Photometric study of the close binary system DD Monocerotis

Shengbang Qian , Qingyao liu , Yulan Yang , Shenghong Gu , and
Zhangkui Huang
Yunnan Observatory, Academia Sinica, Kunming, China
e-mail address: Ynaoh@public.bta.net.cn
Received November 20, 1996; accepted January 30, 1997

Table 1. V observations of DD Mon

JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M
98.2247	0.642	99.2079	0.784	100.2358	0.768	124.1555	1.232	125.0842	0.682
.2260	0.646	.2103	0.792	.2423	0.843	.1566	1.243	.0852	0.697
.2284	0.677	.2109	0.756	.2446	0.846	.1595	1.221	.0879	0.661
.2293	0.671	.2139	0.760	.2471	0.861	.1605	1.187	.0907	0.681
.2317	0.668	.2145	0.732	.2483	0.848	.1639	1.169	.0933	0.650
.2326	0.671	.2173	0.718	.2506	0.875	.1652	1.108	.0943	0.638
.2353	0.696	.2197	0.711	.2518	0.902	.1677	1.085	.0976	0.642
.2366	0.696	.2222	0.696	.2539	0.939	.1688	1.062	.1110	0.658
.2394	0.696	.2230	0.715	.2545	0.931	.1717	1.096	.1120	0.673
.2403	0.692	.2253	0.691	.2571	0.943	.1726	1.030	.1166	0.681
.2427	0.691	.2261	0.697	.2579	0.951	.1751	1.032	.1177	0.606
.2436	0.684	.2292	0.696	.2614	1.007	.1761	1.028	.1202	0.606
.2458	0.716	.2314	0.697	.2624	1.014	.1785	0.962	.1213	0.622
.2467	0.732	.2320	0.692	.2688	1.080	.1799	0.899	.1240	0.638
.2490	0.713	.2342	0.703	.2697	1.092	.1850	0.892	.1251	0.614
.2499	0.726	.2349	0.698	.2725	1.149	.1877	0.843	.1282	0.634
.2529	0.762	.2394	0.676	.2734	1.162	.1906	0.869	.1293	0.601
.2538	0.748	.2421	0.703	.2764	1.161	.1918	0.827	.1324	0.651
.2563	0.749	.2427	0.673	.2773	1.196	.1950	0.796	.1335	0.640
.2573	0.739	.2447	0.668	.2803	1.265	.1987	0.782	.1358	0.648
.2598	0.767	.2454	0.677	.2814	1.254	.1999	0.752	.1369	0.639
.2607	0.766	.2477	0.678	.2841	1.276	.2022	0.745	.1396	0.624
.2628	0.758	.2484	0.698	.2851	1.262	125.0132	0.853	.1407	0.665
.2637	0.774	.2514	0.680	.2892	1.275	.0157	0.864	.1433	0.604
.2666	0.779	.2551	0.673	.2929	1.318	.0168	0.864	.1443	0.611
.2675	0.799	.2557	0.669	.2939	1.258	.0194	0.864	.1526	0.655
.2714	0.813	.2594	0.638	.2962	1.267	.0205	0.841	.1537	0.635
.2739	0.825	.2620	0.673	.2971	1.262	.0230	0.824	.1564	0.631
.2748	0.829	.2626	0.654	.2996	1.241	.0239	0.794	.1577	0.662
.2772	0.837	.2649	0.673	.3005	1.237	.0280	0.799	.1600	0.644
.2782	0.846	.2657	0.644	.3045	1.156	.0290	0.796	.1612	0.645
.2840	0.850	.2684	0.636	.3053	1.177	.0316	0.793	.1639	0.674
.2849	0.861	.2691	0.622	.3100	1.123	.0326	0.753	.1650	0.620
.2874	0.864	.2792	0.655	.3109	1.089	.0356	0.758	.1674	0.636
.2887	0.855	.2833	0.659	.3144	1.020	.0366	0.774	.1687	0.638
.2931	0.870	.2841	0.646	.3176	0.960	.0404	0.749	.1714	0.659
.2940	0.876	100.1972	0.654	.3187	0.914	.0415	0.761	.1725	0.652
.2973	0.877	.1979	0.653	.3210	0.928	.0440	0.755	.1753	0.662
.3002	0.915	.2030	0.656	124.1175	1.065	.0450	0.748	.1765	0.642
.3011	0.896	.2037	0.674	.1184	1.080	.0475	0.761	.1795	0.643
.3107	0.890	.2059	0.680	.1210	1.096	.0484	0.745	.1806	0.646
.3117	0.854	.2065	0.662	.1220	1.093	.0510	0.714	.1832	0.639
.3147	0.870	.2126	0.689	.1246	1.146	.0521	0.723	.1868	0.628
.3156	0.854	.2136	0.656	.1258	1.156	.0596	0.708	.1878	0.641
.3186	0.847	.2159	0.667	.1287	1.148	.0606	0.690	.1906	0.635
.3195	0.845	.2168	0.676	.1299	1.172	.0637	0.687	.1947	0.664
.3220	0.836	.2193	0.672	.1326	1.245	.0648	0.674	.1957	0.655
.3230	0.801	.2203	0.693	.1338	1.246	.0672	0.689	.1984	0.673
99.1983	0.880	.2228	0.709	.1371	1.253	.0684	0.689	.1997	0.680
.1990	0.873	.2241	0.688	.1383	1.262	.0714	0.705	.2033	0.664
.2013	0.852	.2285	0.715	.1441	1.322	.0726	0.670	.2044	0.664
.2019	0.839	.2295	0.740	.1451	1.301	.0755	0.656	.2073	0.668
.2043	0.796	.2320	0.753	.1478	1.267	.0766	0.649	.2084	0.674
.2051	0.774	.2329	0.717	.1488	1.295	.0803	0.681	.2116	0.688
.2072	0.773	.2348	0.783	.1525	1.273	.0813	0.638	.2155	0.713

Table 1. (continued) V observations of DD Mon

JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M
125.2192	0.706	127.1008	0.661	127.1634	0.655	128.0826	0.928	128.1345	1.178
.2203	0.722	.1019	0.648	.1665	0.637	.0851	0.932	.1370	1.169
.2230	0.742	.1045	0.648	.1674	0.649	.0861	0.933	.1408	1.115
.2242	0.745	.1091	0.652	.1703	0.670	.0889	0.972	.1419	1.100
.2270	0.782	.1101	0.645	.1713	0.658	.0899	0.983	.1448	1.031
.2282	0.796	.1130	0.639	.1743	0.656	.0924	1.012	.1459	1.047
127.0521	0.707	.1142	0.608	.1753	0.627	.0935	1.008	.1487	1.034
.0532	0.734	.1183	0.614	.1778	0.664	.0959	1.051	.1498	1.008
.0558	0.701	.1225	0.643	.1790	0.665	.0970	1.085	.1536	0.979
.0567	0.711	.1234	0.646	.1817	0.667	.1001	1.083	.1570	0.958
.0599	0.689	.1264	0.650	.1828	0.631	.1012	1.089	.1583	0.911
.0609	0.683	.1276	0.667	.1862	0.669	.1038	1.133	.1610	0.884
.0649	0.695	.1301	0.630	.1873	0.671	.1050	1.158	.1621	0.895
.0660	0.676	.1311	0.644	.1896	0.679	.1075	1.157	.1647	0.874
.0684	0.713	.1337	0.620	.1907	0.656	.1087	1.169	.1658	0.837
.0695	0.694	.1347	0.621	.1930	0.660	.1113	1.231	.1683	0.843
.0718	0.682	.1422	0.647	.1942	0.664	.1124	1.239	.1695	0.827
.0727	0.670	.1477	0.617	128.0450	0.703	.1150	1.211	.1722	0.793
.0843	0.680	.1488	0.623	.0461	0.688	.1161	1.209	.1733	0.788
.0853	0.693	.1514	0.630	.0694	0.796	.1188	1.288	.1763	0.784
.0882	0.661	.1524	0.674	.0708	0.810	.1199	1.280	.1775	0.758
.0891	0.686	.1550	0.668	.0734	0.812	.1225	1.304	.1801	0.749
.0921	0.660	.1560	0.642	.0744	0.823	.1237	1.303	.1812	0.750
.0941	0.626	.1586	0.644	.0774	0.867	.1268	1.227		
.0967	0.655	.1597	0.625	.0788	0.875	.1301	1.194		
.0977	0.688	.1625	0.641	.0816	0.871	.1332	1.212		

Table 2. B observations of DD Mon

JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M
98.2255	0.894	99.2346	0.944	100.2475	1.117	124.1481	1.626	125.0758	0.903
.2257	0.908	.2423	0.926	.2509	1.173	.1484	1.634	.0761	0.893
.2288	0.925	.2425	0.933	.2510	1.157	.1559	1.584	.0808	0.873
.2290	0.917	.2450	0.901	.2542	1.183	.1561	1.578	.0810	0.882
.2321	0.917	.2451	0.902	.2543	1.183	.1599	1.489	.0883	0.875
.2323	0.915	.2479	0.916	.2575	1.216	.1601	1.492	.0937	0.863
.2360	0.925	.2481	0.910	.2576	1.216	.1644	1.468	.0939	0.872
.2362	0.929	.2517	0.908	.2620	1.273	.1646	1.437	.1114	0.888
.2397	0.945	.2518	0.924	.2691	1.392	.1681	1.358	.1171	0.826
.2399	0.945	.2554	0.889	.2694	1.391	.1683	1.362	.1173	0.842
.2431	0.938	.2555	0.885	.2728	1.454	.1720	1.344	.1207	0.840
.2433	0.934	.2590	0.858	.2731	1.449	.1723	1.320	.1209	0.847
.2461	0.968	.2592	0.873	.2768	1.515	.1755	1.260	.1245	0.842
.2464	0.955	.2623	0.864	.2770	1.492	.1757	1.246	.1247	0.835
.2493	0.968	.2624	0.891	.2807	1.550	.1790	1.179	.1287	0.817
.2495	0.956	.2654	0.899	.2810	1.563	.1793	1.193	.1289	0.815
.2533	0.950	.2655	0.884	.2846	1.579	.1854	1.102	.1328	0.855
.2535	0.965	.2687	0.886	.2848	1.608	.1872	1.089	.1330	0.859
.2567	0.980	.2688	0.890	.2934	1.603	125.0126	1.095	.1400	0.834
.2570	0.977	.2801	0.864	.2936	1.603	.0129	1.101	.1404	0.847
.2601	0.976	.2802	0.867	.2966	1.595	.0161	1.075	.1437	0.818
.2603	0.987	.2838	0.881	.2969	1.605	.0163	1.100	.1440	0.834
.2631	0.993	100.1975	0.886	.2999	1.552	.0198	1.059	.1530	0.843
.2634	0.995	.1976	0.903	.3002	1.520	.0200	1.079	.1532	0.817
.2669	1.017	.2001	0.888	.3048	1.496	.0234	1.058	.1679	0.858
.2671	1.045	.2002	0.873	.3050	1.492	.0236	1.049	.1681	0.863
.3189	1.076	.2033	0.895	.3104	1.383	.0284	1.008	.1719	0.878
.3192	1.049	.2035	0.885	.3106	1.354	.0286	1.018	.1759	0.880
99.2015	1.066	.2061	0.916	.3138	1.300	.0320	1.015	.1802	0.882
.2017	1.070	.2063	0.913	.3140	1.288	.0323	0.983	.1837	0.849
.2047	1.041	.2130	0.935	.3180	1.303	.0360	1.006	.1839	0.839
.2048	1.052	.2132	0.939	.3184	1.254	.0363	0.991	.1872	0.871
.2075	1.020	.2163	0.901	.3220	1.196	.0409	0.988	.1874	0.862
.2076	1.030	.2165	0.906	.3223	1.193	.0411	0.988	.1911	0.901
.2105	1.001	.2198	0.951	124.1141	1.253	.0444	0.969	.1913	0.885
.2107	1.015	.2200	0.939	.1143	1.227	.0446	0.962	.1954	0.919
.2141	0.979	.2233	0.953	.1178	1.353	.0479	0.954	.1988	0.895
.2191	0.977	.2289	0.963	.1181	1.375	.0481	0.957	.1990	0.910
.2192	0.990	.2291	0.985	.1213	1.393	.0514	0.948	.2037	0.921
.2225	0.952	.2323	0.995	.1216	1.413	.0517	0.938	.2040	0.897
.2227	0.934	.2325	0.974	.1252	1.457	.0600	0.905	.2078	0.905
.2256	0.925	.2352	0.999	.1254	1.489	.0602	0.903	.2080	0.912
.2257	0.920	.2354	0.996	.1293	1.541	.0641	0.911	.2121	0.922
.2288	0.921	.2390	0.987	.1295	1.532	.0643	0.917	.2123	0.918
.2289	0.917	.2392	0.964	.1330	1.599	.0677	0.881	.2197	0.975
.2317	0.948	.2427	1.053	.1332	1.597	.0679	0.905	.2199	0.970
.2318	0.931	.2443	1.126	.1377	1.597	.0718	0.892	.2236	0.954
.2345	0.949	.2474	1.084	.1414	1.625	.0720	0.890	127.0442	1.034

Table 2. (continued) B observations of DD Mon

JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M	JD(hel) 245000+	Del.M
127.0445	1.012	127.1095	0.884	127.1707	0.848	128.0893	1.244	128.1377	1.469
.0528	0.923	.1097	0.872	.1709	0.845	.0895	1.246	.1413	1.402
.0561	0.938	.1134	0.832	.1746	0.858	.0928	1.286	.1415	1.382
.0563	0.948	.1136	0.826	.1748	0.872	.0930	1.313	.1453	1.379
.0604	0.912	.1175	0.838	.1785	0.874	.0963	1.347	.1455	1.347
.0606	0.916	.1178	0.823	.1821	0.868	.0965	1.330	.1491	1.319
.0654	0.920	.1228	0.862	.1823	0.854	.1005	1.410	.1494	1.294
.0656	0.907	.1230	0.877	.1867	0.865	.1007	1.407	.1529	1.245
.0688	0.912	.1270	0.852	.1869	0.889	.1044	1.465	.1532	1.237
.0690	0.925	.1272	0.864	.1900	0.852	.1046	1.464	.1575	1.196
.0722	0.931	.1305	0.834	.1903	0.868	.1080	1.505	.1577	1.162
.0724	0.925	.1308	0.840	.1935	0.904	.1082	1.519	.1614	1.136
.0847	0.904	.1341	0.841	.1937	0.875	.1118	1.559	.1617	1.151
.0849	0.887	.1344	0.823	128.0454	0.894	.1120	1.563	.1652	1.107
.0885	0.888	.1426	0.829	.0457	0.886	.1154	1.553	.1654	1.103
.0887	0.880	.1428	0.854	.0701	1.040	.1157	1.562	.1688	1.072
.0926	0.867	.1481	0.820	.0738	1.109	.1192	1.604	.1691	1.079
.0928	0.854	.1484	0.839	.0740	1.103	.1194	1.612	.1727	1.030
.0971	0.865	.1518	0.839	.0779	1.109	.1229	1.606	.1729	1.045
.0973	0.856	.1520	0.844	.0781	1.119	.1283	1.576	.1767	1.001
.1012	0.886	.1554	0.862	.0820	1.150	.1297	1.556	.1805	0.990
.1015	0.884	.1556	0.864	.0822	1.154	.1337	1.546	.1807	0.979
.1050	0.843	.1668	0.874	.0855	1.205	.1339	1.552		
.1052	0.851	.1671	0.871	.0857	1.197	.1375	1.444		