and SkyMapper (u<sub>s</sub>, v<sub>s</sub>, g<sub>s</sub>, r<sub>s</sub>, i<sub>s</sub>, z<sub>s</sub>) (bottom left panel); and the 15 filters of the HST-WFC3 (bottom right panel). For clarity, SDSS and SkyMapper functions are normalised to 0.5.

**Table 1.** Photometric systems used in this work and overplotted on the synthetic spectra in Fig. 4.

Photometric System name	Filters
Johnson-Cousins <sup>a</sup>	UBV(RI) <sub>C</sub>
Sloan Digital Sky Survey (SDSS) <sup>b</sup>	ugriz
$2MASS^c$	$J, H, K_S$
$Gaia^d$	G, BP, RP
SkyMapper <sup>e</sup>	$u_s, v_s, g_s, r_s, i_s, z_s$
Strömgren <sup>f</sup>	uvby
HST-WFC3g	F218W, F225W, F275W,
	F336W, F350W, F390M, F390W,
	F438W, F475W, F547M, F555W,
	F606W, F625W, F775W, F814W, F850LP

**Notes.** <sup>(a)</sup> Bessell & Murphy (2012) <sup>(b)</sup> Doi et al. (2010) <sup>(c)</sup> Cohen et al. (2003) <sup>(d)</sup> Jordi et al. (2010) <sup>(e)</sup> Bessell et al. (2011) <sup>(f)</sup> Bessell (2011) <sup>(g)</sup> Deustua et al. (2016)

crucial layers (Asplund et al. 2000b; Nordlund et al. 2009). In traditional 1D models, this effect can be accounted for by the use of arbitrary micro- and macroturbulence parameters. Full 3D line formation calculations using 3D RHD simulations have demonstrated that in late-type stars the required non-thermal Doppler line broadening is fully included in the convection-related motions of the stellar atmosphere (e.g. Collet et al. 2007). One-dimensional microturbulence represents the small-scale end of

turbulent motions and is applied to the spectral line absorption coefficient. It affects the strong lines to a greater extent, reducing their saturation, and to a lesser extent the widths of weak lines. For 1D-based SEDs, microturbulence partly redistributes the flux in spectral regions probed by the photometric systems, in particular in regions crowded with lines towards the blue and the ultraviolet, and in filters with smaller wavelength coverages (Casagrande & VandenBerg 2014).

The values of the microturbulence parameters are usually determined by comparing synthetic and observed spectral line profiles and line strengths and often using a depth-independent value. For reference, a typical value for dwarfs and subgiants is around 1–1.5 km/s, which increases to 2–2.5 km/s for stars on the red giant branch (e.g. Gray et al. 2001). A constant value of 2 km/s is usually assumed in large grids of synthetic stellar spectra (Castelli & Kurucz 2004; Brott & Hauschildt 2005). To compute our 1D hydrostatic comparison models, we explored different values of microturbulence: 0, 1, and 2 km/s. We found that there is no clear and no unique relation between microturbulence and the stellar parameters, as reported by Casagrande & VandenBerg (2014). For clarity we adopted, as a guiding example, a value of 1 km/s when performing 1D calculations.

### 4.2. Three-dimensional versus one-dimensional bolometric differences in correction

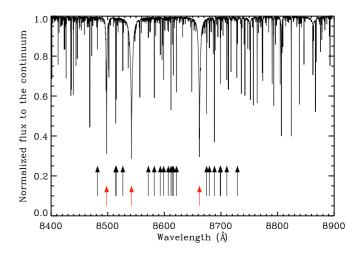
The figures in the Appendix display the bolometric corrections between 3D simulations and the corresponding 1D hydrostatic models with microturbulence = 1 km/s. The values of BC are reported in Table 4 to Table 8 for all the filters and, to retrieve the absolute colours, Eqs. (3) and (4) should be used. Considering the SDSS, SkyMapper, 2MASS, and HST-WFC3 systems, the overall deviations are limited to small fraction (less than 5%) from  $BC_r$  to  $BC_{Ks}$ , but they increase to 10% for  $BC_u$  and in  $BC_g$  (SDSS) and for  $BC_gsky$ ,  $BC_vsky$ , and  $BC_usky$  (SkyMapper) where the optical and line crowded region of the spectrum is probed with rather narrow filters (Fig. 4, bottom); these differences decline with increasing effective temperature. This behaviour is more or less visible for all the photometric systems; there is no clear correspondence of  $\Delta BC$  with the other stellar parameters. On a broad scale, the wide infrared photometric systems like 2MASS (BCH and BCKs) and optical Gaia (BCG) display a noticeable offset with respect to  $\Delta BC = 0.0$ . This is due to a redistribution of the spectral energy flux among the different filters and is a direct effect of the impact of 3D dynamics and thermodynamic structure on spectral line formation.

Gaia photometric systems return 3D and 1D deviations of less than 3% with higher values for the bluer system (BP). This effect may be not negligible and should become important for future releases of Gaia data. For this purpose, part of the spectra presented in this work have already been provided to Gaia consortium—CU8<sup>5</sup>.

#### 5. Convective velocity shifts for RVS

Measurements of stellar radial velocities are fundamental in order to determine stellar space velocities. This is needed, for example to investigate the kinematic structure of stellar populations in the Galaxy or to monitor for radial velocity variations, either of which would point to the presence of unseen companion(s). Convection plays a crucial role in the formation of spectral lines and deeply influences the shape, shift, and asymmetries of lines in late-type stars (e.g. Asplund et al. 2000a). These stars represent most of the objects that will be observed during the Gaia mission. Absorption lines may be blueshifted as a result of convective movements in the stellar atmosphere: bright and rising convective elements contribute more photons than the cool dark shrinking gas, and as a consequence, the absorption lines appear blueshifted (Dravins 1982). However, the convective line shift is not the same for all the spectral lines. Each line has a unique fingerprint in the spectrum that depends on line strength, depth, shift, width, and asymmetry across the granulation pattern depending on their height of formation and sensitivity to the atmospheric conditions. In this context, the line strengths play a major role (Asplund et al. 2000c).

The aim of the present section is to derive the overall convective shift for 3D simulations. First, we computed the 1D and 3D spectra with a constant resolving power of  $\lambda/\Delta\lambda$  =300 000 from 8470 to 8710 Å for a limited number of 3D simulations (see Table 4) covering stellar parameters observed by RVS (i.e. [Fe/H]  $\geq$  -2.0). Then, from our spectra we selected only a series of nonblended Fe I lines and masked the others (Fig. 5). The oscillator strengths of these Fe I lines (Table 2) have been accurately determined by Bigot & Thévenin (2006) using 3D RHD simulation



**Fig. 5.** Flux normalised to the continuum for the solar simulation (Table 4) in the RVS range (8400–8900 Å). The Fe I lines (black arrows) are from Bigot & Thévenin (2006), while the Ca II triplet are indicated with red arrows.

**Table 2.** Central wavelength position, oscillator strength (log gf), and excitation potential ( $\chi$ ) for the 20 Fe I in the spectral domain of RVS (Bigot & Thévenin 2006)

λ [Å]	$(\log gf)$	χ [eV]
8481.985	-2.097	4.1860
8514.068	-2.250	2.1980
8515.109	-2.033	3.0180
8526.667	-0.675	4.9130
8571.803	-1.134	5.0100
8582.257	-2.198	2.9900
8592.951	-0.891	4.9560
8598.829	-1.285	4.3860
8607.078	-1.419	5.0100
8611.801	-1.900	2.8450
8613.939	-1.121	4.9880
8616.280	-0.935	4.9130
8621.601	-2.369	2.9490
8674.741	-1.780	2.8310
8679.639	-1.040	4.9660
8688.623	-1.249	2.1760
8698.706	-3.464	2.9900
8699.453	-0.480	4.9550
8710.391	-0.425	4.9130
8729.147	-2.933	3.4150

where the Fe I and Ca II lines are indicated. It should be noted that the synthetic spectra, when compared to the observations, have to be gravitationally redshifted (e.g. Pasquini et al. 2011) by a certain amount corresponding to the type of star considered (e.g. for the Sun it is  $636.486 \pm 0.024$  m/s Lindegren & Dravins 2003). Gravitational shifts for late-type dwarfs ( $\log g \approx 4.5$ ) range between 0.7 and 0.8 km/s and they dramatically decrease with surface gravity down to 0.02-0.03 km/s for K giant stars with  $\log g \approx 1.5$  (Allende Prieto et al. 2013).

The velocity gradient through the photosphere sets the basic shape of the absorption lines in terms of asymmetry and position of the emerging intensity. One way to detect the asymmetries in the line is the bisector<sup>6</sup>. A symmetric profile has a straight verti-

<sup>&</sup>lt;sup>5</sup> For more details, see the technical note "The 3D spectral library for BP/RP" (Chiavassa et al. 2014c).

<sup>&</sup>lt;sup>6</sup> Defined as the locus of the midpoints of the spectral line

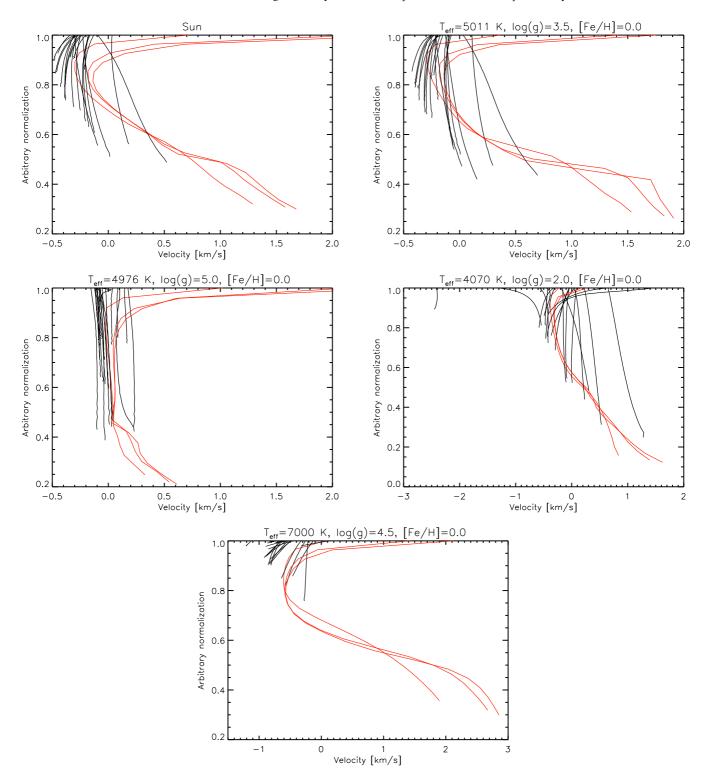
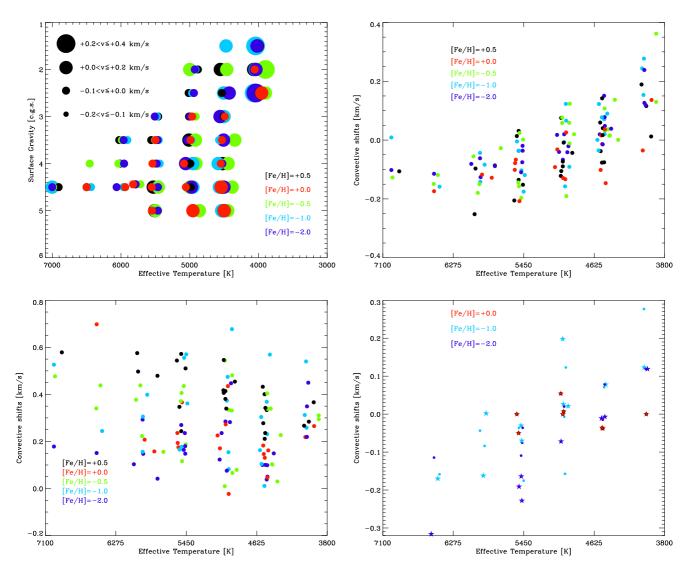


Fig. 6. Line bisectors of the 20 Fe I lines (black) from (Bigot & Thévenin 2006) and Ca II triplet (red) for five 3D simulations in the grid.

cal bisector (i.e. in the case of hydrostatic 1D spectra). The spectral lines with C-shape bisectors are formed mostly in the upflows (granules) and therefore blueshifted. The reverse C-shapes are generally formed in downflows (Dravins et al. 1981). Reversed C-shape bisectors can be explained by a combination of a steep decline in velocities with height with a flux deficit spanning only a fraction of the red wing of the line profiles (Gray 2010). Different articles show the presence of bisectors revealing asymmetries and wavelength shifts that indicate the presence of

granulation for several kinds of stars (e.g. Ramírez et al. 2008; Gray 2009).

Figure 6 shows the line bisectors for the Fe I and Ca II triplet lines for stars with different  $T_{\rm eff}$  and logg, but with the same metallicity. The gas is strongly horizontally divergent due to mass conservation and its velocities diminish with height. Weak lines (with typically high excitation potential), which form in deeper layers, are more blueshifted than strong lines whose core and part of the wings are formed in higher layers. This ef-



**Fig. 7.** *Top left panel:* Convective shifts predicted by the 3D hydrodynamical simulations for the Gaia RVS spectral range and the Fe I lines (see text for details). *Top right panel:* Convective shifts from Fe I lines as a function of the effective temperature of the 3D simulations in Table 4. *Bottom left panel:* Convective shifts from Ca II lines. *Bottom right panel:* Comparison of convective shifts for a selected number of RHD simulations from this work (stars) with simulations with equivalent stellar parameters from Allende Prieto et al. (2013) (circles). See Table 3 for details.

fect is particularly visible in Fig. 6 when comparing the solar bisector with the hottest  $T_{\rm eff}=7000{\rm K}$  simulations. In addition, the velocity field in 3D simulations of STAGGER-grid largely affects the overall shape of the iron lines in the range of RVS and for all the stars with the strongest effects for Ca II. This has already been shown for other spectral regions (e.g. Asplund et al. 2000b; Allende Prieto et al. 2002; Ramírez et al. 2009; Pereira et al. 2013; Magic et al. 2014).

We determined the convective shift considering only Fe I and only Ca II triplet lines, we cross-correlated each 3D spectrum with the corresponding 1D by using a lag vector corresponding to radial velocities (RV) in the range -10 < v < +10 km/s for Fe I, and -150 < v < +150 km/s for Ca II triplet lines, in steps of 0.3 km/s. These velocity ranges were chosen to largely cover the wavelength frequency points of all the single lines. For each RV value, we Doppler-shifted the 1D spectrum and computed its cross-correlation function (CCF) with the 3D spectrum. The final step is to compute the weighted average to obtain the loca-

tion of the CCF maximum, which corresponds to the actual 3D convective shifts (CS) with respect to 1D models:

$$CS = \frac{\int_{-10}^{+10} RV(v) \cdot CCF(v) dv}{\int_{-10}^{+10} CCF(v) dv}$$
 (5)

Figure 7 displays the convective shifts for all the simulations either in the HR diagram (top left panel) or as a function of the  $T_{\rm eff}$  for the Fe I of Table 2 (top right panel), and for the Ca II triplet lines (bottom left panel). We found that surface gravity and metallicity have a small effect on the convective shifts, as already noticed by Allende Prieto et al. (2013). The values for the Fe I are in the range between -0.235 and +0.361 km/s. The convective shifts of Ca II lines are strongly redshifted (as shown by red bisectors in Fig. 6) and are between -0.023 and +0.698 km/s. In Fig. 7 (top right panel), there is a net correlation of the convective shifts with the effective temperature:  $T_{\rm eff} \lesssim 4500$ K denotes redshifts, while  $T_{\rm eff} \gtrsim 5000$ K denotes blueshifts (except for the hottest  $T_{\rm eff} \approx 7000$ K). This result is in agreement with

**Table 3.** Selected convective shifts for Fe I only ( $CS_{Stagger}$  in km/s) from RHD simulations in this work and from CIFIST-grid simulations ( $CS_{CIFIST}$  in km/s) with equivalent stellar parameters from Allende Prieto et al. (2013). The difference in  $T_{\rm eff}$  is set to be smaller than 50 K.

$T_{\rm eff,Stagger}$	$T_{\rm eff,CIFIST}$	logg	[Fe/H]	CS Stagger	$CS_{CIFIST}$	$\Delta_{CS}$
4014	4018	1.50	-0.0	0.116	0.000	0.116
4524	4480	4.00	-0.0	0.040	-0.038	0.078
4532	4509	4.50	-0.0	0.142	-0.036	0.178
5015	4968	2.50	-0.0	-0.122	0.054	-0.176
4992	4954	4.00	-0.0	-0.073	0.000	-0.073
4982	4982	4.50	-0.0	-0.009	0.007	-0.016
5509	5475	4.00	-0.0	-0.135	-0.050	-0.085
5530	5488	4.50	-0.0	0.014	0.000	0.014
4042	4040	1.50	-1.0	0.277	0.123	0.154
4508	4490	2.50	-1.0	0.071	0.078	-0.007
4965	4993	2.50	-1.0	-0.157	0.198	-0.355
4975	4930	3.50	-1.0	-0.007	0.021	-0.028
4956	4986	4.00	-1.0	0.123	0.026	0.097
5450	5481	3.50	-1.0	-0.175	-0.030	-0.145
5506	5473	4.50	-1.0	-0.036	-0.070	0.034
5907	5890	3.50	-1.0	-0.084	0.002	-0.086
5961	5923	4.50	-1.0	-0.043	-0.162	0.119
6435	6456	4.50	-1.0	-0.158	-0.170	0.012
4021	4001	1.50	-2.0	0.119	0.119	-0.000
4524	4500	4.00	-2.0	-0.015	-0.007	-0.008
4502	4539	4.50	-2.0	0.078	-0.011	0.089
4976	5013	4.50	-2.0	0.020	-0.072	0.092
5467	5505	3.50	-2.0	-0.075	-0.191	0.116
5480	5472	4.00	-2.0	-0.109	-0.228	0.119
5462	5479	4.50	-2.0	-0.036	-0.164	0.128
6500	6533	4.50	-2.0	-0.115	-0.316	0.201

for a different set of iron lines and found a milder correlation, where  $T_{\text{eff}}$  with warmer stars tend to exhibit larger blueshifts. To quantify the differences in the convective shifts, we selected 26 simulations from Table 4 with the same surface gravity, metallicity, and  $\Delta T_{\rm eff}$  < 50K with respect to a subset of CIFIST-grid simulations from Allende Prieto et al. (2013). Convective shifts, as a function of metallicity (Table 3), from RHD simulations in this work are  $CS_{Stagger,[Fe/H]=0}$ =[-0.135, 0.142],  $CS_{Stagger,[Fe/H]=-1}=[-0.175, 0.277]$ , and  $CS_{Stagger,[Fe/H]=-2}=[-0.175, 0.277]$ 0.114, 0.119] km/s, and from CIFIST-grid simulations 0.054],  $CS_{CIFIST,[Fe/H]=0}=[-0.050,$  $CS_{CIFIST,[Fe/H]=-1}=[-$ 0.170, 0.198], and  $CS_{CIFIST,[Fe/H]=-2}=[-0.316, 0.119]$  km/s. The spanned shift values from both grids are similar (Fig. 7, bottom right panel), and show smaller deviations at solar metallicity  $(\Delta_{CS} \le 0.195 \text{ km/s})$  and slightly larger deviations at [Fe/H]=-1

Allende Prieto et al. (2013), who had performed the calculations

The extraction of accurate radial velocities from RVS needs an appropriate wavelength calibration from convective shifts. This is directly processed in RVS pipeline using the synthetic spectra presented in this work and provided to Gaia consortium– ${\rm CU6}^7$ .

 $(\Delta_{CS} \leq 0.370 \text{ km/s})$  and [Fe/H]=-2  $(\Delta_{CS} \leq 0.221 \text{ km/s})$ . Apart

from the possible numerical differences in the simulations and

in the radiative transfer, the shift deviations may also be due to

#### 6. Conclusions

the set of spectral lines considered.

We provided synthetic spectra from the STAGGER-grid:

– low-resolution spectra from 1000 to 200 000 Å with a constant resolving power of  $\lambda/\Delta\lambda$  =20 000;

- high-resolution spectra from 8400 to 8900 Å (Gaia RVS spectral range), with a constant resolving power of  $\lambda/\Delta\lambda = 300~000$ .

We used the low-resolution spectra to compute synthetic colours in the Johnson-Cousins  $UBV(RI)_C$ , SDSS, 2MASS, Gaia systems, SkyMapper, Strömgren, and HST-WFC3. We extracted the bolometric corrections for the 3D simulations and the corresponding 1D hydrostatic models. We probed that 1D versus 3D deviations are limited to small fraction (less than 5%) except for  $BC_u$  and to a lesser extent  $BC_g$ , where the differences are larger than 10%. Systems u and g span the optical and line crowded region of the spectrum. Moreover, we showed that there is a clear correlation between effective temperature and 3D and 1D deviations ( $\Delta BC$ ): it decreases with increasing effective temperature.

The Gaia photometric system return 3D and 1D deviations of less than 3% with higher values for the bluer filter (BP). This effect should become important for future releases of Gaia data. For this purpose, part of the spectra presented in this work have already been provided to Gaia consortium—CU8.

We used the high-resolution spectra to denote the impact of the velocity gradient through the photosphere on the basic shape of the absorption lines. For this purpose, we reported the line bisectors of non-blended Fe I and Ca II triplet lines for different stars. We showed that weak lines (high excitation potential), which form in deeper layers, are more blueshifted than strong lines (low excitation potential), whose core and part of the wings are formed in higher layers.

As a final step to derive the overall convective shift for 3D simulations with respect to the reference 1D hydrostatic models, we cross-correlated each 3D spectrum with the corresponding 1D spectrum. The spanned values are between -0.235 and +0.361 km/s. We showed a net correlation of the convective shifts with the effective temperature: lower  $T_{\rm eff}$  denotes redshifts and higher  $T_{\text{eff}}$  blueshifts; this result is in agreement with Allende Prieto et al. (2013). In addition, we quantified the differences in the convective shifts between a subset of the RHD simulations in this work and the corresponding CIFIST-grid simulations. The spanned shift values from the two grids are similar, and show smaller deviations at solar metallicity. The extraction of accurate radial velocities from RVS spectra need an appropriate wavelength calibration from convection shifts. The spectra presented in this work have been provided to Gaia consortium-CU6 to directly process the observed spectra in RVS pipeline.

We have made all the spectra publicly available for the community through the POLLUX database (Palacios et al. 2010). POLLUX<sup>8</sup> is a stellar spectra database proposing access to theoretical data including high-resolution synthetic spectra and spectral energy distributions from several model atmospheres. Continuous development either of the Stagger-grid simulations or of the spectral synthesis calculations will be uploaded there in the future.

Acknowledgements. L.C. gratefully acknowledges support from the Australian Research Council (grants DP150100250, FT160100402). This work was granted access to the HPC resources of Observatoire de la Côte d'Azur - Mésocentre SIGAMM.

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<sup>&</sup>lt;sup>7</sup> For more details, see the technical note "3D spectral library for RVS radial velocities" (Chiavassa et al. 2014b) and the paper on CU6 design and performance (Sartoretti, Katz et al., in preparation).

Available at http://pollux.oreme.org

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ApJ, 769, 18

## Appendix A: One-dimensional versus three-dimensional bolometric corrections

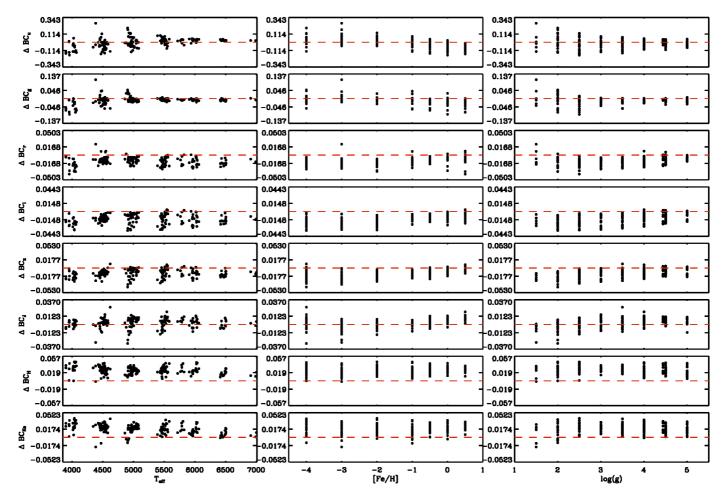


Fig. A.1. Bolometric correction (BC) differences computed for the photometric filters Johnson-Cousins and 2MASS with 3D simulations (Table 4) and the corresponding 1D hydrostatic models with microturbulence = 1 km/s:  $\Delta BC = BC_{1D} - BC_{3D}$ . The red dashed line indicates  $\Delta BC = 0.0$ .

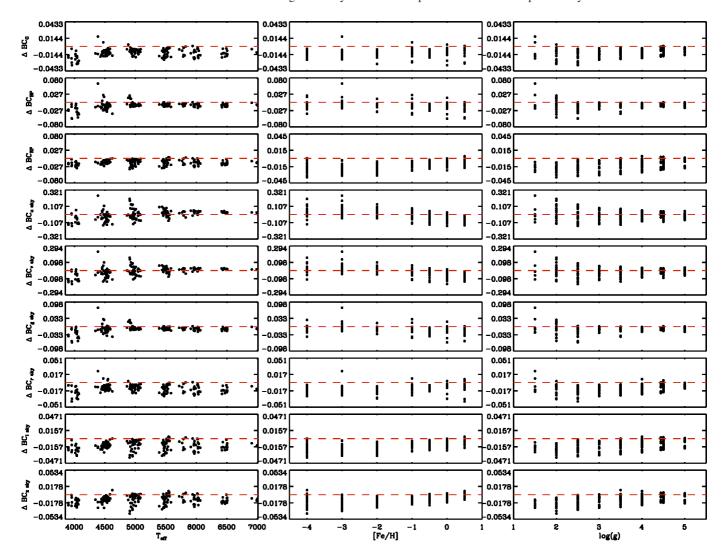
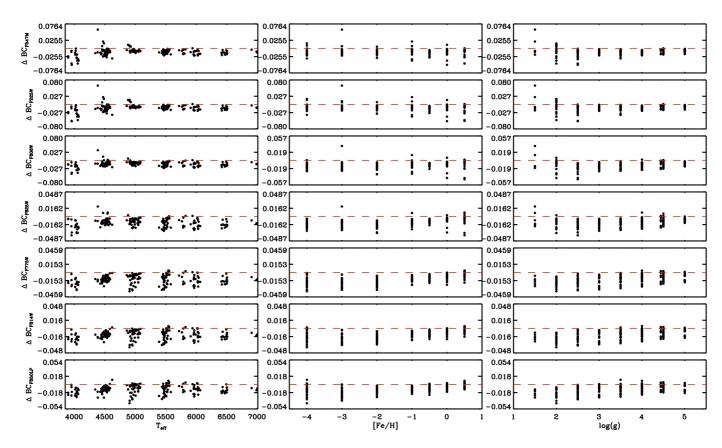
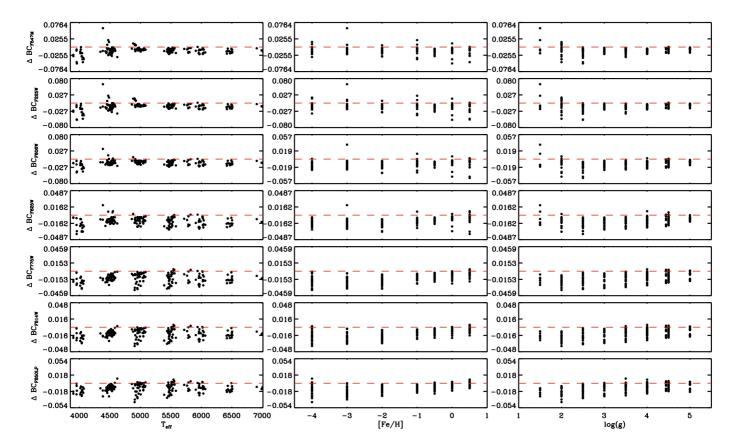


Fig. A.2. Bolometric correction differences for the SkyMapper and Gaia photometric filters (Table 1). The notation is the same as in Fig. A.1.



**Fig. A.3.** Bolometric correction differences for the HST-WFC3 provided in the VEGA system (for the ST and AB systems the differences are similar); first set of filters (Table 1). The notation is the same as in Fig. A.1.



**Fig. A.4.** Bolometric correction differences for the HST-WFC3 provided in the VEGA system (for ST and AB systems the differences are similar); second set of filters (Table 1). The notation is the same as in Fig. A.1.

**Table 4.** RHD simulations' stellar parameters (first three columns), bolometric Magnitude (M<sub>bol</sub>), and bolometric correction (BC) for Johnson-Cousins, 2MASS, SDSS, and Gaia systems (Table 1).

	1	IE-/IP	14	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.	n.C	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.	D.C.
T <sub>eff</sub>	logg	[Fe/H]	$M_{\rm bol}$	BC <sub>U</sub>	BC <sub>B</sub>	BC <sub>V</sub>	BC <sub>R</sub>	BC <sub>I</sub>	BC <sub>J</sub>	BC <sub>H</sub>	BC <sub>Ks</sub>	BC <sub>u</sub>	BC <sub>g</sub>	BC <sub>r</sub>	BC <sub>i</sub>	BC <sub>z</sub>	BC <sub>G</sub>	BC <sub>BP</sub>	BC <sub>RP</sub>
4014.99	1.50	0.0	6.320	-3.75310	-2.26910	-0.90560	-0.14050 -0.13680	0.53170	1.58810	2.32330 2.32870	2.53140	-4.67960	-1.63880	-0.43510 -0.42970	0.02130 0.02220	0.31350	-0.42180	-1.17700	0.44010 0.43660
4042.38 4021.90	1.50 1.50	-1.0 -2.0	6.291 6.313	-3.11690 -3.24590	-2.12650 -2.23800	-0.86970 -0.90050	-0.13080	0.52720 0.53780	1.55730 1.56940	2.32870	2.50310 2.50270	-4.01150 -4.17080	-1.54990 -1.62720	-0.42970	0.02220	0.30510 0.32220	-0.40820 -0.42050	-1.13330 -1.17860	0.43660
3951.92	1.50	-3.0	6.389	-3.24390	-2.23800	-1.04190	-0.14700	0.56190	1.61550	2.32730	2.52470	-4.17080	-1.02720	-0.52040	0.02640	0.32220	-0.42030	-1.17800	0.44460
4070.69	2.00	0.0	6.260	-3.47470	-2.14830	-0.85400	-0.19200	0.54590	1.57170	2.29980	2.49240	-4.39490	-1.55290	-0.32040	0.03070	0.30430	-0.38850	-1.11670	0.45590
4056.19	2.00	0.5	6.276	-3.85400	-2.25760	-0.92060	-0.14870	0.56010	1.60690	2.29380	2.50930	-4.79910	-1.63670	-0.45150	0.03890	0.34310	-0.41620	-1.18640	0.45950
3899.43	2.00	-0.5	6.447	-3.49590	-2.36970	-1.05820	-0.25620	0.49620	1.59210	2.40180	2.59540	-4.40270	-1.78920	-0.57300	-0.03710	0.29980	-0.51130	-1.31650	0.39120
4047.76	2.00	-1.0	6.285	-2.91330	-2.07200	-0.87100	-0.14040	0.52420	1.55180	2.32650	2.49650	-3.79910	-1.52820	-0.43160	0.01740	0.30250	-0.40790	-1.12290	0.43260
4037.03	2.00	-2.0	6.296	-2.95540	-2.11670	-0.86700	-0.13370	0.53570	1.55820	2.31110	2.48410	-3.86190	-1.54730	-0.42860	0.02910	0.31640	-0.40330	-1.13120	0.44430
4013.24	2.00	-3.0	6.322	-3.35520	-2.30150	-0.90580	-0.12690	0.58160	1.58900	2.27120	2.46040	-4.30180	-1.66740	-0.43730	0.06690	0.36920	-0.40050	-1.19080	0.48470
4025.21	2.00	-4.0	6.309	-3.55980	-2.40540	-0.92680	-0.10890	0.63070	1.60940	2.21870	2.41580	-4.52770	-1.73930	-0.43200	0.10980	0.42170	-0.38300	-1.21920	0.52890
3958.11	2.50	0.0	6.382	-3.56660	-2.32010	-1.02810	-0.23570	0.51510	1.59780	2.37820	2.57360	-4.48420	-1.74370	-0.54840	-0.01940	0.31200	-0.48920	-1.28330	0.40730
3953.50	2.50	0.5	6.387	-3.80950	-2.40470	-1.11480	-0.30470	0.52780	1.63440	2.37350	2.58690	-4.74740	-1.81650	-0.64260	-0.02810	0.33840	-0.52750	-1.37160	0.40560
3899.65	2.50	-0.5	6.447	-3.38240	-2.35470	-1.08720	-0.28100	0.50300	1.60010	2.40430	2.59230	-4.28350	-1.80050	-0.60420	-0.04080	0.31030	-0.52270	-1.33810	0.39050
4063.17	2.50	-1.0	6.268	-2.78900	-2.03250	-0.86810	-0.13650	0.53330	1.55190	2.31450	2.48120	-3.66800	-1.51230	-0.42730	0.02380	0.31040	-0.40060	-1.11150	0.43930
4037.59	2.50	-2.0	6.296	-2.77250	-2.05380	-0.85520	-0.12540	0.53900	1.55450	2.29540	2.46930	-3.66430	-1.51240	-0.41780	0.03300	0.31850	-0.39290	-1.10840	0.44790
4042.85	2.50	-3.0	6.290	-2.93700	-2.11110	-0.83090	-0.09010	0.59520	1.57280	2.21440	2.40930	-3.85780	-1.52630	-0.39140	0.08580	0.37500	-0.35830	-1.10360	0.50040
3951.87	2.50	-4.0	6.389	-3.26910	-2.30040	-0.89860	-0.09830	0.63760	1.61510	2.16480	2.38120	-4.21420	-1.66940	-0.41890	0.11610	0.43080	-0.36630	-1.18290	0.53650
4472.00 4384.64	1.50 1.50	-1.0 -3.0	5.852 5.938	-2.21550 -2.61300	-1.56460 -1.81900	-0.51380 -0.61560	0.07860 0.05090	0.62940 0.66850	1.46770 1.51840	2.05830 2.07870	2.20120 2.23480	-3.09040 -3.54550	-1.04910 -1.25530	-0.17990 -0.22970	0.15820 0.18080	0.35350 0.41100	-0.18650 -0.22330	-0.76800 -0.89270	0.55020 0.57920
4554.69	2.00	0.0	5.772	-2.44380	-1.54790	-0.46730	0.03090	0.65260	1.46810	2.00720	2.16230	-3.34330	-1.23330	-0.22970	0.18080	0.41100	-0.22550	-0.89270	0.57920
4334.69	2.00	-0.5	5.862	-2.44380	-1.57500	-0.40730	0.13820	0.63260	1.40810	2.06290	2.10230	-3.33110	-1.01020	-0.11140	0.18970	0.35420	-0.14340	-0.71970	0.57920
4498.97	2.00	-1.0	5.826	-2.02690	-1.49220	-0.52280	0.03130	0.61920	1.47180	2.04650	2.18410	-2.89380	-1.00370	-0.17030	0.13810	0.33420	-0.18180	-0.74320	0.54090
4452.94	2.00	-2.0	5.871	-2.06200	-1.55860	-0.53160	0.06150	0.62690	1.46640	2.05450	2.19950	-2.94780	-1.06070	-0.20060	0.15090	0.35670	-0.19770	-0.78270	0.54490
4455.77	2.00	-3.0	5.868	-2.19880	-1.62250	-0.54530	0.07300	0.65900	1.48290	2.03060	2.18220	-3.10880	-1.11000	-0.19620	0.17840	0.39140	-0.19120	-0.80530	0.57330
4485.37	2.00	-4.0	5.839	-2.18230	-1.61150	-0.53590	0.08540	0.67470	1.48090	2.00600	2.15740	-3.10140	-1.10450	-0.18510	0.19360	0.40570	-0.17930	-0.79680	0.58790
4533.90	2.50	0.0	5.792	-2.42220	-1.54340	-0.48380	0.12230	0.64140	1.46840	2.02900	2.17920	-3.31120	-1.02400	-0.12760	0.17660	0.35660	-0.15770	-0.73070	0.56730
4470.97	2.50	0.5	5.853	-2.96950	-1.69780	-0.54020	0.11300	0.65080	1.50870	2.05830	2.22920	-3.89340	-1.13610	-0.14310	0.18090	0.37280	-0.17980	-0.79450	0.57530
4503.34	2.50	-0.5	5.822	-2.14420	-1.51100	-0.50420	0.08910	0.62890	1.45710	2.04320	2.18270	-3.01490	-1.01820	-0.16560	0.15940	0.34990	-0.17610	-0.74480	0.55090
4508.09	2.50	-1.0	5.817	-1.92660	-1.46250	-0.50400	0.07270	0.61160	1.44500	2.04480	2.17960	-2.78780	-0.99160	-0.18090	0.14210	0.33360	-0.18380	-0.73710	0.53370
4426.04	2.50	-2.0	5.897	-1.96700	-1.54550	-0.54940	0.04450	0.60950	1.46430	2.06960	2.21620	-2.84060	-1.06370	-0.21680	0.13270	0.34180	-0.21180	-0.79080	0.52790
4477.40	2.50	-3.0	5.847	-1.95290	-1.53210	-0.52230	0.07420	0.64670	1.46370	2.00770	2.16010	-2.84360	-1.04790	-0.19010	0.16890	0.37590	-0.18320	-0.77040	0.56270
4535.29	2.50	-4.0	5.791	-1.84490	-1.47630	-0.49410	0.09330	0.66230	1.45020	1.96320	2.11390	-2.74040	-1.00810	-0.16990	0.18550	0.38710	-0.16180	-0.73980	0.57780
4508.67	3.00	0.0	5.817	-2.43240	-1.55940	-0.50960	0.10690	0.63360	1.47190	2.05230	2.19880	-3.32140	-1.05050	-0.14450	0.16670	0.35230	-0.17220	-0.75060	0.55840
4490.40	3.00	0.5	5.834 5.822	-2.82400 -1.89600	-1.65450	-0.53470 -0.51820	0.11420	0.64960	1.49830	2.05480 2.05290	2.21750 2.18560	-3.74320 -2.75320	-1.11560 -1.00280	-0.14020	0.18030	0.37020 0.32910	-0.17570 -0.19030	-0.78140 -0.74390	0.57380 0.52820
4503.05 4559.76	3.00	-1.0 -2.0	5.768	-1.66470	-1.46140 -1.38800	-0.31820	0.06670 0.08100	0.60620 0.61510	1.44450 1.42270	1.98970	2.18360	-2.73520	-0.93990	-0.18660 -0.17070	0.13630 0.14680	0.32910	-0.19030	-0.74390	0.52820
4555.30	3.00	-3.0	5.772	-1.67820	-1.38800	-0.47670	0.08100	0.61310	1.42270	1.98970	2.12750	-2.52520 -2.55210	-0.93990	-0.17070	0.14680	0.33330	-0.16840	-0.70330	0.56230
4533.50	3.00	-4.0	5.792	-1.69370	-1.41130	-0.47020	0.09230	0.65760	1.43190	1.93500	2.10000	-2.57560	-0.98030	-0.10320	0.17100	0.38190	-0.15880	-0.71090	0.50250
4548.87	3.50	0.0	5.778	-2.35730	-1.52710	-0.49890	0.11790	0.64060	1.46320	2.03430	2.17580	-3.24060	-1.03220	-0.17000	0.17550	0.35520	-0.15000	-0.73350	0.56530
4531.27	3.50	0.5	5.795	-2.71390	-1.61440	-0.52540	0.12180	0.65650	1.48990	2.04020	2.19570	-3.62570	-1.09490	-0.13100	0.18760	0.37340	-0.16580	-0.76460	0.57940
4344.11	3.50	-0.5	5.978	-2.42410	-1.70320	-0.64420	0.02020	0.60920	1.50070	2.14480	2.29230	-3.29750	-1.21390	-0.24690	0.12480	0.34900	-0.25070	-0.87740	0.52410
4573.06	3.50	-1.0	5.755	-1.78470	-1.39920	-0.48670	0.08940	0.61390	1.42690	2.01210	2.14120	-2.63660	-0.95540	-0.15930	0.14840	0.32930	-0.16750	-0.70500	0.53750
4508.84	3.50	-2.0	5.816	-1.72960	-1.43710	-0.50780	0.07100	0.61480	1.43680	2.00740	2.15330	-2.58590	-0.98660	-0.18370	0.14390	0.33770	-0.18240	-0.73290	0.53540
4571.34	3.50	-3.0	5.757	-1.59330	-1.38170	-0.46480	0.10020	0.64940	1.42240	1.91350	2.07260	-2.45980	-0.93710	-0.15650	0.17770	0.36800	-0.14850	-0.69500	0.56760
4620.85	3.50	-4.0	5.710	-1.46630	-1.32610	-0.44540	0.10780	0.65470	1.40480	1.87300	2.03130	-2.33620	-0.90080	-0.14800	0.18350	0.37040	-0.13610	-0.67120	0.57240
4524.22	4.00	0.0	5.802	-2.43030	-1.57480	-0.53140	0.10760	0.64220	1.47270	2.05380	2.19560	-3.31140	-1.08310	-0.14460	0.17420	0.35930	-0.17440	-0.76270	0.56480
4549.22	4.00	0.5	5.778	-2.65660	-1.61150	-0.53480	0.11940	0.66340	1.48930	2.03670	2.18880	-3.56000	-1.10480	-0.13440	0.19200	0.37930	-0.16630	-0.76890	0.58340
4441.77	4.00	-0.5	5.881	-2.28050	-1.60600	-0.58340	0.06360	0.62690	1.47940	2.08810	2.22950	-3.14810	-1.13150	-0.19600	0.15070	0.35490	-0.20920	-0.81060	0.54490
4587.16	4.00	-1.0	5.742	-1.79580	-1.40010	-0.48760	0.09840	0.62010	1.42670	2.00310	2.13310	-2.64530	-0.96180	-0.14950	0.15580	0.33330	-0.16230	-0.70200	0.54390
4524.97	4.00	-2.0	5.801	-1.72580	-1.42910	-0.50050	0.08470	0.62750	1.43500	1.98070	2.13130	-2.57980	-0.98180	-0.16980	0.15730	0.34810	-0.17090	-0.72310	0.54790
4517.64	4.00	-3.0	5.808	-1.66100	-1.42450	-0.48450	0.09720	0.65910	1.43670	1.90820	2.08050	-2.52650	-0.97230	-0.16350	0.18420	0.38210	-0.15380	-0.71680	0.57570
4580.60 4532.22	4.00 4.50	-4.0 0.0	5.748 5.794	-1.49510 -2.46210	-1.35310 -1.59380	-0.45580 -0.54300	0.10980 0.11020	0.66660 0.65210	1.41430 1.47610	1.85260 2.04950	2.02610 2.19140	-2.36350 -3.33990	-0.92270 -1.10600	-0.14940 -0.14280	0.19310 0.18240	0.38520 0.36800	-0.13590 -0.17400	-0.68330 -0.77120	0.58300 0.57240
4532.22	4.50	0.0	5.783	-2.46210	-1.59380 -1.64110	-0.55840	0.11020	0.65210	1.47610	2.04930	2.19140	-3.55180	-1.10000	-0.14280	0.18240	0.38810	-0.17400	-0.77120	0.57240
4343.13	4.50	-0.5	5.939	-2.03330	-1.70270	-0.63540	0.11090	0.67100	1.49340	2.11150	2.19370	-3.33180	-1.14040	-0.14360	0.19340	0.36780	-0.17420	-0.78970	0.54770
4569.29	4.50	-0.3	5.759	-2.44210	-1.70270	-0.50720	0.10140	0.63080	1.49980	2.00870	2.23940	-3.31230	-1.22130	-0.21880	0.15100	0.34510	-0.23090	-0.72080	0.55310
4502.45	4.50	-2.0	5.823	-1.80750	-1.44200	-0.51140	0.10140	0.64530	1.44530	1.96500	2.12500	-2.66330	-1.00230	-0.14650	0.17310	0.34310	-0.16720	-0.73560	0.56420
4526.03	5.00	0.0	5.800	-2.53060	-1.63450	-0.56170	0.09200	0.66540	1.44330	2.04650	2.12300	-3.40670	-1.01120	-0.10520	0.17310	0.38170	-0.10720	-0.78950	0.58260
4447.10	5.00	-0.5	5.876	-2.38690	-1.65720	-0.59700	0.08140	0.65580	1.48830	2.06250	2.21000	-3.25500	-1.17990	-0.14310	0.17770	0.38180	-0.17040	-0.82390	0.57090
4535.47	5.00	-1.0	5.791	-2.02130	-1.50860	-0.53300	0.10480	0.65280	1.45520	2.00600	2.14670	-2.87420	-1.06100	-0.14990	0.18190	0.36990	-0.16790	-0.74980	0.57140
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$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{\mathrm{U}}$	$BC_{\mathrm{B}}$	$BC_{ m V}$	$BC_{\mathrm{R}}$	$BC_{\mathrm{I}}$	$BC_{\mathrm{J}}$	$BC_{\mathrm{H}}$	$BC_{\mathrm{Ks}}$	$BC_{\mathrm{u}}$	$BC_{\rm g}$	$BC_{\rm r}$	$BC_{\rm i}$	$BC_z$	$BC_{\mathrm{G}}$	$BC_{\mathrm{BP}}$	$BC_{\mathrm{RP}}$
4881.31	2.00	0.0	5.472	-1.85600	-1.25750	-0.31260	0.22580	0.68500	1.37760	1.81390	1.95050	-2.72730	-0.78050	-0.00840	0.23980	0.36540	-0.04640	-0.54830	0.61700
4915.99	2.00	-1.0	5.441	-1.44220	-1.13310	-0.30090	0.18660	0.65110	1.33750	1.79320	1.91320	-2.30660	-0.70420	-0.04620	0.20420	0.33450	-0.05710	-0.52190	0.58110
4926.40	2.00	-2.0	5.432	-1.34090	-1.10990	-0.30720	0.17860	0.65220	1.33030	1.77580 1.77730	1.89650 1.90090	-2.22010 -2.22150	-0.70160	-0.05610	0.20220	0.33790	-0.06010	-0.52350	0.57980
4907.94 4905.26	2.00	-3.0 -4.0	5.448 5.450	-1.33290 -1.31800	-1.11580 -1.11680	-0.31880 -0.32140	0.17220 0.17000	0.65590 0.65720	1.33580 1.33590	1.77420	1.89900	-2.22150	-0.71570 -0.71960	-0.06510 -0.06810	0.20260 0.20270	0.34500 0.34730	-0.06540 -0.06690	-0.53470 -0.53770	0.58150 0.58210
5015.94	2.50	0.0	5.353	-1.62160	-1.11080	-0.32140	0.17000	0.63720	1.33360	1.77420	1.87470	-2.20890	-0.71960	0.01380	0.20270	0.34640	-0.00090	-0.33770	0.58210
4950.97	2.50	-0.5	5.410	-1.46410	-1.12750	-0.28930	0.20120	0.65640	1.33350	1.77560	1.89620	-2.32290	-0.69250	-0.02930	0.23730	0.33560	-0.02000	-0.50820	0.58770
4965.89	2.50	-1.0	5.397	-1.30120	-1.07870	-0.29020	0.18260	0.63700	1.31510	1.77130	1.88540	-2.15760	-0.66800	-0.04680	0.19220	0.31700	-0.05470	-0.50120	0.56810
4939.03	2.50	-2.0	5.421	-1.22650	-1.08470	-0.30980	0.16770	0.63670	1.31660	1.76870	1.88800	-2.09240	-0.68770	-0.06530	0.18740	0.32160	-0.06650	-0.51850	0.56490
4948.74	2.50	-3.0	5.412	-1.18400	-1.07210	-0.31190	0.16680	0.64250	1.31290	1.74910	1.87140	-2.05810	-0.68720	-0.06770	0.19100	0.32840	-0.06530	-0.51850	0.56890
4953.38	2.50	-4.0	5.408	-1.15390	-1.06350	-0.31300	0.16320	0.64060	1.30950	1.74280	1.86550	-2.03030	-0.68490	-0.07170	0.18830	0.32720	-0.06690	-0.51840	0.56660
5010.39	3.00	0.0	5.358	-1.60350	-1.12280	-0.26930	0.23460	0.67050	1.33290	1.75990	1.88080	-2.46850	-0.68320	0.00800	0.23110	0.34180	-0.02510	-0.48820	0.60510
4963.15	3.00	0.5	5.399	-2.01830	-1.22030	-0.28690	0.25740	0.69550	1.37290	1.78610	1.92160	-2.90900	-0.74410	0.02810	0.25630	0.36760	-0.02140	-0.51540	0.63150
4912.91	3.00	-0.5	5.444	-1.48350	-1.14370	-0.31040	0.18750	0.64870	1.34060	1.80810	1.92460	-2.33910	-0.71470	-0.04420	0.20190	0.33170	-0.06000	-0.52690	0.57930
4990.00	3.00	-1.0	5.376	-1.23520	-1.05870	-0.28900	0.18010	0.63000	1.30440	1.76130	1.87240	-2.08530	-0.65640	-0.04790	0.18620	0.30840	-0.05510 -0.06390	-0.49430	0.56170
4991.62 4970.32	3.00	-2.0 -3.0	5.375 5.393	-1.10840 -1.08960	-1.04440 -1.05480	-0.29980 -0.31250	0.16590	0.62510	1.29330	1.73740 1.72860	1.85460 1.85230	-1.96400 -1.95230	-0.65950 -0.67740	-0.06400 -0.07250	0.17830	0.30590		-0.50080	0.55440
5005.01	3.00	-3.0 -4.0	5.363	-1.08900	-1.03480	-0.31230	0.16100 0.15890	0.63320 0.62840	1.29860 1.28370	1.72860	1.83230	-1.93230	-0.66040	-0.07230	0.18260 0.17810	0.31770 0.31130	-0.06820 -0.06660	-0.51360 -0.50360	0.56000 0.55520
5011.53	3.50	0.0	5.357	-1.60830	-1.11830	-0.27140	0.13890	0.66630	1.33220	1.76670	1.88440	-2.47170	-0.68150	0.00630	0.17310	0.31130	-0.02680	-0.48760	0.60130
4988.91	3.50	0.5	5.377	-1.94540	-1.19200	-0.28030	0.25750	0.69200	1.36290	1.77640	1.90760	-2.83360	-0.72660	0.02990	0.25360	0.36300	-0.01820	-0.50420	0.62830
4917.82	3.50	-0.5	5.439	-1.47540	-1.13940	-0.31360	0.18630	0.64600	1.33880	1.81020	1.92450	-2.32810	-0.71460	-0.04500	0.19960	0.32890	-0.06120	-0.52660	0.57690
4975.93	3.50	-1.0	5.388	-1.23620	-1.06800	-0.29970	0.17470	0.62560	1.30730	1.77390	1.88400	-2.08140	-0.66750	-0.05340	0.18150	0.30520	-0.06130	-0.50220	0.55730
5036.62	3.50	-2.0	5.336	-1.03470	-1.01790	-0.29250	0.16610	0.61710	1.27520	1.71280	1.82790	-1.88270	-0.64050	-0.06150	0.17250	0.29440	-0.06140	-0.48780	0.54740
5047.83	3.50	-3.0	5.326	-0.96660	-1.00740	-0.29740	0.16210	0.62210	1.26750	1.68170	1.80270	-1.82030	-0.64280	-0.06790	0.17490	0.30090	-0.06260	-0.49050	0.55030
5047.65	3.50	-4.0	5.326	-0.92830	-1.00340	-0.30440	0.15450	0.61880	1.26280	1.67270	1.79580	-1.78380	-0.64680	-0.07650	0.17000	0.29900	-0.06810	-0.49560	0.54600
4992.30	4.00	0.0	5.374	-1.65750	-1.13970	-0.28430	0.22940	0.66690	1.33920	1.78180	1.89940	-2.51940	-0.70140	0.00290	0.22730	0.34010	-0.03200	-0.49910	0.60170
5083.68	4.00	0.5	5.295	-1.81620	-1.12350	-0.24970	0.27320	0.69200	1.33530	1.73100	1.85530	-2.69810	-0.67430	0.05010	0.25840	0.35530	0.00120	-0.46590	0.63020
4910.47	4.00	-0.5	5.446	-1.50710	-1.15360	-0.32320	0.18670	0.64700	1.34290	1.81920	1.93320	-2.35760	-0.72940	-0.04480	0.20080	0.33020	-0.06370	-0.53380	0.57810
4956.78 5059.64	4.00 4.00	-1.0 -2.0	5.405 5.316	-1.26990 -1.00690	-1.08980 -1.01250	-0.31280 -0.28900	0.17380 0.16920	0.62680 0.61650	1.31480 1.26760	1.78840 1.69860	1.89940 1.81470	-2.11150 -1.84930	-0.68840 -0.63570	-0.05490 -0.05750	0.18240 0.17320	0.30750 0.29180	-0.06600 -0.05880	-0.51360 -0.48260	0.55850 0.54730
5049.09	4.00	-3.0	5.325	-0.95400	-1.01230	-0.29950	0.16420	0.62660	1.26650	1.66930	1.79600	-1.80280	-0.65070	-0.05750	0.17910	0.30530	-0.06210	-0.49370	0.55430
5072.94	4.00	-4.0	5.304	-0.88740	-0.99970	-0.30200	0.15690	0.61980	1.25250	1.64710	1.77460	-1.73790	-0.64440	-0.07400	0.17170	0.29840	-0.06600	-0.49210	0.54710
4982.27	4.50	0.0	5.383	-1.72500	-1.16460	-0.29680	0.23170	0.67060	1.34610	1.79300	1.91140	-2.58520	-0.72470	0.00480	0.23130	0.34400	-0.03450	-0.50950	0.60550
5056.36	4.50	0.5	5.319	-1.88710	-1.15520	-0.26760	0.26980	0.69220	1.34570	1.75190	1.87680	-2.76700	-0.70440	0.04610	0.25810	0.35810	-0.00620	-0.48200	0.63050
4953.63	4.50	-1.0	5.408	-1.30860	-1.10260	-0.31920	0.17860	0.63060	1.31920	1.79400	1.90580	-2.14780	-0.70140	-0.05010	0.18690	0.31060	-0.06550	-0.51780	0.56260
4976.19	4.50	-2.0	5.388	-1.12990	-1.07590	-0.31240	0.17020	0.63070	1.29880	1.73600	1.86150	-1.97110	-0.68450	-0.06050	0.18430	0.31130	-0.06570	-0.51170	0.56000
5079.81	4.50	-3.0	5.299	-0.93440	-1.00930	-0.28990	0.17290	0.63270	1.25750	1.63920	1.77090	-1.78110	-0.64150	-0.05750	0.18640	0.30880	-0.05410	-0.48420	0.56050
4969.79	4.50	-4.0	5.394	-0.99560	-1.06860	-0.32560	0.15760	0.64080	1.28800	1.67600	1.81900	-1.84780	-0.69690	-0.07950	0.18760	0.32670	-0.07210	-0.52490	0.56540
4976.20	5.00	0.0	5.388	-1.80450	-1.18960	-0.30900	0.23590	0.67520	1.35290	1.80360	1.92170	-2.66340	-0.74840	0.00890	0.23660	0.34830	-0.03580	-0.51910	0.61050
4953.82	5.00	0.5	5.408	-2.06940	-1.26350	-0.32520	0.25260	0.69740	1.38040	1.81150	1.94240	-2.94810	-0.80270	0.02370	0.25750	0.37140	-0.03290	-0.54080	0.63250
4860.02 4971.82	5.00 5.00	-0.5 -1.0	5.491 5.392	-1.69170 -1.34160	-1.22730 -1.10480	-0.35980 -0.31670	0.18960 0.18980	0.65750 0.63850	1.36700 1.31870	1.85490 1.78420	1.97290 1.89690	-2.54240 -2.17970	-0.79760 -0.70420	-0.04420 -0.03820	0.21030 0.19630	0.34330 0.31600	-0.07360 -0.05840	-0.56810 -0.51340	0.58820 0.57090
4980.19	5.00	-2.0	5.385	-1.16660	-1.10480	-0.31070	0.18140	0.64380	1.30190	1.72070	1.85140	-2.17970	-0.70420	-0.05020	0.19030	0.31000	-0.05790	-0.51340	0.57260
5043.95	5.00	-3.0	5.329	-0.98540	-1.03600	-0.29540	0.17780	0.64540	1.27090	1.64160	1.78140	-1.83240	-0.66010	-0.05510	0.19740	0.32370	-0.05260	-0.49410	0.57210
4950.01	5.00	-4.0	5.411	-1.02750	-1.08610	-0.32710	0.16400	0.65270	1.29530	1.66540	1.81680	-1.88020	-0.70860	-0.07490	0.19850	0.33960	-0.06840	-0.52960	0.57640
5390.37	2.50	-2.0	5.041	-0.82020	-0.79850	-0.19050	0.20750	0.60490	1.16860	1.52300	1.62440	-1.69170	-0.46740	-0.00540	0.17540	0.25740	-0.00210	-0.36480	0.54180
5436.69	2.50	-3.0	5.004	-0.74360	-0.76850	-0.19050	0.19770	0.59290	1.14600	1.49030	1.59150	-1.61830	-0.45280	-0.01400	0.16340	0.24430	-0.00580	-0.35830	0.52960
5459.13	3.00	0.0	4.986	-1.08180	-0.83640	-0.13880	0.27850	0.65050	1.18980	1.51360	1.61770	-1.94170	-0.45620	0.07000	0.22980	0.28990	0.04550	-0.33170	0.59260
5479.60	3.00	-0.5	4.970	-0.90320	-0.79180	-0.14620	0.24700	0.62080	1.16170	1.49630	1.59370	-1.76010	-0.43380	0.03930	0.19900	0.26220	0.02950	-0.32920	0.56200
5476.23	3.00	-1.0	4.972	-0.81420	-0.78110	-0.16190	0.22670	0.60550	1.14950	1.48940	1.58670	-1.67100	-0.43750	0.01810	0.18220	0.24920	0.01520	-0.33830	0.54560
5509.14	3.00	-2.0	4.946	-0.69810	-0.75540	-0.18090	0.20020	0.58320	1.12170	1.45720	1.55500	-1.55960	-0.43710	-0.00860	0.15760	0.22820	-0.00280	-0.34620	0.52160
5459.30	3.00	-3.0	4.986	-0.67650	-0.77320	-0.20260	0.18300	0.57740	1.12910	1.47530	1.57530	-1.53840	-0.46070	-0.02840	0.14800	0.22770	-0.01860	-0.36700	0.51380
5469.82 5560.38	3.00 3.50	-4.0 0.0	4.977 4.906	-0.65020 -0.96890	-0.77020 -0.78500	-0.20640 -0.12210	0.17690 0.27880	0.57180	1.12170 1.15520	1.46520 1.46520	1.56580 1.56360	-1.51210 -1.82320	-0.46190 -0.41820	-0.03460 0.07400	0.14200 0.22080	0.22230 0.27090	-0.02310 0.05240	-0.36940 -0.30700	0.50800 0.58140
5505.98	3.50	-0.5	4.906	-0.96890	-0.78730	-0.12210	0.27880	0.63790 0.61600	1.15520	1.48590	1.58080	-1.82320	-0.41820	0.07400	0.22080	0.27090	0.03240	-0.30700	0.58140
5450.91	3.50	-0.5	4.949	-0.79730	-0.78730	-0.14720	0.24470	0.60060	1.15430	1.50760	1.60290	-1.64430	-0.45160	0.03770	0.17600	0.23370	0.02780	-0.35150	0.54010
5467.28	3.50	-2.0	4.979	-0.69010	-0.79070	-0.17330	0.19070	0.58080	1.13170	1.48070	1.57850	-1.54010	-0.46540	-0.02010	0.17330	0.22870	-0.01530	-0.36650	0.51820
5474.46	3.50	-3.0	4.974	-0.63520	-0.78550	-0.21190	0.17500	0.57030	1.11900	1.46290	1.56310	-1.48740	-0.47210	-0.03680	0.14080	0.22000	-0.02700	-0.37560	0.50640
5490.94	3.50	-4.0	4.960	-0.60100	-0.78120	-0.21870	0.16520	0.56060	1.10820	1.45220	1.55150	-1.45300	-0.47410	-0.04640	0.13060	0.21050	-0.03450	-0.37960	0.49650
5509.78	4.00	0.0	4.946	-1.02250	-0.81670	-0.13570	0.27720	0.64210	1.17320	1.49830	1.59590	-1.87210	-0.44260	0.07070	0.22330	0.27800	0.04630	-0.32270	0.58500
5542.42	4.00	0.5	4.920	-1.21110	-0.83140	-0.11970	0.31630	0.67320	1.18930	1.48680	1.59160	-2.07400	-0.44380	0.10990	0.25810	0.30310	0.07120	-0.31040	0.61820
5513.71	4.00	-0.5	4.943	-0.85020	-0.78790	-0.14990	0.24220	0.61180	1.14860	1.48830	1.57990	-1.69360	-0.43210	0.03570	0.19130	0.25090	0.02550	-0.32850	0.55340
5437.76	4.00	-1.0	5.003	-0.79930	-0.81480	-0.18240	0.21510	0.59910	1.15810	1.52100	1.61420	-1.63930	-0.46520	0.00530	0.17420	0.24520	0.00110	-0.35840	0.53850

$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{\mathrm{U}}$	$BC_{\mathrm{B}}$	$BC_{ m V}$	$BC_{R}$	$BC_{\mathrm{I}}$	$BC_{I}$	$BC_{\mathrm{H}}$	$BC_{Ks}$	$BC_{11}$	$BC_{\sigma}$	$BC_{\rm r}$	$BC_{i}$	$BC_z$	$BC_{\mathrm{G}}$	$BC_{\mathrm{BP}}$	$BC_{RP}$
5480.60	4.00	-2.0	4.969	-0.66620	-0.79900	-0.20260	0.18810	0.57760	1.12580	1.47340	1.57090	-1.50870	-0.47140	-0.02270	0.15040	0.22470	-0.01870	-0.37010	0.51490
5582.06	4.00	-3.0	4.889	-0.55510	-0.76090	-0.20610	0.16940	0.55320	1.07930	1.40670	1.50300	-1.39990	-0.45430	-0.03940	0.12710	0.19680	-0.02900	-0.36420	0.49050
5523.51	4.00	-4.0	4.935	-0.56420	-0.78730	-0.22270	0.16140	0.55580	1.09460	1.43000	1.53000	-1.40920	-0.47970	-0.05020	0.12640	0.20410	-0.03890	-0.38300	0.49150
5530.74	4.50	0.0	4.929	-1.02080	-0.81610	-0.13430	0.28030	0.64200	1.16930	1.49320	1.58920	-1.86610	-0.44100	0.07450	0.22450	0.27660	0.04830	-0.32010	0.58560
5554.75	4.50	0.5	4.910	-1.21550	-0.83210	-0.11950	0.31850	0.67280	1.18760	1.48520	1.58870	-2.07540	-0.44380	0.11290	0.25850	0.30220	0.07240	-0.30890	0.61840
5457.22	4.50	-0.5	4.987	-0.91310	-0.82770	-0.16420	0.24350	0.62030	1.17060	1.52390	1.61650	-1.75180	-0.46190	0.03480	0.19810	0.26280	0.02050	-0.34640	0.56130
5506.04	4.50	-1.0	4.949	-0.75260	-0.79550	-0.17240	0.21990	0.59470	1.13760	1.48950	1.58030	-1.58720	-0.44910	0.01220	0.17280	0.23600	0.00660	-0.34520	0.53540
5462.38	4.50	-2.0	4.983	-0.67600	-0.82030	-0.20600	0.19180	0.58460	1.13500	1.48320	1.58370	-1.51290	-0.48530	-0.02000	0.15690	0.23250	-0.01870	-0.37670	0.52150
5517.41	4.50 4.50	-3.0 -4.0	4.940 4.928	-0.58380	-0.80280 -0.80040	-0.21510 -0.22400	0.17620 0.16470	0.57180	1.10550	1.43390 1.42120	1.53740 1.52480	-1.42380 -1.39030	-0.48440	-0.03610 -0.04770	0.14290 0.13160	0.21930 0.20920	-0.02900 -0.03820	-0.38030 -0.38650	0.50750 0.49650
5531.84 5509.50	5.00	0.0	4.928	-0.54970 -1.08990	-0.84050	-0.22400	0.16470	0.56120 0.64890	1.09390 1.18130	1.51060	1.60770	-1.93310	-0.48890 -0.45760	0.08000	0.13100	0.20920	0.04880	-0.38030	0.49030
5550.69	5.00	0.5	4.940	-1.27800	-0.84870	-0.14030	0.28640	0.67680	1.19420	1.49360	1.59840	-2.13540	-0.45410	0.08000	0.26370	0.30590	0.04880	-0.32730	0.59300
5528.91	5.00	-1.0	4.931	-0.75360	-0.79470	-0.12150	0.22590	0.59690	1.13360	1.48250	1.57240	-1.58430	-0.44640	0.01900	0.17650	0.23610	0.01080	-0.34060	0.53820
5463.42	5.00	-2.0	4.982	-0.68880	-0.82760	-0.20200	0.19950	0.59230	1.13890	1.48120	1.58480	-1.52290	-0.48740	-0.01270	0.16520	0.23950	-0.01350	-0.37490	0.52920
5468.24	5.00	-3.0	4.978	-0.62010	-0.83010	-0.21800	0.18420	0.58830	1.12600	1.45040	1.56140	-1.45890	-0.50250	-0.03070	0.15760	0.23840	-0.02570	-0.38900	0.52280
5474.24	5.00	-4.0	4.974	-0.58920	-0.83070	-0.22720	0.17450	0.58120	1.11790	1.43980	1.55230	-1.42960	-0.50960	-0.04100	0.14930	0.23230	-0.03390	-0.39620	0.51500
5787.92	4.44	0.0	4.732	-0.78450	-0.69460	-0.08850	0.28170	0.61220	1.08170	1.35950	1.44730	-1.62860	-0.34790	0.08430	0.20330	0.23130	0.06660	-0.25960	0.55930
5824.45	4.44	0.5	4.705	-0.95150	-0.69700	-0.06460	0.32440	0.64470	1.09800	1.34930	1.44350	-1.80570	-0.33820	0.12800	0.23980	0.25710	0.09610	-0.23970	0.59420
5718.03	4.44	-0.5	4.785	-0.69890	-0.70920	-0.11910	0.24620	0.59040	1.08200	1.38680	1.47140	-1.53790	-0.37120	0.04620	0.17730	0.21680	0.03870	-0.28650	0.53520
5765.80	4.44	-1.0	4.748	-0.58150	-0.69110	-0.13560	0.21880	0.56260	1.04910	1.35270	1.43610	-1.41840	-0.37060	0.01940	0.14930	0.18870	0.01960	-0.29400	0.50690
5787.32	4.44	-2.0	4.732	-0.48830	-0.69910	-0.16960	0.18280	0.53630	1.02020	1.31860	1.40570	-1.32680	-0.39640	-0.01850	0.11930	0.16560	-0.01080	-0.32100	0.47790
5784.22	4.44	-3.0	4.735	-0.44810	-0.70850	-0.18920	0.16320	0.52400	1.00940	1.30620	1.39610	-1.28770	-0.41440	-0.03960	0.10440	0.15600	-0.02780	-0.33820	0.46410
5806.41	4.44	-4.0	4.718	-0.42430	-0.70840	-0.19780	0.15190	0.51230	0.99560	1.29050	1.38030	-1.26420	-0.41940	-0.05080	0.09250	0.14430	-0.03730	-0.34470	0.45220
6025.18	3.50	0.0	4.557	-0.65120	-0.57750	-0.04410	0.28120	0.58140	1.00060	1.22820	1.31580	-1.51480	-0.25890	0.09210	0.18060	0.18840	0.08460	-0.20280	0.53280
5988.06	3.50	-0.5	4.584	-0.57750	-0.58350	-0.07320	0.24900 0.22340	0.55910	0.99250	1.23880	1.32330	-1.43830	-0.27770	0.05810	0.15520	0.17090	0.05920	-0.22540	0.50860
5907.99 5961.94	3.50 3.50	-1.0 -2.0	4.643 4.603	-0.54850 -0.46090	-0.61340 -0.60220	-0.10640 -0.13650	0.22340	0.54840 0.51050	1.00290 0.96200	1.27030 1.23060	1.35510 1.31350	-1.40580 -1.32050	-0.31300 -0.32360	0.02910 -0.01030	0.14000 0.10040	0.16690 0.13010	0.03450 0.00410	-0.25650 -0.27540	0.49540 0.45620
5965.56	3.50	-3.0	4.601	-0.43190	-0.60880	-0.15030	0.16700	0.31030	0.95200	1.23000	1.31330	-1.32030	-0.32500	-0.01030	0.10040	0.13010	-0.01000	-0.27340	0.43020
5971.49	3.50	-4.0	4.596	-0.41640	-0.61290	-0.15100	0.15610	0.48770	0.94320	1.21470	1.29850	-1.27470	-0.33370	-0.02760	0.07550	0.11070	-0.01000	-0.29620	0.43230
6014.61	4.00	0.0	4.565	-0.63510	-0.58990	-0.05210	0.13610	0.57840	1.00220	1.23980	1.32370	-1.48810	-0.26890	0.08670	0.17710	0.18510	0.07870	-0.21020	0.52910
6038.71	4.00	-0.5	4.548	-0.52650	-0.58300	-0.07750	0.24160	0.54800	0.97380	1.21950	1.29990	-1.37710	-0.27850	0.05150	0.14520	0.15670	0.05300	-0.22700	0.49760
5958.44	4.00	-1.0	4.606	-0.49750	-0.61480	-0.11210	0.21450	0.53610	0.98300	1.24910	1.33020	-1.34490	-0.31560	0.02090	0.12870	0.15190	0.02690	-0.25960	0.48310
5954.96	4.00	-2.0	4.608	-0.43750	-0.63070	-0.14980	0.17680	0.50850	0.96150	1.23400	1.31640	-1.28550	-0.34630	-0.01860	0.09720	0.12860	-0.00600	-0.29090	0.45310
6032.46	4.00	-3.0	4.552	-0.38350	-0.61880	-0.16300	0.15260	0.47990	0.92310	1.18800	1.26910	-1.23210	-0.34640	-0.04130	0.06930	0.09810	-0.02370	-0.29780	0.42470
6023.76	4.00	-4.0	4.558	-0.37830	-0.62430	-0.17300	0.14000	0.46860	0.91710	1.18740	1.26780	-1.22630	-0.35410	-0.05410	0.05720	0.08810	-0.03440	-0.30700	0.41290
6020.75	4.50	0.0	4.561	-0.62240	-0.60530	-0.05810	0.27690	0.58070	1.00290	1.24360	1.32550	-1.46690	-0.28070	0.08660	0.17920	0.18680	0.07610	-0.21670	0.53100
5938.44	4.50	0.5	4.620	-0.84350	-0.64830	-0.04780	0.32120	0.62900	1.05840	1.29200	1.38240	-1.69580	-0.30130	0.12840	0.22750	0.23520	0.10120	-0.21670	0.57990
5968.38	4.50	-0.5	4.598	-0.54580	-0.61870	-0.08980	0.24110	0.55630	0.99720	1.26070	1.33920	-1.38610	-0.30410	0.04870	0.15120	0.16850	0.04730	-0.24340	0.50460
5961.60	4.50	-1.0	4.603	-0.48430	-0.62810	-0.11610	0.21340	0.53520	0.98260	1.25350	1.33230	-1.32270	-0.32400	0.01960	0.12800	0.15040	0.02390	-0.26450	0.48210
6064.09 6024.94	4.50 4.50	-2.0 -3.0	4.529 4.557	-0.37850 -0.36240	-0.62070 -0.64300	-0.15140 -0.17340	0.16540 0.14780	0.48750 0.47970	0.92170 0.92350	1.18240 1.19060	1.26070 1.27150	-1.21880 -1.20220	-0.33990 -0.36560	-0.02760 -0.04740	0.07910 0.06810	0.10230 0.09880	-0.01400 -0.03140	-0.28860 -0.31050	0.43310 0.42350
6037.83	4.50	-3.0 -4.0	4.548	-0.36240	-0.64840	-0.17340	0.14780	0.47970	0.92330	1.18030	1.27130	-1.20220	-0.37440	-0.04740	0.06810	0.09880	-0.03140	-0.31030	0.42330
6432.73	4.00	0.0	4.273	-0.34920	-0.45690	-0.10370	0.15050	0.51590	0.86370	1.03890	1.11640	-1.30920	-0.17170	0.08240	0.03710	0.10220	0.04100	-0.15010	0.47320
6455.69	4.00	-0.5	4.258	-0.39190	-0.46130	-0.01340	0.22580	0.48510	0.83560	1.01710	1.09260	-1.25390	-0.17170	0.04730	0.09550	0.07330	0.05920	-0.17200	0.44140
6413.03	4.00	-1.0	4.286	-0.36430	-0.48480	-0.07670	0.19490	0.46490	0.83130	1.03060	1.10340	-1.22350	-0.21990	0.01440	0.07170	0.05800	0.03080	-0.20200	0.41910
6419.24	4.00	-2.0	4.282	-0.32650	-0.50660	-0.11630	0.15370	0.43180	0.80570	1.01380	1.08600	-1.18510	-0.25300	-0.02810	0.03530	0.02860	-0.00560	-0.23610	0.38400
6470.07	4.00	-3.0	4.248	-0.30140	-0.51070	-0.13440	0.12860	0.40500	0.77640	0.98300	1.05410	-1.15920	-0.26380	-0.05250	0.00860	0.00150	-0.02610	-0.25050	0.35720
6491.09	4.00	-4.0	4.234	-0.29550	-0.51950	-0.14770	0.11380	0.38990	0.76180	0.96910	1.04010	-1.15280	-0.27510	-0.06720	-0.00660	-0.01350	-0.03980	-0.26240	0.34210
6491.63	4.50	0.0	4.234	-0.40280	-0.45840	-0.01840	0.25180	0.50340	0.84300	1.01850	1.09080	-1.25470	-0.17330	0.07470	0.11630	0.08580	0.07990	-0.15270	0.46050
6503.68	4.50	-0.5	4.225	-0.34200	-0.47480	-0.05660	0.21110	0.47040	0.81610	1.00130	1.07120	-1.19170	-0.20250	0.03260	0.08080	0.05620	0.04510	-0.18400	0.42590
6435.89	4.50	-1.0	4.271	-0.32460	-0.50900	-0.09030	0.18460	0.45760	0.82040	1.02180	1.09230	-1.17110	-0.24010	0.00320	0.06380	0.04950	0.01840	-0.21670	0.41060
6500.28	4.50	-2.0	4.228	-0.28230	-0.52190	-0.13210	0.13260	0.40680	0.77100	0.97710	1.04490	-1.12910	-0.26750	-0.04840	0.01150	0.00010	-0.02500	-0.25060	0.35880
6499.46	4.50	-3.0	4.228	-0.26620	-0.54150	-0.15330	0.11380	0.39330	0.76150	0.97070	1.03950	-1.11160	-0.29040	-0.06830	-0.00380	-0.01110	-0.04360	-0.27080	0.34440
6507.77	4.50	-4.0	4.223	-0.26320	-0.55210	-0.16540	0.10200	0.38280	0.75240	0.96260	1.03170	-1.10820	-0.30260	-0.08030	-0.01480	-0.02100	-0.05520	-0.28230	0.33360
6907.57 6986.84	4.50 4.50	0.0 -0.5	3.964 3.914	-0.29660 -0.26030	-0.36800 -0.37800	-0.00300 -0.03960	0.22060 0.17480	0.43030 0.38420	0.70520 0.65680	0.82860 0.78140	0.89670 0.84700	-1.15810 -1.12200	-0.11040 -0.13320	0.05350 0.00820	0.05490 0.00850	-0.00540 -0.05110	0.07110 0.03340	-0.11930 -0.14820	0.39350 0.34710
7000.57	4.50	-0.5	3.914	-0.23350	-0.37800	-0.03960	0.17480	0.38420	0.65680	0.78140	0.84700	-1.12200	-0.13320	-0.09490	-0.08060	-0.05110	-0.05990	-0.14820	0.34710
/000.3/	4.50	-3.0	3.900	-0.23330	-0.43000	-0.13900	0.07470	0.30170	0.39740	0.74010	0.00010	-1.009/0	-0.22000	-0.07470	-0.00000	-0.12320	-0.03990	-0.24030	0.20070

**Table 5.** Same as in Table 4 with bolometric correction for SkyMapper photometric system of Table 1. The last three columns are the Strömgren index b - y, m1 = (v - b) - (b - y), and c1 = (u - v) - (v - b) (Bessell 2005).

$T_{\rm eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{us}$	$BC_{vs}$	$BC_{\sigma_S}$	$BC_{rs}$	$BC_{is}$	$BC_{78}$	<i>b</i> – y	<i>m</i> 1	<i>c</i> 1
4014.99	1.50	0.0	6.320	-4.50340	-3.96180	-1.21350	-0.46120	0.08130	0.33140	0.86270	0.54200	0.54670
4042.38	1.50	-1.0	6.291	-3.95760	-3.40670	-1.16070	-0.45220	0.08050	0.31940	0.80280	0.40080	0.37820
4021.90	1.50	-2.0	6.313	-4.13890	-3.45350	-1.21800	-0.47130	0.08910	0.33620	0.88560	0.33970	0.44090
3951.92	1.50	-3.0	6.389	-4.72750	-4.00560	-1.42040	-0.54570	0.10710	0.38030	1.08410	0.28450	0.58400
4070.69	2.00	0.0	6.260	-4.26470	-3.70710	-1.14680	-0.42180	0.09820	0.33490	0.81310	0.50650	0.52480
4056.19	2.00	0.5	6.276	-4.61120	-4.01780	-1.21860	-0.47660	0.10630	0.36120	0.83980	0.59110	0.65440
3899.43	2.00	-0.5	6.447	-4.29810	-3.75980	-1.36540	-0.59670	0.03870	0.31790	0.84140	0.43510	0.40610
4047.76	2.00	-1.0	6.285	-3.75940	-3.23770	-1.15060	-0.45450	0.07690	0.31640	0.76800	0.37800	0.29970
4037.03	2.00	-2.0	6.296	-3.84980	-3.21730	-1.16230	-0.45100	0.08820	0.32980	0.81770	0.34190	0.33000
4013.24	2.00	-3.0	6.322	-4.27160	-3.50790	-1.24260	-0.46100	0.13100	0.38250	0.95000	0.27920	0.53940
4025.21	2.00	-4.0	6.309	-4.46430	-3.66310	-1.28970	-0.45630	0.17790	0.43430	1.04300	0.17920	0.70700
3958.11	2.50	0.0	6.382	-4.35790	-3.80770	-1.32590	-0.57390	0.05760	0.32950	0.81430	0.49440	0.48040
3953.50	2.50	0.5	6.387	-4.60040	-3.99330	-1.40870	-0.66350	0.06260	0.35840	0.82420	0.51450	0.63390
3899.65	2.50	-0.5	6.447	-4.19610	-3.66610	-1.38650	-0.62790	0.04240	0.32820	0.81860	0.40050	0.39650
4063.17	2.50	-1.0	6.268	-3.63080	-3.14050	-1.14010	-0.45080	0.08540	0.32380	0.74510	0.36630	0.25330
4037.59	2.50	-2.0	6.296	-3.65150	-3.08320	-1.13860	-0.44060	0.09190	0.33160	0.78140	0.33410	0.23760
4042.85	2.50	-3.0	6.290	-3.86280	-3.16080	-1.14020	-0.41380	0.14680	0.38700	0.86860	0.24970	0.41810
3951.87	2.50	-4.0	6.389	-4.18920	-3.42980	-1.24470	-0.44220	0.18440	0.44380	0.98920	0.15470	0.58030
4472.00	1.50	-1.0	5.852	-3.10050	-2.57010	-0.75300	-0.19890	0.19670	0.35800	0.67810	0.26130	0.43330
4384.64	1.50	-3.0	5.938	-3.59970	-2.80530	-0.90700	-0.25110	0.22920	0.41590	0.83190	0.17500	0.61980
4554.69	2.00	0.0	5.772	-3.29550	-2.77510	-0.70670	-0.13590	0.22130	0.37000	0.70880	0.28910	0.54090
4461.67	2.00	-0.5	5.862	-3.14950	-2.65970	-0.75990	-0.19680	0.19620	0.35930	0.67850	0.28030	0.43530
4498.97	2.00	-1.0	5.826	-2.90000	-2.41710	-0.72500	-0.19610	0.18700	0.34520	0.63800	0.25170	0.36650
4452.94	2.00	-2.0	5.871	-2.98630	-2.39150	-0.77170	-0.21900	0.19210	0.36060	0.68180	0.21090	0.38170
4455.77	2.00	-3.0	5.868	-3.17320	-2.45540	-0.80440	-0.21570	0.22250	0.39480	0.74250	0.15750	0.50910
4485.37	2.00	-4.0	5.839	-3.17620	-2.41750	-0.79900	-0.20480	0.23790	0.40820	0.76650	0.10240	0.56810
4533.90 4470.97	2.50 2.50	0.0 0.5	5.792 5.853	-3.27270 -3.81950	-2.75560 -3.19720	-0.71720	-0.15120	0.20950 0.21630	0.36200 0.38150	0.68230	0.32270 0.44220	0.51480 0.68540
4503.34	2.50	-0.5	5.822	-2.99750	-2.53290	-0.79160 -0.72980	-0.16990 -0.18550	0.21630	0.35400	0.73580 0.64510	0.44220	0.39160
4508.09	2.50	-0.5	5.822	-2.78670	-2.33290	-0.72980	-0.19900	0.17950	0.33730	0.61490	0.25840	0.39100
4426.04	2.50	-2.0	5.897	-2.86360	-2.34430	-0.71930	-0.19900	0.17440	0.33730	0.65610	0.23840	0.29810
4477.40	2.50	-3.0	5.847	-2.89620	-2.27120	-0.76400	-0.20870	0.17440	0.37880	0.69610	0.22910	0.38160
4535.29	2.50	-4.0	5.791	-2.80360	-2.15370	-0.73380	-0.18810	0.22720	0.38860	0.70610	0.07870	0.42560
4508.67	3.00	0.0	5.817	-3.27740	-2.77170	-0.74000	-0.16790	0.20120	0.35770	0.66030	0.36660	0.47640
4490.40	3.00	0.5	5.834	-3.68360	-3.07000	-0.77800	-0.16670	0.21590	0.37740	0.70220	0.44600	0.63120
4503.05	3.00	-1.0	5.822	-2.74340	-2.33430	-0.72900	-0.20520	0.17400	0.33290	0.60150	0.27590	0.24570
4559.76	3.00	-2.0	5.768	-2.54120	-2.09180	-0.68510	-0.18780	0.18360	0.33560	0.60200	0.20600	0.20600
4555.30	3.00	-3.0	5.772	-2.59210	-2.05690	-0.69880	-0.18270	0.21090	0.36630	0.64900	0.12840	0.27890
4534.50	3.00	-4.0	5.792	-2.62620	-2.04870	-0.71780	-0.18810	0.22270	0.38320	0.68320	0.06590	0.33200
4548.87	3.50	0.0	5.778	-3.19310	-2.71960	-0.72320	-0.15530	0.20950	0.35930	0.63520	0.38990	0.42580
4531.27	3.50	0.5	5.795	-3.56940	-2.98460	-0.76100	-0.15740	0.22370	0.37910	0.67090	0.46220	0.57610
4344.11	3.50	-0.5	5.978	-3.25560	-2.81170	-0.88390	-0.26990	0.17150	0.35600	0.66100	0.37060	0.31200
4573.06	3.50	-1.0	5.755	-2.62140	-2.24730	-0.68850	-0.17800	0.18370	0.33180	0.57920	0.28120	0.20670
4508.84	3.50	-2.0	5.816	-2.58930	-2.17450	-0.71980	-0.20180	0.18230	0.34070	0.60890	0.23340	0.15050
4571.34	3.50	-3.0	5.757	-2.49080	-2.00050	-0.68300	-0.17370	0.21660	0.36900	0.63920	0.11920	0.22890
4620.85	3.50	-4.0	5.710	-2.37760	-1.86630	-0.65960	-0.16450	0.22190	0.37020	0.64400	0.04950	0.26080
4524.22	4.00	0.0	5.802	-3.25320	-2.80230	-0.75950	-0.16940	0.21070	0.36350	0.62940	0.43790	0.38350
4549.22	4.00	0.5	5.778	-3.50150	-2.95420	-0.76800	-0.16120	0.23060	0.38410	0.65100	0.48450	0.50760
4441.77	4.00	-0.5	5.881	-3.10560	-2.69200	-0.81240	-0.21930	0.19280	0.35980	0.63120	0.37530	0.29100
4587.16	4.00	-1.0	5.742	-2.62220	-2.27090	-0.68860	-0.16920	0.19070	0.33560	0.57420	0.30300	0.18180
4524.97	4.00	-2.0	5.801	-2.57650	-2.18190	-0.71200	-0.18850	0.19540	0.35060	0.60730	0.24010	0.13730
4517.64	4.00	-3.0	5.808	-2.55020	-2.07310	-0.70900	-0.18130	0.22500	0.38370	0.65390	0.12380	0.21730
4580.60	4.00	-4.0	5.748	-2.40060	-1.90100	-0.67520	-0.16620	0.23300	0.38530	0.65690	0.04480	0.24340
4532.22	4.50	0.0	5.794	-3.27400	-2.84630	-0.77270	-0.16930	0.22090	0.37170	0.62150	0.47280	0.35050
4543.15	4.50	0.5	5.783	-3.48750	-2.97560	-0.79440	-0.17400	0.23780	0.39240	0.64300	0.50890	0.44400
4383.32	4.50	-0.5	5.939	-3.25950	-2.84430	-0.87790	-0.24500	0.19780	0.37360	0.65630	0.39760	0.28900
4569.29	4.50	-1.0	5.759	-2.70570	-2.36360	-0.71390	-0.17010	0.20110	0.34760	0.58250	0.33040	0.17450
4502.45	4.50	-2.0	5.823	-2.65450	-2.25910	-0.72990	-0.18490	0.21270	0.37010	0.62400	0.24350	0.15400
4526.03	5.00	0.0	5.800	-3.33240	-2.92020	-0.79750	-0.17380	0.23390	0.38530	0.62600	0.50130	0.32590
4447.10	5.00	-0.5	5.876	-3.20090	-2.79820	-0.83730	-0.20780	0.22220	0.38620	0.64780	0.40350	0.27770

$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{\mathrm{us}}$	$BC_{\mathrm{vs}}$	$BC_{gs}$	$BC_{rs}$	$BC_{is}$	$BC_{zs}$	b-y	m1	c1
4535.47	5.00	-1.0	5.791	-2.83660	-2.48550	-0.75200	-0.17390	0.22180	0.37270	0.60850	0.34290	0.18810
4881.31	2.00	0.0	5.472	-2.73040	-2.23740	-0.52020	-0.03060	0.26230	0.36370	0.63310	0.19030	0.51550
4915.99	2.00	-1.0	5.441	-2.34770	-1.84330	-0.48450	-0.06130	0.22870	0.33100	0.54710	0.17450	0.42040
4926.40	2.00	-2.0	5.432	-2.28710	-1.70010	-0.49000	-0.07080	0.22830	0.33370	0.55360	0.12210	0.44310
4907.94	2.00	-3.0	5.448	-2.29850	-1.66860	-0.50480	-0.07980	0.23050	0.34070	0.57240	0.08300	0.47070
4905.26	2.00	-4.0	5.450	-2.28690	-1.65060	-0.50910	-0.08270	0.23120	0.34290	0.58370	0.06230	0.46490
5015.94	2.50	0.0	5.353	-2.49200	-2.02630	-0.45010	-0.00640	0.25640	0.34220	0.57910	0.17110	0.51530
4950.97	2.50	-0.5	5.410	-2.33720	-1.89480	-0.47100	-0.04560	0.23470	0.33150	0.54720	0.18010	0.40480
4965.89	2.50	-1.0	5.397	-2.18520	-1.73910	-0.46210	-0.06110	0.21530	0.31270	0.51940	0.16600	0.35640
4939.03	2.50	-2.0	5.421	-2.13840	-1.63650	-0.48490	-0.07950	0.21300	0.31720	0.53380	0.12010	0.33960
4948.74	2.50	-3.0	5.412	-2.11570	-1.57130	-0.48810	-0.08190	0.21780	0.32350	0.54880	0.07530	0.36510
4953.38	2.50	-4.0	5.408	-2.08910	-1.53880	-0.48880	-0.08540	0.21550	0.32210	0.55580	0.05170	0.36470
5010.39	3.00	0.0	5.358	-2.46240	-2.02120	-0.45220	-0.01190	0.25020	0.33760	0.56640	0.18750	0.48150
4963.15	3.00	0.5	5.399	-2.89890	-2.34760	-0.48460	0.00340	0.27430	0.36600	0.62040	0.23890	0.66400
4912.91	3.00	-0.5	5.444	-2.33990	-1.93240	-0.49120	-0.06070	0.22590	0.32830	0.54100	0.19870	0.36420
4990.00	3.00	-1.0	5.376	-2.09960	-1.70340	-0.45120	-0.06210	0.20880	0.32830	0.50510	0.17090	0.30420
4991.62	3.00	-2.0	5.375	-1.99410	-1.56080	-0.46630	-0.00210	0.20250	0.30080	0.51380	0.17090	0.25920
4970.32	3.00	-3.0	5.393	-1.99360	-1.51980	-0.48390	-0.08630	0.20890	0.31250	0.53730	0.07110	0.27490
5005.01	3.00	-4.0	5.363	-1.92830	-1.45140	-0.47430	-0.08680	0.20410	0.30560	0.53770	0.04110	0.27530
5011.53	3.50	0.0	5.357	-2.45510	-2.03840	-0.45070	-0.01320	0.24610	0.33370	0.54860	0.22450	0.44960
4988.91	3.50	0.5	5.377	-2.82090	-2.28810	-0.47200	0.00600	0.27130	0.36050	0.59630	0.26120	0.61560
4917.82	3.50	-0.5	5.439	-2.31920	-1.94070	-0.49100	-0.06140	0.22350	0.32540	0.52820	0.22290	0.32830
4975.93	3.50	-1.0	5.388	-2.08250	-1.72850	-0.46420	-0.06780	0.20420	0.30090	0.49720	0.18670	0.22780
5036.62	3.50	-2.0	5.336	-1.90050	-1.51950	-0.45260	-0.07480	0.19540	0.28870	0.49710	0.11930	0.18210
5047.83	3.50	-3.0	5.326	-1.84990	-1.43330	-0.45970	-0.08100	0.19920	0.29470	0.51720	0.06570	0.21000
5047.65	3.50	-4.0	5.326	-1.81570	-1.39320	-0.46700	-0.08930	0.19510	0.29270	0.52690	0.03360	0.20620
4992.30	4.00	0.0	5.374	-2.49250	-2.09830	-0.46360	-0.01670	0.24650	0.33620	0.53770	0.27530	0.40740
5083.68	4.00	0.5	5.295	-2.68180	-2.18450	-0.43010	0.02720	0.27360	0.35090	0.55960	0.28050	0.57010
4910.47	4.00	-0.5	5.446	-2.33950	-1.98510	-0.50000	-0.06170	0.22470	0.32690	0.52170	0.25640	0.29310
4956.78	4.00	-1.0	5.405	-2.10180	-1.78000	-0.47790	-0.07000	0.20540	0.30340	0.49710	0.21350	0.18400
5059.64	4.00	-2.0	5.316	-1.85760	-1.51560	-0.44760	-0.07090	0.19540	0.28580	0.49330	0.12690	0.13680
5049.09	4.00	-3.0	5.325	-1.82580	-1.43870	-0.46460	-0.07990	0.20360	0.29890	0.52390	0.06420	0.16380
5072.94	4.00	-4.0	5.304	-1.76410	-1.37120	-0.46470	-0.08680	0.19650	0.29160	0.52810	0.02900	0.15970
4982.27	4.50	0.0	5.383	-2.54790	-2.17600	-0.47660	-0.01550	0.25070	0.34010	0.52590	0.33680	0.36690
5056.36	4.50	0.5	5.319	-2.73840	-2.26650	-0.44900	0.02300	0.27390	0.35400	0.54380	0.35450	0.51340
4953.63	4.50	-1.0	5.408	-2.12970	-1.83050	-0.48400	-0.06590	0.20960	0.30670	0.49340	0.24380	0.16040
4976.19	4.50	-2.0	5.388	-1.97170	-1.64220	-0.48000	-0.07520	0.20850	0.30640	0.51290	0.16320	0.13150
5079.81	4.50	-3.0	5.299	-1.80100	-1.42770	-0.45520	-0.07080	0.21030	0.30190	0.52560	0.06170	0.14810
4969.79	4.50	-4.0	5.394	-1.87490	-1.47020	-0.50180	-0.09330	0.21540	0.32110	0.55880	0.02880	0.15720
4976.20	5.00	0.0	5.388	-2.61620	-2.26330	-0.48930	-0.01250	0.25600	0.34440	0.51230	0.40210	0.33820
4953.82	5.00	0.5	5.408	-2.90450	-2.45430	-0.51850	-0.001230	0.27750	0.36860	0.54800	0.45060	0.43170
4860.02	5.00	-0.5	5.491	-2.50790	-2.43430	-0.51830	-0.06390	0.27730	0.34080	0.52010	0.43000	0.43170
4860.02	5.00	-0.5 -1.0	5.392	-2.30790	-2.17410 -1.87050	-0.34260	-0.06390	0.23520	0.34080	0.32010	0.34830	0.25860
4971.82	5.00	-2.0	5.385	-2.13320	-1.68120	-0.48100	-0.05490	0.21830	0.31180	0.48830	0.27090	0.13280
5043.95	5.00	-3.0	5.329	-1.85020	-1.47790	-0.46650	-0.06870	0.22240	0.31710	0.53880	0.06440	0.14760
4950.01	5.00	-4.0	5.411	-1.90690	-1.49990	-0.50800	-0.08910	0.22700	0.33400	0.57000	0.02840	0.15570
5390.37	2.50	-2.0	5.041	-1.75730	-1.22070	-0.31920	-0.01610	0.18930	0.24720	0.43550	0.07780	0.41770
5436.69	2.50	-3.0	5.004	-1.68670	-1.14010	-0.31410	-0.02390	0.17720	0.23340	0.43270	0.04700	0.41830
5459.13	3.00	0.0	4.986	-1.96660	-1.51670	-0.28010	0.05530	0.23880	0.27900	0.46150	0.15170	0.45120
5479.60	3.00	-0.5	4.970	-1.79550	-1.35080	-0.27600	0.02800	0.20880	0.25100	0.42520	0.14590	0.38670
5476.23	3.00	-1.0	4.972	-1.71240	-1.26440	-0.28760	0.00760	0.19280	0.23810	0.41940	0.12010	0.35510
5509.14	3.00	-2.0	4.946	-1.60700	-1.14160	-0.30010	-0.01840	0.16920	0.21660	0.41520	0.07250	0.33910
5459.30	3.00	-3.0	4.986	-1.58420	-1.12350	-0.32430	-0.03810	0.16180	0.21650	0.42890	0.04370	0.31230
5469.82	3.00	-4.0	4.977	-1.55640	-1.10130	-0.32760	-0.04390	0.15590	0.21100	0.43260	0.03010	0.29690
5560.38	3.50	0.0	4.906	-1.83810	-1.43120	-0.25350	0.06050	0.22770	0.25860	0.43570	0.15380	0.40460
5505.98	3.50	-0.5	4.949	-1.73170	-1.34340	-0.27520	0.02640	0.20430	0.24410	0.42010	0.14900	0.32500
5450.91	3.50	-1.0	4.992	-1.66580	-1.28830	-0.30250	-0.00240	0.18740	0.23520	0.42130	0.12470	0.27410
5467.28	3.50	-2.0	4.979	-1.56800	-1.17710	-0.32260	-0.03020	0.16610	0.21750	0.42390	0.07790	0.23890
5474.46	3.50	-3.0	4.974	-1.51750	-1.12040	-0.33470	-0.04640	0.15460	0.20860	0.43170	0.04180	0.22670
5490.94	3.50	-4.0	4.960	-1.48190	-1.09130	-0.34000	-0.05580	0.14460	0.19890	0.43350	0.02590	0.21090
5509.78	4.00	0.0	4.946	-1.86940	-1.50800	-0.27080	0.05630	0.23100	0.26630	0.44060	0.17350	0.36540
5542.42	4.00	0.5	4.920	-2.07770	-1.64250	-0.25980	0.09160	0.26350	0.29130	0.47290	0.16510	0.51860
5513.71	4.00	-0.5	4.943	-1.69750	-1.35970	-0.27590	0.02440	0.20030	0.23920	0.41220	0.16410	0.27760
3313.71	7.00	-0.5	7.773	1.07730	1.55710	0.21370	0.02770	5.20050	0.20720	5.71220	5.10-10	3.21100

5437.76         4.00         -1.0         5.003         -1.64550         -1.32090         -0.30990         -0.00560         0.18580         0.23450         0.41970         0.14030           5480.60         4.00         -2.0         4.969         -1.52400         -1.18380         -0.32700         -0.03290         0.16310         0.21330         0.42430         0.08410           5582.06         4.00         -3.0         4.889         -1.41960         -1.07080         -0.32320         -0.04850         0.13900         0.18420         0.41970         0.04040           5523.51         4.00         -4.0         4.935         -1.42860         -1.08170         -0.34480         -0.05950         0.14010         0.19220         0.43570         0.02430           5530.74         4.50         0.0         4.929         -1.85270         -1.52710         -0.26780         0.06000         0.23150         0.26460         0.43140         0.19910           5554.75         4.50         0.5         4.910         -2.06870         -1.66270         -0.25800         0.09460         0.26340         0.29020         0.46050         0.2010           5457.22         4.50         -0.5         4.987         -1.74230         -1.44400	0.21720 0.17430 0.16930 0.14780 0.32380 0.47460 0.23160 0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170
5582.06         4.00         -3.0         4.889         -1.41960         -1.07080         -0.32320         -0.04850         0.13900         0.18420         0.41970         0.04040           5523.51         4.00         -4.0         4.935         -1.42860         -1.08170         -0.34480         -0.05950         0.14010         0.19220         0.43570         0.02430           5530.74         4.50         0.0         4.929         -1.85270         -1.52710         -0.26780         0.06000         0.23150         0.26460         0.43140         0.19910           5554.75         4.50         0.5         4.910         -2.06870         -1.66270         -0.25800         0.09460         0.26340         0.29020         0.46050         0.20010           5557.22         4.50         -0.5         4.987         -1.74230         -1.44400         -0.29550         0.02260         0.20810         0.25170         0.42050         0.18990           5506.04         4.50         -1.0         4.949         -1.58400         -1.29910         -0.29610         0.00150         0.18270         0.22440         0.41110         0.14860           5462.38         4.50         -2.0         4.983         -1.51970         -1.21450	0.16930 0.14780 0.32380 0.47460 0.23160 0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170
5523.51         4.00         -4.0         4.935         -1.42860         -1.08170         -0.34480         -0.05950         0.14010         0.19220         0.43570         0.02430           5530.74         4.50         0.0         4.929         -1.85270         -1.52710         -0.26780         0.06000         0.23150         0.26460         0.43140         0.19910           5554.75         4.50         0.5         4.910         -2.06870         -1.66270         -0.25800         0.09460         0.26340         0.29020         0.46050         0.20010           5457.22         4.50         -0.5         4.987         -1.74230         -1.44400         -0.29550         0.02260         0.20810         0.25170         0.42050         0.18990           5506.04         4.50         -1.0         4.949         -1.58400         -1.29910         -0.29610         0.00150         0.18270         0.22440         0.41110         0.14860           5462.38         4.50         -2.0         4.983         -1.51970         -1.21450         -0.33480         -0.03070         0.17000         0.22130         0.43300         0.09250           5517.41         4.50         -3.0         4.940         -1.43840         -1.10440	0.14780 0.32380 0.47460 0.23160 0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170
5530.74         4.50         0.0         4.929         -1.85270         -1.52710         -0.26780         0.06000         0.23150         0.26460         0.43140         0.19910           5554.75         4.50         0.5         4.910         -2.06870         -1.66270         -0.25800         0.09460         0.26340         0.29020         0.46050         0.20010           5457.22         4.50         -0.5         4.987         -1.74230         -1.44400         -0.29550         0.02260         0.20810         0.25170         0.42050         0.18990           5506.04         4.50         -1.0         4.949         -1.58400         -1.29910         -0.29610         0.00150         0.18270         0.22440         0.41110         0.14860           5462.38         4.50         -2.0         4.983         -1.51970         -1.21450         -0.33480         -0.03070         0.17000         0.22130         0.43300         0.09250           5517.41         4.50         -3.0         4.940         -1.43840         -1.11440         -0.34220         -0.04610         0.15650         0.20720         0.44250         0.03990           5531.84         4.50         -4.0         4.928         -1.40550         -1.08230	0.32380 0.47460 0.23160 0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170 0.09310
5554.75         4.50         0.5         4.910         -2.06870         -1.66270         -0.25800         0.09460         0.26340         0.29020         0.46050         0.2010           5457.22         4.50         -0.5         4.987         -1.74230         -1.44400         -0.29550         0.02260         0.20810         0.25170         0.42050         0.18990           5506.04         4.50         -1.0         4.949         -1.58400         -1.29910         -0.02610         0.00150         0.18270         0.22440         0.41110         0.14860           5462.38         4.50         -2.0         4.983         -1.51970         -1.21450         -0.33480         -0.03070         0.17000         0.22130         0.43300         0.09250           5517.41         4.50         -3.0         4.940         -1.43840         -1.11440         -0.34220         -0.04610         0.15650         0.20720         0.44250         0.03990           5531.84         4.50         -4.0         4.928         -1.40550         -1.08230         -0.34990         -0.05730         0.14540         0.19700         0.44530         0.02200           5509.50         5.00         0.0         4.946         -1.99880         -1.60870	0.47460 0.23160 0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170
5457.22         4.50         -0.5         4.987         -1.74230         -1.44400         -0.29550         0.02260         0.20810         0.25170         0.42050         0.18990           5506.04         4.50         -1.0         4.949         -1.58400         -1.29910         -0.29610         0.00150         0.18270         0.22440         0.41110         0.14860           5462.38         4.50         -2.0         4.983         -1.51970         -1.21450         -0.33480         -0.03070         0.17000         0.22130         0.43300         0.09250           5517.41         4.50         -3.0         4.940         -1.43840         -1.11440         -0.34220         -0.04610         0.15650         0.20720         0.44250         0.03990           5531.84         4.50         -4.0         4.928         -1.40550         -1.08230         -0.34990         -0.05730         0.14540         0.19700         0.44530         0.02200           5509.50         5.00         0.0         4.946         -1.99880         -1.60870         -0.27570         0.06480         0.23860         0.27260         0.42660         0.24780           5528.91         5.00         -1.0         4.931         -1.57280         -1.31820	0.23160 0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170 0.09310
5506.04         4.50         -1.0         4.949         -1.58400         -1.29910         -0.29610         0.00150         0.18270         0.22440         0.41110         0.14860           5462.38         4.50         -2.0         4.983         -1.51970         -1.21450         -0.33480         -0.03070         0.17000         0.22130         0.43300         0.09250           5517.41         4.50         -3.0         4.940         -1.43840         -1.11440         -0.34220         -0.04610         0.15650         0.20720         0.44250         0.03990           5531.84         4.50         -4.0         4.928         -1.40550         -1.08230         -0.34990         -0.05730         0.14540         0.19700         0.44530         0.02200           5509.50         5.00         0.0         4.946         -1.90880         -1.60870         -0.27570         0.06480         0.23860         0.27260         0.42660         0.24780           5550.69         5.00         0.5         4.913         -2.11520         -1.31820         -0.26120         0.10180         0.26790         0.29410         0.44740         0.26460           5528.91         5.00         -1.0         4.931         -1.57280         -1.31820	0.17260 0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170 0.09310
5462.38         4.50         -2.0         4.983         -1.51970         -1.21450         -0.33480         -0.03070         0.17000         0.22130         0.43300         0.09250           5517.41         4.50         -3.0         4.940         -1.43840         -1.11440         -0.34220         -0.04610         0.15650         0.20720         0.44250         0.03990           5531.84         4.50         -4.0         4.928         -1.40550         -1.08230         -0.34990         -0.05730         0.14540         0.19700         0.44530         0.02200           5509.50         5.00         0.0         4.946         -1.90880         -1.60870         -0.27570         0.06480         0.23860         0.27260         0.42660         0.24780           5528.91         5.00         -1.0         4.931         -1.57280         -1.31820         -0.29110         0.00810         0.18560         0.22430         0.40630         0.16800           5463.42         5.00         -2.0         4.982         -1.52480         -1.23800         -0.33290         -0.02350         0.17800         0.22820         0.43630         0.10290	0.12320 0.11210 0.09920 0.29150 0.42980 0.14060 0.10170 0.09310
5517.41         4.50         -3.0         4.940         -1.43840         -1.11440         -0.34220         -0.04610         0.15650         0.20720         0.44250         0.03990           5531.84         4.50         -4.0         4.928         -1.40550         -1.08230         -0.34990         -0.05730         0.14540         0.19700         0.44530         0.02200           5590.50         5.00         0.0         4.946         -1.90880         -1.60870         -0.27570         0.06480         0.23860         0.27260         0.42660         0.24780           5506.69         5.00         0.5         4.913         -2.11520         -1.73960         -0.26020         0.10180         0.26790         0.29410         0.44740         0.26460           5528.91         5.00         -1.0         4.931         -1.57280         -1.31820         -0.29110         0.00810         0.18560         0.22430         0.40630         0.16800           5463.42         5.00         -2.0         4.982         -1.52480         -1.23800         -0.33290         -0.02350         0.17800         0.22820         0.43630         0.10290	0.11210 0.09920 0.29150 0.42980 0.14060 0.10170 0.09310
5531.84         4.50         -4.0         4.928         -1.40550         -1.08230         -0.34990         -0.05730         0.14540         0.19700         0.44530         0.02200           5509.50         5.00         0.0         4.946         -1.90880         -1.60870         -0.27570         0.06480         0.23860         0.27260         0.42660         0.24780           5550.69         5.00         0.5         4.913         -2.11520         -1.73960         -0.26020         0.10180         0.26790         0.29410         0.44740         0.26460           5528.91         5.00         -1.0         4.931         -1.57280         -1.31820         -0.29110         0.00810         0.18560         0.22430         0.40630         0.16800           5463.42         5.00         -2.0         4.982         -1.52480         -1.23800         -0.33290         -0.02350         0.17800         0.22820         0.43630         0.10290	0.09920 0.29150 0.42980 0.14060 0.10170 0.09310
5509.50         5.00         0.0         4.946         -1.90880         -1.60870         -0.27570         0.06480         0.23860         0.27260         0.42660         0.24780           5550.69         5.00         0.5         4.913         -2.11520         -1.73960         -0.26020         0.10180         0.26790         0.29410         0.44740         0.26460           5528.91         5.00         -1.0         4.931         -1.57280         -1.31820         -0.29110         0.00810         0.18560         0.22430         0.40630         0.16800           5463.42         5.00         -2.0         4.982         -1.52480         -1.23800         -0.33290         -0.02350         0.17800         0.22820         0.43630         0.10290	0.29150 0.42980 0.14060 0.10170 0.09310
5550.69     5.00     0.5     4.913     -2.11520     -1.73960     -0.26020     0.10180     0.26790     0.29410     0.44740     0.26460       5528.91     5.00     -1.0     4.931     -1.57280     -1.31820     -0.29110     0.00810     0.18560     0.22430     0.40630     0.16800       5463.42     5.00     -2.0     4.982     -1.52480     -1.23800     -0.33290     -0.02350     0.17800     0.22820     0.43630     0.10290	0.42980 0.14060 0.10170 0.09310
5528.91     5.00     -1.0     4.931     -1.57280     -1.31820     -0.29110     0.00810     0.18560     0.22430     0.40630     0.16800       5463.42     5.00     -2.0     4.982     -1.52480     -1.23800     -0.33290     -0.02350     0.17800     0.22820     0.43630     0.10290	0.14060 0.10170 0.09310
5463.42 5.00 -2.0   4.982   -1.52480 -1.23800 -0.33290 -0.02350 0.17800 0.22820   0.43630 0.10290	0.10170 0.09310
	0.09310
5474.24 5.00 -4.0   4.974   -1.44550 -1.11980 -0.36160 -0.05130 0.16450 0.22060   0.46440 0.02140	0.08190
5787.92 4.44 0.0 4.732 -1.62680 -1.29650 -0.20170 0.07280 0.20550 0.21620 0.38700 0.17600	0.31680
5824.45 4.44 0.5 4.705 -1.80750 -1.41960 -0.18120 0.11310 0.23960 0.24160 0.40920 0.17930	0.45520
5718.03 4.44 -0.5   4.785   -1.53810 -1.23080 -0.23080 0.03640 0.18200 0.20270   0.38140 0.16130	0.24130
5765.80 4.44 -1.0 4.748 -1.42330 -1.12280 -0.24100 0.01070 0.15410 0.17420 0.37540 0.12530	0.19910
5787.32 4.44 -2.0 4.732 -1.33770 -1.02840 -0.27440 -0.02670 0.12600 0.15080 0.38520 0.07310	0.15650
5784.22 4.44 -3.0   4.735   -1.30050 -0.98810 -0.29510 -0.04740 0.11240 0.14130   0.39670 0.04030	0.13340
5806.41 4.44 -4.0 4.718 -1.27680 -0.96720 -0.30270 -0.05830 0.10050 0.12940 0.39810 0.02820	0.12190
6025.18 3.50 0.0 4.557 -1.56100 -1.08460 -0.13780 0.08380 0.17810 0.17140 0.34700 0.15890	0.45720
5988.06 3.50 -0.5 4.584 -1.48440 -1.02400 -0.16390 0.05080 0.15440 0.15440 0.34270 0.13200	0.41630
5907.99     3.50     -1.0     4.643     -1.44800     -1.01000     -0.19950     0.02180     0.14190     0.15120     0.35300     0.10470       5961.94     3.50     -2.0     4.603     -1.36380     -0.92330     -0.22250     -0.01670     0.10290     0.11390     0.34640     0.06560	0.36930
5961.94         3.50         -2.0         4.603         -1.36380         -0.92330         -0.22250         -0.01670         0.10290         0.11390         0.34640         0.06560           5965.56         3.50         -3.0         4.601         -1.33050         -0.90260         -0.23710         -0.03350         0.08910         0.10250         0.35240         0.04720	0.35380 0.32530
5971.49 3.50 -4.0 4.596 -1.31330 -0.89100 -0.24630 -0.04430 0.07910 0.09340 0.35400 0.03760	0.32330
571.47 5.00 -4.00 1.0 1.5180 -1.15190 -0.24030 -0.04530 0.07510 0.09540 0.0570	0.31240
6038.71 4.00 -0.5 4.548 -1.40340 -1.01620 -0.16630 0.04440 0.14390 0.13940 0.33820 0.13440	0.33320
5958.44 4.00 -1.0 4.606 -1.36920 -1.00040 -0.20360 0.01390 0.13000 0.13550 0.34970 0.10610	0.28630
5954.96 4.00 -2.0 4.608 -1.31000 -0.94490 -0.24030 -0.02540 0.10050 0.11230 0.35600 0.06730	0.24930
6032.46 4.00 -3.0 4.552 -1.25570 -0.89510 -0.24840 -0.04700 0.07200 0.08120 0.35180 0.04610	0.23770
6023.76 4.00 -4.0 4.558 -1.24750 -0.89520 -0.25760 -0.05940 0.06030 0.07130 0.35050 0.04500	0.22510
6020.75 4.50 0.0 4.561 -1.47290 -1.13560 -0.15460 0.07760 0.17710 0.16920 0.34990 0.17060	0.31190
5938.44 4.50 0.5 4.620 -1.70140 -1.31990 -0.15550 0.11510 0.22540 0.21840 0.38610 0.18000	0.43070
5968.38 4.50 -0.5   4.598   -1.39260 -1.07680 -0.18420 0.04100 0.15120 0.15170   0.34680 0.14820	0.25240
5961.60 4.50 -1.0 4.603 -1.33080 -1.02430 -0.20900 0.01240 0.12920 0.13390 0.35020 0.11820	0.21440
6064.09 4.50 -2.0 4.529 -1.23150 -0.91860 -0.23790 -0.03370 0.08070 0.08490 0.34750 0.06990	0.18650
6024.94 4.50 -3.0 4.557 -1.21380 -0.90760 -0.26310 -0.05350 0.07140 0.08190 0.36110 0.04650	0.15440
6037.83 4.50 -4.0 4.548 -1.20040 -0.89670 -0.27320 -0.06470 0.06060 0.07180 0.36340 0.03700	0.14340
6432.73 4.00 0.0 4.273 -1.35370 -0.89380 -0.07990 0.07780 0.11780 0.08150 0.28810 0.16010	0.44730
6455.69 4.00 -0.5 4.258 -1.29850 -0.84690 -0.10480 0.04360 0.08640 0.05260 0.28390 0.13310	0.42960
6413.03 4.00 -1.0   4.286   -1.26480 -0.83160 -0.13880 0.01060 0.06460 0.03780   0.28840 0.10650   6419.24 4.00 -2.0   4.282   -1.22310 -0.80240 -0.17720 -0.03140 0.02990 0.00850   0.29320 0.07490	0.40130 0.36950
	0.35930
6470.07 4.00 -3.0   4.248   -1.19440 -0.78460 -0.19240 -0.05500 0.00300 -0.01880   0.29190 0.06230   6491.09 4.00 -4.0   4.234   -1.18730 -0.78160 -0.20510 -0.06950 -0.01210 -0.03380   0.29190 0.05760	0.33140
6491.63 4.50 0.0 4.234 1.10750 -0.89590 -0.08290 0.07040 0.10580 0.06410 0.28130 0.16950	0.34040
6503.68 4.50 -0.5 4.225 -1.21520 -0.84650 -0.11860 0.02900 0.07160 0.03470 0.28340 0.13290	0.30190
6435.89 4.50 -1.0 4.271 -1.19160 -0.84270 -0.15570 -0.00060 0.05700 0.02880 0.29590 0.10700	0.28560
6500.28 4.50 -2.0 4.228 -1.14800 -0.80650 -0.19220 -0.05110 0.00530 -0.02090 0.29040 0.08230	0.26660
6499.46 4.50 -3.0 4.228 -1.12790 -0.79850 -0.21520 -0.07090 -0.00900 -0.03190 0.30070 0.06200	0.23630
6507.77 4.50 -4.0 4.223 -1.12410 -0.79770 -0.22770 -0.08300 -0.01980 -0.04180 0.30290 0.05640	0.22510
6907.57 4.50 0.0 3.964 -1.19630 -0.76160 -0.04420 0.05260 0.03750 -0.02990 0.23400 0.16930	0.43780
6986.84 4.50 -0.5 3.914 -1.16110 -0.72830 -0.07560 0.00840 -0.00880 -0.07560 0.22820 0.14290	0.43680
7000.57 4.50 -3.0   3.906   -1.11790 -0.73110 -0.17550 -0.09390 -0.09440 -0.14930   0.24180 0.08850	0.36200

**Table 6.** RHD simulations' stellar parameters (first three columns), bolometric Magnitude (M<sub>bol</sub>), and bolometric correction (BC) for the HST-WFC3 in VEGA system (Table 1).

Process   Proc	$T_{\rm eff}$	1000	[Fe/H]	M	RC-	RC-	RC-	RC											
1.0																			
1.50				l .															
1991   190				l .															
1.08   1.08				l .															
1.00	4070.69		0.0	6.260	-8.01960	-8.01340	-6.94350	-3.75960	-0.54480	-3.63140	-2.89600	-1.56440	-0.85310	-0.96900	-0.49470	-0.22220		0.56060	0.85950
Marcia   M		2.00		6.276	-8.15980	-8.18280										-0.27420			
1967   1967   1967   1967   1967   1968   1968   1969	3899.43	2.00	-0.5	6.447	-8.03870	-7.82400	-6.80300	-3.76470	-0.66940	-3.68480	-3.04290	-1.79240	-1.05290	-1.18060	-0.67680	-0.39220	0.38290	0.50890	0.84470
Health   Control   Contr	4047.76	2.00	-1.0	6.285	-7.61920	-7.27240	-5.99400	-3.12410	-0.55780	-3.17470	-2.62260	-1.54460	-0.86790	-0.98440	-0.52330	-0.25630	0.42900	0.54050	0.84270
1985  12   200	4037.03	2.00	-2.0	6.296	-7.71910	-7.49530	-6.19100	-3.28400	-0.55470	-3.08430	-2.66840	-1.56530	-0.86850	-0.99080	-0.51860	-0.25220	0.44090	0.55300	0.85590
988.14 2.50 0.0 6.832 8.4070 7.98700 4.93800 0.4840 0.46190 0.52800 3.89700 1.74760 1.0720 1.14460 0.6520 0.37300 0.33300 0.88400 9.89330 2.50 0.5 6.837 8.45330 8.45200 7.67300 0.40590 0.38570 0.38790 0.29830 1.89370 1.09830 1.09830 0.73200 0.44270 0.39200 0.35300 0.88400 9.89300 0.20830 0.31200 0.38520 0.385	4013.24	2.00	-3.0	6.322	-7.88730	-7.75380	-6.85250	-3.87780	-0.55940	-3.30580	-2.93630	-1.67910	-0.91410	-1.05170	-0.53560	-0.25770	0.48170	0.59810	0.90850
98936 2 50 0.5 6.587																			
1898-86   2.50				l .															
404.17   2.50																			
Mary Number				l .															
9418-85   2.59   3.0				l .															
1472.00   1.00				l .															
4483.64   3.0   3.0   5.852   6.88808   6.99110   4.88720   2.28828   0.33220   2.51210   1.99750   -1.08840   0.51000   0.02120   0.22500   0.01140   0.58810   0.66440   0.88270   0.48840   0.488																			
484.64   1.50   3.0   5.98   7.00840   6.99770   5.57950   3.03110   0.32860   0.28970   2.29790   1.28550   0.61560   0.05920   0.01620   0.05820   0.08660   0.88220   446167   2.00   0.0   5.862   7.07090   6.05990   4.99960   2.41140   4.032510   2.0110   2.03990   1.09860   0.051800   0.06880   0.02260   0.00890   0.53870   0.64420   0.88320   445244   2.00   2.0   5.871   6.48460   6.26660   4.64800   2.26530   4.03800   2.25560   4.02530   4.01460   0.40920   0.00880   0.25260   0.00890   0.53870   0.64420   0.88320   4.04840   4.05240   4.04840   4.0544																			
4461.67 20																			
4448.97   2.00   -0.5   5.862   7.00290   -6.50590   -4.99960   -2.41140   -0.32510   -2.69110   -2.03990   -1.09860   -0.51980   -0.62850   -0.22860   -0.00990   -0.48760   -0.64170   -0.88540   -0.4860   -0.26500   -0.4860   -0.26500   -0.23500   -0.10110   -0.22730   -0.64170   -0.25600   -0.03120   -0.55520   -0.64170   -0.88540   -0.64850   -0.26500   -0																			
4485.97         2.00         -1.01         5.826         6.775.00         -6.1250         -4.480.00         -2.031.200         -2.355.00         -1.031.00         -0.000.00         -0.000.00         0.54870         0.63420         0.89990           4455.77         2.00         -3.0         5.887         -6.73400         -6.000.00         -2.355.00         -2.355.00         -1.0310         -0.52730         -0.6670         -0.25650         -0.03700         0.05700         0.9990           4485.37         2.00         -4.0         5.887         -7.2490         -6.9800         -5.25100         -0.22000         -1.09400         -1.14400         -0.53200         -0.66700         -0.25650         -0.09700         -0.8800         -9.9990         -4.88537         -2.000         -1.09500         -1.14690         -0.53300         -0.6600         -0.01750         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.0000         -0.00000         -0.0000         -0.0000         -0.0000         -0.00000         -0.0000         -0.0000         -0.0000				l .															
4452-94   200   2-0   5.871   6.83460   -6.26600   4.64800   -2.26530   -0.33080   2.25560   -1.92550   -1.91800   -0.54250   -0.64170   -0.25400   -0.02570   -0.55250   -0.64170   -0.92520   -0.92570   -0.448337   -0.04400   -0.02570   -0.02570   -0.08160   -0.02570   -0.02570   -0.0448337   -0.04400   -0.02570   -0.02570   -0.04400   -0.02570   -0.02570   -0.04400   -0.04400   -0.02570   -0.04400   -0.04400   -0.02570   -0.04400   -0.02570   -0.04400   -																			
4485.37 200 4.0 5.868				l .															
448337 200 4.0 5.839 7.23490 6.98120 5.21100 2.52200 0.31710 2.2300 1.19630 1.14460 0.53300 0.66200 0.24630 0.01450 0.59700 0.68800 0.93250 447037 2.50 0.05 5.520 0.25700 0.55530 0.24700 0.267420 2.07270 1.06110 0.48080 0.58130 0.195250 0.03680 0.57240 0.055330 0.88470 0.47034 0.5705 0.58130 0.195250 0.03680 0.57240 0.055330 0.88470 0.47034 0.5705 0.58130 0.195250 0.03680 0.57240 0.055330 0.88470 0.47034 0.48080 0.5704 0.48080 0.5704 0.48080 0.5704 0.48080 0.5704 0.48080 0.48040 0.22240 0.00773 0.58130 0.195250 0.03680 0.57240 0.055330 0.48040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080 0.58040 0.48080				l .															
4533.9 2.50 0.0 5.792 7.11490 6.74860 5.17950 2.55210 0.29700 2.67420 2.02770 -1.06110 -0.48080 6.58130 -0.19250 0.03680 0.57240 0.65530 0.88470 470.97 2.50 0.5 5.883 7.45840 7.36530 6.07380 3.24470 -0.32800 3.10580 3.05760 1.05850 0.55810 0.64730 0.05810 0.64740 0.09430 4508.09 2.50 1.0 5.882 6.78420 6.14940 4.57540 2.22090 0.31000 2.46100 1.98150 -1.08550 0.05000 0.06140 0.22260 0.00170 0.55810 0.66470 0.06270 0.08720 44260 4.250 -2.0 5.897 6.79020 4.04270 4.22390 1.98850 0.31210 2.27640 1.181650 1.08550 0.05000 0.06140 0.22260 0.00170 0.55810 0.66270 0.08720 44260 4.250 -2.0 5.897 6.79020 4.05210 4.45740 2.10270 0.34230 2.22060 1.181650 1.08550 0.05460 0.055400 0.02730 0.04750 0.55840 0.06270 0.08720 4477.40 2.50 -3.0 5.847 6.96890 -6.32490 4.45760 2.02570 0.02900 0.29000 0.18160 0.05870 0.04750 0.05460 0.05760 0.00000 0.058740 0.06270 0.08730 4508.67 0.0 0.00000 0.058740 0.06270 0.06770 0.09300 4490.40 0.0000 0.5 5.874 6.97120 -6.24990 4.37670 2.05790 0.29050 1.98890 1.18640 1.05850 0.05890 0.00000 0.00000 0.058740 0.06770 0.066770 0.09300 4490.40 0.0000 0.5 5.874 6.79120 4.24990 4.37670 2.25710 0.01810 0.257810 0.000000																			
479.07 2.50 0.5 5.82 6.745540 7.36530 6.0780 8.32447 0.32800 3.10630 2.23776 0.116590 0.58870 0.664070 0.22240 0.02730 0.57730 0.66410 0.90430 4503.44 2.505 0.50 5.82 6.78540 5.59430 4.25750 2.22990 1.03100 2.46100 1.9810 1.08550 0.5000 0.60140 0.22260 0.02100 0.24100 0.24100 0.22260 0.0210 0.0200 0.00170 0.5810 0.64330 0.87810 0.42500 0.0200 0.00170 0.5810 0.04330 0.87810 0.42500 0.0200 0.00170 0.5810 0.04330 0.87810 0.42500 0.0200 0.00170 0.5810 0.04330 0.87810 0.42500 0.0200 0.00170 0.5810 0.04330 0.0200 0.00170 0.5810 0.00170 0.0000 0.00170 0.0000 0.00170 0.0000 0.00170 0.0000 0.00170 0.0000 0.00170 0.0000 0.00170 0.0000 0.00170 0.0000 0.0000 0.00170 0.0000 0.0000 0.0000 0.00170 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.00000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00000 0.0000 0.0000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000																			
4503.4 2.50 -0.5				l .															
480.09   2.50   -1.0   5.817   -6.75540   -5.90130   -1.98850   -0.31210   -2.27640   -1.81650   -1.03520   -0.49820   -0.59820   -0.21370   -0.01310   0.54130   0.62670   0.86210   4426.04   -2.50   -2.0   -2.00730   -2.01270   -2.01370   -2				l .															
437.40 2.50 -3.0 5.87				l .															
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4571.34         3.50         -3.0         5.757         -6.08760         -5.08280         -3.52750         -1.66810         -0.26940         -1.85370         -1.60690         -0.98780         -0.45920         -0.20880         0.01150         0.57800         0.66300         0.89330           4620.85         3.50         -4.0         5.710         -5.95030         -4.83230         -3.252030         -1.52920         -0.25280         -1.60930         -0.9520         -0.43900         -0.55170         -0.18800         0.01980         0.58350         0.66760         0.89420           4549.22         4.00         0.5         5.778         -7.21900         -6.83340         -5.40600         -2.79410         -0.31450         -2.21170         -1.13120         -0.52330         -0.62270         -0.21950         0.03050         0.59090         0.67530         0.90800           4441.77         4.00         -0.5         5.881         -7.02080         -6.22840         -4.68950         -2.29120         -0.34710         -2.61250         -2.06480         -1.16040         -0.57180         -0.67340         -0.22530         -0.02250         -0.02850         0.55260         0.64130         0.88490           452.497         4.00         -1.0         5.581				l .															
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4524.22         4.00         0.0         5.802         -7.11690         -6.52640         -4.99110         -2.45930         -0.31450         -2.70590         -2.11030         -1.11240         -0.52110         -0.61840         -0.22460         0.02080         0.57260         0.65630         0.88760           4549.22         4.00         0.5         5.778         -7.21900         -6.83340         -5.40600         -2.79410         -0.31030         -2.84510         -2.21170         -1.13120         -0.52330         -0.62270         -0.21950         0.03050         0.59090         0.67530         0.90800           4441.77         4.00         -0.5         5.881         -7.02080         -6.22840         -4.68950         -2.29120         -0.34710         -2.61250         -2.06480         -1.16040         -0.57180         -0.67340         -0.02850         0.55260         0.64310         0.88490           4524.97         4.00         -2.0         5.801         -5.96240         -5.06210         -3.66140         -1.73080         -0.29530         -2.08150         -1.71700         -1.02570         -0.49320         -0.59240         -0.22420         -0.00220         0.55720         0.64230         0.885490           4524.97         4.00         -3.0																			
4549.22         4.00         0.5         5.778         -7.21900         -6.83340         -5.40600         -2.79410         -0.31030         -2.84510         -2.21170         -1.13120         -0.52330         -0.62270         -0.21950         0.03050         0.59090         0.67530         0.90800           4441.77         4.00         -0.5         5.881         -7.02080         -6.22840         -4.68950         -2.29120         -0.34710         -2.61250         -2.06480         -1.16040         -0.57180         -0.67340         -0.27530         -0.02850         0.55260         0.64310         0.88490           4587.16         4.00         -1.0         5.742         -6.47520         -5.40450         -3.82430         -1.76010         -0.28760         -2.20690         -1.73200         -1.00190         -0.47600         -0.56990         -0.20920         0.01650         0.55570         0.63520         0.86040           4524.97         4.00         -2.0         5.801         -5.96240         -5.06210         -3.66140         -1.73080         -0.29530         -2.08150         -1.71700         -1.02570         -0.49320         -0.59240         -0.22420         -0.00220         0.55720         0.64230         0.87540           451,64         4.00																			
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4532.22       4.50       0.0       5.794       -7.08610       -6.43600       -4.95770       -2.45860       -0.31530       -2.75360       -2.14190       -1.13190       -0.52910       -0.62820       -0.22990       0.02200       0.58220       0.66580       0.89630         4543.15       4.50       0.5       5.783       -7.19720       -6.72280       -5.29800       -2.74870       -0.31910       -2.87000       -2.23910       -1.16320       -0.54290       -0.64570       -0.23750       0.01870       0.59680       0.68230       0.91690         4583.32       4.50       -0.5       5.939       -7.10650       -6.34970       -4.90670       -2.45909       -0.37310       -2.76370       -2.19440       -1.24360       -0.62120       -0.72900       -0.31090       -0.05160       0.55880       0.64770       0.89920         4502.45       4.50       -1.0       5.759       -6.46810       -5.47270       -3.98180       -1.80404       -0.29390       -2.30310       -1.80100       -1.03760       -0.49330       -0.21780       0.01710       0.56360       0.64570       0.89720         4502.45       4.50       -2.0       5.823       -5.94150       -5.10680       -3.77930       -1.80780       -0.29490																			
4543.15       4.50       0.5       5.783       -7.19720       -6.72280       -5.29800       -2.74870       -0.31910       -2.87000       -2.23910       -1.16320       -0.54290       -0.64570       -0.23750       0.01870       0.59680       0.68230       0.91690         4383.32       4.50       -0.5       5.939       -7.10650       -6.34970       -4.90670       -2.45090       -0.37310       -2.76370       -2.19440       -1.24360       -0.62120       -0.72900       -0.31090       -0.05160       0.55580       0.64790       0.89920         4502.45       4.50       -2.0       5.823       -5.94150       -5.10680       -3.77930       -1.80780       -0.29490       -2.15540       -1.77300       -1.05190       -0.54930       -0.24500       -0.22580       0.00290       0.57390       0.65990       0.89500         4526.03       5.00       0.0       5.800       -7.08090       -6.40490       -4.99420       -2.50560       -0.31990       -2.82960       -2.20180       -1.16660       -0.54470       -0.64760       -0.24030       0.01890       0.59430       0.67870       0.91030																			
438.3.2       4.50       -0.5       5.939       -7.10650       -6.34970       -4.90670       -2.45090       -0.37310       -2.76370       -2.19440       -1.24360       -0.62120       -0.72900       -0.31090       -0.05160       0.55580       0.64790       0.89920         4569.29       4.50       -1.0       5.759       -6.46810       -5.47270       -3.98180       -1.84040       -0.29390       -2.30310       -1.80010       -1.03760       -0.49330       -0.58930       -0.21780       0.01710       0.56360       0.64570       0.87270         4502.45       4.50       -2.0       5.823       -5.94150       -5.10680       -3.77930       -1.80780       -0.29490       -2.15540       -1.77300       -1.05190       -0.50410       -0.60540       -0.22580       0.00290       0.57390       0.65990       0.89500         4526.03       5.00       0.0       5.800       -7.08090       -6.40490       -4.99420       -2.50560       -0.31990       -2.82960       -2.20180       -1.16660       -0.54470       -0.64760       -0.24030       0.01890       0.59430       0.67870       0.91030				l .															
4502.45       4.50       -2.0       5.823       -5.94150       -5.10680       -3.77930       -1.80780       -0.29490       -2.15540       -1.77300       -1.05190       -0.50410       -0.60540       -0.22580       0.00290       0.57390       0.65990       0.89500         4526.03       5.00       0.0       5.800       -7.08090       -6.40490       -4.99420       -2.50560       -0.31990       -2.82960       -2.20180       -1.16660       -0.54470       -0.64760       -0.24030       0.01890       0.59430       0.67870       0.91030	4383.32	4.50	-0.5	5.939	-7.10650	-6.34970	-4.90670	-2.45090	-0.37310	-2.76370		-1.24360	-0.62120	-0.72900	-0.31090	-0.05160	0.55580	0.64790	0.89920
4526.03 5.00 0.0 5.800 -7.08090 -6.40490 -4.99420 -2.50560 -0.31990 -2.82960 -2.20180 -1.16660 -0.54470 -0.64760 -0.24030 0.01890 0.59430 0.67870 0.91030	4569.29	4.50	-1.0	5.759	-6.46810	-5.47270	-3.98180	-1.84040	-0.29390	-2.30310	-1.80010	-1.03760	-0.49330	-0.58930	-0.21780	0.01710	0.56360	0.64570	0.87270
	4502.45	4.50	-2.0	5.823	-5.94150	-5.10680	-3.77930	-1.80780	-0.29490	-2.15540	-1.77300	-1.05190	-0.50410	-0.60540	-0.22580	0.00290	0.57390	0.65990	0.89500
$4447.10  5.00  -0.5  \left  \begin{array}{cccccccccccccccccccccccccccccccccccc$	4526.03	5.00	0.0	5.800	-7.08090	-6.40490	-4.99420	-2.50560	-0.31990	-2.82960	-2.20180	-1.16660	-0.54470	-0.64760	-0.24030	0.01890	0.59430	0.67870	0.91030
	4447.10	5.00	-0.5	5.876	-6.91390	-6.14930	-4.76950	-2.37410	-0.34130	-2.71480	-2.14570	-1.20220	-0.58160	-0.68900	-0.27410	-0.01480	0.58150	0.67010	0.91180

$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{ m F218W}$	$BC_{\rm F225W}$	$BC_{ m F275W}$	$BC_{\mathrm{F336W}}$	$BC_{\rm F350LP}$	$BC_{\mathrm{F390M}}$	$BC_{\mathrm{F390W}}$	$BC_{\rm F475W}$	$BC_{ m F547M}$	$BC_{ m F555W}$	$BC_{ m F606W}$	$BC_{ m F625W}$	$BC_{\rm F775W}$	$BC_{ m F814W}$	$BC_{\rm F850LP}$
4535.47	5.00	-1.0	5.791	-6.45640	-5.59040	-4.22060	-1.97990	-0.30110	-2.42190	-1.89850	-1.09050	-0.51750	-0.61890	-0.23000	0.01560	0.58290	0.66710	0.89810
4881.31	2.00	0.0	5.472	-6.16740	-5.56900	-4.05850	-1.93800	-0.17340	-2.17400	-1.64910	-0.82800	-0.30630	-0.40530	-0.05470	0.15170	0.63010	0.69770	0.88590
4915.99 4926.40	2.00	-1.0 -2.0	5.441 5.432	-5.77310 -5.61410	-4.96840 -4.75960	-3.40830 -3.25500	-1.51480 -1.45350	-0.16990 -0.16920	-1.75140 -1.54000	-1.38520 -1.31070	-0.76040 -0.76120	-0.29150 -0.29730	-0.38850 -0.39780	-0.07180 -0.08010	0.11700 0.10750	0.59620 0.59520	0.66490 0.66540	0.85490 0.85730
4907.94	2.00	-3.0	5.448	-5.83350	-4.73900	-3.28930	-1.45530	-0.10920	-1.47440	-1.29760	-0.77620	-0.29730	-0.39780	-0.09010	0.10730	0.59520	0.66870	0.86410
4905.26	2.00	-4.0	5.450	-5.88870	-4.88000	-3.25120	-1.44490	-0.17530	-1.44290	-1.28820	-0.78050	-0.30070	-0.41850	-0.09300	0.09590	0.59700	0.66970	0.86620
5015.94	2.50	0.0	5.353	-6.05770	-5.35490	-3.72550	-1.66210	-0.13950	-1.95410	-1.46390	-0.73620	-0.25570	-0.34780	-0.02200	0.17290	0.62590	0.68900	0.86450
4950.97	2.50	-0.5	5.410	-5.79120	-4.96040	-3.36230	-1.48300	-0.16000	-1.81500	-1.39600	-0.74780	-0.28020	-0.37380	-0.05730	0.13270	0.60280	0.66970	0.85490
4965.89	2.50	-1.0	5.397	-5.52930	-4.61420	-3.05690	-1.31760	-0.16180	-1.64660	-1.29420	-0.72710	-0.28020	-0.37230	-0.06750	0.11580	0.58340	0.65060	0.83640
4939.03	2.50	-2.0	5.421	-5.22010	-4.32020	-2.90310	-1.27160	-0.17090	-1.49010	-1.25430	-0.74900	-0.29960	-0.39630	-0.08620	0.09800	0.58010	0.64990	0.84070
4948.74	2.50	-3.0	5.412	-5.29680	-4.29070	-2.83430	-1.24420	-0.16810	-1.39090	-1.21410	-0.75030	-0.30140	-0.40220	-0.08860	0.09570	0.58440	0.65510	0.84670
4953.38	2.50	-4.0	5.408	-5.32340	-4.23730	-2.75340	-1.20330	-0.16830	-1.34390	-1.19060	-0.74900	-0.30220	-0.40490	-0.09130	0.09180	0.58190	0.65300	0.84520
5010.39	3.00	0.0	5.358	-6.03040	-5.27010	-3.64900	-1.61640	-0.14330	-1.93830	-1.45710	-0.73670	-0.26100	-0.35060	-0.02760	0.16740	0.61950	0.68320	0.85980
4963.15 4912.91	3.00 3.00	0.5 -0.5	5.399 5.444	-6.51450 -5.85010	-6.03050 -4.94390	-4.48870 -3.33510	-2.14650 -1.47170	-0.15070 -0.17420	-2.25780 -1.85160	-1.67630 -1.42260	-0.79330 -0.76950	-0.28180 -0.30160	-0.37100 -0.39260	-0.02180 -0.07440	0.18660 0.11820	0.64330 0.59340	0.70780 0.66200	0.88750 0.85170
4912.91	3.00	-0.3 -1.0	5.376	-5.36480	-4.94390 -4.39360	-2.85660	-1.4/1/0	-0.17420	-1.61370	-1.42200	-0.71640	-0.30100	-0.39200	-0.07440	0.11820	0.59340	0.64360	0.82740
4991.62	3.00	-2.0	5.375	-4.64630	-3.81420	-2.55040	-1.09660	-0.16320	-1.42490	-1.18420	-0.72270	-0.28910	-0.38220	-0.08130	0.09870	0.57020	0.63820	0.82430
4970.32	3.00	-3.0	5.393	-4.78200	-3.82500	-2.51520	-1.09660	-0.16720	-1.35420	-1.16960	-0.74150	-0.30180	-0.40040	-0.09140	0.09080	0.57570	0.64580	0.83580
5005.01	3.00	-4.0	5.363	-4.63760	-3.62640	-2.32870	-1.00830	-0.16220	-1.27000	-1.11520	-0.72660	-0.29540	-0.39510	-0.08970	0.08940	0.57100	0.64060	0.82860
5011.53	3.50	0.0	5.357	-6.12830	-5.31290	-3.64170	-1.59320	-0.14480	-1.94910	-1.46100	-0.73480	-0.26290	-0.34930	-0.02970	0.16600	0.61550	0.67920	0.85600
4988.91	3.50	0.5	5.377	-6.47500	-5.92710	-4.34540	-2.04420	-0.14550	-2.18420	-1.63250	-0.77630	-0.27440	-0.36090	-0.01860	0.18850	0.64060	0.70450	0.88230
4917.82	3.50	-0.5	5.439	-5.86700	-4.89840	-3.28170	-1.43480	-0.17510	-1.85800	-1.42080	-0.76900	-0.30460	-0.39280	-0.07630	0.11760	0.59110	0.65950	0.84890
4975.93	3.50	-1.0	5.388	-5.34850	-4.33450	-2.80810	-1.17870	-0.16590	-1.64460	-1.27060	-0.72640	-0.28940	-0.37590	-0.07530	0.10910	0.57250	0.63940	0.82460
5036.62	3.50	-2.0	5.336	-4.21660	-3.46670	-2.32770	-0.98210	-0.15740	-1.39400	-1.14120	-0.70450	-0.28150	-0.37150	-0.07680	0.10090	0.56370	0.63020	0.81200
5047.83 5047.65	3.50 3.50	-3.0	5.326 5.326	-4.16320 -4.13290	-3.31020	-2.16470 -2.03840	-0.92520 -0.87250	-0.15580 -0.15930	-1.27880 -1.22410	-1.09100 -1.06560	-0.70910 -0.71440	-0.28610 -0.29290	-0.38140 -0.39070	-0.08250 -0.09030	0.09470 0.08630	0.56680 0.56230	0.63450 0.63090	0.81780
4992.30	4.00	-4.0 0.0	5.374	-6.18540	-3.20400 -5.33060	-2.03840	-1.61550	-0.15950	-2.00520	-1.50200	-0.71440	-0.29290	-0.35950	-0.09030	0.08630	0.56250	0.68010	0.81570 0.85870
5083.68	4.00	0.5	5.295	-6.30320	-5.66840	-4.08450	-1.86860	-0.13100	-2.00320	-1.54020	-0.72560	-0.24260	-0.32420	0.00490	0.20830	0.64420	0.70450	0.87270
4910.47	4.00	-0.5	5.446	-5.90090	-4.90190	-3.30620	-1.44230	-0.17890	-1.90280	-1.44840	-0.78190	-0.31350	-0.39970	-0.08050	0.11800	0.59230	0.66080	0.85050
4956.78	4.00	-1.0	5.405	-5.35520	-4.34630	-2.85270	-1.18900	-0.17230	-1.70330	-1.30500	-0.74500	-0.30190	-0.38690	-0.08200	0.10770	0.57360	0.64080	0.82730
5059.64	4.00	-2.0	5.316	-4.06660	-3.35160	-2.26030	-0.92860	-0.15400	-1.40200	-1.13110	-0.69930	-0.27790	-0.36660	-0.07320	0.10470	0.56410	0.62960	0.80920
5049.09	4.00	-3.0	5.325	-4.07950	-3.23900	-2.11940	-0.89560	-0.15550	-1.29480	-1.09690	-0.71620	-0.28840	-0.38460	-0.08260	0.09620	0.57120	0.63890	0.82210
5072.94	4.00	-4.0	5.304	-3.93290	-3.03580	-1.92110	-0.81080	-0.15580	-1.21120	-1.04880	-0.71200	-0.29050	-0.38850	-0.08780	0.08880	0.56390	0.63180	0.81460
4982.27	4.50	0.0	5.383	-6.21260	-5.33230	-3.72810	-1.65450	-0.15640	-2.08280	-1.55420	-0.77280	-0.28670	-0.36850	-0.04220	0.16580	0.62000	0.68410	0.86310
5056.36	4.50 4.50	0.5	5.319	-6.37930	-5.70920	-4.13820	-1.90730	-0.13190	-2.15860	-1.59920	-0.75210	-0.25930	-0.33850	-0.00590	0.20520	0.64430	0.70540	0.87630
4953.63 4976.19	4.50	-1.0 -2.0	5.408 5.388	-5.33200 -4.41910	-4.36560 -3.66820	-2.92650 -2.52920	-1.20820 -1.05190	-0.17360 -0.16750	-1.76000 -1.53910	-1.33460 -1.23120	-0.75550 -0.74390	-0.30720 -0.30200	-0.39070 -0.39140	-0.08250 -0.08480	0.11250 0.10240	0.57790 0.57630	0.64480 0.64410	0.83070 0.83010
5079.81	4.50	-3.0	5.299	-4.41910	-3.18000	-2.32920	-0.86390	-0.16730	-1.33910	-1.23120	-0.74390	-0.30200	-0.39140	-0.06480	0.10240	0.57810	0.64480	0.82490
4969.79	4.50	-4.0	5.394	-4.31040	-3.34550	-2.14660	-0.93640	-0.14710	-1.31180	-1.14060	-0.76120	-0.31530	-0.41750	-0.10040	0.10320	0.58150	0.65270	0.84420
4976.20	5.00	0.0	5.388	-6.23600	-5.34780	-3.80830	-1.70530	-0.16030	-2.17300	-1.61140	-0.79310	-0.29690	-0.37660	-0.04590	0.17000	0.62540	0.68910	0.86780
4953.82	5.00	0.5	5.408	-6.52260	-5.83810	-4.32590	-2.06440	-0.16440	-2.34860	-1.75870	-0.84220	-0.31380	-0.39570	-0.04430	0.18390	0.64630	0.71080	0.89170
4860.02	5.00	-0.5	5.491	-5.99180	-5.05120	-3.58420	-1.59550	-0.19540	-2.09300	-1.58320	-0.84250	-0.34680	-0.43210	-0.09700	0.11900	0.60260	0.67190	0.86490
4971.82	5.00	-1.0	5.392	-5.24890	-4.36120	-3.00100	-1.22520	-0.16810	-1.80290	-1.35380	-0.75610	-0.30340	-0.38570	-0.07530	0.12420	0.58700	0.65270	0.83580
4980.19	5.00	-2.0	5.385	-4.48590	-3.74540	-2.61480	-1.08220	-0.16190	-1.58010	-1.25510	-0.74760	-0.29920	-0.38870	-0.07780	0.11280	0.58960	0.65710	0.84200
5043.95	5.00	-3.0	5.329	-4.17960	-3.32570	-2.18520	-0.91610	-0.14890	-1.33930	-1.12580	-0.72380	-0.28490	-0.38300	-0.07420	0.10810	0.58980	0.65750	0.84020
4950.01 5390.37	5.00 2.50	-4.0 -2.0	5.411 5.041	-4.37520	-3.41630 -3.08650	-2.20690 -2.01090	-0.97060 -0.82030	-0.16730	-1.34150	-1.16670	-0.77170 -0.54040	-0.31730	-0.42100	-0.09830	0.08950	0.59280	0.66460 0.61750	0.85720 0.76990
5436.69	2.50	-3.0	5.004	-3.77700 -3.53980	-2.81010	-2.01090	-0.82030	-0.08390 -0.08260	-1.04000 -0.93890	-0.88110 -0.82300	-0.52860	-0.17660 -0.17590	-0.25980 -0.25970	-0.00240 -0.00730	0.15400 0.14510	0.56140 0.54930	0.60520	0.75590
5459.13	3.00	0.0	4.986	-5.00980	-4.22070	-2.71750	-1.06390	-0.05230	-1.41290	-1.04320	-0.52100	-0.17590	-0.23970	0.06130	0.14510	0.54930	0.66300	0.75590
5479.60	3.00	-0.5	4.970	-4.38770	-3.64450	-2.29540	-0.86660	-0.05790	-1.23060	-0.93530	-0.50280	-0.12010	-0.21150	0.04120	0.19740	0.58270	0.63360	0.77380
5476.23	3.00	-1.0	4.972	-3.78560	-3.16600	-2.03540	-0.77100	-0.06710	-1.12850	-0.88430	-0.50880	-0.14800	-0.22730	0.02290	0.17680	0.56640	0.61840	0.76090
5509.14	3.00	-2.0	4.946	-3.09660	-2.53920	-1.64650	-0.63890	-0.07750	-0.96690	-0.80680	-0.51250	-0.16630	-0.24640	-0.00030	0.15000	0.54230	0.59540	0.73900
5459.30	3.00	-3.0	4.986	-3.08070	-2.43960	-1.53660	-0.60620	-0.09190	-0.93560	-0.80470	-0.53690	-0.18780	-0.27120	-0.02060	0.13060	0.53390	0.58940	0.73880
5469.82	3.00	-4.0	4.977	-3.00390	-2.33890	-1.44730	-0.56710	-0.09460	-0.90660	-0.79040	-0.53880	-0.19140	-0.27570	-0.02570	0.12440	0.52800	0.58370	0.73320
5560.38	3.50	0.0	4.906	-4.79220	-3.96840	-2.47420	-0.91100	-0.03890	-1.32410	-0.96600	-0.48550	-0.10870	-0.18560	0.07060	0.23040	0.60260	0.65020	0.78070
5505.98	3.50	-0.5	4.949	-4.24740	-3.49520	-2.16520	-0.78760	-0.05790	-1.22950	-0.92180	-0.50090	-0.13350	-0.21120	0.03980	0.19570	0.57840	0.62870	0.76660
5450.91	3.50	-1.0	4.992 4.979	-3.71370	-3.08720	-1.95750	-0.71410	-0.07670	-1.16880	-0.89840	-0.52520	-0.16160	-0.24050	0.01170	0.16710	0.56070	0.61340	0.75790
5467.28 5474.46	3.50 3.50	-2.0 -3.0	4.979	-2.96020 -2.80710	-2.43380 -2.21970	-1.58600 -1.39240	-0.59570 -0.52870	-0.09060 -0.09850	-1.02300 -0.94750	-0.83510 -0.80100	-0.53940 -0.54810	-0.18460 -0.19710	-0.26560 -0.28100	-0.01440 -0.02940	0.13900 0.12240	0.53870 0.52670	0.59300 0.58210	0.73990 0.73080
5490.94	3.50	-4.0	4.960	-2.69900	-2.21970	-1.27680	-0.32870	-0.10360	-0.94730	-0.78160	-0.55110	-0.19710	-0.28100	-0.02940	0.12240	0.51670	0.57220	0.73080
5509.78	4.00	0.0	4.946	-4.94940	-4.06470	-2.53280	-0.93520	-0.10300	-1.40920	-1.01730	-0.50830	-0.12290	-0.19880	0.06300	0.11200	0.60560	0.65430	0.78830
5542.42	4.00	0.5	4.920	-5.35180	-4.58560	-3.04680	-1.19310	-0.03110	-1.54450	-1.09370	-0.50730	-0.10850	-0.18320	0.09260	0.26490	0.63870	0.68510	0.81290
5513.71	4.00	-0.5	4.943	-4.21160	-3.43870	-2.10720	-0.74080	-0.05970	-1.25600	-0.92380	-0.50130	-0.13630	-0.21170	0.03750	0.19370	0.57450	0.62450	0.76170

$T_{ m eff}$	logg	[Fe/H]	$M_{\rm bol}$	$BC_{\rm F218W}$	$BC_{\rm F225W}$	$BC_{\rm F275W}$	$BC_{\mathrm{F336W}}$	$BC_{\text{F350LP}}$	$BC_{\mathrm{F390M}}$	$BC_{\mathrm{F390W}}$	$BC_{\rm F475W}$	$BC_{\rm F547M}$	$BC_{ m F555W}$	$BC_{ m F606W}$	$BC_{ m F625W}$	$BC_{ m F775W}$	$BC_{ m F814W}$	$BC_{\rm F850LP}$
5437.76	4.00	-1.0	5.003	-3.70180	-3.06840	-1.93970	-0.68580	-0.08160	-1.21600	-0.91570	-0.53480	-0.16890	-0.24640	0.00690	0.16430	0.55900	0.61190	0.75720
5480.60	4.00	-2.0	4.969	-2.81430	-2.32060	-1.51760	-0.54480	-0.09330	-1.04520	-0.83660	-0.54480	-0.18850	-0.26910	-0.01750	0.13630	0.53580	0.58970	0.73570
5582.06	4.00	-3.0	4.889	-2.43220	-1.91540	-1.18540	-0.41570	-0.09530	-0.90900	-0.75470	-0.53150	-0.19090	-0.27280	-0.02850	0.11920	0.51190	0.56480	0.70620
5523.51	4.00	-4.0	4.935	-2.51790	-1.93580	-1.16850	-0.41710	-0.10620	-0.91490	-0.77380	-0.55650	-0.20770	-0.29250	-0.04170	0.10890	0.51230	0.56730	0.71420
5530.74	4.50	0.0	4.929	-4.92110	-4.01930	-2.50270	-0.90400	-0.04620	-1.43250	-1.02320	-0.50630	-0.12160	-0.19520	0.06560	0.23130	0.60640	0.65440	0.78670
5554.75	4.50	0.5	4.910	-5.32290	-4.53470	-3.01080	-1.16970	-0.03020	-1.56340	-1.10330	-0.50690	-0.10850	-0.18030	0.09410	0.26810	0.63890	0.68480	0.81180
5457.22	4.50	-0.5	4.987	-4.39740	-3.57780	-2.21760	-0.78070	-0.06880	-1.35260	-0.98470	-0.52870	-0.15120	-0.22620	0.03090	0.19330	0.58190	0.63320	0.77440
5506.04	4.50	-1.0	4.949	-3.51500	-2.92830	-1.85810	-0.61210	-0.07380	-1.20320	-0.88840	-0.51890	-0.15870	-0.23410	0.01500	0.17090	0.55670	0.60760	0.74710
5462.38	4.50	-2.0	4.983	-2.91970	-2.40370	-1.57190	-0.54140	-0.09500	-1.09250	-0.86080	-0.55710	-0.19220	-0.27370	-0.01760	0.13920	0.54250	0.59680	0.74380
5517.41 5531.84	4.50 4.50	-3.0 -4.0	4.940 4.928	-2.66390 -2.56160	-2.08630 -1.95180	-1.29010 -1.16240	-0.44370 -0.39420	-0.09920 -0.10580	-0.96870 -0.92740	-0.79850 -0.77900	-0.55930 -0.56490	-0.20050 -0.20910	-0.28600 -0.29560	-0.03050 -0.04090	0.12310 0.11160	0.52870 0.51750	0.58340 0.57250	0.72940 0.71900
5509.50	5.00	0.0	4.946	-4.98510	-1.93180 -4.07960	-2.58960	-0.39420	-0.10380	-0.92740	-0.77900	-0.52090	-0.20910	-0.29300	0.06600	0.11160	0.61360	0.57230	0.79480
5550.69	5.00	0.5	4.913	-5.45880	-4.62710	-3.07980	-1.20040	-0.04920	-1.64260	-1.15020	-0.51520	-0.12790	-0.17890	0.00000	0.23730	0.64360	0.68920	0.81570
5528.91	5.00	-1.0	4.931	-3.50570	-2.93290	-1.88530	-0.59380	-0.07010	-1.23280	-0.89440	-0.51530	-0.15480	-0.22830	0.02030	0.17760	0.55990	0.60990	0.74700
5463.42	5.00	-2.0	4.982	-3.05410	-2.51030	-1.64280	-0.54650	-0.09140	-1.12580	-0.87570	-0.55810	-0.18840	-0.26990	-0.01180	0.14660	0.55070	0.60470	0.75080
5468.24	5.00	-3.0	4.978	-2.92450	-2.27970	-1.40850	-0.48390	-0.09950	-1.01410	-0.83440	-0.57560	-0.20380	-0.29190	-0.02870	0.12910	0.54410	0.59990	0.74910
5474.24	5.00	-4.0	4.974	-2.83730	-2.15320	-1.28590	-0.44340	-0.10560	-0.96970	-0.81710	-0.58380	-0.21290	-0.30250	-0.03850	0.11890	0.53600	0.59250	0.74270
5787.92	4.44	0.0	4.732	-4.23540	-3.45470	-2.07000	-0.65830	-0.01490	-1.18970	-0.83840	-0.41900	-0.07390	-0.14350	0.09050	0.23990	0.58250	0.62430	0.73800
5824.45	4.44	0.5	4.705	-4.84630	-4.04630	-2.55520	-0.88000	0.00640	-1.31810	-0.90220	-0.40690	-0.05110	-0.11890	0.12540	0.28200	0.61740	0.65650	0.76310
5718.03	4.44	-0.5	4.785	-3.59870	-2.97260	-1.80400	-0.55690	-0.03760	-1.12340	-0.80970	-0.44370	-0.10430	-0.17540	0.05650	0.20320	0.55820	0.60290	0.72480
5765.80	4.44	-1.0	4.748	-2.78300	-2.35160	-1.48390	-0.42960	-0.04890	-1.00660	-0.74030	-0.44580	-0.12030	-0.19180	0.03460	0.17650	0.53030	0.57500	0.69630
5787.32	4.44	-2.0	4.732	-2.15330	-1.76910	-1.12220	-0.32590	-0.07220	-0.88640	-0.69470	-0.47460	-0.15370	-0.22900	-0.00140	0.13880	0.50130	0.54800	0.67270
5784.22	4.44	-3.0	4.735	-2.03140	-1.58300	-0.94590	-0.27730	-0.08590	-0.83270	-0.67740	-0.49400	-0.17290	-0.25150	-0.02170	0.11800	0.48710	0.53530	0.66300
5806.41	4.44	-4.0	4.718	-1.93870	-1.47260	-0.84730	-0.24050	-0.09310	-0.80520	-0.66520	-0.49990	-0.18130	-0.26050	-0.03170	0.10670	0.47510	0.52340	0.65100
6025.18	3.50	0.0	4.557	-3.56970	-3.00850	-1.85200	-0.59270	0.01400	-0.93000	-0.68400	-0.33570	-0.02760	-0.09440	0.11390	0.24660	0.55720	0.59390	0.69340
5988.06	3.50	-0.5	4.584	-2.93970	-2.50870	-1.57580	-0.49870	-0.00610	-0.86200	-0.65270	-0.35630	-0.05650	-0.12390	0.08280	0.21350	0.53290	0.57170	0.67640
5907.99	3.50	-1.0	4.643	-2.57610	-2.19750	-1.41140	-0.45460	-0.02880	-0.84650	-0.65700	-0.39200	-0.08990	-0.15950	0.05260	0.18520	0.51930	0.56090	0.67320
5961.94	3.50	-2.0	4.603	-1.99290	-1.63990	-1.04070	-0.34380	-0.05100	-0.73280	-0.60420	-0.40640	-0.11930	-0.18890	0.01760	0.14570	0.48000	0.52250	0.63560
5965.56	3.50 3.50	-3.0 -4.0	4.601 4.596	-1.87150	-1.47850	-0.89710	-0.29910	-0.06250	-0.70430	-0.59470	-0.41950	-0.13340	-0.20480 -0.21490	0.00160 -0.00880	0.12850 0.11750	0.46580 0.45560	0.50920 0.49930	0.62400
5971.49 6014.61	4.00	0.0	4.565	-1.80230 -3.58760	-1.39890 -2.98290	-0.83160 -1.78390	-0.27510 -0.53140	-0.07040 0.00840	-0.68940 -0.97600	-0.58970 -0.69480	-0.42760 -0.34510	-0.14310 -0.03560	-0.21490	0.10730	0.11730	0.455400	0.49930	0.61490 0.68940
6038.71	4.00	-0.5	4.548	-2.74810	-2.33670	-1.43850	-0.33140	-0.00950	-0.86770	-0.63850	-0.34310	-0.05360	-0.10170	0.10730	0.24140	0.52270	0.56030	0.66110
5958.44	4.00	-1.0	4.606	-2.36600	-2.01800	-1.27990	-0.36330	-0.03360	-0.85070	-0.64300	-0.39480	-0.09550	-0.12710	0.04550	0.17690	0.50760	0.54830	0.65730
5954.96	4.00	-2.0	4.608	-1.88850	-1.55060	-0.97420	-0.28500	-0.06090	-0.77470	-0.62040	-0.42800	-0.13280	-0.20400	0.00700	0.13760	0.47720	0.52010	0.63380
6032.46	4.00	-3.0	4.552	-1.64930	-1.29010	-0.76110	-0.21350	-0.07300	-0.71200	-0.58580	-0.43030	-0.14520	-0.21660	-0.01140	0.11470	0.44890	0.49120	0.60240
6023.76	4.00	-4.0	4.558	-1.59070	-1.21710	-0.69890	-0.19710	-0.08250	-0.70980	-0.58700	-0.43840	-0.15500	-0.22680	-0.02310	0.10200	0.43710	0.47990	0.59250
6020.75	4.50	0.0	4.561	-3.59390	-2.96350	-1.74610	-0.48470	0.00540	-1.01370	-0.70760	-0.35610	-0.04200	-0.10760	0.10470	0.24140	0.55610	0.59260	0.69070
5938.44	4.50	0.5	4.620	-4.51260	-3.75070	-2.33780	-0.76000	0.01730	-1.21310	-0.82530	-0.37230	-0.03350	-0.09930	0.13250	0.28210	0.60410	0.64070	0.73980
5968.38	4.50	-0.5	4.598	-2.90420	-2.44480	-1.48020	-0.39080	-0.01790	-0.95300	-0.68030	-0.38110	-0.07350	-0.14040	0.07030	0.20450	0.52940	0.56850	0.67340
5961.60	4.50	-1.0	4.603	-2.34130	-1.99570	-1.25760	-0.32040	-0.03660	-0.89550	-0.65420	-0.40230	-0.09970	-0.16800	0.04290	0.17580	0.50690	0.54730	0.65560
6064.09	4.50	-2.0	4.529	-1.67040	-1.36380	-0.83690	-0.19450	-0.06440	-0.76220	-0.59320	-0.42220	-0.13390	-0.20410	0.00100	0.12830	0.45820	0.49900	0.60620
6024.94	4.50	-3.0	4.557	-1.61660	-1.25010	-0.71990	-0.16990	-0.08030	-0.74460	-0.59750	-0.44850	-0.15570	-0.22900	-0.01950	0.10880	0.44810	0.49090	0.60310
6037.83	4.50	-4.0	4.548	-1.55640	-1.17430	-0.65210	-0.14790	-0.08900	-0.72920	-0.59380	-0.45780	-0.16590	-0.23970	-0.03040	0.09740	0.43720	0.48030	0.59290
6432.73	4.00	0.0	4.273	-2.59500	-2.23260	-1.36320	-0.34280	0.03310	-0.71610	-0.51620	-0.25460	0.00530	-0.05330	0.12180	0.23560	0.50020	0.52850	0.60280
6455.69	4.00	-0.5	4.258	-1.99290	-1.73310	-1.09400	-0.27010	0.01080	-0.66090	-0.49110	-0.27380	-0.02330	-0.08210	0.08990	0.20080	0.46860	0.49770	0.57390
6413.03	4.00 4.00	-1.0 -2.0	4.286 4.282	-1.67390	-1.44450	-0.92400	-0.22710	-0.01440 -0.04590	-0.64350	-0.49130	-0.30570 -0.34080	-0.05780	-0.11730	0.05710	0.16820 0.12590	0.44590	0.47720 0.44360	0.55910 0.52950
6419.24 6470.07	4.00	-3.0	4.248	-1.34340 -1.18980	-1.09690 -0.92770	-0.67070 -0.53350	-0.17020 -0.13100	-0.04390	-0.60110 -0.57730	-0.48490 -0.47520	-0.35270	-0.09700 -0.11450	-0.15820 -0.17610	0.01620 -0.00530	0.12390	0.41040 0.38350	0.44500	0.50200
6491.09	4.00	-4.0	4.234	-1.13540	-0.92770	-0.48840	-0.13100	-0.00270	-0.57290	-0.47740	-0.36440	-0.11430	-0.17010	-0.00330	0.10140	0.36840	0.41070	0.48700
6491.63	4.50	0.0	4.234	-2.43990	-2.09080	-1.24260	-0.12000	0.02850	-0.73530	-0.47740	-0.25640	0.00050	-0.18940	0.11500	0.22780	0.48850	0.51540	0.58490
6503.68	4.50	-0.5	4.225	-1.82190	-1.58090	-0.97200	-0.23340	-0.00030	-0.67910	-0.48660	-0.28730	-0.03750	-0.03630	0.11500	0.18620	0.45390	0.48230	0.55560
6435.89	4.50	-1.0	4.271	-1.56880	-1.34530	-0.83630	-0.14580	-0.02520	-0.67640	-0.49850	-0.32520	-0.07140	-0.13260	0.04460	0.15730	0.43820	0.46930	0.54970
6500.28	4.50	-2.0	4.228	-1.15550	-0.93010	-0.54320	-0.08300	-0.06170	-0.62460	-0.48310	-0.35520	-0.11230	-0.17390	-0.00240	0.10570	0.38610	0.41810	0.49970
6499.46	4.50	-3.0	4.228	-1.09120	-0.83010	-0.44570	-0.05710	-0.07840	-0.61300	-0.48700	-0.37860	-0.13340	-0.19690	-0.02270	0.08590	0.37140	0.40450	0.48860
6507.77	4.50	-4.0	4.223	-1.06100	-0.79000	-0.41140	-0.05050	-0.08890	-0.61090	-0.49150	-0.39100	-0.14540	-0.20950	-0.03470	0.07380	0.36050	0.39390	0.47870
6907.57	4.50	0.0	3.964	-1.73260	-1.52270	-0.93130	-0.14600	0.03300	-0.56740	-0.39400	-0.19870	0.01790	-0.03290	0.11000	0.20530	0.42330	0.44270	0.49070
6986.84	4.50	-0.5	3.914	-1.26150	-1.10390	-0.68770	-0.09640	0.00160	-0.52510	-0.37930	-0.22350	-0.01830	-0.06870	0.06920	0.16010	0.37690	0.39670	0.44490
7000.57	4.50	-3.0	3.906	-0.76810	-0.57840	-0.30100	-0.03120	-0.08370	-0.51940	-0.41220	-0.31900	-0.11760	-0.17160	-0.03160	0.05740	0.28980	0.31350	0.37090

**Table 7.** RHD simulations' stellar parameters (first three columns), bolometric Magnitude (M<sub>bol</sub>), and bolometric correction (*BC*) for the HST-WFC3 in ST system (Table 1).

	1000	IEo/HI	M	DC.	DC.	DC.	D.C.	DC.	DC.	DC.	DC.	DC	DC.	DC.	DC.	DC	DC.	DC.
$\frac{T_{\text{eff}}}{4014.99}$	1.50	[Fe/H] 0.0	$M_{\rm bol}$ 6.320	<i>BC</i> <sub>F218W</sub> -7.91180	BC <sub>F225W</sub> -8.05600	BC <sub>F275W</sub> -7.32530	-4.21030	BC <sub>F350LP</sub> -0.88440	BC <sub>F390M</sub> -3.26900	BC <sub>F390W</sub> -2.58400	BC <sub>F475W</sub> -1.25150	BC <sub>F547M</sub> -0.89580	BC <sub>F555W</sub> -0.93570	BC <sub>F606W</sub> -0.77710	BC <sub>F625W</sub> -0.69240	BC <sub>F775W</sub> -0.67450	BC <sub>F814W</sub> -0.70340	BC <sub>F850LP</sub> -0.78440
4042.38	1.50	-1.0	6.291	-7.61200	-7.59670	-6.47520	-3.51520	-0.86420	-2.71400	-2.23380	-1.17010	-0.85850	-0.89760	-0.76120	-0.68580	-0.67350	-0.70570	-0.79480
4021.90	1.50	-2.0	6.313	-7.49830	-7.38840	-6.41920	-3.78190	-0.87970	-2.66300	-2.35520	-1.24580	-0.89370	-0.94400	-0.78310	-0.70280	-0.66550	-0.69460	-0.77810
3951.92	1.50	-3.0	6.389	-7.85940	-7.72680	-7.04880	-4.60250	-0.93800	-3.14400	-2.85790	-1.50910	-1.04510	-1.11150	-0.87470	-0.76900	-0.65140	-0.67080	-0.73380
4070.69	2.00	0.0	6.260	-7.75870	-7.85830	-6.91510	-3.88170	-0.84790	-2.99240	-2.38880	-1.16940	-0.84160	-0.87730	-0.73520	-0.65460	-0.65590	-0.68900	-0.78080
4056.19	2.00	0.5	6.276	-7.89890	-8.02770	-7.28780	-4.35600	-0.87930	-3.30300	-2.59300	-1.24950	-0.90400	-0.94540	-0.79000	-0.70650	-0.65360	-0.67950	-0.75430
3899.43	2.00	-0.5	6.447	-7.77790	-7.66890	-6.77450	-3.88680	-0.97250	-3.04590	-2.53570	-1.39750	-1.04150	-1.08880	-0.91740	-0.82460	-0.72360	-0.74070	-0.79570
4047.76	2.00	-1.0	6.285	-7.35830	-7.11730	-5.96550	-3.24620	-0.86100	-2.53580	-2.11540	-1.14960	-0.85650	-0.89260	-0.76390	-0.68870	-0.67760	-0.70920	-0.79770
4037.03	2.00	-2.0	6.296	-7.45820	-7.34020	-6.16250	-3.40610	-0.85790	-2.44540	-2.16120	-1.17030	-0.85710	-0.89910	-0.75920	-0.68450	-0.66570	-0.69660	-0.78440
4013.24	2.00	-3.0	6.322	-7.62650	-7.59860	-6.82400	-3.99990	-0.86260	-2.66690	-2.42900	-1.28410	-0.90260	-0.95990	-0.77610	-0.69000	-0.62490	-0.65160	-0.73190
4025.21	2.00	-4.0	6.309	-7.88930	-7.96640	-7.17480	-4.28350	-0.84910	-2.78700	-2.55680	-1.35140	-0.92780	-0.99430	-0.77730	-0.68190	-0.57970	-0.60370	-0.68020
3958.11	2.50	0.0	6.382	-7.84190	-7.81190	-6.90000	-3.95300	-0.95050	-3.08170	-2.53060	-1.35270	-1.00580	-1.05290	-0.89280	-0.80270	-0.70550	-0.72440	-0.78470
3953.50	2.50	0.5	6.387	-7.89240	-7.85760	-7.04250	-4.28260	-0.99110	-3.25880	-2.65410	-1.42580	-1.08680	-1.14020	-0.97480	-0.88950	-0.70740	-0.71670	-0.75540
3899.65	2.50	-0.5	6.447	-7.70430	-7.51880	-6.56340	-3.73360	-0.98280	-2.94890	-2.47130	-1.40870	-1.06330	-1.11500	-0.94780	-0.85550	-0.72330	-0.73680	-0.78510
4063.17	2.50	-1.0	6.268	-7.39580	-7.04510	-5.74820	-3.07330	-0.85190	-2.43820	-2.03810	-1.13320	-0.84920	-0.88540	-0.76140	-0.68520	-0.67010	-0.70150	-0.79020
4037.59	2.50	-2.0	6.296	-7.40990	-7.12750	-5.77060	-3.13720	-0.84470	-2.32510	-2.04770	-1.13690	-0.84320	-0.88040	-0.74870	-0.67470	-0.66180	-0.69330	-0.78260
4042.85	2.50	-3.0	6.290	-7.62370	-7.60770	-6.25460	-3.45120	-0.81430	-2.33990	-2.13440	-1.15180	-0.82470	-0.87400	-0.72070	-0.64610	-0.60780	-0.63830	-0.72760
3951.87	2.50	-4.0	6.389	-7.82000	-7.83950	-6.66040	-3.87800	-0.82900	-2.56950	-2.37370	-1.28740	-0.89820	-0.95920	-0.75860	-0.66930	-0.57320	-0.59640	-0.67060
4472.00	1.50	-1.0	5.852	-6.61990	-6.23600	-4.80880	-2.50490	-0.62580	-1.87310	-1.49020	-0.69350	-0.49860	-0.52940	-0.47560	-0.44370	-0.54850	-0.60530	-0.75770
4384.64	1.50	-3.0	5.938	-6.94760	-6.75250	-5.55110	-3.15310	-0.67380	-1.95980	-1.78980	-0.89050	-0.60420	-0.65870	-0.54390	-0.48920	-0.52000	-0.56710	-0.69960
4554.69	2.00	0.0	5.772	-6.81300	-6.56880	-5.14450	-2.71330	-0.58880	-2.07450	-1.57710	-0.65850	-0.45360	-0.47750	-0.41670	-0.38010	-0.52180	-0.58340	-0.74810
4461.67	2.00	-0.5	5.862	-6.74200	-6.35080	-4.88110	-2.53350	-0.62830	-1.96220	-1.53270	-0.70360	-0.50840	-0.53410	-0.47670	-0.44100	-0.54910	-0.60550	-0.75720
4498.97	2.00	-1.0	5.826	-6.51420	-5.96640	-4.45190	-2.25670	-0.61610	-1.71480	-1.36680	-0.65160	-0.48480	-0.50910	-0.46920	-0.44230	-0.55790	-0.61550	-0.77040
4452.94	2.00	-2.0	5.871	-6.57380	-6.11090	-4.61960	-2.38730	-0.63400	-1.61760	-1.41620	-0.70810	-0.51580	-0.55000	-0.49460	-0.46350	-0.55410	-0.60790	-0.75500
4455.77	2.00	-3.0	5.868	-6.81330 -6.97400	-6.55380	-5.07050	-2.63780	-0.63210	-1.62820	-1.49360	-0.75490	-0.53100	-0.57500	-0.49700	-0.45800	-0.52490	-0.57680	-0.72100
4485.37 4533.90	2.00 2.50	-4.0 0.0	5.839 5.792	-6.85410	-6.82610 -6.59340	-5.18260 -5.15100	-2.64400 -2.67410	-0.62030 -0.60020	-1.56400 -2.03520	-1.46210 -1.56550	-0.74970 -0.66620	-0.52150 -0.46930	-0.57030 -0.48960	-0.48680 -0.43310	-0.44690 -0.39550	-0.50960 -0.53410	-0.56170 -0.59440	-0.70780
4470.97	2.50	0.5	5.853	-7.19450	-7.21020	-6.04540	-3.36670	-0.63110	-2.46740	-1.87040	-0.77090	-0.52730	-0.54900	-0.46300	-0.41000	-0.52930	-0.58560	-0.75570 -0.73610
4503.34	2.50	-0.5	5.822	-6.52330	-5.99430	-4.54700	-2.34290	-0.61320	-1.82210	-1.43080	-0.77090	-0.32730	-0.50960	-0.46320	-0.41000	-0.54840	-0.60630	-0.76230
4508.09	2.50	-1.0	5.822	-6.47450	-5.74920	-4.19550	-2.11050	-0.61530	-1.63750	-1.30930	-0.64020	-0.48680	-0.50650	-0.47220	-0.43070	-0.56520	-0.62300	-0.77830
4426.04	2.50	-2.0	5.897	-6.52940	-5.87700	-4.33890	-2.22470	-0.64550	-1.58170	-1.37640	-0.71160	-0.53310	-0.56130	-0.51110	-0.47990	-0.57200	-0.62500	-0.76910
4477.40	2.50	-3.0	5.847	-6.70810	-6.16980	-4.52920	-2.29430	-0.61770	-1.46270	-1.34020	-0.69740	-0.50680	-0.54410	-0.48430	-0.45300	-0.53540	-0.58890	-0.73710
4535.29	2.50	-4.0	5.791	-6.71040	-6.09470	-4.34830	-2.17990	-0.59360	-1.32000	-1.24150	-0.66030	-0.47790	-0.51910	-0.46130	-0.43310	-0.51920	-0.57420	-0.72760
4508.67	3.00	0.0	5.817	-6.90770	-6.60340	-5.14250	-2.65920	-0.61470	-2.03830	-1.58240	-0.69070	-0.49360	-0.51120	-0.45400	-0.41150	-0.54290	-0.60180	-0.75950
4490.40	3.00	0.5	5.834	-7.08550	-6.98650	-5.75470	-3.18290	-0.62490	-2.32290	-1.78680	-0.75050	-0.51960	-0.53890	-0.46050	-0.40740	-0.52940	-0.58670	-0.73990
4503.05	3.00	-1.0	5.822	-6.47700	-5.61620	-4.06280	-2.04450	-0.62100	-1.62680	-1.29920	-0.64990	-0.49950	-0.51630	-0.48180	-0.45140	-0.57090	-0.62830	-0.78260
4559.76	3.00	-2.0	5.768	-5.87130	-5.03760	-3.62560	-1.83840	-0.59300	-1.33930	-1.14930	-0.59390	-0.45850	-0.47940	-0.45530	-0.43580	-0.56070	-0.61980	-0.78020
4555.30	3.00	-3.0	5.772	-6.21730	-5.35930	-3.80390	-1.92090	-0.58450	-1.26330	-1.15150	-0.61300	-0.45930	-0.49020	-0.45140	-0.42950	-0.53440	-0.59170	-0.74980
4534.50	3.00	-4.0	5.792	-6.35910	-5.47730	-3.84150	-1.95410	-0.58640	-1.22880	-1.15490	-0.63510	-0.47060	-0.50820	-0.45850	-0.43400	-0.52360	-0.57880	-0.73290
4548.87	3.50	0.0	5.778	-6.80440	-6.37650	-4.92710	-2.53850	-0.60220	-1.98330	-1.53620	-0.67150	-0.48040	-0.49590	-0.44320	-0.39900	-0.53430	-0.59500	-0.75750
4531.27	3.50	0.5	5.795	-7.06400	-6.91150	-5.59150	-3.02520	-0.61330	-2.23480	-1.72160	-0.72870	-0.50660	-0.52440	-0.45270	-0.39840	-0.52170	-0.58050	-0.73790
4344.11	3.50	-0.5	5.978	-6.88920	-6.31720	-4.94280	-2.59950	-0.69470	-2.09210	-1.67590	-0.84570	-0.62320	-0.64770	-0.56860	-0.50990	-0.57750	-0.62630	-0.75910
4573.06	3.50	-1.0	5.755	-6.25250	-5.29550	-3.79450	-1.89390	-0.59520	-1.54020	-1.21590	-0.60330	-0.46590	-0.47980	-0.45410	-0.42520	-0.56010	-0.62080	-0.78380
4508.84	3.50	-2.0	5.816	-5.89050	-5.05020	-3.68370	-1.87890	-0.60960	-1.43240	-1.21460	-0.63690	-0.48950	-0.50930	-0.47560	-0.44830	-0.56260	-0.61980	-0.77490
4571.34	3.50	-3.0	5.757	-5.82670	-4.92760	-3.49910	-1.79010	-0.57260	-1.21470	-1.09970	-0.59280	-0.44770	-0.47680	-0.44140	-0.42090	-0.52860	-0.58670	-0.74710
4620.85	3.50	-4.0	5.710	-5.68950	-4.67720	-3.22180	-1.65130	-0.55590	-1.05640	-0.99370	-0.56030	-0.42760	-0.46000	-0.42850	-0.41260	-0.52310	-0.58210	-0.74620
4524.22	4.00	0.0	5.802	-6.85610	-6.37120	-4.96270	-2.58140	-0.61770	-2.06690	-1.60310	-0.71740	-0.50970	-0.52670	-0.46520	-0.41150	-0.53400	-0.59340	-0.75270
4549.22	4.00	0.5	5.778	-6.95820	-6.67820	-5.37760	-2.91620	-0.61350	-2.20620	-1.70450	-0.73620	-0.51180	-0.53090	-0.46010	-0.40190	-0.51570	-0.57440	-0.73230
4441.77	4.00	-0.5	5.881	-6.75990	-6.07320	-4.66110	-2.41320	-0.65030	-1.97360	-1.55760	-0.76550	-0.56040	-0.58160	-0.51580	-0.46090	-0.55400	-0.60840	-0.75540
4587.16	4.00	-1.0	5.742	-6.21440	-5.24940	-3.79590	-1.88220	-0.59070	-1.56800	-1.22480	-0.60700	-0.46450	-0.47820	-0.44980	-0.41590	-0.55280	-0.61450	-0.77990
4524.97	4.00	-2.0	5.801	-5.70150	-4.90700	-3.63290	-1.85280	-0.59850	-1.44260	-1.20980	-0.63070	-0.48170	-0.50070	-0.46480	-0.43460	-0.54940	-0.60740	-0.76490
4517.64	4.00	-3.0	5.808	-5.75110	-4.90120 4.56210	-3.54160	-1.84600	-0.58090	-1.29000	-1.15850	-0.62580	-0.46850	-0.49830	-0.45290	-0.42710	-0.52090	-0.57700	-0.73230
4580.60	4.00 4.50	-4.0	5.748	-5.52720	-4.56210	-3.18390	-1.66920	-0.55760	-1.09320	-1.02540	-0.58070	-0.43880	-0.47220	-0.43300	-0.41320	-0.51270	-0.57020	-0.73100
4532.22		0.0 0.5	5.794 5.783	-6.82520 -6.93640	-6.28090 6.56760	-4.92920 5.26060	-2.58070	-0.61850 -0.62220	-2.11460	-1.63460	-0.73690	-0.51760	-0.53650	-0.47050	-0.41040	-0.52440	-0.58390	-0.74410
4543.15 4383.32	4.50	-0.5	5.783		-6.56760 -6.19460	-5.26960 -4.87830	-2.87080 -2.57290	-0.62220	-2.23100 -2.12480	-1.73190	-0.76830 -0.84870	-0.53140 -0.60980	-0.55390 -0.63720	-0.47810 -0.55150	-0.41360 -0.48390	-0.50970 -0.55080	-0.56740 -0.60170	-0.72350 -0.74110
4383.32 4569.29	4.50 4.50	-0.5 -1.0	5.759	-6.84560 -6.20730	-5.31760	-3.95330	-2.57290 -1.96250	-0.67630	-2.12480 -1.66420	-1.68710 -1.29290	-0.84870	-0.60980	-0.63720 -0.49760	-0.35130	-0.48390	-0.53080	-0.60170	-0.74110 -0.76770
4502.45	4.50	-2.0	5.823	-5.68060	-3.31760 -4.95160	-3.75090	-1.90230	-0.59800	-1.51640	-1.29290	-0.65700	-0.48180	-0.49760	-0.45640	-0.41320	-0.53270	-0.58980	-0.74540
4526.03	5.00	0.0	5.800	-6.82000	-6.24980	-3.73090 -4.96580	-2.62770	-0.62310	-2.19060	-1.69460	-0.63700	-0.49200	-0.51570	-0.48090	-0.42930	-0.53270	-0.57090	-0.73000
4447.10	5.00	-0.5	5.876	-6.65310	-5.99420	-4.74110	-2.49620	-0.62310	-2.19000	-1.63850	-0.77100	-0.53330	-0.59730	-0.48090	-0.41330	-0.51230	-0.57960	-0.72860
1177.10	5.00	0.5	2.070	0.02210	J.//T4U	1.77110	2.17020	0.07770	2.07500	1.05050	0.00730	0.57020	0.07130	0.51770	U. IT/1U	0.54510	0.51700	0.72000

$T_{\rm eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{ m F218W}$	$BC_{\rm F225W}$	<i>BC</i> <sub>F275W</sub>	$BC_{\mathrm{F336W}}$	BC <sub>F350LP</sub>	<i>BC</i> <sub>F390M</sub>	$BC_{\mathrm{F390W}}$	<i>BC</i> <sub>F475W</sub>	<i>BC</i> <sub>F547M</sub>	BC <sub>F555W</sub>	$BC_{ m F606W}$	<i>BC</i> <sub>F625W</sub>	<i>BC</i> <sub>F775W</sub>	$BC_{ m F814W}$	$BC_{\rm F850LP}$
4535.47	5.00	-1.0	5.791	-6.19550	-5.43530	-4.19210	-2.10190	-0.60430	-1.78290	-1.39130	-0.69560	-0.50600	-0.52720	-0.47060	-0.41680	-0.52370	-0.58260	-0.74230
4881.31	2.00	0.0	5.472	-5.90660	-5.41380	-4.03010	-2.06010	-0.47660	-1.53500	-1.14190	-0.43310	-0.29490	-0.31360	-0.29530	-0.28070	-0.47650	-0.55200	-0.75440
4915.99	2.00	-1.0	5.441	-5.51220	-4.81330	-3.37980	-1.63690	-0.47300	-1.11240	-0.87800	-0.36540	-0.28010	-0.29670	-0.31230	-0.31530	-0.51030	-0.58480	-0.78540
4926.40 4907.94	2.00 2.00	-2.0 -3.0	5.432 5.448	-5.35330 -5.57270	-4.60440 -4.73260	-3.22660 -3.26080	-1.57560 -1.58740	-0.47230 -0.47740	-0.90110 -0.83550	-0.80350 -0.79040	-0.36630 -0.38130	-0.28580 -0.29730	-0.30600 -0.32190	-0.32060 -0.33070	-0.32490 -0.33350	-0.51140 -0.51000	-0.58420 -0.58100	-0.78310 -0.77630
4907.94	2.00	-4.0	5.450	-5.62790	-4.73200	-3.22280	-1.56700	-0.47740	-0.83330	-0.78100	-0.38150	-0.29730	-0.32190	-0.33360	-0.33550	-0.50960	-0.58000	-0.77420
5015.94	2.50	0.0	5.353	-5.79690	-5.19980	-3.69710	-1.78420	-0.44270	-1.31510	-0.95660	-0.34120	-0.24430	-0.25610	-0.26260	-0.25940	-0.48070	-0.56070	-0.77590
4950.97	2.50	-0.5	5.410	-5.53040	-4.80530	-3.33390	-1.60500	-0.46310	-1.17600	-0.88880	-0.35290	-0.26880	-0.28210	-0.29790	-0.29970	-0.50380	-0.58000	-0.78540
4965.89	2.50	-1.0	5.397	-5.26850	-4.45910	-3.02850	-1.43970	-0.46500	-1.00770	-0.78690	-0.33220	-0.26870	-0.28060	-0.30810	-0.31650	-0.52310	-0.59900	-0.80390
4939.03	2.50	-2.0	5.421	-4.95930	-4.16510	-2.87470	-1.39360	-0.47410	-0.85120	-0.74710	-0.35410	-0.28820	-0.30460	-0.32680	-0.33430	-0.52650	-0.59980	-0.79960
4948.74	2.50	-3.0	5.412	-5.03590	-4.13550	-2.80580	-1.36630	-0.47120	-0.75190	-0.70680	-0.35530	-0.28990	-0.31050	-0.32920	-0.33670	-0.52220	-0.59460	-0.79360
4953.38 5010.39	2.50 3.00	-4.0 0.0	5.408 5.358	-5.06260 -5.76950	-4.08220 -5.11490	-2.72490 -3.62060	-1.32540 -1.73850	-0.47150 -0.44640	-0.70490 -1.29930	-0.68340 -0.94980	-0.35400 -0.34180	-0.29070 -0.24960	-0.31320 -0.25890	-0.33190 -0.26810	-0.34060 -0.26500	-0.52470 -0.48700	-0.59660 -0.56650	-0.79510 -0.78050
4963.15	3.00	0.5	5.399	-6.25370	-5.87540	-4.46030	-2.26860	-0.45390	-1.61890	-1.16910	-0.39840	-0.27040	-0.27930	-0.26230	-0.24580	-0.46320	-0.54180	-0.75290
4912.91	3.00	-0.5	5.444	-5.58930	-4.78880	-3.30670	-1.59380	-0.47740	-1.21270	-0.91540	-0.37460	-0.29020	-0.30090	-0.31500	-0.31420	-0.51310	-0.58760	-0.78870
4990.00	3.00	-1.0	5.376	-5.10400	-4.23850	-2.82820	-1.33160	-0.46270	-0.97470	-0.75110	-0.32140	-0.26740	-0.27600	-0.30810	-0.31790	-0.52940	-0.60600	-0.81290
4991.62	3.00	-2.0	5.375	-4.38540	-3.65910	-2.52200	-1.21870	-0.46640	-0.78600	-0.67700	-0.32780	-0.27770	-0.29050	-0.32190	-0.33360	-0.53640	-0.61150	-0.81610
4970.32	3.00	-3.0	5.393	-4.52120	-3.66980	-2.48670	-1.21860	-0.47040	-0.71520	-0.66240	-0.34660	-0.29030	-0.30860	-0.33190	-0.34160	-0.53090	-0.60390	-0.80460
5005.01 5011.53	3.00 3.50	-4.0 0.0	5.363 5.357	-4.37680 -5.86740	-3.47130 -5.15780	-2.30030 -3.61330	-1.13030 -1.71530	-0.46530 -0.44800	-0.63100 -1.31020	-0.60800 -0.95370	-0.33170 -0.33990	-0.28400 -0.25150	-0.30340 -0.25760	-0.33020 -0.27020	-0.34300 -0.26630	-0.53560 -0.49100	-0.60900 -0.57050	-0.81180 -0.78440
4988.91	3.50	0.5	5.377	-6.21410	-5.77200	-4.31700	-2.16630	-0.44860	-1.51020	-1.12530	-0.33990	-0.26300	-0.26910	-0.25920	-0.24390	-0.46590	-0.54520	-0.75810
4917.82	3.50	-0.5	5.439	-5.60610	-4.74320	-3.25320	-1.55690	-0.47820	-1.21900	-0.91360	-0.37410	-0.29320	-0.30100	-0.31690	-0.31480	-0.51550	-0.59010	-0.79150
4975.93	3.50	-1.0	5.388	-5.08770	-4.17930	-2.77970	-1.30080	-0.46900	-1.00570	-0.76340	-0.33150	-0.27790	-0.28420	-0.31590	-0.32330	-0.53410	-0.61030	-0.81580
5036.62	3.50	-2.0	5.336	-3.95570	-3.31160	-2.29930	-1.10410	-0.46060	-0.75510	-0.63390	-0.30960	-0.27000	-0.27970	-0.31740	-0.33150	-0.54290	-0.61950	-0.82830
5047.83	3.50	-3.0	5.326	-3.90240	-3.15510	-2.13630	-1.04730	-0.45890	-0.63990	-0.58380	-0.31410	-0.27460	-0.28970	-0.32300	-0.33770	-0.53970	-0.61510	-0.82260
5047.65 4992.30	3.50 4.00	-4.0 0.0	5.326 5.374	-3.87200 -5.92460	-3.04890	-2.00990 -3.64620	-0.99450 -1.73760	-0.46250 -0.45480	-0.58520 -1.36620	-0.55830 -0.99480	-0.31950 -0.35780	-0.28150 -0.26400	-0.29890 -0.26780	-0.33080 -0.27790	-0.34610 -0.26900	-0.54420 -0.49070	-0.61880 -0.56960	-0.82470 -0.78160
5083.68	4.00	0.5	5.295	-6.04230	-5.17540 -5.51330	-4.05600	-1.73700	-0.43460	-1.43800	-1.03290	-0.33780	-0.23110	-0.23250	-0.27790	-0.22410	-0.49070	-0.54510	-0.76760
4910.47	4.00	-0.5	5.446	-5.64010	-4.74680	-3.27780	-1.56430	-0.48210	-1.26390	-0.94120	-0.38700	-0.30210	-0.30790	-0.32110	-0.31430	-0.51430	-0.58890	-0.78980
4956.78	4.00	-1.0	5.405	-5.09440	-4.19110	-2.82430	-1.31110	-0.47550	-1.06430	-0.79780	-0.35010	-0.29040	-0.29520	-0.32260	-0.32460	-0.53300	-0.60880	-0.81310
5059.64	4.00	-2.0	5.316	-3.80580	-3.19650	-2.23190	-1.05060	-0.45710	-0.76310	-0.62390	-0.30440	-0.26650	-0.27490	-0.31380	-0.32770	-0.54250	-0.62000	-0.83120
5049.09	4.00	-3.0	5.325	-3.81870	-3.08390	-2.09090	-1.01760	-0.45870	-0.65580	-0.58960	-0.32130	-0.27700	-0.29290	-0.32320	-0.33620	-0.53540	-0.61080	-0.81830
5072.94	4.00	-4.0	5.304	-3.67200	-2.88060	-1.89270	-0.93290	-0.45900	-0.57230	-0.54160	-0.31710	-0.27910	-0.29670	-0.32840	-0.34360	-0.54270	-0.61790	-0.82580
4982.27 5056.36	4.50 4.50	0.0 0.5	5.383 5.319	-5.95180 -6.11850	-5.17720 -5.55410	-3.69960 -4.10970	-1.77650 -2.02940	-0.45960 -0.43510	-1.44380 -1.51960	-1.04700 -1.09200	-0.37790 -0.35720	-0.27530 -0.24780	-0.27670 -0.24680	-0.28280 -0.24640	-0.26660 -0.22720	-0.48660 -0.46220	-0.56550 -0.54430	-0.77730 -0.76410
4953.63	4.50	-1.0	5.408	-5.07110	-4.21050	-2.89810	-1.33030	-0.47670	-1.12110	-0.82730	-0.36060	-0.29580	-0.29900	-0.32310	-0.31980	-0.52860	-0.60490	-0.80970
4976.19	4.50	-2.0	5.388	-4.15820	-3.51310	-2.50070	-1.17400	-0.47060	-0.90020	-0.72400	-0.34890	-0.29050	-0.29960	-0.32540	-0.33000	-0.53030	-0.60560	-0.81030
5079.81	4.50	-3.0	5.299	-3.74810	-3.02480	-2.04770	-0.98590	-0.45030	-0.64840	-0.57740	-0.31190	-0.26730	-0.28350	-0.31400	-0.32720	-0.52850	-0.60480	-0.81540
4969.79	4.50	-4.0	5.394	-4.04960	-3.19040	-2.11820	-1.05850	-0.47190	-0.67290	-0.63340	-0.36620	-0.30390	-0.32570	-0.34100	-0.34790	-0.52510	-0.59690	-0.79620
4976.20	5.00	0.0	5.388	-5.97510	-5.19270	-3.77990	-1.82740	-0.46340	-1.53410	-1.10420	-0.39810	-0.28540	-0.28490	-0.28640	-0.26230	-0.48110	-0.56050	-0.77260
4953.82 4860.02	5.00 5.00	0.5 -0.5	5.408 5.491	-6.26180 -5.73090	-5.68290 -4.89610	-4.29750 -3.55570	-2.18640 -1.71750	-0.46750 -0.49850	-1.70970 -1.45410	-1.25150 -1.07590	-0.44730 -0.44750	-0.30240 -0.33540	-0.30400 -0.34040	-0.28480 -0.33760	-0.24850 -0.31340	-0.46030 -0.50400	-0.53890 -0.57780	-0.74870 -0.77540
4971.82	5.00	-1.0	5.392	-4.98810	-4.20610	-2.97260	-1.34730	-0.47120	-1.16400	-0.84650	-0.36120	-0.29190	-0.29400	-0.33700	-0.31340	-0.51960	-0.59690	-0.80450
4980.19	5.00	-2.0	5.385	-4.22510	-3.59020	-2.58640	-1.20420	-0.46510	-0.94120	-0.74790	-0.35260	-0.28770	-0.29700	-0.31840	-0.31960	-0.51700	-0.59260	-0.79840
5043.95	5.00	-3.0	5.329	-3.91880	-3.17060	-2.15680	-1.03820	-0.45210	-0.70040	-0.61860	-0.32880	-0.27340	-0.29130	-0.31470	-0.32420	-0.51680	-0.59210	-0.80010
4950.01	5.00	-4.0	5.411	-4.11430	-3.26110	-2.17850	-1.09260	-0.47040	-0.70260	-0.65950	-0.37680	-0.30590	-0.32920	-0.33890	-0.34290	-0.51380	-0.58510	-0.78320
5390.37	2.50	-2.0	5.041	-3.51620	-2.93130	-1.98240	-0.94240	-0.38710	-0.40110	-0.37390	-0.14550	-0.16510	-0.16810	-0.24300	-0.27840	-0.54510	-0.63210	-0.87050
5436.69 5459.13	2.50 3.00	-3.0 0.0	5.004 4.986	-3.27900 -4.74900	-2.65490 -4.06560	-1.75720 -2.68910	-0.85450 -1.18590	-0.38580 -0.35450	-0.29990 -0.77400	-0.31580 -0.53600	-0.13370 -0.12610	-0.16450 -0.11470	-0.16800 -0.11490	-0.24780 -0.17930	-0.28730 -0.20560	-0.55730 -0.49370	-0.64450 -0.58670	-0.88450 -0.83900
5479.60	3.00	-0.5	4.980	-4.12680	-3.48930	-2.26700	-0.98870	-0.33430	-0.77400	-0.33000	-0.12010	-0.11470	-0.11490	-0.17930	-0.20300	-0.49370	-0.58670	-0.86660
5476.23	3.00	-1.0	4.972	-3.52480	-3.01090	-2.00700	-0.89310	-0.37030	-0.48960	-0.37710	-0.11380	-0.13660	-0.13560	-0.21770	-0.25560	-0.54020	-0.63130	-0.87950
5509.14	3.00	-2.0	4.946	-2.83580	-2.38410	-1.61810	-0.76100	-0.38060	-0.32790	-0.29960	-0.11750	-0.15490	-0.15470	-0.24080	-0.28230	-0.56420	-0.65420	-0.90140
5459.30	3.00	-3.0	4.986	-2.81990	-2.28440	-1.50820	-0.72830	-0.39500	-0.29660	-0.29750	-0.14200	-0.17640	-0.17940	-0.26120	-0.30170	-0.57270	-0.66030	-0.90160
5469.82	3.00	-4.0	4.977	-2.74310	-2.18380	-1.41880	-0.68920	-0.39780	-0.26760	-0.28310	-0.14390	-0.17990	-0.18400	-0.26630	-0.30790	-0.57860	-0.66600	-0.90720
5560.38	3.50	0.0	4.906 4.949	-4.53130 3.08660	-3.81330 3.34010	-2.44580 2.13670	-1.03310	-0.34210	-0.68510 0.50060	-0.45880	-0.09050	-0.09720	-0.09380	-0.17000	-0.20190 0.23670	-0.50390	-0.59950 0.62100	-0.85960 0.87370
5505.98 5450.91	3.50 3.50	-0.5 -1.0	4.949	-3.98660 -3.45290	-3.34010 -2.93200	-2.13670 -1.92910	-0.90970 -0.83620	-0.36110 -0.37990	-0.59060 -0.52990	-0.41460 -0.39120	-0.10600 -0.13030	-0.12210 -0.15010	-0.11940 -0.14880	-0.20080 -0.22890	-0.23670 -0.26530	-0.52820 -0.54590	-0.62100 -0.63630	-0.87370 -0.88240
5467.28	3.50	-2.0	4.979	-2.69930	-2.93200	-1.55750	-0.71770	-0.37990	-0.32990	-0.39120	-0.13030	-0.13010	-0.14880	-0.25490	-0.20330	-0.56780	-0.65670	-0.90040
5474.46	3.50	-3.0	4.974	-2.54630	-2.06450	-1.36400	-0.65070	-0.40170	-0.30850	-0.29370	-0.15310	-0.18570	-0.18920	-0.27000	-0.31000	-0.57980	-0.66760	-0.90960
5490.94	3.50	-4.0	4.960	-2.43820	-1.93380	-1.24830	-0.60040	-0.40670	-0.27210	-0.27440	-0.15620	-0.19230	-0.19630	-0.27830	-0.31970	-0.58990	-0.67750	-0.91940
5509.78	4.00	0.0	4.946	-4.68860	-3.90960	-2.50430	-1.05730	-0.35120	-0.77020	-0.51000	-0.11330	-0.11140	-0.10710	-0.17760	-0.20490	-0.50100	-0.59540	-0.85200
5542.42	4.00	0.5	4.920	-5.09090	-4.43050	-3.01830	-1.31510	-0.33420	-0.90560	-0.58650	-0.11240	-0.09710	-0.09150	-0.14800	-0.16750	-0.46780	-0.56460	-0.82750
5513.71	4.00	-0.5	4.943	-3.95070	-3.28350	-2.07870	-0.86290	-0.36290	-0.61710	-0.41650	-0.10630	-0.12490	-0.12000	-0.20300	-0.23860	-0.53210	-0.62520	-0.87870

$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{\rm F218W}$	$BC_{ m F225W}$	$BC_{\rm F275W}$	$BC_{\mathrm{F336W}}$	$BC_{\text{F350LP}}$	$BC_{\rm F390M}$	$BC_{\mathrm{F390W}}$	$BC_{\rm F475W}$	$BC_{\rm F547M}$	$BC_{ m F555W}$	$BC_{ m F606W}$	$BC_{ m F625W}$	$BC_{\rm F775W}$	$BC_{ m F814W}$	$BC_{\text{F850LP}}$
5437.76	4.00	-1.0	5.003	-3.44090	-2.91330	-1.91120	-0.80790	-0.38480	-0.57710	-0.40840	-0.13980	-0.15750	-0.15460	-0.23360	-0.26810	-0.54760	-0.63770	-0.88310
5480.60	4.00	-2.0	4.969	-2.55350	-2.16550	-1.48910	-0.66690	-0.39650	-0.40620	-0.32940	-0.14980	-0.17700	-0.17740	-0.25810	-0.29600	-0.57080	-0.65990	-0.90470
5582.06	4.00	-3.0	4.889	-2.17140	-1.76030	-1.15700	-0.53780	-0.39850	-0.27010	-0.24740	-0.13660	-0.17950	-0.18110	-0.26910	-0.31310	-0.59460	-0.68490	-0.93420
5523.51	4.00	-4.0	4.935	-2.25710	-1.78070	-1.14010	-0.53910	-0.40940	-0.27590	-0.26660	-0.16160	-0.19630	-0.20080	-0.28220	-0.32350	-0.59430	-0.68240	-0.92620
5530.74 5554.75	4.50 4.50	0.0 0.5	4.929 4.910	-4.66030 -5.06210	-3.86420 -4.37960	-2.47420 -2.98240	-1.02610 -1.29170	-0.34940 -0.33340	-0.79350 -0.92450	-0.51600 -0.59600	-0.11140 -0.11200	-0.11020 -0.09700	-0.10340 -0.08860	-0.17490 -0.14640	-0.20100 -0.16430	-0.50020 -0.46770	-0.59520 -0.56480	-0.85370 -0.82860
5457.22	4.50	-0.5	4.910	-4.13650	-3.42270	-2.98240	-0.90280	-0.33340	-0.92430	-0.39600	-0.11200	-0.09700	-0.13450	-0.14640	-0.10430	-0.46770	-0.50480	-0.86600
5506.04	4.50	-1.0	4.949	-3.25420	-2.77320	-1.82960	-0.73420	-0.37700	-0.56430	-0.38120	-0.13370	-0.13380	-0.13430	-0.22560	-0.26150	-0.54990	-0.64210	-0.89320
5462.38	4.50	-2.0	4.983	-2.65890	-2.24850	-1.54340	-0.66340	-0.39810	-0.45360	-0.35360	-0.16220	-0.18080	-0.18200	-0.25810	-0.29320	-0.56400	-0.65280	-0.89650
5517.41	4.50	-3.0	4.940	-2.40310	-1.93110	-1.26160	-0.56580	-0.40240	-0.32980	-0.29130	-0.16430	-0.18910	-0.19430	-0.27110	-0.30920	-0.57780	-0.66630	-0.91100
5531.84	4.50	-4.0	4.928	-2.30080	-1.79670	-1.13390	-0.51630	-0.40900	-0.28840	-0.27170	-0.17000	-0.19770	-0.20380	-0.28150	-0.32080	-0.58900	-0.67710	-0.92130
5509.50	5.00	0.0	4.946	-4.72430	-3.92450	-2.56120	-1.07020	-0.35230	-0.87860	-0.56980	-0.12600	-0.11640	-0.10720	-0.17460	-0.19510	-0.49300	-0.58800	-0.84560
5550.69	5.00	0.5	4.913	-5.19800	-4.47200	-3.05140	-1.32240	-0.33380	-1.00370	-0.64290	-0.12030	-0.09930	-0.08710	-0.14340	-0.15620	-0.46300	-0.56050	-0.82460
5528.91	5.00	-1.0	4.931	-3.24490	-2.77780	-1.85680	-0.71590	-0.37330	-0.59390	-0.38710	-0.12040	-0.14330	-0.13650	-0.22030	-0.25480	-0.54660	-0.63980	-0.89340
5463.42	5.00	-2.0	4.982	-2.79330	-2.35520	-1.61440	-0.66850	-0.39450	-0.48680	-0.36840	-0.16320	-0.17700	-0.17820	-0.25240	-0.28570	-0.55590	-0.64500	-0.88950
5468.24	5.00	-3.0	4.978	-2.66360	-2.12450	-1.38010	-0.60600	-0.40270	-0.37520	-0.32710	-0.18070	-0.19240	-0.20010	-0.26930	-0.30330	-0.56250	-0.64980	-0.89130
5474.24 5787.92	5.00 4.44	-4.0 0.0	4.974 4.732	-2.57650 -3.97450	-1.99800 -3.29950	-1.25740 -2.04160	-0.56550 -0.78040	-0.40870 -0.31800	-0.33080 -0.55080	-0.30990 -0.33110	-0.18880 -0.02410	-0.20140 -0.06240	-0.21070 -0.05180	-0.27910 -0.15010	-0.31350 -0.19240	-0.57060 -0.52400	-0.65720 -0.62530	-0.89760 -0.90230
5824.45	4.44	0.5	4.705	-4.58540	-3.29930	-2.52680	-1.00210	-0.29680	-0.55080	-0.39490	-0.02410	-0.03970	-0.03180	-0.13010	-0.15040	-0.32400	-0.59320	-0.87730
5718.03	4.44	-0.5	4.785	-3.33790	-2.81740	-1.77560	-0.67900	-0.34080	-0.48450	-0.30250	-0.04880	-0.09290	-0.02710	-0.11320	-0.22910	-0.54840	-0.64680	-0.91550
5765.80	4.44	-1.0	4.748	-2.52220	-2.19650	-1.45540	-0.55160	-0.35200	-0.36770	-0.23300	-0.05080	-0.10890	-0.10000	-0.20600	-0.25590	-0.57630	-0.67460	-0.94410
5787.32	4.44	-2.0	4.732	-1.89250	-1.61390	-1.09380	-0.44800	-0.37530	-0.24750	-0.18740	-0.07960	-0.14220	-0.13730	-0.24200	-0.29360	-0.60530	-0.70170	-0.96770
5784.22	4.44	-3.0	4.735	-1.77050	-1.42790	-0.91750	-0.39940	-0.38910	-0.19370	-0.17010	-0.09910	-0.16150	-0.15980	-0.26230	-0.31440	-0.61950	-0.71440	-0.97740
5806.41	4.44	-4.0	4.718	-1.67790	-1.31750	-0.81880	-0.36260	-0.39630	-0.16620	-0.15800	-0.10490	-0.16990	-0.16870	-0.27230	-0.32560	-0.63140	-0.72620	-0.98940
6025.18	3.50	0.0	4.557	-3.30880	-2.85340	-1.82360	-0.71470	-0.28910	-0.29110	-0.17670	0.05930	-0.01610	-0.00270	-0.12670	-0.18570	-0.54930	-0.65570	-0.94700
5988.06	3.50	-0.5	4.584	-2.67890	-2.35360	-1.54740	-0.62070	-0.30930	-0.22310	-0.14550	0.03860	-0.04510	-0.03220	-0.15770	-0.21890	-0.57360	-0.67800	-0.96400
5907.99	3.50	-1.0	4.643	-2.31520	-2.04230	-1.38290	-0.57670	-0.33200	-0.20760	-0.14980	0.00290	-0.07850	-0.06780	-0.18800	-0.24720	-0.58730	-0.68870	-0.96710
5961.94 5965.56	3.50 3.50	-2.0 -3.0	4.603 4.601	-1.73210 -1.61070	-1.48470 -1.32330	-1.01220 -0.86870	-0.46580 -0.42120	-0.35420 -0.36570	-0.09380 -0.06540	-0.09700 -0.08750	-0.01150 -0.02450	-0.10780 -0.12200	-0.09710 -0.11310	-0.22290 -0.23900	-0.28670 -0.30380	-0.62660 -0.64080	-0.72720 -0.74050	-1.00480 -1.01640
5971.49	3.50	-4.0	4.596	-1.54140	-1.32330	-0.80320	-0.42120	-0.37360	-0.05050	-0.08730	-0.02430	-0.12200	-0.11310	-0.23900	-0.30380	-0.65090	-0.75030	-1.02550
6014.61	4.00	0.0	4.565	-3.32670	-2.82770	-1.75550	-0.65350	-0.29480	-0.33700	-0.18750	0.04990	-0.02410	-0.00990	-0.13320	-0.19100	-0.55260	-0.65910	-0.95100
6038.71	4.00	-0.5	4.548	-2.48730	-2.18160	-1.41000	-0.52550	-0.31270	-0.22870	-0.13130	0.03760	-0.04910	-0.03530	-0.16340	-0.22560	-0.58390	-0.68940	-0.97930
5958.44	4.00	-1.0	4.606	-2.10510	-1.86290	-1.25140	-0.48540	-0.33670	-0.21180	-0.13580	0.00010	-0.08400	-0.07260	-0.19510	-0.25540	-0.59890	-0.70140	-0.98310
5954.96	4.00	-2.0	4.608	-1.62770	-1.39550	-0.94580	-0.40710	-0.36410	-0.13570	-0.11320	-0.03310	-0.12130	-0.11230	-0.23360	-0.29470	-0.62930	-0.72950	-1.00660
6032.46	4.00	-3.0	4.552	-1.38840	-1.13490	-0.73270	-0.33550	-0.37610	-0.07300	-0.07860	-0.03530	-0.13370	-0.12490	-0.25190	-0.31770	-0.65770	-0.75840	-1.03790
6023.76	4.00	-4.0	4.558	-1.32980	-1.06200	-0.67040	-0.31920	-0.38570	-0.07090	-0.07980	-0.04340	-0.14350	-0.13510	-0.26370	-0.33040	-0.66950	-0.76980	-1.04780
6020.75	4.50	0.0	4.561	-3.33310	-2.80840	-1.71770	-0.60680	-0.29780	-0.37480	-0.20030	0.03880	-0.03050	-0.01590	-0.13590	-0.19100	-0.55040	-0.65700	-0.94970
5938.44 5968.38	4.50 4.50	0.5 -0.5	4.620 4.598	-4.25180 -2.64330	-3.59560 -2.28970	-2.30940 -1.45180	-0.88200 -0.51280	-0.28580 -0.32110	-0.57410 -0.31400	-0.31800 -0.17310	0.02270 0.01390	-0.02210 -0.06210	-0.00750 -0.04860	-0.10800 -0.17020	-0.15020 -0.22790	-0.50250 -0.57710	-0.60900 -0.68120	-0.90050 -0.96690
5961.60	4.50	-1.0	4.603	-2.04330	-1.84050	-1.43180	-0.31280	-0.33980	-0.25660	-0.17310	-0.00740	-0.08830	-0.04600	-0.17020	-0.25660	-0.59960	-0.70230	-0.98470
6064.09	4.50	-2.0	4.529	-1.40950	-1.20870	-0.80850	-0.31660	-0.36760	-0.12320	-0.08600	-0.02730	-0.12250	-0.11230	-0.23950	-0.30410	-0.64840	-0.75070	-1.03420
6024.94	4.50	-3.0	4.557	-1.35580	-1.09490	-0.69140	-0.29190	-0.38350	-0.10560	-0.09030	-0.05360	-0.14430	-0.13720	-0.26010	-0.32350	-0.65850	-0.75880	-1.03730
6037.83	4.50	-4.0	4.548	-1.29560	-1.01920	-0.62360	-0.26990	-0.39210	-0.09030	-0.08660	-0.06290	-0.15450	-0.14800	-0.27100	-0.33490	-0.66940	-0.76940	-1.04750
6432.73	4.00	0.0	4.273	-2.33410	-2.07750	-1.33480	-0.46490	-0.27000	-0.07720	-0.00900	0.14030	0.01670	0.03840	-0.11880	-0.19680	-0.60640	-0.72120	-1.03750
6455.69	4.00	-0.5	4.258	-1.73210	-1.57790	-1.06550	-0.39220	-0.29240	-0.02190	0.01610	0.12110	-0.01190	0.00960	-0.15060	-0.23150	-0.63800	-0.75200	-1.06640
6413.03	4.00	-1.0	4.286	-1.41310	-1.28930	-0.89550	-0.34920	-0.31760	-0.00460	0.01600	0.08920	-0.04640	-0.02560	-0.18350	-0.26410	-0.66070	-0.77240	-1.08130
6419.24	4.00	-2.0	4.282	-1.08260	-0.94180	-0.64230	-0.29230	-0.34910	0.03790	0.02240	0.05420	-0.08560	-0.06640	-0.22430	-0.30650	-0.69620	-0.80600	-1.11080
6470.07	4.00 4.00	-3.0	4.248 4.234	-0.92890	-0.77250 -0.71330	-0.50500 -0.45990	-0.25300 -0.24210	-0.36590	0.06170	0.03200 0.02980	0.04230	-0.10310	-0.08430	-0.24580 -0.25990	-0.33090 -0.34570	-0.72300	-0.83290	-1.13830
6491.09 6491.63	4.50	-4.0 0.0	4.234	-0.87460 -2.17910	-0.71330	-0.45990	-0.24210	-0.37800 -0.27460	0.06610 -0.09640	-0.00060	0.03060 0.13850	-0.11620 0.01200	-0.09770 0.03480	-0.23990	-0.34570	-0.73820 -0.61800	-0.84800 -0.73430	-1.15340 -1.05540
6503.68	4.50	-0.5	4.225	-1.56110	-1.42580	-0.94360	-0.29680	-0.27400	-0.04010	0.02070	0.13830	-0.02600	-0.00430	-0.12550	-0.24610	-0.65270	-0.76740	-1.08480
6435.89	4.50	-1.0	4.271	-1.30800	-1.19020	-0.80790	-0.26780	-0.32840	-0.03750	0.00870	0.06970	-0.06000	-0.04090	-0.19590	-0.27510	-0.66840	-0.78040	-1.09070
6500.28	4.50	-2.0	4.228	-0.89470	-0.77500	-0.51470	-0.20510	-0.36490	0.01430	0.02410	0.03970	-0.10090	-0.08220	-0.24300	-0.32670	-0.72040	-0.83150	-1.14060
6499.46	4.50	-3.0	4.228	-0.83030	-0.67500	-0.41730	-0.17920	-0.38150	0.02600	0.02030	0.01640	-0.12200	-0.10520	-0.26320	-0.34650	-0.73520	-0.84520	-1.15180
6507.77	4.50	-4.0	4.223	-0.80010	-0.63490	-0.38300	-0.17250	-0.39210	0.02800	0.01570	0.00390	-0.13400	-0.11780	-0.27530	-0.35850	-0.74610	-0.85580	-1.16170
6907.57	4.50	0.0	3.964	-1.47180	-1.36760	-0.90290	-0.26810	-0.27010	0.07150	0.11320	0.19630	0.02940	0.05880	-0.13050	-0.22700	-0.68330	-0.80690	-1.14970
6986.84	4.50	-0.5	3.914	-1.00070	-0.94870	-0.65930	-0.21850	-0.30160	0.11380	0.12790	0.17140	-0.00680	0.02300	-0.17130	-0.27230	-0.72960	-0.85290	-1.19550
7000.57	4.50	-3.0	3.906	-0.50720	-0.42330	-0.27250	-0.15330	-0.38690	0.11950	0.09500	0.07590	-0.10620	-0.07990	-0.27220	-0.37490	-0.81680	-0.93620	-1.26940

**Table 8.** RHD simulations' stellar parameters (first three columns), bolometric Magnitude (M<sub>bol</sub>), and bolometric correction (BC) for the HST-WFC3 in AB system (Table 1).

	loge	ГЕо/Ш	M	DC.	DC.	DC	DC	DC	DC.	DC	DC.	DC.	DC.	DC.	DC	DC	DC.	P.C
$\frac{T_{\text{eff}}}{4014.99}$	log <i>g</i> 1.50	[Fe/H] 0.0	M <sub>bol</sub> 6.320	-9.86380	-9.87180	BC <sub>F275W</sub> -8.85240	BC <sub>F336W</sub> -5.27410	BC <sub>F350LP</sub> -0.73790	ВС <sub>F390М</sub> -4.00730	BC <sub>F390W</sub> -3.30720	BC <sub>F475W</sub> -1.54930	BC <sub>F547M</sub> -0.90690	BC <sub>F555W</sub> -1.00310	-0.61960	BC <sub>F625W</sub> -0.40810	BC <sub>F775W</sub> 0.05140	BC <sub>F814W</sub> 0.12800	BC <sub>F850LP</sub> 0.33510
4042.38	1.50	-1.0	6.291	-9.56400	-9.41250	-8.00220	-4.57890	-0.73790	-3.45220	-2.95700	-1.46790	-0.86960	-0.96490	-0.60360	-0.4010	0.05140	0.12570	0.32480
4021.90	1.50	-2.0	6.313	-9.45030	-9.20420	-7.94620	-4.84560	-0.73320	-3.43220	-3.07830	-1.54360	-0.90480	-1.01130	-0.62550	-0.40130	0.05230	0.12570	0.34150
3951.92	1.50	-3.0	6.389	-9.81140	-9.54260	-8.57580	-5.66620	-0.79160	-3.88230	-3.58110	-1.80690	-1.05620	-1.17880	-0.71710	-0.48460	0.07440	0.16060	0.38570
4070.69	2.00	0.0	6.260	-9.71080	-9.67410	-8.44210	-4.94540	-0.70150	-3.73070	-3.11200	-1.46720	-0.85270	-0.94470	-0.57770	-0.37030	0.06990	0.14230	0.33870
4056.19	2.00	0.5	6.276	-9.85100	-9.84350	-8.81480	-5.41970	-0.73290	-4.04120	-3.31610	-1.54730	-0.91500	-1.01280	-0.63240	-0.42220	0.07220	0.15190	0.36520
3899.43	2.00	-0.5	6.447	-9.72990	-9.48470	-8.30160	-4.95050	-0.82610	-3.78410	-3.25880	-1.69530	-1.05260	-1.15620	-0.75980	-0.54030	0.00220	0.09070	0.32380
4047.76	2.00	-1.0	6.285	-9.31040	-8.93310	-7.49260	-4.30990	-0.71450	-3.27400	-2.83850	-1.44740	-0.86750	-0.96000	-0.60630	-0.40440	0.04820	0.12220	0.32180
4037.03	2.00	-2.0	6.296	-9.41030	-9.15600	-7.68960	-4.46980	-0.71140	-3.18360	-2.88430	-1.46810	-0.86820	-0.96640	-0.60160	-0.40020	0.06020	0.13480	0.33510
4013.24	2.00	-3.0	6.322	-9.57850	-9.41450	-8.35110	-5.06360	-0.71620	-3.40510	-3.15220	-1.58190	-0.91370	-1.02730	-0.61860	-0.40570	0.10100	0.17980	0.38770
4025.21	2.00	-4.0	6.309	-9.84130	-9.78230	-8.70190	-5.34720	-0.70270	-3.52530	-3.28000	-1.64920	-0.93890	-1.06160	-0.61980	-0.39760	0.14620	0.22770	0.43930
3958.11	2.50	0.0	6.382	-9.79390	-9.62770	-8.42710	-5.01670	-0.80410	-3.81990	-3.25380	-1.65050	-1.01690	-1.12020	-0.73520	-0.51840	0.02030	0.10700	0.33480
3953.50	2.50	0.5	6.387	-9.84450	-9.67340	-8.56960	-5.34630	-0.84470	-3.99710	-3.37730	-1.72360	-1.09790	-1.20750	-0.81720	-0.60520	0.01840	0.11470	0.36410
3899.65	2.50	-0.5	6.447	-9.65640	-9.33460	-8.09050	-4.79740	-0.83630	-3.68720	-3.19440	-1.70650	-1.07440	-1.18230	-0.79030	-0.57110	0.00250	0.09460	0.33450
4063.17	2.50	-1.0	6.268	-9.34790	-8.86090	-7.27530	-4.13700	-0.70550	-3.17640	-2.76130	-1.43100	-0.86030	-0.95270	-0.60390	-0.40090	0.05570	0.12990	0.32930
4037.59	2.50	-2.0	6.296	-9.36190	-8.94330	-7.29770	-4.20090	-0.69820	-3.06340	-2.77090	-1.43470	-0.85430	-0.94770	-0.59120	-0.39040	0.06400	0.13810	0.33690
4042.85	2.50	-3.0	6.290	-9.57580	-9.42350	-7.78160	-4.51490	-0.66790	-3.07820	-2.85760	-1.44960	-0.83580	-0.94130	-0.56320	-0.36180	0.11800	0.19310	0.39190
3951.87 4472.00	2.50 1.50	-4.0 -1.0	6.389 5.852	-9.77200 -8.57200	-9.65530 -8.05180	-8.18740 -6.33590	-4.94170 -3.56860	-0.68260 -0.47930	-3.30770 -2.61140	-3.09690 -2.21340	-1.58520 -0.99130	-0.90930 -0.50970	-1.02660 -0.59680	-0.60110 -0.31800	-0.38500 -0.15940	0.15260 0.17730	0.23500 0.22610	0.44890 0.36180
4472.00	1.50	-3.0	5.832	-8.57200 -8.89960	-8.05180 -8.56840	-0.33390 -7.07820	-3.30800 -4.21680	-0.47930	-2.61140	-2.21340	-0.99130	-0.50970	-0.72600	-0.31800	-0.15940	0.17730	0.26430	0.36180
4554.69	2.00	0.0	5.772	-8.76510	-8.38470	-6.67160	-3.77700	-0.32740	-2.81270	-2.31290	-0.95630	-0.46470	-0.72000	-0.25920	-0.20490	0.20380	0.24800	0.37140
4461.67	2.00	-0.5	5.862	-8.69410	-8.16660	-6.40820	-3.59720	-0.44240	-2.70040	-2.25580	-1.00140	-0.51950	-0.60140	-0.23920	-0.05580	0.20400	0.22590	0.36230
4498.97	2.00	-1.0	5.826	-8.46620	-7.78220	-5.97890	-3.32040	-0.46960	-2.45300	-2.09000	-0.94940	-0.49590	-0.57640	-0.31160	-0.15800	0.16800	0.21590	0.34910
4452.94	2.00	-2.0	5.871	-8.52580	-7.92670	-6.14670	-3.45110	-0.48760	-2.35590	-2.13940	-1.00590	-0.52690	-0.61730	-0.33700	-0.17920	0.17180	0.22340	0.36450
4455.77	2.00	-3.0	5.868	-8.76540	-8.36960	-6.59760	-3.70150	-0.48570	-2.36640	-2.21680	-1.05270	-0.54210	-0.64230	-0.33950	-0.17370	0.20090	0.25460	0.39850
4485.37	2.00	-4.0	5.839	-8.92610	-8.64190	-6.70970	-3.70770	-0.47380	-2.30230	-2.18530	-1.04750	-0.53260	-0.63760	-0.32930	-0.16260	0.21620	0.26970	0.41170
4533.90	2.50	0.0	5.792	-8.80610	-8.40930	-6.67810	-3.73780	-0.45370	-2.77350	-2.28860	-0.96400	-0.48040	-0.55690	-0.27560	-0.11120	0.19170	0.23700	0.36380
4470.97	2.50	0.5	5.853	-9.14660	-9.02600	-7.57240	-4.43050	-0.48470	-3.20560	-2.59350	-1.06870	-0.53840	-0.61630	-0.30540	-0.12570	0.19650	0.24580	0.38340
4503.34	2.50	-0.5	5.822	-8.47540	-7.81010	-6.07400	-3.40660	-0.46670	-2.56030	-2.15400	-0.96130	-0.49970	-0.57700	-0.30560	-0.14640	0.17740	0.22510	0.35720
4508.09	2.50	-1.0	5.817	-8.42660	-7.56500	-5.72250	-3.17430	-0.46890	-2.37570	-2.03250	-0.93800	-0.49790	-0.57380	-0.31470	-0.16120	0.16060	0.20840	0.34120
4426.04	2.50	-2.0	5.897	-8.48140	-7.69280	-5.86600	-3.28850	-0.49900	-2.31990	-2.09950	-1.00940	-0.54420	-0.62860	-0.35350	-0.19560	0.15380	0.20640	0.35040
4477.40	2.50	-3.0	5.847	-8.66010	-7.98560	-6.05620	-3.35800	-0.47130	-2.20100	-2.06340	-0.99520	-0.51790	-0.61150	-0.32680	-0.16870	0.19040	0.24250	0.38240
4535.29	2.50	-4.0	5.791	-8.66240	-7.91060	-5.87530	-3.24360	-0.44720	-2.05820	-1.96460	-0.95810	-0.48890	-0.58640	-0.30380	-0.14880	0.20670	0.25720	0.39190
4508.67	3.00	0.0	5.817	-8.85980	-8.41930	-6.66960	-3.72290	-0.46830	-2.77660	-2.30560	-0.98850	-0.50470	-0.57860	-0.29640	-0.12720	0.18290	0.22960	0.36000
4490.40	3.00	0.5	5.834 5.822	-9.03750	-8.80230	-7.28180	-4.24660 -3.10820	-0.47840	-3.06110	-2.51000 -2.02240	-1.04830	-0.53070	-0.60620	-0.30300 -0.32430	-0.12310	0.19640	0.24470 0.20310	0.37960
4503.05	3.00	-1.0 -2.0	5.768	-8.42910 -7.82330	-7.43200 -6.85340	-5.58990	-2.90220	-0.47460	-2.36510 -2.07750	-2.02240	-0.94770 -0.89170	-0.51050	-0.58360 -0.54670	-0.32430	-0.16700	0.15500	0.20310	0.33690 0.33930
4559.76 4555.30	3.00	-3.0	5.772	-8.16930	-7.17510	-5.15270 -5.33100	-2.90220	-0.44650 -0.43810	-2.07750	-1.87470	-0.89170	-0.46960 -0.47040	-0.55750	-0.29770	-0.15140 -0.14510	0.16510 0.19140	0.21100	0.36980
4534.50	3.00	-4.0	5.792	-8.31120	-7.17310	-5.36860	-3.01780	-0.43990	-1.96700	-1.87810	-0.93290	-0.48170	-0.57550	-0.29380	-0.14310	0.19140	0.25260	0.38660
4548.87	3.50	0.0	5.778	-8.75640	-8.19230	-6.45420	-3.60220	-0.45570	-2.72150	-2.25930	-0.96930	-0.49150	-0.56320	-0.28560	-0.1470	0.19150	0.23640	0.36200
4531.27	3.50	0.5	5.795	-9.01610	-8.72740	-7.11850	-4.08890	-0.46690	-2.72130	-2.44480	-1.02650	-0.51770	-0.59180	-0.29520	-0.11470	0.20410	0.25090	0.38160
4344.11	3.50	-0.5	5.978	-8.84120	-8.13300	-6.46990	-3.66320	-0.54830	-2.83030	-2.39910	-1.14350	-0.63430	-0.71510	-0.41100	-0.22560	0.14840	0.20510	0.36040
4573.06	3.50	-1.0	5.755	-8.20460	-7.11140	-5.32160	-2.95760	-0.44880	-2.27850	-1.93910	-0.90110	-0.47700	-0.54720	-0.29650	-0.14090	0.16580	0.21060	0.33570
4508.84	3.50	-2.0	5.816	-7.84260	-6.86600	-5.21070	-2.94270	-0.46310	-2.17070	-1.93780	-0.93470	-0.50060	-0.57670	-0.31800	-0.16400	0.16320	0.21160	0.34460
4571.34	3.50	-3.0	5.757	-7.77880	-6.74350	-5.02610	-2.85380	-0.42620	-1.95300	-1.82290	-0.89060	-0.45880	-0.54410	-0.28380	-0.13650	0.19730	0.24470	0.37240
4620.85	3.50	-4.0	5.710	-7.64150	-6.49300	-4.74890	-2.71500	-0.40950	-1.79460	-1.71690	-0.85810	-0.43870	-0.52730	-0.27100	-0.12830	0.20270	0.24930	0.37330
4524.22	4.00	0.0	5.802	-8.80810	-8.18710	-6.48970	-3.64510	-0.47130	-2.80520	-2.32620	-1.01520	-0.52080	-0.59410	-0.30770	-0.12720	0.19190	0.23800	0.36680
4549.22	4.00	0.5	5.778	-8.91020	-8.49410	-6.90460	-3.97990	-0.46710	-2.94450	-2.42770	-1.03400	-0.52290	-0.59830	-0.30250	-0.11760	0.21010	0.25700	0.38720
4441.77	4.00	-0.5	5.881	-8.71200	-7.88910	-6.18820	-3.47690	-0.50390	-2.71180	-2.28070	-1.06330	-0.57150	-0.64900	-0.35830	-0.17660	0.17180	0.22300	0.36410
4587.16	4.00	-1.0	5.742	-8.16640	-7.06520	-5.32290	-2.94590	-0.44430	-2.30620	-1.94800	-0.90480	-0.47560	-0.54550	-0.29220	-0.13160	0.17300	0.21690	0.33960
4524.97	4.00	-2.0	5.801	-7.65360	-6.72280	-5.16000	-2.91650	-0.45210	-2.18080	-1.93300	-0.92850	-0.49280	-0.56800	-0.30720	-0.15030	0.17650	0.22400	0.35460
4517.64	4.00	-3.0	5.808	-7.70310	-6.71700	-5.06870	-2.90970	-0.43440	-2.02830	-1.88160	-0.92360	-0.47960	-0.56560	-0.29530	-0.14280	0.20490	0.25440	0.38720
4580.60	4.00	-4.0	5.748	-7.47920	-6.37790	-4.71100	-2.73290	-0.41120	-1.83140	-1.74850	-0.87850	-0.44990	-0.53960	-0.27540	-0.12890	0.21310	0.26120	0.38850
4532.22	4.50	0.0	5.794	-8.77730	-8.09670	-6.45630	-3.64440	-0.47210	-2.85290	-2.35780	-1.03470	-0.52870	-0.60380	-0.31290	-0.12610	0.20140	0.24750	0.37550
4543.15	4.50	0.5	5.783	-8.88850	-8.38350	-6.79670	-3.93450	-0.47580	-2.96930	-2.45510	-1.06610	-0.54250	-0.62130	-0.32050	-0.12930	0.21610	0.26400	0.39600
4383.32 4569.29	4.50	-0.5	5.939	-8.79770 -8.15940	-8.01040 7.13340	-6.40540 5.48040	-3.63660	-0.52990	-2.86300	-2.41030	-1.14650 -0.94040	-0.62090 -0.49290	-0.70460	-0.39390	-0.19960	0.17510	0.22970 0.22750	0.37840
4569.29 4502.45	4.50 4.50	-1.0 -2.0	5.759 5.823	-8.15940 -7.63270	-7.13340 -6.76750	-5.48040 -5.27790	-3.02620 -2.99350	-0.45060 -0.45160	-2.40240 -2.25470	-2.01600 -1.98890	-0.94040 -0.95470	-0.49290 -0.50370	-0.56490 -0.58100	-0.30080 -0.30880	-0.13090 -0.14520	0.18280 0.19310	0.22750	0.35180 0.37410
4502.43	5.00	0.0	5.800	-8.77210	-8.06560	-6.49280	-2.99330	-0.43160	-2.23470	-2.41780	-0.93470	-0.54440	-0.62320	-0.32330	-0.14320	0.19310	0.24160	0.38950
4320.03	5.00	-0.5	5.876	-8.60510	-7.81000	-6.26820	-3.55990	-0.47670	-2.92890	-2.41780	-1.10500	-0.58130	-0.62320	-0.32330	-0.12920	0.21330	0.25030	0.38930
4447.10	5.00	-0.5	3.070	-0.00510	-7.01000	-0.20620	-3.33770	-0.42000	-2.01410	-2.30100	-1.10500	-0.56130	-0.00400	-0.33710	-0.10260	0.20070	0.23100	0.39100

$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{ m F218W}$	$BC_{ m F225W}$	$BC_{ m F275W}$	$BC_{\mathrm{F336W}}$	$BC_{\rm F350LP}$	$BC_{\mathrm{F390M}}$	$BC_{\mathrm{F390W}}$	$BC_{\rm F475W}$	$BC_{ m F547M}$	$BC_{ ext{F555W}}$	$BC_{ m F606W}$	$BC_{ m F625W}$	<i>BC</i> <sub>F775W</sub>	$BC_{ m F814W}$	$BC_{\rm F850LP}$
4535.47	5.00	-1.0	5.791	-8.14760	-7.25110	-5.71920	-3.16570	-0.45790	-2.52120	-2.11450	-0.99340	-0.51710	-0.59450	-0.31300	-0.13250	0.20210	0.24880	0.37720
4881.31	2.00	0.0	5.472	-7.85870	-7.22970	-5.55720	-3.12380	-0.33010	-2.27330	-1.86510	-0.73090	-0.30590	-0.38090	-0.13770	0.00370	0.24930	0.27940	0.36510
4915.99	2.00	-1.0	5.441	-7.46430	-6.62910	-4.90690	-2.70060	-0.32660	-1.85070	-1.60110	-0.66320	-0.29120	-0.36410	-0.15480	-0.03100	0.21550	0.24660	0.33410
4926.40 4907.94	2.00	-2.0 -3.0	5.432 5.448	-7.30530 -7.52470	-6.42020 -6.54850	-4.75360 -4.78790	-2.63930 -2.65110	-0.32590 -0.33090	-1.63930 -1.57370	-1.52660 -1.51350	-0.66400 -0.67910	-0.29690 -0.30840	-0.37340 -0.38920	-0.16310 -0.17320	-0.04050 -0.04920	0.21440 0.21580	0.24710 0.25040	0.33640 0.34330
4907.94	2.00	-4.0	5.450	-7.57990	-6.54070	-4.74990 -4.74990	-2.63070	-0.33200	-1.54220	-1.51330	-0.68340	-0.31080	-0.38920	-0.17520	-0.04920	0.21580	0.25140	0.34540
5015.94	2.50	0.0	5.353	-7.74890	-7.01560	-5.22410	-2.84790	-0.29630	-2.05340	-1.67980	-0.63900	-0.25540	-0.32340	-0.17600	0.02490	0.21020	0.27070	0.34360
4950.97	2.50	-0.5	5.410	-7.48240	-6.62110	-4.86090	-2.66870	-0.31670	-1.91430	-1.61200	-0.65060	-0.27990	-0.34940	-0.14040	-0.01540	0.22200	0.25140	0.33410
4965.89	2.50	-1.0	5.397	-7.22050	-6.27490	-4.55550	-2.50340	-0.31850	-1.74590	-1.51010	-0.63000	-0.27980	-0.34790	-0.15050	-0.03220	0.20270	0.23240	0.31560
4939.03	2.50	-2.0	5.421	-6.91130	-5.98090	-4.40180	-2.45730	-0.32770	-1.58940	-1.47030	-0.65190	-0.29930	-0.37190	-0.16920	-0.05000	0.19940	0.23160	0.31990
4948.74	2.50	-3.0	5.412	-6.98800	-5.95140	-4.33290	-2.43000	-0.32480	-1.49020	-1.43000	-0.65310	-0.30100	-0.37780	-0.17160	-0.05240	0.20360	0.23680	0.32590
4953.38	2.50	-4.0	5.408	-7.01460	-5.89800	-4.25200	-2.38910	-0.32510	-1.44320	-1.40660	-0.65180	-0.30180	-0.38050	-0.17430	-0.05630	0.20110	0.23470	0.32440
5010.39	3.00	0.0	5.358	-7.72160	-6.93080	-5.14770	-2.80220	-0.30000	-2.03760	-1.67300	-0.63960	-0.26070	-0.32620	-0.11060	0.01930	0.23880	0.26490	0.33900
4963.15 4912.91	3.00 3.00	0.5 -0.5	5.399 5.444	-8.20580 -7.54130	-7.69120 -6.60460	-5.98740 -4.83380	-3.33230 -2.65750	-0.30740 -0.33100	-2.35710 -1.95090	-1.89220 -1.63850	-0.69620 -0.67240	-0.28150 -0.30130	-0.34660 -0.36830	-0.10480 -0.15740	0.03850 -0.02980	0.26260 0.21270	0.28960 0.24380	0.36670 0.33080
4912.91	3.00	-0.3	5.376	-7.05600	-6.05430	-4.85530 -4.35530	-2.39530	-0.31630	-1.71300	-1.03830	-0.61920	-0.27850	-0.34330	-0.15740	-0.02980	0.21270	0.24380	0.30660
4991.62	3.00	-2.0	5.375	-6.33750	-5.47490	-4.04900	-2.28240	-0.32000	-1.52430	-1.40010	-0.62560	-0.28880	-0.35780	-0.16430	-0.03330	0.18940	0.21990	0.30340
4970.32	3.00	-3.0	5.393	-6.47320	-5.48570	-4.01380	-2.28230	-0.32400	-1.45350	-1.38560	-0.64440	-0.30140	-0.37600	-0.17440	-0.05730	0.19490	0.22750	0.31490
5005.01	3.00	-4.0	5.363	-6.32880	-5.28710	-3.82730	-2.19400	-0.31890	-1.36930	-1.33120	-0.62950	-0.29510	-0.37070	-0.17270	-0.05870	0.19030	0.22240	0.30770
5011.53	3.50	0.0	5.357	-7.81950	-6.97360	-5.14040	-2.77900	-0.30150	-2.04840	-1.67690	-0.63770	-0.26260	-0.32490	-0.11270	0.01800	0.23480	0.26090	0.33510
4988.91	3.50	0.5	5.377	-8.16620	-7.58780	-5.84400	-3.23000	-0.30220	-2.28350	-1.84850	-0.67910	-0.27410	-0.33650	-0.10160	0.04050	0.25990	0.28620	0.36140
4917.82	3.50	-0.5	5.439	-7.55820	-6.55910	-4.78030	-2.62060	-0.33180	-1.95730	-1.63680	-0.67190	-0.30420	-0.36840	-0.15930	-0.03040	0.21030	0.24120	0.32800
4975.93	3.50	-1.0	5.388	-7.03970	-5.99520	-4.30670	-2.36450	-0.32260	-1.74390	-1.48660	-0.62930	-0.28900	-0.35150	-0.15830	-0.03890	0.19180	0.22110	0.30370
5036.62 5047.83	3.50 3.50	-2.0 -3.0	5.336 5.326	-5.90780 -5.85440	-5.12740 -4.97090	-3.82640 -3.66330	-2.16790 -2.11100	-0.31420 -0.31250	-1.49330 -1.37810	-1.35710 -1.30700	-0.60740 -0.61190	-0.28110 -0.28570	-0.34710 -0.35700	-0.15980 -0.16550	-0.04720 -0.05330	0.18290 0.18610	0.21190 0.21620	0.29120 0.29700
5047.65	3.50	-4.0	5.326	-5.82410	-4.86470	-3.53700	-2.11100	-0.31230	-1.32340	-1.28150	-0.61730	-0.29250	-0.36630	-0.10330	-0.05550	0.18160	0.21020	0.29480
4992.30	4.00	0.0	5.374	-7.87660	-6.99130	-5.17320	-2.80130	-0.30830	-2.10450	-1.71790	-0.65560	-0.27510	-0.33510	-0.17330	0.01530	0.13100	0.21200	0.33790
5083.68	4.00	0.5	5.295	-7.99440	-7.32910	-5.58310	-3.05440	-0.27920	-2.17630	-1.75610	-0.62850	-0.24220	-0.29980	-0.07810	0.06030	0.26340	0.28630	0.35190
4910.47	4.00	-0.5	5.446	-7.59210	-6.56260	-4.80480	-2.62810	-0.33570	-2.00220	-1.66440	-0.68480	-0.31310	-0.37530	-0.16360	-0.03000	0.21160	0.24250	0.32970
4956.78	4.00	-1.0	5.405	-7.04640	-6.00700	-4.35130	-2.37480	-0.32910	-1.80260	-1.52100	-0.64780	-0.30150	-0.36250	-0.16500	-0.04030	0.19280	0.22250	0.30640
5059.64	4.00	-2.0	5.316	-5.75780	-5.01230	-3.75900	-2.11430	-0.31070	-1.50130	-1.34710	-0.60220	-0.27750	-0.34220	-0.15620	-0.04340	0.18330	0.21130	0.28830
5049.09	4.00	-3.0	5.325	-5.77070	-4.89970	-3.61800	-2.08130	-0.31230	-1.39410	-1.31280	-0.61910	-0.28810	-0.36020	-0.16560	-0.05190	0.19040	0.22060	0.30120
5072.94	4.00	-4.0	5.304	-5.62410	-4.69650	-3.41970	-1.99660	-0.31260	-1.31060	-1.26480	-0.61490	-0.29020	-0.36410	-0.17080	-0.05930	0.18310	0.21350	0.29370
4982.27 5056.36	4.50 4.50	0.0 0.5	5.383 5.319	-7.90380 -8.07050	-6.99300 -7.36990	-5.22670 -5.63680	-2.84030 -3.09310	-0.31310 -0.28860	-2.18210 -2.25790	-1.77020 -1.81510	-0.67570 -0.65500	-0.28630 -0.25890	-0.34410 -0.31410	-0.12520 -0.08890	0.01770 0.05710	0.23930 0.26360	0.26590 0.28710	0.34220 0.35540
4953.63	4.50	-1.0	5.408	-7.02320	-6.02630	-4.42520	-2.39400	-0.28800	-1.85930	-1.55050	-0.65840	-0.23690	-0.31410	-0.16550	-0.03710	0.20300	0.28710	0.30980
4976.19	4.50	-2.0	5.388	-6.11030	-5.32890	-4.02780	-2.23770	-0.32420	-1.63840	-1.44720	-0.64670	-0.30160	-0.36700	-0.16780	-0.04570	0.19560	0.22580	0.30930
5079.81	4.50	-3.0	5.299	-5.70010	-4.84070	-3.57470	-2.04960	-0.30390	-1.38670	-1.30060	-0.60970	-0.27840	-0.35090	-0.15640	-0.04290	0.19740	0.22660	0.30410
4969.79	4.50	-4.0	5.394	-6.00160	-5.00620	-3.64530	-2.12220	-0.32550	-1.41120	-1.35660	-0.66400	-0.31500	-0.39310	-0.18340	-0.06350	0.20070	0.23450	0.32340
4976.20	5.00	0.0	5.388	-7.92720	-7.00850	-5.30690	-2.89110	-0.31700	-2.27230	-1.82740	-0.69590	-0.29650	-0.35230	-0.12890	0.02200	0.24470	0.27090	0.34690
4953.82	5.00	0.5	5.408	-8.21390	-7.49880	-5.82450	-3.25010	-0.32110	-2.44790	-1.97460	-0.74510	-0.31340	-0.37130	-0.12730	0.03590	0.26560	0.29250	0.37080
4860.02	5.00	-0.5	5.491	-7.68300	-6.71190	-5.08280	-2.78120	-0.35210	-2.19240	-1.79910	-0.74530	-0.34650	-0.40770	-0.18000	-0.02910	0.22180	0.25360	0.34410
4971.82	5.00	-1.0	5.392	-6.94010	-6.02190	-4.49960	-2.41100	-0.32480	-1.90220	-1.56970	-0.65900	-0.30300	-0.36130	-0.15830	-0.02390	0.20630	0.23450	0.31500
4980.19 5043.95	5.00 5.00	-2.0 -3.0	5.385 5.329	-6.17710 -5.87080	-5.40610 -4.98640	-4.11350 -3.68390	-2.26790 -2.10190	-0.31870 -0.30560	-1.67940 -1.43860	-1.47100 -1.34170	-0.65040 -0.62660	-0.29880 -0.28450	-0.36430 -0.35860	-0.16080 -0.15720	-0.03530 -0.03990	0.20880 0.20900	0.23880 0.23930	0.32120 0.31940
4950.01	5.00	-4.0	5.411	-6.06640	-5.07700	-3.70560	-2.15640	-0.32400	-1.44080	-1.34170	-0.67460	-0.23430	-0.39660	-0.13720	-0.05860	0.21200	0.23930	0.33630
5390.37	2.50	-2.0	5.041	-5.46820	-4.74720	-3.50950	-2.00610	-0.24060	-1.13930	-1.09710	-0.44330	-0.17620	-0.23540	-0.08540	0.00590	0.18070	0.19930	0.24910
5436.69	2.50	-3.0	5.004	-5.23100	-4.47080	-3.28420	-1.91820	-0.23930	-1.03820	-1.03900	-0.43150	-0.17560	-0.23530	-0.09030	-0.00300	0.16860	0.18690	0.23500
5459.13	3.00	0.0	4.986	-6.70100	-5.88140	-4.21610	-2.24970	-0.20800	-1.51220	-1.25920	-0.42390	-0.12580	-0.18220	-0.02170	0.07880	0.23210	0.24470	0.28060
5479.60	3.00	-0.5	4.970	-6.07890	-5.30520	-3.79400	-2.05240	-0.21460	-1.33000	-1.15120	-0.40570	-0.13220	-0.18710	-0.04180	0.04940	0.20190	0.21530	0.25290
5476.23	3.00	-1.0	4.972	-5.47680	-4.82670	-3.53410	-1.95680	-0.22390	-1.22790	-1.10020	-0.41160	-0.14760	-0.20290	-0.06010	0.02870	0.18570	0.20010	0.24000
5509.14	3.00	-2.0	4.946	-4.78780	-4.19990	-3.14510	-1.82470	-0.23420	-1.06620	-1.02270	-0.41530	-0.16600	-0.22200	-0.08330	0.00200	0.16160	0.17720	0.21810
5459.30	3.00	-3.0 -4.0	4.986 4.977	-4.77200 4.69520	-4.10030 3.00060	-3.03520 -2.94590	-1.79200 1.75200	-0.24860	-1.03490	-1.02070 -1.00630	-0.43980	-0.18750 -0.19100	-0.24680	-0.10360	-0.01740	0.15320 0.14720	0.17110	0.21790
5469.82 5560.38	3.50	0.0	4.977	-4.69520 -6.48340	-3.99960 -5.62910	-2.94590	-1.75290 -2.09680	-0.25140 -0.19560	-1.00590 -1.42340	-1.18190	-0.44170 -0.38830	-0.19100	-0.25130 -0.16120	-0.10870 -0.01240	-0.02360 0.08240	0.14720	0.16540 0.23190	0.21230 0.25990
5505.98	3.50	-0.5	4.949	-5.93860	-5.15590	-3.66380	-1.97340	-0.19300	-1.32880	-1.13780	-0.40380	-0.13320	-0.18680	-0.01240	0.03240	0.22190	0.23190	0.24580
5450.91	3.50	-1.0	4.992	-5.40490	-4.74790	-3.45620	-1.89990	-0.23350	-1.26820	-1.11430	-0.42810	-0.16120	-0.21610	-0.07130	0.01910	0.17990	0.19510	0.23710
5467.28	3.50	-2.0	4.979	-4.65140	-4.09450	-3.08460	-1.78150	-0.24730	-1.12230	-1.05110	-0.44220	-0.18430	-0.24130	-0.09740	-0.00910	0.15800	0.17470	0.21910
5474.46	3.50	-3.0	4.974	-4.49830	-3.88040	-2.89110	-1.71450	-0.25530	-1.04680	-1.01690	-0.45090	-0.19680	-0.25660	-0.11240	-0.02570	0.14600	0.16380	0.21000
5490.94	3.50	-4.0	4.960	-4.39020	-3.74960	-2.77540	-1.66410	-0.26030	-1.01040	-0.99760	-0.45400	-0.20340	-0.26370	-0.12070	-0.03540	0.13590	0.15390	0.20020
5509.78	4.00	0.0	4.946	-6.64060	-5.72540	-4.03140	-2.12100	-0.20480	-1.50850	-1.23320	-0.41110	-0.12250	-0.17440	-0.02000	0.07940	0.22480	0.23600	0.26750
5542.42	4.00	0.5	4.920	-7.04300	-6.24630	-4.54540	-2.37880	-0.18780	-1.64380	-1.30970	-0.41020	-0.10820	-0.15880	0.00960	0.11680	0.25800	0.26680	0.29200
5513.71	4.00	-0.5	4.943	-5.90280	-5.09940	-3.60580	-1.92660	-0.21650	-1.35530	-1.13970	-0.40410	-0.13590	-0.18730	-0.04550	0.04570	0.19370	0.20620	0.24080

$T_{ m eff}$	logg	[Fe/H]	$M_{ m bol}$	$BC_{ m F218W}$	$BC_{\rm F225W}$	$BC_{F275W}$	$BC_{\mathrm{F336W}}$	$BC_{\text{F350LP}}$	$BC_{\rm F390M}$	$BC_{\mathrm{F390W}}$	$BC_{\rm F475W}$	$BC_{\rm F547M}$	$BC_{ ext{F555W}}$	$BC_{ m F606W}$	$BC_{\rm F625W}$	$BC_{\rm F775W}$	$BC_{ m F814W}$	$BC_{\text{F850LP}}$
5437.76	4.00	-1.0	5.003	-5.39300	-4.72910	-3.43830	-1.87160	-0.23830	-1.31530	-1.13160	-0.43760	-0.16860	-0.22200	-0.07610	0.01620	0.17820	0.19360	0.23640
5480.60	4.00	-2.0	4.969	-4.50550	-3.98130	-3.01620	-1.73060	-0.25000	-1.14450	-1.05260	-0.44760	-0.18810	-0.24470	-0.10050	-0.01170	0.15500	0.17150	0.21490
5582.06	4.00	-3.0	4.889	-4.12340	-3.57610	-2.68410	-1.60150	-0.25200	-1.00830	-0.97060	-0.43440	-0.19050	-0.24840	-0.11150	-0.02880	0.13120	0.14650	0.18530
5523.51	4.00	-4.0	4.935	-4.20920	-3.59650	-2.66710	-1.60280	-0.26300	-1.01420	-0.98980	-0.45940	-0.20740	-0.26810	-0.12470	-0.03920	0.13150	0.14900	0.19340
5530.74	4.50	0.0	4.929	-6.61230	-5.68000	-4.00130	-2.08980	-0.20300	-1.53180	-1.23910	-0.40920	-0.12120	-0.17080	-0.01740	0.08330	0.22560	0.23620	0.26590
5554.75	4.50	0.5	4.910	-7.01410	-6.19540	-4.50940	-2.35540	-0.18690	-1.66270	-1.31920	-0.40980	-0.10810	-0.15590	0.01110	0.12000	0.25810	0.26660	0.29090
5457.22	4.50	-0.5	4.987	-6.08860	-5.23850	-3.71620	-1.96650	-0.22550	-1.45190	-1.20070	-0.43150	-0.15080	-0.20180	-0.05210	0.04530	0.20120	0.21490	0.25350
5506.04	4.50	-1.0	4.949	-5.20630	-4.58900	-3.35670	-1.79790	-0.23060	-1.30250	-1.10440	-0.42180	-0.15830	-0.20970	-0.06800	0.02280	0.17590	0.18930	0.22630
5462.38	4.50	-2.0	4.983	-4.61090	-4.06440	-3.07050	-1.72710	-0.25170	-1.19180	-1.07670	-0.46000	-0.19190	-0.24930	-0.10060	-0.00890	0.16180	0.17860	0.22300
5517.41	4.50	-3.0	4.940	-4.35510	-3.74700	-2.78870	-1.62950	-0.25600	-1.06800	-1.01440	-0.46210	-0.20020	-0.26160	-0.11360	-0.02490	0.14800	0.16510	0.20860
5531.84 5509.50	4.50 5.00	-4.0 0.0	4.928 4.946	-4.25280 -6.67630	-3.61250 -5.74030	-2.66100 -4.08830	-1.58000 -2.13390	-0.26250 -0.20590	-1.02670 -1.61690	-0.99490 -1.29300	-0.46780 -0.42380	-0.20880 -0.12750	-0.27120 -0.17450	-0.12390 -0.01700	-0.03650 0.08920	0.13680 0.23280	0.15430 0.24340	0.19820 0.27400
5550.69	5.00	0.5	4.946	-7.15000	-6.28780	-4.08830 -4.57850	-2.13390	-0.20390	-1.74190	-1.29300	-0.42380	-0.12730	-0.17430	0.01700	0.08920	0.25280	0.24340	0.29490
5528.91	5.00	-1.0	4.913	-5.19690	-4.59360	-3.38390	-1.77960	-0.18740	-1.74190	-1.11030	-0.41810	-0.11040	-0.13430	-0.06270	0.12810	0.20280	0.27090	0.22610
5463.42	5.00	-2.0	4.982	-4.74530	-4.17100	-3.14140	-1.773230	-0.24810	-1.22510	-1.09160	-0.46100	-0.13440	-0.24550	-0.00270	-0.00140	0.17920	0.19100	0.23000
5468.24	5.00	-3.0	4.978	-4.61570	-3.94040	-2.90720	-1.66970	-0.25620	-1.11350	-1.05030	-0.47850	-0.20350	-0.24330	-0.11170	-0.0140	0.16330	0.18160	0.22820
5474.24	5.00	-4.0	4.974	-4.52850	-3.81390	-2.78450	-1.62920	-0.26230	-1.06900	-1.033300	-0.48660	-0.21250	-0.27810	-0.12150	-0.02920	0.15530	0.17420	0.22190
5787.92	4.44	0.0	4.732	-5.92660	-5.11540	-3.56860	-1.84410	-0.17160	-1.28910	-1.05430	-0.32190	-0.07350	-0.11910	0.00750	0.09190	0.20180	0.20610	0.21720
5824.45	4.44	0.5	4.705	-6.53750	-5.70700	-4.05390	-2.06580	-0.15040	-1.41740	-1.11810	-0.30970	-0.05080	-0.09450	0.04240	0.13400	0.23670	0.23820	0.24220
5718.03	4.44	-0.5	4.785	-5.28990	-4.63330	-3.30270	-1.74270	-0.19440	-1.22270	-1.02570	-0.34660	-0.10400	-0.15100	-0.02650	0.05520	0.17740	0.18460	0.20400
5765.80	4.44	-1.0	4.748	-4.47420	-4.01230	-2.98250	-1.61540	-0.20560	-1.10590	-0.95620	-0.34860	-0.12000	-0.16740	-0.04840	0.02840	0.14950	0.15680	0.17540
5787.32	4.44	-2.0	4.732	-3.84450	-3.42980	-2.62080	-1.51170	-0.22890	-0.98570	-0.91060	-0.37740	-0.15330	-0.20460	-0.08440	-0.00920	0.12050	0.12970	0.15180
5784.22	4.44	-3.0	4.735	-3.72260	-3.24370	-2.44450	-1.46310	-0.24260	-0.93200	-0.89330	-0.39690	-0.17260	-0.22710	-0.10470	-0.03010	0.10630	0.11700	0.14210
5806.41	4.44	-4.0	4.718	-3.62990	-3.13330	-2.34590	-1.42630	-0.24980	-0.90450	-0.88110	-0.40270	-0.18090	-0.23610	-0.11470	-0.04130	0.09440	0.10520	0.13010
6025.18	3.50	0.0	4.557	-5.26090	-4.66920	-3.35070	-1.77840	-0.14270	-1.02930	-0.89990	-0.23850	-0.02720	-0.07000	0.03090	0.09860	0.17650	0.17570	0.17250
5988.06	3.50	-0.5	4.584	-4.63090	-4.16940	-3.07450	-1.68440	-0.16290	-0.96130	-0.86870	-0.25920	-0.05610	-0.09950	-0.00020	0.06550	0.15220	0.15340	0.15550
5907.99	3.50	-1.0	4.643	-4.26730	-3.85820	-2.91000	-1.64040	-0.18560	-0.94580	-0.87300	-0.29490	-0.08960	-0.13520	-0.03050	0.03720	0.13850	0.14270	0.15240
5961.94	3.50	-2.0	4.603	-3.68410	-3.30060	-2.53930	-1.52960	-0.20780	-0.83210	-0.82020	-0.30930	-0.11890	-0.16450	-0.06540	-0.00240	0.09920	0.10420	0.11470
5965.56	3.50	-3.0	4.601	-3.56270	-3.13920	-2.39570	-1.48490	-0.21930	-0.80370	-0.81060	-0.32230	-0.13310	-0.18040	-0.08140	-0.01950	0.08510	0.09090	0.10310
5971.49	3.50	-4.0	4.596	-3.49350	-3.05960	-2.33020	-1.46090	-0.22710	-0.78870	-0.80560	-0.33050	-0.14270	-0.19050	-0.09180	-0.03050	0.07490	0.08110	0.09410
6014.61	4.00	0.0	4.565	-5.27880	-4.64360	-3.28250	-1.71720	-0.14830	-1.07530	-0.91070	-0.24790	-0.03520	-0.07730	0.02430	0.09330	0.17320	0.17230	0.16860
6038.71	4.00	-0.5	4.548	-4.43930	-3.99740	-2.93710	-1.58920	-0.16630	-0.96700	-0.85440	-0.26020	-0.06020	-0.10270	-0.00580	0.05870	0.14190	0.14200	0.14030
5958.44	4.00	-1.0	4.606	-4.05720	-3.67870	-2.77850	-1.54910	-0.19030	-0.95000	-0.85890	-0.29770	-0.09510	-0.14000	-0.03750	0.02890	0.12690	0.13000	0.13640
5954.96	4.00	-2.0	4.608	-3.57970	-3.21130	-2.47280	-1.47080	-0.21770	-0.87400	-0.83630	-0.33090	-0.13240	-0.17960	-0.07600	-0.01040	0.09650	0.10190	0.11290
6032.46 6023.76	4.00 4.00	-3.0 -4.0	4.552 4.558	-3.34050 -3.28190	-2.95080 -2.87780	-2.25970 -2.19750	-1.39920 -1.38290	-0.22970 -0.23920	-0.81130 -0.80910	-0.80170 -0.80300	-0.33310 -0.34120	-0.14480 -0.15460	-0.19220 -0.20240	-0.09440 -0.10610	-0.03330 -0.04600	0.06820 0.05630	0.07300 0.06160	0.08160 0.07170
		0.0	1		-4.62420	-3.24470	-1.58290					-0.13460		0.02170	0.09330	0.03630	0.06160	
6020.75 5938.44	4.50 4.50	0.5	4.561 4.620	-5.28510 -6.20380	-4.02420 -5.41140	-3.83650	-1.07030	-0.15130 -0.13940	-1.11300 -1.31240	-0.92350 -1.04120	-0.25900 -0.27510	-0.04100	-0.08320 -0.07490	0.02170	0.09330	0.17340	0.17440	0.16980 0.21900
5968.38	4.50	-0.5	4.598	-4.59540	-4.10550	-2.97890	-1.57650	-0.13940	-1.05230	-0.89630	-0.28390	-0.03320	-0.11600	-0.01270	0.05640	0.22340	0.15020	0.15260
5961.60	4.50	-1.0	4.603	-4.03250	-3.65640	-2.75620	-1.50620	-0.17470	-0.99480	-0.87020	-0.30520	-0.09940	-0.11360	-0.04010	0.02770	0.12620	0.12910	0.13480
6064.09	4.50	-2.0	4.529	-3.36160	-3.02450	-2.33560	-1.38030	-0.22110	-0.86150	-0.80920	-0.32510	-0.13360	-0.17970	-0.08200	-0.01980	0.07740	0.08070	0.08530
6024.94	4.50	-3.0	4.557	-3.30780	-2.91080	-2.21850	-1.35570	-0.23710	-0.84390	-0.81340	-0.35140	-0.15540	-0.20460	-0.10250	-0.03920	0.06730	0.07260	0.08220
6037.83	4.50	-4.0	4.548	-3.24760	-2.83500	-2.15070	-1.33370	-0.24570	-0.82850	-0.80980	-0.36070	-0.16560	-0.21540	-0.11340	-0.05060	0.05640	0.06200	0.07210
6432.73	4.00	0.0	4.273	-4.28620	-3.89330	-2.86180	-1.52860	-0.12360	-0.81550	-0.73210	-0.15750	0.00560	-0.02900	0.03880	0.08750	0.11950	0.11020	0.08200
6455.69	4.00	-0.5	4.258	-3.68420	-3.39380	-2.59260	-1.45590	-0.14600	-0.76020	-0.70710	-0.17670	-0.02300	-0.05770	0.00690	0.05280	0.08780	0.07940	0.05310
6413.03	4.00	-1.0	4.286	-3.36520	-3.10520	-2.42260	-1.41290	-0.17120	-0.74280	-0.70720	-0.20860	-0.05750	-0.09290	-0.02600	0.02020	0.06510	0.05900	0.03820
6419.24	4.00	-2.0	4.282	-3.03460	-2.75760	-2.16940	-1.35600	-0.20270	-0.70040	-0.70080	-0.24360	-0.09660	-0.13380	-0.06680	-0.02220	0.02960	0.02540	0.00870
6470.07	4.00	-3.0	4.248	-2.88100	-2.58840	-2.03210	-1.31670	-0.21940	-0.67660	-0.69120	-0.25550	-0.11410	-0.15170	-0.08830	-0.04660	0.00280	-0.00150	-0.01880
6491.09	4.00	-4.0	4.234	-2.82660	-2.52910	-1.98700	-1.30580	-0.23160	-0.67220	-0.69330	-0.26720	-0.12730	-0.16500	-0.10240	-0.06140	-0.01240	-0.01660	-0.03380
6491.63	4.50	0.0	4.234	-4.13110	-3.75150	-2.74120	-1.43920	-0.12820	-0.83460	-0.72370	-0.15930	0.00090	-0.03250	0.03200	0.07980	0.10780	0.09710	0.06410
6503.68	4.50	-0.5	4.225	-3.51320	-3.24160	-2.47070	-1.36050	-0.15700	-0.77840	-0.70250	-0.19020	-0.03710	-0.07170	-0.00750	0.03820	0.07310	0.06400	0.03470
6435.89	4.50	-1.0	4.271	-3.26000	-3.00600	-2.33490	-1.33160	-0.18190	-0.77570	-0.71440	-0.22800	-0.07110	-0.10820	-0.03840	0.00920	0.05740	0.05100	0.02880
6500.28	4.50	-2.0	4.228	-2.84670	-2.59080	-2.04180	-1.26880	-0.21840	-0.72390	-0.69910	-0.25810	-0.11200	-0.14950	-0.08540	-0.04240	0.00540	-0.00010	-0.02110
6499.46	4.50	-3.0	4.228	-2.78240	-2.49080	-1.94430	-1.24290	-0.23510	-0.71230	-0.70290	-0.28140	-0.13310	-0.17250	-0.10570	-0.06220	-0.00940	-0.01380	-0.03230
6507.77	4.50	-4.0	4.223	-2.75220	-2.45070	-1.91010	-1.23620	-0.24570	-0.71020	-0.70750	-0.29390	-0.14510	-0.18510	-0.11770	-0.07420	-0.02030	-0.02440	-0.04220
6907.57	4.50	0.0	3.964	-3.42390	-3.18340	-2.42990	-1.33180	-0.12370	-0.66670	-0.61000	-0.10150	0.01830	-0.00850	0.02700	0.05730	0.04250	0.02450	-0.03020
6986.84 7000.57	4.50 4.50	-0.5 -3.0	3.914 3.906	-2.95270	-2.76460	-2.18630 -1.79960	-1.28220 -1.21700	-0.15520 -0.24040	-0.62440 -0.61870	-0.59530 -0.62820	-0.12640 -0.22190	-0.01790 -0.11730	-0.04430 -0.14720	-0.01380	0.01210 -0.09060	-0.00380	-0.02150 -0.10480	-0.07600
/000.3/	4.30	-3.0	3.900	-2.45930	-2.23910	-1./9900	-1.21/00	-0.24040	-0.016/0	-0.02820	-0.22190	-0.11/30	-0.14/20	-0.11460	-0.09000	-0.09090	-0.10460	-0.14990