

**Table 1.** Median values and 68% confidence interval for OGLE-TR-1091.

Parameter	Units	Values
Stellar Parameters:		
$M_*$ . . . . .	Mass ( $M_\odot$ ) . . . . .	$0.146^{+0.10}_{-0.036}$
$R_*$ . . . . .	Radius ( $R_\odot$ ) . . . . .	$0.971^{+0.082}_{-0.069}$
$R_{*,SED}$ . . . . .	Radius <sup>1</sup> ( $R_\odot$ ) . . . . .	$0.987^{+0.098}_{-0.083}$
$L_*$ . . . . .	Luminosity ( $L_\odot$ ) . . . . .	$0.157^{+0.045}_{-0.028}$
$F_{Bol}$ . . . . .	Bolometric Flux (cgs) . . . . .	$0.0000000001290^{+0.0000000000018}_{-0.00000000000091}$
$\rho_*$ . . . . .	Density (cgs) . . . . .	$0.231^{+0.15}_{-0.067}$
$\log g$ . . . . .	Surface gravity (cgs) . . . . .	$3.63^{+0.22}_{-0.13}$
$T_{eff}$ . . . . .	Effective Temperature (K) . . . . .	$3670^{+170}_{-100}$
$T_{eff,SED}$ . . . . .	Effective Temperature <sup>1</sup> (K) . . . . .	$3635^{+150}_{-72}$
[Fe/H] . . . . .	Metallicity (dex) . . . . .	$-1.40^{+0.67}_{-1.0}$
[Fe/H] <sub>0</sub> . . . . .	Initial Metallicity <sup>2</sup> . . . . .	$-1.42^{+0.67}_{-1.0}$
Age . . . . .	Age (Gyr) . . . . .	$0.00103^{+0.00095}_{-0.00052}$
EEP . . . . .	Equal Evolutionary Phase <sup>3</sup> . . . . .	$80^{+24}_{-18}$
$A_V$ . . . . .	V-band extinction (mag) . . . . .	$0.20^{+0.27}_{-0.14}$
$\sigma_{SED}$ . . . . .	SED photometry error scaling . . . . .	$9.3^{+1.5}_{-1.2}$
$\varpi$ . . . . .	Parallax (mas) . . . . .	$1.61 \pm 0.15$
$d$ . . . . .	Distance (pc) . . . . .	$620^{+65}_{-53}$
Planetary Parameters:		
		b
$P$ . . . . .	Period (days) . . . . .	$55.74533^{+0.00038}_{-0.00037}$
$R_P$ . . . . .	Radius ( $R_J$ ) . . . . .	$1.073^{+0.10}_{-0.088}$
$M_P$ . . . . .	Mass <sup>4</sup> ( $M_J$ ) . . . . .	$35^{+36}_{-26}$
$T_C$ . . . . .	Time of conjunction <sup>5</sup> (BJD <sub>TDB</sub> ) . . . . .	$2455427.429^{+0.014}_{-0.015}$
$T_T$ . . . . .	Time of minimum projected separation <sup>6</sup> (BJD <sub>TDB</sub> ) . . . . .	$2455427.429^{+0.014}_{-0.015}$
$T_0$ . . . . .	Optimal conjunction Time <sup>7</sup> (BJD <sub>TDB</sub> ) . . . . .	$2457211.2798^{+0.0082}_{-0.0086}$
$a$ . . . . .	Semi-major axis (AU) . . . . .	$0.164^{+0.026}_{-0.016}$
$i$ . . . . .	Inclination (Degrees) . . . . .	$88.92^{+0.37}_{-0.29}$
$T_{eq}$ . . . . .	Equilibrium temperature <sup>8</sup> (K) . . . . .	$431^{+34}_{-32}$
$\tau_{circ}$ . . . . .	Tidal circularization timescale (Gyr) . . . . .	$1300000^{+2800000}_{-1100000}$
$K$ . . . . .	RV semi-amplitude <sup>4</sup> (m/s) . . . . .	$5500^{+4700}_{-3900}$
$R_P/R_*$ . . . . .	Radius of planet in stellar radii . . . . .	$0.1137 \pm 0.0049$
$a/R_*$ . . . . .	Semi-major axis in stellar radii . . . . .	$36.4^{+5.8}_{-4.3}$
$\delta$ . . . . .	$(R_P/R_*)^2$ . . . . .	$0.0129 \pm 0.0011$
$\delta_I$ . . . . .	Transit depth in I (fraction) . . . . .	$0.01329^{+0.00095}_{-0.00088}$
$\delta_V$ . . . . .	Transit depth in V (fraction) . . . . .	$0.01364^{+0.00092}_{-0.00086}$
$\tau$ . . . . .	Ingress/egress transit duration (days) . . . . .	$0.077^{+0.027}_{-0.023}$
$T_{14}$ . . . . .	Total transit duration (days) . . . . .	$0.429^{+0.026}_{-0.024}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values	
$T_{FWHM}$ . . .	FWHM transit duration (days) . . . . .	$0.350^{+0.023}_{-0.022}$	
$b$ . . . . .	Transit Impact parameter . . . . .	$0.688^{+0.084}_{-0.17}$	
$\delta_{S,2.5\mu m}$ . . .	Blackbody eclipse depth at $2.5\mu m$ (ppm) . . . . .	$0.081^{+0.14}_{-0.054}$	
$\delta_{S,5.0\mu m}$ . . .	Blackbody eclipse depth at $5.0\mu m$ (ppm) . . . . .	$19.7^{+13}_{-8.7}$	
$\delta_{S,7.5\mu m}$ . . .	Blackbody eclipse depth at $7.5\mu m$ (ppm) . . . . .	$105^{+46}_{-36}$	
$\rho_P$ . . . . .	Density <sup>4</sup> (cgs) . . . . .	$36^{+39}_{-28}$	
$\log g_P$ . . . . .	Surface gravity <sup>4</sup> . . . . .	$4.89^{+0.31}_{-0.63}$	
$\Theta$ . . . . .	Safronov Number . . . . .	$66^{+86}_{-51}$	
$\langle F \rangle$ . . . . .	Incident Flux ( $10^9 \text{ erg s}^{-1} \text{ cm}^{-2}$ ) . . . . .	$0.0079^{+0.0028}_{-0.0021}$	
$T_P$ . . . . .	Time of Periastron (BJD <sub>TDB</sub> ) . . . . .	$2455427.429^{+0.014}_{-0.015}$	
$T_S$ . . . . .	Time of eclipse (BJD <sub>TDB</sub> ) . . . . .	$2455399.557^{+0.014}_{-0.015}$	
$T_A$ . . . . .	Time of Ascending Node (BJD <sub>TDB</sub> ) . . . . .	$2455469.238^{+0.014}_{-0.015}$	
$T_D$ . . . . .	Time of Descending Node (BJD <sub>TDB</sub> ) . . . . .	$2455441.366^{+0.014}_{-0.015}$	
$V_c/V_e$ . . . . .	. . . . .	1.00	
$M_P \sin i$ . . . . .	Minimum mass <sup>4</sup> ( $M_J$ ) . . . . .	$35^{+35}_{-26}$	
$M_P/M_*$ . . . . .	Mass ratio <sup>4</sup> . . . . .	$0.20^{+0.26}_{-0.15}$	
$d/R_*$ . . . . .	Separation at mid transit . . . . .	$36.4^{+5.8}_{-4.3}$	
$P_T$ . . . . .	A priori non-grazing transit prob . . . . .	$0.0244^{+0.0032}_{-0.0033}$	
$P_{T,G}$ . . . . .	A priori transit prob . . . . .	$0.0306^{+0.0042}_{-0.0043}$	
Wavelength Parameters:		I	V
$u_1$ . . . . .	linear limb-darkening coeff . . . . .	$0.136^{+0.10}_{-0.072}$	$0.282^{+0.14}_{-0.082}$
$u_2$ . . . . .	quadratic limb-darkening coeff . . . . .	$0.430^{+0.064}_{-0.072}$	$0.408^{+0.066}_{-0.088}$
Transit Parameters:		OGLE UT 2010-08-18 (I)	OGLE UT 2010-08-18 (V)
$\sigma^2$ . . . . .	Added Variance . . . . .	$0.00002735^{+0.00000044}_{-0.00000043}$	$0.0000308^{+0.0000063}_{-0.0000055}$
$F_0$ . . . . .	Baseline flux . . . . .	$1.000152 \pm 0.000051$	$1.00009 \pm 0.00053$

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

<sup>1</sup>This value ignores the systematic error and is for reference only

<sup>2</sup>The metallicity of the star at birth

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

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

<sup>5</sup>Time of conjunction is commonly reported as the "transit time"

<sup>6</sup>Time of minimum projected separation is a more correct "transit time"

<sup>7</sup>Optimal time of conjunction minimizes the covariance between  $T_C$  and Period

<sup>8</sup>Assumes no albedo and perfect redistribution