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ON THE PERIOD OF YY GEMINORUM

YY Gem (=Castor C) is an eclipsing binary consisting of two M1 dwarfs. The system was monitored by IUE and EXOSAT on 14/15 November, 1984 (see e.g. Geyer and Kämpfer 1985). I observed YY Gem on the same night with the 1-m telescope of Konkoly Observatory at Piszkestető. The comparison star was BD+31° 1627, a star near enough the variable to make the corrections for differential extinction unnecessary. The background measurements were taken about halfway between the variable and comparison. The full moon and the nearness of Castor made the U observations useless. Table I below shows the Julian date and the magnitude and colour differences (variable-comparison).

Table I

J.D.2446019+	V	B-V	J.D.2446019+	V	B-V
.5274	-0.738	0.082	.5758	-0.385	-0.093
.5287	-0.736	0.069	.5770	-0.382	-0.088
.5299	-0.734	0.074	.5783	-0.377	-0.099
.5352	-0.737	0.084	.5835	-0.341	-0.092
.5364	-0.736	0.080	.5847	-0.345	-0.101
.5377	-0.738	0.082	.5860	-0.343	-0.100
.5433	-0.748	0.084	.5919	-0.452	-0.060
.5446	-0.740	0.073	.5932	-0.470	-0.057
.5459	-0.738	0.067	.5944	-0.490	-0.062
.5513	-0.685	0.054	.5997	-0.560	-0.004
.5526	-0.675	0.034	.6010	-0.570	-0.004
.5538	-0.668	0.032	.6022	-0.580	-0.009
.5599	-0.612	0.001	.6075	-0.650	0.022
.5612	-0.594	-0.004	.6088	-0.659	0.022
.5624	-0.586	-0.004	.6101	-0.677	0.038
.5678	-0.508	-0.054	.6154	-0.716	0.020
.5691	-0.485	-0.087	.6167	-0.751	0.026
.5703	-0.468	-0.072	.6180	-0.761	0.021

There is a controversy concerning the period of $\gamma\gamma$ Gem. Leung and Schneider (1978) found a period different from that given in the GCVS. Later, however, Mallama (1980) could not confirm this new period, his time of minimum was in agreement with that predicted by the catalogue elements.

Therefore it is interesting to construct the O-C diagram for $\gamma\gamma$ Gem. The times of the primary and secondary minima found in the literature are listed in Table II (the letters p and s after J.D. mean primary and secondary, respectively).

Table II

J.D.		E	O-C	Reference
2424500.55	p	5527	0.00684	van Gent (1926)
2424573.42	s	5616.5	0.00586	van Gent (1926)
2424584.41	p	5630	0.00195	van Gent (1926)
2424591.34	s	5638.5	0.00293	van Gent (1926)
2424595.41	s	5643.5	0.00781	van Gent (1931)
2424619.43	p	5673	0.00684	van Gent (1926)
2424639.39	s	5697.5	0.01074	van Gent (1926)
2424791.65	s	5884.5	0.00879	van Gent (1931)
2424848.65	s	5954.5	0.00879	van Gent (1931)
2424875.53	s	5987.5	0.00977	van Gent (1931)
2424916.65	p	6038	0.00879	van Gent (1931)
2424920.31	s	6042.5	0.00879	van Gent (1931)
2424921.53	p	6044	0.00781	van Gent (1931)
2424922.34	p	6045	0.00586	van Gent (1931)
2424961.43	p	6093	0.00781	van Gent (1931)
2425230.55	s	6423.5	0.00781	van Gent (1931)
2425234.62	s	6428.5	0.00586	van Gent (1931)
2425242.36	p	6438	0.00684	van Gent (1931)
2425687.37	s	6984.5	0.00977	van Gent (1931)
2425698.36	p	6998	0.00684	van Gent (1931)
2427158.36	p	8791	0.00684	Binnendijk (1950)
2427160.40	s	8793.5	0.00781	Binnendijk (1950)
2428545.49	s	10494.5	0.00488	Binnendijk (1950)
2428571.55	s	10526.5	0.00879	Binnendijk (1950)
2428596.39	p	10557	0.00488	Binnendijk (1950)
2429639.48	p	11838	0.00586	Binnendijk (1950)
2430466.39	s	12853.5	0.00488	Binnendijk (1950)
2432605.91	p	15481	0.00684	Kron (1952)
2432695.83	p	15923	0.00684	Kron (1952)
2440969.00	s	25751.5	0.00000	Leung and Schneider (1978)
2440969.82	s	25752.5	0.00586	Leung and Schneider (1978)
2440970.63	s	25753.5	0.00781	Leung and Schneider (1978)
2440971.86	p	25755	0.00976	Leung and Schneider (1978)
2442829.63	s	28036.5	0.00195	Mallama et al. (1977)
2443949.68	p	29412	0.00098	Mallama (1980)
2443960.67	s	29425.5	0.00293	Mallama (1980)
2443969.63	s	29436.5	0.00000	Mallama (1980)
2446017.55	s	31951.5	0.00000	Geyer and Kämper (1985)
2446019.58	p	31954	0.00000	present paper

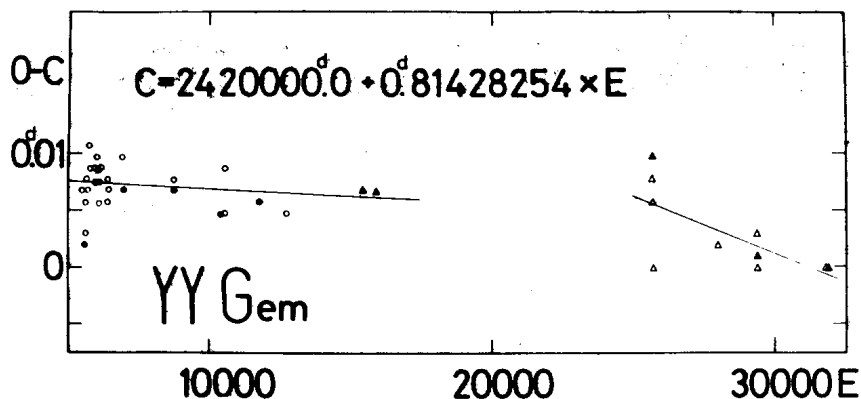


Figure 1

The O-C diagram of Yr Gem is plotted in the Figure. Full symbols mean primary, the empty ones mean secondary minima. The O-C values were calculated using the elements

$$2420000.00 + 0.81428254 \times E .$$

The Figure shows that the period of YY Gem slightly differs from that given in the GCVS. According to the Figure, the period of YY Gem was 0.81428242 between J.D. 2424500 and J.D. 2433000, and 0.81428155 from J.D. 2440968.

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