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High-precision photometry by telescope defocussing. VIII. WASP-22, WASP-41, WASP-42 and WASP-55*

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ABSTRACT

We present 13 high-precision and four additional light curves of four bright southern-hemisphere transiting planetary systems: WASP-22, WASP-41, WASP-42 and WASP-55. In the cases of WASP-42 and WASP-55, these are the first follow-up observations since their discovery papers. We present refined measurements of the physical properties and orbital ephemerides of all four systems. No indications of transit timing variations were seen. All four planets have radii inflated above those expected from theoretical models of gas-giant planets; WASP-55 b is the most discrepant with a mass of $0.63\,\mathrm{M_{Jup}}$ and a radius of $1.34\,\mathrm{R_{Jup}}$. WASP-41 shows brightness anomalies during transit due to the planet occulting spots on the stellar surface. Two anomalies observed 3.1 d apart are very likely due to the same spot. We measure its change in position and determine a rotation period for the host star of 18.6 ± 1.5 d, in good agreement with a published measurement from spot-induced brightness modulation, and a sky-projected orbital obliquity of $\lambda = 6 \pm 11^{\circ}$. We conclude with a compilation of obliquity measurements from spot-tracking analyses and a discussion of this technique in the study of the orbital configurations of hot Jupiters.

Key words: stars: planetary systems — stars: fundamental parameters — stars: individual: WASP-22, WASP-41, WASP-42, WASP-55

APPENDIX A: FULL RESULTS FOR THE LIGHT CURVES ANALYSED IN THIS WORK

The tables in this Appendix contain the detailed results of the JKTEBOP modelling of the light curves of the four planetary systems. Note that whilst all the results are best fits to the relevant data, some parameters are unphysical (for example some limb darkening coefficients imply that the limb of the star produces a negative amount of light). In these cases the unphysical results have *not* been used but are retained in the tables for completeness.

REFERENCES

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⋆ Based on data collected by MiNDSTEp with the Danish 1.54 m telescope at the ESO La Silla Observatory.
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Table A1. Parameters of the JKTEBOP best fits of the WASP-22 I-band light curve from DFOSC, using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as BJD(TDB) − 2456000.0. The light curve contains 674 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	$0.1294^{+0.0039}_{-0.0015}$	$0.1285^{+0.0035}_{-0.0006}$	$0.1281^{+0.0033}_{-0.0005}$	$0.1282^{+0.0033}_{-0.0006}$	$0.1295^{+0.0029}_{-0.0025}$
k	$0.09863^{+0.00088}_{-0.00050}$	$0.09872^{+0.00059}_{-0.00046}$	$0.09902^{+0.00061}_{-0.00044}$	$0.09909^{+0.00055}_{-0.00041}$	$0.10068^{+0.00052}_{-0.00055}$
i (deg.)	$89.12^{+0.96}_{-0.95}$	$89.95^{+0.47}_{-1.14}$	$89.91^{+0.41}_{-1.16}$	$89.91^{+0.40}_{-1.17}$	$88.68^{+1.29}_{-0.62}$
$u_{\rm A}$	0.55 fixed	0.38 fixed	0.12 fixed	0.66 fixed	0.35 fixed
$v_{\rm A}$		0.24 fixed	0.61 fixed	0.28 fixed	0.12 fixed
T_0	$560.75245^{+0.00017}_{-0.00017}$	$560.75244^{+0.00017}_{-0.00017}$	$560.75243^{+0.00015}_{-0.00016}$	$560.75243^{+0.00016}_{-0.00017}$	$560.75242^{+0.00015}_{-0.00016}$
$r_{\rm A}$	$0.1178^{+0.0035}_{-0.0013}$	$0.1169^{+0.0031}_{-0.0006}$	$0.1166^{+0.0029}_{-0.0005}$	$0.1166^{+0.0030}_{-0.0005}$	$0.1176^{+0.0026}_{-0.0022}$
$r_{\rm b}$	$0.01162^{+0.00045}_{-0.00017}$	$0.01154^{+0.00036}_{-0.00010}$	$0.01154^{+0.00035}_{-0.00009}$	$0.01155^{+0.00035}_{-0.00008}$	$0.01184^{+0.00032}_{-0.00028}$
σ ($m$mag)	1.0234	1.0128	1.0082	1.0079	1.0065
$\chi^2_{\rm red}$	1.0852	1.0654	1.0559	1.0568	1.0610
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	$0.1292^{+0.0035}_{-0.0021}$	$0.1285^{+0.0037}_{-0.0012}$	$0.1284^{+0.0033}_{-0.0012}$	$0.1282^{+0.0034}_{-0.0010}$	$0.1287^{+0.0034}_{-0.0016}$
k	$0.10026^{+0.00071}_{-0.00061}$	$0.09950^{+0.00072}_{-0.00065}$	$0.09958^{+0.00069}_{-0.00057}$	$0.09938^{+0.00077}_{-0.00060}$	$0.09979^{+0.00073}_{-0.00061}$
i (deg.)	$88.78^{+1.16}_{-0.82}$	$89.37^{+0.82}_{-0.97}$	$89.31^{+0.87}_{-0.85}$	$89.59^{+0.70}_{-1.03}$	$89.11^{+0.99}_{-0.86}$
$u_{\rm A}$	$0.436^{+0.023}_{-0.022}$	$0.325^{+0.034}_{-0.038}$	$0.085^{+0.042}_{-0.040}$	$0.640^{+0.056}_{-0.055}$	$0.410^{+0.027}_{-0.028}$
$v_{\rm A}$		0.24 perturbed	0.61 perturbed	0.28 perturbed	0.12 perturbed
T_0	$560.75243^{+0.00014}_{-0.00017}$	$560.75243^{+0.00016}_{-0.00017}$	$560.75243^{+0.00016}_{-0.00015}$	$560.75243^{+0.00015}_{-0.00016}$	$560.75243^{+0.00015}_{-0.00015}$
$r_{\rm A}$	$0.1175^{+0.0032}_{-0.0019}$	$0.1168^{+0.0032}_{-0.0010}$	$0.1168^{+0.0030}_{-0.0011}$	$0.1166^{+0.0030}_{-0.0009}$	$0.1170^{+0.0030}_{-0.0015}$
$r_{\rm b}$	$0.01178^{+0.00040}_{-0.00023}$	$0.01162^{+0.00041}_{-0.00014}$	$0.01163^{+0.00036}_{-0.00015}$	$0.01159^{+0.00039}_{-0.00012}$	$0.01168^{+0.00039}_{-0.00018}$
σ ($m$mag)	1.0040	1.0076	1.0055	1.0067	1.0051
$\chi^2_{\rm red}$	1.0481	1.0580	1.0527	1.0558	1.0514

Table A2. Parameters of the JKTEBOP best fits of the WASP-22 TRAPPIST light curve from Anderson et al. (2011), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 843 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	$0.1333^{+0.0077}_{-0.0054}$	$0.1279^{+0.0111}_{-0.0026}$	$0.1293^{+0.0073}_{-0.0022}$	$0.1284^{+0.0070}_{-0.0027}$	$0.1328^{+0.0067}_{-0.0054}$
k	$0.0929^{+0.0017}_{-0.0013}$	$0.0929^{+0.0015}_{-0.0011}$	$0.0931^{+0.0013}_{-0.0011}$	$0.0930^{+0.0013}_{-0.0012}$	$0.0953^{+0.0012}_{-0.0011}$
i (deg.)	$88.0^{+1.9}_{-1.1}$	$90.0^{+1.2}_{-1.8}$	$88.9^{+1.2}_{-1.3}$	$89.3^{+1.3}_{-1.3}$	$87.8^{+1.8}_{-1.0}$
$u_{\rm A}$	0.49 fixed	0.23 fixed	0.07 fixed	0.58 fixed	0.20 fixed
$v_{\rm A}$		0.32 fixed	0.56 fixed	0.27 fixed	0.15 fixed
T_0	$532.72692^{+0.00041}_{-0.00039}$	$532.72689^{+0.00037}_{-0.00043}$	$532.72690^{+0.00037}_{-0.00037}$	$532.72690^{+0.00037}_{-0.00039}$	$532.72690^{+0.00037}_{-0.00036}$
$r_{\rm A}$	$0.1220^{+0.0069}_{-0.0048}$	$0.1170^{+0.0100}_{-0.0023}$	$0.1183^{+0.0065}_{-0.0020}$	$0.1175^{+0.0063}_{-0.0024}$	$0.1213^{+0.0061}_{-0.0049}$
$r_{\rm b}$	$0.01133^{+0.00085}_{-0.00059}$	$0.01086^{+0.00108}_{-0.00031}$	$0.01102^{+0.00071}_{-0.00028}$	$0.01092^{+0.00071}_{-0.00030}$	$0.01156^{+0.00072}_{-0.00051}$
σ ($m$mag)	2.4033	2.3876	2.3884	2.3878	2.3802
$\chi^2_{\rm red}$	1.1228	1.1058	1.1062	1.1057	1.0970
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	$0.1324^{+0.0063}_{-0.0053}$	$0.1324^{+0.0079}_{-0.0046}$	$0.1331^{+0.0075}_{-0.0057}$	$0.1330^{+0.0069}_{-0.0053}$	$0.1325^{+0.0077}_{-0.0050}$
k	$0.0954^{+0.0013}_{-0.0012}$	$0.0949^{+0.0013}_{-0.0013}$	$0.0952^{+0.0014}_{-0.0012}$	$0.0951^{+0.0014}_{-0.0012}$	$0.0951^{+0.0014}_{-0.0012}$
i (deg.)	$87.9^{+1.8}_{-0.9}$	$88.0^{+1.8}_{-1.2}$	$87.8^{+1.9}_{-1.1}$	$87.9^{+2.0}_{-1.0}$	$87.9^{+1.9}_{-1.1}$
$u_{\rm A}$	$0.261^{+0.046}_{-0.056}$	$0.086^{+0.063}_{-0.069}$	$-0.075^{+0.061}_{-0.066}$	$0.437^{+0.067}_{-0.071}$	$0.217^{+0.059}_{-0.062}$
$v_{\rm A}$		0.32 perturbed	0.56 perturbed	0.27 perturbed	0.15 perturbed
T_0	$532.72691^{+0.00034}_{-0.00033}$	$532.72691^{+0.00035}_{-0.00039}$	$532.72690^{+0.00036}_{-0.00037}$	$532.72690^{+0.00037}_{-0.00033}$	$532.72690^{+0.00038}_{-0.00035}$
$r_{\rm A}$	$0.1209^{+0.0057}_{-0.0047}$	$0.1209^{+0.0070}_{-0.0042}$	$0.1215^{+0.0069}_{-0.0050}$	$0.1214^{+0.0062}_{-0.0047}$	$0.1210^{+0.0068}_{-0.0045}$
$r_{\rm b}$	$0.01153^{+0.00066}_{-0.00053}$	$0.01147^{+0.00080}_{-0.00049}$	$0.01157^{+0.00076}_{-0.00056}$	$0.01154^{+0.00071}_{-0.00053}$	$0.01151^{+0.00079}_{-0.00052}$
σ ($m$mag)	2.3798	2.3811	2.3800	2.3803	2.3801
$\chi^2_{\rm red}$	1.0974	1.0999	1.0982	1.0987	1.0982

Table A3. Parameters of the JKTEBOP best fits of the WASP-22 EulerCam light curve from Anderson et al. (2011), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 187 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	$0.1423^{+0.0077}_{-0.0075}$	$0.1538^{+0.0064}_{-0.0071}$	$0.1575^{+0.0066}_{-0.0073}$	$0.1563^{+0.0068}_{-0.0071}$	$0.1777^{+0.0052}_{-0.0056}$
k	$0.10051^{+0.00161}_{-0.00153}$	$0.10191^{+0.00121}_{-0.00128}$	$0.10288^{+0.00125}_{-0.00133}$	$0.10253^{+0.00126}_{-0.00118}$	$0.10527^{+0.00092}_{-0.00100}$
i (deg.)	$86.60^{+1.01}_{-0.79}$	$85.43^{+0.65}_{-0.55}$	$85.06^{+0.63}_{-0.56}$	$85.18^{+0.63}_{-0.56}$	$83.32^{+0.41}_{-0.36}$
$u_{\rm A}$	0.49 fixed	0.23 fixed	0.07 fixed	0.58 fixed	0.20 fixed
$v_{\rm A}$		0.32 fixed	0.56 fixed	0.27 fixed	0.15 fixed
T_0	$532.72658^{+0.00037}_{-0.00039}$	$532.72662^{+0.00035}_{-0.00036}$	$532.72665^{+0.00038}_{-0.00040}$	$532.72664^{+0.00038}_{-0.00036}$	$532.72676^{+0.00042}_{-0.00037}$
$r_{\rm A}$	$0.1293^{+0.0068}_{-0.0066}$	$0.1395^{+0.0057}_{-0.0063}$	$0.1428^{+0.0059}_{-0.0065}$	$0.1418^{+0.0060}_{-0.0063}$	$0.1607^{+0.0046}_{-0.0050}$
$r_{\rm b}$	$0.01299^{+0.00086}_{-0.00086}$	$0.01422^{+0.00074}_{-0.00077}$	$0.01469^{+0.00076}_{-0.00082}$	$0.01454^{+0.00079}_{-0.00075}$	$0.01692^{+0.00055}_{-0.00065}$
σ ($m$mag)	1.0516	1.0695	1.0787	1.0755	1.1202
$\chi^2_{\rm red}$	0.9092	0.9298	0.9453	0.9403	0.9831
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	$0.1424^{+0.0080}_{-0.0091}$	$0.1381^{+0.0109}_{-0.0078}$	$0.1413^{+0.0090}_{-0.0094}$	$0.1408^{+0.0094}_{-0.0092}$	$0.1412^{+0.0086}_{-0.0091}$
k	$0.0994^{+0.0021}_{-0.0023}$	$0.0973^{+0.0027}_{-0.0023}$	$0.0985^{+0.0024}_{-0.0025}$	$0.0982^{+0.0024}_{-0.0025}$	$0.0986^{+0.0020}_{-0.0025}$
i (deg.)	$86.7^{+1.3}_{-0.9}$	$87.4^{+2.4}_{-1.4}$	$86.9^{+1.9}_{-1.0}$	$87.0^{+1.8}_{-1.1}$	$86.9^{+1.6}_{-1.0}$
$u_{\rm A}$	$0.597^{+0.054}_{-0.057}$	$0.445^{+0.073}_{-0.075}$	$0.270^{+0.076}_{-0.066}$	$0.785^{+0.074}_{-0.082}$	$0.560^{+0.064}_{-0.061}$
$v_{\rm A}$		0.32 perturbed	0.56 perturbed	0.27 perturbed	0.15 perturbed
T_0	$532.72654^{+0.00037}_{-0.00033}$	$532.72653^{+0.00040}_{-0.00036}$	$532.72653^{+0.00038}_{-0.00038}$	$532.72653^{+0.00038}_{-0.00035}$	$532.72654^{+0.00037}_{-0.00036}$
$r_{\rm A}$	$0.1296^{+0.0071}_{-0.0081}$	$0.1259^{+0.0096}_{-0.0069}$	$0.1286^{+0.0080}_{-0.0082}$	$0.1282^{+0.0081}_{-0.0082}$	$0.1286^{+0.0076}_{-0.0080}$
$r_{\rm b}$	$0.0129^{+0.0009}_{-0.0010}$	$0.0123^{+0.0013}_{-0.0009}$	$0.0127^{+0.0011}_{-0.0011}$	$0.0126^{+0.0011}_{-0.0011}$	$0.0127^{+0.0010}_{-0.0011}$
σ ($m$mag)	1.0532	1.0497	1.0517	1.0511	1.0517
$\chi^2_{\rm red}$	0.8909	0.8808	0.8868	0.8847	0.8865

Table A4. Parameters of the JKTEBOP best fits of the WASP-41 I-band light curve from DFOSC, using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as BJD(TDB) − 2457000.0. The light curve contains 628 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	0.11445 ± 0.00105	0.11557 ± 0.00098	0.11541 ± 0.00109	0.11599 ± 0.00107	0.11993 ± 0.00090
k	0.13602 ± 0.00037	0.13672 ± 0.00031	0.13714 ± 0.00036	0.13739 ± 0.00033	0.14010 ± 0.00027
i (deg.)	89.07 ± 0.36	88.76 ± 0.23	88.72 ± 0.25	88.59 ± 0.22	87.75 ± 0.12
$u_{\rm A}$	0.53 fixed	0.31 fixed	0.14 fixed	0.62 fixed	0.30 fixed
$v_{\rm A}$		0.30 fixed	0.54 fixed	0.26 fixed	0.15 fixed
T_0	153.539421 ± 0.000049	153.539414 ± 0.000052	153.539412 ± 0.000052	153.539410 ± 0.000050	153.539403 ± 0.000049
$r_{\rm A}$	0.10074 ± 0.00090	0.10167 ± 0.00084	0.10149 ± 0.00093	0.10198 ± 0.00090	0.10520 ± 0.00078
$r_{\rm b}$	0.01370 ± 0.00016	0.01390 ± 0.00014	0.01392 ± 0.00016	0.01401 ± 0.00015	0.01474 ± 0.00013
σ ($m$mag)	0.6412	0.6354	0.6288	0.6344	0.6832
$\chi^2_{\rm red}$	1.0754	1.0560	1.0343	1.0531	1.2240
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	0.11546 ± 0.00104	0.11368 ± 0.00079	0.11488 ± 0.00115	0.11453 ± 0.00112	0.11472 ± 0.00117
k	0.13759 ± 0.00044	0.13542 ± 0.00056	0.13657 ± 0.00049	0.13613 ± 0.00060	0.13650 ± 0.00065
i (deg.)	88.63 ± 0.23	89.58 ± 0.48	88.91 ± 0.32	89.08 ± 0.42	88.95 ± 0.39
$u_{\rm A}$	0.467 ± 0.012	0.352 ± 0.028	0.162 ± 0.039	0.666 ± 0.054	0.443 ± 0.015
$v_{\rm A}$		0.30 perturbed	0.54 perturbed	0.26 perturbed	0.15 perturbed
T_0	153.539412 ± 0.000051	153.539418 ± 0.000052	153.539415 ± 0.000053	153.539416 ± 0.000050	153.539415 ± 0.000049
$r_{\rm A}$	0.10150 ± 0.00088	0.10012 ± 0.00068	0.10107 ± 0.00098	0.10081 ± 0.00094	0.10094 ± 0.00098
$r_{\rm b}$	0.01396 ± 0.00016	0.01356 ± 0.00013	0.01380 ± 0.00017	0.01372 ± 0.00018	0.01378 ± 0.00019
σ ($m$mag)	0.6267	0.6321	0.6272	0.6284	0.6272
$\chi^2_{\rm red}$	1.0276	1.0441	1.0289	1.0326	1.0290

Table A5. Parameters of the JKTEBOP best fits of the Danish Telescope R-band light curve of WASP-41 from Neveu-VanMalle et al. (2015), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as BJD(UTC) − 2456000.0. The light curve contains 102 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	0.11324 ± 0.00052	0.11299 ± 0.00043	0.11278 ± 0.00042	0.11312 ± 0.00047	0.11587 ± 0.00057
k	0.13585 ± 0.00023	0.13641 ± 0.00019	0.13629 ± 0.00019	0.13575 ± 0.00022	0.14015 ± 0.00021
i (deg.)	89.61 ± 0.35	89.71 ± 0.32	89.97 ± 0.31	89.89 ± 0.33	88.36 ± 0.10
$u_{\rm A}$	0.61 fixed	0.45 fixed	0.28 fixed	0.68 fixed	0.40 fixed
$v_{\rm A}$		0.21 fixed	0.48 fixed	0.12 fixed	0.10 fixed
T_0	402.648176 ± 0.000036	402.648171 ± 0.000036	402.648170 ± 0.000035	402.648176 ± 0.000035	402.648154 ± 0.000034
$r_{\rm A}$	0.09970 ± 0.00044	0.09942 ± 0.00037	0.09925 ± 0.00035	0.09960 ± 0.00040	0.10162 ± 0.00049
$r_{\rm b}$	0.013544 ± 0.000079	0.013562 ± 0.000066	0.013527 ± 0.000063	0.013521 ± 0.000071	0.014243 ± 0.000087
σ ($m$mag)	0.4947	0.4344	0.4380	0.4649	0.5117
$\chi^2_{\rm red}$	7.2640	5.5664	5.6666	6.4048	7.7330
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	0.11335 ± 0.00068	0.11272 ± 0.00055	0.11280 ± 0.00054	0.11279 ± 0.00058	0.11283 ± 0.00059
k	0.13788 ± 0.00035	0.13654 ± 0.00046	0.13688 ± 0.00030	0.13711 ± 0.00041	0.13709 ± 0.00050
i (deg.)	89.10 ± 0.24	89.96 ± 0.39	89.57 ± 0.36	89.48 ± 0.40	89.47 ± 0.41
$u_{\rm A}$	0.524 ± 0.007	0.441 ± 0.027	0.255 ± 0.039	0.616 ± 0.052	0.508 ± 0.012
$v_{\rm A}$		0.21 perturbed	0.48 perturbed	0.12 perturbed	0.10 perturbed
T_0	402.648162 ± 0.000035	402.648170 ± 0.000036	402.648166 ± 0.000036	402.648165 ± 0.000037	402.648165 ± 0.000037
$r_{\rm A}$	0.09961 ± 0.00058	0.09918 ± 0.00046	0.09922 ± 0.00046	0.09919 ± 0.00049	0.09923 ± 0.00050
$r_{\rm b}$	0.013735 ± 0.000114	0.013541 ± 0.000093	0.013581 ± 0.000086	0.013600 ± 0.000095	0.013603 ± 0.000103
σ ($m$mag)	0.4369	0.4336	0.4334	0.4338	0.4338
$\chi^2_{\rm red}$	5.6346	5.5413	5.5386	5.5500	5.5521

Table A6. Parameters of the JKTEBOP best fits of the TRAPPIST I+z-band light curve of WASP-41 from Neveu-VanMalle et al. (2015), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 2905 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	0.1161 ± 0.0021	0.1157 ± 0.0019	0.1148 ± 0.0017	0.1139 ± 0.0014	0.1212 ± 0.0018
k	0.13537 ± 0.00075	0.13664 ± 0.00058	0.13522 ± 0.00063	0.13490 ± 0.00057	0.13991 ± 0.00054
i (deg.)	88.76 ± 0.53	88.78 ± 0.47	89.13 ± 0.68	89.64 ± 0.59	87.64 ± 0.22
$u_{\rm A}$	0.51 fixed	0.25 fixed	0.17 fixed	0.65 fixed	0.25 fixed
$v_{\rm A}$		0.30 fixed	0.52 fixed	0.26 fixed	0.15 fixed
T_0	996.67838 ± 0.00013	996.67833 ± 0.00011	996.67836 ± 0.00013	996.67836 ± 0.00011	996.67835 ± 0.00011
$r_{\rm A}$	0.1022 ± 0.0018	0.1018 ± 0.0016	0.1012 ± 0.0015	0.1003 ± 0.0012	0.1063 ± 0.0015
$r_{\rm b}$	0.01384 ± 0.00031	0.01391 ± 0.00027	0.01368 ± 0.00025	0.01353 ± 0.00020	0.01487 ± 0.00026
σ ($m$mag)	3.4299	3.4117	3.4202	3.4176	3.4164
$\chi^2_{\rm red}$	1.2979	1.2808	1.2890	1.2866	1.2849
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	0.1189 ± 0.0020	0.1162 ± 0.0023	0.1182 ± 0.0022	0.1173 ± 0.0021	0.1186 ± 0.0021
k	0.13901 ± 0.00085	0.13702 ± 0.00094	0.13818 ± 0.00081	0.13763 ± 0.00092	0.13828 ± 0.00092
i (deg.)	87.97 ± 0.31	88.62 ± 0.52	88.16 ± 0.37	88.36 ± 0.39	88.10 ± 0.35
$u_{\rm A}$	0.357 ± 0.024	0.235 ± 0.039	0.060 ± 0.043	0.553 ± 0.057	0.325 ± 0.028
$v_{\rm A}$		0.30 perturbed	0.52 perturbed	0.26 perturbed	0.15 perturbed
T_0	996.67836 ± 0.00011	996.67833 ± 0.00011	996.67834 ± 0.00012	996.67834 ± 0.00011	996.67835 ± 0.00011
$r_{\rm A}$	0.1044 ± 0.0017	0.1022 ± 0.0019	0.1038 ± 0.0018	0.1031 ± 0.0018	0.1042 ± 0.0018
$r_{\rm b}$	0.01451 ± 0.00030	0.01401 ± 0.00034	0.01435 ± 0.00033	0.01419 ± 0.00031	0.01440 ± 0.00031
σ ($m$mag)	3.4148	3.4116	3.4136	3.4128	3.4134
$\chi^2_{\rm red}$	1.2838	1.2806	1.2825	1.2818	1.2824

Table A7. Parameters of the JKTEBOP best fits of the FTS light curve of WASP-41 from Neveu-VanMalle et al. (2015), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 190 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	0.1186 ± 0.0053	0.1168 ± 0.0044	0.1181 ± 0.0049	0.1175 ± 0.0048	0.1198 ± 0.0040
k	0.1339 ± 0.0018	0.1342 ± 0.0012	0.1337 ± 0.0015	0.1334 ± 0.0015	0.1367 ± 0.0012
i (deg.)	88.01 ± 0.84	88.25 ± 0.82	88.11 ± 0.80	88.22 ± 0.86	87.63 ± 0.51
$u_{\rm A}$	0.51 fixed	0.25 fixed	0.17 fixed	0.65 fixed	0.25 fixed
$v_{\rm A}$		0.30 fixed	0.52 fixed	0.26 fixed	0.15 fixed
T_0	663.96740 ± 0.00026	663.96740 ± 0.00025	663.96740 ± 0.00027	663.96740 ± 0.00022	663.96738 ± 0.00025
$r_{\rm A}$	0.1046 ± 0.0045	0.1029 ± 0.0038	0.1042 ± 0.0042	0.1037 ± 0.0041	0.1054 ± 0.0035
$r_{\rm b}$	0.01401 ± 0.00077	0.01381 ± 0.00061	0.01393 ± 0.00070	0.01384 ± 0.00068	0.01441 ± 0.00057
σ ($m$mag)	2.0708	2.0242	2.0506	2.0481	2.0065
$\chi^2_{\rm red}$	1.1126	1.0526	1.0860	1.0820	1.0335
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	0.1204 ± 0.0046	0.1192 ± 0.0048	0.1201 ± 0.0046	0.1198 ± 0.0047	0.1199 ± 0.0045
k	0.1374 ± 0.0015	0.1363 ± 0.0016	0.1368 ± 0.0016	0.1366 ± 0.0016	0.1368 ± 0.0016
i (deg.)	87.50 ± 0.58	87.74 ± 0.71	87.58 ± 0.60	87.63 ± 0.66	87.61 ± 0.62
$u_{\rm A}$	0.284 ± 0.064	0.128 ± 0.077	-0.024 ± 0.075	0.460 ± 0.083	0.246 ± 0.063
$v_{\rm A}$		0.30 perturbed	0.52 perturbed	0.26 perturbed	0.15 perturbed
T_0	663.96737 ± 0.00024	663.96738 ± 0.00024	663.96738 ± 0.00024	663.96738 ± 0.00023	663.96738 ± 0.00024
$r_{\rm A}$	0.1059 ± 0.0039	0.1049 ± 0.0041	0.1057 ± 0.0040	0.1054 ± 0.0040	0.1054 ± 0.0038
$r_{\rm b}$	0.01455 ± 0.00066	0.01429 ± 0.00070	0.01446 ± 0.00066	0.01440 ± 0.00066	0.01442 ± 0.00063
σ ($m$mag)	2.0066	2.0076	2.0066	2.0069	2.0065
$\chi^2_{\rm red}$	1.0338	1.0349	1.0336	1.0339	1.0335

Table A8. Parameters of the JKTEBOP best fits of the WASP-42 R-band light curve from DFOSC, using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as BJD(TDB) − 2456000.0. The light curve contains 468 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	0.0851 ± 0.0023	0.0843 ± 0.0023	0.0845 ± 0.0023	0.0849 ± 0.0023	0.0862 ± 0.0023
k	0.12927 ± 0.00057	0.12847 ± 0.00049	0.12882 ± 0.00051	0.12902 ± 0.00050	0.13052 ± 0.00047
i (deg.)	87.96 ± 0.16	88.05 ± 0.14	88.01 ± 0.15	87.97 ± 0.14	87.78 ± 0.15
$u_{\rm A}$	0.61 fixed	0.49 fixed	0.33 fixed	0.71 fixed	0.50 fixed
$v_{\rm A}$		0.19 fixed	0.44 fixed	0.20 fixed	0.10 fixed
T_0	462.581363 ± 0.000087	462.581372 ± 0.000082	462.581366 ± 0.000084	462.581360 ± 0.000083	462.581336 ± 0.000079
$r_{\rm A}$	0.0754 ± 0.0020	0.0747 ± 0.0020	0.0748 ± 0.0020	0.0752 ± 0.0020	0.0763 ± 0.0020
$r_{\rm b}$	0.00974 ± 0.00028	0.00960 ± 0.00026	0.00964 ± 0.00027	0.00971 ± 0.00027	0.00996 ± 0.00028
σ ($m$mag)	0.7388	0.7349	0.7351	0.7344	0.7372
$\chi^2_{\rm red}$	1.0867	1.0702	1.0704	1.0660	1.0701
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	0.0867 ± 0.0023	0.0853 ± 0.0023	0.0856 ± 0.0022	0.0855 ± 0.0024	0.0839 ± 0.0023
k	0.13061 ± 0.00064	0.12936 ± 0.00078	0.12970 ± 0.00065	0.12946 ± 0.00076	0.12985 ± 0.00076
i (deg.)	87.77 ± 0.16	87.92 ± 0.16	87.88 ± 0.15	87.90 ± 0.17	87.95 ± 0.15
$u_{\rm A}$	0.553 ± 0.018	0.457 ± 0.038	0.298 ± 0.039	0.694 ± 0.049	0.531 ± 0.024
$v_{\rm A}$		0.19 perturbed	0.44 perturbed	0.20 perturbed	0.10 perturbed
T_0	462.581342 ± 0.000083	462.581353 ± 0.000081	462.581349 ± 0.000087	462.581351 ± 0.000082	462.581349 ± 0.000085
$r_{\rm A}$	0.0766 ± 0.0021	0.0756 ± 0.0020	0.0758 ± 0.0020	0.0757 ± 0.0021	0.0743 ± 0.0020
$r_{\rm b}$	0.01001 ± 0.00029	0.00978 ± 0.00028	0.00983 ± 0.00027	0.00980 ± 0.00030	0.00965 ± 0.00028
σ ($m$mag)	0.7354	0.7346	0.7347	0.7346	0.7348
$\chi^2_{\rm red}$	1.0663	1.0652	1.0648	1.0647	1.0648

Table A9. Parameters of the JKTEBOP best fits of the Euler r-band light curve of WASP-42 from Lendl et al. (2012), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 402 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A} + r_{\rm b}$	0.0798 ± 0.0040	0.0826 ± 0.0038	0.0820 ± 0.0040	0.0824 ± 0.0038	0.0919 ± 0.0035
k	0.1287 ± 0.0022	0.1310 ± 0.0015	0.1309 ± 0.0018	0.1311 ± 0.0018	0.1376 ± 0.0010
i (deg.)	88.60 ± 0.69	88.16 ± 0.41	88.23 ± 0.46	88.18 ± 0.42	87.09 ± 0.26
$u_{\rm A}$	0.70 fixed	0.50 fixed	0.38 fixed	0.75 fixed	0.40 fixed
$v_{\rm A}$		0.22 fixed	0.41 fixed	0.20 fixed	0.10 fixed
T_0	645.58471 ± 0.00040	645.58464 ± 0.00041	645.58466 ± 0.00039	645.58465 ± 0.00039	645.58440 ± 0.00041
$r_{\rm A}$	0.0707 ± 0.0034	0.0730 ± 0.0033	0.0725 ± 0.0035	0.0728 ± 0.0033	0.0808 ± 0.0030
$r_{\rm b}$	0.00909 ± 0.00057	0.00957 ± 0.00053	0.00950 ± 0.00058	0.00955 ± 0.00053	0.01112 ± 0.00047
σ ($m$mag)	2.0546	2.0483	2.0474	2.0477	2.0832
$\chi^2_{\rm red}$	0.9971	1.0041	1.0026	1.0040	1.0526
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A} + r_{\rm b}$	0.0799 ± 0.0041	0.0789 ± 0.0041	0.0796 ± 0.0042	0.0793 ± 0.0042	0.0796 ± 0.0041
k	0.1289 ± 0.0027	0.1267 ± 0.0030	0.1278 ± 0.0028	0.1273 ± 0.0029	0.1279 ± 0.0028
i (deg.)	88.57 ± 0.71	88.84 ± 0.88	88.67 ± 0.85	88.74 ± 0.92	88.66 ± 0.81
$u_{\rm A}$	0.694 ± 0.051	0.614 ± 0.066	0.467 ± 0.066	0.854 ± 0.077	0.681 ± 0.056
$v_{\rm A}$		0.22 perturbed	0.41 perturbed	0.20 perturbed	0.10 perturbed
T_0	645.58471 ± 0.00040	645.58467 ± 0.00038	645.58469 ± 0.00040	645.58468 ± 0.00039	645.58469 ± 0.00039
$r_{\rm A}$	0.0708 ± 0.0035	0.0700 ± 0.0035	0.0706 ± 0.0036	0.0704 ± 0.0037	0.0706 ± 0.0034
$r_{\rm b}$	0.00912 ± 0.00062	0.00887 ± 0.00062	0.00902 ± 0.00063	0.00896 ± 0.00064	0.00903 ± 0.00060
σ ($m$mag)	2.0537	2.0526	2.0531	2.0530	2.0531
$\chi^2_{\rm red}$	0.9996	0.9988	0.9992	0.9990	0.9991
Fitting for both LD coefficients					
$r_{\rm A} + r_{\rm b}$	0.0799 ± 0.0043	0.0788 ± 0.0043	0.0790 ± 0.0050	0.0789 ± 0.0049	0.0791 ± 0.0049
k	0.1289 ± 0.0028	0.1264 ± 0.0048	0.1257 ± 0.0053	0.1259 ± 0.0053	0.1261 ± 0.0059
i (deg.)	88.57 ± 0.73	88.88 ± 0.94	88.89 ± 0.98	88.89 ± 0.99	88.86 ± 0.91
$u_{\rm A}$	0.694 ± 0.053	0.610 ± 0.153	0.091 ± 1.018	0.979 ± 0.589	0.670 ± 0.087
$v_{\rm A}$		0.24 ± 0.45	1.11 ± 1.88	0.35 ± 0.68	0.27 ± 0.58
T_0	645.58471 ± 0.00040	645.58467 ± 0.00040	645.58467 ± 0.00041	645.58467 ± 0.00041	645.58467 ± 0.00042
$r_{\rm A}$	0.0708 ± 0.0037	0.0699 ± 0.0037	0.0702 ± 0.0043	0.0701 ± 0.0042	0.0702 ± 0.0043
$r_{\rm b}$	0.00912 ± 0.00064	0.00884 ± 0.00067	0.00882 ± 0.00073	0.00883 ± 0.00073	0.00885 ± 0.00071
σ ($m$mag)	2.0537	2.0526	2.0526	2.0526	2.0528
$\chi^2_{\rm red}$	0.9996	1.0013	1.0015	1.0014	1.0015

Table A10. Parameters of the JKTEBOP best fits of the WASP-42 I+z-band light curve of WASP-42 from Lendl et al. (2012), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 1558 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	0.0820 ± 0.0028	0.0825 ± 0.0029	0.0852 ± 0.0027	0.0824 ± 0.0027	0.0866 ± 0.0027
k	0.12736 ± 0.00104	0.12758 ± 0.00086	0.13056 ± 0.00071	0.12759 ± 0.00083	0.13143 ± 0.00060
i (deg.)	88.39 ± 0.30	88.33 ± 0.29	87.89 ± 0.22	88.34 ± 0.27	87.71 ± 0.20
$u_{\rm A}$	0.57 fixed	0.37 fixed	0.24 fixed	0.67 fixed	0.30 fixed
$v_{\rm A}$		0.26 fixed	0.27 fixed	0.23 fixed	0.12 fixed
T_0	630.63953 ± 0.00017	630.63952 ± 0.00018	630.63948 ± 0.00017	630.63952 ± 0.00018	630.63946 ± 0.00017
$r_{\rm A}$	0.0727 ± 0.0024	0.0731 ± 0.0025	0.0753 ± 0.0024	0.0731 ± 0.0024	0.0765 ± 0.0024
$r_{\rm b}$	0.00927 ± 0.00036	0.00933 ± 0.00037	0.00983 ± 0.00033	0.00933 ± 0.00035	0.01006 ± 0.00033
σ ($m$mag)	2.5489	2.5447	2.5460	2.5437	2.5569
$\chi^2_{\rm red}$	0.9961	0.9941	0.9964	0.9933	1.0056
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	0.0835 ± 0.0027	0.0826 ± 0.0030	0.0831 ± 0.0028	0.0828 ± 0.0029	0.0830 ± 0.0029
k	0.1293 ± 0.0011	0.1278 ± 0.0013	0.1289 ± 0.0011	0.1282 ± 0.0012	0.1285 ± 0.0011
i (deg.)	88.12 ± 0.25	88.29 ± 0.30	88.18 ± 0.26	88.25 ± 0.29	88.21 ± 0.27
$u_{\rm A}$	0.485 ± 0.032	0.360 ± 0.047	0.328 ± 0.050	0.649 ± 0.056	0.459 ± 0.037
$v_{\rm A}$		0.26 perturbed	0.27 perturbed	0.23 perturbed	0.12 perturbed
T_0	630.63951 ± 0.00018	630.63952 ± 0.00019	630.63951 ± 0.00017	630.63952 ± 0.00018	630.63952 ± 0.00019
$r_{\rm A}$	0.0739 ± 0.0023	0.0733 ± 0.0026	0.0736 ± 0.0025	0.0734 ± 0.0025	0.0735 ± 0.0025
$r_{\rm b}$	0.00956 ± 0.00035	0.00937 ± 0.00039	0.00949 ± 0.00036	0.00941 ± 0.00039	0.00945 ± 0.00037
σ ($m$mag)	2.5410	2.5445	2.5417	2.5431	2.5423
$\chi^2_{\rm red}$	0.9920	0.9947	0.9926	0.9937	0.9931
Fitting for both LD coefficients					
$r_{\rm A}+r_{\rm b}$	0.0835 ± 0.0027	0.0829 ± 0.0026	0.0849 ± 0.0027	0.0849 ± 0.0026	0.0850 ± 0.0025
k	0.1293 ± 0.0010	0.1320 ± 0.0015	0.1324 ± 0.0015	0.1322 ± 0.0016	0.1322 ± 0.0015
i (deg.)	88.12 ± 0.25	87.96 ± 0.22	87.84 ± 0.22	87.84 ± 0.21	87.84 ± 0.22
$u_{\rm A}$	0.485 ± 0.032	0.818 ± 0.169	1.712 ± 0.577	0.047 ± 0.207	0.638 ± 0.090
$v_{\rm A}$		-0.58 ± 0.26	-2.04 ± 0.94	-0.68 ± 0.33	-0.51 ± 0.25
T_0	630.63951 ± 0.00018	630.63949 ± 0.00017	630.63950 ± 0.00018	630.63950 ± 0.00017	630.63950 ± 0.00017
$r_{\rm A}$	0.0739 ± 0.0024	0.0733 ± 0.0022	0.0750 ± 0.0023	0.0750 ± 0.0023	0.0750 ± 0.0022
$r_{\rm b}$	0.00956 ± 0.00035	0.00967 ± 0.00036	0.00992 ± 0.00037	0.00992 ± 0.00035	0.00992 ± 0.00036
σ ($m$mag)	2.5410	2.5379	2.5382	2.5381	2.5383
$\chi^2_{\rm red}$	0.9920	0.9901	0.9903	0.9902	0.9904

Table A11. Parameters of the JKTEBOP best fits of the R-band light curve of WASP-55 from DFOSC, using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as BJD(TDB) − 2456000.0. The light curve contains 152 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	$0.1036^{+0.0030}_{-0.0007}$	$0.1041^{+0.0029}_{-0.0007}$	$0.1036^{+0.0028}_{-0.0006}$	$0.1035^{+0.0028}_{-0.0006}$	$0.1029^{+0.0027}_{-0.0007}$
k	$0.12268^{+0.00095}_{-0.00065}$	$0.12253^{+0.00078}_{-0.00062}$	$0.12294^{+0.00078}_{-0.00060}$	$0.12316^{+0.00081}_{-0.00063}$	$0.12430^{+0.00076}_{-0.00063}$
i (deg.)	$89.93^{+0.51}_{-0.87}$	$89.98^{+0.47}_{-0.85}$	$89.97^{+0.47}_{-0.83}$	$89.97^{+0.43}_{-0.86}$	$89.95^{+0.47}_{-0.79}$
$u_{\rm A}$	0.55 fixed	0.39 fixed	0.21 fixed	0.64 fixed	0.40 fixed
$v_{\rm A}$		0.28 fixed	0.52 fixed	0.20 fixed	0.14 fixed
T_0	$416.71551^{+0.00019}_{-0.00019}$	$416.71550^{+0.00018}_{-0.00020}$	$416.71550^{+0.00019}_{-0.00019}$	$416.71550^{+0.00020}_{-0.00020}$	$416.71550^{+0.00021}_{-0.00019}$
$r_{\rm A}$	$0.0923^{+0.0026}_{-0.0006}$	$0.0927^{+0.0025}_{-0.0006}$	$0.0923^{+0.0024}_{-0.0006}$	$0.0922^{+0.0025}_{-0.0006}$	$0.0915^{+0.0024}_{-0.0006}$
$r_{\rm b}$	$0.01132^{+0.00042}_{-0.00012}$	$0.01136^{+0.00037}_{-0.00011}$	$0.01134^{+0.00037}_{-0.00010}$	$0.01135^{+0.00037}_{-0.00011}$	$0.01137^{+0.00035}_{-0.00010}$
σ ($m$mag)	0.9177	0.8779	0.8761	0.8646	0.8291
$\chi^2_{\rm red}$	1.2911	1.1739	1.1685	1.1356	1.0365
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	$0.1026^{+0.0024}_{-0.0010}$	$0.1029^{+0.0025}_{-0.0008}$	$0.1023^{+0.0025}_{-0.0008}$	$0.1024^{+0.0027}_{-0.0007}$	$0.1024^{+0.0027}_{-0.0009}$
k	$0.12590^{+0.00079}_{-0.00081}$	$0.12514^{+0.00092}_{-0.00081}$	$0.12530^{+0.00091}_{-0.00080}$	$0.12528^{+0.00097}_{-0.00075}$	$0.12534^{+0.00093}_{-0.00090}$
i (deg.)	$89.42^{+0.63}_{-0.66}$	$89.61^{+0.56}_{-0.76}$	$89.96^{+0.50}_{-0.78}$	$89.93^{+0.48}_{-0.83}$	$89.81^{+0.51}_{-0.84}$
$u_{\rm A}$	$0.364^{+0.030}_{-0.031}$	$0.235^{+0.039}_{-0.044}$	$0.065^{+0.050}_{-0.050}$	$0.510^{+0.059}_{-0.054}$	$0.335^{+0.034}_{-0.034}$
$v_{\rm A}$		0.28 perturbed	0.52 perturbed	0.20 perturbed	0.14 perturbed
T_0	$416.71549^{+0.00018}_{-0.00019}$	$416.71549^{+0.00020}_{-0.00019}$	$416.71549^{+0.00018}_{-0.00017}$	$416.71549^{+0.00019}_{-0.00017}$	$416.71549^{+0.00017}_{-0.00017}$
$r_{\rm A}$	$0.0911^{+0.0021}_{-0.0009}$	$0.0914^{+0.0022}_{-0.0007}$	$0.0909^{+0.0022}_{-0.0007}$	$0.0910^{+0.0023}_{-0.0007}$	$0.0910^{+0.0024}_{-0.0008}$
$r_{\rm b}$	$0.01147^{+0.00032}_{-0.00015}$	$0.01144^{+0.00034}_{-0.00012}$	$0.01140^{+0.00036}_{-0.00011}$	$0.01140^{+0.00036}_{-0.00011}$	$0.01140^{+0.00038}_{-0.00012}$
σ ($m$mag)	0.8191	0.8151	0.8165	0.8159	0.8165
$\chi^2_{\rm red}$	1.0089	0.9998	1.0024	1.0011	1.0025

Table A12. Parameters of the JKTEBOP best fits of the I-band light curve of WASP-55 from DFOSC, using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as BJD(TDB) − 2456000.0. The light curve contains 388 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	$0.1031^{+0.0024}_{-0.0006}$	$0.1031^{+0.0022}_{-0.0005}$	$0.1029^{+0.0022}_{-0.0006}$	$0.1037^{+0.0026}_{-0.0006}$	$0.1036^{+0.0022}_{-0.0015}$
k	$0.12229^{+0.00076}_{-0.00052}$	$0.12287^{+0.00056}_{-0.00051}$	$0.12289^{+0.00060}_{-0.00050}$	$0.12154^{+0.00074}_{-0.00057}$	$0.12478^{+0.00052}_{-0.00056}$
i (deg.)	$89.95^{+0.42}_{-0.81}$	$89.93^{+0.37}_{-0.80}$	$89.95^{+0.43}_{-0.75}$	$89.94^{+0.45}_{-0.79}$	$89.08^{+0.85}_{-0.50}$
$u_{\rm A}$	0.49 fixed	0.30 fixed	0.10 fixed	0.65 fixed	0.30 fixed
$v_{\rm A}$		0.25 fixed	0.56 fixed	0.20 fixed	0.12 fixed
T_0	$135.68205^{+0.00018}_{-0.00016}$	$135.68204^{+0.00016}_{-0.00017}$	$135.68205^{+0.00016}_{-0.00016}$	$135.68205^{+0.00017}_{-0.00019}$	$135.68204^{+0.00015}_{-0.00016}$
$r_{\rm A}$	$0.0918^{+0.0021}_{-0.0005}$	$0.0918^{+0.0019}_{-0.0005}$	$0.0917^{+0.0019}_{-0.0005}$	$0.0925^{+0.0022}_{-0.0005}$	$0.0921^{+0.0019}_{-0.0014}$
$r_{\rm b}$	$0.01123^{+0.00031}_{-0.00010}$	$0.01128^{+0.00028}_{-0.00010}$	$0.01126^{+0.00027}_{-0.00010}$	$0.01124^{+0.00033}_{-0.00010}$	$0.01150^{+0.00028}_{-0.00020}$
σ ($m$mag)	1.0562	1.0359	1.0337	1.0649	1.0341
$\chi^2_{\rm red}$	1.0409	1.0019	0.9965	1.0591	0.9998
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	$0.1031^{+0.0023}_{-0.0013}$	$0.1028^{+0.0024}_{-0.0008}$	$0.1027^{+0.0023}_{-0.0008}$	$0.1028^{+0.0022}_{-0.0008}$	$0.1028^{+0.0022}_{-0.0008}$
k	$0.12431^{+0.00075}_{-0.00070}$	$0.12335^{+0.00084}_{-0.00070}$	$0.12357^{+0.00077}_{-0.00068}$	$0.12360^{+0.00075}_{-0.00076}$	$0.12375^{+0.00073}_{-0.00072}$
i (deg.)	$89.27^{+0.79}_{-0.55}$	$89.91^{+0.46}_{-0.78}$	$89.75^{+0.58}_{-0.68}$	$89.67^{+0.54}_{-0.70}$	$89.58^{+0.50}_{-0.74}$
$u_{\rm A}$	$0.378^{+0.022}_{-0.025}$	$0.268^{+0.035}_{-0.037}$	$0.058^{+0.049}_{-0.045}$	$0.525^{+0.053}_{-0.054}$	$0.354^{+0.029}_{-0.026}$
$v_{\rm A}$		0.25 perturbed	0.56 perturbed	0.20 perturbed	0.12 perturbed
T_0	$135.68204^{+0.00016}_{-0.00016}$	$135.68204^{+0.00014}_{-0.00015}$	$135.68204^{+0.00016}_{-0.00016}$	$135.68204^{+0.00016}_{-0.00017}$	$135.68204^{+0.00016}_{-0.00014}$
$r_{\rm A}$	$0.0917^{+0.0020}_{-0.0011}$	$0.0915^{+0.0021}_{-0.0007}$	$0.0914^{+0.0020}_{-0.0007}$	$0.0915^{+0.0019}_{-0.0007}$	$0.0915^{+0.0019}_{-0.0007}$
$r_{\rm b}$	$0.01140^{+0.00031}_{-0.00017}$	$0.01129^{+0.00033}_{-0.00010}$	$0.01129^{+0.00030}_{-0.00012}$	$0.01131^{+0.00030}_{-0.00011}$	$0.01132^{+0.00030}_{-0.00011}$
σ ($m$mag)	1.0258	1.0335	1.0294	1.0299	1.0287
$\chi^2_{\rm red}$	0.9816	0.9977	0.9887	0.9899	0.9874

Table A13. Parameters of the JKTEBOP best fits of the Ejuler r-band light curve of WASP-55 from Hellier et al. (2012), using different approaches to LD. For each part of the table the upper quantities are fitted parameters and the lower quantities are derived parameters. T_0 is given as HJD − 2455000.0. The light curve contains 270 datapoints.

	Linear LD law	Quadratic LD law	Square-root LD law	Logarithmic LD law	Cubic LD law
All LD coefficients fixed					
$r_{\rm A}+r_{\rm b}$	$0.1077^{+0.0031}_{-0.0029}$	$0.1036^{+0.0026}_{-0.0008}$	$0.1060^{+0.0028}_{-0.0023}$	$0.1039^{+0.0024}_{-0.0008}$	$0.1092^{+0.0024}_{-0.0024}$
k	$0.12238^{+0.00123}_{-0.00120}$	$0.12243^{+0.00077}_{-0.00065}$	$0.12327^{+0.00106}_{-0.00086}$	$0.12267^{+0.00076}_{-0.00064}$	$0.12628^{+0.00082}_{-0.00088}$
i (deg.)	$88.59^{+0.82}_{-0.53}$	$89.95^{+0.47}_{-0.78}$	$88.82^{+0.91}_{-0.53}$	$89.48^{+0.56}_{-0.72}$	$88.01^{+0.36}_{-0.31}$
$u_{\rm A}$	0.62 fixed	0.36 fixed	0.21 fixed	0.69 fixed	0.35 fixed
$v_{\rm A}$		0.31 fixed	0.53 fixed	0.26 fixed	0.15 fixed
T_0	$715.61170^{+0.00023}_{-0.00023}$	$715.61174^{+0.00021}_{-0.00021}$	$715.61176^{+0.00022}_{-0.00022}$	$715.61176^{+0.00019}_{-0.00020}$	$715.61195^{+0.00022}_{-0.00022}$
$r_{\rm A}$	$0.0960^{+0.0027}_{-0.0025}$	$0.0923^{+0.0022}_{-0.0007}$	$0.0943^{+0.0024}_{-0.0020}$	$0.0925^{+0.0022}_{-0.0007}$	$0.0969^{+0.0021}_{-0.0021}$
$r_{\rm b}$	$0.01174^{+0.00044}_{-0.00042}$	$0.01130^{+0.00034}_{-0.00013}$	$0.01163^{+0.00040}_{-0.00030}$	$0.01135^{+0.00033}_{-0.00014}$	$0.01224^{+0.00031}_{-0.00033}$
σ ($m$mag)	2.4654	2.4031	2.4153	2.4090	2.3824
$\chi^2_{\rm red}$	6.0533	5.6747	5.7527	5.7102	5.5657
Fitting for the linear LD coefficient and perturbing the nonlinear LD coefficient					
$r_{\rm A}+r_{\rm b}$	$0.1115^{+0.0021}_{-0.0022}$	$0.1092^{+0.0026}_{-0.0026}$	$0.1105^{+0.0022}_{-0.0024}$	$0.1101^{+0.0024}_{-0.0024}$	$0.1111^{+0.0024}_{-0.0022}$
k	$0.12836^{+0.00088}_{-0.00088}$	$0.12691^{+0.00098}_{-0.00100}$	$0.12761^{+0.00091}_{-0.00090}$	$0.12731^{+0.00089}_{-0.00095}$	$0.12777^{+0.00092}_{-0.00087}$
i (deg.)	$87.57^{+0.27}_{-0.26}$	$87.95^{+0.40}_{-0.35}$	$87.73^{+0.33}_{-0.27}$	$87.81^{+0.34}_{-0.31}$	$87.67^{+0.31}_{-0.31}$
$u_{\rm A}$	$0.298^{+0.028}_{-0.029}$	$0.145^{+0.046}_{-0.048}$	$-0.010^{+0.048}_{-0.050}$	$0.481^{+0.053}_{-0.054}$	$0.261^{+0.035}_{-0.034}$
$v_{\rm A}$		0.31 perturbed	0.53 perturbed	0.26 perturbed	0.15 perturbed
T_0	$715.61202^{+0.00020}_{-0.00020}$	$715.61199^{+0.00020}_{-0.00019}$	$715.61200^{+0.00020}_{-0.00019}$	$715.61200^{+0.00021}_{-0.00020}$	$715.61199^{+0.00020}_{-0.00019}$
$r_{\rm A}$	$0.0988^{+0.0018}_{-0.0019}$	$0.0969^{+0.0023}_{-0.0022}$	$0.0980^{+0.0019}_{-0.0020}$	$0.0976^{+0.0021}_{-0.0021}$	$0.0985^{+0.0021}_{-0.0019}$
$r_{\rm b}$	$0.01268^{+0.00030}_{-0.00028}$	$0.01230^{+0.00034}_{-0.00036}$	$0.01251^{+0.00031}_{-0.00033}$	$0.01243^{+0.00033}_{-0.00033}$	$0.01259^{+0.00034}_{-0.00031}$
σ ($m$mag)	2.3798	2.3745	2.3775	2.3762	2.3771
$\chi^2_{\rm red}$	5.5464	5.5161	5.5335	5.5262	5.5314