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Supplementary information

An ultrahot Neptune in the Neptune desert

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Supplementary Table 1: Stellar properties of LTT 9779

Alternative Names	TIC 183985250	TESS
	HIP 117883	HIPPARCOS
	2MASS J23544020-3737408	2MASS
	TYC 8015-1162-1	TYCHO
Catalogue Data		
RA (J2000)	23h54m40.60s	TESS
DEC (J2000)	-37d37m42.18s	TESS
pm^{RA} (mas yr^{-1})	247.615±0.076	GAIA
pm^{DEC} (mas yr^{-1})	-69.801±0.062	GAIA
π (mas)	12.403±0.049	GAIA
Photometric Data		
T (mag)	9.10±0.02	TESS
B (mag)	10.55±0.04	TYCHO
V (mag)	9.76±0.03	TYCHO
G (mag)	9.6001±0.0003	GAIA
J (mag)	8.45±0.02	2MASS
K (mag)	8.15±0.02	2MASS
K_s (mag)	8.02±0.03	2MASS
WISE1 (mag)	7.94±0.02	WISE
WISE2 (mag)	8.02±0.02	WISE
WISE3 (mag)	8.00±0.02	WISE
Spectroscopic, Photometric and Derived Properties		
T_{eff} (K)	5445±84	SPECIES
log *g* (dex)	4.43±0.31	SPECIES
[Fe/H] (dex)	+0.25±0.08	SPECIES
v sin*i* (km s^{-1})	1.06±0.37	SPECIES

v_{mac} (km s^{-1})	1.98±0.29	SPECIES
T_{eff} (K)	5496±80	ZASPE
log g (dex)	4.51±0.01	ZASPE
[Fe/H] (dex)	+0.24±0.05	ZASPE
v sin$i$ (km s^{-1})	1.7±0.5	ZASPE
T_{eff} (K)	5499±50	SPC
log g (dex)	4.47±0.10	SPC
[m/H] (dex)	+0.31±0.08	SPC
v sin$i$ (km s^{-1})	2.2±0.5	SPC
T_{eff} (K)	5443^{+14}_{-13}	ARIADNE
log g (dex)	$4.35^{+0.16}_{-0.12}$	ARIADNE
[Fe/H] (dex)	+0.27±0.03	ARIADNE
M_* ($M_\odot$)	$1.03^{+0.03}_{-0.04}$	SPECIES + MIST
M_* ($M_\odot$)	$1.00^{+0.02}_{-0.03}$	YY + GAIA
M_* ($M_\odot$)	$0.77^{+0.29}_{-0.21}$	ARIADNE
R_* ($M_\odot$)	0.95±0.01	SPECIES + MIST
R_* ($M_\odot$)	0.92±0.01	GAIA + this work
R_* ($M_\odot$)	0.949±0.006	ARIADNE
L_* ($M_\odot$)	0.68±0.04	YY + GAIA
L_* ($M_\odot$)	0.71±0.01	ARIADNE
MV (mag)	5.30±0.07	YY + GAIA
Age (Gyr)	$2.1^{+2.2}_{-1.4}$	SPECIES + MIST
Age (Gyr)	$1.9^{+1.7}_{-1.2}$	YY + GAIA
ρ_* (g cm^{-3})	$1.81^{+0.06}_{-0.07}$	YY + GAIA
Spectral Type	G7V	This work
$< S_{HARPS} >$	0.148±0.008	This work
$< logR'_{HK,HARPS} >$	-5.10±0.04	This work

$P_{rot,vsini}$ (days)	45	This work

Supplementary Table 2: Radial velocities of LTT 9779

JD - 2450000	RV (m s-1)	Uncertainty (m s-1)	Instrument
8429.51804	-10.59	0.86	HARPS
8430.54022	-16.91	0.74	HARPS
8430.59553	-9.41	0.68	HARPS
8430.67911	1.99	0.79	HARPS
8430.76201	13.40	1.21	HARPS
8431.51068	6.71	0.61	HARPS
8431.64346	16.09	0.83	HARPS
8431.69130	14.98	0.87	HARPS
8431.73217	8.41	0.55	HARPS
8432.50941	12.77	0.73	HARPS
8432.65689	-7.23	0.94	HARPS
8432.69804	-13.45	1.06	HARPS
8432.72573	-18.32	4.02	HARPS
8464.53817	-25.17	1.02	HARPS
8464.64153	-16.81	1.11	HARPS
8464.68616	-10.08	1.27	HARPS
8465.53024	0.00	0.85	HARPS
8465.59314	10.82	0.84	HARPS
8465.64411	12.09	0.86	HARPS
8465.68104	15.61	1.12	HARPS
8466.52022	14.89	1.03	HARPS
8466.58232	8.12	0.90	HARPS
8466.63157	2.49	1.09	HARPS

8466.66865	-2.85	1.10	HARPS
8481.53213	14.93	0.94	HARPS
8481.57805	12.72	0.84	HARPS
8482.53643	-8.75	0.74	HARPS
8482.57255	-11.89	0.82	HARPS
8482.60140	-16.09	0.90	HARPS
8483.52686	-24.82	0.80	HARPS
8483.59338	-20.68	1.12	HARPS
8483.61557	-18.95	0.93	HARPS
8438.56440	-14.80	4.50	CORALIE
8438.62857	-7.40	4.60	CORALIE
8438.72084	10.40	5.00	CORALIE
8439.56828	35.30	5.60	CORALIE
8439.64481	3.80	4.80	CORALIE
8439.70910	-11.70	5.20	CORALIE
8440.56824	4.90	4.70	CORALIE
8440.64498	-13.20	4.70	CORALIE
8440.70927	-27.70	5.00	CORALIE
8441.57027	-16.30	4.20	CORALIE
8441.66132	-17.50	4.60	CORALIE
8441.74898	1.00	4.50	CORALIE
8442.56932	-0.60	4.50	CORALIE
8442.64202	11.60	4.90	CORALIE
8442.70651	0.60	5.00	CORALIE
8443.57400	20.10	5.00	CORALIE
8443.64711	-0.70	4.70	CORALIE
8443.71686	5.60	4.80	CORALIE