

Table 1. Median values and 68% confidence interval for OGLE-TR-1045.

Parameter	Units	Values
Stellar Parameters:		
M_*	Mass (M_\odot)	$0.797^{+0.074}_{-0.038}$
R_*	Radius (R_\odot)	$1.317^{+0.052}_{-0.041}$
$R_{*,SED}$	Radius ¹ (R_\odot)	$1.356^{+0.11}_{-0.092}$
L_*	Luminosity (L_\odot)	$3.72^{+1.1}_{-0.63}$
F_{Bol}	Bolometric Flux (cgs)	$0.000000000360^{+0.000000000015}_{-0.0000000000074}$
ρ_*	Density (cgs)	0.498 ± 0.041
$\log g$	Surface gravity (cgs)	$4.106^{+0.025}_{-0.026}$
T_{eff}	Effective Temperature (K)	7000^{+370}_{-300}
$T_{eff,SED}$	Effective Temperature ¹ (K)	6930^{+340}_{-350}
[Fe/H]	Metallicity (dex)	$-4.18^{+0.99}_{-0.27}$
[Fe/H] ₀	Initial Metallicity ²	$-3.61^{+0.99}_{-0.27}$
Age	Age (Gyr)	$10.9^{+2.1}_{-2.9}$
EEP	Equal Evolutionary Phase ³	$432.0^{+5.7}_{-3.6}$
A_V	V-band extinction (mag)	$0.74^{+1.1}_{-0.70}$
σ_{SED}	SED photometry error scaling	31^{+32}_{-18}
ϖ	Parallax (mas)	$0.552^{+0.064}_{-0.051}$
d	Distance (pc)	1810 ± 190
Planetary Parameters:		
		b
P	Period (days)	$2.1355658^{+0.0000033}_{-0.0000038}$
R_P	Radius (R_J)	$2.228^{+0.082}_{-0.070}$
M_P	Mass ⁴ (M_J)	$0.4065^{+0.0055}_{-0.012}$
T_C	Time of conjunction ⁵ (BJD _{TDB})	$2455262.4665^{+0.0023}_{-0.0018}$
T_T	Time of minimum projected separation ⁶ (BJD _{TDB})	$2455262.4665^{+0.0023}_{-0.0018}$
T_0	Optimal conjunction Time ⁷ (BJD _{TDB})	$2456071.8459^{+0.0015}_{-0.0014}$
a	Semi-major axis (AU)	$0.03010^{+0.00090}_{-0.00048}$
i	Inclination (Degrees)	$88.97^{+0.75}_{-1.1}$
T_{eq}	Equilibrium temperature ⁸ (K)	2227^{+120}_{-91}
τ_{circ}	Tidal circularization timescale (Gyr)	$0.000517^{+0.000079}_{-0.000068}$
K	RV semi-amplitude ⁴ (m/s)	$73.8^{+3.1}_{-4.3}$
R_P/R_*	Radius of planet in stellar radii	$0.1737^{+0.0040}_{-0.0035}$
a/R_*	Semi-major axis in stellar radii	$4.93^{+0.13}_{-0.14}$
δ	$(R_P/R_*)^2$	$0.0302^{+0.0014}_{-0.0012}$
δ_I	Transit depth in I (fraction)	0.0332 ± 0.0014
δ_V	Transit depth in V (fraction)	0.0359 ± 0.0019
τ	Ingress/egress transit duration (days)	$0.02462^{+0.00083}_{-0.00068}$
T_{14}	Total transit duration (days)	$0.1623^{+0.0045}_{-0.0037}$

Table 1 continued on next page

Table 1 (continued)

Parameter	Units	Values	
T_{FWHM} ..	FWHM transit duration (days)	0.1377 ^{+0.0040} _{-0.0033}	
b	Transit Impact parameter	0.089 ^{+0.091} _{-0.064}	
$\delta_{S,2.5\mu m}$..	Blackbody eclipse depth at 2.5 μm (ppm)	3150 ⁺²⁴⁰ ₋₂₃₀	
$\delta_{S,5.0\mu m}$..	Blackbody eclipse depth at 5.0 μm (ppm)	5810 ⁺²⁷⁰ ₋₂₈₀	
$\delta_{S,7.5\mu m}$..	Blackbody eclipse depth at 7.5 μm (ppm)	6950 ⁺²⁸⁰ ₋₃₀₀	
ρ_P	Density ⁴ (cgs)	0.0452 \pm 0.0046	
$\log g_P$	Surface gravity ⁴	2.304 ^{+0.028} _{-0.031}	
Θ	Safronov Number	0.01368 ^{+0.00074} _{-0.0012}	
$\langle F \rangle$	Incident Flux (10 ⁹ erg s ⁻¹ cm ⁻²)	5.58 ^{+1.3} _{-0.85}	
T_P	Time of Periastron (BJD _{TDB})	2455262.4665 ^{+0.0023} _{-0.0018}	
T_S	Time of eclipse (BJD _{TDB})	2455263.5342 ^{+0.0023} _{-0.0018}	
T_A	Time of Ascending Node (BJD _{TDB})	2455264.0681 ^{+0.0023} _{-0.0018}	
T_D	Time of Descending Node (BJD _{TDB})	2455263.0003 ^{+0.0023} _{-0.0018}	
V_c/V_e	1.00	
$M_P \sin i$..	Minimum mass ⁴ (M_J)	0.4064 ^{+0.0055} _{-0.012}	
M_P/M_*	Mass ratio ⁴	0.000482 ^{+0.000028} _{-0.000041}	
d/R_*	Separation at mid transit	4.93 ^{+0.13} _{-0.14}	
P_T	A priori non-grazing transit prob	0.1674 ^{+0.0054} _{-0.0045}	
$P_{T,G}$	A priori transit prob	0.2379 ^{+0.0067} _{-0.0058}	
Wavelength Parameters:		I	V
u_1	linear limb-darkening coeff	0.181 ^{+0.052} _{-0.049}	0.325 ^{+0.048} _{-0.053}
u_2	quadratic limb-darkening coeff	0.298 \pm 0.052	0.307 ^{+0.047} _{-0.051}
Transit Parameters:		OGLE UT 2010-03-06 (I)	OGLE UT 2010-03-06 (V)
σ^2	Added Variance	0.0001120 ^{+0.0000044} _{-0.000039}	0.000182 ^{+0.00021} _{-0.00085}
F_0	Baseline flux	1.00000 ^{+0.00028} _{-0.00029}	0.9972 ^{+0.0052} _{-0.0056}

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