

Table 1. Median values and 68% confidence interval for OGLE-TR-1014.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$0.93^{+0.21}_{-0.11}$
R_*	Radius (R_\odot)	$1.93^{+0.15}_{-0.14}$
$R_{*,SED}$	Radius ¹ (R_\odot)	1.88 ± 0.15
L_*	Luminosity (L_\odot)	$4.4^{+1.8}_{-1.2}$
F_{Bol}	Bolometric Flux (cgs)	$0.00000000116^{+0.000000000043}_{-0.000000000030}$
ρ_*	Density (cgs)	$0.187^{+0.068}_{-0.044}$
$\log g$	Surface gravity (cgs)	$3.842^{+0.11}_{-0.086}$
T_{eff}	Effective Temperature (K)	6020^{+640}_{-560}
$T_{eff,SED}$	Effective Temperature ¹ (K)	6090^{+680}_{-580}
[Fe/H]	Metallicity (dex)	$-0.76^{+0.47}_{-1.2}$
[Fe/H] ₀	Initial Metallicity ²	$-0.66^{+0.43}_{-1.0}$
Age	Age (Gyr)	$8.6^{+3.5}_{-3.9}$
EEP	Equal Evolutionary Phase ³	$460.9^{+6.6}_{-11}$
A_V	V-band extinction (mag)	$1.83^{+0.42}_{-0.39}$
σ_{SED}	SED photometry error scaling	$17.7^{+2.8}_{-2.2}$
ϖ	Parallax (mas)	0.909 ± 0.052
d	Distance (pc)	1100^{+67}_{-60}
Planetary Parameters:		
		b
P	Period (days)	$12.06657^{+0.00019}_{-0.00018}$
R_P	Radius (R_J)	$0.944^{+0.070}_{-0.067}$
M_P	Mass ⁴ (M_J)	53^{+21}_{-28}
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455379.955^{+0.034}_{-0.030}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455379.955^{+0.034}_{-0.030}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	$2457069.278^{+0.017}_{-0.016}$
a	Semi-major axis (AU)	$0.1023^{+0.0068}_{-0.0040}$
i	Inclination (Degrees)	$88.1^{+1.3}_{-1.2}$
T_{eq}	Equilibrium temperature ⁸ (K)	1252^{+110}_{-91}
τ_{circ}	Tidal circularization timescale (Gyr)	11200^{+8700}_{-6800}
K	RV semi-amplitude ⁴ (m/s)	4700^{+1900}_{-2400}
R_P/R_*	Radius of planet in stellar radii	$0.0504^{+0.0034}_{-0.0033}$
a/R_*	Semi-major axis in stellar radii	$11.48^{+1.2}_{-0.99}$
δ	$(R_P/R_*)^2$	$0.00254^{+0.00035}_{-0.00033}$
δ_I	Transit depth in I (fraction)	$0.00279^{+0.00037}_{-0.00035}$
δ_V	Transit depth in V (fraction)	$0.00300^{+0.00040}_{-0.00039}$
τ	Ingress/egress transit duration (days)	$0.0183^{+0.0042}_{-0.0024}$
T_{14}	Total transit duration (days)	$0.321^{+0.029}_{-0.035}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values	
T_{FWHM} . . .	FWHM transit duration (days)	$0.303^{+0.029}_{-0.036}$	
b	Transit Impact parameter	$0.39^{+0.20}_{-0.25}$	
$\delta_{S,2.5\mu m}$. . .	Blackbody eclipse depth at $2.5\mu m$ (ppm)	$41.3^{+13}_{-9.9}$	
$\delta_{S,5.0\mu m}$. . .	Blackbody eclipse depth at $5.0\mu m$ (ppm)	173^{+30}_{-26}	
$\delta_{S,7.5\mu m}$. . .	Blackbody eclipse depth at $7.5\mu m$ (ppm)	262^{+39}_{-35}	
ρ_P	Density ⁴ (cgs)	78^{+41}_{-43}	
$\log g_P$	Surface gravity ⁴	$5.17^{+0.16}_{-0.34}$	
Θ	Safronov Number	$12.1^{+5.5}_{-6.5}$	
$\langle F \rangle$	Incident Flux ($10^9 \text{ erg s}^{-1} \text{ cm}^{-2}$)	$0.56^{+0.22}_{-0.15}$	
T_P	Time of Periastron (BJD _{TDB})	$2455379.955^{+0.034}_{-0.030}$	
T_S	Time of eclipse (BJD _{TDB})	$2455385.988^{+0.034}_{-0.030}$	
T_A	Time of Ascending Node (BJD _{TDB})	$2455389.005^{+0.033}_{-0.030}$	
T_D	Time of Descending Node (BJD _{TDB})	$2455382.972^{+0.033}_{-0.030}$	
V_c/V_e	1.00	
$M_P \sin i$	Minimum mass ⁴ (M_J)	53^{+21}_{-28}	
M_P/M_*	Mass ratio ⁴	$0.052^{+0.025}_{-0.027}$	
d/R_*	Separation at mid transit	$11.48^{+1.2}_{-0.99}$	
P_T	A priori non-grazing transit prob	$0.0827^{+0.0079}_{-0.0080}$	
$P_{T,G}$	A priori transit prob	$0.0915^{+0.0084}_{-0.0087}$	
Wavelength Parameters:		I	V
u_1	linear limb-darkening coeff	$0.226^{+0.078}_{-0.064}$	$0.377^{+0.096}_{-0.068}$
u_2	quadratic limb-darkening coeff	$0.285^{+0.052}_{-0.053}$	$0.288^{+0.056}_{-0.062}$
Transit Parameters:		OGLE UT 2010-07-02 (I)	OGLE UT 2010-07-02 (V)
σ^2	Added Variance	$0.00004042^{+0.00000056}_{-0.00000055}$	$0.0000071^{+0.0000015}_{-0.0000013}$
F_0	Baseline flux	1.000510 ± 0.000057	0.99974 ± 0.00027

See Table 3 in Eastman, J. et al., 2019, arXiv:1907.09480 for a detailed description of all parameters

¹This value ignores the systematic error and is for reference only

²The metallicity of the star at birth

³Corresponds to static points in a star's evolutionary history. See §2 in Dotter, A., 2016, ApJS, 222, 8

⁴Uses measured radius and estimated mass from Chen, J., & Kipping, D. 2017, ApJ, 834, 17

⁵Time of conjunction is commonly reported as the "transit time"

⁶Time of minimum projected separation is a more correct "transit time"

⁷Optimal time of conjunction minimizes the covariance between T_C and Period

⁸Assumes no albedo and perfect redistribution