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XZ Dra: observations spanning 70 years*

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XZ DRA: OBSERVATIONS SPANNING 70 YEARS

Abstract

During the past seventy years a great number of observations of XZ Dra have been collected at Konkoly Observatory. Here we publish 344 visual observations made by L. Detre in the years 1932 and 1934, 4440 photographic magnitudes obtained in the years 1935–1957, 40 white light photoelectric data from 1957, and 6066 $UBV(RI)_C$ observations made between 1958–1988, and further CCD observations from 2001. All published observations are reviewed and the times of light maximum of XZ Dra are collected as well. New normal maxima have been determined in order to follow the star’s long-term period changes.

Key words: Stars – variable: RR Lyrae; stars – individual: XZ Dra – Techniques: photometric – Techniques: radial velocities

INTRODUCTION

The variability of XZ Dra (AN 433.1928, BD+64°1332, GSC 04225–00305, HIP 94134, $\alpha_{2000} = 19^{\text{h}}9^{\text{m}}42^{\text{s}}.6$, $\delta_{2000} = 64^{\circ}51'32''$) was discovered by Schneller (1929) on Babelsberg plates. Soon after its discovery, Beyer (1934) made the first thorough investigation of the star’s light variation. He confirmed the RR Lyrae type variability suspected by the discoverer (Schneller, 1931) and already took notice of the large scatter of observations around light maximum. Balázs & Detre (1941) based on their preliminary study demonstrated that the star had, indeed, strong light curve variation with a period of 76 days.

Since the early studies a great number of observations have been made on XZ Dra by different observers. In this paper we publish the visual, photographic, photoelectric and CCD observations obtained at Konkoly Observatory during the past 70 years and carry out a rigorous treatment and elaboration of all published observations.

Here we also publish radial velocity measurements taken at the Dominion Astrophysical Observatory (DAO, Canada) in 1971.

OBSERVATIONS

Visual Data

During the years 1931–1937 visual observations of a number of RR Lyrae stars were carried out by L. Detre at Konkoly Observatory. The 20cm Heyde-Refractor equipped with a Graff-type wedge photometer was used. A detailed description of the instrument and the observational procedure adopted is given in the paper of Detre & Lassovszky (1939).

One of Detre’s program stars was XZ Dra, which was extensively observed in the years 1932–1934: 344 visual estimates were obtained during 20 nights. Detre’s original visual observations are listed in Table 1. The comparison stars he used were BD+64°1331

(=TYC 4225_0931_1), TYC 4225_1323_1 and BD+64°1335 (=TYC 4225_0331_1) with visual magnitudes V_{vis} =8.61, 10.27 and 10.61, respectively.

Table 1. Visual observations of XZ Dra

2426825 +	0.4063 10.11	0.3465 10.35	0.3299 10.52	0.4403 9.73
0.4014 10.02	0.4076 10.27	0.3486 10.24	0.3319 10.55	0.4444 9.65
0.4278 10.06	0.4097 10.32	0.3972 10.62	0.3347 10.49	0.4479 9.72
0.4306 10.05	0.4125 10.22	0.3986 10.61	0.3368 10.47	0.4514 9.64
0.4333 10.27	0.4146 10.20	0.4007 10.61	0.3389 10.53	0.4528 9.63
0.4354 10.27		0.4028 10.59	0.3410 10.39	0.4549 9.70
0.4375 10.12	2426827 +	0.4049 10.47	0.3431 10.42	0.4570 9.66
0.4396 10.22	0.3292 10.10	0.4076 10.49	0.3647 9.93	0.4583 9.86
0.4722 10.31	0.3319 10.08	0.4222 10.57	0.3694 9.90	0.4611 9.88
0.4743 10.33	0.3340 10.16	0.4243 10.50	0.3785 9.77	0.4632 9.80
0.4764 10.37	0.3361 10.14	0.4264 10.56	0.3806 9.64	
0.4785 10.36	0.3597 10.14	0.4285 10.61	0.3826 9.71	2426957 +
0.4806 10.35	0.3625 10.09	0.4299 10.66	0.3854 9.79	0.3743 9.81
0.4819 10.50	0.3646 10.31	0.4451 10.71	0.3875 9.82	0.3785 9.83
0.5104 10.66	0.3674 10.32	0.4465 10.60	0.3896 9.74	0.3813 9.84
0.5128 10.56	0.3694 10.11	0.4486 10.58	0.3824 9.86	0.3833 9.99
0.5160 10.54	0.3708 10.06	0.4500 10.72	0.3938 9.92	0.3854 9.98
0.5174 10.57	0.4042 10.31	0.4639 10.59	0.3951 9.87	0.3875 9.95
0.5194 10.42	0.4063 10.28	0.4667 10.53		0.3993 9.93
0.6215 10.47	0.4090 10.35	0.4681 10.42	2426889 +	0.4007 9.98
0.5396 10.45	0.4118 10.45	0.4701 10.62	0.3722 10.52	0.4021 10.02
0.5417 10.36	0.4132 10.42			
0.5438 10.31	0.4153 10.48	2426831 +	2426945 +	2426960 +
0.5458 10.22	0.4451 10.55	0.3243 10.42	0.3931 10.42	0.4854 10.75
0.5479 10.40	0.4472 10.56	0.3264 10.55	0.3951 10.53	0.4889 10.57
0.5500 10.33	0.4493 10.51	0.3285 10.48	0.3979 10.57	0.4903 10.32
	0.4514 10.46	0.3313 10.30	0.4000 10.42	0.4924 10.54
2426826 +	0.4549 10.55	0.3326 10.52	0.4028 10.51	0.4944 10.36
0.3160 10.07	0.4563 10.43	0.3347 10.54	0.4049 10.43	0.4958 10.45
0.3181 9.92	0.4875 10.72		0.4083 10.44	0.4986 10.33
0.3201 9.91	0.4896 10.65	2426832 +	0.4104 10.28	0.5000 10.50
0.3215 9.95	0.4917 10.60	0.3264 10.61	0.4125 10.17	0.5028 10.38
0.3639 9.85	0.4958 10.60	0.3285 10.48	0.4146 10.18	0.5063 10.43
0.3660 9.78	0.4979 10.81	0.3306 10.69	0.4167 10.13	0.5083 10.38
0.3681 9.93	0.5000 10.76	0.3326 10.62	0.4188 10.03	0.5104 10.42
0.3701 9.90		0.3340 10.63	0.4208 10.03	0.5118 10.70
0.3715 10.03	2426828 +		0.4229 9.88	0.5139 10.64
0.3757 10.02	0.3354 10.12	2426835 +	0.4250 10.01	0.5160 10.71
0.3785 10.19	0.3375 10.16	0.3208 10.59	0.4271 9.86	0.5174 10.59
0.3806 10.09	0.3403 10.25	0.3229 10.56	0.4292 9.84	
0.4035 9.95	0.3424 10.20	0.3257 10.77	0.4333 9.84	2427161 +
	0.3444 10.28	0.3278 10.53	0.4375 9.78	0.2993 10.20

0.3014	9.99	0.3389	10.81	0.3535	10.60	0.4326	10.70	0.4174	9.61
0.3035	9.85	0.3403	10.89	0.3563	10.65			0.4201	9.51
0.3063	9.83	0.3424	10.92	0.3583	10.70	2427225 +		0.4243	9.66
0.3083	9.80	0.3438	10.92	0.3604	10.74	0.3618	10.68	0.4271	9.61
0.3104	9.68	0.3465	10.90	0.3625	10.68	0.3639	10.51	0.4306	9.71
		0.3479	10.68	0.3653	10.60	0.3660	10.56		
2427206 +		0.3500	10.76	0.3667	10.60	0.3681	10.53	2427232 +	
0.3306	10.76	0.3528	10.82	0.3694	10.74	0.3701	10.61	0.3542	9.89
0.3326	10.52	0.3542	10.83	0.3715	10.70	0.3729	10.61	0.3563	9.83
0.3347	10.72	0.3556	10.81	0.3736	10.65	0.3750	10.47	0.3590	9.92
0.3368	10.60	0.3576	10.84	0.3757	10.68	0.3771	10.51	0.3611	10.01
0.3389	10.62	0.3590	10.79	0.3778	10.70	0.3792	10.61	0.3639	10.04
0.3417	10.63	0.3611	10.84	0.3799	10.66	0.3819	10.65	0.3660	9.96
0.3438	10.77	0.3632	10.92	0.3819	10.70	0.3840	10.56	0.3681	10.20
0.3458	10.68	0.3653	10.64	0.3847	10.71	0.3868	10.72	0.3694	10.13
0.3734	10.53	0.3681	10.82	0.3868	10.67	0.3896	10.69	0.3715	10.02
0.3764	10.58	0.3736	10.39	0.3889	10.65	0.3917	10.58	0.3736	10.08
0.3785	10.77	0.3764	10.48	0.3910	10.58			0.3764	10.07
0.3806	10.75	0.3778	10.55	0.3931	10.74	2427230 +		0.3778	10.07
0.3826	10.63	0.3792	10.56	0.3951	10.70	0.3694	10.45	0.3806	10.14
0.3847	10.70	0.3806	10.43	0.3979	10.66	0.3715	10.35	0.3826	10.17
0.3868	10.78	0.3833	10.39	0.4000	10.53	0.3736	10.27	0.3854	10.29
0.3889	10.71	0.3854	10.37	0.4021	10.70	0.3764	10.27		
0.3910	10.80	0.3868	10.32	0.4042	10.71	0.3799	9.95	2427244 +	
0.3924	10.70	0.3889	10.28	0.4069	10.69	0.3833	10.03	0.3806	10.18
0.3944	10.59	0.3910	10.22	0.4090	10.82	0.3868	9.75	0.3833	10.35
0.3965	10.75	0.3931	10.23	0.4111	10.67	0.3896	9.86		
0.3986	10.77	0.3944	10.29	0.4139	10.72	0.3931	9.72	2427556 +	
		0.3958	10.25	0.4160	10.67	0.3965	9.67	0.3229	9.52
2427209 +		0.3979	10.04	0.4215	10.70	0.3995	9.56	0.3250	9.51
0.3292	10.86	0.3993	10.15	0.4236	10.56	0.4021	9.53	0.3271	9.43
0.3306	10.73			0.4257	10.67	0.4049	9.60	0.3292	9.57
0.3326	10.77	2427216 +		0.4278	10.77	0.4111	9.48	0.3313	9.49
0.3340	10.86	0.3493	10.62	0.4306	10.73	0.4132	9.63	0.3333	9.41
0.3368	10.87	0.3514	10.62			0.4153	9.66	0.3361	9.76

Photographic Material

A new 16cm astrograph was installed and extensive photographic observational program was started at Konkoly Observatory in 1934 in order to study the period changes and the light curve variations of RR Lyrae stars. The large focal ratio (f/14) made the telescope very suitable to series of exposures, usually several dozens of exposures were taken on each plate (for detailed description of the instrument and the observational method see Balázs & Detre, 1938).

The photographic observations of XZ Dra was commenced by Júlia Balázs in 1936 and carried out by the staff of the observatory. Until 1945 (between JD 2428356 and 2431708) Eastman 40 photographic plates were used. Later, between 1951 and 1957 (JD 2433896

and 2436142), aged Agfa Astro and Guilleminot Superfulgur plates were only available, therefore these photographic observations had inferior quality.

Throughout the photographic observations of XZ Dra three minutes exposure time was applied. Altogether 4440 utilizable exposures were taken on 188 plates during 100 nights.

Table 2. Comparison stars for photographic measurements

Tycho number	α_{2000}			δ_{2000}			B_T [mag]	B_{pg} [mag]
	h	m	s	°	'	"		
4224_0047_1	19	04	14.729	+65	12	19.26	9.271	
4224_0467_1	19	06	02.748	+65	26	30.43	11.073	
4224_0561_1	19	04	42.387	+64	53	17.32	10.404	
4224_0631_1	19	04	19.948	+65	25	45.13	11.455	
4224_0695_1	19	05	50.344	+65	36	10.57	10.322	
4224_0849_1	19	04	07.779	+65	02	50.19	9.948	
4224_1255_1	19	04	44.353	+65	01	45.92	9.335	
4224_1781_1	19	05	38.254	+64	27	13.48	9.887	
4224_2009_1	19	08	08.749	+64	22	56.27	9.564	
4225_0056_1	19	12	34.496	+65	22	03.77	10.181	9.80
4225_0117_1	19	11	16.524	+65	19	48.15	11.062	
4225_0141_1	19	16	57.381	+65	10	27.28	10.448	
4225_0197_1	19	16	42.116	+65	33	09.75	10.190	
4225_0404_1	19	16	22.759	+65	07	11.05	11.037	
4225_0419_1	19	09	56.270	+65	23	06.02	10.132	9.63
4225_0622_1	19	10	53.788	+65	31	27.22	10.692	10.39
4225_0742_1	19	11	40.660	+64	52	33.00	11.125	
4225_0931_1	19	09	14.637	+65	11	45.50	9.153	8.74
4225_1010_1	19	15	42.572	+65	07	49.02	9.895	
4225_1029_1	19	09	33.376	+65	19	59.44	10.879	10.51
4225_1096_1	19	11	10.372	+65	14	44.35	11.361	
4225_1323_1	19	10	50.282	+64	51	15.61	11.157	10.85
4229_0479_1	19	13	27.931	+65	41	40.94	10.421	

The plates were digitized by an Umax PowerLook 3000 commercial scanner in 2001, making 1200 dpi 8 bits FITS format output images. This resolution yielded stellar images with 3-5 pixels full width at half maximum (FWHM).

Aperture photometry (IRAF*/DAOPHOT/PHOT) of 23 or less comparison stars and the variable were derived. The comparison stars, covering about 1.5 magnitude range, were chosen among the stars given in Table 2. All those were used which could be measured reliable. Typically at least 15 comparison stars determined the magnitudes of the variable during each observational run.

Tycho B_T magnitudes of the comparison stars were adopted (ESA, 1997, Høg *et al.*,

*IRAF is distributed by the NOAO, operated by the Association of Universities for Research in Astronomy Inc., under contract with the NSF.

2000) for transforming the intensities (the plate densities) to magnitudes by fitting third or fourth order polynomials. Six of these comparison stars were originally used to define a photographic sequence. Their photographic B_{pg} magnitudes were determined from two plates of the North Polar Sequence taken in 1936 and 1939. These B_{pg} values (also given in Table 2) define a $0.^m35$ brighter magnitude scale than the B_T magnitudes (if TYC 4225_0419_1 with its discrepant $0.^m5$ magnitude difference is omitted). Thus the final magnitudes were shifted by $0.^m35$ in order to match the photographic B scale of the early photographic studies. The errors of the photographic measurements range between $0.^m05$ and $0.^m20$ depending mostly on the quality of the plate material and its development.

The photographic observations are given in Table 3.

Table 3. Photographic observations of XZ Dra

2428356 +	2428397 +	0.479 10.629	0.473 9.868	0.313 10.250
0.489 10.372	0.332 9.726	0.481 10.654	0.475 9.745	0.315 10.049
0.491 10.351	0.334 9.611	0.483 10.607	0.477 9.872	0.317 10.035
0.492 10.403	0.336 9.826	0.490 10.521	0.479 9.895	0.319 10.033
	0.338 9.840	0.492 10.463	0.481 9.786	0.321 10.009
2428365 +	0.340 9.671	0.494 10.474	0.483 9.914	0.323 9.891
0.436 9.528	0.342 9.783	0.496 10.448	0.485 9.887	
0.439 9.699	0.344 9.791	0.498 10.441	0.488 9.865	2428431 +
0.441 9.669	0.346 9.915	0.500 10.406	0.490 9.808	0.368 10.628
0.443 9.698	0.348 9.830	0.502 10.418	0.492 9.896	0.370 10.579
0.445 9.678	0.350 9.760	0.504 10.299	0.494 9.953	0.372 10.688
0.447 9.753	0.353 9.798	0.506 10.350	0.496 9.960	0.374 10.685
0.449 9.794	0.355 9.789	0.508 10.361		0.376 10.640
0.451 9.766	0.357 9.788	0.510 10.208	2428427 +	0.379 10.708
0.453 9.842	0.359 9.844	0.513 10.247	0.271 10.999	0.381 10.579
0.455 9.748	0.362 9.793	0.515 10.233	0.273 10.823	0.383 10.691
0.457 9.729	0.364 9.850	0.517 10.169	0.275 10.781	0.385 10.664
0.459 9.746	0.366 10.058	0.519 10.183	0.277 10.564	0.387 10.725
0.461 9.855	0.368 10.038	0.521 10.185	0.279 10.653	0.389 10.721
0.464 9.906	0.370 9.935		0.281 10.670	0.391 10.721
0.466 9.971	0.372 9.970	2428404 +	0.283 10.665	0.393 10.675
0.468 9.860	0.374 9.888	0.445 10.020	0.286 10.699	0.395 10.700
0.470 9.943	0.376 10.003	0.448 10.025	0.288 10.530	0.397 10.664
	0.378 10.104	0.450 9.997	0.290 10.626	0.399 10.675
2428392 +	0.380 9.987	0.452 9.843	0.292 10.596	0.401 10.718
0.369 10.712	0.382 9.928	0.454 9.930	0.294 10.646	0.404 10.629
0.371 10.785	0.384 9.962	0.456 9.920	0.296 10.586	0.406 10.635
0.373 10.802		0.458 9.976	0.298 10.574	0.408 10.681
0.375 10.712	2428402 +	0.460 9.878	0.300 10.446	0.410 10.632
0.378 10.790	0.451 10.731	0.463 9.856	0.302 10.368	0.412 10.625
0.382 10.718	0.454 10.786	0.465 9.879	0.304 10.281	0.414 10.620
0.384 10.777	0.456 10.737	0.467 9.846	0.306 10.315	0.416 10.758
0.386 10.695	0.469 10.700	0.469 9.912	0.308 10.225	0.418 10.700
0.388 10.694	0.476 10.760	0.471 9.832	0.311 10.252	0.420 10.797

0.422 10.824	0.339 10.128	0.437 10.507	0.431 9.801	0.423 10.711
0.424 10.730	0.341 10.298	0.439 10.619	0.433 9.755	0.425 10.680
0.426 10.621	0.343 10.271	0.441 10.498	0.435 9.717	0.427 10.838
0.429 10.694	0.345 10.431	0.443 10.720	0.438 9.823	0.429 10.711
0.431 10.800	0.347 10.309	0.445 10.609	0.440 9.868	0.431 10.752
0.433 10.712	0.349 10.316	0.447 10.505	0.442 9.865	0.433 10.620
0.435 10.773	0.351 10.297	0.449 10.577	0.444 9.854	0.436 10.922
0.437 10.789	0.353 10.380	0.451 10.671	0.446 9.869	0.440 10.674
0.439 10.633	0.355 10.351	0.453 10.789	0.448 9.857	0.442 10.709
0.441 10.772	0.357 10.337	0.455 10.615	0.450 9.814	0.444 10.719
0.443 10.729	0.360 10.348	0.458 10.604	0.453 9.863	0.446 10.714
0.445 10.783	0.362 10.330	0.460 10.688	0.455 9.911	0.449 10.654
0.447 10.742	0.364 10.333	0.462 10.669	0.457 9.970	0.451 10.644
0.449 10.706	0.366 10.303	0.464 10.685	0.468 9.835	0.453 10.760
0.451 10.749	0.368 10.292	0.466 10.517	0.470 9.898	0.455 10.695
0.454 10.693	0.370 10.473		0.472 9.803	0.457 10.766
0.456 10.761	0.372 10.245	2429084 +	0.474 9.960	0.461 10.656
0.458 10.810	0.374 10.418	0.366 10.505	0.476 9.918	0.463 10.796
0.460 10.740	0.376 10.445	0.369 10.361	0.478 9.941	0.465 10.543
0.462 10.663	0.378 10.328	0.371 10.311	0.480 9.981	0.468 10.778
0.464 10.714	0.380 10.480	0.373 10.202	0.482 9.976	0.470 10.587
0.467 10.703	0.382 10.348	0.375 10.315	0.484 10.078	0.472 10.629
0.470 10.730	0.385 10.502	0.377 10.220	0.487 10.029	0.480 10.388
0.472 10.739	0.387 10.390	0.379 10.159	0.489 9.999	0.483 10.380
0.474 10.760	0.389 10.434	0.381 10.183	0.491 10.039	0.485 10.236
0.476 10.785	0.391 10.524	0.383 10.238	0.493 10.066	
0.479 10.785	0.393 10.374	0.385 10.086	0.512 10.178	2429113 +
0.481 10.795	0.395 10.412	0.387 10.072	0.514 10.231	0.360 10.923
0.483 10.769	0.397 10.496	0.389 10.111	0.516 10.112	0.362 10.840
0.486 10.758	0.399 10.557	0.391 10.073	0.518 10.286	0.364 10.755
0.489 10.770	0.401 10.392	0.394 10.027	0.520 10.202	0.366 10.810
0.491 10.781	0.403 10.457	0.396 9.934	0.522 10.236	0.368 10.834
0.493 10.764	0.405 10.664	0.398 9.988	0.524 10.200	0.370 10.822
0.495 10.868	0.407 10.556	0.400 9.983	0.526 10.331	0.372 10.820
0.499 10.746	0.410 10.574	0.402 9.869	0.528 10.192	0.374 10.747
0.501 10.850	0.412 10.493	0.404 9.858	0.530 10.302	0.376 10.884
0.504 10.703	0.414 10.537	0.406 9.838	0.532 10.226	0.379 10.854
0.506 10.885	0.416 10.465	0.408 9.718		0.381 10.814
0.508 10.737	0.418 10.530	0.410 9.681	2429102 +	0.383 10.901
0.510 10.922	0.420 10.586	0.412 9.862	0.394 10.691	0.385 10.886
0.512 10.713	0.422 10.542	0.414 9.713	0.396 10.774	0.387 10.810
0.515 10.738	0.424 10.691	0.416 9.770	0.398 10.692	0.389 10.919
0.517 10.831	0.426 10.513	0.419 9.853	0.400 10.596	0.391 10.805
	0.428 10.588	0.421 9.752	0.402 10.528	0.393 10.869
2428784 +	0.430 10.628	0.423 9.652	0.405 10.808	0.397 10.774
0.335 10.297	0.432 10.668	0.425 9.748	0.407 10.891	0.399 10.868
0.337 10.257	0.435 10.530	0.428 9.665	0.421 10.803	0.401 10.860

0.404 10.919	0.516 10.838	0.490 10.733	0.543 10.658	0.514 9.489
0.406 10.918	0.519 10.817	0.492 10.637	0.545 10.916	0.516 9.529
0.408 10.844	0.521 10.751	0.494 10.480	0.547 10.853	0.519 9.444
0.410 10.795	0.523 10.772	0.496 10.768	0.549 10.947	0.522 9.535
0.412 10.833	0.525 10.912	0.499 10.719	0.551 10.877	0.524 9.680
0.414 10.830	0.527 10.748	0.501 10.471	0.553 10.978	0.526 9.647
0.416 10.669	0.529 10.816	0.503 10.574		0.528 9.443
0.418 10.767	0.531 10.722	0.505 10.637	2429295 +	0.530 9.500
0.422 10.737	0.533 10.742	0.507 10.561	0.414 10.812	0.532 9.632
0.424 10.823	0.535 10.825	0.509 10.473	0.416 10.796	0.534 9.722
0.426 10.760	0.537 10.707	0.511 10.303	0.418 10.562	0.541 9.807
0.429 10.788	0.539 10.794	0.513 10.419	0.420 10.792	0.543 9.762
0.431 10.690	0.541 10.594	0.515 10.467	0.422 10.753	0.545 9.864
0.433 10.683	0.544 10.604	0.517 10.430	0.424 10.671	0.547 9.884
0.435 10.747	0.546 10.615	0.520 10.291	0.426 10.737	0.549 9.790
0.437 10.643	0.548 10.466	0.522 10.303	0.428 10.805	0.551 9.953
0.439 10.682	0.550 10.546	0.526 10.010	0.430 10.708	0.553 9.776
0.441 10.581	0.552 10.492	0.532 10.052	0.432 11.002	0.555 10.006
0.443 10.455	0.554 10.439	0.534 9.979	0.439 10.859	0.557 9.862
0.445 10.512	0.556 10.390	0.536 9.849	0.441 10.686	0.559 9.877
0.447 10.418	0.558 10.447	0.538 9.810	0.444 10.968	0.565 9.986
0.449 10.449	0.560 10.357	0.540 9.857	0.446 10.736	0.567 9.891
0.454 10.287	0.562 10.287	0.542 9.774	0.448 10.691	0.569 9.970
0.456 10.180	0.564 10.233	0.546 9.706	0.452 10.722	0.571 10.005
0.458 10.060	0.566 10.221	0.555 9.407	0.454 10.780	0.573 9.921
0.460 10.055	0.569 10.125	0.557 9.308	0.456 10.541	0.576 9.960
0.462 10.056	0.571 10.224	0.559 9.712	0.458 10.644	0.578 9.912
0.468 10.008	0.573 10.135	0.561 9.367	0.464 10.383	0.580 10.011
0.470 9.949	0.575 10.095	0.563 9.799	0.466 10.354	0.582 9.956
0.472 9.856	0.577 9.956	0.565 9.419	0.468 10.439	0.584 9.955
0.474 9.842	0.579 10.014	0.567 9.731	0.470 10.185	0.589 10.025
0.476 9.760	0.583 9.826	0.569 9.659	0.472 10.355	0.592 10.089
0.479 9.675	0.585 9.832	0.571 9.620	0.474 10.046	0.594 10.037
0.481 9.744		0.574 9.733	0.476 10.118	0.598 10.136
0.483 9.639	2429284 +	0.576 9.785	0.478 10.104	0.600 10.133
0.485 9.766	0.465 10.935	0.578 9.730	0.480 10.160	0.602 10.098
0.487 9.702	0.467 10.705	0.580 9.854	0.482 9.937	0.604 10.108
0.489 9.688	0.469 10.819	0.582 9.875	0.489 9.715	0.606 10.134
0.491 9.683	0.472 10.779	0.584 9.835	0.491 9.828	0.608 10.128
0.493 9.799	0.474 10.773	0.586 10.058	0.494 9.654	0.613 10.146
0.495 9.668	0.476 10.881	0.590 9.979	0.496 9.494	0.615 10.217
0.497 9.650	0.478 10.856	0.593 9.890	0.498 9.690	0.617 10.307
0.499 9.663	0.480 10.617		0.500 9.497	0.619 10.125
	0.482 10.791	2429292 +	0.502 9.694	0.627 10.225
2429141 +	0.484 10.707	0.537 10.856	0.504 9.731	0.629 10.206
0.512 10.727	0.486 10.776	0.539 10.856	0.506 9.514	0.631 10.166
0.514 10.798	0.488 10.498	0.541 10.869	0.508 9.562	0.633 10.329

0.635 10.366	0.498 10.502	0.600 9.679	0.531 9.559	0.469 10.251
0.637 10.164	0.500 10.611	0.602 9.785	0.533 9.548	0.471 10.077
0.639 10.327	0.502 10.479	0.604 9.726	0.535 9.661	0.473 10.161
0.642 10.210	0.504 10.388	0.606 9.708	0.537 9.671	0.475 10.071
0.644 10.351	0.506 10.400		0.539 9.658	0.477 10.079
0.646 10.460	0.509 10.348	2429366 +	0.541 9.583	0.479 9.978
0.648 10.316	0.511 10.293	0.441 10.728	0.544 9.646	0.481 10.125
0.650 10.273	0.513 10.351	0.444 10.652		0.487 9.776
0.652 10.247	0.515 10.256	0.446 10.538	2429376 +	0.489 9.712
0.654 10.277	0.517 10.316	0.448 10.700	0.389 10.891	0.491 9.654
0.656 10.357	0.519 10.252	0.450 10.631	0.391 10.742	0.494 9.742
0.658 10.284	0.521 10.147	0.453 10.556	0.393 10.872	0.496 9.609
0.660 10.408	0.523 10.099	0.455 10.514	0.395 10.877	0.498 9.591
0.663 10.394	0.525 10.004	0.457 10.566	0.397 10.902	0.500 9.662
0.665 10.448	0.528 9.978	0.459 10.419	0.399 10.733	0.502 9.559
0.667 10.380	0.530 9.878	0.461 10.485	0.401 10.728	0.504 9.560
	0.532 9.795	0.463 10.461	0.403 10.758	0.506 9.628
2429304 +	0.534 9.689	0.465 10.401	0.405 10.703	0.508 9.488
0.476 10.810	0.536 9.783	0.467 10.351	0.407 10.853	0.510 9.575
0.478 10.795	0.538 9.783	0.469 10.324	0.409 10.862	0.512 9.576
0.480 10.827	0.540 9.669	0.471 10.266	0.412 10.825	0.514 9.500
0.482 10.674	0.542 9.617	0.473 10.189	0.414 10.822	0.516 9.481
0.484 10.669	0.544 9.644	0.475 10.010	0.416 10.895	0.519 9.705
0.486 10.571	0.546 9.466	0.478 9.846	0.418 10.800	0.521 9.741
0.488 10.783	0.548 9.627	0.480 9.917	0.420 10.788	0.523 9.652
0.490 10.712	0.550 9.469	0.482 9.869	0.422 10.879	0.525 9.626
0.492 10.597	0.553 9.541	0.484 9.901	0.424 10.805	0.527 9.597
0.494 10.602	0.555 9.516	0.486 9.740	0.426 10.855	0.529 9.647
0.503 10.465	0.557 9.535	0.488 9.638	0.428 10.792	0.531 9.547
0.505 10.465	0.559 9.387	0.490 9.679	0.430 10.790	0.533 9.683
0.509 10.400	0.561 9.471	0.492 9.620	0.433 10.798	0.535 9.632
0.511 10.360	0.563 9.461	0.494 9.538	0.435 10.647	0.537 9.578
0.513 10.344	0.565 9.416	0.496 9.531	0.437 10.736	0.539 9.734
0.515 10.229	0.570 9.486	0.498 9.507	0.439 10.629	0.541 9.757
0.517 10.333	0.572 9.512	0.500 9.421	0.441 10.621	0.544 9.746
0.519 10.186	0.574 9.464	0.505 9.514	0.444 10.526	0.546 9.785
0.521 10.062	0.576 9.482	0.508 9.516	0.446 10.536	0.548 9.803
0.523 10.037	0.578 9.623	0.510 9.461	0.448 10.549	0.550 9.882
	0.580 9.487	0.512 9.503	0.450 10.604	0.552 9.810
2429365 +	0.582 9.586	0.514 9.468	0.452 10.434	0.554 9.894
0.483 10.754	0.584 9.661	0.516 9.597	0.454 10.530	0.556 9.762
0.485 10.849	0.587 9.558	0.519 9.521	0.456 10.406	0.558 9.861
0.487 10.727	0.589 9.629	0.521 9.526	0.458 10.401	0.560 9.777
0.489 10.843	0.591 9.632	0.523 9.563	0.460 10.376	0.564 9.800
0.491 10.793	0.593 9.657	0.525 9.491	0.462 10.356	0.566 9.857
0.494 10.449	0.595 9.756	0.527 9.698	0.464 10.341	0.569 9.883
0.496 10.520	0.597 9.676	0.529 9.459	0.466 10.190	0.571 9.919

0.573	9.951	0.440	9.887	0.548	10.007	0.403	9.850	0.513	10.142
0.575	9.864	0.442	9.745	0.550	9.988	0.405	9.647	0.515	10.144
0.577	9.910	0.444	9.635	0.552	10.087	0.407	9.584	0.517	10.214
0.579	10.108	0.446	9.704	0.554	10.099	0.409	9.710	0.519	10.240
0.581	9.989	0.448	9.711	0.556	10.142	0.411	9.627	0.522	10.214
0.583	9.981	0.450	9.671	0.558	10.126	0.413	9.582	0.524	10.302
0.585	9.950	0.453	9.600	0.560	10.156	0.415	9.695	0.526	10.283
		0.455	9.685	0.562	10.204	0.417	9.712	0.528	10.305
2429377 +		0.457	9.586	0.564	10.178	0.419	9.540	0.530	10.220
0.333	10.595	0.459	9.486	0.570	10.285	0.422	9.657	0.532	10.251
0.335	10.740	0.464	9.588	0.572	10.288	0.424	9.677	0.534	10.302
0.337	10.906	0.466	9.681	0.574	10.315	0.426	9.692	0.536	10.287
0.339	10.792	0.469	9.681			0.428	9.789	0.538	10.262
0.341	10.748	0.471	9.532	2429378 +		0.430	9.757	0.540	10.388
0.344	10.672	0.479	9.629	0.333	10.720	0.432	9.780	0.542	10.307
0.346	10.792	0.481	9.658	0.335	10.760	0.434	9.571	0.544	10.296
0.348	11.098	0.483	9.618	0.338	10.720	0.436	9.786	0.547	10.220
0.350	10.809	0.485	9.732	0.340	10.780	0.438	9.759	0.549	10.422
0.352	10.811	0.487	9.666	0.342	10.793	0.440	9.675	0.551	10.550
0.354	10.833	0.489	9.764	0.344	10.637	0.442	9.767	0.553	10.384
0.356	10.856	0.491	9.772	0.346	10.539	0.444	9.741	0.555	10.462
0.358	10.769	0.494	9.602	0.348	10.380	0.447	9.856	0.557	10.238
0.360	10.987	0.496	9.694	0.350	10.548	0.449	9.803	0.559	10.385
0.362	10.938	0.498	9.681	0.352	10.500	0.454	9.879	0.561	10.353
0.364	10.690	0.500	9.826	0.354	10.329	0.465	9.852	0.563	10.387
0.366	10.640	0.502	9.810	0.356	10.539	0.467	9.921	0.565	10.505
0.396	10.485	0.504	9.873	0.358	10.651	0.469	9.986	0.567	10.494
0.398	10.564	0.506	9.861	0.360	10.419	0.472	9.767	0.569	10.448
0.400	10.508	0.508	9.820	0.363	10.413	0.474	9.945	0.572	10.434
0.403	10.590	0.510	9.789	0.365	10.310	0.476	9.959	0.574	10.504
0.405	10.497	0.512	9.816	0.367	10.279	0.478	10.043	0.576	10.418
0.407	10.497	0.514	9.883	0.369	10.333	0.480	9.825		
0.409	10.493	0.516	9.881	0.372	10.314	0.482	10.105	2429449 +	
0.411	10.439	0.519	9.964	0.374	10.271	0.484	9.850	0.364	10.466
0.413	10.159	0.521	9.911	0.376	9.969	0.486	10.125	0.366	10.419
0.415	10.232	0.523	9.995	0.378	10.068	0.488	10.152	0.368	10.407
0.417	10.078	0.525	9.900	0.380	10.053	0.490	9.991	0.370	10.397
0.419	10.209	0.527	9.936	0.382	10.063	0.492	10.117	0.372	10.282
0.421	10.169	0.529	9.930	0.384	9.926	0.494	10.114	0.374	10.190
0.423	10.094	0.531	9.952	0.386	10.046	0.497	9.926	0.376	10.091
0.425	10.078	0.533	9.957	0.388	9.864	0.499	9.990	0.378	10.109
0.428	10.103	0.535	10.083	0.390	9.824	0.501	10.038	0.380	10.105
0.430	10.092	0.537	10.016	0.392	9.921	0.503	10.149	0.382	9.902
0.432	10.081	0.539	10.105	0.394	9.805	0.505	10.029	0.387	9.846
0.434	9.968	0.541	10.134	0.397	9.776	0.507	10.255	0.389	9.788
0.436	9.868	0.544	10.194	0.399	9.703	0.509	10.164	0.391	9.791
0.438	9.881	0.546	10.099	0.401	9.665	0.511	10.195	0.394	9.736

0.396	9.769	0.410	10.398	0.517	10.054	0.454	9.810	0.322	10.724
0.398	9.635	0.412	10.506	0.519	9.993	0.456	9.903	0.324	10.568
0.400	9.617	0.414	10.402	0.521	9.978	0.458	9.788	0.326	10.819
0.402	9.565	0.416	10.213	0.523	9.993	0.460	9.784	0.328	10.833
0.404	9.639	0.418	10.332	0.525	9.991	0.462	9.924	0.330	10.887
0.406	9.646	0.420	10.404	0.527	9.985	0.464	9.909	0.332	10.732
0.412	9.564	0.422	10.164			0.472	9.882	0.334	10.784
0.414	9.532	0.424	10.221	2429465 +		0.474	9.913	0.337	10.784
0.416	9.654	0.426	10.251	0.425	10.836	0.476	9.898	0.339	10.828
0.418	9.631	0.428	10.198	0.427	10.711	0.479	9.801	0.341	10.686
0.420	9.647	0.431	10.236	0.429	10.864	0.481	9.868	0.343	10.763
0.422	9.552	0.433	10.091	0.431	10.893	0.483	9.885	0.345	10.661
0.424	9.583	0.435	10.097	0.433	10.886	0.485	9.802	0.347	10.725
0.426	9.680	0.437	10.017	0.435	10.766	0.489	9.794	0.349	10.658
0.428	9.689	0.440	9.894	0.438	10.865	0.491	9.951	0.351	10.850
0.430	9.672	0.446	9.756	2429467 +		0.493	9.925	0.353	10.723
0.435	9.709	0.448	9.877	0.431	10.556	0.495	9.918	0.355	10.856
0.437	9.651	0.450	9.902	0.433	10.650	0.497	9.919	0.357	10.846
0.439	9.658	0.452	9.702	0.435	10.625	0.499	9.957	0.359	10.855
0.441	9.705	0.454	9.827	0.438	10.529	0.501	9.855	0.362	10.912
0.443	9.699	0.456	9.748	0.440	10.582	0.504	9.884	0.364	10.660
0.445	9.800	0.458	9.740	0.442	10.645	0.506	10.018	0.366	10.656
0.447	9.800	0.460	9.700	0.444	10.675	0.508	9.991	0.368	10.926
0.449	9.811	0.462	9.767	0.446	10.441	0.510	10.024	0.370	10.860
0.451	9.822	0.465	9.742	0.448	10.579	0.512	10.041	0.372	10.658
0.453	9.778	0.467	9.671	0.450	10.375	0.514	9.975	0.374	10.654
		0.469	9.727	0.452	10.397	0.516	10.000	0.376	10.757
2429458 +		0.471	9.868	0.454	10.444	0.518	10.023	0.378	10.783
0.370	10.772	0.473	9.849	0.456	10.343	0.520	10.047	0.380	10.930
0.372	10.753	0.475	9.794	0.458	10.402	0.522	10.087	0.382	10.759
0.374	10.779	0.477	9.773			0.524	9.932	0.384	10.852
0.376	10.788	0.479	9.741	2429468 +		0.526	10.043	0.387	10.663
0.378	10.746	0.481	9.803	0.420	10.171	0.529	10.053	0.389	10.751
0.381	10.906	0.483	9.871	0.422	10.394	0.533	10.000	0.391	10.896
0.383	10.715	0.489	9.765	0.424	10.294	0.535	10.253	0.393	10.684
0.385	10.767	0.491	9.926	0.426	10.261	0.537	10.150	0.395	10.855
0.387	10.667	0.493	9.772	0.429	10.077	0.539	10.258	0.397	10.734
0.389	10.540	0.495	9.734	0.431	10.177			0.399	10.800
0.391	10.545	0.498	9.999	0.433	10.011	2429518 +		0.401	10.896
0.393	10.581	0.500	9.933	0.435	10.022	0.305	10.747	0.403	10.829
0.395	10.639	0.502	9.782	0.437	10.012	0.307	10.656	0.405	10.898
0.397	10.438	0.504	9.964	0.439	10.003	0.309	10.656	0.407	10.868
0.399	10.595	0.506	9.944	0.441	9.922	0.312	10.657	0.409	10.859
0.401	10.482	0.508	9.761	0.443	10.053	0.314	10.747	0.412	10.959
0.403	10.418	0.510	9.914	0.447	10.019	0.316	10.649	0.414	10.776
0.406	10.359	0.512	10.049	0.449	9.899	0.318	10.692	0.416	10.837
0.408	10.369	0.514	10.057	0.451	9.743	0.320	10.584	0.418	10.791

0.420 10.881	0.373 10.758	0.468 9.559	0.346 10.582	0.371 10.811
0.422 10.763	0.375 10.842	0.471 9.626	0.348 10.588	0.373 10.770
0.428 10.726	0.377 10.964	0.473 9.803	0.350 10.637	0.375 10.712
0.430 10.879	0.379 10.864	0.475 9.590	0.352 10.551	0.377 10.914
0.432 10.832	0.381 10.999	0.477 9.631	0.354 10.577	0.379 10.815
0.434 10.889	0.383 10.916	0.479 9.610	0.356 10.539	0.381 10.837
0.437 10.884	0.385 10.688	0.481 9.594	0.358 10.361	0.383 10.805
0.439 10.775	0.387 10.715	0.483 9.663	0.360 10.486	0.385 10.791
0.441 10.802	0.389 10.674	0.485 9.720	0.362 10.333	0.387 10.655
0.443 10.772	0.390 10.812	0.487 9.786	0.364 10.338	0.389 10.730
0.446 10.832	0.391 10.675	0.489 9.683	0.366 10.317	0.391 10.673
0.448 10.726	0.394 10.762	0.491 9.878	0.369 10.404	0.393 10.892
0.450 10.634	0.396 10.540	0.494 9.731	0.371 10.203	0.396 10.615
0.452 10.652	0.398 10.504	0.496 9.704	0.373 10.205	0.398 10.616
0.454 10.632	0.400 10.702	0.498 9.819	0.375 10.243	0.400 10.668
0.456 10.596	0.402 10.576	0.500 9.776	0.380 10.073	0.402 10.775
0.458 10.541	0.404 10.646		0.382 10.122	0.404 10.604
0.460 10.345	0.406 10.416	2429520 +	0.389 9.984	0.406 10.690
0.462 10.267	0.408 10.597	0.285 10.907	0.391 9.867	0.408 10.774
0.464 10.387	0.410 10.404	0.287 10.865	0.394 9.792	0.410 10.666
0.466 10.219	0.412 10.626	0.289 10.840	0.396 9.737	0.412 10.440
0.469 10.109	0.414 10.441	0.291 10.821	0.398 9.928	0.414 10.561
0.471 10.200	0.416 10.309	0.294 10.812	0.400 9.627	0.416 10.729
0.473 10.189	0.419 10.305	0.296 10.968	0.402 9.711	0.422 10.771
0.475 10.227	0.421 10.195	0.298 10.820	0.404 9.687	0.425 10.808
0.477 9.994	0.423 10.330	0.300 10.757	0.406 9.770	0.427 10.868
0.479 10.050	0.425 10.128	0.302 10.927	0.408 9.736	0.429 10.689
0.481 9.939	0.427 10.125	0.304 10.830	0.410 9.731	0.431 10.713
0.483 10.036	0.429 10.014	0.306 10.799	0.412 9.704	0.433 10.733
0.485 9.844	0.431 9.970	0.308 10.947	0.414 9.811	0.435 10.788
0.487 9.858	0.433 9.955	0.310 10.853	0.439 9.798	0.437 10.766
0.489 9.738	0.435 9.931	0.312 10.724	0.441 9.775	0.439 10.771
0.491 9.665	0.437 9.958	0.314 10.838	0.444 9.760	0.441 10.797
0.494 9.663	0.439 9.881	0.316 10.781	0.446 9.848	0.444 10.789
0.496 9.644	0.441 9.747	0.319 10.807	0.448 9.803	0.446 10.732
0.498 9.528	0.444 9.789	0.321 10.740	0.450 9.832	0.448 10.784
0.500 9.773	0.446 9.681	0.323 10.830	0.452 9.924	0.450 10.909
0.503 9.630	0.448 9.756	0.325 10.848	0.454 9.926	0.452 10.850
0.505 9.757	0.450 9.751	0.327 10.740	0.456 9.941	0.454 10.857
0.507 9.711	0.452 9.677	0.329 10.904	0.458 10.077	0.456 10.780
0.509 9.675	0.454 9.570	0.331 10.893	0.460 9.998	0.458 10.854
0.511 9.667	0.456 9.577	0.333 10.756	0.462 9.931	0.460 10.864
	0.458 9.524	0.335 10.689	0.464 9.989	0.462 10.835
2429519 +	0.460 9.569	0.337 10.598	0.466 9.984	0.464 10.935
0.366 11.025	0.462 9.498	0.339 10.791		0.466 10.746
0.369 10.972	0.464 9.498	0.341 10.775	2429527 +	0.469 10.611
0.371 10.833	0.466 9.579	0.344 10.735	0.369 10.795	0.471 10.584

0.473 10.731	0.575 9.837	0.379 10.788	0.417 9.983	0.307 10.795
0.475 10.770	0.577 9.992	0.381 10.905	0.419 9.966	0.309 10.688
0.477 10.823	0.579 10.085	0.385 10.711	0.421 9.939	0.311 10.839
0.479 10.828	0.581 9.842	0.387 10.773	0.423 10.131	0.313 10.797
0.481 10.813	0.583 9.717	0.389 10.835	0.425 10.114	0.337 10.326
0.483 10.853	0.585 10.141	0.391 10.708	0.427 10.064	0.339 10.244
0.485 10.574	0.587 9.921	0.394 10.643	0.429 10.032	0.341 10.545
0.487 10.638	0.589 9.799	0.396 10.668	0.432 10.020	0.343 10.297
0.489 10.735	0.591 9.685	0.398 10.882	0.434 10.051	0.345 10.301
0.491 10.559	0.594 9.908	0.400 10.534	0.436 10.064	0.347 10.446
0.494 10.763	0.596 9.976	0.402 10.630	0.438 10.042	0.349 10.212
0.496 10.537	0.598 9.913	0.404 10.756	0.440 10.006	0.351 10.513
0.498 10.311	0.600 10.009	0.406 10.514	0.442 10.050	0.354 10.414
0.500 10.581	0.602 10.033	0.408 10.587	0.444 10.072	0.356 10.457
0.502 10.440	0.604 10.008	0.410 10.635	0.446 10.201	0.358 10.489
0.504 10.319	0.606 10.067	0.412 10.604	0.448 10.157	0.360 10.447
0.510 10.223	0.608 10.169	0.414 10.723		0.362 10.438
0.512 10.304	0.610 10.061	0.416 10.867	2429607 +	0.364 10.446
0.514 10.160		0.419 10.711	0.244 10.635	0.367 10.453
0.516 10.352	2429546 +	0.421 10.827	0.246 10.769	0.369 10.472
0.518 10.047	0.323 10.610	0.423 10.561	0.248 10.601	0.371 10.469
0.521 10.002	0.325 10.537	0.425 10.802	0.251 10.625	0.373 10.519
0.523 10.219	0.327 10.622	0.427 10.459	0.253 10.715	0.375 10.523
0.525 9.896	0.329 10.609	0.429 10.503	0.255 10.551	0.377 10.539
0.527 10.095	0.331 10.698	0.431 10.682	0.257 10.817	0.379 10.697
0.529 10.007	0.333 10.653	0.433 10.628	0.259 10.553	0.381 10.587
0.531 9.867	0.335 10.567	0.435 10.490	0.261 10.787	0.383 10.498
0.533 9.858	0.337 10.559	0.437 10.758	0.263 10.464	0.385 10.649
0.535 9.870	0.339 10.614	0.439 10.560	0.265 10.590	0.387 10.637
0.537 9.967	0.341 10.637	0.441 10.453	0.267 10.592	0.389 10.539
0.539 9.896	0.344 10.586	0.443 10.622	0.269 10.795	0.392 10.685
0.541 9.728	0.346 10.479		0.271 10.757	0.394 10.622
0.544 9.696	0.348 10.625	2429551 +	0.273 10.729	0.396 10.565
0.546 9.731	0.350 10.582	0.388 9.825	0.276 10.794	0.398 10.656
0.548 9.747	0.352 10.513	0.390 9.757	0.278 10.691	0.400 10.872
0.550 9.820	0.354 10.606	0.392 9.759	0.280 10.761	0.402 10.479
0.552 9.843	0.356 10.686	0.394 9.833	0.282 10.690	0.404 10.779
0.554 9.732	0.358 10.741	0.396 9.855	0.284 10.863	0.406 10.421
0.556 9.855	0.360 10.560	0.398 9.719	0.286 10.759	
0.558 9.741	0.362 10.648	0.400 9.849	0.288 10.761	2429690 +
0.560 9.821	0.364 10.704	0.402 9.877	0.290 10.525	0.532 9.892
0.562 9.857	0.366 10.587	0.405 9.891	0.292 10.927	0.534 9.697
0.564 9.875	0.369 10.675	0.407 9.853	0.294 10.747	0.537 9.765
0.566 9.856	0.371 10.664	0.409 9.893	0.296 10.775	0.539 9.749
0.569 9.774	0.373 10.771	0.411 10.001	0.298 10.705	0.541 9.718
0.571 9.875	0.375 10.623	0.413 9.940	0.301 10.887	0.543 9.804
0.573 9.834	0.377 10.855	0.415 9.980	0.305 10.662	0.546 9.784

0.548	9.910	0.455	9.810	0.556	10.227	0.591	9.832	0.446	10.107
0.550	9.842	0.457	9.781	0.558	10.148	0.593	9.729	0.448	9.952
0.552	9.936	0.459	9.828	0.560	10.242	0.595	9.722	0.450	10.001
0.555	9.930	0.462	9.921	0.562	10.210	0.597	9.711	0.452	9.977
0.557	9.930	0.464	9.850	0.564	10.237	0.600	9.861	0.458	9.911
0.559	9.949	0.466	9.843	0.567	10.227	0.602	9.877	0.460	9.840
0.561	9.775	0.468	9.751	0.569	10.231	0.604	9.900	0.462	9.849
0.563	10.019	0.470	9.831	0.571	10.262	0.606	9.910	0.464	9.868
0.565	10.082	0.472	9.760			0.608	10.011	0.466	9.735
0.567	9.927	0.474	9.838	2429699 +		0.610	9.920	0.469	9.726
0.569	9.955	0.476	9.956	0.514	10.407	0.612	9.930	0.471	9.763
0.571	10.137	0.478	9.872	0.516	10.300	0.614	9.940	0.473	9.787
0.573	9.920	0.480	9.851	0.518	10.246	0.616	9.904	0.475	9.730
0.575	9.995	0.482	9.803	0.520	10.233	0.618	9.894	0.477	9.723
0.578	10.023	0.484	9.897	0.522	10.141	0.620	9.942	0.479	9.753
0.580	10.058	0.487	9.837	0.525	10.088	0.622	9.955	0.481	9.736
0.582	9.991	0.489	9.840	0.527	10.100	0.625	10.054	0.483	9.775
0.584	9.957	0.491	9.953	0.529	10.061	0.627	10.129	0.485	9.783
0.586	9.969	0.493	9.967	0.531	9.935	0.629	10.115	0.487	9.760
0.588	10.024	0.495	9.878	0.533	10.035	0.631	10.075	0.489	9.745
0.590	10.150	0.498	9.901	0.535	10.022	0.633	10.089	0.491	9.758
0.592	10.044	0.500	9.958	0.537	10.006			0.494	9.766
0.594	10.123	0.502	9.887	0.539	9.906	2429701 +		0.496	9.782
0.596	10.108	0.504	9.933	0.541	9.951	0.396	10.655	0.498	9.881
0.598	10.131	0.506	10.010	0.543	9.880	0.398	10.737	0.500	9.941
0.600	10.093	0.508	10.007	0.545	9.960	0.400	10.625	0.502	9.901
0.603	10.128	0.510	9.980	0.547	9.819	0.402	10.593	0.504	9.868
0.605	10.125	0.512	9.926	0.550	9.815	0.404	10.494	0.506	9.826
0.607	10.148	0.514	10.033	0.552	9.829	0.406	10.690	0.508	9.854
0.609	10.165	0.516	10.024	0.554	9.724	0.408	10.553	0.510	9.939
0.611	10.203	0.519	10.030	0.556	9.737	0.410	10.535	0.512	9.935
0.613	10.203	0.521	10.066	0.558	9.750	0.412	10.505	0.514	9.923
0.615	10.215	0.523	10.060	0.560	9.631	0.414	10.623	0.516	9.984
0.617	10.218	0.525	10.077	0.562	9.691	0.416	10.481	0.519	9.927
0.619	10.243	0.527	10.081	0.564	9.697	0.418	10.551	0.521	9.957
0.621	10.257	0.529	10.089	0.566	9.526	0.421	10.473	0.523	9.974
0.623	10.353	0.531	10.024	0.568	9.664	0.423	10.455	0.525	9.957
0.625	10.426	0.533	10.063	0.570	9.648	0.425	10.387	0.527	9.970
0.628	10.344	0.535	10.095	0.572	9.576	0.427	10.285	0.529	10.014
0.630	10.245	0.537	10.104	0.575	9.658	0.429	10.392	0.531	10.013
0.632	10.326	0.539	10.149	0.577	9.652	0.431	10.287	0.533	10.077
		0.541	10.179	0.579	9.780	0.433	10.260	0.535	10.030
2429691 +		0.544	10.166	0.581	9.694	0.435	10.128	0.537	10.083
0.447	9.892	0.546	10.147	0.583	9.674	0.437	10.171	0.539	9.986
0.449	9.977	0.550	10.088	0.585	9.647	0.439	10.128	0.541	10.149
0.451	9.930	0.552	10.138	0.587	9.609	0.441	10.083	0.544	10.009
0.453	9.922	0.554	10.249	0.589	9.727	0.444	10.138	0.546	10.039

0.548 10.056	2429721 +	0.530 9.737	0.406 10.444	0.513 9.915
	0.432 10.549		0.408 10.490	0.515 9.857
2429720 +	0.434 10.595	2429730 +	0.410 10.423	0.517 9.966
0.486 10.413	0.438 10.450	0.532 9.592	0.412 10.203	0.519 9.921
0.488 10.440	0.440 10.372	0.534 9.489	0.414 10.259	0.521 9.955
0.490 10.355	0.442 10.384	0.536 9.500	0.417 10.233	0.523 9.994
0.492 10.418	0.444 10.442	0.538 9.393	0.419 10.204	0.525 9.955
0.494 10.344	0.446 10.407	0.540 9.392	0.421 10.201	0.528 10.045
0.496 10.105	0.448 10.451	0.543 9.286	0.423 10.055	0.530 9.943
0.498 10.152	0.450 10.373	0.545 9.338	0.425 9.864	0.532 10.032
0.500 10.100	0.453 10.220	0.547 9.378	0.428 9.837	0.534 9.946
0.503 10.110	0.455 10.163	0.549 9.376	0.430 9.759	0.536 10.078
0.505 10.011	0.457 9.858	0.551 9.393	0.432 9.594	0.538 10.026
0.507 9.847	0.459 9.789	0.553 9.457	0.434 9.707	0.540 10.046
0.509 9.855	0.461 9.839	0.555 9.474	0.436 9.553	0.542 10.289
0.511 9.586	0.463 9.714	0.557 9.507	0.438 9.690	0.544 10.434
0.513 9.696	0.465 9.703	0.559 9.576	0.440 9.659	0.546 10.348
0.515 9.557	0.467 9.627	0.561 9.507	0.442 9.652	0.548 10.347
0.517 9.506	0.469 9.645	0.563 9.456	0.444 9.634	0.550 10.614
0.519 9.547	0.471 9.551	0.566 9.526	0.446 9.581	0.552 10.372
0.521 9.500	0.473 9.661	0.568 9.404	0.448 9.610	0.554 10.393
0.523 9.411	0.475 9.667	0.570 9.485	0.451 9.438	0.556 10.550
0.525 9.553	0.478 9.505	0.572 9.519	0.453 9.506	0.558 10.555
0.528 9.437	0.480 9.458	0.574 9.532	0.455 9.557	0.560 10.390
0.530 9.430	0.482 9.462	0.576 9.572	0.457 9.532	
0.532 9.413	0.484 9.489	0.578 9.752	0.459 9.575	2429734 +
0.534 9.437	0.486 9.387	0.580 9.614	0.461 9.532	0.323 10.411
0.536 9.474	0.488 9.603	0.582 9.617	0.463 9.564	0.325 10.135
0.538 9.420	0.490 9.562	0.590 9.765	0.465 9.596	0.327 10.137
0.540 9.497	0.492 9.603	0.592 9.900	0.467 9.603	0.329 10.113
0.542 9.484	0.494 9.625	0.594 10.128	0.469 9.690	0.331 9.894
0.544 9.471	0.496 9.569	0.596 9.628	0.471 9.613	0.333 9.785
0.546 9.516	0.498 9.593	0.598 9.918	0.473 9.684	0.335 9.719
0.548 9.611	0.500 9.550	0.600 9.903	0.476 9.640	0.337 9.688
0.550 9.622	0.503 9.542	0.602 9.893	0.478 9.678	0.339 9.529
0.553 9.658	0.505 9.681	0.605 10.174	0.480 9.650	0.342 9.609
0.555 9.619	0.507 9.634	0.607 10.004	0.482 9.734	0.344 9.443
0.557 9.676	0.509 9.551		0.484 9.765	0.346 9.449
0.559 9.682	0.511 9.588	2429732 +	0.486 9.682	0.348 9.462
0.561 9.531	0.513 9.545	0.389 10.735	0.488 9.743	0.351 9.464
0.563 9.738	0.515 9.569	0.392 10.736	0.490 9.746	0.353 9.450
0.565 9.685	0.517 9.606	0.394 10.696	0.500 9.771	0.356 9.464
0.567 9.702	0.519 9.815	0.396 10.548	0.503 9.849	0.358 9.473
0.569 9.838	0.521 9.749	0.398 10.576	0.505 9.778	0.360 9.565
0.571 9.825	0.523 9.792	0.400 10.377	0.507 9.860	0.362 9.525
0.573 9.767	0.525 9.750	0.402 10.673	0.509 9.908	0.365 9.527
0.575 9.720	0.528 9.723	0.404 10.585	0.511 10.086	0.367 9.589

0.414 10.681	0.519 10.751	0.374 10.686	0.482 10.734	0.276 10.046
0.416 10.703	0.521 10.739	0.376 10.653	0.484 10.749	0.278 9.989
0.418 10.662	0.523 10.759	0.378 10.682	0.486 10.857	0.280 9.946
0.420 10.578	0.525 10.812	0.380 10.651	0.488 10.811	0.282 9.944
0.422 10.594	0.527 10.780	0.382 10.655	0.490 10.856	0.284 9.925
0.425 10.797	0.529 10.849	0.384 10.655	0.492 10.651	0.286 9.883
0.427 10.791	0.532 10.929	0.386 10.761	0.494 10.848	0.288 9.900
0.431 10.799	0.534 10.811	0.392 10.751	0.496 10.914	0.290 9.855
0.433 10.679	0.536 10.873	0.394 10.572	0.498 10.774	0.292 9.739
0.435 10.706	0.538 10.845	0.396 10.662	0.500 10.817	0.294 9.799
0.437 10.638	0.540 10.773	0.398 10.765	0.502 10.735	0.419 10.411
0.439 10.753	0.542 10.876	0.400 10.633	0.504 10.731	0.421 10.399
0.441 10.698	0.544 10.772	0.402 10.741	0.507 10.879	0.423 10.370
0.443 10.761	0.546 10.793	0.405 10.708	0.509 10.779	0.425 10.332
0.445 10.776	0.548 10.732	0.407 10.663	0.511 10.711	0.427 10.411
0.447 10.578	0.550 10.668	0.409 10.737	0.513 10.694	0.429 10.353
0.450 10.630	0.552 10.898	0.411 10.716	0.515 10.770	0.431 10.468
0.452 10.788	0.554 10.842	0.413 10.712	0.517 10.724	0.433 10.306
0.454 10.761	0.557 10.754	0.415 10.751	0.519 10.729	0.435 10.457
0.456 10.797	0.559 10.657	0.417 10.752	0.521 10.617	0.437 10.402
0.458 10.744	0.561 10.760	0.419 10.696	0.523 10.538	0.439 10.404
0.460 10.652	0.563 10.723	0.421 10.677	0.525 10.558	0.442 10.447
0.462 10.744	0.565 10.609	0.426 10.648	0.527 10.561	0.444 10.456
0.464 10.822	0.567 10.579	0.428 10.692	0.530 10.571	0.446 10.482
0.466 10.653	0.569 10.729	0.430 10.641	0.532 10.508	0.448 10.524
0.468 10.718	0.571 10.655	0.432 10.668	0.534 10.466	0.450 10.477
0.470 10.759	0.573 10.550	0.434 10.754	0.536 10.478	0.452 10.374
0.472 10.689	0.575 10.542	0.436 10.737	0.538 10.479	0.454 10.485
0.475 10.698	0.577 10.488	0.438 10.707	0.540 10.441	0.456 10.571
0.482 10.726	0.579 10.371	0.440 10.719	0.544 10.268	0.461 10.519
0.484 10.771	0.582 10.461	0.443 10.766	0.546 10.230	0.463 10.608
0.486 10.644	0.584 10.373	0.445 10.639	0.548 10.003	0.465 10.363
0.488 10.637		0.447 10.779	0.550 10.138	0.467 10.547
0.490 10.847	2431331 +	0.449 10.760	0.552 10.123	0.469 10.624
0.492 10.789	0.344 10.668	0.451 10.811	0.555 10.117	0.471 10.480
0.494 10.695	0.346 10.627	0.453 10.722	0.557 9.992	0.474 10.649
0.496 10.734	0.348 10.713	0.455 10.809	0.559 10.007	0.476 10.610
0.498 10.898	0.350 10.725	0.457 10.737	0.561 10.005	0.478 10.633
0.500 10.851	0.352 10.727	0.459 10.725	0.563 9.900	0.480 10.475
0.502 10.616	0.354 10.761	0.461 10.779	0.565 9.830	0.482 10.516
0.504 10.608	0.357 10.674	0.463 10.821	0.567 9.785	0.484 10.571
0.507 10.738	0.359 10.658	0.466 10.773	0.569 9.812	0.486 10.456
0.509 10.922	0.361 10.690	0.471 10.775	0.571 9.727	0.488 10.532
0.511 10.867	0.363 10.675	0.473 10.737	0.573 9.805	0.490 10.602
0.513 10.699	0.368 10.683	0.475 10.807		0.492 10.607
0.515 10.737	0.370 10.690	0.477 10.830	2431347 +	0.494 10.558
0.517 10.865	0.372 10.747	0.480 10.840	0.274 10.113	0.496 10.546

0.498 10.711	0.277 10.104	0.417 10.653	0.505 10.887	0.439 10.823
0.501 10.568	0.279 10.129	0.419 10.829	0.507 10.739	0.441 10.791
0.503 10.706	0.281 10.188	0.421 10.716	0.510 10.872	0.443 10.746
0.505 10.574	0.283 10.146	0.423 10.487	0.514 10.876	0.445 10.788
0.507 10.664	0.285 10.138	0.426 10.664	0.516 10.851	0.447 10.772
0.509 10.620	0.287 10.143	0.428 10.604	0.518 10.740	0.449 10.806
0.511 10.589	0.289 10.205	0.430 10.749	0.520 10.810	0.451 10.689
0.513 10.660	0.292 10.149	0.438 10.691	0.522 10.728	0.453 10.716
0.515 10.628	0.294 10.119	0.440 10.609	0.524 10.721	0.455 10.759
0.517 10.601	0.296 10.238	0.442 10.632	0.526 10.827	0.458 10.704
0.519 10.560	0.298 10.333	0.444 10.604	0.528 10.866	0.460 10.709
0.521 10.673	0.336 10.290	0.446 10.756	0.530 10.751	0.462 10.711
0.523 10.660	0.338 10.402	0.448 10.709	0.532 10.788	0.464 10.697
0.526 10.525	0.340 10.434	0.451 10.872	0.535 10.628	0.466 10.643
0.528 10.645	0.342 10.397	0.453 10.692	0.537 10.742	0.468 10.600
0.530 10.786	0.344 10.321	0.455 10.829	0.539 10.656	0.470 10.608
0.532 10.759	0.346 10.389	0.457 10.827	0.541 10.761	0.472 10.653
0.534 10.702	0.348 10.336	0.459 10.687	0.543 10.632	0.474 10.571
0.536 10.619	0.351 10.443	0.461 10.603	0.545 10.743	0.476 10.623
0.538 10.608	0.353 10.384	0.463 10.824	0.547 10.710	0.478 10.557
0.540 10.763	0.355 10.461	0.465 10.591	0.549 10.716	0.480 10.535
0.542 10.763	0.357 10.524	0.467 10.782	0.551 10.664	0.482 10.514
0.544 10.734	0.359 10.487	0.469 10.776	0.553 10.691	0.485 10.446
0.546 10.660	0.361 10.439	0.471 10.623	0.555 10.663	0.487 10.384
0.548 10.675	0.363 10.537	0.473 10.695	0.557 10.522	0.489 10.346
0.551 10.678	0.365 10.494	0.476 10.670	0.560 10.610	0.491 10.324
0.553 10.816	0.367 10.499	0.478 10.845	0.562 10.518	0.493 10.374
0.555 10.513	0.369 10.509	0.480 10.721	0.564 10.521	0.495 10.400
0.557 10.542	0.371 10.416	0.482 10.668	0.566 10.429	0.497 10.303
0.559 10.682	0.373 10.547	0.485 10.687	0.568 10.504	0.499 10.355
0.561 10.817	0.376 10.612		0.570 10.424	0.501 10.319
0.563 10.662	0.384 10.463	2431350 +	0.572 10.487	0.503 10.287
0.565 10.626	0.386 10.564	0.474 10.879	0.574 10.429	0.505 10.205
0.567 10.727	0.388 10.557	0.476 10.796	0.576 10.523	0.507 10.249
0.569 10.849	0.390 10.637	0.478 10.742	0.578 10.278	0.510 10.257
0.571 10.744	0.392 10.515	0.480 10.779	0.580 10.397	0.512 10.214
0.573 10.684	0.394 10.549	0.482 10.844	0.582 10.320	0.514 10.217
0.576 10.514	0.396 10.496	0.485 10.815	0.585 10.292	0.516 10.137
0.578 10.643	0.398 10.497	0.487 10.796	0.587 10.292	0.518 10.097
0.580 10.646	0.401 10.505	0.489 10.805	0.589 10.403	0.520 10.093
0.582 10.735	0.403 10.473	0.491 10.821	0.591 10.274	0.522 10.033
0.584 10.643	0.405 10.631	0.493 10.817	0.593 10.293	0.524 10.076
	0.407 10.642	0.495 10.804	0.595 10.347	0.526 10.077
2431349 +	0.409 10.563	0.497 10.822		0.532 9.911
0.271 10.094	0.411 10.666	0.499 10.812	2431352 +	0.534 9.903
0.273 10.192	0.413 10.517	0.501 10.740	0.435 10.819	0.536 9.872
0.275 10.087	0.415 10.644	0.503 10.853	0.437 10.821	0.538 9.758

0.540	9.799	0.412	10.667	0.515	9.914	0.496	10.010	0.381	9.959
0.542	9.747	0.415	10.610	0.517	9.874	0.498	10.089	0.383	9.894
0.544	9.787	0.417	10.491	0.519	9.880	0.500	10.038	0.385	9.914
0.547	9.660	0.419	10.554	0.522	9.932	0.502	9.973	0.387	9.970
0.549	9.728	0.421	10.474	0.524	9.895	0.504	9.966	0.389	9.837
0.551	9.822	0.423	10.375	0.526	9.863	0.506	9.972	0.391	10.011
0.553	9.869	0.425	10.464	0.528	10.039	0.508	10.027		
0.555	9.705	0.427	10.526	0.531	9.960	0.510	10.046	2431376 +	
0.557	9.835	0.429	10.447	0.533	10.022	0.513	10.127	0.259	10.764
0.560	9.859	0.431	10.449	0.535	9.974	0.515	10.190	0.261	10.701
0.562	9.841	0.433	10.395	0.537	10.009	0.517	10.112	0.264	10.944
0.564	9.899	0.435	10.512	0.539	10.029	0.519	10.189	0.266	10.817
0.566	9.891	0.437	10.338	0.541	9.987	0.521	10.242	0.268	10.814
0.568	9.843	0.440	10.234	0.543	9.892	0.523	10.096	0.270	10.816
0.570	9.773	0.442	10.248	0.545	10.071	0.525	10.121	0.272	10.876
0.572	9.831	0.444	10.161	0.547	10.087	0.527	10.167	0.274	10.916
0.574	9.878	0.446	10.209	0.549	10.120	0.529	10.194	0.276	10.799
0.576	9.779	0.448	10.282	0.551	10.063	0.531	10.080	0.278	10.760
0.578	9.863	0.450	10.184	0.553	10.093	0.533	10.383	0.280	10.903
0.580	10.037	0.452	10.189	0.556	10.034	0.535	10.244	0.282	10.934
0.582	9.961	0.454	10.131	0.558	10.242	0.537	10.211	0.284	10.636
0.585	9.935	0.456	10.161	0.560	10.082	0.540	10.283	0.286	10.842
0.587	10.027	0.458	10.085	0.562	10.166	0.542	10.358	0.289	10.745
0.589	9.963	0.460	10.108			0.544	10.308	0.291	10.883
0.591	10.024	0.462	10.094	2431354 +		0.546	10.320	0.293	10.648
0.593	10.165	0.464	10.071	0.450	9.708	0.548	10.348	0.295	10.957
0.595	10.131	0.467	10.041	0.452	9.729	0.550	10.321	0.297	10.750
0.597	10.002	0.469	9.917	0.454	9.770	0.552	10.314		
0.599	9.958	0.471	9.861	0.456	9.774	0.554	10.441	2431700 +	
0.601	9.998	0.473	10.002	0.458	9.864	0.556	10.328	0.331	10.770
0.603	9.961	0.475	9.902	0.460	9.730	0.558	10.288	0.333	10.755
0.605	10.035	0.480	9.911	0.462	9.874	0.562	10.470	0.335	10.688
0.607	10.021	0.482	9.760	0.465	9.887	0.565	10.371	0.340	10.753
0.610	9.999	0.484	9.829	0.467	9.990	0.567	10.409	0.342	10.758
0.612	10.208	0.486	9.774	0.469	9.833	0.569	10.374	0.344	10.659
0.614	10.198	0.490	9.827	0.471	9.775	0.571	10.460	0.346	10.731
0.616	10.137	0.492	9.840	0.473	9.760	0.573	10.405	0.348	10.557
0.618	10.231	0.494	9.795	0.475	9.803			0.350	10.449
0.620	10.163	0.496	9.812	0.477	9.877	2431355 +		0.352	10.536
0.622	10.144	0.499	9.733	0.479	9.962	0.364	10.160	0.354	10.313
0.624	10.124	0.501	9.750	0.481	9.917	0.366	10.209	0.356	10.506
		0.503	9.682	0.483	10.105	0.369	10.117	0.358	10.283
2431353 +		0.505	9.830	0.485	9.936	0.371	10.004	0.360	10.214
0.404	10.642	0.507	9.758	0.487	9.881	0.373	10.042	0.362	10.050
0.406	10.635	0.509	9.758	0.490	10.036	0.375	10.014	0.365	10.230
0.408	10.616	0.511	9.934	0.492	9.941	0.377	9.987	0.367	10.101
0.410	10.669	0.513	9.841	0.494	9.824	0.379	10.032	0.369	9.962

0.371	9.871	0.489	10.102	0.404	10.993	0.481	10.758	0.504	10.568
0.373	9.775	0.491	10.147	0.406	10.844	0.483	10.825	0.506	10.695
0.375	9.705	0.493	10.138	0.408	10.615	0.485	10.788	0.508	10.653
0.377	9.546	0.495	10.332	0.410	10.756	0.488	10.782	0.510	10.689
0.379	9.556	0.497	10.318	0.412	10.863	0.490	10.846	0.512	10.712
0.381	9.326	0.499	10.252	0.415	10.858	0.492	10.783	0.514	10.714
0.383	9.319	0.501	10.308	0.417	10.715	0.494	10.883	0.516	10.707
0.385	9.271	0.503	10.309	0.419	10.814	0.496	11.050	0.519	10.722
0.387	9.350	0.506	10.268	0.421	10.783	0.498	11.015	0.521	10.609
0.402	9.388	0.508	10.495	0.423	10.637	0.500	10.937	0.523	10.681
0.404	9.506	0.510	10.481	0.425	10.656	0.502	10.685	0.525	10.807
0.406	9.531	0.512	10.344	0.427	10.713	0.504	10.782	0.527	10.669
0.408	9.442	0.514	10.267	0.429	10.681	0.506	10.791	0.529	10.734
0.410	9.518	0.516	10.378	0.431	10.711	0.508	10.967	0.531	10.860
0.412	9.460	0.518	10.434	0.433	10.483	0.510	10.819		
0.415	9.563	0.520	10.535	0.435	10.659	0.513	10.877	2434199 +	
0.417	9.680	0.522	10.413	0.437	10.504	0.515	10.804	0.370	10.524
0.419	9.565	0.524	10.427	0.440	10.442	0.517	10.873	0.404	10.552
0.421	9.686			0.442	10.436	0.519	10.640	0.451	10.571
0.423	9.574	2431708 +		0.444	10.286	0.521	10.717		
0.425	9.626	0.348	10.812	0.446	10.335	0.523	10.724	2434230 +	
0.427	9.689	0.350	10.806	0.448	10.264	0.525	10.756	0.428	10.873
0.429	9.639	0.352	10.815	0.450	10.244			0.469	10.796
0.431	9.584	0.354	10.749	0.460	10.074	2434197 +		0.507	10.817
0.433	9.680	0.356	10.665	0.462	9.957	0.456	10.679	0.561	10.190
0.443	9.870	0.358	10.732	0.464	9.911	0.458	10.638		
0.445	9.892	0.360	10.673	0.466	9.843	0.460	10.681	2434234 +	
0.447	9.839	0.362	10.755	0.468	9.774	0.462	10.624	0.347	10.614
0.449	9.976	0.365	10.867	0.470	9.798	0.464	10.440	0.349	10.455
0.451	9.754	0.367	10.771	0.472	9.780	0.464	10.540	0.351	10.469
0.453	9.818	0.369	10.742	0.474	9.750	0.466	10.540	0.353	10.436
0.456	9.851	0.371	10.861	0.476	9.714	0.469	10.566	0.355	10.493
0.458	10.006	0.373	10.964	0.478	9.608	0.471	10.476	0.357	10.401
0.460	10.045	0.375	10.929	0.480	9.668	0.473	10.518	0.359	10.260
0.462	9.978	0.377	10.823	0.482	9.701	0.475	10.576	0.361	10.135
0.464	9.902	0.379	10.596	0.485	9.670	0.477	10.519	0.363	10.299
0.466	10.031	0.381	10.781	0.487	9.570	0.479	10.726	0.365	10.298
0.468	10.028	0.383	10.812	0.489	9.628	0.481	10.860	0.367	10.331
0.470	10.091	0.385	10.889			0.483	10.518	0.369	10.298
0.472	10.065	0.387	10.798	2433896 +		0.485	10.723	0.371	10.084
0.474	9.970	0.389	10.766	0.467	10.657	0.487	10.598	0.373	10.255
0.476	9.998	0.392	10.904	0.469	10.751	0.489	10.552	0.375	10.103
0.478	10.113	0.394	10.778	0.471	10.659	0.491	10.750	0.378	10.060
0.480	10.173	0.396	10.795	0.473	10.757	0.494	10.682	0.380	10.178
0.483	10.273	0.398	10.832	0.475	10.734	0.496	10.686	0.382	10.192
0.485	10.184	0.400	10.629	0.477	10.779	0.498	10.729	0.387	10.001
0.487	10.127	0.402	10.726	0.479	10.861	0.500	10.690	0.389	10.105
						0.502	10.723	0.391	9.985

0.393 10.028	0.506 10.625	0.412 10.681	0.387 10.403	0.404 10.200
0.395 10.011	0.507 10.522	0.414 10.817	0.390 10.365	0.406 10.176
0.397 9.982	0.510 10.489	0.416 10.635	0.392 10.486	
0.399 10.032	0.512 10.359	0.418 10.764	0.394 10.444	2434455 +
0.401 10.034	0.514 10.418	0.420 10.674	0.396 10.457	0.416 10.546
0.403 9.995	0.516 10.318	0.423 10.714	0.398 10.339	0.418 10.442
0.405 9.997	0.518 10.388	0.425 10.614	0.400 10.296	0.421 10.504
0.407 9.892	0.520 10.244	0.427 10.648	0.402 10.273	0.424 10.426
0.409 9.885	0.522 10.191	0.429 10.698	0.404 10.461	0.427 10.510
0.412 9.843	0.524 10.154	0.431 10.605	0.406 10.189	0.430 10.319
0.414 9.904	0.527 10.181	0.433 10.456	0.408 10.218	0.432 10.312
0.416 9.902	0.529 10.097	0.435 10.474	0.410 10.188	0.435 10.299
	0.531 10.167	0.437 10.438	0.412 10.115	0.438 10.246
2434241 +	0.533 10.213	0.439 10.389	0.415 10.234	0.441 10.122
0.438 10.672	0.535 10.220	0.441 10.145	0.417 9.947	0.443 10.232
0.440 10.711	0.537 10.142	0.443 10.317	0.419 9.906	0.446 10.043
0.441 10.714	0.539 10.017	0.445 10.215	0.421 9.924	0.449 10.050
0.443 10.745	0.541 9.999	0.448 10.180	0.423 9.996	0.452 9.965
0.445 10.879	0.543 9.969	0.450 10.041	0.425 9.659	0.455 10.018
0.447 10.777	0.545 9.790	0.452 9.909	0.427 9.700	0.458 9.820
0.449 10.620	0.555 9.826	0.454 9.823	0.429 9.424	0.460 9.926
0.452 10.642	0.557 9.680	0.456 9.690	0.431 9.437	0.463 9.890
0.454 10.648	0.559 9.746	0.458 9.629	0.433 9.433	0.466 9.885
0.456 10.879	0.561 9.807	0.460 9.587	0.435 9.420	0.468 9.759
0.458 10.732	0.563 9.929	0.462 9.514	0.437 9.499	0.471 9.663
0.460 10.712	0.565 9.856	0.464 9.397	0.440 9.498	0.474 9.640
0.462 10.912	0.568 9.945	0.466 9.634	0.442 9.533	0.477 9.646
0.464 10.660	0.570 9.998	0.468 9.523		0.480 9.581
0.466 10.874	0.572 9.778	0.470 9.635	2434294 +	0.483 9.482
0.468 11.037	0.574 9.795	0.473 9.648	0.366 10.591	0.486 9.555
0.470 10.736	0.576 9.627	0.475 9.664	0.369 10.483	0.489 9.540
0.472 10.897	0.578 9.892	0.477 9.704	0.371 10.507	0.491 9.462
0.474 10.984	0.580 10.011	0.479 9.704	0.373 10.486	0.494 9.522
0.477 10.990	0.582 9.804	0.481 9.688	0.375 10.429	0.497 9.596
0.479 10.953		0.483 9.620	0.377 10.517	0.500 9.562
0.481 10.662	2434253 +	0.485 9.676	0.379 10.499	0.502 9.577
0.483 10.494	0.389 10.813	0.487 9.628	0.381 10.473	0.505 9.550
0.485 10.537	0.391 10.887	0.489 9.742	0.383 10.505	0.508 9.527
0.487 10.504	0.393 10.901	0.491 9.731	0.385 10.574	0.511 9.589
0.489 10.539	0.396 10.825	0.495 9.673	0.387 10.481	0.514 9.527
0.491 10.715	0.398 10.987	0.497 9.719	0.389 10.470	0.516 9.529
0.493 10.632	0.400 10.901	0.499 9.831	0.391 10.401	0.519 9.639
0.495 10.520	0.402 10.761	0.501 9.808	0.394 10.307	0.522 9.646
0.497 10.466	0.404 10.803	0.503 9.702	0.396 10.633	0.525 9.653
0.499 10.737	0.406 10.915		0.398 10.281	0.527 9.719
0.502 10.572	0.408 10.815	2434264 +	0.400 10.301	0.530 9.599
0.504 10.569	0.410 10.840	0.385 10.526	0.402 10.110	

2434476 +	2434488 +	0.462 10.484	2434575 +	0.361 9.641
0.434 9.946	0.324 10.564	0.465 10.434	0.469 10.676	0.364 9.551
0.437 9.839	0.327 10.607	0.468 10.501	0.472 10.774	0.369 9.573
0.440 9.887	0.330 10.530	0.470 10.480	0.475 10.806	0.370 9.626
0.442 9.700	0.332 10.340	0.473 10.539	0.477 10.836	0.372 9.453
0.445 9.757	0.335 10.280	0.476 10.175	0.480 10.779	0.375 9.631
0.448 9.631	0.338 10.312	0.479 10.316	0.483 10.878	0.382 9.298
0.451 9.472	0.341 10.242	0.482 10.242	0.486 11.051	0.384 9.555
0.453 9.515	0.344 10.395	0.484 10.186	0.489 10.864	0.399 9.496
0.456 9.435	0.346 10.193	0.487 9.990	0.491 10.924	0.402 9.377
0.459 9.419	0.349 10.099	0.490 9.996	0.494 10.840	0.404 9.400
0.462 9.326	0.352 9.972	0.493 9.927	0.497 10.774	
0.465 9.414	0.355 9.960	0.495 9.738	0.500 10.701	2434599 +
0.467 9.349	0.357 9.851	0.498 9.798	0.502 10.783	0.346 9.988
0.470 9.410	0.360 9.682	0.501 9.839	0.505 10.859	0.349 10.003
0.473 9.572	0.363 9.544	0.504 9.834	0.508 10.772	0.352 10.110
0.476 9.674	0.366 9.336	0.507 9.651	0.511 10.737	0.355 9.752
0.479 9.683	0.369 9.331	0.509 9.494	0.514 10.839	0.358 9.859
0.481 9.456	0.371 9.135	0.512 9.571	0.516 10.654	0.360 9.744
0.484 9.645	0.374 9.078	0.515 9.468	0.519 10.644	0.363 9.717
0.487 9.687	0.377 9.110	0.517 9.338	0.522 10.647	0.366 9.560
	0.380 9.059	0.520 9.415	0.525 10.644	0.369 9.776
2434486 +	0.382 9.130	0.523 9.291	0.527 10.572	0.371 9.839
0.426 10.705		0.526 9.274	0.530 10.594	0.374 9.564
0.429 10.566	2434504 +	0.529 9.335	0.533 10.460	0.377 9.650
0.432 10.449	0.501 10.791	0.532 9.223	0.536 10.394	0.380 9.569
0.434 10.410	0.503 10.793	0.534 9.282	0.539 10.266	0.383 9.714
0.437 10.344	0.506 10.734	0.537 9.311	0.541 10.501	0.385 9.643
0.440 10.282	0.509 10.620	0.540 9.343	0.544 9.967	0.388 9.510
0.443 10.395	0.512 10.762		0.547 9.995	0.391 9.467
0.445 10.061	0.515 10.575	2434546 +	0.550 9.670	0.394 9.395
0.448 9.907	0.517 10.566	0.487 9.711	0.552 9.713	0.396 9.388
0.451 9.855	0.520 10.504	0.489 9.583		0.399 9.527
0.454 9.968	0.523 10.498	0.492 9.530	2434589 +	0.402 9.545
0.457 9.673	0.526 10.381	0.495 9.349	0.325 10.326	0.405 9.580
0.459 9.474	0.528 10.257	0.498 9.459	0.328 10.472	0.408 9.617
0.462 9.271	0.531 10.050	0.501 9.324	0.331 10.214	0.410 9.584
0.465 9.244	0.533 10.013	0.503 9.480	0.334 9.880	0.413 9.476
0.468 9.409	0.537 10.087	0.506 9.353	0.336 10.185	0.416 9.483
0.470 9.240	0.540 9.926	0.509 9.512	0.339 10.051	
0.473 9.236	0.542 9.836	0.512 9.502	0.342 9.782	2434605 +
0.476 9.242		0.514 9.438	0.345 9.998	0.533 10.280
0.479 9.186	2434515 +	0.517 9.466	0.347 9.945	0.536 10.152
0.482 9.385	0.451 10.793	0.520 9.455	0.350 9.988	0.539 10.186
0.484 9.359	0.454 10.790	0.523 9.378	0.353 9.652	0.542 10.047
0.487 9.411	0.457 10.662	0.526 9.416	0.356 9.639	0.544 10.068
0.490 9.432	0.459 10.820	0.528 9.524	0.359 9.567	0.547 9.952

0.550	9.885	0.514	9.268	2435421 +	0.386	10.210	0.394	10.538	
0.553	9.870	0.517	9.337	0.232	10.825	0.389	10.038	0.403	10.914
0.556	9.915	0.519	9.319	0.235	10.942	0.392	9.952	0.406	10.596
0.558	9.920			0.238	10.774	0.394	10.012	0.408	10.347
0.561	9.835	2435377 +		0.241	10.754	0.397	9.891	0.411	10.431
0.564	9.861	0.428	10.812	0.263	10.656	0.400	9.687	0.414	10.454
0.567	9.841	0.431	10.769	0.266	10.592	0.403	9.635	0.417	10.115
0.569	9.766	0.434	10.781	0.268	10.581	0.406	9.581	0.419	10.207
0.572	9.758	0.437	10.716	0.271	10.615	0.408	9.457	0.424	10.138
0.575	9.673	0.439	10.737	0.274	10.504	0.411	9.361	0.426	9.991
0.578	9.747	0.442	10.655	0.277	10.524	0.414	9.470	0.429	9.788
0.581	9.703	0.445	10.633	0.279	10.518	0.417	9.236	0.432	9.669
0.583	9.723	0.448	10.678	0.282	10.263	0.419	9.283	0.435	9.517
0.586	9.691	0.450	10.464	0.285	10.330	0.422	9.202	0.437	9.536
		0.453	10.602	0.288	10.318	0.425	9.253	0.440	9.414
2434626 +		0.456	10.502	0.291	10.333	0.428	9.265	0.444	9.410
0.468	10.496	0.459	10.372	0.293	10.170	0.431	9.252	0.447	9.176
0.471	10.766	0.462	10.254	0.296	10.128	0.433	9.292	0.451	9.354
0.473	10.845	0.464	10.279	0.299	10.132	0.437	9.182	0.454	9.339
0.476	10.851	0.470	9.932	0.302	10.150	0.440	9.231	0.457	9.303
0.479	10.925	0.473	10.171	0.304	10.045	0.442	9.398	0.460	9.249
0.482	11.088	0.475	9.972	0.307	9.996	0.445	9.344	0.462	9.424
0.484	10.898	0.478	9.975	0.310	9.833	0.451	9.257	0.467	9.409
0.487	10.481	0.481	9.950	0.313	9.935	0.453	9.495	0.480	9.391
0.490	10.880	0.484	9.892	0.316	9.842	0.456	9.290	0.483	9.192
0.493	10.398	0.487	9.874	0.318	9.867	0.460	9.273	0.485	9.417
0.496	10.893	0.489	9.757	0.321	9.635	0.463	9.416	0.488	9.517
0.498	10.671	0.492	9.711	0.324	9.608	0.466	9.488	0.491	9.557
0.501	10.352	0.495	9.775	0.327	9.597	0.469	9.631	0.495	9.462
0.503	10.223	0.498	9.845	0.330	9.813	0.471	9.464	0.498	9.673
		0.500	9.618	0.332	9.607	0.474	9.696	0.501	9.889
2434627 +		0.503	9.909	0.335	9.664	0.477	9.735	0.504	9.644
0.472	10.275	0.506	9.567	0.338	9.471	0.480	9.585	0.506	9.955
0.475	10.179	0.509	9.509	0.341	9.565	0.485	9.599	0.509	9.707
0.478	10.092	0.512	9.765	0.343	9.663	0.487	9.600	0.513	9.662
0.481	10.029	0.514	9.597	0.346	9.598	0.491	9.618	0.516	10.180
0.483	9.823	0.517	9.587	0.349	9.583	0.494	9.601	0.519	9.832
0.486	9.732	0.520	9.620	0.352	9.688	0.496	9.684	0.522	10.173
0.489	9.570	0.523	9.594	0.354	9.700	0.499	9.737		
0.492	9.507	0.525	9.493	0.357	9.711			2435732 +	
0.494	9.546	0.528	9.628	0.360	9.688	2435682 +		0.470	9.948
0.497	9.393	0.531	9.561			0.377	10.858	0.473	10.009
0.500	9.337	0.534	9.602	2435622 +		0.380	10.765	0.476	9.893
0.503	9.362	0.537	9.612	0.375	10.569	0.383	10.846	0.479	9.952
0.506	9.337	0.539	9.752	0.378	10.511	0.385	10.739	0.481	9.995
0.508	9.259	0.542	9.741	0.381	10.381	0.388	10.726	0.484	9.876
0.511	9.270			0.383	10.433	0.391	11.072	0.487	9.972

0.490	9.851	0.355	9.848	0.443	10.871	0.444	9.460	0.363	9.634
0.493	9.926	0.358	9.947	0.446	10.885	0.447	9.339	0.366	9.695
0.495	10.082	0.361	9.820	0.448	10.917	0.449	9.397	0.369	9.740
0.498	9.964	0.363	9.975	0.450	10.818	0.452	9.572	0.386	9.665
0.501	9.956	0.366	9.839	0.453	10.830	0.455	9.524	0.388	9.769
0.504	10.017	0.369	9.741	0.455	10.799	0.458	9.492	0.391	10.031
0.507	10.015	0.372	9.996	0.457	10.715	0.461	9.585		
0.509	10.127	0.374	9.920	0.459	10.605	0.464	9.490	2436077 +	
0.512	10.002			0.461	10.851	0.467	9.473	0.398	11.087
0.515	10.028	2435933 +		0.464	10.762	0.469	9.640	0.401	10.870
0.518	10.027	0.487	10.782	0.466	10.760	0.472	9.650	0.404	10.819
0.520	9.962	0.490	10.882	0.468	10.620	0.475	9.498	0.407	10.824
0.523	10.086	0.492	10.715	0.470	10.725	0.478	9.544	0.410	10.817
0.526	10.150	0.495	10.759	0.472	10.775	0.481	9.538	0.413	10.758
0.529	10.096	0.498	10.786	0.475	10.521	0.483	9.653	0.416	10.782
0.531	10.115	0.501	10.795	0.477	10.540	0.486	9.530	0.418	10.751
0.534	10.139	0.503	10.783	0.479	10.669			0.425	10.641
0.537	10.187	0.506	10.668	0.481	10.594	2436038 +		0.427	10.718
0.540	10.055	0.509	10.593	0.483	10.480	0.380	9.973	0.430	10.640
0.543	10.025	0.512	10.543	0.485	10.371	0.382	9.852	0.433	10.596
		0.515	10.452	0.489	10.680	0.385	9.757	0.436	10.412
2435756 +		0.517	10.570	0.491	10.506	0.388	9.709	0.439	10.490
0.283	10.090	0.520	10.489	0.493	10.533	0.392	9.492	0.441	10.253
0.286	9.873	0.523	10.520	0.495	10.515	0.395	9.430	0.444	10.310
0.288	9.915	0.526	10.576	0.498	10.408	0.398	9.564	0.447	10.349
0.291	9.822	0.531	10.297	0.501	10.427	0.420	9.643	0.452	10.071
0.294	9.703	0.534	10.267	0.503	10.341	0.423	9.816	0.455	10.030
0.297	9.690	0.537	10.134	0.505	10.354	0.426	9.832	0.458	10.009
0.299	9.648	0.540	10.088	0.507	10.308	0.430	9.773	0.461	9.981
0.302	9.680	0.545	10.107	0.509	10.230	0.432	9.834	0.464	9.666
0.305	9.528	0.548	10.016	0.512	10.048	0.435	9.788	0.469	9.679
0.308	9.511	0.551	9.792	0.514	9.939	0.438	9.913	0.475	9.305
0.311	9.522	0.553	9.816	0.516	9.865	0.441	9.795	0.477	9.339
0.313	9.410	0.556	9.642	0.519	9.833	0.443	9.840	0.480	9.288
0.316	9.538	0.559	9.593	0.521	9.817	0.446	9.964	0.483	9.280
0.318	9.487	0.562	9.563	0.525	9.744	0.449	10.087	0.486	9.270
0.322	9.642	0.565	9.408	0.527	9.619	0.452	10.001	0.489	9.391
0.324	9.531	0.567	9.494	0.529	9.556			0.491	9.425
0.327	9.516	0.570	9.381	0.531	9.409	2436069 +		0.494	9.246
0.329	9.513	0.573	9.340	0.533	9.397	0.317	10.475	0.500	9.350
0.332	9.692	0.576	9.434	0.536	9.543	0.320	10.603	0.502	9.270
0.335	9.679	0.578	9.304	0.538	9.599	0.322	10.495	0.508	9.441
0.338	9.681	0.581	9.305			0.347	10.270	0.511	9.422
0.340	9.619			2436007 +		0.352	10.123	0.514	9.401
0.343	9.672	2436005 +		0.435	9.162	0.355	9.973	0.517	9.550
0.347	9.862	0.439	10.871	0.438	9.090	0.358	9.923	0.520	9.370
0.352	9.829	0.441	10.678	0.441	9.202	0.361	9.905	0.523	9.616

0.525	9.933	0.540	9.782	0.338	10.822	0.474	9.927	0.332	9.368
0.528	9.848	0.543	9.813	0.341	10.763	0.478	9.751	0.334	9.635
0.532	10.107			0.344	10.663	0.481	9.887	0.337	9.560
0.534	9.890	2436100 +		0.347	10.856	0.483	9.771	0.340	9.575
0.537	9.807	0.270	10.813	0.349	10.940	0.486	9.786	0.343	9.560
0.540	9.811	0.273	10.939	0.352	10.834	0.489	9.716	0.345	9.696
		0.275	10.869	0.355	10.868	0.492	9.840	0.348	9.741
2436087 +		0.278	10.631	0.358	10.694	0.495	9.857	0.351	9.620
0.424	10.424	0.281	10.745	0.361	10.574	0.497	9.907	0.354	9.706
0.427	10.482	0.284	10.617	0.363	10.487	0.500	9.966		
0.430	10.361	0.286	10.571	0.366	10.717			2436142 +	
0.433	10.483	0.289	10.631	0.369	10.712	2436131 +		0.228	10.568
0.435	10.463	0.292	10.524	0.372	10.594	0.231	10.695	0.232	10.303
0.440	10.290	0.295	10.408	0.375	10.663	0.234	10.635	0.235	10.350
0.443	10.286	0.298	10.328	0.379	10.456	0.236	10.738	0.238	10.290
0.446	10.164	0.301	10.406	0.381	10.709	0.239	10.874	0.240	10.264
0.449	10.233	0.304	10.392	0.384	10.588	0.242	10.674	0.243	10.317
0.451	10.078	0.307	10.051	0.388	10.608	0.245	10.650	0.246	10.345
0.456	10.258	0.309	10.274	0.393	10.530	0.247	10.516	0.249	10.113
0.458	10.032	0.312	10.369	0.395	10.708	0.250	10.466	0.252	9.940
0.461	10.157	0.315	10.237	0.398	10.628	0.253	10.275	0.255	9.817
0.464	9.762	0.318	10.299	0.401	10.408	0.256	10.240	0.258	9.962
0.467	9.863	0.320	10.043	0.404	10.415	0.259	10.295	0.261	9.820
0.470	9.574	0.323	9.913	0.406	10.440	0.261	10.143	0.264	9.871
0.470	9.689	0.326	10.006	0.409	10.353	0.267	10.018	0.268	9.784
0.473	9.594	0.329	9.843	0.412	10.311	0.270	10.103	0.271	9.548
0.476	9.620	0.332	10.070	0.415	10.175	0.272	10.118	0.274	9.548
0.478	9.536	0.334	9.745	0.418	10.209	0.275	10.104	0.277	9.580
0.481	9.584	0.337	9.960	0.421	10.205	0.278	9.968	0.279	9.630
0.485	9.600	0.340	9.786	0.424	10.074	0.281	9.983	0.283	9.682
0.488	9.730	0.343	10.033	0.427	9.933	0.284	9.907	0.286	9.599
0.491	9.619	0.345	10.075	0.429	9.962	0.286	9.702	0.288	9.531
0.494	9.530	0.357	9.444	0.433	10.050	0.289	9.896	0.291	9.588
0.496	9.600	0.365	9.433	0.438	9.813	0.292	9.830	0.294	9.753
0.501	9.385			0.440	9.934	0.295	9.753	0.297	9.641
0.504	9.336	2436109 +		0.443	9.742	0.297	9.539	0.300	9.690
0.507	9.210	0.332	10.513	0.446	9.685	0.300	9.543	0.303	9.711
0.510	9.448	0.335	10.337	0.449	9.857	0.303	9.401	0.306	9.891
0.512	9.469	0.338	10.492	0.452	9.764	0.306	9.531	0.308	9.762
0.517	9.487	0.340	10.400	0.454	9.812	0.309	9.500	0.312	9.798
0.519	9.630	0.343	10.479	0.457	9.705	0.311	9.488	0.315	9.779
0.522	9.358	0.346	10.326	0.460	9.653	0.314	9.416	0.318	9.838
0.525	9.590	0.349	10.473	0.463	9.833	0.318	9.426	0.320	9.733
0.528	9.565	0.351	10.264	0.466	9.833	0.320	9.434	0.323	9.795
0.532	9.594			0.469	9.836	0.323	9.467	0.326	9.830
0.535	9.650	2436128 +		0.472	9.829	0.326	9.351		
0.537	9.704	0.336	10.895			0.329	9.444		

Photoelectric Data

The first photoelectric measurements of XZ Dra were made at Konkoly Observatory during the night April 27/28 1957 (JD=2435956). At the Newtonian focus of the 60cm Newton-Cassegrain telescope an RCA 1P21 photomultiplier was employed without any filter. During this night BD+64°1327 (=TYC 4224_0707_1) was used as a comparison star.

From 1958 the star was observed through the conventional filters of the *UBV* system. After the aluminization of the mirror of the 60cm telescope in 1963 an EMI 9052 B tube was used. Since 1972 photoelectric observations were also made close to the *UBV* system with the 50cm Cassegrain telescope at Konkoly Observatory's mountain station at Pizskéstető. At this location we used an integrating photometer equipped with an unrefrigerated EMI 9058 QB photomultiplier.

In 1988 on three nights XZ Dra was also measured by the Konkoly Observatory's 1m RCC telescope equipped with a thermoelectrically cooled *UBV(RI)_C* photon counting photometer furnished with an EMI 9659 QB tube.

Throughout our photoelectric photometry GSC 04225-01323 (=TYC 4225_1323_1) was chosen as a comparison star (except the first night, see above). The brightness and colours of this star were given by Sturch (1966) as:

$$V = 10.493 \quad B - V = 0.572 \quad U - B = 0.041.$$

Table 4. Telescope constants for photoelectric data.

Year	ε	μ	ψ	r	i	Telescope*
1958	-0.12	0.91				NC
1961	-0.15	1.10				NC
1966	-0.13	1.17				NC
1969	-0.065	1.10	1.14			NC
1970	-0.10	1.11	1.03			NC
1971	-0.12	1.13				NC
1972	-0.105	1.115	1.065			NC
1973	-0.11	1.11	1.065			NC
1974	-0.16	1.07	1.07			NC
1974	0.08	0.93	1.21			C**
1975	-0.16	1.07	1.07			NC
1976	-0.17	1.08				NC
1978	-0.165	1.075				NC
1983	-0.06	1.20	0.86			C
1984	-0.06	1.20	0.86			C
1985	-0.128	1.187	1.106			C
1988	-0.029	0.973	1.109	1.112	1.094	RCC

*NC = 60cm Newton-Cassegrain telescope, Budapest,
 C = 50cm Cassegrain telescope, Pizskéstető Mountain Station,
 RCC = 1m Ritchey-Chrétien-Coudé telescope, Pizskéstető Mountain Station.

** On JD = 2442279.

The photoelectric observations have been transformed into the *UBV* system in the traditional way (see e.g. Hardie, 1962). The actual transformation coefficients for different epochs and telescopes are shown in Table 4. The accuracy of the photoelectric observations depending on the sky conditions ranged typically between 0.^m002–0.^m010 in *B*, *V*, *R_C* and 0.^m01–0.^m02 in *U* and *I_C*. As the mirror has been aluminized only since 1963 the transformation of the early observations (before 1963) into the *UBV* system is rather uncertain.

Altogether 6106 photoelectric data were obtained. In Tables 5.a–f all these measurements are listed in the sense variable–comparison for unfiltered, *U*, *B*, *V*, *R_C* and *I_C* measurements, respectively.

Table 5.a Photoelectric differential observations of XZ Dra without filter

2435956 +	0.4055	0.492	0.4243	0.151	0.4432	0.084	0.4620	0.188
0.3905 0.580	0.4068	0.460	0.4257	0.140	0.4449	0.096	0.4638	0.176
0.3916 0.557	0.4115	0.315	0.4270	0.121	0.4468	0.095	0.4652	0.195
0.3929 0.558	0.4126	0.293	0.4309	0.104	0.4481	0.104	0.4668	0.203
0.3941 0.539	0.4154	0.274	0.4324	0.111	0.4524	0.123	0.4682	0.218
0.3952 0.536	0.4171	0.271	0.4338	0.100	0.4537	0.128		
0.4004 0.530	0.4181	0.253	0.4352	0.093	0.4551	0.127		
0.4024 0.525	0.4218	0.183	0.4367	0.101	0.4564	0.142		
0.4043 0.496	0.4230	0.183	0.4416	0.084	0.4576	0.156		

Table 5.b Photoelectric differential *U* observations of XZ Dra

2440541 +	2440676 +	0.5934	−0.911	0.5383	−0.202	0.4586	−0.671
0.2319 −0.203	0.5184 −0.080	0.5955	−0.932	0.5408	−0.229	0.4628	−0.774
0.2340 −0.245	0.5246 −0.118	0.5996	−0.943	0.5438	−0.355	0.4649	−0.895
0.2382 −0.366	0.5309 −0.164	0.6017	−0.949	0.5459	−0.376	0.4690	−0.947
0.2403 −0.399	0.5371 −0.182	0.6059	−0.972	0.5501	−0.534	0.4711	−1.074
0.2444 −0.501	0.5392 −0.192	0.6080	−0.988	0.5522	−0.579	0.4753	−1.164
0.2465 −0.643	0.5434 −0.236	0.6121	−0.980	0.5563	−0.803	0.4774	−1.307
0.2507 −0.725	0.5455 −0.281	0.6142	−0.975	0.5584	−0.818	0.4815	−1.469
0.2528 −0.776	0.5496 −0.327	0.6184	−0.973	0.5626	−0.950	0.4836	−1.458
0.2569 −0.853	0.5517 −0.355	0.6219	−0.972	0.5647	−1.083	0.4878	−1.461
0.2590 −0.904	0.5559 −0.385	0.6240	−0.963	0.5688	−1.302	0.4912	−1.436
0.2632 −0.996	0.5580 −0.413			0.5709	−1.346	0.4954	−1.355
0.2653 −1.019	0.5621 −0.481	2440707 +		0.5744	−1.487	0.4975	−1.333
0.2694 −1.079	0.5642 −0.499	0.5091	0.033	0.5765	−1.491		
0.2715 −1.095	0.5684 −0.563	0.5133	0.062	0.5807	−1.483	2442279 +	
0.2757 −1.127	0.5705 −0.611	0.5154	0.057	0.5828	−1.459	0.4882	0.009
0.2778 −1.171	0.5746 −0.693	0.5195	0.054			0.4993	−0.037
0.2819 −1.177	0.5767 −0.726	0.5216	0.036	2440780 +		0.5094	−0.296
0.2840 −1.190	0.5809 −0.746	0.5258	−0.023	0.4440	−0.317	0.5199	−0.648
0.2882 −1.154	0.5830 −0.795	0.5279	−0.044	0.4461	−0.371	0.5285	−0.962
0.2903 −1.166	0.5871 −0.853	0.5320	−0.062	0.4503	−0.434	0.5379	−1.003
	0.5892 −0.897	0.5341	−0.107	0.4524	−0.509	0.5469	−0.975

0.5567 -0.877	0.4476 -0.326	0.5665 -0.027	0.5981 -0.708	0.5067 0.007
	0.4490 -0.339	0.5678 0.011		0.5118 -0.060
2445609 +	0.4563 -0.284	0.5691 0.006	2446193 +	0.5131 0.020
0.2844 -0.900	0.4577 -0.301	0.5705 -0.017	0.4381 -0.340	0.5187 -0.235
0.2857 -0.916	0.4590 -0.309	0.5718 -0.040	0.4394 -0.340	0.5253 -0.256
0.2870 -0.922	0.4604 -0.289	0.5782 -0.065	0.4408 -0.393	0.5266 -0.131
0.2884 -0.976	0.4617 -0.292	0.5796 -0.057	0.4421 -0.385	0.5317 -0.258
0.2897 -0.983	0.4631 -0.292	0.5809 -0.040	0.4434 -0.400	0.5330 -0.275
0.2955 -1.020	0.4644 -0.280	0.5822 0.006	0.4489 -0.470	0.5382 -0.467
0.2969 -1.027	0.4658 -0.296	0.5849 0.008	0.4502 -0.486	0.5395 -0.504
0.2982 -1.017	0.4671 -0.283		0.4516 -0.527	0.5448 -0.510
0.2996 -1.041	0.4684 -0.294	2445806 +	0.4529 -0.556	0.5460 -0.561
0.3009 -1.019	0.4742 -0.322	0.5200 -0.362	0.4543 -0.555	0.5509 -0.719
0.3062 -1.007	0.4755 -0.293	0.5213 -0.402	0.4595 -0.655	0.5522 -0.780
0.3075 -0.991	0.4768 -0.325	0.5226 -0.394	0.4608 -0.668	
0.3089 -0.996	0.4781 -0.337	0.5240 -0.403	0.4621 -0.693	2447360 +
0.3102 -0.981	0.4795 -0.321	0.5253 -0.442	0.4635 -0.713	0.3671 -0.057
0.3115 -0.954	0.4809 -0.345	0.5309 -0.522	0.4648 -0.708	0.3684 -0.094
	0.4822 -0.321	0.5323 -0.559	0.4700 -0.770	0.3740 -0.097
2445791 +	0.4836 -0.313	0.5337 -0.542	0.4714 -0.798	0.3753 -0.130
0.3604 -0.872	0.4849 -0.359	0.5350 -0.580	0.4727 -0.802	0.3804 -0.186
0.3617 -0.865	0.4862 -0.356	0.5364 -0.608	0.4740 -0.810	0.3816 -0.194
0.3631 -0.854	0.5216 -0.156	0.5418 -0.756	0.4754 -0.808	0.3865 -0.229
0.3644 -0.865	0.5230 -0.167	0.5431 -0.767	0.4812 -0.839	0.3930 -0.326
0.3658 -0.825	0.5243 -0.163	0.5444 -0.794	0.4825 -0.855	0.3943 -0.330
0.3784 -0.805	0.5257 -0.172	0.5458 -0.833	0.4839 -0.855	0.3956 -0.350
0.3797 -0.804	0.5270 -0.141	0.5471 -0.862	0.4852 -0.869	0.4028 -0.479
0.3810 -0.762	0.5283 -0.138	0.5522 -0.878	0.4866 -0.876	0.4042 -0.509
0.3824 -0.742	0.5297 -0.134	0.5536 -0.877	0.4923 -0.888	0.4055 -0.548
0.4110 -0.410	0.5310 -0.137	0.5549 -0.873	0.4936 -0.892	0.4113 -0.688
0.4124 -0.387	0.5324 -0.123	0.5563 -0.899	0.4950 -0.899	0.4126 -0.733
0.4137 -0.390	0.5337 -0.097	0.5576 -0.897	0.4963 -0.885	0.4181 -1.017
0.4150 -0.380	0.5402 -0.116	0.5633 -0.876	0.4977 -0.883	0.4194 -1.095
0.4163 -0.421	0.5416 -0.115	0.5646 -0.890	0.5037 -0.896	0.4247 -1.465
0.4177 -0.381	0.5429 -0.081	0.5660 -0.883	0.5050 -0.893	0.4260 -1.510
0.4191 -0.359	0.5442 -0.090	0.5673 -0.898	0.5063 -0.883	0.4316 -1.537
0.4204 -0.362	0.5456 -0.091	0.5687 -0.887	0.5077 -0.884	0.4329 -1.537
0.4218 -0.375	0.5469 -0.092	0.5739 -0.879	0.5090 -0.880	0.4386 -1.507
0.4231 -0.338	0.5483 -0.115	0.5753 -0.884	0.5145 -0.840	0.4483 -1.386
0.4369 -0.355	0.5496 -0.102	0.5766 -0.867	0.5158 -0.818	0.4510 -1.359
0.4382 -0.365	0.5510 -0.088	0.5779 -0.872	0.5172 -0.824	0.4585 -1.244
0.4396 -0.365	0.5523 -0.067	0.5793 -0.852	0.5185 -0.807	0.4640 -1.266
0.4409 -0.333	0.5598 -0.076	0.5844 -0.833		0.4653 -1.250
0.4423 -0.321	0.5611 -0.078	0.5858 -0.837	2447306 +	
0.4436 -0.336	0.5624 -0.022	0.5941 -0.737	0.4916 0.053	2447462 +
0.4449 -0.336	0.5638 -0.017	0.5954 -0.705	0.4929 -0.011	0.3529 -0.577
0.4464 -0.346	0.5651 -0.029	0.5967 -0.720	0.5054 0.033	0.3539 -0.606

0.3587 -0.620	0.3785 -0.999	0.3931 -1.155	0.4051 -1.135	0.4186 -1.090
0.3598 -0.617	0.3796 -1.003	0.3942 -1.153	0.4062 -1.145	0.4197 -1.069
0.3661 -0.754	0.3844 -1.128	0.3989 -1.126	0.4126 -1.125	0.4241 -1.061
0.3672 -0.776	0.3855 -1.115	0.4000 -1.123	0.4137 -1.119	0.4251 -1.036

Table 5.c Photoelectric differential B observations of XZ Dra

2436410 +	0.3838 -1.065	0.4532 -0.695	0.4517 0.030	0.5510 -1.148
0.4215 -0.036	0.3859 -1.097	0.4626 -0.805	0.4538 0.006	0.5528 -1.183
0.4246 -0.036	0.3879 -1.110	0.4663 -0.850	0.4558 -0.008	0.5547 -1.200
0.4278 -0.039	0.3931 -1.120	0.4730 -0.899	0.4598 -0.031	0.5586 -1.249
0.4341 -0.045	0.3956 -1.120	0.4758 -0.919	0.4616 -0.032	0.5605 -1.272
0.4397 -0.024	0.3984 -1.109	0.4781 -0.957	0.4635 -0.048	0.5623 -1.270
0.4429 -0.024	0.4015 -1.099	0.4842 -1.014	0.4672 -0.024	0.5642 -1.252
0.4457 -0.053	0.4043 -1.054	0.4868 -1.020	0.4690 -0.029	0.5677 -1.221
0.4531 -0.080		0.4900 -1.033	0.4709 -0.039	0.5691 -1.189
0.4575 -0.125	2436420 +	0.4935 -1.046	0.4732 -0.038	0.5705 -1.156
0.4611 -0.162	0.4812 -0.439	0.4958 -1.072	0.4751 -0.035	0.5724 -1.148
0.4681 -0.232	0.4837 -0.474	0.4989 -1.072	0.4831 -0.008	0.5740 -1.130
0.4721 -0.274	0.4870 -0.508	0.5020 -1.058	0.4850 -0.008	0.5782 -1.109
0.4753 -0.349	0.4937 -0.572	0.5076 -1.029	0.4892 -0.029	0.5836 -1.067
0.4816 -0.433	0.4962 -0.657	0.5107 -0.997	0.4910 -0.028	
0.4846 -0.462	0.4991 -0.681	0.5133 -0.965	0.4947 -0.087	2436451 +
0.4878 -0.504	0.5015 -0.689	0.5197 -0.941	0.4963 -0.110	0.4490 -0.053
0.4941 -0.601	0.5063 -0.750	0.5242 -0.935	0.4982 -0.126	0.4511 -0.072
0.4966 -0.632	0.5093 -0.760	0.5277 -0.912	0.5000 -0.131	0.4530 -0.073
0.4989 -0.685	0.5126 -0.808	0.5334 -0.875	0.5038 -0.152	0.4540 -0.085
0.5050 -0.800	0.5150 -0.827	0.5370 -0.854	0.5056 -0.179	0.4567 -0.094
0.5073 -0.818	0.5249 -0.965		0.5074 -0.205	0.4604 -0.115
0.5098 -0.871	0.5278 -1.018	2436443 +	0.5093 -0.211	0.4623 -0.139
0.5151 -0.985	0.5303 -1.032	0.3648 -0.289	0.5111 -0.221	0.4639 -0.159
0.5181 -1.042		0.3683 -0.325	0.5130 -0.225	0.4674 -0.203
0.5209 -1.088	2436421 +	0.3711 -0.366	0.5149 -0.229	0.4690 -0.220
0.5269 -1.113	0.3959 -0.139	0.3780 -0.526	0.5190 -0.265	0.4704 -0.250
0.5293 -1.093	0.3989 -0.153	0.3803 -0.573	0.5209 -0.286	0.4740 -0.285
0.5320 -1.079	0.4017 -0.195	0.3836 -0.652	0.5227 -0.316	0.4756 -0.309
0.5376 -1.058	0.4047 -0.221	0.3912 -0.796	0.5246 -0.353	0.4772 -0.333
0.5404 -1.040	0.4072 -0.228	0.3940 -0.862	0.5264 -0.365	0.4819 -0.485
0.5494 -1.025	0.4126 -0.247	0.3968 -0.944	0.5283 -0.375	0.4840 -0.514
0.5522 -1.018	0.4152 -0.281	0.4030 -1.023	0.5301 -0.417	0.4862 -0.546
0.5550 -0.997	0.4175 -0.301	0.4058 -1.046	0.5343 -0.471	0.4904 -0.636
	0.4225 -0.312	0.4086 -1.060	0.5364 -0.540	0.4929 -0.691
2436413 +	0.4250 -0.325	0.4155 -1.066	0.5382 -0.622	0.4958 -0.759
0.3709 -0.956	0.4274 -0.376	0.4190 -1.046	0.5401 -0.687	0.5001 -0.883
0.3730 -0.953	0.4341 -0.433		0.5419 -0.750	0.5030 -0.974
0.3751 -0.968	0.4379 -0.444	2436450 +	0.5438 -0.844	0.5052 -1.005
0.3796 -1.012	0.4408 -0.515	0.4459 0.071	0.5456 -0.916	0.5092 -1.121
0.3817 -1.055	0.4464 -0.624	0.4477 0.070		0.5112 -1.197

0.5137 -1.235	0.3770 -0.171	0.2872 -0.300	0.4284 -0.861	0.3052 -1.041
0.5226 -1.184	0.3788 -0.199	0.2893 -0.366	0.4302 -0.914	0.3070 -1.046
0.5249 -1.172	0.3807 -0.251	0.2916 -0.419	0.4344 -0.911	0.3104 -1.053
0.5277 -1.156	0.3844 -0.314	0.2957 -0.503	0.4390 -0.907	0.3126 -1.049
	0.3862 -0.350	0.2977 -0.535	0.4432 -0.977	0.3148 -1.073
2436454 +	0.3881 -0.369	0.3018 -0.616	0.4456 -1.003	0.3225 -1.017
0.2906 -0.009	0.3920 -0.437	0.3056 -0.689	0.4479 -1.012	0.3245 -1.022
0.2932 -0.024	0.3939 -0.483	0.3076 -0.745	0.4528 -1.039	0.3288 -0.982
0.2950 -0.030	0.3957 -0.518	0.3132 -0.879	0.4554 -1.045	0.3310 -0.953
0.2987 -0.047	0.3996 -0.600	0.3159 -0.983	0.4576 -1.050	
0.3006 -0.054	0.4015 -0.652	0.3187 -1.015	0.4623 -1.023	2436514 +
0.3022 -0.073	0.4033 -0.694	0.3239 -1.111	0.4644 -1.019	0.3666 -0.465
0.3064 -0.082	0.4070 -0.791	0.3267 -1.152		0.3684 -0.498
0.3084 -0.096	0.4089 -0.814	0.3295 -1.141	2436506 +	0.3703 -0.550
0.3106 -0.100	0.4108 -0.850	0.3364 -1.176	0.2137 -0.076	0.3740 -0.635
0.3158 -0.127	0.4145 -0.929	0.3392 -1.184	0.2173 -0.099	0.3758 -0.654
0.3182 -0.134	0.4163 -1.004	0.3413 -1.175	0.2190 -0.099	0.3777 -0.696
0.3204 -0.158	0.4182 -1.060	0.3461 -1.182	0.2224 -0.088	0.3814 -0.781
0.3248 -0.235	0.4219 -1.171		0.2239 -0.102	0.3832 -0.829
0.3271 -0.262	0.4237 -1.244	2436486 +	0.2255 -0.104	0.3851 -0.878
0.3291 -0.292	0.4256 -1.296	0.2454 -0.521	0.2291 -0.116	0.3888 -0.997
0.3338 -0.353	0.4292 -1.309	0.2470 -0.537	0.2308 -0.144	0.3906 -1.060
0.3361 -0.397	0.4309 -1.302	0.2489 -0.597	0.2326 -0.169	0.3925 -1.090
0.3384 -0.426	0.4327 -1.293	0.2530 -0.637	0.2381 -0.204	0.3962 -1.105
0.3431 -0.488	0.4369 -1.262	0.2551 -0.689	0.2397 -0.223	0.3980 -1.116
0.3454 -0.555	0.4388 -1.257	0.2573 -0.703	0.2433 -0.260	0.3999 -1.120
0.3477 -0.601	0.4406 -1.232	0.2622 -0.759	0.2452 -0.276	0.4117 -1.094
0.3522 -0.716	0.4443 -1.200	0.2644 -0.782	0.2471 -0.300	0.4135 -1.081
0.3551 -0.773	0.4462 -1.171	0.2668 -0.791	0.2509 -0.361	
0.3576 -0.819		0.2723 -0.847	0.2527 -0.395	2437348 +
0.3620 -0.921	2436474 +	0.2748 -0.886	0.2544 -0.440	0.5400 -0.192
0.3639 -0.981	0.3675 -0.978	0.2770 -0.901	0.2580 -0.512	0.5462 -0.183
0.3661 -1.023	0.3699 -1.010	0.2818 -0.974	0.2621 -0.596	0.5527 -0.142
0.3704 -1.149	0.3752 -1.051	0.2844 -0.974	0.2682 -0.677	0.5596 -0.128
0.3727 -1.214	0.3772 -1.073	0.2866 -0.982	0.2698 -0.693	0.5664 -0.124
0.3750 -1.259	0.3795 -1.080	0.2918 -1.030	0.2733 -0.703	0.5812 -0.109
0.3791 -1.268	0.3840 -1.120	0.2941 -1.033	0.2758 -0.722	0.5879 -0.112
0.3810 -1.262	0.3865 -1.151	0.2963 -1.039	0.2774 -0.742	0.5935 -0.062
0.3831 -1.227	0.3893 -1.141		0.2811 -0.793	0.6004 -0.069
0.3868 -1.204	0.3948 -1.140	2436503 +	0.2830 -0.799	0.6131 -0.016
	0.3976 -1.130	0.4080 -0.648	0.2848 -0.839	0.6276 -0.006
2436463 +	0.4004 -1.105	0.4122 -0.686	0.2889 -0.876	0.6347 0.017
0.3598 -0.062	0.4066 -1.087	0.4142 -0.713	0.2905 -0.926	0.6415 0.048
0.3656 -0.096	0.4094 -1.047	0.4184 -0.750	0.2923 -0.942	0.6495 0.049
0.3704 -0.101	0.4122 -1.042	0.4204 -0.790	0.2960 -0.977	0.6572 0.045
0.3718 -0.108		0.4224 -0.816	0.2978 -0.978	
0.3732 -0.120	2436475 +	0.4263 -0.830	0.2997 -1.000	2437465 +
	0.2820 -0.197			0.4639 -0.701

0.4665 -0.796	0.4491 -0.973	0.3913 -0.372	0.5405 -0.677	0.4209 -0.991
0.4678 -0.812		0.3932 -0.394	0.5426 -0.676	0.4237 -1.064
0.4707 -0.887	2437475 +	0.3975 -0.458	0.5456 -0.656	0.4300 -1.182
0.4724 -0.935	0.4074 -0.133	0.3991 -0.455		0.4321 -1.202
0.4740 -0.981	0.4091 -0.158	0.4008 -0.492	2439391 +	0.4383 -1.227
0.4774 -1.041	0.4111 -0.165	0.4048 -0.525	0.4062 -0.195	0.4411 -1.228
0.4789 -1.059	0.4147 -0.176	0.4065 -0.551	0.4081 -0.224	0.4473 -1.209
0.4802 -1.064	0.4176 -0.198	0.4088 -0.608	0.4144 -0.288	0.4543 -1.175
0.4835 -1.119	0.4195 -0.201	0.4125 -0.660	0.4170 -0.312	0.4564 -1.174
0.4851 -1.110	0.4266 -0.275	0.4144 -0.659	0.4223 -0.345	0.4619 -1.143
0.4870 -1.128	0.4284 -0.288	0.4162 -0.689	0.4248 -0.377	0.4647 -1.099
0.4900 -1.157	0.4303 -0.330	0.4204 -0.762	0.4328 -0.525	0.4695 -1.066
0.4916 -1.157	0.4353 -0.373	0.4221 -0.791	0.4349 -0.554	0.4716 -1.061
0.4932 -1.171	0.4386 -0.421	0.4237 -0.823	0.4396 -0.614	0.4765 -1.032
0.4965 -1.158	0.4407 -0.449	0.4272 -0.854	0.4416 -0.659	0.4800 -1.008
0.4981 -1.158	0.4460 -0.527	0.4305 -0.889	0.4434 -0.674	
0.5001 -1.158	0.4478 -0.575	0.4319 -0.896	0.4486 -0.740	2439403 +
0.5035 -1.158	0.4497 -0.588	0.4367 -0.953	0.4504 -0.779	0.3112 0.062
0.5055 -1.147	0.4548 -0.658	0.4388 -0.980	0.4528 -0.799	0.3126 0.058
0.5076 -1.139	0.4570 -0.717	0.4404 -0.987	0.4570 -0.882	0.3140 0.055
0.5121 -1.133	0.4589 -0.737	0.4446 -0.995	0.4587 -0.924	0.3182 0.018
0.5137 -1.110	0.4622 -0.777	0.4462 -1.014	0.4602 -0.947	0.3202 0.011
0.5150 -1.111	0.4640 -0.823	0.4476 -1.031	0.4635 -0.973	0.3223 -0.001
0.5183 -1.102	0.4661 -0.839	0.4510 -1.047	0.4650 -0.989	0.3258 -0.012
0.5200 -1.106	0.4712 -0.932	0.4531 -1.052	0.4671 -1.004	0.3272 -0.018
0.5219 -1.081	0.4730 -0.941	0.4548 -1.053	0.4706 -1.006	0.3293 -0.065
0.5255 -1.067	0.4748 -0.961	0.4592 -1.077	0.4739 -1.014	0.3341 -0.120
0.5270 -1.060	0.4780 -1.010	0.4626 -1.069	0.4776 -1.016	0.3362 -0.136
0.5290 -1.060	0.4797 -1.035	0.4640 -1.087	0.4810 -1.012	0.3376 -0.154
0.5358 -1.019	0.4804 -1.028	0.4679 -1.091	0.4848 -1.016	0.3411 -0.209
0.5379 -0.980	0.4833 -1.055	0.4700 -1.080	0.4865 -1.014	0.3432 -0.216
	0.4869 -1.088	0.4719 -1.088	0.4882 -1.014	0.3453 -0.241
	0.4888 -1.106	0.4763 -1.060	0.4916 -0.986	0.3487 -0.303
2437467 +	0.4902 -1.103	0.4777 -1.057	0.4931 -0.976	0.3508 -0.320
0.4047 -1.196	0.4945 -1.116	0.4807 -1.035	0.4949 -0.978	0.3529 -0.368
0.4096 -1.167	0.4973 -1.101	0.4851 -0.996	0.4991 -0.967	0.3564 -0.442
0.4116 -1.145	0.5000 -1.093	0.4869 -1.006	0.5009 -0.949	0.3591 -0.516
0.4162 -1.118	0.5049 -1.099	0.4897 -0.979	0.5025 -0.943	0.3612 -0.602
0.4182 -1.091	0.5077 -1.078	0.4978 -0.905	0.5064 -0.932	0.3647 -0.749
0.4203 -1.085	0.5132 -1.069	0.4992 -0.905	0.5082 -0.919	0.3668 -0.835
0.4259 -1.076	0.5181 -1.055	0.5006 -0.884	0.5097 -0.903	0.3682 -0.871
0.4280 -1.064		0.5061 -0.863		0.3716 -0.907
0.4300 -1.061	2437486 +	0.5131 -0.848	2439402 +	0.3730 -0.920
0.4342 -1.041	0.3818 -0.267	0.5196 -0.785	0.4050 -0.622	0.3744 -0.961
0.4363 -1.012	0.3841 -0.284	0.5305 -0.714	0.4077 -0.681	0.3772 -1.040
0.4384 -0.999	0.3860 -0.313	0.5331 -0.696	0.4133 -0.811	0.3786 -1.082
0.4436 -0.998	0.3899 -0.364	0.5353 -0.686	0.4154 -0.873	0.3800 -1.122
0.4457 -0.989				

0.3834 -1.169	0.2670 -0.716	0.4056 -0.159	0.4931 -0.989	0.3765 -0.619
0.3848 -1.181	0.2684 -0.729	0.4070 -0.166	0.4958 -0.986	0.3793 -0.686
0.3869 -1.197	0.2711 -0.777	0.4084 -0.178	0.4972 -1.001	0.3807 -0.712
0.3897 -1.213	0.2725 -0.807	0.4111 -0.186	0.4986 -0.999	0.3821 -0.749
0.3911 -1.214	0.2739 -0.871	0.4125 -0.202	0.5014 -0.987	0.3848 -0.805
0.3932 -1.224	0.2767 -0.979	0.4139 -0.212	0.5028 -0.988	0.3862 -0.825
0.3959 -1.221	0.2781 -1.016	0.4167 -0.216	0.5042 -0.982	0.3876 -0.838
0.3980 -1.215	0.2795 -1.073	0.4181 -0.216	0.5069 -0.981	0.3904 -0.884
0.3994 -1.213	0.2822 -1.108	0.4195 -0.216	0.5083 -0.981	0.3918 -0.917
0.4029 -1.199	0.2836 -1.109	0.4222 -0.227	0.5097 -0.976	0.3932 -0.939
0.4050 -1.200	0.2850 -1.103	0.4236 -0.231	0.5125 -0.973	0.3959 -0.974
0.4064 -1.189	0.2878 -1.119	0.4250 -0.245	0.5139 -0.973	0.3973 -0.991
0.4098 -1.152	0.2892 -1.143	0.4278 -0.256	0.5153 -0.958	0.3987 -1.008
0.4112 -1.135	0.2906 -1.155	0.4292 -0.256		0.4015 -1.038
0.4126 -1.134	0.2933 -1.149	0.4306 -0.268	2440528 +	0.4029 -1.052
0.4161 -1.106	0.2947 -1.160	0.4333 -0.286	0.3181 -0.027	0.4043 -1.058
0.4175 -1.097		0.4347 -0.294	0.3195 -0.020	0.4070 -1.085
0.4196 -1.092	2440504 +	0.4361 -0.314	0.3209 -0.021	0.4084 -1.088
0.4223 -1.066	0.5416 -0.424	0.4389 -0.346	0.3237 -0.051	0.4098 -1.090
0.4244 -1.055	0.5430 -0.438	0.4403 -0.356	0.3251 -0.060	0.4126 -1.092
0.4258 -1.047	0.5444 -0.471	0.4417 -0.373	0.3265 -0.067	0.4140 -1.097
	0.5471 -0.524	0.4444 -0.375	0.3293 -0.079	0.4154 -1.102
2440494 +	0.5485 -0.560	0.4458 -0.397	0.3307 -0.089	0.4182 -1.104
0.5097 0.007	0.5499 -0.565	0.4472 -0.413	0.3321 -0.083	0.4196 -1.099
0.5111 -0.014	0.5527 -0.628	0.4500 -0.492	0.3348 -0.089	0.4210 -1.093
0.5153 -0.018	0.5541 -0.660	0.4514 -0.503	0.3362 -0.098	
0.5174 -0.046	0.5555 -0.705	0.4528 -0.531	0.3376 -0.105	2440530 +
0.5313 -0.218	0.5583 -0.786	0.4569 -0.592	0.3404 -0.143	0.2626 -0.286
0.5340 -0.229	0.5597 -0.814	0.4583 -0.619	0.3418 -0.156	0.2640 -0.318
0.5354 -0.260	0.5611 -0.860	0.4597 -0.641	0.3432 -0.171	0.2654 -0.349
0.5382 -0.327	0.5638 -0.937	0.4625 -0.697	0.3459 -0.189	0.2682 -0.381
0.5424 -0.445	0.5652 -0.948	0.4639 -0.722	0.3473 -0.197	0.2696 -0.389
0.5438 -0.457	0.5666 -0.974	0.4653 -0.734	0.3487 -0.206	0.2710 -0.401
0.5479 -0.498	0.5694 -1.027	0.4681 -0.773	0.3515 -0.236	0.2738 -0.442
0.5493 -0.529	0.5708 -1.020	0.4695 -0.776	0.3529 -0.247	0.2752 -0.456
0.5612 -0.791	0.5722 -1.033	0.4709 -0.777	0.3543 -0.270	0.2766 -0.473
0.5626 -0.820	0.5749 -1.061	0.4736 -0.800	0.3570 -0.310	0.2793 -0.554
0.5667 -0.941	0.5763 -1.067	0.4750 -0.810	0.3584 -0.334	0.2807 -0.599
0.5681 -0.985	0.5777 -1.077	0.4764 -0.827	0.3598 -0.350	0.2821 -0.613
0.5723 -1.028	0.5805 -1.101	0.4792 -0.868	0.3626 -0.407	0.2849 -0.672
0.5737 -1.034	0.5819 -1.112	0.4806 -0.876	0.3640 -0.432	0.2863 -0.706
	0.5833 -1.106	0.4820 -0.910	0.3654 -0.458	0.2877 -0.732
2440500 +	0.5860 -1.113	0.4847 -0.951	0.3681 -0.533	0.2904 -0.807
0.2600 -0.567	0.5874 -1.117	0.4861 -0.972	0.3695 -0.549	0.2918 -0.825
0.2614 -0.586	0.5888 -1.106	0.4875 -0.977	0.3709 -0.571	0.2932 -0.854
0.2628 -0.640		0.4903 -0.977	0.3737 -0.599	0.2960 -0.890
0.2656 -0.681	2440516 +	0.4917 -0.985	0.3751 -0.612	0.2974 -0.930
	0.4028 -0.144			

0.2988	-0.955	0.5489	-0.322	0.5695	-1.191	0.4955	-1.367	0.3593	-0.342
0.3015	-0.983	0.5510	-0.340	0.5716	-1.254	0.4983	-1.353	0.3635	-0.375
0.3029	-1.001	0.5552	-0.387	0.5751	-1.376	0.4997	-1.344	0.3648	-0.384
0.3043	-1.012	0.5573	-0.414	0.5772	-1.408	0.5025	-1.309	0.3683	-0.410
0.3071	-1.059	0.5614	-0.443	0.5814	-1.419	0.5039	-1.292	0.3697	-0.420
0.3085	-1.076	0.5635	-0.477	0.5835	-1.413	0.5066	-1.282	0.3732	-0.468
0.3099	-1.109	0.5677	-0.565			0.5080	-1.273	0.3746	-0.486
0.3140	-1.108	0.5698	-0.603	2440709 +		0.5108	-1.260	0.3781	-0.530
0.3154	-1.100	0.5739	-0.664	0.4150	0.012	0.5122	-1.249	0.3795	-0.561
0.3168	-1.094	0.5760	-0.705	0.4164	0.012			0.3822	-0.587
0.3196	-1.085	0.5802	-0.750	0.4191	0.002	2440731 +		0.3836	-0.617
0.3210	-1.086	0.5823	-0.791	0.4205	0.006	0.3400	-0.151	0.3864	-0.662
0.3224	-1.089	0.5864	-0.832	0.4233	0.000	0.3414	-0.176	0.3884	-0.696
0.3251	-1.084	0.5885	-0.866	0.4247	0.011	0.3442	-0.220	0.3912	-0.740
0.3265	-1.083	0.5927	-0.927	0.4275	0.005	0.3456	-0.250	0.3926	-0.771
0.3279	-1.081	0.5948	-0.943	0.4289	0.001	0.3484	-0.273	0.3961	-0.813
		0.5989	-0.980	0.4316	-0.015	0.3498	-0.296	0.3975	-0.844
2440541 +		0.6010	-0.995	0.4330	-0.019	0.3524	-0.340	0.4010	-0.913
0.2326	-0.270	0.6052	-1.029	0.4358	-0.043	0.3538	-0.364	0.4031	-0.950
0.2347	-0.299	0.6073	-1.031	0.4372	-0.070	0.3566	-0.400	0.4065	-0.992
0.2389	-0.388	0.6114	-1.035	0.4400	-0.104	0.3580	-0.439	0.4079	-1.000
0.2410	-0.429	0.6135	-1.020	0.4414	-0.123	0.3608	-0.484	0.4107	-1.013
0.2451	-0.527	0.6177	-1.005	0.4441	-0.160	0.3622	-0.520	0.4121	-1.025
0.2472	-0.580	0.6212	-0.986	0.4455	-0.185	0.3649	-0.576	0.4149	-1.035
0.2514	-0.690	0.6233	-0.965	0.4483	-0.256	0.3663	-0.609	0.4163	-1.040
0.2535	-0.746			0.4497	-0.282	0.3691	-0.664	0.4190	-1.048
0.2576	-0.832	2440707 +		0.4525	-0.360	0.3705	-0.690	0.4204	-1.041
0.2597	-0.882	0.5077	0.033	0.4539	-0.391	0.3733	-0.728	0.4232	-1.044
0.2639	-1.020	0.5098	0.035	0.4566	-0.452	0.3747	-0.762	0.4246	-1.044
0.2660	-1.070	0.5140	0.028	0.4580	-0.476	0.3774	-0.810	0.4280	-1.045
0.2701	-1.142	0.5161	0.036	0.4608	-0.571	0.3788	-0.838	0.4294	-1.038
0.2722	-1.173	0.5202	0.037	0.4622	-0.629	0.3816	-0.900	0.4322	-1.022
0.2764	-1.242	0.5223	0.030	0.4650	-0.747	0.3830	-0.933	0.4336	-1.013
0.2785	-1.261	0.5265	-0.032	0.4664	-0.803	0.3858	-0.980	0.4364	-1.008
0.2826	-1.238	0.5286	-0.052	0.4691	-0.902	0.3872	-1.005	0.4378	-1.002
0.2847	-1.245	0.5327	-0.102	0.4705	-0.951	0.3899	-1.048	0.4405	-0.991
0.2889	-1.200	0.5348	-0.122	0.4733	-1.055	0.3913	-1.058	0.4419	-0.981
0.2910	-1.181	0.5394	-0.185	0.4747	-1.096	0.3941	-1.097	0.4447	-0.962
		0.5415	-0.224	0.4775	-1.165	0.3955	-1.104	0.4461	-0.950
2440676 +		0.5445	-0.284	0.4789	-1.222	0.3983	-1.138	0.4489	-0.930
0.5177	-0.072	0.5466	-0.344	0.4816	-1.290	0.3997	-1.147	0.4503	-0.918
0.5239	-0.097	0.5508	-0.454	0.4830	-1.330	0.4024	-1.173		
0.5302	-0.124	0.5529	-0.508	0.4858	-1.372	0.4038	-1.175	2440780 +	
0.5364	-0.170	0.5570	-0.689	0.4872	-1.390	0.4066	-1.174	0.4447	-0.308
0.5385	-0.192	0.5591	-0.774	0.4900	-1.390	0.4080	-1.178	0.4469	-0.355
0.5427	-0.244	0.5633	-0.930	0.4914	-1.397			0.4510	-0.440
0.5448	-0.269	0.5654	-1.044	0.4941	-1.381	2440751 +		0.4531	-0.491
						0.3579	-0.339		

0.4572 -0.602	0.4701 -0.124	0.3938 -1.180	0.3413 -1.271	0.2517 -0.016
0.4593 -0.646	0.4728 -0.174	0.3979 -1.269	0.3441 -1.257	0.2531 -0.014
0.4635 -0.758	0.4742 -0.196	0.3993 -1.323	0.3455 -1.247	0.2559 0.011
0.4656 -0.821	0.4756 -0.201	0.4007 -1.344	0.3469 -1.242	0.2573 0.026
0.4697 -0.952	0.4784 -0.240	0.4049 -1.371	0.3496 -1.224	0.2587 0.021
0.4718 -1.028	0.4798 -0.252	0.4063 -1.374	0.3510 -1.220	0.2614 0.034
0.4760 -1.147	0.4839 -0.359	0.4077 -1.386	0.3524 -1.208	0.2628 0.029
0.4781 -1.225	0.4853 -0.392	0.4139 -1.377	0.3552 -1.174	0.2649 0.030
0.4822 -1.313	0.4867 -0.424	0.4153 -1.364	0.3566 -1.162	0.2684 0.029
0.4843 -1.344	0.4895 -0.477	0.4167 -1.357	0.3580 -1.134	0.2698 0.026
0.4885 -1.360	0.4909 -0.505	0.4201 -1.338		0.2712 0.043
0.4919 -1.341	0.4950 -0.586	0.4215 -1.311	2440937 +	0.2740 0.032
0.4961 -1.307	0.4964 -0.630	0.4229 -1.300	0.2209 -0.292	0.2754 0.036
0.4982 -1.287	0.4978 -0.651	0.4292 -1.218	0.2223 -0.320	0.2768 0.038
	0.5006 -0.719	0.4306 -1.211	0.2237 -0.332	0.2795 0.038
2440821 +	0.5020 -0.749	0.4320 -1.202	0.2265 -0.361	0.2809 0.034
0.4096 -0.415	0.5034 -0.786		0.2279 -0.383	0.2823 0.037
0.4117 -0.437	0.5062 -0.833	2440925 +	0.2293 -0.424	0.2858 0.036
0.4166 -0.511	0.5076 -0.860	0.2656 0.054	0.2320 -0.484	0.2878 0.037
0.4186 -0.551	0.5090 -0.895	0.2670 0.055	0.2334 -0.509	0.2899 0.030
0.4228 -0.667	0.5117 -0.957	0.2684 0.048	0.2348 -0.538	0.2934 0.038
0.4249 -0.690	0.5131 -0.982	0.2711 0.061	0.2369 -0.581	0.2948 0.030
0.4305 -0.782	0.5145 -1.012	0.2725 0.067	0.2383 -0.605	0.3198 -0.047
0.4326 -0.806	0.5173 -1.047	0.2739 0.050	0.2397 -0.653	0.3212 -0.049
0.4423 -0.941	0.5187 -1.068	0.2788 0.037	0.2425 -0.720	0.3222 -0.058
0.4444 -0.963	0.5201 -1.088	0.2802 0.031	0.2439 -0.786	0.3249 -0.088
0.4492 -1.010	0.5228 -1.121	0.2816 0.041	0.2453 -0.838	0.3263 -0.117
0.4513 -1.020	0.5242 -1.129	0.2843 0.022	0.2467 -0.919	0.3277 -0.137
0.4583 -1.057	0.5256 -1.125	0.2857 0.018	0.2481 -0.960	0.3305 -0.184
0.4631 -1.094	0.5284 -1.107	0.2871 0.015	0.2495 -1.003	0.3320 -0.219
0.4652 -1.097	0.5298 -1.105	0.3107 -0.352	0.2529 -1.093	0.3336 -0.248
0.4749 -1.089	0.5312 -1.100	0.3121 -0.409	0.2543 -1.151	0.3360 -0.306
0.4770 -1.075	0.5353 -1.052	0.3135 -0.448	0.2557 -1.169	0.3371 -0.328
0.4839 -1.019	0.5367 -1.044	0.3163 -0.517	0.2584 -1.242	0.3383 -0.358
0.4860 -1.008	0.5388 -1.018	0.3177 -0.572	0.2640 -1.293	0.3408 -0.406
0.4916 -0.932	0.5402 -1.014	0.3191 -0.646	0.2668 -1.292	0.3419 -0.424
0.4937 -0.888	0.5416 -1.005	0.3218 -0.775	0.2682 -1.292	0.3431 -0.443
0.5062 -0.756		0.3232 -0.840	0.2696 -1.283	0.3455 -0.493
0.5083 -0.724	2440863 +	0.3246 -0.917	0.2723 -1.272	0.3469 -0.515
	0.3757 -0.587	0.3274 -1.036	0.2737 -1.265	0.3488 -0.563
2440840 +	0.3771 -0.618	0.3288 -1.078	0.2751 -1.245	0.3507 -0.607
0.4590 -0.018	0.3785 -0.694	0.3302 -1.134	0.2779 -1.207	0.3520 -0.631
0.4617 -0.030	0.3826 -0.855	0.3329 -1.185	0.2793 -1.199	0.3534 -0.655
0.4631 -0.041	0.3840 -0.917	0.3343 -1.218	0.2807 -1.187	0.3557 -0.732
0.4645 -0.073	0.3854 -0.978	0.3357 -1.236		0.3569 -0.748
0.4673 -0.088	0.3903 -1.097	0.3385 -1.266	2441249 +	0.3580 -0.772
0.4687 -0.097	0.3924 -1.141	0.3399 -1.271	0.2503 -0.006	0.3605 -0.865

0.3618 -0.904	0.3036 -0.599	0.5488 -0.710	2441591 +	0.2549 -0.925
0.3628 -0.939	0.3048 -0.639	0.5516 -0.874	0.4550 -0.462	0.2556 -0.953
0.3652 -0.997	0.3088 -0.733	0.5530 -0.945	0.4564 -0.486	0.2580 -1.026
0.3666 -1.017	0.3100 -0.752	0.5558 -1.083	0.4591 -0.510	0.2587 -1.063
0.3679 -1.051	0.3110 -0.771	0.5571 -1.174	0.4605 -0.520	0.2594 -1.081
0.3705 -1.087	0.3165 -0.922	0.5599 -1.220	0.4633 -0.553	0.2622 -1.138
0.3721 -1.103	0.3178 -0.985	0.5613 -1.267	0.4647 -0.578	0.2629 -1.154
0.3734 -1.114	0.3190 -1.014	0.5641 -1.305	0.4675 -0.630	0.2639 -1.205
0.3764 -1.134	0.3219 -1.093	0.5655 -1.329	0.4689 -0.647	0.2664 -1.244
0.3777 -1.142	0.3233 -1.104	0.5683 -1.361	0.4716 -0.687	0.2678 -1.273
0.3791 -1.154	0.3281 -1.153	0.5697 -1.359	0.4730 -0.722	0.2685 -1.289
0.3823 -1.167	0.3294 -1.161	0.5724 -1.356	0.4758 -0.758	0.2712 -1.323
0.3839 -1.169	0.3306 -1.170	0.5738 -1.351	0.4772 -0.783	0.2722 -1.340
0.3854 -1.169	0.3338 -1.176	0.5766 -1.334	0.4800 -0.842	0.2733 -1.344
0.3886 -1.173	0.3352 -1.180	0.5780 -1.322	0.4814 -0.881	0.2761 -1.346
0.3902 -1.172	0.3366 -1.178	0.5808 -1.305	0.4841 -0.932	0.2775 -1.343
0.3914 -1.161	0.3399 -1.174	0.5822 -1.287	0.4855 -0.952	0.2789 -1.343
0.3941 -1.158	0.3411 -1.167		0.4883 -0.989	0.2816 -1.329
0.3955 -1.146	0.3426 -1.159	2441589 +	0.4897 -1.015	0.2826 -1.323
0.3972 -1.136	0.3455 -1.144	0.5597 -0.595	0.4925 -1.023	0.2837 -1.314
0.4007 -1.095	0.3470 -1.127	0.5611 -0.620	0.4939 -1.031	0.2865 -1.277
0.4028 -1.075	0.3480 -1.123	0.5639 -0.665	0.4966 -1.046	0.2872 -1.263
0.4044 -1.070		0.5653 -0.683	0.4980 -1.050	0.2882 -1.241
	2441539 +	0.5681 -0.730	0.5008 -1.049	
2441250 +	0.5016 -0.053	0.5695 -0.758	0.5022 -1.055	2441622 +
0.2285 0.056	0.5030 -0.042	0.5722 -0.814	0.5050 -1.054	0.4313 -0.221
0.2299 0.050	0.5058 -0.057	0.5736 -0.823	0.5064 -1.052	0.4327 -0.252
0.2370 0.057	0.5072 -0.051	0.5764 -0.888	0.5091 -1.046	0.4354 -0.284
0.2384 0.065	0.5099 -0.046	0.5778 -0.917	0.5105 -1.039	0.4368 -0.320
0.2397 0.073	0.5113 -0.058	0.5806 -0.944	0.5133 -1.029	0.4396 -0.384
0.2601 0.025	0.5141 -0.045	0.5820 -0.965	0.5147 -1.013	0.4410 -0.408
0.2615 0.017	0.5155 -0.055	0.5847 -1.006	0.5175 -1.011	0.4438 -0.453
0.2628 0.006	0.5183 -0.080	0.5861 -1.021	0.5189 -1.002	0.4452 -0.473
0.2679 -0.021	0.5197 -0.094	0.5889 -1.038	0.5216 -0.985	0.4479 -0.527
0.2691 -0.027	0.5224 -0.131	0.5903 -1.041	0.5230 -0.976	0.4493 -0.565
0.2705 -0.028	0.5238 -0.154	0.5931 -1.064		0.4521 -0.639
0.2750 -0.080	0.5266 -0.170	0.5945 -1.085	2441606 +	0.4535 -0.661
0.2763 -0.104	0.5280 -0.195	0.5972 -1.082	0.2400 -0.413	0.4563 -0.742
0.2775 -0.113	0.5307 -0.259	0.5986 -1.076	0.2407 -0.450	0.4577 -0.772
0.2833 -0.205	0.5321 -0.273	0.6014 -1.078	0.2417 -0.471	0.4604 -0.858
0.2858 -0.252	0.5349 -0.334	0.6028 -1.078	0.2441 -0.540	0.4618 -0.876
0.2896 -0.324	0.5363 -0.363	0.6056 -1.074	0.2455 -0.567	0.4646 -0.943
0.2907 -0.343	0.5391 -0.420	0.6070 -1.065	0.2462 -0.602	0.4660 -0.972
0.2961 -0.460	0.5405 -0.450	0.6111 -1.038	0.2490 -0.671	0.4688 -1.009
0.2973 -0.488	0.5433 -0.490	0.6139 -1.034	0.2504 -0.721	0.4702 -1.038
0.2985 -0.508	0.5447 -0.528	0.6153 -1.013	0.2511 -0.761	0.4729 -1.071
0.3024 -0.571	0.5474 -0.645		0.2539 -0.893	0.4743 -1.101

0.4771 -1.139	0.5777 -1.286	0.5298 -1.050	0.4336 -1.002	0.5319 -0.739
0.4785 -1.145	0.5805 -1.272	0.5312 -1.053	0.4357 -1.024	0.5333 -0.778
0.4813 -1.182	0.5819 -1.257	0.5333 -1.065	0.4371 -1.033	0.5353 -0.870
0.4827 -1.193	0.5846 -1.242	0.5347 -1.065	0.4392 -1.061	0.5367 -0.922
0.4854 -1.206	0.5860 -1.232	0.5360 -1.061	0.4406 -1.071	0.5388 -1.001
0.4868 -1.209		0.5374 -1.053	0.4427 -1.084	0.5402 -1.070
0.4896 -1.206	2441803 +	0.5388 -1.051	0.4441 -1.084	0.5423 -1.145
0.4910 -1.209	0.4687 -0.337	0.5402 -1.047	0.4468 -1.090	0.5437 -1.172
0.4938 -1.208	0.4704 -0.359	0.5423 -1.031	0.4478 -1.104	0.5458 -1.219
0.4952 -1.196	0.4731 -0.405	0.5433 -1.026	0.4503 -1.102	0.5472 -1.243
0.4979 -1.186	0.4741 -0.418	0.5451 -1.020	0.4510 -1.094	0.5492 -1.266
0.4993 -1.184	0.4757 -0.434	0.5465 -1.009	0.4537 -1.092	
0.5021 -1.169	0.4767 -0.445	0.5485 -1.003	0.4544 -1.093	2441835 +
0.5035 -1.151	0.4785 -0.465	0.5499 -1.006	0.4572 -1.069	0.4201 -0.235
	0.4799 -0.475	0.5520 -1.001	0.4586 -1.068	0.4215 -0.260
2441772 +	0.4812 -0.493	0.5534 -0.995	0.4607 -1.066	0.4239 -0.296
0.5138 -0.134	0.4826 -0.501	0.5554 -0.989	0.4616 -1.060	0.4250 -0.305
0.5152 -0.170	0.4840 -0.523	0.5568 -0.980	0.4641 -1.042	0.4278 -0.349
0.5180 -0.189	0.4854 -0.549	0.5582 -0.975	0.4648 -1.032	0.4292 -0.397
0.5194 -0.205	0.4874 -0.558	0.5596 -0.970	0.4670 -1.031	0.4319 -0.459
0.5221 -0.257	0.4888 -0.589	0.5617 -0.958	0.4684 -1.024	0.4333 -0.505
0.5235 -0.297	0.4907 -0.615	0.5631 -0.949	0.4712 -1.010	0.4361 -0.591
0.5263 -0.343	0.4921 -0.630	0.5652 -0.945	0.4719 -1.004	0.4375 -0.616
0.5277 -0.385	0.4943 -0.654	0.5666 -0.943	0.4739 -0.998	0.4403 -0.719
0.5305 -0.417	0.4957 -0.670	0.5680 -0.931	0.4753 -0.985	0.4413 -0.771
0.5319 -0.459	0.4978 -0.695	0.5694 -0.930	0.4774 -0.964	0.4441 -0.939
0.5346 -0.502	0.4992 -0.711	0.5715 -0.908	0.4788 -0.950	0.4451 -0.992
0.5360 -0.521	0.5013 -0.742	0.5729 -0.904		0.4489 -1.173
0.5388 -0.561	0.5023 -0.761		2441833 +	0.4503 -1.207
0.5402 -0.584	0.5041 -0.788	2441815 +	0.5006 -0.115	0.4531 -1.264
0.5430 -0.649	0.5048 -0.794	0.4052 -0.525	0.5020 -0.134	0.4545 -1.296
0.5444 -0.686	0.5068 -0.809	0.4059 -0.542	0.5041 -0.164	0.4573 -1.330
0.5471 -0.736	0.5078 -0.819	0.4080 -0.581	0.5055 -0.183	0.4587 -1.352
0.5485 -0.760	0.5096 -0.820	0.4094 -0.613	0.5075 -0.208	0.4601 -1.358
0.5513 -0.814	0.5103 -0.826	0.4114 -0.641	0.5089 -0.221	0.4632 -1.365
0.5527 -0.852	0.5124 -0.857	0.4128 -0.655	0.5110 -0.252	0.4646 -1.367
0.5555 -0.953	0.5138 -0.871	0.4148 -0.687	0.5124 -0.292	0.4674 -1.370
0.5569 -1.011	0.5152 -0.885	0.4155 -0.716	0.5145 -0.322	0.4688 -1.362
0.5596 -1.085	0.5166 -0.907	0.4184 -0.761	0.5159 -0.350	0.4711 -1.338
0.5610 -1.123	0.5187 -0.931	0.4198 -0.782	0.5180 -0.373	0.4722 -1.330
0.5638 -1.188	0.5201 -0.958	0.4219 -0.832	0.5194 -0.405	0.4749 -1.320
0.5652 -1.219	0.5215 -0.972	0.4229 -0.860	0.5214 -0.434	0.4763 -1.309
0.5680 -1.264	0.5229 -0.988	0.4253 -0.893	0.5228 -0.462	0.4795 -1.294
0.5694 -1.277	0.5242 -0.995	0.4263 -0.903	0.5249 -0.518	0.4809 -1.281
0.5721 -1.284	0.5256 -1.012	0.4298 -0.947	0.5263 -0.550	0.4840 -1.264
0.5735 -1.298	0.5270 -1.024	0.4305 -0.967	0.5284 -0.606	0.4854 -1.246
0.5763 -1.297	0.5280 -1.033	0.4322 -0.984	0.5298 -0.655	0.4881 -1.226

0.4895 -1.211	0.4591 -0.170	0.5650 -0.175	0.3724 -1.104	0.3419 -1.148
0.4917 -1.187	0.4605 -0.185	0.5669 -0.197	0.3738 -1.115	0.3440 -1.143
0.4931 -1.177	0.4633 -0.209	0.5678 -0.213	0.3769 -1.131	0.3454 -1.120
	0.4647 -0.250	0.5696 -0.248	0.3783 -1.135	0.3474 -1.112
2441905 +	0.4671 -0.277	0.5705 -0.260	0.3822 -1.156	0.3488 -1.098
0.4628 -0.391	0.4685 -0.290	0.5724 -0.286	0.3839 -1.152	0.3509 -1.088
0.4642 -0.414	0.4709 -0.323	0.5733 -0.308	0.3870 -1.140	0.3523 -1.087
0.4669 -0.484	0.4723 -0.337	0.5752 -0.359	0.3884 -1.138	0.3544 -1.080
0.4679 -0.505	0.4747 -0.386	0.5761 -0.364	0.3926 -1.126	0.3558 -1.070
0.4701 -0.545	0.4757 -0.400	0.5780 -0.426	0.3940 -1.118	
0.4711 -0.581	0.4876 -0.637	0.5789 -0.455	0.3981 -1.091	2441949 +
0.4738 -0.633	0.4886 -0.663	0.5808 -0.515	0.3998 -1.089	0.2846 -0.502
0.4750 -0.679	0.4913 -0.745	0.5817 -0.540		0.2857 -0.515
0.4776 -0.734	0.4923 -0.786	0.5863 -0.780	2441939 +	0.2877 -0.550
0.4784 -0.784	0.4945 -0.837	0.5872 -0.845	0.2849 -0.434	0.2891 -0.570
0.4809 -0.882	0.4955 -0.872		0.2863 -0.454	0.2916 -0.623
0.4818 -0.907	0.4980 -0.929	2441934 +	0.2884 -0.476	0.3030 -0.760
0.4840 -1.020	0.4987 -0.953	0.5145 -0.138	0.2898 -0.496	0.3058 -0.789
0.4850 -1.050	0.5008 -1.015	0.5173 -0.199	0.2919 -0.532	0.3085 -0.815
0.4870 -1.106	0.5018 -1.048	0.5200 -0.262	0.2933 -0.553	0.3113 -0.833
0.4880 -1.129	0.5043 -1.091	0.5252 -0.359	0.2953 -0.593	0.3141 -0.865
0.4910 -1.169	0.5064 -1.140	0.5259 -0.384	0.2967 -0.620	0.3169 -0.901
0.4920 -1.191	0.5087 -1.192	0.5280 -0.430	0.2988 -0.656	0.3195 -0.924
0.4944 -1.228	0.5112 -1.230	0.5287 -0.455	0.3002 -0.677	0.3224 -0.950
0.4954 -1.240	0.5133 -1.265	0.5302 -0.489	0.3023 -0.701	0.3252 -0.991
0.4977 -1.246		0.5339 -0.553	0.3037 -0.725	0.3280 -1.010
0.4986 -1.253	2441918 +	0.5367 -0.601	0.3058 -0.765	0.3308 -1.020
0.5010 -1.250	0.3216 -0.187	0.5395 -0.647	0.3072 -0.790	0.3335 -1.035
0.5021 -1.254	0.3228 -0.208	0.5423 -0.704	0.3092 -0.828	0.3363 -1.036
0.5044 -1.254	0.3256 -0.243	0.5450 -0.750	0.3106 -0.846	0.3445 -1.027
0.5054 -1.257	0.3270 -0.259	0.5478 -0.811	0.3127 -0.889	0.3474 -1.017
0.5074 -1.253	0.3291 -0.290	0.5506 -0.900	0.3141 -0.915	0.3502 -0.989
0.5086 -1.243	0.3303 -0.305	0.5534 -0.960	0.3162 -0.973	0.3530 -0.980
0.5107 -1.228	0.3334 -0.347	0.5562 -1.027	0.3176 -1.003	0.3558 -0.975
0.5118 -1.226	0.3348 -0.369	0.5589 -1.075	0.3197 -1.037	0.3585 -0.947
0.5142 -1.223	0.3376 -0.430	0.5617 -1.101	0.3211 -1.060	0.3641 -0.891
0.5153 -1.213	0.3390 -0.466	0.5645 -1.115	0.3231 -1.095	
0.5176 -1.195	0.3418 -0.537	0.5673 -1.132	0.3245 -1.111	2441990 +
0.5186 -1.194	0.3447 -0.602	0.5700 -1.140	0.3266 -1.120	0.2642 -0.130
	0.3480 -0.685	0.5727 -1.148	0.3280 -1.134	0.2659 -0.133
2441915 +	0.3508 -0.725	0.5759 -1.141	0.3301 -1.148	0.2691 -0.134
0.4494 -0.094	0.3522 -0.762	0.5777 -1.123	0.3315 -1.157	0.2705 -0.150
0.4501 -0.102	0.3546 -0.790	0.5812 -1.117	0.3335 -1.159	0.2735 -0.164
0.4522 -0.114	0.3556 -0.800		0.3349 -1.155	0.2752 -0.188
0.4536 -0.121		2441938 +	0.3370 -1.161	0.2781 -0.232
0.4557 -0.145	2441933 +	0.3676 -1.040	0.3384 -1.159	0.2795 -0.248
0.4571 -0.154	0.5641 -0.157	0.3690 -1.058	0.3405 -1.156	0.2822 -0.298

0.2839 -0.330	0.5040 -0.063	0.3854 -1.014	0.4681 -1.290	0.4366 -0.500
0.2867 -0.372	0.5082 -0.110	0.3868 -1.041	0.4695 -1.299	0.4393 -0.544
0.2877 -0.385	0.5096 -0.127	0.3895 -1.086	0.4723 -1.294	0.4407 -0.562
0.2920 -0.466	0.5123 -0.166	0.3909 -1.109	0.4737 -1.293	0.4435 -0.592
0.2947 -0.521	0.5137 -0.172	0.3937 -1.133	0.4751 -1.293	0.4449 -0.610
0.2954 -0.560	0.5186 -0.242	0.3951 -1.151	0.4778 -1.281	0.4477 -0.631
0.2975 -0.624	0.5200 -0.260	0.3986 -1.159	0.4792 -1.271	0.4491 -0.637
0.2989 -0.684	0.5214 -0.298	0.4000 -1.163	0.4806 -1.271	0.4518 -0.647
0.3017 -0.780	0.5228 -0.325	0.4027 -1.163	0.4834 -1.260	0.4532 -0.670
0.3024 -0.830	0.5262 -0.385	0.4076 -1.152	0.4848 -1.245	0.4560 -0.698
0.3045 -0.965	0.5276 -0.405	0.4090 -1.150	0.4862 -1.232	0.4574 -0.714
0.3052 -0.987	0.5318 -0.466	0.4118 -1.136	0.4889 -1.205	0.4602 -0.743
0.3072 -1.126	0.5332 -0.502	0.4132 -1.128	0.4903 -1.191	0.4609 -0.750
0.3079 -1.149	0.5373 -0.566	0.4167 -1.124	0.4917 -1.188	0.4630 -0.771
0.3100 -1.215	0.5387 -0.598	0.4180 -1.118		0.4640 -0.788
0.3107 -1.222	0.5415 -0.656	0.4208 -1.098	2442242 +	0.4660 -0.801
0.3128 -1.230	0.5429 -0.723	0.4222 -1.093	0.3521 -0.579	0.4674 -0.818
0.3135 -1.228	0.5464 -0.809	0.4257 -1.081	0.3531 -0.622	0.4699 -0.849
0.3156 -1.263	0.5478 -0.864	0.4271 -1.073	0.3576 -0.725	0.4713 -0.878
0.3163 -1.269	0.5512 -0.957	0.4312 -1.053	0.3586 -0.755	0.4741 -0.906
0.3184 -1.308	0.5526 -1.014	0.4354 -1.011	0.3604 -0.799	0.4751 -0.919
0.3191 -1.314	0.5561 -1.126	0.4368 -1.005	0.3614 -0.823	0.4778 -0.940
0.3211 -1.325	0.5575 -1.157	0.4403 -0.954	0.3632 -0.865	0.4792 -0.945
0.3218 -1.329	0.5610 -1.217	0.4417 -0.950	0.3642 -0.895	0.4817 -0.948
0.3239 -1.351	0.5624 -1.251		0.3660 -0.926	0.4831 -0.957
0.3246 -1.359	0.5658 -1.276	2442220 +	0.3670 -0.940	0.4866 -0.967
0.3267 -1.364	0.5672 -1.287	0.4278 -0.223	0.3688 -0.972	0.5056 -0.998
0.3274 -1.358	0.5714 -1.290	0.4306 -0.279	0.3708 -1.016	0.5084 -0.983
0.3295 -1.349	0.5728 -1.284	0.4334 -0.369	0.3757 -1.098	0.5098 -0.973
0.3309 -1.323	0.5762 -1.285	0.4348 -0.394	0.3776 -1.115	0.5123 -0.965
0.3336 -1.308	0.5776 -1.285	0.4362 -0.436	0.3813 -1.129	
0.3350 -1.301	0.5811 -1.273	0.4389 -0.501	0.3850 -1.125	2442269 +
0.3378 -1.273	0.5825 -1.267	0.4403 -0.548	0.3868 -1.122	0.4872 -0.353
0.3392 -1.262	0.5853 -1.237	0.4417 -0.576	0.3887 -1.116	0.4900 -0.390
0.3420 -1.241	0.5867 -1.226	0.4445 -0.665	0.3906 -1.098	0.4914 -0.415
0.3434 -1.218	0.5901 -1.204	0.4459 -0.712	0.3924 -1.098	0.4942 -0.443
0.3461 -1.201	0.5915 -1.176	0.4473 -0.743		0.4956 -0.461
0.3475 -1.184	0.5936 -1.149	0.4501 -0.853	2442260 +	0.4980 -0.505
	0.5950 -1.142	0.4515 -0.906	0.4185 -0.337	0.4994 -0.535
2442147 +		0.4529 -0.931	0.4199 -0.345	0.5018 -0.566
0.4804 -0.002	2442201 +	0.4556 -1.005	0.4227 -0.354	0.5032 -0.590
0.4818 0.010	0.3722 -0.718	0.4570 -1.044	0.4241 -0.358	0.5074 -0.649
0.4846 -0.003	0.3736 -0.725	0.4584 -1.107	0.4268 -0.372	0.5098 -0.684
0.4860 0.010	0.3770 -0.809	0.4612 -1.174	0.4282 -0.401	0.5108 -0.693
0.4971 -0.024	0.3784 -0.827	0.4626 -1.206	0.4310 -0.440	0.5133 -0.720
0.4985 -0.031	0.3812 -0.903	0.4640 -1.223	0.4324 -0.463	0.5144 -0.739
0.5026 -0.049	0.3826 -0.941	0.4667 -1.270	0.4352 -0.488	0.5168 -0.770

0.5179 -0.792	0.5294 -0.974	0.3887 -1.152	0.4510 -0.946	0.4342 -0.759
0.5202 -0.831	0.5304 -0.990	0.3897 -1.151	0.4518 -0.962	0.4369 -0.862
0.5213 -0.861	0.5354 -1.090	0.3918 -1.151	0.4541 -0.945	0.4385 -0.933
0.5237 -0.903	0.5365 -1.099	0.3928 -1.159	0.4567 -0.932	0.4411 -1.054
0.5244 -0.913	0.5376 -1.129	0.3950 -1.152	0.4576 -0.920	0.4431 -1.136
0.5272 -0.952	0.5386 -1.146			
0.5283 -0.970	0.5397 -1.177	2442636 +	2442948 +	2443700 +
0.5307 -0.994	0.5444 -1.233	0.3601 -0.231	0.4865 -0.271	0.3937 -0.091
0.5314 -0.996	0.5455 -1.235	0.3610 -0.266	0.4879 -0.290	0.3951 -0.110
0.5341 -1.010	0.5465 -1.235	0.3655 -0.289	0.4907 -0.327	0.3978 -0.118
0.5352 -1.022	0.5476 -1.235	0.3665 -0.293	0.4948 -0.362	0.3992 -0.116
0.5376 -1.025	0.5487 -1.221	0.3711 -0.327	0.4962 -0.382	0.4020 -0.136
0.5387 -1.028	0.5538 -1.183	0.3719 -0.330	0.4997 -0.408	0.4034 -0.134
0.5411 -1.035	0.5548 -1.180	0.3748 -0.343	0.5025 -0.439	0.4062 -0.165
0.5418 -1.032	0.5558 -1.172	0.3756 -0.346	0.5039 -0.472	0.4076 -0.188
0.5445 -1.033	0.5568 -1.173	0.3782 -0.351	0.5072 -0.524	0.4145 -0.250
0.5459 -1.036	0.5578 -1.170	0.3808 -0.369	0.5086 -0.562	0.4187 -0.293
0.5487 -1.033	0.5589 -1.166	0.3835 -0.420	0.5115 -0.633	0.4201 -0.307
0.5494 -1.029		0.3842 -0.427	0.5129 -0.648	0.4228 -0.328
0.5518 -1.021	2442303 +	0.3860 -0.486	0.5163 -0.659	0.4242 -0.345
0.5529 -1.025	0.3439 -0.429	0.3868 -0.504	0.5205 -0.703	0.4270 -0.376
0.5557 -1.012	0.3453 -0.440	0.3889 -0.531	0.5219 -0.724	0.4284 -0.399
0.5591 -1.000	0.3480 -0.465	0.3922 -0.541	0.5253 -0.771	0.4312 -0.427
0.5598 -1.001	0.3490 -0.473	0.3929 -0.534	0.5293 -0.805	0.4326 -0.440
	0.3512 -0.500	0.3948 -0.542	0.5306 -0.812	0.4353 -0.465
2442279 +	0.3518 -0.508	0.3958 -0.546		0.4367 -0.482
0.4852 -0.059	0.3539 -0.538	0.3980 -0.576	2443660 +	0.4395 -0.524
0.4865 -0.074	0.3545 -0.550	0.4020 -0.618	0.3494 -0.001	0.4409 -0.552
0.4877 -0.076	0.3566 -0.571	0.4046 -0.642	0.3534 0.012	0.4437 -0.580
0.4891 -0.094	0.3573 -0.586	0.4085 -0.688	0.3584 -0.002	0.4451 -0.602
0.4905 -0.088	0.3594 -0.636	0.4138 -0.751	0.3626 0.005	0.4478 -0.628
0.4964 -0.147	0.3604 -0.664	0.4147 -0.763	0.3665 -0.007	0.4520 -0.689
0.4977 -0.163	0.3629 -0.727	0.4168 -0.778	0.3747 -0.001	0.4534 -0.720
0.4989 -0.173	0.3639 -0.756	0.4175 -0.793	0.3790 -0.005	0.4576 -0.783
0.5003 -0.216	0.3668 -0.805	0.4199 -0.808	0.3838 -0.029	0.4603 -0.854
0.5014 -0.224	0.3679 -0.840	0.4234 -0.843	0.3889 -0.017	0.4617 -0.868
0.5067 -0.351	0.3709 -0.970	0.4252 -0.853	0.3945 -0.057	0.4645 -0.926
0.5078 -0.380	0.3733 -1.022	0.4259 -0.869	0.4042 -0.097	0.4659 -0.954
0.5090 -0.400	0.3743 -1.045	0.4286 -0.918	0.4084 -0.163	0.4687 -0.999
0.5103 -0.443	0.3765 -1.077	0.4306 -0.928	0.4168 -0.297	0.4701 -1.011
0.5113 -0.457	0.3776 -1.109	0.4314 -0.941	0.4205 -0.428	0.4728 -1.039
0.5184 -0.644	0.3800 -1.150	0.4334 -0.939	0.4218 -0.457	0.4742 -1.040
0.5196 -0.658	0.3807 -1.160	0.4342 -0.939	0.4247 -0.503	0.4770 -1.067
0.5207 -0.688	0.3827 -1.165	0.4399 -0.985	0.4260 -0.548	0.4784 -1.061
0.5260 -0.882	0.3837 -1.159	0.4425 -0.975	0.4287 -0.579	0.4812 -1.074
0.5271 -0.908	0.3855 -1.155	0.4460 -0.982	0.4301 -0.630	0.4853 -1.059
0.5281 -0.926	0.3866 -1.154	0.4486 -0.970	0.4330 -0.736	0.4867 -1.053

0.4895 -1.032	0.4686 -0.437	0.3740 -1.197	0.3612 -1.070	0.4858 -0.415
0.4909 -1.030	0.4699 -0.481	0.3765 -1.193	0.3626 -1.068	0.5212 -0.247
0.4951 -1.018	0.4724 -0.531	0.3789 -1.189	0.3640 -1.069	0.5225 -0.247
0.4978 -1.012	0.4735 -0.563	0.3815 -1.185	0.3653 -1.061	0.5239 -0.251
0.4992 -0.998	0.4761 -0.654		0.3779 -0.985	0.5252 -0.246
0.5020 -0.985	0.4773 -0.690	2443763 +	0.3793 -0.976	0.5266 -0.247
0.5062 -0.971		0.3355 -0.431	0.3806 -0.967	0.5279 -0.243
0.5076 -0.957	2443732 +	0.3405 -0.537	0.3820 -0.951	0.5292 -0.242
0.5103 -0.941	0.3614 -0.109	0.3458 -0.616	0.4106 -0.645	0.5306 -0.233
0.5117 -0.932	0.3631 -0.143	0.3493 -0.678	0.4119 -0.645	0.5319 -0.224
	0.3692 -0.272	0.3516 -0.718	0.4132 -0.631	0.5332 -0.223
2443720 +	0.3713 -0.346	0.3546 -0.773	0.4146 -0.619	0.5398 -0.222
0.4571 -0.587	0.3747 -0.411	0.3563 -0.794	0.4159 -0.618	0.5411 -0.217
0.4598 -0.640	0.3761 -0.431	0.3596 -0.850	0.4173 -0.607	0.5425 -0.214
0.4620 -0.698	0.3817 -0.584	0.3619 -0.895	0.4186 -0.602	0.5438 -0.205
0.4638 -0.731	0.3831 -0.618	0.3653 -0.939	0.4199 -0.589	0.5451 -0.197
0.4648 -0.755	0.3931 -1.083	0.3671 -0.968	0.4213 -0.588	0.5465 -0.192
0.4666 -0.815	0.3990 -1.234	0.3701 -1.001	0.4227 -0.581	0.5478 -0.193
0.4675 -0.840	0.4005 -1.306	0.3719 -1.020	0.4365 -0.563	0.5492 -0.190
0.4694 -0.895	0.4046 -1.392	0.3750 -1.036	0.4378 -0.559	0.5505 -0.189
0.4703 -0.915		0.3820 -1.045	0.4392 -0.553	0.5519 -0.189
0.4722 -0.991	2443743 +	0.3853 -1.041	0.4405 -0.542	0.5593 -0.186
0.4731 -1.020	0.3261 -0.249	0.3872 -1.030	0.4418 -0.524	0.5607 -0.186
0.4749 -1.070	0.3273 -0.262	0.3909 -1.021	0.4432 -0.518	0.5620 -0.173
0.4759 -1.109	0.3295 -0.302	0.3928 -1.004	0.4445 -0.517	0.5634 -0.168
0.4780 -1.149	0.3306 -0.327	0.3961 -0.990	0.4460 -0.518	0.5647 -0.149
0.4793 -1.180	0.3329 -0.373	0.3977 -0.979	0.4472 -0.516	0.5660 -0.137
0.4821 -1.217	0.3340 -0.403	0.4033 -0.928	0.4485 -0.508	0.5674 -0.138
0.4835 -1.247	0.3389 -0.469		0.4559 -0.459	0.5687 -0.139
0.4863 -1.268	0.3399 -0.516	2445609 +	0.4572 -0.458	0.5701 -0.136
0.4877 -1.271	0.3419 -0.575	0.2839 -1.098	0.4586 -0.458	0.5714 -0.155
0.4905 -1.275	0.3429 -0.628	0.2852 -1.122	0.4599 -0.448	0.5778 -0.156
0.4918 -1.274	0.3452 -0.688	0.2866 -1.152	0.4612 -0.442	0.5791 -0.156
0.4953 -1.262	0.3462 -0.715	0.2879 -1.173	0.4626 -0.434	0.5805 -0.156
0.4988 -1.238	0.3486 -0.719	0.2893 -1.188	0.4640 -0.431	0.5818 -0.139
0.5002 -1.229	0.3496 -0.749	0.2951 -1.239	0.4653 -0.431	0.5845 -0.129
0.5030 -1.220	0.3518 -0.855	0.2965 -1.252	0.4667 -0.436	
0.5043 -1.208	0.3529 -0.903	0.2978 -1.256	0.4680 -0.431	2445806 +
0.5071 -1.188	0.3552 -0.985	0.2991 -1.256	0.4737 -0.413	0.4754 -0.039
0.5085 -1.172	0.3562 -1.008	0.3005 -1.256	0.4750 -0.414	0.4767 -0.049
	0.3592 -1.067	0.3057 -1.251	0.4764 -0.413	0.4780 -0.048
2443730 +	0.3603 -1.087	0.3071 -1.247	0.4777 -0.422	0.4794 -0.062
0.4575 -0.241	0.3630 -1.128	0.3084 -1.239	0.4791 -0.421	0.4807 -0.066
0.4603 -0.288	0.3658 -1.163	0.3098 -1.229	0.4804 -0.420	0.4865 -0.107
0.4617 -0.306	0.3668 -1.180	0.3111 -1.210	0.4817 -0.415	0.4878 -0.119
0.4644 -0.354	0.3694 -1.198		0.4831 -0.412	0.4892 -0.130
0.4658 -0.375	0.3729 -1.206	2445791 +	0.4845 -0.414	0.4905 -0.137
		0.3600 -1.075		

0.4918 -0.147	0.5669 -1.147	0.4722 -0.973	0.5203 -0.105	0.4319 -1.381
0.4976 -0.189	0.5682 -1.138	0.4736 -0.984	0.5256 -0.172	0.4332 -1.380
0.4989 -0.202	0.5735 -1.135	0.4749 -0.993	0.5269 -0.179	0.4389 -1.375
0.5003 -0.211	0.5748 -1.130	0.4808 -1.035	0.5320 -0.262	0.4486 -1.323
0.5016 -0.215	0.5762 -1.122	0.4821 -1.048	0.5333 -0.282	0.4499 -1.284
0.5084 -0.300	0.5775 -1.117	0.4834 -1.049	0.5385 -0.431	0.4513 -1.283
0.5097 -0.324	0.5788 -1.111	0.4847 -1.057	0.5398 -0.446	0.4588 -1.200
0.5111 -0.342	0.5840 -1.077	0.4861 -1.061	0.5451 -0.480	0.4643 -1.182
0.5124 -0.351	0.5853 -1.064	0.4919 -1.070	0.5463 -0.546	0.4656 -1.174
0.5195 -0.457	0.5867 -1.058	0.4932 -1.062	0.5512 -0.675	
0.5209 -0.485	0.5936 -1.006	0.4945 -1.065	0.5525 -0.735	2447462 +
0.5222 -0.517	0.5950 -0.999	0.4959 -1.060		0.3532 -0.502
0.5235 -0.543	0.5963 -0.998	0.4972 -1.051	2447360 +	0.3542 -0.519
0.5249 -0.565	0.5976 -0.984	0.5032 -1.042	0.3674 -0.027	0.3590 -0.565
0.5305 -0.684		0.5046 -1.037	0.3687 -0.064	0.3601 -0.592
0.5319 -0.718	2446193 +	0.5059 -1.038	0.3743 -0.063	0.3664 -0.710
0.5332 -0.733	0.4376 -0.435	0.5072 -1.032	0.3756 -0.063	0.3675 -0.740
0.5345 -0.761	0.4390 -0.451	0.5086 -1.022	0.3807 -0.122	0.3788 -0.945
0.5359 -0.784	0.4403 -0.462	0.5141 -1.001	0.3819 -0.139	0.3799 -0.956
0.5413 -0.884	0.4417 -0.488	0.5154 -0.991	0.3868 -0.172	0.3847 -1.032
0.5427 -0.907	0.4430 -0.499	0.5167 -0.977	0.3881 -0.176	0.3858 -1.049
0.5440 -0.921	0.4484 -0.581	0.5181 -0.968	0.3933 -0.269	0.3934 -1.079
0.5453 -0.942	0.4498 -0.609		0.3946 -0.286	0.3945 -1.081
0.5467 -0.964	0.4511 -0.632	2447306 +	0.3959 -0.305	0.3992 -1.087
0.5518 -1.027	0.4525 -0.661	0.4919 0.044	0.4031 -0.422	0.4003 -1.087
0.5531 -1.038	0.4538 -0.695	0.4932 0.055	0.4045 -0.429	0.4054 -1.079
0.5545 -1.051	0.4590 -0.779	0.4984 0.048	0.4058 -0.492	0.4065 -1.080
0.5558 -1.067	0.4603 -0.807	0.4996 0.049	0.4116 -0.646	0.4129 -1.044
0.5572 -1.082	0.4617 -0.826	0.5057 0.025	0.4129 -0.687	0.4140 -1.041
0.5628 -1.112	0.4630 -0.851	0.5070 0.027	0.4184 -0.950	0.4189 -1.010
0.5642 -1.123	0.4643 -0.865	0.5121 0.015	0.4197 -1.032	0.4200 -1.017
0.5655 -1.133	0.4696 -0.933	0.5134 0.010	0.4250 -1.307	0.4244 -0.975
	0.4709 -0.952	0.5190 -0.081	0.4263 -1.340	0.4254 -0.976

Table 5.d Photoelectric differential V observations of XZ Dra

2436410 +	0.4730 -0.139	0.5195 -0.741	0.3720 -0.641	2436420 +
0.4230 0.064	0.4795 -0.211	0.5258 -0.781	0.3741 -0.664	0.4824 -0.220
0.4263 0.076	0.4832 -0.245	0.5281 -0.768	0.3786 -0.673	0.4851 -0.255
0.4322 0.057	0.4860 -0.303	0.5306 -0.758	0.3806 -0.681	0.4882 -0.275
0.4386 0.083	0.4927 -0.357	0.5390 -0.721	0.3827 -0.682	0.4948 -0.323
0.4414 0.065	0.4952 -0.379	0.5420 -0.716	0.3848 -0.690	0.4975 -0.375
0.4443 0.062	0.4978 -0.396	0.5480 -0.698	0.3869 -0.725	0.5025 -0.434
0.4515 0.058	0.5036 -0.454	0.5508 -0.692	0.3921 -0.733	0.5078 -0.479
0.4560 0.016	0.5061 -0.514	0.5536 -0.681	0.3942 -0.736	0.5111 -0.533
0.4591 -0.005	0.5084 -0.549	0.5563 -0.671	0.3970 -0.736	0.5138 -0.562
0.4665 -0.068	0.5138 -0.650		0.3998 -0.727	0.5162 -0.579
0.4701 -0.104	0.5168 -0.686	2436413 +	0.4029 -0.717	0.5235 -0.664
		0.3699 -0.622		

0.5261 -0.674	0.3794 -0.357	0.5311 -0.266	0.5124 -0.870	0.3725 0.007
0.5289 -0.699	0.3822 -0.375	0.5355 -0.331	0.5146 -0.876	0.3760 -0.052
0.5318 -0.720	0.3898 -0.505	0.5373 -0.394	0.5236 -0.868	0.3779 -0.064
	0.3926 -0.563	0.5392 -0.422	0.5261 -0.856	0.3797 -0.097
2436421 +	0.3954 -0.619	0.5410 -0.480	0.5285 -0.833	0.3834 -0.139
0.3973 -0.070	0.4016 -0.712	0.5429 -0.598		0.3853 -0.160
0.4004 -0.089	0.4044 -0.728	0.5447 -0.679	2436454 +	0.3872 -0.188
0.4033 -0.092	0.4072 -0.762	0.5519 -0.853	0.2920 0.069	0.3911 -0.243
0.4060 -0.113	0.4134 -0.782	0.5537 -0.891	0.2941 0.063	0.3929 -0.291
0.4085 -0.104	0.4169 -0.770	0.5556 -0.898	0.2958 0.067	0.3948 -0.300
0.4188 -0.130		0.5595 -0.955	0.2996 0.057	0.3987 -0.345
0.4236 -0.154	2436450 +	0.5614 -0.945	0.3015 0.061	0.4006 -0.394
0.4261 -0.185	0.4468 0.151	0.5632 -0.922	0.3035 0.071	0.4024 -0.439
0.4287 -0.211	0.4487 0.153	0.5651 -0.904	0.3074 0.071	0.4061 -0.481
0.4393 -0.313	0.4526 0.144	0.5684 -0.871	0.3093 0.070	0.4080 -0.540
0.4424 -0.340	0.4549 0.142	0.5698 -0.852	0.3120 0.058	0.4098 -0.571
0.4480 -0.398	0.4568 0.119	0.5712 -0.827	0.3170 0.032	0.4135 -0.627
0.4516 -0.444	0.4607 0.105	0.5731 -0.829	0.3192 0.016	0.4154 -0.684
0.4547 -0.483	0.4626 0.098	0.5760 -0.815	0.3214 -0.021	0.4172 -0.727
0.4612 -0.523	0.4644 0.092	0.5818 -0.792	0.3260 -0.042	0.4209 -0.814
0.4643 -0.554	0.4681 0.086	0.5853 -0.757	0.3280 -0.060	0.4228 -0.890
0.4677 -0.581	0.4699 0.097		0.3302 -0.081	0.4246 -0.913
0.4744 -0.611	0.4718 0.093	2436451 +	0.3350 -0.135	0.4284 -0.945
0.4768 -0.614	0.4741 0.098	0.4500 0.037	0.3371 -0.189	0.4300 -0.941
0.4793 -0.632	0.4822 0.136	0.4521 0.038	0.3397 -0.235	0.4318 -0.938
0.4854 -0.639	0.4841 0.103	0.4540 0.000	0.3442 -0.302	0.4360 -0.920
0.4885 -0.661	0.4859 0.105	0.4559 -0.001	0.3465 -0.354	0.4378 -0.907
0.4913 -0.682	0.4901 0.085	0.4577 -0.026	0.3489 -0.396	0.4397 -0.896
0.4945 -0.699	0.4920 0.050	0.4614 -0.035	0.3538 -0.470	0.4434 -0.878
0.4974 -0.721	0.4938 0.036	0.4630 -0.060	0.3564 -0.505	0.4452 -0.863
0.5001 -0.705	0.4956 0.035	0.4648 -0.077	0.3588 -0.545	
0.5032 -0.696	0.4973 0.022	0.4682 -0.104	0.3629 -0.623	2436474 +
0.5093 -0.667	0.4991 0.019	0.4697 -0.114	0.3650 -0.674	0.3656 -0.655
0.5121 -0.651	0.5010 0.020	0.4712 -0.136	0.3672 -0.726	0.3688 -0.696
0.5147 -0.646	0.5047 -0.001	0.4748 -0.160	0.3716 -0.847	0.3710 -0.723
0.5220 -0.620	0.5065 -0.012	0.4764 -0.214	0.3740 -0.866	0.3763 -0.755
0.5260 -0.583	0.5084 -0.019	0.4780 -0.235	0.3763 -0.877	0.3785 -0.771
0.5291 -0.564	0.5102 -0.028	0.4828 -0.311	0.3801 -0.894	0.3805 -0.785
0.5353 -0.548	0.5121 -0.054	0.4851 -0.360	0.3820 -0.885	0.3850 -0.791
0.5388 -0.517	0.5139 -0.066	0.4874 -0.412	0.3842 -0.874	0.3879 -0.802
0.5419 -0.500	0.5158 -0.074	0.4917 -0.478	0.3878 -0.848	0.3907 -0.791
	0.5199 -0.087	0.4946 -0.556		0.3962 -0.770
2436443 +	0.5218 -0.109	0.4973 -0.589	2436463 +	0.3990 -0.738
0.3634 -0.110	0.5237 -0.126	0.5020 -0.652	0.3573 0.075	0.4018 -0.726
0.3669 -0.135	0.5255 -0.152	0.5045 -0.702	0.3649 0.049	0.4080 -0.698
0.3697 -0.172	0.5274 -0.192	0.5060 -0.754	0.3697 0.019	0.4108 -0.684
0.3766 -0.289	0.5292 -0.236	0.5101 -0.851	0.3711 0.010	0.4136 -0.680

2436475 +	0.4274 -0.574	0.2987 -0.638	0.6502 0.182	0.4352 -0.641
0.2807 -0.010	0.4292 -0.580	0.3008 -0.663	0.6582 0.188	0.4373 -0.627
0.2860 -0.085	0.4312 -0.585	0.3043 -0.695		0.4394 -0.613
0.2883 -0.143	0.4358 -0.581	0.3061 -0.697	2437465 +	0.4446 -0.598
0.2905 -0.176	0.4380 -0.598	0.3077 -0.701	0.4645 -0.441	0.4478 -0.586
0.2947 -0.246	0.4402 -0.601	0.3114 -0.719	0.4671 -0.470	0.4502 -0.575
0.2965 -0.290	0.4445 -0.655	0.3138 -0.730	0.4686 -0.487	
0.3008 -0.377	0.4467 -0.682	0.3161 -0.727	0.4716 -0.538	2437475 +
0.3041 -0.427	0.4491 -0.703	0.3208 -0.714	0.4731 -0.568	0.4082 0.027
0.3066 -0.454	0.4544 -0.706	0.3236 -0.706	0.4748 -0.587	0.4101 0.035
0.3118 -0.550	0.4564 -0.720	0.3254 -0.700	0.4782 -0.653	0.4120 0.011
0.3145 -0.602	0.4596 -0.706	0.3300 -0.670	0.4796 -0.672	0.4158 0.012
0.3173 -0.676	0.4633 -0.708	0.3320 -0.664	0.4810 -0.679	0.4187 -0.005
0.3225 -0.737	0.4655 -0.700		0.4843 -0.711	0.4205 -0.034
0.3253 -0.760		2436514 +	0.4863 -0.707	0.4274 -0.087
0.3281 -0.786	2436506 +	0.3675 -0.301	0.4877 -0.707	0.4293 -0.106
0.3333 -0.826	0.2146 0.062	0.3693 -0.337	0.4908 -0.704	0.4313 -0.109
0.3378 -0.807	0.2182 0.070	0.3712 -0.400	0.4924 -0.707	0.4363 -0.154
0.3402 -0.821	0.2199 0.061	0.3749 -0.438	0.4940 -0.724	0.4396 -0.173
0.3451 -0.814	0.2231 0.020	0.3767 -0.475	0.4972 -0.721	0.4417 -0.193
	0.2247 0.006	0.3786 -0.502	0.4991 -0.709	0.4470 -0.248
2436486 +	0.2263 0.013	0.3823 -0.550	0.5008 -0.718	0.4486 -0.251
0.2462 -0.261	0.2298 -0.002	0.3841 -0.598	0.5045 -0.718	0.4509 -0.272
0.2479 -0.293	0.2316 -0.001	0.3860 -0.646	0.5062 -0.707	0.4560 -0.359
0.2498 -0.318	0.2371 -0.041	0.3897 -0.736	0.5086 -0.705	0.4579 -0.360
0.2542 -0.388	0.2390 -0.048	0.3916 -0.759	0.5128 -0.680	0.4598 -0.388
0.2561 -0.410	0.2405 -0.057	0.3934 -0.768	0.5144 -0.685	0.4632 -0.430
0.2584 -0.433	0.2443 -0.090	0.3971 -0.787	0.5157 -0.679	0.4650 -0.456
0.2632 -0.494	0.2461 -0.115	0.3990 -0.794	0.5191 -0.669	0.4672 -0.470
0.2655 -0.514	0.2481 -0.162	0.4008 -0.792	0.5212 -0.674	0.4721 -0.528
0.2681 -0.525	0.2519 -0.180	0.4126 -0.787	0.5228 -0.666	0.4738 -0.551
0.2735 -0.550	0.2536 -0.204	0.4145 -0.773	0.5262 -0.649	0.4757 -0.561
0.2758 -0.589	0.2552 -0.213		0.5280 -0.644	0.4788 -0.595
0.2780 -0.589	0.2588 -0.296	2437348 +	0.5300 -0.641	0.4820 -0.607
0.2830 -0.620	0.2611 -0.296	0.5407 0.021	0.5368 -0.613	0.4879 -0.645
0.2856 -0.631	0.2670 -0.385	0.5469 0.043	0.5390 -0.603	0.4895 -0.646
0.2878 -0.643	0.2690 -0.449	0.5537 0.026		0.4910 -0.649
0.2953 -0.654	0.2707 -0.451	0.5603 0.032	2437467 +	0.4955 -0.660
0.2977 -0.665	0.2767 -0.459	0.5671 0.012	0.4061 -0.730	0.4987 -0.655
	0.2783 -0.480	0.5826 0.041	0.4106 -0.709	0.5011 -0.652
2436503 +	0.2820 -0.510	0.5886 0.043	0.4130 -0.700	0.5063 -0.646
0.4091 -0.334	0.2839 -0.523	0.5941 0.034	0.4172 -0.688	0.5087 -0.637
0.4132 -0.409	0.2857 -0.548	0.6013 0.012	0.4193 -0.680	0.5143 -0.630
0.4152 -0.453	0.2897 -0.578	0.6138 0.080	0.4214 -0.677	
0.4194 -0.514	0.2914 -0.592	0.6284 0.095	0.4269 -0.676	2437486 +
0.4214 -0.541	0.2933 -0.607	0.6355 0.142	0.4290 -0.667	0.3806 -0.035
0.4233 -0.554	0.2968 -0.629	0.6424 0.155	0.4311 -0.660	0.3829 -0.073

0.3851 -0.079	0.5321 -0.410	0.4084 -0.409	0.3751 -0.658	0.2635 -0.425
0.3889 -0.097	0.5342 -0.401	0.4140 -0.524	0.3779 -0.683	0.2663 -0.451
0.3906 -0.118	0.5364 -0.401	0.4161 -0.567	0.3793 -0.709	0.2677 -0.471
0.3923 -0.130	0.5415 -0.382	0.4216 -0.666	0.3814 -0.752	0.2691 -0.494
0.3967 -0.163	0.5443 -0.368	0.4244 -0.721	0.3841 -0.785	0.2718 -0.523
0.3984 -0.190	0.5469 -0.359	0.4307 -0.789	0.3862 -0.793	0.2732 -0.548
0.4000 -0.201		0.4328 -0.810	0.3876 -0.802	0.2746 -0.590
0.4039 -0.233	2439391 +	0.4390 -0.834	0.3904 -0.808	0.2774 -0.691
0.4057 -0.240	0.4069 -0.030	0.4418 -0.849	0.3918 -0.813	0.2788 -0.685
0.4077 -0.260	0.4099 -0.069	0.4480 -0.859	0.3937 -0.809	0.2802 -0.712
0.4116 -0.308	0.4155 -0.129	0.4508 -0.856	0.3973 -0.786	0.2829 -0.731
0.4134 -0.323	0.4180 -0.143	0.4550 -0.838	0.3987 -0.796	0.2843 -0.729
0.4154 -0.344	0.4230 -0.192	0.4577 -0.829	0.4001 -0.783	0.2857 -0.741
0.4194 -0.407	0.4256 -0.203	0.4626 -0.789	0.4043 -0.765	0.2885 -0.792
0.4213 -0.425	0.4337 -0.327	0.4654 -0.776	0.4057 -0.763	0.2899 -0.783
0.4230 -0.442	0.4356 -0.337	0.4702 -0.729	0.4071 -0.760	0.2913 -0.820
0.4264 -0.476	0.4405 -0.406	0.4723 -0.721	0.4105 -0.742	0.2940 -0.824
0.4280 -0.481	0.4422 -0.443	0.4779 -0.699	0.4119 -0.732	0.2954 -0.813
0.4312 -0.509	0.4441 -0.469	0.4807 -0.682	0.4140 -0.729	
0.4355 -0.526	0.4493 -0.530		0.4168 -0.716	2440504 +
0.4378 -0.535	0.4517 -0.561	2439403 +	0.4189 -0.717	0.5423 -0.258
0.4395 -0.545	0.4533 -0.559	0.3119 0.139	0.4203 -0.712	0.5437 -0.278
0.4413 -0.555	0.4577 -0.598	0.3133 0.147	0.4237 -0.711	0.5451 -0.299
0.4453 -0.578	0.4591 -0.603	0.3147 0.129	0.4251 -0.697	0.5478 -0.337
0.4469 -0.608	0.4608 -0.598	0.3189 0.106	0.4265 -0.680	0.5492 -0.357
0.4485 -0.615	0.4641 -0.607	0.3209 0.106		0.5506 -0.365
0.4522 -0.619	0.4656 -0.637	0.3230 0.089	2440494 +	0.5534 -0.429
0.4538 -0.629	0.4677 -0.634	0.3265 0.084	0.5104 0.081	0.5548 -0.449
0.4561 -0.636	0.4710 -0.653	0.3286 0.081	0.5118 0.063	0.5562 -0.500
0.4619 -0.635	0.4744 -0.669	0.3300 0.071	0.5243 -0.029	0.5590 -0.567
0.4633 -0.627	0.4781 -0.652	0.3348 0.026	0.5271 -0.048	0.5604 -0.615
0.4647 -0.628	0.4817 -0.655	0.3369 0.006	0.5306 -0.061	0.5618 -0.634
0.4686 -0.628	0.4854 -0.652	0.3383 -0.011	0.5320 -0.083	0.5645 -0.684
0.4705 -0.629	0.4872 -0.653	0.3418 -0.043	0.5389 -0.216	0.5659 -0.699
0.4728 -0.623	0.4887 -0.643	0.3439 -0.066	0.5431 -0.268	0.5673 -0.719
0.4770 -0.616	0.4921 -0.627	0.3460 -0.087	0.5445 -0.262	0.5701 -0.739
0.4800 -0.606	0.4938 -0.622	0.3494 -0.127	0.5486 -0.340	0.5715 -0.743
0.4816 -0.602	0.4954 -0.633	0.3522 -0.154	0.5500 -0.402	0.5729 -0.755
0.4862 -0.589	0.4997 -0.616	0.3536 -0.210	0.5619 -0.548	0.5756 -0.764
0.4878 -0.587	0.5014 -0.620	0.3578 -0.307	0.5633 -0.574	0.5770 -0.783
0.4909 -0.580	0.5031 -0.605	0.3598 -0.330	0.5688 -0.716	0.5784 -0.783
0.4985 -0.541	0.5068 -0.607	0.3619 -0.400	0.5730 -0.734	0.5812 -0.773
0.4999 -0.531	0.5087 -0.590	0.3654 -0.501	0.5744 -0.740	0.5826 -0.771
0.5022 -0.536	0.5103 -0.571	0.3675 -0.572		0.5840 -0.770
0.5094 -0.521		0.3689 -0.572	2440500 +	0.5867 -0.768
0.5169 -0.507	2439402 +	0.3723 -0.602	0.2607 -0.397	0.5881 -0.767
0.5218 -0.465	0.4057 -0.336	0.3737 -0.611	0.2621 -0.420	0.5895 -0.768

2440516 +	0.4868 -0.640	0.3702 -0.324	0.2925 -0.509	0.5357 -0.032
0.4007 0.014	0.4882 -0.647	0.3716 -0.341	0.2939 -0.529	0.5378 -0.037
0.4021 0.008	0.4910 -0.649	0.3744 -0.383	0.2967 -0.578	0.5420 -0.058
0.4035 0.010	0.4924 -0.651	0.3758 -0.383	0.2981 -0.602	0.5441 -0.079
0.4063 0.012	0.4938 -0.648	0.3772 -0.399	0.2995 -0.627	0.5482 -0.094
0.4077 0.012	0.4965 -0.650	0.3800 -0.435	0.3022 -0.661	0.5503 -0.118
0.4091 -0.004	0.4979 -0.660	0.3814 -0.457	0.3036 -0.662	0.5545 -0.163
0.4118 -0.007	0.4993 -0.663	0.3828 -0.467	0.3050 -0.676	0.5566 -0.176
0.4132 -0.012	0.5021 -0.651	0.3855 -0.506	0.3078 -0.709	0.5607 -0.208
0.4146 -0.030	0.5035 -0.655	0.3869 -0.537	0.3092 -0.726	0.5628 -0.241
0.4174 -0.032	0.5049 -0.668	0.3883 -0.554	0.3106 -0.745	0.5670 -0.288
0.4188 -0.038	0.5076 -0.663	0.3911 -0.578	0.3147 -0.732	0.5691 -0.330
0.4202 -0.043	0.5090 -0.643	0.3925 -0.603	0.3161 -0.729	0.5732 -0.377
0.4229 -0.075	0.5104 -0.648	0.3939 -0.618	0.3175 -0.730	0.5753 -0.395
0.4243 -0.094	0.5132 -0.617	0.3966 -0.643	0.3203 -0.726	0.5795 -0.471
0.4257 -0.099	0.5146 -0.617	0.3980 -0.660	0.3217 -0.720	0.5816 -0.487
0.4285 -0.098	0.5160 -0.605	0.3994 -0.676	0.3231 -0.721	0.5857 -0.526
0.4299 -0.107		0.4022 -0.702	0.3258 -0.717	0.5878 -0.536
0.4313 -0.115	2440528 +	0.4036 -0.711	0.3272 -0.721	0.5920 -0.580
0.4340 -0.124	0.3188 0.083	0.4050 -0.713	0.3286 -0.720	0.5941 -0.609
0.4354 -0.129	0.3202 0.085	0.4077 -0.732		0.5982 -0.645
0.4368 -0.150	0.3216 0.078	0.4091 -0.733	2440541 +	0.6003 -0.657
0.4396 -0.173	0.3244 0.085	0.4105 -0.745	0.2333 -0.077	0.6045 -0.674
0.4410 -0.201	0.3258 0.076	0.4133 -0.751	0.2354 -0.113	0.6066 -0.673
0.4424 -0.210	0.3272 0.072	0.4147 -0.751	0.2396 -0.197	0.6107 -0.689
0.4451 -0.231	0.3300 0.039	0.4161 -0.754	0.2417 -0.231	0.6128 -0.688
0.4465 -0.249	0.3314 0.068	0.4189 -0.758	0.2458 -0.329	0.6170 -0.673
0.4479 -0.271	0.3328 0.062	0.4203 -0.742	0.2479 -0.362	0.6198 -0.657
0.4507 -0.298	0.3355 0.059	0.4217 -0.739	0.2521 -0.446	0.6226 -0.647
0.4521 -0.304	0.3369 0.056		0.2542 -0.501	
0.4535 -0.320	0.3383 0.042	2440530 +	0.2583 -0.561	2440707 +
0.4576 -0.364	0.3411 0.009	0.2633 -0.103	0.2604 -0.613	0.5084 0.112
0.4590 -0.373	0.3425 -0.005	0.2647 -0.141	0.2646 -0.708	0.5105 0.132
0.4604 -0.385	0.3439 -0.009	0.2661 -0.167	0.2667 -0.732	0.5147 0.134
0.4632 -0.424	0.3466 -0.021	0.2689 -0.187	0.2708 -0.790	0.5168 0.132
0.4646 -0.434	0.3480 -0.040	0.2703 -0.217	0.2729 -0.833	0.5209 0.141
0.4660 -0.453	0.3494 -0.044	0.2717 -0.236	0.2771 -0.850	0.5230 0.135
0.4688 -0.493	0.3522 -0.058	0.2745 -0.250	0.2792 -0.858	0.5272 0.116
0.4702 -0.507	0.3536 -0.083	0.2759 -0.270	0.2833 -0.827	0.5293 0.106
0.4716 -0.520	0.3550 -0.106	0.2773 -0.297	0.2854 -0.817	0.5334 0.065
0.4743 -0.528	0.3577 -0.139	0.2800 -0.333	0.2896 -0.802	0.5355 0.026
0.4757 -0.528	0.3591 -0.158	0.2814 -0.351	0.2917 -0.798	0.5401 -0.011
0.4771 -0.565	0.3605 -0.165	0.2828 -0.369		0.5422 -0.052
0.4799 -0.568	0.3633 -0.225	0.2856 -0.405	2440676 +	0.5452 -0.095
0.4813 -0.585	0.3647 -0.240	0.2870 -0.421	0.5170 0.044	0.5473 -0.122
0.4827 -0.588	0.3661 -0.255	0.2884 -0.454	0.5232 0.032	0.5515 -0.243
0.4854 -0.621	0.3688 -0.304	0.2911 -0.496	0.5295 -0.009	0.5536 -0.314

0.5577	-0.410	0.4879	-0.961	0.4073	-0.775	2440780	+	0.4624	0.096	
0.5598	-0.446	0.4907	-0.958	0.4087	-0.768	0.4454	-0.164	0.4638	0.084	
0.5640	-0.620	0.4921	-0.950			0.4476	-0.202	0.4652	0.072	
0.5661	-0.724	0.4948	-0.943		2440751	+	0.4517	-0.252	0.4680	0.049
0.5702	-0.873	0.4962	-0.941	0.3586	-0.079	0.4538	-0.287	0.4694	0.044	
0.5723	-0.914	0.4990	-0.931	0.3600	-0.099	0.4579	-0.369	0.4708	0.009	
0.5758	-0.959	0.5004	-0.924	0.3642	-0.120	0.4600	-0.393	0.4735	-0.003	
0.5779	-0.971	0.5032	-0.916	0.3655	-0.150	0.4642	-0.475	0.4749	-0.028	
0.5821	-0.976	0.5046	-0.901	0.3690	-0.162	0.4663	-0.532	0.4763	-0.047	
0.5842	-0.973	0.5073	-0.894	0.3704	-0.186	0.4704	-0.636	0.4791	-0.076	
		0.5087	-0.882	0.3739	-0.211	0.4725	-0.709	0.4805	-0.096	
	2440709	+	0.5115	-0.875	0.3753	-0.214	0.4767	-0.839	0.4846	-0.187
0.4157	0.151	0.5129	-0.855	0.3788	-0.259	0.4788	-0.884	0.4860	-0.214	
0.4171	0.160			0.3802	-0.280	0.4829	-0.958	0.4874	-0.234	
0.4198	0.156		2440731	+	0.3829	-0.307	0.4850	-0.979	0.4902	-0.273
0.4212	0.138	0.3407	0.010	0.3843	-0.319	0.4905	-0.971	0.4916	-0.304	
0.4240	0.111	0.3421	0.008	0.3871	-0.359	0.4926	-0.945	0.4957	-0.367	
0.4254	0.110	0.3449	-0.002	0.3891	-0.378	0.4968	-0.899	0.4971	-0.380	
0.4282	0.107	0.3463	-0.011	0.3919	-0.434	0.4989	-0.886	0.4985	-0.406	
0.4296	0.081	0.3491	-0.056	0.3933	-0.446			0.5013	-0.470	
0.4323	0.089	0.3505	-0.072	0.3968	-0.517		2440821	+	0.5027	-0.485
0.4337	0.076	0.3531	-0.117	0.3982	-0.532	0.4103	-0.279	0.5041	-0.513	
0.4365	0.042	0.3545	-0.156	0.4017	-0.596	0.4124	-0.290	0.5069	-0.549	
0.4379	0.032	0.3573	-0.183	0.4038	-0.616	0.4172	-0.333	0.5083	-0.580	
0.4407	-0.009	0.3587	-0.211	0.4072	-0.623	0.4193	-0.360	0.5097	-0.612	
0.4421	-0.037	0.3615	-0.255	0.4086	-0.635	0.4235	-0.398	0.5124	-0.671	
0.4448	-0.035	0.3629	-0.273	0.4114	-0.640	0.4256	-0.424	0.5138	-0.686	
0.4462	-0.076	0.3656	-0.315	0.4128	-0.648	0.4312	-0.502	0.5152	-0.697	
0.4490	-0.116	0.3670	-0.352	0.4156	-0.655	0.4333	-0.534	0.5180	-0.718	
0.4504	-0.129	0.3698	-0.391	0.4170	-0.670	0.4430	-0.627	0.5194	-0.740	
0.4532	-0.167	0.3712	-0.421	0.4197	-0.659	0.4451	-0.655	0.5208	-0.750	
0.4546	-0.192	0.3740	-0.446	0.4211	-0.667	0.4499	-0.698	0.5249	-0.766	
0.4573	-0.259	0.3754	-0.479	0.4239	-0.664	0.4520	-0.703	0.5263	-0.767	
0.4587	-0.277	0.3781	-0.525	0.4253	-0.661	0.4569	-0.740	0.5291	-0.744	
0.4615	-0.372	0.3795	-0.544	0.4287	-0.673	0.4638	-0.779	0.5305	-0.736	
0.4629	-0.406	0.3823	-0.584	0.4301	-0.664	0.4659	-0.782	0.5319	-0.730	
0.4657	-0.471	0.3837	-0.595	0.4329	-0.650	0.4756	-0.734	0.5346	-0.717	
0.4671	-0.504	0.3865	-0.623	0.4343	-0.647	0.4777	-0.713	0.5360	-0.716	
0.4698	-0.603	0.3879	-0.641	0.4371	-0.643	0.4846	-0.699	0.5374	-0.705	
0.4712	-0.633	0.3906	-0.679	0.4385	-0.646	0.4867	-0.661	0.5395	-0.705	
0.4740	-0.700	0.3920	-0.692	0.4412	-0.640	0.4923	-0.621	0.5409	-0.696	
0.4754	-0.730	0.3948	-0.721	0.4426	-0.632	0.4944	-0.593	0.5423	-0.695	
0.4782	-0.811	0.3962	-0.733	0.4454	-0.620	0.5069	-0.500			
0.4796	-0.860	0.3990	-0.759	0.4468	-0.613	0.5090	-0.490		2440863	+
0.4823	-0.900	0.4004	-0.769	0.4495	-0.600			0.3764	-0.441	
0.4837	-0.911	0.4031	-0.770	0.4510	-0.598		2440840	+	0.3778	-0.477
0.4865	-0.942	0.4045	-0.771			0.4597	0.128	0.3792	-0.497	

0.3833	-0.585	0.3336	-0.832	0.2800	-0.820	0.3541	-0.425	0.2929	-0.204
0.3847	-0.625	0.3350	-0.854	0.2814	-0.812	0.3564	-0.488	0.2979	-0.294
0.3861	-0.665	0.3364	-0.866			0.3575	-0.500	0.3042	-0.387
0.3910	-0.765	0.3392	-0.868	2441249 +		0.3586	-0.527	0.3055	-0.408
0.3931	-0.784	0.3406	-0.862	0.2510	0.094	0.3612	-0.577	0.3094	-0.480
0.3945	-0.804	0.3420	-0.860	0.2524	0.098	0.3624	-0.596	0.3105	-0.508
0.3986	-0.869	0.3448	-0.841	0.2538	0.101	0.3635	-0.628	0.3116	-0.516
0.4000	-0.904	0.3462	-0.840	0.2566	0.107	0.3662	-0.672	0.3172	-0.626
0.4014	-0.919	0.3476	-0.838	0.2580	0.101	0.3673	-0.693	0.3184	-0.639
0.4056	-0.942	0.3503	-0.831	0.2594	0.097	0.3685	-0.713	0.3196	-0.672
0.4070	-0.948	0.3517	-0.826	0.2621	0.100	0.3712	-0.750	0.3227	-0.728
0.4084	-0.953	0.3531	-0.813	0.2635	0.103	0.3728	-0.755	0.3239	-0.738
0.4146	-0.942	0.3559	-0.788	0.2656	0.103	0.3741	-0.767	0.3253	-0.755
0.4160	-0.934	0.3573	-0.782	0.2691	0.099	0.3772	-0.774	0.3287	-0.790
0.4174	-0.922	0.3587	-0.776	0.2705	0.104	0.3785	-0.788	0.3300	-0.796
0.4208	-0.898			0.2719	0.104	0.3798	-0.782	0.3311	-0.801
0.4222	-0.880	2440937 +		0.2747	0.101	0.3830	-0.791	0.3344	-0.796
0.4236	-0.861	0.2216	-0.092	0.2761	0.111	0.3844	-0.794	0.3361	-0.798
0.4299	-0.805	0.2230	-0.114	0.2775	0.121	0.3860	-0.799	0.3372	-0.791
0.4313	-0.783	0.2244	-0.162	0.2802	0.118	0.3893	-0.795	0.3405	-0.790
0.4327	-0.773	0.2272	-0.195	0.2816	0.108	0.3907	-0.794	0.3417	-0.784
		0.2286	-0.221	0.2830	0.113	0.3920	-0.788	0.3431	-0.782
2440925 +		0.2300	-0.234	0.2865	0.124	0.3946	-0.787	0.3463	-0.775
0.2663	0.084	0.2327	-0.272	0.2906	0.160	0.3962	-0.777	0.3475	-0.771
0.2677	0.088	0.2341	-0.284	0.2941	0.166	0.3979	-0.772	0.3485	-0.770
0.2691	0.088	0.2355	-0.314	0.2955	0.161	0.4020	-0.757		
0.2718	0.100	0.2376	-0.356	0.2976	0.161	0.4035	-0.749	2441539 +	
0.2732	0.108	0.2390	-0.386	0.3205	0.030	0.4054	-0.730	0.5023	0.039
0.2746	0.114	0.2404	-0.447	0.3217	0.031			0.5037	0.053
0.2795	0.117	0.2432	-0.501	0.3228	0.033	2441250 +		0.5065	0.037
0.2809	0.115	0.2446	-0.557	0.3256	0.042	0.2309	0.108	0.5078	0.041
0.2823	0.129	0.2460	-0.612	0.3270	0.031	0.2323	0.118	0.5106	0.052
0.2850	0.126	0.2474	-0.658	0.3281	-0.006	0.2378	0.132	0.5120	0.040
0.2864	0.134	0.2488	-0.683	0.3315	-0.032	0.2390	0.142	0.5148	0.040
0.2878	0.123	0.2502	-0.730	0.3330	-0.079	0.2404	0.132	0.5162	0.032
0.3114	-0.170	0.2536	-0.793	0.3339	-0.101	0.2608	0.135	0.5190	0.003
0.3128	-0.225	0.2550	-0.836	0.3367	-0.138	0.2621	0.124	0.5204	-0.024
0.3142	-0.247	0.2564	-0.850	0.3376	-0.148	0.2636	0.121	0.5231	-0.037
0.3170	-0.347	0.2591	-0.861	0.3389	-0.158	0.2684	0.097	0.5245	-0.047
0.3184	-0.367	0.2647	-0.882	0.3413	-0.192	0.2697	0.089	0.5273	-0.053
0.3198	-0.424	0.2675	-0.868	0.3424	-0.212	0.2711	0.080	0.5287	-0.065
0.3225	-0.498	0.2689	-0.862	0.3437	-0.227	0.2757	0.038	0.5314	-0.109
0.3239	-0.546	0.2703	-0.861	0.3462	-0.262	0.2769	0.007	0.5328	-0.131
0.3253	-0.611	0.2730	-0.860	0.3481	-0.299	0.2837	-0.048	0.5356	-0.164
0.3281	-0.698	0.2744	-0.851	0.3494	-0.324	0.2864	-0.094	0.5370	-0.200
0.3295	-0.755	0.2758	-0.845	0.3512	-0.375	0.2901	-0.158	0.5398	-0.225
0.3309	-0.783	0.2786	-0.828	0.3527	-0.414	0.2914	-0.178	0.5412	-0.257

0.5440 -0.319	0.6118 -0.644	0.2497 -0.395	0.4695 -0.688	0.5728 -0.888
0.5454 -0.364	0.6146 -0.631	0.2507 -0.430	0.4709 -0.710	0.5742 -0.902
0.5481 -0.419	0.6160 -0.617	0.2518 -0.472	0.4736 -0.731	0.5770 -0.894
0.5495 -0.489		0.2546 -0.543	0.4750 -0.748	0.5784 -0.889
0.5523 -0.606	2441591 +	0.2553 -0.605	0.4778 -0.782	0.5812 -0.879
0.5537 -0.648	0.4557 -0.221	0.2560 -0.629	0.4792 -0.827	0.5826 -0.871
0.5565 -0.771	0.4571 -0.238	0.2583 -0.677	0.4820 -0.840	0.5853 -0.849
0.5578 -0.809	0.4598 -0.265	0.2590 -0.708	0.4834 -0.849	0.5867 -0.833
0.5605 -0.859	0.4612 -0.281	0.2601 -0.732	0.4861 -0.855	
0.5620 -0.874	0.4640 -0.323	0.2625 -0.799	0.4875 -0.866	2441803 +
0.5648 -0.922	0.4654 -0.338	0.2636 -0.818	0.4903 -0.862	0.4694 -0.151
0.5662 -0.928	0.4682 -0.354	0.2643 -0.842	0.4917 -0.869	0.4711 -0.178
0.5690 -0.952	0.4696 -0.373	0.2671 -0.877	0.4945 -0.860	0.4738 -0.218
0.5704 -0.954	0.4723 -0.393	0.2681 -0.893	0.4959 -0.855	0.4745 -0.221
0.5731 -0.953	0.4737 -0.423	0.2692 -0.900	0.4986 -0.849	0.4764 -0.231
0.5745 -0.949	0.4765 -0.463	0.2719 -0.923	0.5000 -0.846	0.4771 -0.235
0.5773 -0.934	0.4779 -0.476	0.2726 -0.928	0.5028 -0.842	0.4792 -0.239
0.5787 -0.923	0.4807 -0.509	0.2740 -0.937		0.4802 -0.241
0.5815 -0.895	0.4821 -0.538	0.2768 -0.934	2441772 +	0.4819 -0.248
0.5829 -0.876	0.4848 -0.560	0.2782 -0.935	0.5145 -0.050	0.4829 -0.255
	0.4862 -0.590	0.2796 -0.920	0.5159 -0.072	0.4847 -0.271
2441589 +	0.4890 -0.611	0.2823 -0.900	0.5187 -0.105	0.4861 -0.274
0.5604 -0.348	0.4904 -0.625	0.2831 -0.884	0.5201 -0.126	0.4881 -0.282
0.5618 -0.359	0.4932 -0.641	0.2844 -0.872	0.5228 -0.148	0.4895 -0.295
0.5646 -0.407	0.4946 -0.645	0.2868 -0.843	0.5242 -0.165	0.4914 -0.314
0.5660 -0.421	0.4973 -0.648	0.2879 -0.824	0.5270 -0.185	0.4928 -0.324
0.5688 -0.458	0.4987 -0.661	0.2886 -0.816	0.5284 -0.226	0.4950 -0.353
0.5702 -0.474	0.5015 -0.665		0.5312 -0.252	0.4964 -0.364
0.5729 -0.518	0.5029 -0.666	2441622 +	0.5326 -0.270	0.4985 -0.380
0.5743 -0.553	0.5057 -0.670	0.4320 -0.108	0.5353 -0.296	0.4999 -0.411
0.5771 -0.593	0.5071 -0.667	0.4334 -0.109	0.5367 -0.321	0.5020 -0.449
0.5785 -0.624	0.5098 -0.664	0.4361 -0.144	0.5395 -0.368	0.5027 -0.458
0.5813 -0.665	0.5112 -0.667	0.4375 -0.175	0.5409 -0.388	0.5044 -0.470
0.5827 -0.667	0.5140 -0.663	0.4403 -0.217	0.5437 -0.410	0.5055 -0.475
0.5854 -0.675	0.5154 -0.659	0.4417 -0.233	0.5451 -0.438	0.5075 -0.481
0.5868 -0.689	0.5182 -0.651	0.4445 -0.270	0.5478 -0.475	0.5082 -0.484
0.5896 -0.694	0.5196 -0.636	0.4459 -0.283	0.5492 -0.504	0.5099 -0.501
0.5910 -0.706	0.5223 -0.617	0.4486 -0.329	0.5520 -0.559	0.5110 -0.517
0.5938 -0.709	0.5237 -0.613	0.4500 -0.351	0.5534 -0.601	0.5131 -0.549
0.5952 -0.720		0.4528 -0.425	0.5562 -0.669	0.5141 -0.559
0.5979 -0.717	2441606 +	0.4542 -0.458	0.5576 -0.693	0.5159 -0.580
0.5993 -0.707	0.2403 -0.200	0.4570 -0.491	0.5603 -0.784	0.5173 -0.588
0.6021 -0.694	0.2414 -0.214	0.4584 -0.511	0.5617 -0.816	0.5194 -0.607
0.6035 -0.686	0.2421 -0.237	0.4611 -0.557	0.5645 -0.835	0.5204 -0.619
0.6063 -0.666	0.2448 -0.294	0.4625 -0.594	0.5659 -0.857	0.5222 -0.626
0.6077 -0.657	0.2458 -0.310	0.4653 -0.644	0.5687 -0.879	0.5232 -0.634
0.6104 -0.650	0.2469 -0.345	0.4667 -0.660	0.5701 -0.880	0.5249 -0.641

0.5259 -0.639	0.4301 -0.642	0.5270 -0.304	0.4833 -0.832	0.4539 0.019
0.5277 -0.644	0.4312 -0.661	0.5291 -0.367	0.4847 -0.831	0.4564 0.016
0.5284 -0.651	0.4329 -0.674	0.5305 -0.410	0.4871 -0.826	0.4574 -0.011
0.5305 -0.659	0.4339 -0.681	0.5326 -0.466	0.4888 -0.825	0.4598 -0.022
0.5319 -0.666	0.4364 -0.696	0.5340 -0.516	0.4913 -0.803	0.4612 -0.030
0.5340 -0.669	0.4374 -0.699	0.5360 -0.569	0.4924 -0.796	0.4640 -0.057
0.5350 -0.669	0.4399 -0.707	0.5374 -0.610		0.4654 -0.067
0.5367 -0.667	0.4409 -0.711	0.5395 -0.707	2441905 +	0.4678 -0.085
0.5377 -0.659	0.4434 -0.713	0.5409 -0.738	0.4635 -0.192	0.4688 -0.089
0.5395 -0.649	0.4448 -0.715	0.5430 -0.781	0.4649 -0.212	0.4716 -0.128
0.5409 -0.648	0.4475 -0.718	0.5444 -0.799	0.4674 -0.244	0.4730 -0.144
0.5430 -0.653	0.4482 -0.720	0.5465 -0.846	0.4682 -0.267	0.4754 -0.171
0.5437 -0.649	0.4506 -0.722	0.5479 -0.862	0.4704 -0.326	0.4764 -0.197
0.5458 -0.639	0.4517 -0.718	0.5499 -0.869	0.4715 -0.353	0.4879 -0.380
0.5472 -0.641	0.4540 -0.709		0.4745 -0.421	0.4890 -0.411
0.5492 -0.637	0.4551 -0.704	2441835 +	0.4757 -0.439	0.4916 -0.461
0.5506 -0.644	0.4579 -0.691	0.4208 -0.088	0.4781 -0.519	0.4930 -0.482
0.5527 -0.640	0.4593 -0.688	0.4222 -0.109	0.4789 -0.541	0.4952 -0.545
0.5541 -0.639	0.4614 -0.682	0.4246 -0.143	0.4813 -0.589	0.4962 -0.566
0.5561 -0.637	0.4620 -0.683	0.4257 -0.159	0.4823 -0.620	0.4983 -0.608
0.5571 -0.636	0.4644 -0.672	0.4285 -0.181	0.4845 -0.697	0.4994 -0.648
0.5589 -0.630	0.4651 -0.670	0.4299 -0.209	0.4856 -0.740	0.5015 -0.715
0.5603 -0.631	0.4677 -0.660	0.4326 -0.249	0.4873 -0.780	0.5025 -0.740
0.5624 -0.631	0.4691 -0.649	0.4340 -0.282	0.4885 -0.802	0.5047 -0.784
0.5638 -0.627	0.4715 -0.636	0.4368 -0.344	0.4915 -0.825	0.5071 -0.812
0.5659 -0.613	0.4726 -0.631	0.4378 -0.376	0.4927 -0.840	0.5090 -0.829
0.5669 -0.610	0.4746 -0.623	0.4410 -0.467	0.4947 -0.833	0.5119 -0.862
0.5687 -0.587	0.4760 -0.622	0.4420 -0.502	0.4960 -0.844	0.5140 -0.877
0.5701 -0.593	0.4781 -0.621	0.4444 -0.634	0.4981 -0.849	
0.5722 -0.577	0.4795 -0.614	0.4458 -0.691	0.4993 -0.857	2441918 +
0.5736 -0.586		0.4482 -0.778	0.5016 -0.857	0.3223 -0.080
	2441833 +	0.4496 -0.837	0.5026 -0.860	0.3237 -0.090
2441815 +	0.5013 -0.035	0.4524 -0.880	0.5049 -0.870	0.3263 -0.101
0.4055 -0.347	0.5027 -0.048	0.4538 -0.883	0.5059 -0.867	0.3275 -0.114
0.4066 -0.367	0.5048 -0.061	0.4566 -0.905	0.5079 -0.868	0.3296 -0.122
0.4087 -0.382	0.5062 -0.074	0.4580 -0.910	0.5090 -0.862	0.3313 -0.137
0.4101 -0.390	0.5082 -0.076	0.4594 -0.920	0.5113 -0.854	0.3341 -0.162
0.4121 -0.410	0.5096 -0.077	0.4625 -0.920	0.5125 -0.848	0.3355 -0.190
0.4130 -0.423	0.5117 -0.087	0.4639 -0.931	0.5149 -0.836	0.3383 -0.240
0.4151 -0.441	0.5131 -0.093	0.4667 -0.921	0.5159 -0.829	0.3397 -0.263
0.4162 -0.453	0.5152 -0.123	0.4681 -0.922	0.5181 -0.817	0.3421 -0.304
0.4191 -0.482	0.5166 -0.148	0.4708 -0.910	0.5191 -0.815	0.3454 -0.354
0.4205 -0.518	0.5187 -0.172	0.4718 -0.891		0.3487 -0.421
0.4226 -0.552	0.5201 -0.202	0.4746 -0.873	2441915 +	0.3515 -0.476
0.4233 -0.564	0.5221 -0.225	0.4756 -0.872	0.4497 0.047	0.3525 -0.494
0.4260 -0.595	0.5235 -0.248	0.4788 -0.860	0.4508 0.041	0.3553 -0.522
0.4267 -0.607	0.5256 -0.273	0.4802 -0.855	0.4529 0.029	0.3560 -0.546

2441933 +	0.3731 -0.699	0.3426 -0.749	0.2843 -0.163	0.5047	0.109
0.5646 -0.039	0.3745 -0.712	0.3447 -0.742	0.2870 -0.201	0.5089	0.066
0.5655 -0.043	0.3776 -0.726	0.3461 -0.737	0.2884 -0.212	0.5103	0.065
0.5674 -0.060	0.3793 -0.736	0.3481 -0.726	0.2927 -0.259	0.5130	0.015
0.5683 -0.066	0.3829 -0.735	0.3495 -0.720	0.2950 -0.305	0.5144	-0.002
0.5701 -0.090	0.3846 -0.735	0.3516 -0.709	0.2957 -0.330	0.5193	-0.056
0.5710 -0.108	0.3877 -0.714	0.3530 -0.699	0.2982 -0.383	0.5207	-0.070
0.5729 -0.125	0.3891 -0.705	0.3551 -0.685	0.2996 -0.446	0.5221	-0.097
0.5738 -0.149	0.3933 -0.690	0.3565 -0.677	0.3020 -0.513	0.5235	-0.109
0.5757 -0.186	0.3950 -0.688		0.3027 -0.542	0.5269	-0.159
0.5766 -0.194	0.3988 -0.656	2441949 +	0.3048 -0.627	0.5283	-0.175
0.5785 -0.238	0.4005 -0.640	0.2850 -0.308	0.3055 -0.687	0.5325	-0.228
0.5794 -0.242		0.2861 -0.336	0.3075 -0.770	0.5339	-0.254
0.5813 -0.307	2441939 +	0.2884 -0.345	0.3082 -0.819	0.5380	-0.328
0.5821 -0.330	0.2856 -0.188	0.2895 -0.368	0.3103 -0.835	0.5394	-0.363
0.5868 -0.476	0.2870 -0.211	0.2919 -0.382	0.3110 -0.842	0.5422	-0.419
0.5877 -0.499	0.2891 -0.224	0.3037 -0.493	0.3131 -0.831	0.5436	-0.465
	0.2905 -0.250	0.3065 -0.521	0.3138 -0.835	0.5471	-0.558
2441934 +	0.2926 -0.267	0.3092 -0.537	0.3159 -0.888	0.5485	-0.594
0.5148 -0.002	0.2940 -0.292	0.3120 -0.554	0.3166 -0.897	0.5519	-0.701
0.5176 -0.053	0.2960 -0.326	0.3148 -0.569	0.3187 -0.926	0.5533	-0.730
0.5203 -0.122	0.2974 -0.349	0.3176 -0.606	0.3194 -0.926	0.5568	-0.788
0.5255 -0.191	0.2995 -0.370	0.3202 -0.617	0.3214 -0.926	0.5582	-0.810
0.5262 -0.214	0.3009 -0.405	0.3231 -0.631	0.3221 -0.928	0.5617	-0.862
0.5283 -0.250	0.3030 -0.446	0.3259 -0.650	0.3242 -0.933	0.5631	-0.896
0.5290 -0.272	0.3044 -0.463	0.3287 -0.667	0.3249 -0.936	0.5665	-0.911
0.5315 -0.294	0.3065 -0.484	0.3315 -0.673	0.3270 -0.930	0.5679	-0.918
0.5342 -0.332	0.3079 -0.511	0.3342 -0.684	0.3277 -0.928	0.5721	-0.916
0.5370 -0.386	0.3099 -0.545	0.3370 -0.697	0.3302 -0.917	0.5735	-0.912
0.5398 -0.437	0.3113 -0.580	0.3452 -0.674	0.3316 -0.914	0.5769	-0.916
0.5426 -0.470	0.3134 -0.621	0.3481 -0.664	0.3343 -0.906	0.5783	-0.915
0.5453 -0.520	0.3148 -0.633	0.3509 -0.660	0.3357 -0.901	0.5818	-0.905
0.5481 -0.552	0.3169 -0.663	0.3537 -0.652	0.3385 -0.891	0.5832	-0.897
0.5509 -0.610	0.3183 -0.674	0.3565 -0.648	0.3399 -0.876	0.5860	-0.856
0.5537 -0.668	0.3204 -0.699	0.3592 -0.618	0.3427 -0.855	0.5874	-0.835
0.5565 -0.729	0.3218 -0.715	0.3648 -0.604	0.3441 -0.843	0.5908	-0.810
0.5592 -0.761	0.3238 -0.722		0.3468 -0.814	0.5922	-0.786
0.5620 -0.782	0.3252 -0.731	2441990 +	0.3482 -0.808	0.5943	-0.758
0.5651 -0.788	0.3273 -0.746	0.2652 -0.030		0.5957	-0.756
0.5734 -0.792	0.3287 -0.755	0.2666 -0.037			
0.5755 -0.789	0.3308 -0.759	0.2698 -0.042	2442147 +		
0.5780 -0.773	0.3322 -0.762	0.2712 -0.048	0.4811	0.144	2442201 +
0.5815 -0.758	0.3342 -0.769	0.2745 -0.057	0.4825	0.150	0.3729 -0.439
	0.3356 -0.759	0.2759 -0.080	0.4853	0.156	0.3743 -0.478
2441938 +	0.3377 -0.762	0.2788 -0.108	0.4866	0.143	0.3777 -0.541
0.3683 -0.687	0.3391 -0.751	0.2802 -0.109	0.4978	0.130	0.3791 -0.571
0.3697 -0.695	0.3412 -0.757	0.2832 -0.154	0.4992	0.116	0.3819 -0.614
			0.5033	0.117	0.3833 -0.646

0.3861 -0.683	0.4688 -0.927	0.4372 -0.290	0.5182 -0.533	0.5288 -0.598
0.3875 -0.704	0.4702 -0.933	0.4400 -0.314	0.5209 -0.563	0.5301 -0.637
0.3902 -0.749	0.4730 -0.935	0.4414 -0.328	0.5216 -0.575	0.5351 -0.700
0.3916 -0.766	0.4744 -0.926	0.4442 -0.352	0.5240 -0.624	0.5362 -0.719
0.3944 -0.789	0.4758 -0.916	0.4456 -0.352	0.5251 -0.649	0.5372 -0.738
0.3958 -0.797	0.4785 -0.895	0.4484 -0.356	0.5276 -0.663	0.5383 -0.754
0.3993 -0.808	0.4799 -0.883	0.4498 -0.351	0.5287 -0.671	0.5393 -0.775
0.4007 -0.811	0.4813 -0.866	0.4525 -0.373	0.5310 -0.681	0.5440 -0.812
0.4048 -0.809	0.4841 -0.854	0.4539 -0.400	0.5321 -0.687	0.5450 -0.827
0.4083 -0.809	0.4855 -0.847	0.4567 -0.431	0.5345 -0.689	0.5462 -0.824
0.4097 -0.805	0.4869 -0.837	0.4581 -0.463	0.5356 -0.694	0.5472 -0.821
0.4125 -0.806	0.4896 -0.816	0.4605 -0.495	0.5380 -0.695	0.5484 -0.818
0.4139 -0.802	0.4910 -0.806	0.4612 -0.514	0.5390 -0.699	0.5535 -0.796
0.4173 -0.800	0.4924 -0.801	0.4633 -0.536	0.5414 -0.694	0.5545 -0.782
0.4187 -0.798		0.4643 -0.540	0.5425 -0.700	0.5554 -0.781
0.4215 -0.785	2442242 +	0.4667 -0.568	0.5452 -0.702	0.5565 -0.773
0.4229 -0.762	0.3526 -0.316	0.4681 -0.589	0.5463 -0.703	0.5575 -0.768
0.4264 -0.739	0.3535 -0.333	0.4706 -0.614	0.5490 -0.702	0.5585 -0.762
0.4278 -0.729	0.3581 -0.449	0.4720 -0.619	0.5501 -0.701	
0.4312 -0.725	0.3590 -0.472	0.4744 -0.634	0.5525 -0.699	2442303 +
0.4361 -0.693	0.3609 -0.512	0.4758 -0.644	0.5536 -0.698	0.3446 -0.174
0.4375 -0.675	0.3618 -0.522	0.4785 -0.646	0.5564 -0.697	0.3460 -0.193
0.4410 -0.641	0.3637 -0.562	0.4799 -0.651	0.5594 -0.691	0.3487 -0.214
0.4424 -0.637	0.3646 -0.589	0.4824 -0.663	0.5601 -0.690	0.3494 -0.224
	0.3665 -0.621	0.4838 -0.682		0.3515 -0.260
2442220 +	0.3674 -0.642	0.4872 -0.704	2442279 +	0.3522 -0.262
0.4285 -0.111	0.3693 -0.679	0.5063 -0.732	0.4847 0.085	0.3542 -0.290
0.4313 -0.139	0.3713 -0.700	0.5091 -0.726	0.4860 0.081	0.3548 -0.298
0.4341 -0.198	0.3762 -0.754	0.5105 -0.715	0.4874 0.080	0.3570 -0.329
0.4355 -0.227	0.3781 -0.762	0.5130 -0.713	0.4886 0.080	0.3577 -0.336
0.4369 -0.259	0.3818 -0.777		0.4900 0.055	0.3601 -0.368
0.4396 -0.307	0.3855 -0.783	2442269 +	0.4957 0.043	0.3607 -0.382
0.4410 -0.355	0.3873 -0.774	0.4879 -0.153	0.4972 0.022	0.3636 -0.450
0.4423 -0.392	0.3892 -0.765	0.4907 -0.199	0.4986 0.024	0.3646 -0.464
0.4452 -0.450	0.3911 -0.770	0.4917 -0.214	0.4999 0.012	0.3672 -0.504
0.4466 -0.486	0.3929 -0.756	0.4949 -0.252	0.5010 -0.017	0.3682 -0.537
0.4480 -0.519		0.4963 -0.270	0.5064 -0.098	0.3716 -0.660
0.4508 -0.586	2442260 +	0.4987 -0.293	0.5074 -0.109	0.3736 -0.698
0.4522 -0.604	0.4192 -0.102	0.4997 -0.316	0.5086 -0.139	0.3750 -0.742
0.4536 -0.632	0.4206 -0.107	0.5025 -0.341	0.5098 -0.173	0.3769 -0.773
0.4563 -0.702	0.4234 -0.120	0.5039 -0.356	0.5109 -0.192	0.3783 -0.775
0.4577 -0.720	0.4248 -0.122	0.5078 -0.391	0.5181 -0.344	0.3804 -0.782
0.4591 -0.755	0.4275 -0.148	0.5101 -0.431	0.5193 -0.369	0.3814 -0.792
0.4619 -0.820	0.4289 -0.173	0.5113 -0.447	0.5203 -0.376	0.3834 -0.787
0.4633 -0.847	0.4317 -0.214	0.5140 -0.465	0.5256 -0.528	0.3841 -0.790
0.4647 -0.863	0.4331 -0.235	0.5151 -0.478	0.5267 -0.556	0.3862 -0.786
0.4674 -0.902	0.4360 -0.264	0.5175 -0.513	0.5278 -0.574	0.3869 -0.789

0.3890 -0.798	0.4443 -0.715	0.4295 -0.369	0.4777 -0.698	2443730 +
0.3900 -0.798	0.4464 -0.698	0.4309 -0.377	0.4791 -0.712	0.4582 -0.052
0.3921 -0.793	0.4472 -0.701	0.4335 -0.442	0.4819 -0.708	0.4610 -0.093
0.3932 -0.799	0.4498 -0.670	0.4349 -0.508	0.4833 -0.704	0.4624 -0.129
0.3957 -0.806	0.4514 -0.650	0.4376 -0.601	0.4860 -0.695	0.4651 -0.162
	0.4522 -0.639	0.4391 -0.631	0.4874 -0.689	0.4665 -0.192
2442636 +	0.4546 -0.619	0.4423 -0.765	0.4902 -0.674	0.4693 -0.272
0.3606 -0.034	0.4580 -0.602	0.4438 -0.831	0.4916 -0.665	0.4703 -0.302
0.3614 -0.033			0.4944 -0.660	0.4730 -0.352
0.3632 -0.043	2442948 +	2443700 +	0.4958 -0.655	0.4740 -0.385
0.3639 -0.050	0.4872 -0.089	0.3944 0.050	0.4985 -0.646	0.4766 -0.429
0.3660 -0.048	0.4886 -0.100	0.3958 0.051	0.4999 -0.642	0.4778 -0.457
0.3668 -0.065	0.4914 -0.135	0.3985 0.048	0.5027 -0.639	
0.3689 -0.080	0.4928 -0.143	0.3999 0.028	0.5069 -0.615	2443732 +
0.3696 -0.071	0.4955 -0.169	0.4041 0.021	0.5083 -0.600	0.3639 0.018
0.3715 -0.078	0.4990 -0.205	0.4083 -0.005	0.5110 -0.594	0.3700 -0.091
0.3760 -0.124	0.5004 -0.239	0.4110 -0.049	0.5124 -0.578	0.3754 -0.174
0.3786 -0.136	0.5032 -0.261	0.4124 -0.059		0.3770 -0.216
0.3805 -0.147	0.5046 -0.281	0.4152 -0.083	2443720 +	0.3824 -0.362
0.3814 -0.159	0.5079 -0.331	0.4166 -0.094	0.4578 -0.368	0.3841 -0.423
0.3839 -0.194	0.5093 -0.350	0.4194 -0.109	0.4592 -0.383	0.3938 -0.756
0.3846 -0.212	0.5122 -0.348	0.4208 -0.113	0.4615 -0.408	0.3998 -0.908
0.3864 -0.269	0.5136 -0.348	0.4235 -0.143	0.4624 -0.430	0.4012 -0.927
0.3873 -0.287	0.5184 -0.388	0.4249 -0.159	0.4643 -0.470	0.4052 -0.983
0.3894 -0.318	0.5226 -0.446	0.4277 -0.181	0.4652 -0.477	
0.3904 -0.310	0.5260 -0.456	0.4291 -0.196	0.4671 -0.509	2443743 +
0.3925 -0.319	0.5299 -0.487	0.4319 -0.231	0.4680 -0.538	0.3267 -0.088
0.3933 -0.324	0.5312 -0.521	0.4333 -0.264	0.4708 -0.610	0.3278 -0.101
0.3962 -0.322		0.4360 -0.278	0.4726 -0.685	0.3300 -0.140
0.3983 -0.324	2443660 +	0.4374 -0.303	0.4736 -0.717	0.3311 -0.161
0.3990 -0.332	0.3501 0.119	0.4402 -0.326	0.4754 -0.761	0.3334 -0.192
0.4011 -0.358	0.3541 0.097	0.4416 -0.328	0.4763 -0.776	0.3344 -0.212
0.4036 -0.383	0.3590 0.119	0.4444 -0.352	0.4787 -0.804	0.3393 -0.267
0.4060 -0.409	0.3637 0.083	0.4485 -0.378	0.4800 -0.824	0.3403 -0.282
0.4115 -0.470	0.3672 0.097	0.4499 -0.401	0.4828 -0.857	0.3424 -0.335
0.4123 -0.470	0.3754 0.093	0.4527 -0.419	0.4842 -0.866	0.3433 -0.352
0.4143 -0.481	0.3798 0.098	0.4541 -0.431	0.4870 -0.885	0.3456 -0.413
0.4152 -0.488	0.3846 0.098	0.4569 -0.474	0.4884 -0.888	0.3491 -0.439
0.4172 -0.485	0.3899 0.049	0.4583 -0.515	0.4912 -0.889	0.3500 -0.444
0.4180 -0.490	0.3955 0.009	0.4610 -0.527	0.4925 -0.890	0.3524 -0.549
0.4204 -0.498	0.4003 -0.006	0.4624 -0.539	0.4967 -0.868	0.3534 -0.591
0.4230 -0.517	0.4049 -0.026	0.4652 -0.572	0.4995 -0.844	0.3557 -0.636
0.4282 -0.595	0.4090 -0.043	0.4666 -0.602	0.5009 -0.831	0.3569 -0.659
0.4291 -0.606	0.4212 -0.189	0.4694 -0.656	0.5037 -0.814	0.3598 -0.691
0.4310 -0.627	0.4225 -0.211	0.4708 -0.678	0.5050 -0.803	0.3607 -0.709
0.4339 -0.650	0.4253 -0.243	0.4735 -0.691	0.5078 -0.779	0.3634 -0.747
0.4346 -0.650	0.4268 -0.307	0.4749 -0.704	0.5092 -0.774	0.3662 -0.800

0.3673 -0.812	0.3066 -0.816	0.4760 -0.236	0.4776 0.077	0.5784 -0.707
0.3710 -0.839	0.3080 -0.811	0.4773 -0.232	0.4789 0.071	0.5835 -0.683
0.3734 -0.840	0.3093 -0.813	0.4786 -0.228	0.4802 0.065	0.5849 -0.677
0.3745 -0.835	0.3106 -0.808	0.4800 -0.229	0.4861 0.045	0.5862 -0.672
0.3782 -0.818		0.4813 -0.228	0.4874 0.038	0.5932 -0.643
0.3809 -0.811	2445791 +	0.4827 -0.227	0.4887 0.026	0.5945 -0.641
0.3820 -0.799	0.3595 -0.729	0.4840 -0.228	0.4901 0.035	0.5959 -0.633
	0.3609 -0.725	0.4853 -0.223	0.4914 0.016	0.5972 -0.629
2443763 +	0.3622 -0.713	0.5208 -0.120	0.4971 -0.019	
0.3359 -0.226	0.3635 -0.713	0.5221 -0.112	0.4984 -0.032	2446193 +
0.3368 -0.246	0.3648 -0.700	0.5234 -0.111	0.4998 -0.062	0.4372 -0.201
0.3398 -0.284	0.3775 -0.609	0.5248 -0.108	0.5012 -0.075	0.4385 -0.212
0.3413 -0.316	0.3789 -0.599	0.5261 -0.112	0.5025 -0.087	0.4398 -0.229
0.3449 -0.364	0.3802 -0.592	0.5275 -0.110	0.5079 -0.129	0.4412 -0.241
0.3508 -0.437	0.3815 -0.587	0.5288 -0.104	0.5093 -0.142	0.4426 -0.253
0.3523 -0.463	0.4101 -0.357	0.5301 -0.096	0.5106 -0.159	0.4480 -0.318
0.3555 -0.490	0.4115 -0.353	0.5315 -0.097	0.5120 -0.165	0.4493 -0.328
0.3572 -0.523	0.4128 -0.351	0.5328 -0.096	0.5133 -0.192	0.4507 -0.359
0.3608 -0.558	0.4142 -0.348	0.5393 -0.076	0.5191 -0.238	0.4520 -0.368
0.3626 -0.576	0.4155 -0.343	0.5407 -0.078	0.5204 -0.252	0.4534 -0.389
0.3662 -0.611	0.4168 -0.341	0.5420 -0.075	0.5218 -0.265	0.4586 -0.451
0.3681 -0.621	0.4182 -0.333	0.5434 -0.066	0.5231 -0.290	0.4599 -0.465
0.3709 -0.641	0.4195 -0.330	0.5447 -0.069	0.5244 -0.309	0.4612 -0.492
0.3727 -0.657	0.4209 -0.325	0.5461 -0.063	0.5301 -0.382	0.4626 -0.506
0.3768 -0.672	0.4222 -0.324	0.5474 -0.062	0.5314 -0.399	0.4639 -0.513
0.3811 -0.682	0.4360 -0.324	0.5487 -0.067	0.5328 -0.422	0.4691 -0.571
0.3830 -0.685	0.4374 -0.326	0.5501 -0.060	0.5341 -0.435	0.4705 -0.588
0.3862 -0.681	0.4387 -0.326	0.5514 -0.050	0.5355 -0.455	0.4718 -0.596
0.3880 -0.676	0.4401 -0.324	0.5589 -0.040	0.5409 -0.533	0.4732 -0.617
0.3920 -0.666	0.4414 -0.324	0.5602 -0.038	0.5422 -0.568	0.4745 -0.628
0.3938 -0.659	0.4427 -0.317	0.5616 -0.034	0.5436 -0.589	0.4803 -0.667
0.3971 -0.630	0.4441 -0.313	0.5629 -0.024	0.5449 -0.614	0.4816 -0.673
0.3987 -0.627	0.4454 -0.312	0.5643 -0.024	0.5462 -0.633	0.4830 -0.678
0.4044 -0.594	0.4468 -0.304	0.5656 -0.025	0.5513 -0.677	0.4843 -0.682
	0.4481 -0.302	0.5669 -0.002	0.5527 -0.689	0.4857 -0.689
2445609 +	0.4555 -0.265	0.5683 0.010	0.5540 -0.705	0.4914 -0.693
0.2835 -0.687	0.4568 -0.256	0.5696 0.009	0.5554 -0.713	0.4927 -0.695
0.2848 -0.711	0.4581 -0.246	0.5710 -0.001	0.5567 -0.725	0.4941 -0.686
0.2862 -0.738	0.4595 -0.248	0.5773 -0.005	0.5624 -0.729	0.4954 -0.681
0.2875 -0.753	0.4608 -0.247	0.5787 -0.005	0.5637 -0.730	0.4968 -0.680
0.2888 -0.779	0.4622 -0.238	0.5800 -0.005	0.5651 -0.728	0.5028 -0.671
0.2947 -0.820	0.4635 -0.244	0.5814 0.006	0.5664 -0.734	0.5041 -0.669
0.2960 -0.826	0.4648 -0.242	0.5840 0.019	0.5678 -0.727	0.5055 -0.655
0.2974 -0.835	0.4662 -0.243		0.5731 -0.711	0.5068 -0.658
0.2987 -0.832	0.4676 -0.240	2445806 +	0.5744 -0.713	0.5081 -0.650
0.3000 -0.832	0.4733 -0.235	0.4749 0.103	0.5757 -0.704	0.5136 -0.627
0.3053 -0.829	0.4746 -0.231	0.4763 0.099	0.5771 -0.711	0.5150 -0.615

0.5163	-0.606	0.5271	-0.008	0.3821	0.010	0.4334	-0.949	0.3790	-0.607
0.5176	-0.596	0.5322	-0.079	0.3870	-0.019	0.4391	-0.944	0.3801	-0.615
0.5190	-0.578	0.5335	-0.096	0.3883	-0.018	0.4488	-0.905	0.3849	-0.673
		0.5387	-0.214	0.3935	-0.093	0.4501	-0.866	0.3860	-0.679
2447306 +		0.5400	-0.224	0.3948	-0.097	0.4515	-0.867	0.3936	-0.710
0.4921	0.147	0.5453	-0.254	0.3961	-0.121	0.4590	-0.789	0.3947	-0.712
0.4934	0.144	0.5465	-0.309	0.4033	-0.216	0.4645	-0.782	0.3994	-0.733
0.4986	0.157	0.5514	-0.413	0.4047	-0.242	0.4658	-0.769	0.4005	-0.725
0.4998	0.152	0.5527	-0.442	0.4060	-0.264			0.4056	-0.712
0.5059	0.123			0.4118	-0.380	2447462 +		0.4067	-0.712
0.5072	0.131	2447360 +		0.4131	-0.396	0.3534	-0.264	0.4131	-0.681
0.5123	0.126	0.3676	0.094	0.4186	-0.621	0.3544	-0.297	0.4142	-0.669
0.5136	0.103	0.3689	0.078	0.4199	-0.668	0.3592	-0.308	0.4191	-0.656
0.5192	0.071	0.3745	0.053	0.4252	-0.902	0.3603	-0.319	0.4202	-0.660
0.5205	0.053	0.3758	0.053	0.4265	-0.923	0.3666	-0.433	0.4246	-0.634
0.5258	-0.012	0.3809	0.020	0.4321	-0.953	0.3677	-0.445	0.4256	-0.630

Table 5.e Photoelectric differential R_C observations of XZ Dra

2447306 +		0.5390	-0.128	0.3938	-0.032	0.4491	-0.679	0.3852	-0.482
0.4924	0.159	0.5403	-0.137	0.3951	-0.038	0.4504	-0.664	0.3863	-0.499
0.4937	0.176	0.5456	-0.155	0.3964	-0.040	0.4518	-0.667	0.3939	-0.508
0.4989	0.169	0.5468	-0.188	0.4036	-0.120	0.4593	-0.600	0.3950	-0.510
0.5001	0.172	0.5517	-0.272	0.4050	-0.134	0.4648	-0.577	0.3997	-0.525
0.5062	0.158	0.5530	-0.300	0.4063	-0.161	0.4661	-0.536	0.4008	-0.529
0.5075	0.157			0.4121	-0.268			0.4059	-0.519
0.5126	0.152	2447360 +		0.4134	-0.298	2447462 +		0.4070	-0.510
0.5139	0.137	0.3679	0.120	0.4189	-0.471	0.3537	-0.150	0.4134	-0.490
0.5195	0.102	0.3692	0.123	0.4202	-0.487	0.3547	-0.173	0.4145	-0.486
0.5208	0.097	0.3748	0.110	0.4255	-0.710	0.3595	-0.163	0.4194	-0.487
0.5261	0.048	0.3761	0.105	0.4268	-0.713	0.3606	-0.225	0.4205	-0.486
0.5274	0.043	0.3812	0.073	0.4324	-0.734	0.3669	-0.285	0.4249	-0.464
0.5325	-0.031	0.3824	0.059	0.4337	-0.732	0.3680	-0.293	0.4259	-0.450
0.5338	-0.043	0.3873	0.035	0.4394	-0.732	0.3793	-0.429		
		0.3886	0.035			0.3804	-0.438		

Table 5.f Photoelectric differential I_C observations of XZ Dra

2447306 +		0.5210	0.162	0.5532	-0.165	0.3888	0.096	0.4204	-0.292
0.4926	0.180	0.5263	0.162			0.3940	0.050	0.4257	-0.482
0.4939	0.196	0.5276	0.162	2447360 +		0.3953	0.046	0.4270	-0.509
0.4991	0.155	0.5327	0.041	0.3681	0.152	0.3966	0.034	0.4326	-0.503
0.5003	0.155	0.5340	0.048	0.3694	0.130	0.4038	-0.035	0.4339	-0.505
0.5064	0.180	0.5392	-0.016	0.3750	0.123	0.4052	-0.046	0.4396	0.505
0.5077	0.169	0.5405	-0.003	0.3763	0.132	0.4065	-0.069	0.4493	-0.442
0.5128	0.166	0.5458	-0.071	0.3814	0.114	0.4123	-0.163	0.4506	-0.447
0.5141	0.162	0.5470	-0.047	0.3826	0.100	0.4136	-0.179	0.4520	-0.453
0.5197	0.162	0.5519	-0.177	0.3875	0.104	0.4191	-0.324	0.4595	-0.397

0.4650 −0.393	0.3597 −0.049	0.3806 −0.289	0.3999 −0.339	0.4147 −0.316
0.4663 −0.393	0.3608 −0.064	0.3854 −0.314	0.4010 −0.333	0.4196 −0.306
2447462 +	0.3671 −0.118	0.3865 −0.339	0.4061 −0.337	0.4207 −0.298
0.3539 −0.033	0.3682 −0.111	0.3941 −0.317	0.4072 −0.352	0.4251 −0.275
0.3549 −0.076	0.3795 −0.285	0.3952 −0.350	0.4136 −0.317	0.4261 −0.258

CCD Observations

CCD observations were obtained on 5 nights in July–August 2001, with the 60/90/180cm Schmidt telescope at Piszkestető Mountain Station of the Konkoly Observatory. A Photometrics CCD camera with a thermoelectrically cooled Kodak KAF-1600 1024 × 1536 chip yielded a 19′ × 28′ field of view, with 1.″0/pixel resolution. Standard Johnson *V* filter was used and the total amount of frames were 405. The typical exposition time was between 30 and 15 sec. To the calibration process of the camera and other technical details see Bakos (2000).

Since there were no pattern in the bias images, we applied a simple zero offset value subtraction to the frames determined from their overscan area. Common flat field corrections were carried out using calibration images taken of the sky during twilight. Other corrections were unnecessary.

Finally, aperture photometry (IRAF/DAOPHOT/PHOT) was accomplished to obtain instrumental magnitudes. The relative magnitudes Var–Comp (=TYC 4225_1323_1, the same comparison star used for photoelectric observations) are shown in Table 6. We note here, that the colour system satisfyingly realizes the international one without any transformation (see Benkő *et al.*, 2001). The accuracy of the individual points is estimated to be $\pm 0.^m002$ from the IRAF noise statistics.

On 8th July 134 frames of the field of XZ Dra were taken with 60 sec exposition time yielding good enough signal-to-noise ratio to measure the fainter stars as well. This enabled us to check the constancy of the neighbouring stars. The ISIS-2.1 program package was applied as a realization of the Image Subtraction Method (Alard & Lupton 1998, Alard 2000) to find possible variable stars. Except XZ Dra, we could not detect variability of any of the stars shown in Fig 1. during this night. Based on the other nights’ observations longer term variability of the brighter objects were not found either.

On two nights in July, 2001 we observed XZ Dra with the second small Hungarian Automatic Telescope (HAT-2) during its test run phase. About the HAT project see Bakos (2001a,b) The fully automatized observatory was equipped with a 0.1m diameter, f/10 Maksutov MT0 lens, and an amateur Meade Pictor 416xte CCD camera (512 × 768 9μm pixels). The system yielded a resolution of 1.″85 per pixel, and FOV of $\sim 16' \times 24'$. 47 frames of the field of XZ Dra were taken with *I* filter. After standard bias, dark and skyflat calibration, aperture photometry was performed. The relative instrumental *i* magnitudes are given in Table 7 (XZ Dra–TYC 4225_1323_1).

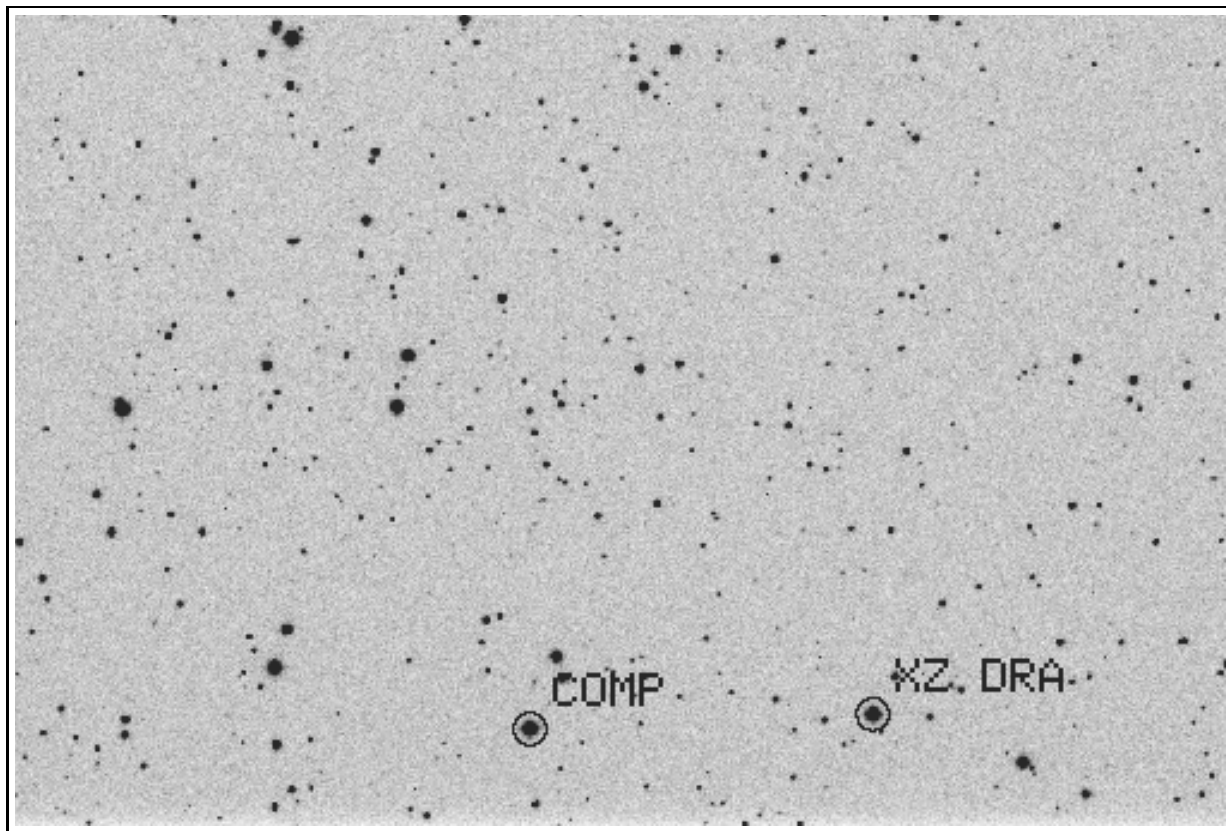


Figure 1: 60 sec exposition V filter CCD frame taken with the Schmidt telescope. XZ Dra and the photoelectric/CCD comparison TYC 4225_1323_1 are marked. North is up, east is to the left.

Table 6. Differential CCD V observations of XZ Dra

2452100 +	0.3947	0.025	0.4201	0.044	0.4464	0.091	0.4702	0.144
0.3699 -0.001	0.3960	0.024	0.4215	0.043	0.4480	0.095	0.4714	0.150
0.3712 -0.004	0.3973	0.023	0.4227	0.043	0.4493	0.093	0.4735	0.153
0.3730 0.002	0.3986	0.024	0.4240	0.046	0.4505	0.100	0.4747	0.152
0.3743 0.006	0.3999	0.023	0.4253	0.044	0.4517	0.101	0.4759	0.155
0.3755 0.006	0.4012	0.023	0.4266	0.048	0.4529	0.104	0.4772	0.157
0.3768 0.004	0.4025	0.022	0.4279	0.050	0.4542	0.107	0.4784	0.158
0.3781 0.008	0.4037	0.024	0.4292	0.051	0.4554	0.112	0.4796	0.160
0.3794 0.009	0.4050	0.026	0.4305	0.057	0.4566	0.108	0.4809	0.161
0.3807 0.013	0.4063	0.026	0.4318	0.057	0.4579	0.116	0.4821	0.165
0.3820 0.013	0.4076	0.026	0.4341	0.065	0.4591	0.116	0.4833	0.161
0.3833 0.014	0.4089	0.026	0.4353	0.066	0.4603	0.124	0.4845	0.168
0.3846 0.018	0.4102	0.028	0.4367	0.066	0.4615	0.123	0.4858	0.165
0.3858 0.015	0.4114	0.032	0.4379	0.070	0.4628	0.129	0.4870	0.168
0.3871 0.020	0.4137	0.034	0.4392	0.068	0.4640	0.138	0.4882	0.167
0.3884 0.019	0.4150	0.035	0.4405	0.069	0.4652	0.143	0.4895	0.171
0.3897 0.017	0.4163	0.038	0.4425	0.084	0.4665	0.136	0.4907	0.169
0.3910 0.022	0.4176	0.034	0.4438	0.075	0.4677	0.141	0.4919	0.165
0.3934 0.019	0.4189	0.040	0.4451	0.083	0.4689	0.148	0.4931	0.164

0.4944	0.172	0.5563	-0.485	0.4962	-0.262	0.4317	0.046	0.4342	-0.094
0.4956	0.169	0.5574	-0.511	0.4973	-0.277	0.4328	0.044	0.4355	-0.083
0.4968	0.168	0.5585	-0.537	0.4984	-0.298	0.4339	0.026	0.4368	-0.090
0.4994	0.162	0.5595	-0.563	0.4995	-0.340	0.4350	0.024	0.4381	-0.085
0.5006	0.167	0.5606	-0.583	0.5018	-0.411	0.4362	0.002	0.4393	-0.083
0.5018	0.167	0.5617	-0.601	0.5036	-0.466	0.4373	-0.005	0.4406	-0.083
0.5031	0.164	0.5630	-0.620			0.4384	-0.018	0.4419	-0.082
0.5043	0.166	0.5641	-0.640	2452102 +		0.4395	-0.032	0.4432	-0.073
0.5055	0.159	0.5651	-0.655	0.3412	0.070	0.4406	-0.042	0.5670	0.054
0.5068	0.157	0.5662	-0.675	0.3423	0.076	0.4417	-0.070	0.5687	0.054
0.5080	0.153	0.5711	-0.744	0.3434	0.069	0.4428	-0.084	0.5692	0.061
0.5092	0.147	0.5733	-0.761	0.3445	0.073	0.4440	-0.094	0.5698	0.061
0.5104	0.143	0.5744	-0.765	0.3456	0.079	0.4451	-0.122	0.5704	0.059
0.5117	0.138	0.5755	-0.771	0.3468	0.077	0.4462	-0.127	0.5717	0.062
0.5129	0.134	0.5791	-0.783	0.3479	0.086	0.4484	-0.152	0.5730	0.065
0.5141	0.125	0.5802	-0.777	0.3490	0.088	0.4495	-0.190	0.5743	0.068
0.5154	0.116	0.5813	-0.784	0.3501	0.083	0.4518	-0.210	0.5756	0.067
0.5166	0.108	0.5825	-0.787	0.3512	0.097	0.4529	-0.234	0.5769	0.078
0.5178	0.104	0.5835	-0.794	0.3523	0.091	0.4551	-0.309	0.5781	0.076
0.5190	0.089	0.5846	-0.779	0.3534	0.094			0.5802	0.078
0.5203	0.087	0.5858	-0.782	0.3545	0.096	2452138 +		0.5815	0.085
0.5215	0.068			0.3556	0.098	0.3953	-0.160	0.5828	0.097
0.5227	0.056	2452101 +		0.3568	0.097	0.3972	-0.144	0.5841	0.097
0.5253	0.031	0.4688	0.137	0.3579	0.099	0.3987	-0.143	0.5854	0.100
0.5265	0.017	0.4702	0.127	0.3590	0.107	0.4013	-0.135	0.5867	0.104
0.5277	0.005	0.4713	0.128	0.3601	0.108	0.4026	-0.135	0.5880	0.105
0.5289	-0.015	0.4724	0.119	0.3612	0.107	0.4051	-0.133	0.5892	0.108
0.5300	-0.025	0.4736	0.110	0.3623	0.110	0.4064	-0.132	0.5905	0.112
0.5312	-0.043	0.4747	0.111	0.3642	0.120	0.4077	-0.129	0.5918	0.108
0.5324	-0.053	0.4758	0.099	0.3653	0.114	0.4090	-0.127	0.5931	0.115
0.5336	-0.073	0.4769	0.082	0.3664	0.115	0.4103	-0.121	0.5944	0.110
0.5347	-0.087	0.4780	0.087	0.3675	0.120	0.4116	-0.130	0.5957	0.110
0.5359	-0.099	0.4791	0.066	0.4145	0.164	0.4129	-0.123	0.5970	0.120
0.5403	-0.180	0.4803	0.058	0.4156	0.167	0.4142	-0.121	0.5982	0.123
0.5414	-0.204	0.4814	0.049	0.4167	0.154	0.4154	-0.115		
0.5425	-0.222	0.4825	0.037	0.4178	0.155	0.4182	-0.112	2452140 +	
0.5436	-0.249	0.4836	0.017	0.4190	0.143	0.4195	-0.112	0.2984	-0.141
0.5448	-0.279	0.4847	0.011	0.4201	0.138	0.4208	-0.113	0.2995	-0.143
0.5459	-0.307	0.4859	-0.019	0.4212	0.139	0.4221	-0.107	0.3014	-0.142
0.5470	-0.324	0.4870	-0.021	0.4223	0.127	0.4234	-0.102	0.3026	-0.137
0.5481	-0.343	0.4881	-0.053	0.4234	0.120	0.4247	-0.094	0.3037	-0.136
0.5492	-0.364	0.4892	-0.073	0.4245	0.114	0.4260	-0.106	0.3048	-0.131
0.5503	-0.387	0.4903	-0.087	0.4256	0.105	0.4272	-0.097	0.3059	-0.134
0.5520	-0.407	0.4917	-0.123	0.4267	0.105	0.4285	-0.099	0.3070	-0.125
0.5531	-0.428	0.4928	-0.147	0.4279	0.088	0.4298	-0.095	0.3081	-0.121
0.5541	-0.443	0.4939	-0.176	0.4290	0.077	0.4316	-0.091	0.3092	-0.118
0.5552	-0.468	0.4951	-0.213	0.4306	0.066	0.4329	-0.093	0.3103	-0.125

0.3114 -0.119	0.3345 -0.091	0.3544 -0.061	0.3757 -0.039	0.3993 0.005
0.3125 -0.122	0.3356 -0.082	0.3555 -0.070	0.3768 -0.037	0.4004 -0.005
0.3137 -0.116	0.3367 -0.083	0.3566 -0.058	0.3779 -0.039	0.4016 0.009
0.3169 -0.111	0.3378 -0.080	0.3578 -0.058	0.3803 -0.034	0.4027 0.006
0.3180 -0.110	0.3389 -0.074	0.3589 -0.056	0.3814 -0.033	0.4038 0.006
0.3191 -0.105	0.3400 -0.076	0.3600 -0.056	0.3824 -0.024	0.4049 0.014
0.3202 -0.107	0.3411 -0.076	0.3611 -0.061	0.3835 -0.024	0.4060 0.017
0.3214 -0.102	0.3428 -0.079	0.3622 -0.058	0.3846 -0.023	0.4071 0.017
0.3225 -0.102	0.3439 -0.078	0.3633 -0.057	0.3857 -0.029	0.4082 0.022
0.3236 -0.096	0.3450 -0.070	0.3644 -0.047	0.3867 -0.020	0.4093 0.014
0.3247 -0.103	0.3461 -0.073	0.3682 -0.044	0.3878 -0.029	0.4104 0.018
0.3258 -0.099	0.3472 -0.072	0.3693 -0.048	0.3889 -0.017	0.4116 0.019
0.3269 -0.092	0.3483 -0.068	0.3703 -0.044	0.3900 -0.013	0.4127 0.026
0.3300 -0.089	0.3494 -0.073	0.3714 -0.043	0.3949 -0.012	0.4138 0.027
0.3311 -0.085	0.3505 -0.067	0.3725 -0.046	0.3960 -0.009	0.4149 0.030
0.3322 -0.088	0.3516 -0.067	0.3736 -0.042	0.3971 -0.007	0.4160 0.030
0.3334 -0.089	0.3528 -0.070	0.3746 -0.037	0.3982 0.007	

Table 7. Differential CCD *i* observations of XZ Dra

2452124 +	0.4307 -0.334	0.3639 -0.438	0.4119 -0.272	0.4677 -0.101
0.4067 -0.420	0.4349 -0.364	0.3667 -0.426	0.4148 -0.248	0.4706 -0.126
0.4110 -0.398		0.3783 -0.419	0.4254 -0.235	0.4872 -0.056
0.4137 -0.407	2452125 +	0.3850 -0.272	0.4298 -0.212	0.4903 -0.094
0.4162 -0.437	0.3060 +0.198	0.3903 -0.502	0.4352 -0.189	0.4933 -0.044
0.4183 -0.499	0.3179 +0.187	0.3931 -0.470	0.4404 -0.150	0.4996 -0.059
0.4204 -0.359	0.3235 +0.135	0.3959 -0.430	0.4456 -0.156	0.5075 -0.044
0.4224 -0.440	0.3474 -0.190	0.3988 -0.443	0.4519 -0.133	0.5104 -0.027
0.4245 -0.365	0.3530 -0.258	0.4027 -0.201	0.4576 -0.135	0.5133 -0.016
0.4287 -0.401	0.3581 -0.366	0.4071 -0.201	0.4648 -0.144	0.5133 -0.016

Radial Velocity Measurements

During eight nights in 1971 XZ Dra was observed spectroscopically with the 2131 spectrograph at the Cassegrain focus of the 72 inch telescope of the DAO (Dominion Astrophysical Observatory, Canada). 26 spectrograms were obtained in order to determine the radial velocity variation. The spectra, at the dispersion of 60 Å/mm, were taken on baked Eastman Kodak IIaO emulsion. The lines measured and the wavelengths accepted for them were chosen from those adopted at DAO. Standard-velocity stars were observed on some of the nights that spectrograms were obtained of XZ Dra. Velocities of these stars, measured in the adopted wavelength system, showed a satisfactory freedom from systematic errors.

Values of radial velocities of XZ Dra are presented in Table 8 (Col. 2,6). In the table the Julian date of the middle of exposures (Col. 1,5), the internal mean error of the velocities (Col. 3,7) and the number of lines measured (Col. 4,8) are also given.

Table 8. Radial velocities of XZ Dra

HJD	v_{rad}	σ	n	HJD	v_{rad}	σ	n
2440000+	[km/s]	[km/s]		2440000+	[km/s]	[km/s]	
1078.782	-50.5	3.3	17	1147.933	-59.4	5.3	16
1078.805	-71.1	5.2	17	1147.966	-43.8	5.4	13
1078.829	-65.6	4.4	17	1157.799	-5.1	3.9	16
1097.844	-64.0	5.4	16	1157.845	-22.1	3.8	16
1097.869	-62.7	3.4	17	1157.878	-38.1	4.0	16
1097.898	-63.7	3.5	17	1157.905	-70.8	4.3	14
1097.930	-55.2	3.9	17	1157.930	-62.5	3.9	17
1107.778	-7.0	4.3	17	1168.726	-12.6	7.3	14
1107.837	-55.4	6.6	16	1177.710	-22.5	8.0	9
1107.882	-53.0	3.6	17	1177.909	-58.9	4.0	16
1147.800	-7.4	4.9	16	1186.811	-23.3	8.2	7
1147.862	-40.6	4.5	17	1186.965	-39.6	3.7	14
1147.897	-71.8	3.4	14	1187.009	-49.1	5.1	6

TIMES AND MAGNITUDES OF LIGHT MAXIMA AND O–C VALUES

The times and magnitudes of light maxima from the Konkoly photographic (Table 9.a), photoelectric B , V and CCD (Table 9.b) data were determined from polynomial fits to the data around maxima. The maximum magnitudes were obtained by adopting Struch's (1966) $V = 10.493$, $B = 11.065$ magnitudes for the comparison star.

In Table 10.a and 10.b individual and normal maxima and O–C values derived from all the available published measurements are listed. Both professional and amateur observations are regarded, but only those which have publicly available references. The GEOS RR Lyrae database* lists some further unpublished amateur (visual) observations which we have not included in our compilation. From multicolor observations B data were considered. The only published measurements of XZ Dra that is not included in either of the tables is that of Butler *et al.* (1982). These observations cover the linear part of the descending branch on two successive nights and no unambiguous normal maxima could have been extrapolated from these data.

In each case when not only maxima timings but the original observations were also given, individual maxima times and normal maxima were independently determined. In Tab 10.a–b these values are given instead of the originally published data. This causes very small if any difference in the cases of individual maxima, but may lead to significantly different normal values.

Individual maxima were determined by polynomial fitting of the data around maximum values with the exception of Batyrev's (1955) measurements, where the times of the brightest magnitudes were taken as estimates of O–C values. Wenske (1982) gave the times of the mean magnitudes on the ascending branch instead of the maxima. These

*<http://www.upv.es/geos/>

Table 9.a Times and magnitudes of photographic maxima

pg maxima		pg maxima		pg maxima	
HJD	[mag]	HJD	[mag]	HJD	[mag]
2400000+		2400000+		2400000+	
28404.476	9.84	29720.532	9.43	34599.395:	9.44
29084.424	9.70	29721.482	9.48	34605.586:	9.69
29113.498:	9.65	29730.543:	9.36	34627.510	9.26
29284.558	9.40	29732.452	9.50	35377.510	9.58
29295.518	9.50	29734.346	9.46	35421.338	9.59
29365.559	9.42	30514.393	9.66	35622.423	9.24
29366.503	9.48	31352.547	9.77	35682.460	9.28
29376.515	9.55	31353.503	9.78	35732.488:	9.94
29377.461	9.57	31700.386	9.31	35756.313	9.50
29378.418	9.61	34234.412:	9.88	35933.580:	9.31
29449.414	9.58	34241.558	9.82	36005.532:	9.45
29458.466	9.71	34253.463	9.57	36007.437:	9.13
29468.460	9.82	34264.432	9.41	36038.395	9.50
29518.499:	9.60	34455.491	9.53	36069.364:	9.59
29519.463	9.53	34476.463	9.38	36077.485	9.29
29520.401	9.71	34486.472	9.22	36087.505	9.44
29527.545	9.76	34488.379	9.05	36100.365:	9.43
29691.469	9.81	34515.531	9.25	36128.458	9.74
29699.568	9.62	34546.502:	9.41	36131.325	9.40
29701.476	9.74	34589.382:	9.42	36142.275	9.58

values were shifted by $0.^d027$ (the mean value of the time difference between the timings of the mean magnitude on the ascending branch and the maximum [$\Delta T = \overline{T_{\max} - T_{\text{med}}}$] determined from the Budapest photoelectric B observations) to estimate the times of maxima. It has to be emphasized, however, that these transformed values are not true maxima times, since depending on the Blazhko phase, the actual value of ΔT can differ by $\pm 0.^d015$ from $0.^d027$.

An 8th order Fourier fit to the Budapest photographic observations between HJD 2430433 and 2431708 were regarded as a basic normal light curve using $P=0.^d4764955$ period. These data cover the whole pulsational period well, and in this interval no definite period change has been observed. The normal maximum of these data was determined to be at HJD=2431244.383, at the mid-time of the observations. This normal epoch corresponds thus to a calculated maximum and not to real observations. All the O–C values were accordingly calculated by using the ephemeris:

$$\text{MaxHJD} = 2431244.383 + 0.^d4764955 \times E \quad (1)$$

In Table 10.a all the individual maxima timings (Col. 1,5) found in the literature and given in the present paper, O–C values (Col. 2,6), type of detector (Col. 3,7), and references (Col. 4,8) are given.

Normal maxima were determined from measurements of one or two observing season(s) but there were also some cases when only a few nights' (sometimes consecutive)

Table 9.b Times and magnitudes of photoelectric maxima

<i>B</i> maxima		<i>V</i> maxima		<i>B</i> maxima		<i>V</i> maxima	
HJD	[mag]	{HJD}*	[mag]	HJD	[mag]	{HJD}*	[mag]
2400000+				2400000+			
36410.5253	9.951	.5251	9.711	41249.3860	9.891	.3852	9.692
36413.3927	9.941	.3924	9.759	41250.3344	9.886	.3344	9.687
36421.4972	9.992	.4972	9.780	41539.5695	9.702	.5700	9.537
36443.4126	9.996	.4129	9.712	41589.5960	9.980	.5958	9.776
36450.5613	9.795	.5601	9.543	41591.5045	10.010	.5047	9.825
36451.5162	9.836	.5165	9.604	41606.2756	9.711	.2760	9.555
36454.3776	9.794	.3784	9.596	41622.4890	9.850	.4888	9.624
36463.4280	9.750	.4275	9.548	41772.5747	9.769	.5750	9.597
36474.3893	9.935	.3877	9.698	41803.5347	9.996	.5345	9.826
36475.3386	9.883	.3370	9.668	41815.4484	9.967	.4484	9.772
36486.2980:	10.025:	.2980:	9.825:	41833.5500:	9.795:	.5500:	9.620:
36503.4562	10.014	.4550	9.778	41835.4641	9.697	.4643	9.569
36506.3130	10.008	.3145	9.766	41905.5046	9.808	.5050	9.625
36514.4016	9.947	.4006	9.699	41915.5140:	9.805:	.5140:	9.615:
37465.4948	9.903	.4957	9.772	41934.5722	9.919	.5700	9.698
37467.4040:	9.865:	.4050:	9.760:	41938.3821	9.912	.3818	9.756
37475.4946	9.956	.4950	9.834	41939.3350	9.904	.3348	9.731
37486.4665	9.968	.4592	9.860	41949.3367	10.032	.3375	9.804
39391.4767	10.045	.4765	9.831	41990.3254	9.692	.3253	9.560
39402.4404	9.835	.4460	9.638	42147.5715	9.772	.5714	9.575
39403.3939	9.840	.3921	9.688	42201.4016	9.898	.4019	9.678
40500.2947:	9.897	.2930:	9.666	42220.4715	9.768	.4720	9.558
40504.5845	9.949	.5824	9.713	42242.3829	9.935	.3844	9.714
40516.4990	10.062	.4999	9.828	42260.4980:	10.055	.4980:	9.758
40528.4163	9.964	.4160	9.737	42269.5440	10.030	.5452	9.790
40530.3118	9.955	.3118	9.750	42279.5459	9.830	.5466	9.668
40541.2790	9.810	.2783	9.638	42303.3830:	9.906	.3900:	9.690
40676.6093	10.028	.6105	9.806	42636.4427	10.089	.4432	9.778
40707.5803	9.640	.5810	9.516	43700.4801	10.000	.4802	9.783
40709.4894	9.667	.4897	9.539	43720.4906	9.789	.4906	9.604
40731.4080:	9.887	.4070	9.718	43732.4050:	9.665:	.4050:	9.510:
40751.4215	10.018	.4211	9.825	43743.3720	9.864	.3726	9.652
40780.4874	9.707	.4871	9.510	43763.3808	10.018	.3825	9.809
40821.4660	9.967	.4651	9.715	45609.2994	9.808	.2994	9.659
40840.5249	9.933	.5250	9.728	45806.5680	9.922	.5665	9.759
40863.4094	9.682	.4096	9.540	46193.4902	9.999	.4901	9.798
40925.3400	9.787	.3393	9.618	47360.4319	9.684	.4321	9.543
40937.2661	9.769	.2655	9.611	47462.3998	9.976	.4000	9.763
				52100.		.5828	9.706 [†]

*{HJD} denotes the fractional part of HJD. The integer part can be read from the same line in Col. 1,5.

[†] CCD *V* observation

observations defined the normal values. The most deviant points were omitted from each data set. The observations were folded by the period given in Eq. (1) and were fitted both vertically (magnitude-shifts to compensate the differences of the different photometric systems) and horizontally (phase-shifts which can be regarded as O–C value) to the basic light curve applying a standard least squares method. In this way we could eliminate the problem of the different magnitude scales, and the effect of the different shapes of the light curves in different wavelengths. The normal maximum times were then calculated at the mean Julian date of the observations by using these overall phase shift values and ephemeris Eq. (1).

In Table 10.b normal maxima timings (Col. 1), O–C values (Col. 2), the first and the last dates of the observations (Col. 3), number of measurements (Col. 4), type of detector (Col. 5), and references (Col. 6) are listed. The references of those data which were taken from the literature and not directly determined from the original observations (due to the lack of published data) are denoted by asterisks both in Table 10.a and 10.b. Maximum times which seems to give erroneous O–C values are in parentheses, independently whether or not they were published as uncertain values.

Table 10.a O–C values calculated from observed maxima[†]

HJD 2400000+	O–C [d]	det.	ref.	HJD 2400000+	O–C [d]	det.	ref.
25850.445:	–0.009	vis	8	27556.327:	0.019	vis	19
25936.241:	0.018	vis	8	27618.277	0.025	vis	38*
26025.343:	0.015	vis	8	27619.230	0.025	vis	38*
26298.360:	0.000	vis	8	27625.418	0.018	vis	38*
26478.488:	0.013	vis	8	27628.270	0.011	vis	38*
(26624.338:	0.055	vis	8)	27629.221	0.009	vis	38*
26835.381	0.011	vis	19	27974.221	0.027	vis	38*
26945.452	0.011	vis	19	27979.450:	0.014	vis	38*
26957.374:	0.021	vis	19	27980.399	0.010	vis	38*
27161.311:	0.018	vis	19	27983.263	0.015	vis	38*
27230.411	0.026	vis	19	27984.218	0.017	vis	38*
27300.450	0.020	vis	41	27994.229	0.022	vis	38*
27301.400:	0.017	vis	41	28003.268	0.007	vis	38*
27302.357	0.021	vis	41	28004.225	0.011	vis	38*
27309.507	0.024	vis	41	28005.183	0.016	vis	38*
27310.465	0.029	vis	41	28395.417	0.001	vis	38*
27311.408	0.019	vis	41	28396.383	0.014	vis	38*
27312.369	0.027	vis	41	28398.275	0.000	vis	38*
27313.314	0.019	vis	41	28399.230	0.002	vis	38*
27324.277	0.022	vis	41	28400.187	0.006	vis	38*
27332.373	0.018	vis	41	28404.476	0.006	pg	39
27353.340	0.019	vis	41	28407.330:	0.001	vis	38*
27354.290:	0.016	vis	41	28409.235	0.000	vis	38*

[†]Reference list can be found at the end of Table 10.b

Table 10.a continued

HJD 2400000+	O-C [d]	det.	ref.	HJD 2400000+	O-C [d]	det.	ref.
29084.424	-0.005	pg	39	34520.291	0.001	vis	6
29113.498:	0.003	pg	39	34546.502:	0.005	pg	39
29284.558	0.001	pg	39	34589.382:	0.001	pg	39
29295.518	0.002	pg	39	34599.395:	0.007	pg	39
29365.559	-0.002	pg	39	34600.352	0.011	vis	6
29366.503	-0.011	pg	39	34605.586:	0.004	pg	39
29376.515	-0.006	pg	39	34612.263	0.010	vis	6
29377.461	-0.013	pg	39	34620.352	-0.002	vis	38
29378.418	-0.009	pg	39	34621.308	0.001	vis	38
29449.414	-0.010	pg	39	34627.510	0.009	pg	39
29458.466	-0.012	pg	39	34627.512	0.011	vis	38
29468.460	-0.024	pg	39	34631.339	0.026	vis	38
29518.499:	-0.017	pg	39	34632.287	0.021	vis	38
29519.463	-0.006	pg	39	34637.522	0.015	vis	38
29520.401	-0.021	pg	39	34638.475	0.015	vis	38
29527.545	-0.025	pg	39	34639.426:	0.013	vis	38
29691.469	-0.015	pg	39	34640.379	0.013	vis	38
29699.568	-0.017	pg	39	34641.338	0.019	vis	38
29701.476	-0.015	pg	39	34644.203	0.025	vis	6
29720.532	-0.018	pg	39	34651.346	0.020	vis	38
29721.482	-0.021	pg	39	34652.298	0.019	vis	38
29730.543:	-0.014	pg	39	34659.440	0.014	vis	38
29732.452	-0.011	pg	39	34662.306	0.021	vis	38
29734.346	-0.023	pg	39	34674.213	0.015	vis	38
30514.393	0.001	pg	39	34680.418	0.026	vis	38
31352.547	0.000	pg	39	34683.285	0.034	vis	6
31353.503	0.003	pg	39	34684.197:	-0.007	vis	38
31700.386	-0.003	pg	39	34943.425:	0.007	vis	38
34234.412:	0.020	pg	39	34945.334	0.010	vis	38
34241.558	0.018	pg	39	34953.443	0.019	pg	5*
34253.463	0.011	pg	39	34973.437	0.000	vis	6
34264.432	0.021	pg	39	34986.305	0.003	vis	6
34338.311	0.043	vis	6	35008.232	0.011	vis	6
34339.238	0.017	vis	6	35377.510	0.005	pg	39
34455.491	0.005	pg	39	35421.338	-0.005	pg	39
34476.463	0.011	pg	39	35622.423	-0.001	pg	39
34486.472	0.014	pg	39	35682.460	-0.002	pg	39
34488.379	0.015	pg	39	35732.488:	-0.006	pg	39
34510.281	-0.002	vis	6	35756.313	-0.006	pg	39
34515.531	0.006	pg	39	35933.580:	0.005	pg	39

Table 10.a continued

HJD 2400000+	O-C [d]	det.	ref.	HJD 2400000+	O-C [d]	det.	ref.
35956.441	-0.006	pe	40	38146.425	0.005	pg	58
36005.532:	0.006	pg	39	38883.539	-0.020	vis	10*
36007.437:	0.005	pg	39	38883.542	-0.017	vis	10*
36038.395	-0.009	pg	39	38945.491	-0.012	vis	10*
36069.364:	-0.012	pg	39	38945.497	-0.006	vis	10*
36077.485	0.008	pg	39	38945.500	-0.003	vis	10*
36087.505	0.022	pg	39	39031.728	-0.021	pe	23
36100.365:	0.016	pg	39	39352.411	-0.019	vis	4*
36128.458	-0.004	pg	39	39391.477	-0.026	pe	40
36131.325	0.004	pg	39	39402.440	-0.022	pe	40
36142.275	-0.005	pg	39	39403.392	-0.023	vis	11*
36289.541:	0.024	pg	58	39403.394	-0.021	pe	40
36410.525	-0.022	pe	40	(39403.419	0.004	vis	11*)
36413.393	-0.013	pe	40	39405.294	-0.027	vis	11*
36421.497	-0.010	pe	40	39405.295	-0.026	vis	11*
36443.413	-0.012	pe	40	39406.262	-0.012	vis	11*
36450.561	-0.012	pe	40	39406.269	-0.005	vis	11*
36451.516	-0.010	pe	40	40384.503	-0.017	pe	57*
36454.378	-0.007	pe	40	40385.462	-0.011	pe	57*
36463.428	-0.010	pe	40	40385.466	-0.007	pe	48*
36474.389	-0.009	pe	40	40386.427	0.001	pe	48*
36475.339	-0.012	pe	40	40434.523:	-0.029	pe	57*
36486.298:	-0.012	pe	40	40435.485	-0.020	pe	57*
36503.456	-0.008	pe	40	40444.539	-0.019	pe	57*
36506.313	-0.010	pe	40	40446.442	-0.022	pe	57*
36514.402	-0.021	pe	40	40456.447	-0.024	pe	57*
36850.340	-0.013	vis	2*	40467.420	-0.010	pe	57*
36851.293	-0.013	vis	2*	40500.295:	-0.013	pe	40
36852.249	-0.010	vis	2*	40504.585	-0.012	pe	40
36899.424	-0.008	vis	2*	40516.499	-0.010	pe	40
37465.495	-0.013	pe	40	40528.416	-0.005	pe	40
37467.404:	-0.010	pe	40	40530.312	-0.015	pe	40
37475.495	-0.020	pe	40	40539.364	-0.017	pe	57*
37486.467	-0.007	pe	40	40541.279	-0.008	pe	40
37914.361	-0.006	vis	47*	40676.609	-0.002	pe	40
37914.365	-0.002	vis	47*	40707.580	-0.004	pe	40
37914.366	-0.001	vis	47*	40709.489	-0.001	pe	40
37914.368	0.001	vis	47*	40731.408:	0.000	pe	40
(37941.365	-0.162	vis	44*)	40751.422	0.001	pe	40
37945.339	0.000	vis	44*	40769.520	-0.008	pe	49*

Table 10.a continued

HJD 2400000+	O-C [d]	det.	ref.	HJD 2400000+	O-C [d]	det.	ref.
40780.487	0.000	pe	40	41595.309	0.014	pe	57*
40812.404	-0.009	vis	12*	41603.415	0.020	pe	57*
40821.466	0.000	pe	40	41604.371	0.023	pe	57*
40840.525	-0.001	pe	40	41606.276	0.022	pe	40
40844.335	-0.003	pe	49*	41612.473	0.024	pe	57*
40851.493	0.008	pe	57*	41622.489	0.034	pe	40
40852.427:	-0.011	pe	57*	41636.288	0.015	pe	57*
40853.388	-0.003	pe	49*	41772.575	0.024	pe	40
40853.393	0.002	pe	57*	41785.425	0.009	pe	57*
40863.409	0.011	pe	40	(41795.390	-0.033	vis	13*)
40916.287	-0.002	pe	57*	41803.535	0.012	pe	40
40925.340	-0.002	pe	40	41815.448	0.012	pe	40
40935.358	0.010	pe	57*	41833.550:	0.008	pe	40
40937.266	0.012	pe	40	41835.464	0.016	pe	40
40955.365	0.004	pe	57*	41895.488	0.001	pe	57*
40966.313	-0.008	pe	57*	41905.505	0.012	pe	40
41074.492	0.007	pe	57*	(41906.499	0.053	pe	57*)
41074.496	0.011	vis	12*	41907.408	0.009	pe	57*
41075.452	0.014	vis	12*	41915.514:	0.014	pe	40
41075.454	0.016	vis	12*	41917.422	0.016	pe	57*
41085.460	0.015	pe	57*	41934.572	0.012	pe	40
41093.558	0.013	pe	57*	41936.468	0.002	pe	57*
41095.950	0.023	pe	46	41938.382	0.010	pe	40
41187.428	0.013	pe	57*	41939.335	0.011	pe	40
41216.490	0.009	pe	57*	41949.337	0.006	pe	40
41229.364	0.018	pe	57*	(41957.421	-0.010	pe	57*)
41240.329	0.023	pe	57*	41987.466	0.015	pe	57*
41249.386	0.027	pe	40	41990.325	0.015	pe	40
41249.393	0.034	vis	12*	42147.572	0.019	pe	40
41250.334	0.022	pe	40	42159.471	0.006	pe	57*
41439.496	0.015	pe	57*	42201.402	0.005	pe	40
41470.480	0.027	pe	57*	42208.548	0.004	pe	57*
41511.448	0.016	pe	57*	42219.517	0.013	pe	57*
41539.570	0.025	pe	40	42220.472	0.015	pe	40
41541.478	0.027	pe	57*	42242.383	0.007	pe	40
41550.518	0.014	pe	57*	(42251.396:	-0.033	vis	13*)
41552.435	0.025	pe	57*	42251.429	0.000	pe	57*
41589.596	0.019	pe	40	42260.498:	0.016	pe	40
41591.505	0.022	pe	40	42269.544	0.008	pe	40
41593.399	0.010	pe	57*	42279.546	0.004	pe	40

Table 10.a continued

HJD 2400000+	O-C [d]	det.	ref.	HJD 2400000+	O-C [d]	det.	ref.
42280.500	0.005	pe	57*	47432.381	0.016	vis	31*
42303.383:	0.016	pe	40	47462.400	0.016	pe	40
42636.443	0.006	pe	40	47470.493	0.009	vis	24*
42698.386	0.004	pe	57*	47471.459	0.022	vis	24*
42710.297	0.003	pe	57*	47471.473	0.036	vis	24*
42739.371	0.011	pe	57*	47480.522	0.031	vis	24*
42840.390	0.013	vis	14*	47612.494:	0.014	vis	32*
42895.181	0.007	vis	18	(47910.277	-0.013	vis	32*)
42896.135	0.008	vis	18	47947.497:	0.041	pe	29
43248.275	0.017	vis	18	47966.535	0.019	vis	24*
43249.202	-0.009	vis	18	48028.484	0.024	vis	24*
43255.391	-0.014	vis	18	48036.100	0.016	pe	29
43256.343	-0.015	vis	18	(48037.507	-0.007	vis	24*)
43257.302	-0.009	vis	18	48096.149:	0.026	pe	29
43260.174	0.004	vis	18	48347.260:	0.024	pe	29
43277.332	0.008	vis	18	48496.410:	0.031	pe	29
43278.276	-0.001	vis	18	48632.212:	0.032	pe	29
43287.342	0.012	vis	18	48829.465	0.016	pg	25*
43297.343	0.006	vis	18	49439.365	0.001	vis	33*
43298.293	0.003	vis	18	(49573.416	0.157	pg	25*)
43308.316	0.020	vis	18	49893.481	0.017	pg	26*
43700.480	0.028	pe	40	49903.494	0.024	pg	26*
43720.491	0.026	pe	40	(49922.577	0.047	vis	25*)
43732.405:	0.028	pe	40	49934.455	0.013	pe	1*
43743.372	0.036	pe	40	49945.417	0.015	pg	26*
43763.381	0.032	pe	40	50079.298	0.001	vis	34*
43795.305	0.031	vis	15*	50247.520	0.020	pg	26*
45280.496	-0.015	vis	9*	50288.510	0.031	vis	35*
45609.299	0.006	pe	40	50331.383	0.020	pg	26*
45806.568	0.006	pe	40	50593.459	0.023	vis	35*
46193.490	0.014	pe	40	50594.405	0.016	vis	35*
(47107.438	0.043	vis	30*)	50727.350	0.019	vis	35*
47180.334	0.035	vis	30*	50756.413	0.016	vis	35*
(47275.572	-0.026	pg	31*)	51080.426	0.012	vis	36*
47276.574	0.023	vis	24*	51362.494	-0.006	vis	37*
47296.582	0.019	pg	31*	51425.402	0.005	vis	37*
47360.432	0.018	pe	40	52100.583	-0.008	ccd	40
47369.502	0.035	vis	24*	52124.418	0.002	ccd	40
47379.505	0.031	vis	31*	52125.365	-0.004	ccd	40
(47391.433	0.047	vis	31*)				

Table 10.b O–C values calculated from normal points

HJD 2400000+	O–C [d]	time range [JD/year]	n	det.	ref. [†]
(15267.573	0.084	14000–20800		pg	45*)
(20787.670	–0.019	20800–23000		pg	45*)
(23052.533	0.061	23000–25500		pg	45*)
25749.435	–0.002	25503–25951	19	pg	51
25875.718	0.010	25500–29500		pg	45*
25890.481	0.001	25721–26127	71	vis	8
26275.483	–0.005	26001–26506	30	pg	51
26440.374	0.019	26196–26642	65	vis	8
26865.401	0.012	26825–26960	185	vis	19
26957.367	0.014	26928–26985	16	vis	8
26987.397	0.025		248	vis	59*
27230.409	0.024	27161–27556	159	vis	19
27318.566	0.029	27300–27354	94	vis	41
27622.565	0.024	1934		vis	52*
27985.645	0.015	1935	200	vis	53*
28363.503	0.012	1936	179	vis	54*
28501.681	0.006	28356–28784	263	pg	39
28614.618	0.014	27198–29903	562	vis	20*
29287.412	–0.004	29084–29378	789	pg	39
29596.648	–0.014	29449–29734	1162	pg	39
30461.499	–0.002	30433–30514	178	pg	39
31345.396	–0.004	31330–31376	702	pg	39
31703.732	0.007	31700–31708	148	pg	39
33740.789	0.046	33661–33796	11	pg	58
34206.306	0.027	33896–34294	276	pg	39
34338.766	0.021	34335–34339	35	vis	6
34538.886	0.012	34455–34627	306	pg	39
34610.374	0.027	34509–34719	137	vis	6
34641.339	0.020	34599–34686	414	vis	38
34943.431	0.013	34935–34947	62	vis	38
35005.376	0.014	34971–35072	117	vis	6
35399.424	0.000	35377–35421	81	pg	39
35690.563	0.000	35622–35756	147	pg	39
36031.749	0.016	1952–1960	255	pg	50*
36074.626	0.008	35933–36142	388	pg	39
36224.724	0.010	36077–36344	21	pgv	58
36229.489	0.010	36074–36347	32	pg	58
36331.447	–0.002	36041–36518	98	vis	43
36370.511	–0.011	36370–36371		pe	27*
36458.664	–0.009	36410–36514	392	pe	40
36834.629	0.001	36819–36848	18	pg	58

Table 10.b continued

36837.480	-0.005	36819-36848	10	pgv	58
36851.294	-0.012	36850-36852	43	vis	3*
36893.232	-0.005	36876-36904	24	vis	3*
37055.700	-0.022	36728-37228	116	vis	43
37464.537	-0.018	37348-37486	154	pe	40
37728.531	-0.003	37458-37964	129	vis	43
38317.486	0.004	38198-38700	66	vis	43
38634.344	-0.008	38530-38709	47	pg+pe	28,55
39018.393	-0.014	38935-39425	46	vis	43
39399.583	-0.020	39391-39403	106	pe	40
40037.616	-0.015	39675-40420	17	vis	43
40684.715	0.003	40494-40937	600	pe	40
41112.630	0.025	41064-41133	75	pe	46
41249.386	0.027	41249-41250	115	pe	40
41413.296	0.023	41375-41425	114	vis	7*
41550.534	0.030	1972		pg	56*
41802.592	0.022	41539-41990	636	pe	40
41928.372	0.007	1973		vis	42*
41928.374	0.009	1973-1974		vis	21*
42238.581	0.017	42147-42303	280	pe	40
42638.365	0.022		90	vis	17*
42638.366	0.023		75	vis	16*
42725.540	-0.002	42636-42948	63	pe	40
42895.192	0.018	42894-42898	55	vis	18
(43043.337	-0.028		75	vis	17*)
43272.579	0.020	43248-43308	315	vis	18
43717.641	0.035	43660-43763	177	pe	40
45864.703	0.009	45609-46193	193	pe	40
45870.408	-0.004	1984		vis	22*
47376.640	0.025	47306-47462	71	pe	40
48032.770	0.021	47865-48176	49	pe	29
48330.588	0.029	48209-48462	38	pe	29
48742.743	0.016	48519-49019	31	pe	29
52115.368	0.006	52100-52140	405	ccd	40

[†]1 Agerer & Hübscher (1996), 2 Ahnert (1961a), 3 Ahnert (1961b), 4 Ahnert (1967), 5 Alania (1956), 6 Batyrev (1955), 7 Berdnikov (1977), 8 Beyer (1934), 9 Böhme (1983), 10 Braune & Hübscher (1967), 11 Braune *et al.* (1970), 12 Braune *et al.* (1972), 13 Braune *et al.* (1977), 14 Braune *et al.* (1979), 15 Braune *et al.* (1981), 16 Busch (1976), 17 Busch (1979), 18 Dyachenko (1982), 19 Konkoly vis, 20 Dziewulski (1953), 21 Firmanyuk *et al.* (1975), 22 Firmanyuk *et al.* (1985), 23 Fitch *et al.* (1966), 24 GEOS NC 650, 25 Vandenbroere (1997), 26 Vandenbroere (1998), 27 Geyer (1961), 28 Harding & Penston (1966), 29 ESA (1997), 30 Hübscher & Lichtenknecker (1988), 31 Hübscher *et al.* (1989), 32 Hübscher *et al.* (1990), 33 Hübscher *et al.* (1994), 34 Hübscher & Agerer (1996), 35 Hübscher *et al.* (1998), 36 Hübscher *et al.* (1999), 37 Hübscher *et al.* (2000), 38 Klepikova (1958), 39 Konkoly pg, 40 Konkoly pe & CCD, 41 Lange (1938), 42 Lange *et al.* (1976), 43 Lebedev (1975), 44 Oburka (1965), 45 Payne-Gaposchkin (1954), 46 Penston (1973), 47 Pohl & Kizilirmak (1964), 48 Popovici (1970), 49 Popovici (1971), 50 Satyvaldyev (1962), 51 Schneller (1931), 52 Soloviev (1934), 53 Soloviev (1936), 54 Soloviev (1937), 55 Sturch (1966), 56 Tsessevich (1974), 57 Wenske (1982), 58 Zaleski (1965), 59 Kharadse (1933).

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REFERENCES

- Agerer, F., Hübscher, J., 1996, IBVS 4382
 Ahnert, P., 1961a, Mitt. Veränd. Sterne 544
 Ahnert, P., 1961b, Mitt. Veränd. Sterne 545
 Ahnert, P., 1967, Mitt. Veränd. Sterne 4, 138
 Alania, N. F., 1956, Astr. Tsirk. 173, 20
 Alard, C., 2000, A&AS 144, 363
 Alard, C., Lupton, R. H., 1998, ApJ 503, 325
 Bakos, G.Á., 2000, Occasional. Tech. Notes Konkoly Obs., No. 11,
<http://www.konkoly.hu/Mitteilungen/Mitteilungen.html>
 Bakos, G. Á., 2001a, in *Small-Telescope Astronomy in Global Scale*,
 (Eds. B. Paczyński, W-P. Cheng, W. Ip), ASP Conf. Ser.
 Bakos, G. Á., 2001b, <http://www.konkoly.hu/staff/bakos/HAT/>
 Balázs, J., Detre, L., 1938, Comm. Konkoly Obs. No 5
 Balázs, J., Detre, L., 1941, Astron. Nachr. 271, 231
 Batyrev, A. A., 1955, Perem. Zvezdy 10, 292
 Benkő, J. M., et al., 2001, in preparation
 Berdnikov, N. L., 1977, Perem. Zvezdy Pril. 3, 329
 Beyer, M., 1934, Astron. Nachr. 252, 85
 Böhme, D., 1983, Mitt. Veränd. Sterne 10, 44
 Braune, W., Hübscher, J., 1967, Astron. Nachr. 290, 105
 Braune, W., Hübscher, J., Mundry, E., 1970, Astron. Nachr. 292, 185
 Braune, W., Hübscher, J., Mundry, E., 1972, Astron. Nachr. 294, 123
 Braune, W., Hübscher, J., Mundry, E., 1977, Astron. Nachr. 298, 121
 Braune, W., Hübscher, J., Mundry, E., 1979, Astron. Nachr. 300, 165
 Braune, W., Hübscher, J., Mundry, E., 1981, Astron. Nachr. 302, 53
 Busch, H., 1976, Mitt. Veränd. Sterne 7, 149
 Busch, H., 1979, Mitt. Veränd. Sterne 8, 137
 Butler, D., Manduca, A., Deming, D., Bell, R. A., 1982, AJ 87, 640
 Detre, L., Lassovszky, K., 1939, Comm. Konkoly Obs. No 9
 Dyachenko, A. I., 1982, Perem. Zvezdy Pril. 4, 275
 Dziewulski, W., 1953, Toruń Bull. 12, 41

- ESA, 1997, *The Hipparcos and Tycho Catalogues*, ESA SP-1200
- Firmanyuk, B. N., Derevyagin, V. G., Lysova, L. E., 1985, *Astr. Tsirk.* 1374, 7
- Firmanyuk, B. N., Lange, G. A., Tsessevich, V. P., 1975, *Astr. Tsirk.* 853, 4
- Fitch, W. S., Wiśniewski, W. Z., Johnson, H. L., 1966, *Comm. Lun. and Planet. Lab.*, Vol 5, Part 2, No 71
- GEOS NC 650
- Geyer, E., 1961, *Zeitschr. f. Astrophys.* 52, 229
- Hardie, R. H., 1962, in *Astronomical Techniques, Stars and Stellar Systems* Vol 2 (Ed.: W.A. Hiltner), p 178
- Harding, G. A., Penston, M. J., 1966, *Roy. Obs. Bull. Ser. E*, No 115
- Høg, E., Fabricius, C., Makarov, V. V., Urban, S., Corbin, T., Wycoff, G., Bastian, U., Schwekendiek, P., Wicenec, A., 2000, *A&A* 357, L27
- Hübscher, J., Agerer, F., 1996, *BAV Mitt.* 93
- Hübscher, J., Agerer, F., Busch, H., Goldhahn, H., Haßforther, B., Dahm, M., 1999, *BAV Mitt.* 122
- Hübscher, J., Agerer, F., Busch, H., Goldhahn, H., Haßforther, B., Dahm, M., 2000, *BAV Mitt.* 131
- Hübscher, J., Agerer, F., Frank, P., Wunder, E., 1994, *BAV Mitt.* 68
- Hübscher, J., Agerer, F., Haßforther, B., Dahm, M., 1998, *BAV Mitt.* 113
- Hübscher, J., Lichtenknecker, D., 1988, *BAV Mitt.* 50
- Hübscher, J., Lichtenknecker, D., Wunder, E., 1989, *BAV Mitt.* 52
- Hübscher, J., Lichtenknecker, D., Wunder, E., 1990, *BAV Mitt.* 56
- Kharadse, E., 1933, *Perem. Zvezdy* 4, 139
- Klepikova, L. A., 1958, *Perem. Zvezdy* 12, 164
- Lange, G., 1938, *Tadjik Annals*, Vol 1. Part 2, 3
- Lange, G. A., Motrich, V. D., Firmanyuk, B. N., Tsessevich, V. P., 1976, *Astr. Tsirk.* 900, 5
- Lebedev, S., 1975, *Perem. Zvezdy Pril.* 2, 313
- Oburka, O., 1965, *Bull. Astr. Inst. Czech.* 16, 55
- Payne-Gaposchkin, C., 1954, *Harvard Ann.* 113, No 3, 151
- Penston, M. J., 1973, *MNRAS* 164, 133
- Pohl, E., Kizilirmak, A., 1964, *Astron. Nachr.* 288, 69
- Popovici, C., 1970, *IBVS* 419
- Popovici, C., 1971, *IBVS* 508
- Satyvaldyev, V., 1962, *Tadjik Bull.* 33, 12
- Schneller, H., 1929, *Astron. Nachr.* 235, 85
- Schneller, H., 1931, *Astron. Nachr.* 243, 336
- Soloviev, A., 1934, *Tadjik Obs. Circ.* 3, 2
- Soloviev, A., 1936, *Tadjik Obs. Circ.* 17, 2
- Soloviev, A., 1937, *Tadjik Obs. Circ.* 31, 2
- Sturch, C., 1966, *ApJ* 143, 774
- Tsessevich, V. P., 1974, *Astr. Tsirk.* 811, 1
- Vandenbroere, J., 1997, *GEOS Circ RR14*
- Vandenbroere, J., 1998, *GEOS Circ RR15*
- Wenske, K., 1982, *BAV Rundbrief* 31/4, 81
- Zaleski, L., 1965, *Acta Astron.* 15, 233