CURVE DI LUCE IN DUE COLORI ED ELEMENTI FOTOMETRICI DELLA BINARIA AD ECLISSE *SU BOOTIS*

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RIASSUNTO. — Da circa 1700 osservazioni fotoelettriche in due colori fatte nel 1955, 1956 e 1958 si ricavano le curve di luce della variabile a eclisse SU Boo. Si pone poi in evidenza la variazione del periodo.

Sono inoltre calcolati gli elementi del sistema seguendo il metodo di Z. Kopal. Viene considerata dapprima l'ipotesi che il Min I sia una eclisse anulare. Non essendovi accordo tra il valore del rapporto dei raggi dedotto dalla « profondità » e quello calcolato dalla « forma » si effettua infine il calcolo assumendo che le eclissi siano parziali.

ABSTRACT. — Two colors light-curves (λ_{eff} = 4250 Å and 5300 Å) of the eclipsing binary SU Boo are obtained from about 1700 photoelectric measures made during 1955, 1956 and 1958. It is made evident the period's variation. The computation of the elements was performed separately for the two light curves using the Kopal's method. After a trial of the anular eclipse hypothesis, the partial eclipse hypothesis is adopted and the elements calculated.

CENNO BIBLIOGRAFICO

La variabilità di SU Bootis fu scoperta fotograficamente nel 1914 da S. Beliawsky ([1]) che la classificò di tipo Algol. Hoffmeister ([2]) determinò le epoche di 13 minimi principali (riportati nella Tabella I) dalle quali ricavò l'effemeride: Min I G. G. elioc. = 2421071.397 + 1.5611245 *E* ed ottenne una curva di luce con: D = 9^h, d = 0^h, Max = $10^m.5$, Min I = $11^m.0$. Parenago ([3]) basandosi sull'epoca di un minimo da lui osservato corresse il periodo in $1^d.561228$ e determinò i valori: D = $4^h.0$, d = $1^h.2$, Max = $11^m.68$, Min I = $12^m.72$ riportati nei Cataloghi di Prager del 1934, di Schneller del 1943 e di Kukarkin del 1948. Nel Secondo Supplemento al Catalogo di Kukarkin il periodo fu modificato in $1^d.561247$. Una determinazione degli elementi del sistema fu ottenuta da S. Gaposchkin nel 1932 ([4]). Più recentemente R. Szafraniec ([5]) determinò nove epoche di minimo con osservazioni visuali (**).

(*) Pervenuta il 2 gennaio 1960.

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LE OSSERVAZIONI

I) Le presenti osservazioni sono state fatte al riflettore Zeiss (alluminato) con il fotometro fotoelettrico a cellula Lallemand ed i filtri BG 12 + GG 13 (1 mm) e OG4 (λ_{eff} 4250 e 5300 Å) durante gli anni 1955, 1956 e 1958. Durante il '55 la corrente anodica è stata misurata con un galvanometro di sensibilità 7 10^{-11} A/mm, nel '56 e '58 con un registratore Speedomax di sensibilità 1.4 10^{-11} A/mm. Nei primi due anni le osservazioni sono state fatte in due colori (Tabella IIa). Poichè si è trovato che la variazione di colore lungo il periodo è piccola, si è preferito continuare le osservazioni nel '58 col solo filtro giallo (Tabella IIb). In totale si sono fatte 750 misure in luce bleu corrette per l'estinzione differenziale in colore e 957 in luce gialla. Per confronto sono state prese le stelle *a b c* di Fig. 1. Come confronto principale è stata scelta la *c* che è sempre più luminosa della variabile e di colore più simile che non la *a* e la *b*. I Δm delle Tabelle IIa, IIb sono calcolati nel senso $m_{var} - m_c$.

Durante il 1955 il confronto *c* è stato paragonato solo alla stella *b*. Poichè da queste misure apparve una variazione del $\Delta m = m_c - m_b$ relativo ai G.G. 5227, 5229 rispetto a quello relativo ai G.G. 5222, 5247, 5250, 5270, 5272, 5281, nel 1956 e nel 1958 si è confrontata la *c* con la *b* e con la *a*. Nella Tabella III i Δm tra i confronti sono riportati accanto ai relativi G.G. ed al numero delle misure dai quali sono ricavati (tra parentesi). Le differenze di grandezza tra *c* e *b* e tra *c* e *a* sono rimaste le stesse nel '56 e nel '58, nei due colori, entro gli errori di misura. Il Δm in bleu tra *c* e *b* del '55 è pure eguale ai valori del '56, e del '58 ad eccezione dei G.G. 5227 e 5229. Esiste invece una differenza sistematica, in media di $0^m.026$, tra le misure in giallo delle due serie. Essendo poco verosimile che la variazione del Δm tra i due confronti in un colore e non nell'altro sia dovuta ad una variazione di uno di essi, si potrebbe ammettere come possibile spiegazione una variazione della sensibilità del catodo, che non si farebbe sentire nelle misure fatte col filtro bleu che definisce la banda passante da entrambi i lati, ma in quelle eseguite col filtro giallo che non limita la sensibilità della cellula verso le maggiori lunghezze d'onda. Siccome la differenza di colore tra *c* e *b* è 1.6 volte maggiore di quella tra la variabile e *c*, dovrebbero esistere degli scostamenti sistematici di circa $0^m.015$ tra le misure del '55 e quelle del '56, '58. Riportando alla stessa fase le curve di luce delle due serie si constata invece che le osservazioni riguardanti il minimo principale (G.G. 5222, 5247, 5272, 6254, 6257) non mostrano tra loro scostamenti sistematici in entrambi i colori. Le osservazioni in bleu dei G.G. 5250, 5281 (variabile al massimo) si sovrappongono rispettivamente a quelle dei G.G. 5570 e 5540, mentre in giallo esiste in media una differenza ordinatamente di $0^m.02$ e $0^m.01$ nel senso indicato dalla

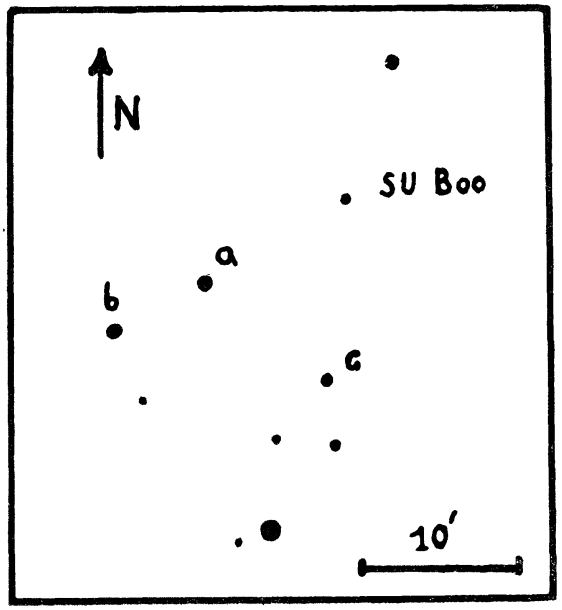

Fig. 1

TABELLA I (*)

Osservatore	Min. I G.G. elioc. 2400000. +	E	O - C	Osservatore	Min. I G.G. elioc. 2400000 +	E	O - C
			d				
Be	20242.46	— 9595	— 0.07	S	33753.425	— 941	— .006
H	1071.37	9064	— .17	S	4123.429	704	— .014
H	1132.31	9025	— .12	S	4454.417	492	— .007
H	1280.56	8930	— .19	S	4457.541	490	— .005
H	1352.36	8884	— .20	S	4479.398	476	— .006
H	1416.38	8843	— .19	BP	5219.4284 ± 11	— 2	+ .0008
H	1477.30	8804	— .16	BP	5222.5503 ± 1	0	+ .0002(6)
H	1491.36	8795	— .15	BP	5244.4062	+ 14	— .0011
H	1747.40	8631	— .16	S	5244.408	14	+ .001
H	1775.47	8613	— .19	BP	5247.5298 ± 2	16	+ .0000(5)
H	1786.35	8606	— .24	BP	5272.5091 ± 3	32	— .0003(7)
H	1822.25	8583	— .25	BP	5311.5394 ± 5	57	— .0009
H	1825.50	8581	— .12	B	5600.3649 ± 16	242	— .0033
H	1858.20	8560	— .20	B	5603.4873 ± 8	244	— .0034
Pa	24615.384	6794	— .155	S	5603.498	244	+ .007
S	33066.461	1381	— .027	B	6254.5244	611	— .0000(4)
S	3358.405	— 1194	— .034	B	6257.6470	+ 663	+ .0000(9)

Be = Beliawsky - B = Broglia - H = Hoffmeister - Pa = Parenago - P = Pestarino
S = Szafraniec.

(*) Gli errori relativi ad alcune epoche di minimo sono e.m. della epoca media bleu giallo.

TABELLA III. — *Differenza di magnitudine tra i confronti*

G. G. 243...	$(m_c - m_b)_B$	$(m_c - m_b)_G$	$(m_c - m_a)_G$	$(m_c - m_a)_G$
	m			
5222	— 0.292 (3)	+ 0.193(2)		
227	.251 (5)	.260 (5)		
229	.260 (2)	.251 (2)		
247	.283 (4)	.197 (4)		
250	.279 (3)	.200 (3)		
270	.264 (1)	—		
272	.281 (3)	.194 (3)		
281	—	.194 (1)	m	m
511	.277 (10)	.232 (9)	— 0.266 (1)	+ 0.274 (1)
538	.287 (5)	.220 (6)	.247 (2)	.287 (2)
540	.289 (3)	.222 (4)	.235 (3)	.285 (3)
543	.273 (5)	.227 (5)	.227 (2)	.303 (3)
570	.292 (2)	.222 (2)	.282 (2)	.273 (2)
660	.296 (4)	.221 (3)	.266 (2)	.295 (2)
6254	.287 (2)	.220 (3)	.243 (2)	.275 (3)
257	—	—	—	.288 (1)

variazione del Δm tra i confronti. Risultando incerto l'effetto non è stata portata alcuna correzione a queste misure. Si vede infine che nei G.G. 5227 e 5229 il Δm tra *c* e *b* si scosta dalla media dei valori del '55, '56, '58 rispettivamente di $0^m.03$ e $0^m.02$ in bleu e di $0^m.05$ e $0^m.04$ in giallo (è anzi simile a quello tra *c* e *a* facendo nascere il sospetto che ci sia stato uno scambio tra *a* e *b*). Ora le osservazioni in bleu del G.G. 5227 (variabile al massimo) praticamente si sovrappongono a quelle del G.G. 5511, che hanno le stesse fasi, mentre in giallo vi è una differenza media di $0^m.017$ rispetto al G.G. 5511 e nulla rispetto ai G.G. 5250, 5570 (simmetrici del G.G. 5227 rispetto al Min I). Anche queste misure, dato il disaccordo riscontrato nelle correzioni, non sono state pertanto corrette. Quelle invece del G.G. 5229 si scostano sistematicamente dalle osservazioni dei G.G. 5538, 5571, 5560 di $0^m.023$ in bleu e di $0^m.031$ in giallo nel senso indicato dalla variazione del Δm tra *a* e *b*. Queste ultime osservazioni interessano il Min II ed una parte del massimo adiacente e da esse si può ricavare la profondità del Min II. Anzichè considerarle separatamente si è preferito ricavarne dei luoghi normali, correggerli degli importi sopra scritti e combinarli con i luoghi normali ricavati dalle altre osservazioni, anche per il fatto che la dispersione delle osservazioni al Min II è piuttosto forte.

In conclusione non è chiara la causa della variazione nel solo giallo del Δm tra *c* e *b* tra il '55 e il '56-'58, e nei due colori nei G.G. 5227 e 5229. Per questo motivo sono state corrette le sole misure del G.G. 5229,

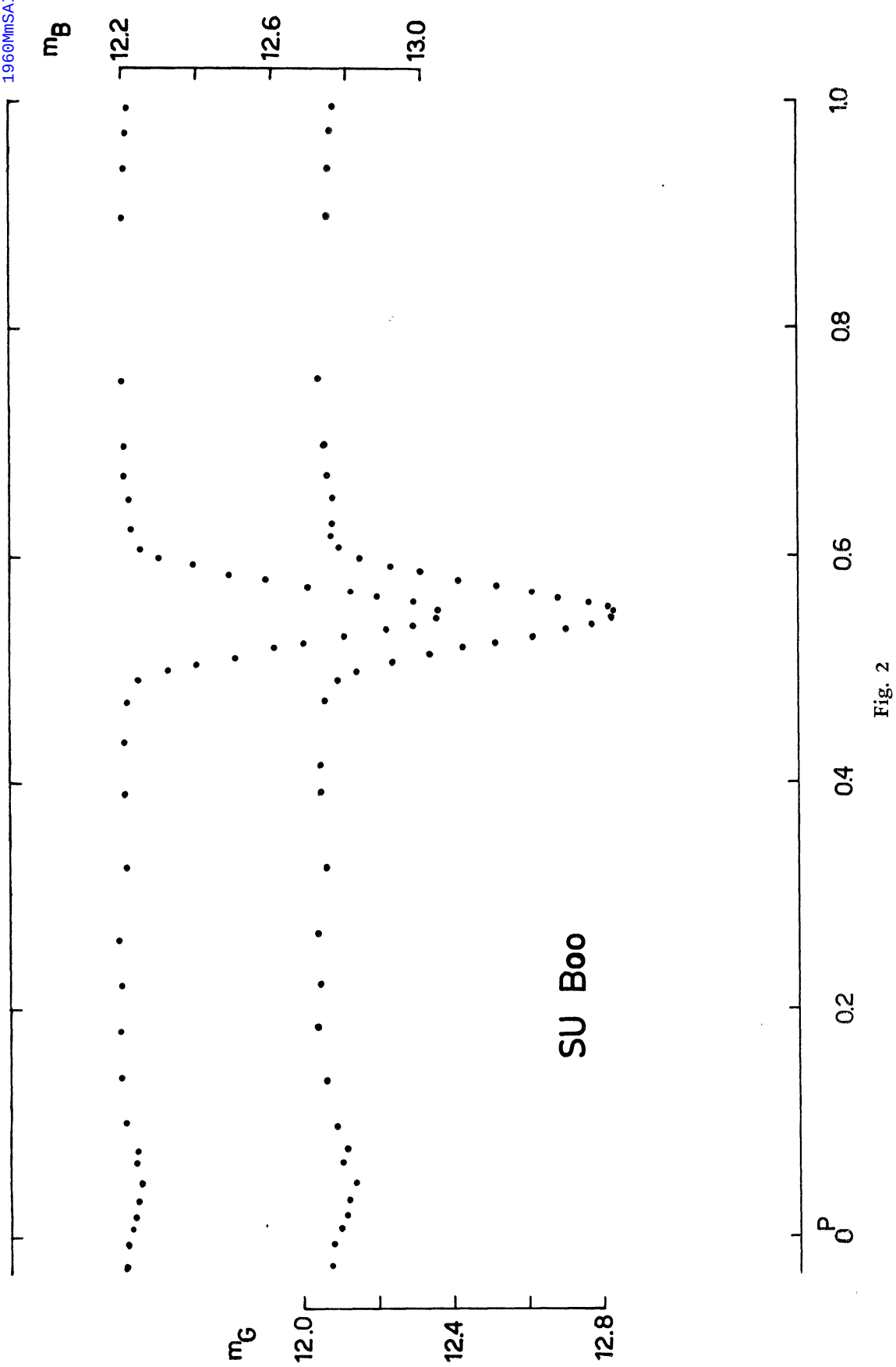

Fig. 2

TABELLA IV. — *Epoche dei Min I fotoelettrici G.G. elioc.* 243...

Bleu	Giallo	Bleu	Giallo
5222.5502	.5504	5219.4295	.4273
5247.5300	.5296	—	5244.4062
5272.5088	.5094	5311.5399	.5389
—	6254.5244	5600.3627	.3667
—	6257.6470	5603.4882	.4864

in cui le correzioni ricavate dal Δm tra c e b praticamente coincidono con quelle dedotte dalle curve di luce.

2) Si sono determinate le epoche di Min I riportate nella Tabella IV. Le epoche del primo gruppo sono relative a minimi osservati nei rami discendente ed ascendente. L'epoca media bleu-giallo è determinata con un errore medio dell'ordine di $0^d.0002$. Le epoche del secondo gruppo riguardano invece minimi osservati in un solo ramo e riferiti alle curve medie ottenute riportando alla stessa fase i minimi del primo gruppo. L'epoca media bleu-giallo è determinata per questo gruppo con una incertezza dell'ordine di $0^d.001$. Poichè con le effemeridi ricordate allo inizio della Nota non si possono rappresentare in modo soddisfacente le epoche dei minimi fotoelettrici si è calcolata una nuova effemeride con le sole epoche del primo gruppo della Tabella IV (minimi completi), che abbracciano un intervallo di circa 700 cicli. Con i minimi quadrati si è ottenuto:

$$(1) \qquad \text{Min I G.G. elioc.} = 2435222.55004 + 1.56123208 \; E$$
$$\pm .00016 \quad \pm .00000037 \text{ e.m.}$$

I relativi O—C sono riportati nell'ultima colonna della Tabella I. Limitatamente all'intervallo coperto dalle sole osservazioni fotoelettriche l'effemeride (1) rappresenta i due minimi del '56 (incompleti) con uno scarto superiore all'errore stimato nella loro determinazione. Vi è stata dunque una variazione di periodo già in questo intervallo, variazione che appare meglio dai restanti O—C ottenuti con la (1) e riportati nella Tabella I. Calcolando i periodi relativi ai sottoindicati intervalli si ha un'indicazione dell'andamento della variazione.

E	— 9595—8560	— 8560—6794	— 6794—1381	— 1381—704	— 704 0	0 + 663
P	— 1.56112 ± 4	1.561259 3	1.56126 2	1.561253 2	1.561267 3	1.5612321 ± 4

TABELLA V

Punti normali (bleu)							Punti normali (giallo)						
FASE	Δm	N. oss.	N.	FASE	Δm	N. oss.	N.	FASE	Δm	N. oss.	N.	FASE	Δm	N. oss.
P	m			P	m			P	m			P	m	
0.5511	+ 1.140	9	24	0.0645	+ 0.335	18	1	0.5494	+ 1.407	11	24	0.0312	0.701	17
.5577	1.075	5	25	.0747	.340	19	2	.5533	1.391	10	25	.0474	.720	18
.5631	.978	5	26	.1011	.308	21	3	.5574	1.342	10	26	.0652	.686	18
.5675	.909	6	27	.1392	.295	29	4	.5629	1.258	10	27	.0768	.697	18
.5724	.797	6	28	.1812	.296	30	5	.5676	1.192	12	28	.0965	.669	24
.5779	.682	6	29	.2207	.297	31	6	.5726	1.098	13	29	.1376	.643	32
.5837	.585	5	30	.2642	.287	30	7	.5784	.997	19	30	.1824	.618	32
.5920	.489	5	31	.3254	.310	32	8	.5850	.897	16	31	.2214	.626	33
.5984	.398	4	32	.3900	.304	33	9	.5911	.816	8	32	.2651	.620	32
.6059	.349	4	33	.4336	.305	33	10	.5978	.736	16	33	.3244	.643	30
.6265	.326	24	34	.4699	.313	32	11	.6069	.677	16	34	.3901	.628	33
.6513	.317	25	35	.4897	.340	12	12	.6167	.658	16	35	.4342	.626	32
.6699	.306	25	36	.4977	.421	10	13	.6287	.660	20	36	.4715	.638	38
.6978	.305	27	37	.5047	.497	12	14	.6509	.662	27	37	.4886	.672	21
.7526	.301	29	38	.5114	.599	11	15	.6701	.646	27	38	.4963	.724	18
.8979	.301	24	39	.5179	.704	6	16	.6987	.639	28	39	.5044	.819	22
.9400	.305	25	40	.5221	.783	6	17	.7550	.625	31	40	.5120	.918	17
.9722	.308	24	41	.5279	.891	7	18	.8972	.644	24	41	.5178	1.006	16
.9935	.313	22	42	.5335	1.003	7	19	.9389	.649	24	42	.5220	1.090	15
.0064	.322	23	43	.5377	1.072	4	20	.9724	.654	25	43	.5282	1.193	20
.0183	.333	22	44	.5439	1.135	6	21	.9932	.660	25	44	.5337	1.280	17
.0310	.340	19					22	.0063	.681	24	45	.5381	1.348	13
.0470	.349	18					23	.0189	.697	17	46	.5443	1.403	12

Gli errori dei valori di P sono o errori medi ricavati da una soluzione con i minimi quadrati oppure sono stati calcolati dividendo gli errori medi delle due epoche normali che individuano un intervallo per il numero dei cicli in esso contenuti. All'epoca data da Parenago è stata attribuita una incertezza di $\pm\ 0^d.005$.

Le fasi della Tabella II sono state calcolate con la formula:

Fase elioc. $=$ (G.G. elioc. $-$ 2435000) P^{-1} con $P^{-1} = 0.6405198$.

La fase del Min I risulta: $0^P.54772 \pm .00007$ e.m. (media di cinque valori). Sono stati ottenuti 44 punti normali in bleu e 46 in giallo (Tabella V) dai quali si è ricavata la Fig. 2; l'error medio di un normale nella fase centrale del minimo principale è di $\pm\ 0^m.005$ in entrambi i colori. Dalla figura si vede che SU Boo è di tipo EA con $D = 4^h44^m = 0^P.126$; il Min II appare sfasato di $0^P.500$ rispetto al Min. I.

Le stelle di confronto sono state raccordate in due notti (nel '56 e nel '58) alle stelle N. 144 e 169 della Sequenza di Johnson e Morgan. E' risultato:

	c	*a*	*b*
V	$11^m.32(5)$	$11^m.03$	$11^m.09$
B-V	$+0^m.57$	$+1^m.09$	$+1^m.08$

Riferendosi al confronto *c* si ottiene poi per SU Bootis:

	Max	Min I	Min II
V	$11^m.96(5)$	$12^m.72(5)$	$12^m.04(5)$
B-V	$+0^m.23(5)$	$+0^m.30(5)$	$+0^m.20(0)$

Dalla relazione C.I. - Spettro di Johnson e Morgan, supponendo trascurabile l'arrossamento data la forte latitudine galattica (+ 67°), si deduce che gli Indici di colore nei minimi corrispondono ai tipi spettrali F0 (Min I) e A7 (Min II). Quest'ultimo valore, a differenza del primo, è molto vicino al tipo spettrale della componente più luminosa poichè l'Indice di colore nella fase centrale del Min II è essenzialmente quello dell'astro di maggior splendore superficiale il quale, come si vedrà dalla soluzione fotometrica, ha pure dimensioni maggiori.

SOLUZIONE FOTOMETRICA

Nel calcolo degli elementi del sistema si è seguito essenzialmente il metodo proposto da Z. Kopal ([6]) e le formule e le notazioni citate nel seguito si riferiscono ad esso. Assunta eguale ad uno l'intensità luminosa dei normali N. 30 (in bleu ed in giallo) riportati nella Tabella V, l'analisi delle osservazioni fuori eclisse mediante una equazione del tipo: $l_{oss} = A + B \cos \vartheta + C \cos^2 \vartheta$ ha dato:

$$\text{Giallo (da 17 normali): } l_{oss} = +0.9940 - 0.0022 \cos\vartheta - 0.0290 \cos^2\vartheta$$
$$\pm 51 \quad 38 \quad 96 \text{ e.m.}$$
$$\text{Bleu (da 16 normali): } l_{oss} = +0.9914 - 0.0069 \cos\vartheta - 0.0156 \cos^2\vartheta$$
$$\pm 29 \quad 21 \quad 56 \text{ e.m.}$$

Gli e.m. più forti nelle misure fotovisuali che non in quelle in luce bleu riflettono le difficoltà segnalate nel paragrafo precedente. La curva di luce mostra che il Min II non è adatto ad una determinazione indipendente degli elementi fotometrici del sistema perchè insufficientemente profondo; pertanto si è utilizzata solo la sua profondità, corretta nel modo che diremo più avanti. Poichè i normali si possono riflettere attorno alla fase centrale del minimo, si sono ricavati per il Min I i luoghi supernormali riportati nella Tabella VI sotto forma di l_{oss} e da essi è stata ottenuta la soluzione.

Si è eseguita una rettificazione approssimata con una formula del tipo: $l_{rett} = l_{oss} (1 + C \cos^2 \vartheta) + B \cos \vartheta$, dove B e C hanno i valori tro-

TABELLA VI. — *Supernormali Bleu*

FASE	Num. osserv.	l_{oss}	l_{rett}	Δl	FASE	Num. osserv.	l_{oss}	l_{rett}	Δl
°					°				
20.90	16	0.9583	0.9781	+ 0.0073	7.13	13	0.5737	0.5907	— 0.0009
18.07	14	.8968	.9164	— 29	5.29	12	.5265	.5429	+ 13
15.62	17	.8328	.8521	— 53	3.60	9	.4886	.5046	— 11
13.04	16	.7596	.7783	— 11	1.96	6	.4626	.4783	— 41
10.80	12	.6938	.7119	+ 59	1.15	6	.4607	.4764	+ 22
9.05	12	.6345	.6521	+ 15	0.18	3	.4554	.4710	0

Supernormali Giallo

FASE	Num. osserv.	l_{oss}	l_{rett}	Δl	FASE	Num. osserv.	l_{oss}	l_{rett}	Δl
°					°				
21.29	37	0.9557	0.9823	0	5.20	27	0.5511	0.5725	+ 0.0053
18.27	34	.9081	.9348	+ 0.0043	3.47	23	.5147	.5358	+ 29
15.60	30	.8370	.8629	— 48	2.20	8	.4952	.5155	0
13.13	33	.7707	.7958	— 15	1.69	8	.4916	.5119	+ 19
10.92	35	.7072	.7314	+ 18	0.97	8	.4857	.5058	+ 4
9.12	28	.6493	.6725	— 26	0.32	9	.4857	.5058	+ 28
7.07	32	.5929	.6151	— 4					

vati dianzi. Poichè la curva di luce sembrava indicare che l'eclisse al Min I è anulare o totale si è calcolato il rapporto dei raggi k dalla « profondità » dei minimi e dagli istanti dei contatti e si è verificato che la seconda ipotesi è da scartare. Si è poi dedotto il valore di k dalla « forma » del Min e si è trovato un disaccordo di circa 0.06 tra il valore « profondità » ($k = 0.69$) e quello « forma » ($k = 0.63$). Questa divergenza rimane se si variano i coefficienti di oscuramento al bordo o se si ripete la soluzione con le l_{oss} ed aumenta se si varia l'istante del contatto interno (e quindi λ_b) attorno al valore assunto $\vartheta'' = 2°.6$. Poichè la divergenza non era conciliabile tenendo conto della precisione delle osservazioni, si è scartata anche questa seconda ipotesi e si è considerata l'eclisse come parziale.

Si è ottenuta una prima soluzione mediante i nomogrammi di J. E. Merrill ([7]) assumendo in entrambi i colori come coefficiente di oscuramento al bordo u = 0.6. L'eclisse al Min I è un transito. Assunto per k la media dei valori ottenuti nei due colori, gli elementi dedotti da questa soluzione preliminare sono:

Bleu	$k = 0.9$	$\alpha_o = 0.65$	$p_o = -0.43$	$r_a = 0.20$	$r_b = 0.22$	$L_a = 0.046$	$L_b = 0.954$
Giallo	$= 0.9$	$= 0.62$	$= -0.38$	$= 0.20$	$= 0.22$	$= 0.064$	$= 0.936$

Valutati i tipi spettrali delle componenti si sono quindi calcolate le costanti della rettificazione nella equazione (6.7) ([6]);

Bleu	$\alpha = 0.0036$	$\gamma = -0.0039$	$b = 0.0048$
Giallo	$= .0041$	$= -.0044$	$= .0013$

Le l_{rett} secondo la (6.7) sono riportate nella Tabella VI. Poichè i valori di α, γ, b sono piccoli non è strettamente necessario tenerne conto. Si sono poi utilizzati i normali del Min II per valutarne la profondità mediante la (3.50) in cui si è posto $\Delta U = 0$. Con i minimi quadrati si è ottenuto:

$$\text{Min II}_{rett} \quad \begin{matrix} \text{Bleu} & \lambda_a = 0.956 \pm 0.006 \text{ e.m.} \\ \text{Giallo} & = 0.935 \pm 0.008 \end{matrix}$$

e dalle curve di luce si sono stimate le profondità centrali del minimo principale:

$$\text{Min I}_{rett} \quad \begin{matrix} \text{Bleu} & \lambda_b = 0.471 \pm 0.002 \text{ e.m.} \\ \text{Giallo} & = 0.503 \pm 0.002 \end{matrix}$$

In base ai tipi spettrali delle componenti si sono adottati per la soluzione del Min I i coefficienti di oscuramento al bordo u = 0.8(0.8) per il Bleu, u = 0.6(0.7) per il Giallo. I valori in parentesi sono quelli della stella eclissante. Partendo dal valore $k = 0.9$, dopo alcuni tentativi si è arrivati alla iterazione finale:

Giallo: valore assunto $K = 0.950$	valore risultante $k = 0.948$
Bleu : valore assunto $K = 0.925$	valore risultante $k = 0.926$

Nella soluzione si sono utilizzate le equazioni (3.68) e (6.12) e per la valutazione dei pesi intrinseci la (3.37a). I pesi empirici sono stati assunti proporzionali al numero delle misure da cui è ottenuto ciascun supernormale. I risultati della soluzione sono riportati nella Tabella VII e gli e.p. sono calcolati trascurando il valore di dk/dK. I $\Delta l = l_{rett} - l_{calc}$ dedotti secondo la (4.4) sono riportati nella Tabella VI.

Siccome il minimo principale è un transito, e quindi la componente di temperatura maggiore ha pure dimensioni maggiori, sembra attendibile l'ipotesi che il sistema sia « detached », anche se le binarie di questo gruppo mostrano raramente variazioni di periodo. Sotto queste ipotesi si sono calcolati i rapporti delle masse m_a/m_b e delle costanti di Roche C_b/C_a ed i quadrati delle eccentricità delle sezioni diametrali ([8]). Notevole è l'accordo del valore $C_b/C_a = 1.03$ con la media per i « detached systems » $C_b/C_a = 1.01$.

Desidero ringraziare il Prof. Z. Kopal ed il Prof. S. Piotrowski per i validi suggerimenti che mi hanno dato durante il calcolo degli

TABELLA VII

	Bleu	Giallo
λ_{eff}	4250 Å	5300 Å
Min I	transito	
P	$1^d.56123208 \pm 25$ e.p.	
u_b	0.8 (assunto)	0.6 (assunto)
k	0.925 ± 0.028 e.p.	0.950 ± 0.023 e.p.
r_a	0.210 ± 0.010	0.209 ± 0.009
r_b	0.227 ± 0.007	0.220 ± 0.008
p_o	-0.370 ± 0.042	-0.327 ± 0.034
i	$81^\circ.5 \pm 0^\circ.7$	$81^\circ.4 \pm 0^\circ.7$
ϑ'	$24^\circ.4 \pm 0^\circ.9$	$23^\circ.8 \pm 0^\circ.9$
α_o^{tr}	0.620 ± 0.027	0.595 ± 0.023
L_a	0.066 ± 0.011	0.104 ± 0.015
L_b	0.934 ± 0.011	0.896 ± 0.013
J_a/J_b	12.07 ± 0.05	7.75 ± 0.05
L_a^*	0.029	0.051
L_b^*	0.971	0.949
J_a^*/J_b^*	28.2	16.7
Spettro a (°)	(A6)	
Spettro b (°)	(K3 V)	
m_a / m_b (°)	0.89 ± 0.02	0.93 ± 0.02
C_b/C_a (°)	1.04 ± 0.03	1.02 ± 0.03
ν_b (+)	0.022	0.021
ν_a (+)	0.020	0.019

(°) Dedotto dall'Indice di colore calcolato.
(°) Dedotto nell'ipotesi che il sistema sia « detached ».
(+) Calcolato nell'ipotesi che vi sia sincronismo tra rotazione e rivoluzione.

elementi, fatto in parte durante un soggiorno al Department of Astronomy dell'Università di Manchester reso possibile da una borsa concessami dall'U.A.I. Desidero inoltre ringraziare il Dott. E. Pestarino per la sua collaborazione nelle osservazioni del 1955, 1956.

TABELLA IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
211.3926	0.4011		+ 0.640	.4082	.4569	,291	
.3933	.4016	+ 0.310		.4134	.4602		.614
.4110	.4129		.639	.4148	.4611	.303	
.4124	.4138	.334		.4203	.4646		.612
.4701	.4508		.614	.4214	.4653	.292	
.4732	.4528	.305		.4252	.4677		.640
.4784	.4561		.611	.4259	.4682	.312	
.4854	.4606	.296		.4301	.4709		.638
.4864	.4612		.655	.4308	.4713	.312	
.4992	.4694		.616	.4412	.4780	.308	
.5048	.4730	.280		.4420	.4785		.628
.5229	.4846		.608	.4519	.4848	.333	
.5284	.4881	.282		.4526	.4853		.621
.5291	.4886		.614	.4571	.4882	.336	
212.3565	0.0185	+ 0.340		.4575	.4884		.659
.3572	.0190	.338		.4617	.4911	.350	
.3579	.0194		+ 0.643	.4623	.4915		.698
.3683	.0261		.659	.4669	.4945	.392	
.3721	.0285	.313		.4676	.4949		.684
.3774	.0319		.643	.4710	.4971	.422	
.4145	.0557		.652	.4717	.4975		.726
.4145	.0557	.323		.4755	.5000	.447	
.4197	.0590		.643	.4762	.5004		.744
.4284	.0646		.635	.4804	.5031	.502	
.4294	.0652	.306		.4811	.5035		.795
.4346	.0686		.637	.4853	.5062	.537	
.4357	.0693	.313		.4860	.5067		.830
219.4554	0.5655	+ 1.006		.4898	.5091	.577	
.4561	.5660		+ 1.241	.4905	.5096		.881
.4641	.5711	.864		.4950	.5124	.605	
.4645	.5714		1.118	.4957	.5129		.920
.4683	.5738	.765		.5005	.5160	.665	
.4690	.5742		1.046	.5012	.5164		.981
.4725	.5765	.738		.5054	.5191	.728	
.4731	.5769		1.001	.5061	.5196		1.027
222.3599	0.4259		+ 0.613	.5113	.5229	.786	
.3606	.4264	+ 0.292		.5123	.5235		1.104
.3658	.4297		.592	.5162	.5260	.858	
.3669	.4304	.299		.5165	.5262		1.155
.3710	.4330		.604	.5203	.5287	.905	
.3717	.4335	.300		.5210	.5291		1.177
.3797	.4386	.290		.5242	.5312	.955	
.3808	.4393		.603	.5248	.5315		1.238
.3849	.4419	.309		.5290	.5342	1.021	
.3856	.4424		.619	.5297	.5347		1.294
.3908	.4457	.292		.5335	.5371	1.044	
.3919	.4464		.651	.5339	.5374		1.321
.3967	.4495	.295		.5349	.5380		1.323
.3978	.4502		.632	.5422	.5427		1.386
.4026	.4533	.287		.5433	.5434	1.117	
.4033	.4537		.611	.5467	.5456		1.399
.4068	.4560	.304		.5478	.5463	1.152	
.4075	.4564		.602	.5533	.5498		1.385

Segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.5540	.5502	1.141		.4827	.7072	.290	
.5578	.5527		1.392	.4834	.7076		.616
.5585	.5531	1.144		.4879	.7105	.303	
.5641	.5567		1.327	.4890	.7112		.630
.5648	.5572	1.062		.4970	.7163		.613
.5693	.5600		1.291	.4976	.7167	.279	
.5700	.5605	1.015		.5029	.7201		.618
.5738	.5629		1.264	.5036	.7206	.290	
.5745	.5634	.967		.5088	.7239		.632
.5794	.5665		1.207	.5098	.7245	.307	
.5801	.5670	.917		.5161	.7286		.618
.5835	.5691		1.162	.5167	.7290	.302	
.5842	.5696		1.167	.5220	.7323		.626
.5846	.5698	.849		.5226	.7327	.287	
.5894	.5729		1.069	.5272	.7357		.625
.5901	.5734	.767		.5279	.7361	.299	
.5943	.5761		1.035	.5327	.7392		.622
.5950	.5765	.732		.5338	.7399	.307	
.5995	.5794		.973	.5386	.7430		.614
.6002	.5798	.667		.5397	.7437	.288	
.6044	.5825		.936	.5449	.7470		.620
.6058	.5834	.602		.5456	.7475	.310	
.6096	.5859		.872	.5539	.7528	.308	
.6103	.5863	.559		.5549	.7534		.611
.6137	.5885		.865	.5608	.7572	.309	
.6144	.5889	.551		.5612	.7575		.613
.6179	.5912		.822	.5661	.7606		.622
.6186	.5916	.497		.5671	.7612	.291	
.6217	.5936		.800	.5723	.7646		.604
.6224	.5941	.457		.5737	.7655	.285	
.6266	.5967		.782	.5786	.7686		.610
.6269	.5969	.430		.5796	.7692	.300	
.6304	.5992		.740	.5855	.7730		.620
.6332	.6010		.700	.5865	.7737	.305	
227.4174	0.6653		+ 0.638	.5904	.7762		.610
.4181	.6658	+ 0.302		.5911	.7766	.287	
.4230	.6689		.635	.5952	.7792		.603
.4240	.6696	.323		.5956	.7795	.289	
.4292	.6729		.624	.6001	.7824		.597
.4299	.6734	.302		.6008	.7828	.278	
.4362	.6774		.636	.6049	.7854		.628
.4369	.6778	.316		.6060	.7861	.287	
.4414	.6807		.650	.6108	.7892		.609
.4424	.6814	.300		.6171	.7932	.269	
.4480	.6849		.620	.6178	.7937		.608
.4487	.6854	.296		.6258	.7988		.615
.4536	.6885		.627	229.3629	0.9115		+ 0.620
.4542	.6889	.292		.3636	.9119	+ 0.290	
.4591	.6921		.620	.3688	.9153		.639
.4601	.6927	.308		.3706	.9164	.279	
.4699	.6990	.307		.3761	.9199		.602
.4706	.6994		.634	.3768	.9203	.275	
.4765	.7032	.295		.3838	.9249		.595
.4772	.7037		.617	.3852	.9258	.275	

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.3917	.9299		.606	.5542	.0340	.311	
.3928	.9306	.278		.5581	.0365		.680
.3980	.9340		.604	.5584	.0367	.315	
.3987	.9344	.278		.5629	.0396		.693
.4042	.9379		.605	.5636	.0400	.325	
.4049	.9384	.281		.5685	.0432		.678
.4105	.9420		.609	.5692	.0436	.323	
.4115	.9426	.268		.5733	.0462		.672
.4174	.9464		.622	.5740	.0467	.339	
.4192	.9475	.285		.5813	.0514	.324	
.4251	.9513		.618	.5820	.0518		.685
.4258	.9518	.274		.5869	.0550	.310	
.4313	.9553		.632	.5879	.0556		.673
.4324	.9560	.288		.5914	.0578	.316	
.4386	.9600		.628	.5924	.0585		.668
.4397	.9607	.288		.6032	.0654	.307	
.4449	.9640		.634	.6039	.0658		.659
.4459	.9646	.284		.6077	.0683	.329	
.4515	.9682		.609	.6081	.0685		.668
.4525	.9689	.274		.6122	.0712	.321	
.4577	.9722		.605	.6129	.0716		.660
.4588	.9729	.266		.6164	.0739	.321	
.4647	.9767		.615	.6171	.0743		.678
.4657	.9773	.290		.6213	.0770		.669
.4709	.9807		.628	244.3620	0.5187		+ 1.019
.4717	.9812	.288		.3648	.5205		1.065
.4775	.9849		.629	.3687	.5230		1.103
.4782	.9853	.296		.3690	.5232	+ 0.788	
.4834	.9887		.606	247.3689	0.4447	+ 0.325	
.4841	.9891	.280		.3696	.4451		+ 0.640
.4890	.9922		.620	.3738	.4478	.327	
.4900	.9929	.282		.3745	.4483		.632
.4945	.9958		.627	.3780	.4505	.317	
.4956	.9965	.280		.3786	.4509		.626
.5001	.9994		.623	.3825	.4534	.317	
.5011	.0000	.289		.3835	.4540		.636
.5063	.0033		.628	.3908	.4587		.636
.5074	.0040	.281		.3915	.4592	.314	
.5129	.0076		.623	.3953	.4616		.646
.5140	.0083	.289		.3960	.4620	.322	
.5213	.0129		.650	.4016	.4656		.644
.5220	.0134	.300		.4023	.4661	.312	
.5268	.0165		.628	.4061	.4685		.647
.5275	.0169	.298		.4071	.4691	.299	
.5327	.0202		.669	.4123	.4725		.645
.5338	.0209	.317		.4130	.4729	.309	
.5386	.0240		.695	.4179	.4761		.661
.5393	.0245	.326		.4186	.4765	.320	
.5438	.0273		.670	.4241	.4800		.649
.5445	.0278	.336		.4248	.4805	.310	
.5487	.0305		.670	.4300	.4838		.658
.5494	.0309	.320		.4304	.4841	.336	
.5536	.0336		.674	.4342	.4865		.659

Segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4349	.4870	335		.5630	.5690		1.145
.4387	.4894		.661	.5675	.5719	.828	
.4394	.4898	.341		.5686	.5726		1.067
.4436	.4925		.690	.5766	.5777		.992
.4443	.4930	.362		.5773	.5782	.690	
.4481	.4954		732	250.3719	0.3682	+ 0.296	
.4484	.4956	.406		.3726	.3686		+ 0.611
.4523	.4981		.755	.3771	.3715	.316	
.4530	.4985	.432		.3778	.3719		.634
.4602	.5032	.475		.3823	.3748	.301	
.4609	.5036		.801	.3830	.3753		.610
.4658	.5067	.532		.3879	.3784	.285	
.4661	.5069		.862	.3886	.3789		.595
.4703	.5096	.560		.3938	.3822	.289	
.4714	.5103		.899	.3945	.3826		.621
.4720	.5107	.599		.3997	.3860	.300	
.4762	.5134		.941	.4004	.3864		.614
.4766	.5137	.620		.4042	.3888	.294	
.4804	.5161		.986	.4056	.3897		.608
.4811	.5165	.675		.4098	.3924	.290	
.4852	.5192		1.037	.4108	.3931		.620
.4859	.5197	.729		.4150	.3958	.316	
.4908	.5228	.831		.4157	.3962		.613
.4915	.5232		1.116	.4198	.3988	.294	
.4964	.5263	.858		.4209	.3995		.614
.4970	.5267		1.149	.4250	.4022	.283	
.5009	.5292	.926		.4257	.4026		.616
.5016	.5297		1.215	.4268	.4033	.281	
.5057	.5323	.995		.4351	.4086	.300	
.5061	.5326		1.266	.4358	.4091		.615
.5106	.5354	1.028		.4407	.4122	.312	
.5113	.5359		1.297	.4414	.4127		.625
.5155	.5386	1.084		.4455	.4153	.294	
.5161	.5390		1.353	.4466	.4160		.613
.5203	.5417	1.137		.4504	.4184	.309	
.5207	.5419		1.405	.4511	.4189		.613
.5248	.5445	1.138		.4556	.4218	.315	
.5255	.5450		1.428	.4566	.4224		.611
.5300	.5479	1.154		.4622	.4260	.316	
.5307	.5483		1.430	.4629	.4264		.603
.5345	.5507	1.150		.4723	.4325		.594
.5352	.5512		1.410	.4730	.4329	.287	
.5394	.5539	1.148		.4778	.4360		.623
.5401	.5543		1.397	.4785	.4364	.304	
.5439	.5568	1.104		.4827	.4391		.642
.5446	.5572		1.364	.4834	.4396	.322	
.5448	.5573	1.057		.4872	.4420		.625
.5491	.5601		1.317	.4879	.4425	.304	
.5530	.5626	.996		.4910	.4444		.630
.5536	.5630		1.281	.4914	.4447	.299	
.5575	.5655	.947		.4952	.4471		.625
.5582	.5659		1.216	.4959	.4476	.293	
.5623	.5686	887		4997	.4500		.630

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.5004	.4505	.296		.4882	.5341		1.284
.5077	.4551	.312		.4927	.5370	1.074	
.5091	.4560		.628	.4937	.5376		1.364
.5188	.4623	.300		.4944	.5381	1.087	
.5202	.4631		.613	.4955	.5388		1.372
270.3858	0.1875	+ 0.287		.5024	.5432	1.135	
.3869	.1882		+ 0.554	.5031	.5436		1.411
.3910	.1908	.304		.5038	.5441	1.129	
.3921	.1915		.619	.5045	.5445		1.415
.3962	.1941	.268		.5097	.5479	1.144	
.3969	.1946		.577	.5104	.5483		1.385
.3980	.1953		.581	.5111	.5488	1.151	
272.3902	0.4713	+ 0.327		.5118	.5492		1.407
.3909	.4718		+ 0.647	.5177	.5530	1.113	
.3972	.4758	312		.5184	.5534		1.375
.3979	.4762		.648	.5194	.5541	1.116	
.4024	.4791	.337		.5201	.5545		1.414
.4031	.4796		.674	.5257	.5581	1.104	
.4080	.4827	.337		.5264	.5586		1.350
.4086	.4831		.644	.5270	.5589	1.050	
.4166	.4882		.665	.5281	.5596		1.329
.4173	.4887	.349		.5347	.5639	.950	
.4222	.4918		.697	.5357	.5645		1.220
.4236	.4927	.378		.5368	.5652	.962	
.4281	.4956		.747	.5413	.5681		1.224
.4288	.4960	.403		.5420	.5685	.850	
.4330	.4987		.755	.5472	.5719		1.095
.4336	.4991	.425		.5479	.5723	.771	
.4382	.5021		.804	.5586	.5792	.558	
.4389	.5025	.474		281.3997	0.2421		+ 0.586
.4395	.5029		.802	.4049	.2454		.605
.4402	.5033	.485		.4098	.2485	+ 0.312	
.4444	.5060		.822	.4105	.2490		.625
.4451	.5065	.510		.4115	.2496	.286	
.4458	.5069		.840	.4171	.2532		.613
.4465	.5074	.519		.4178	.2537	.274	
.4472	.5078	.533		.4230	.2570		.610
.4534	.5118		.912	.4237	.2575	.285	
.4541	.5122	.617		.4289	.2608		.593
.4552	.5130		.922	.4296	.2612	.273	
.4559	.5134	.622		.4348	.2646		.605
.4642	.5187	.745		.4355	.2650	.303	
.4649	.5192		1.039	.4410	.2685		.612
.4694	.5220	.789		.4417	.2690	.273	
.4701	.5225		1.077	.4466	.2721		.599
.4743	.5252	.841		.4473	.2726	.272	
.4753	.5258		1.175	.4564	.2784		.604
.4767	.5267		1.184	306.3973	0.2535	+ 0.280	
.4812	.5296	.947		.3980	.2540		+ 0.614
.4819	.5301		1.247	.4026	.2569	.268	
.4857	.5325	.993		.4033	.2574		.602
.4864	.5329		1.284	.4081	.2605	.260	
.4875	.5336	1.021		.4088	.2609		.598

Segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4209	.2687		.598	.5305	.6475		.646
.4283	.2734		.574	.5312	.6480	.311	
311.4133	0.4664		+ 0.615	.5319	.6484		.658
.4143	.4670	+ 0.322		.5325	.6488	.316	
.4185	.4697		.653	.5329	.6491		.667
.4191	.4701	.345		.5360	.6510		.664
.4237	.4730		.650	.5367	.6515	.325	
.4244	.4735	.314		.5374	.6519		.648
.4296	.4768		.660	.5378	.6522	.331	
.4348	.4802		.629	.5385	.6526		.651
.4358	.4808	.321		.5392	.6531	.328	
.4365	.4812		.645	.5416	.6546		.656
.4404	.4837	.317		.5420	.6549	.319	
.4412	.4843		.660	.5427	.6553		.652
.4421	.4848	.315		.5430	.6555	.312	
.4428	.4853		.668	.5437	.6560		.651
.4480	.4886	.339		.5444	.6564	.311	
.4487	.4891		.690	.5450	.6568	.330	
.4497	.4897	.343		.5454	.6571		.651
.4504	.4901		.688	.5517	.6611		.653
.4553	.4933	.359		.5524	.6615	.320	
.4560	.4937		.702	.5527	.6617		.660
.4615	.4973	.409		.5534	.6622	.304	
.4622	.4977		.729	.5555	.6635		.646
.4629	.4982	.405		.5562	.6640	.308	
.4640	.4989		.739	.5566	.6642		.646
.4688	.5019	.447		.5572	.6646	.297	
.4702	.5028		.775	.5579	.6651		.650
.4712	.5035	.457		.5586	.6655	.314	
.4754	.5062		.850	.5589	.6657		.647
.4765	.5069	.518		.5596	.6662	.308	
.4813	.5099		.891	.5656	.6700	.305	
.4823	.5106	.578		.5663	.6704		.635
.4872	.5137		.976	.5670	.6709	.321	
.4883	.5144	.635		.5677	.6713		.651
511.5107	0.6348		+ 0.650	.5684	.6718	.314	
.5117	.6355	+ 0.311		.5687	.6720		.658
.5145	.6373		.666	.5694	.6724	.303	
.5152	.6377	.327		.5760	.6767		.632
.5163	.6384		.659	.5767	.6771	.298	
.5170	.6389	.301		.5770	.6773		.645
.5194	.6404		.663	.5777	.6777	.292	
.5200	.6408	.322		.5784	.6782		.638
.5207	.6412		.664	.5836	.6815		.636
.5211	.6415	.312		.5839	.6817	.297	
.5218	.6419		.673	.5846	.6822		.634
.5225	.6424	.333		.5853	.6826	.317	
.5249	.6439		.669	.5857	.6829		.649
.5256	.6444	.305		.5864	.6833	.307	
.5260	.6446		.676	.5895	.6853		.661
.5267	.6451	.315		.5902	.6858	.315	
.5270	.6453		.663	.5916	.6866		.649
.5277	.6457	.312		.5923	.6871	.316	

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.5927	.6874		.647	.4732	.2643	.280	
.5930	.6875	.312		.4734	.2644		.650
.5937	.6880		.647	.4757	.2658	.298	
.5944	.6884	.326		.4816	.2697		.631
.6010	.6927	.291		.4826	.2703	.263	
.6017	.6931		.647	.4948	.2782	.282	
.6027	.6938	.305		.4948	.2782		.639
.6034	.6942		.642	.5028	.2833	.289	
.6041	.6947	.300		.5039	.2840		.639
.6048	.6951		.650	.5313	.3015	.320	
.6055	.6956	.303		.5358	.3044		.655
.6059	.6958		.652	.5365	.3049	.334	
.6135	.7007		.659	.5414	.3080		.668
.6173	.7031	.317		.5421	.3085	.332	
.6177	.7034		.647	.5493	.3131	.291	
.6184	.7038	.304		.5500	.3135		.642
.6187	.7040		.643	.5566	.3177	.301	
.6194	.7045	.312		.5594	.3195		.668
.6197	.7046		.654	.5615	.3209	.314	
.6204	.7051	.329		.5629	.3218		.678
.6207	.7053		.646	538.4173	0.8690		+ 0.643
.6302	.7114	.302		.4187	.8699	+ 0.304	
.6309	.7118		.659	.4193	.8703		.628
.6316	.7123	.311		.4210	.8714	.291	
.6325	.7128		.645	.4256	.8744		.658
.6624	.7320		.644	.4270	.8753	.314	
.6628	.7323	.301		.4287	.8763		.632
.6631	.7324		.648	.4298	.8770	.310	
.6638	.7329	.303		.4349	.8803		.636
.6642	.7332		.639	.4356	.8808	.303	
.6649	.7336	.304		.4367	.8815		.646
.6711	.7376	.311		.4384	.8826	.321	
.6718	.7380		.643	.4440	.8861		.624
.6721	.7382	.310		.4443	.8863	.286	
.6728	.7387		.651	.4450	.8868		.644
.6739	.7394	.302		.4460	.8874	.300	
.6746	.7398		.645	.4492	.8895		.650
.6784	.7422		.633	.4502	.8901	.313	
.6791	.7427	.308		.4513	.8908		.662
.6802	.7434		.642	.4527	.8917	.324	
.6809	.7438	.310		.4562	.8940		.639
.6816	.7443		.648	.4571	.8945	.293	
.6822	.7447	.329		.4620	.8977		.630
.6895	.7494		.643	.4627	.8981	.285	
.6902	.7498	.312		.4641	.8990		.633
.6913	.7505		.642	.4645	.8993	.297	
.6916	.7507	.322		.4690	.9022		.633
.6927	.7514		.634	.4700	.9028	.277	
.6934	.7519	.326		.4707	.9032		.644
537.4560	0.2533		+ 0.632	.4717	.9039	.285	
.4567	.2537	+ 0.293		.4801	.9093		.647
.4651	.2591		.647	.4818	.9104	.287	
.4662	.2598	.285		.4832	.9113		.664

Segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4846	.9121	.299		.5703	.9670	.304	
.4877	.9141		.650	.5721	.9682	.308	
.4884	.9146	.309		.5728	.9686		.650
.4891	.9150		.663	.5759	.9706	.301	
.4898	.9155	.318		.5766	.9711		.656
.4926	.9173		.637	.5777	.9718	.292	
.4933	.9177	.302		.5784	.9722		.644
.4943	.9184		.647	.5791	.9727	.313	
.4950	.9188	.288		.5798	.9731		.661
.4995	.9217		.643	.5832	.9753		.630
.5006	.9224	.308		.5839	.9758	.298	
.5013	.9228		.633	.5846	.9762		.644
.5020	.9233	.310		.5863	.9773	.309	
.5062	.9260		.639	.5870	.9777		.655
.5075	.9268		.650	.5877	.9782	.314	
.5082	.9273	.317		.5964	.9838	.293	
.5159	.9322	.309		.5971	.9842		.645
.5166	.9326		.657	.6002	.9862	.304	
.5173	.9331	.301		.6009	.9866		.661
.5180	.9335	.309		.6016	.9871	.313	
.5183	.9337		.671	.6023	.9875		.652
.5224	.9364	.317		.6030	.9880	.313	
.5235	.9371		.659	.6037	.9884		.667
.5249	.9380	311		.6082	.9913		.656
.5256	.9384		.648	.6089	.9918	.318	
.5259	.9386	.319		.6096	.9922		.648
.5266	.9391		.663	.6099	.9924	.312	
.5318	.9424	.288		.6106	.9929		.650
.5325	.9428		.659	.6162	.9964		.666
.5332	.9433	.296		.6169	.9969	.315	
.5335	.9435		.647	.6176	.9973		.674
.5349	.9444	.293		.6183	.9978	.336	
.5356	.9448		.650	.6190	.9982		.680
.5398	.9475	.312		.6200	.9989	.327	
.5405	.9480		.647	.6238	.0013		.701
.5416	.9487	.305		.6245	.0018	.323	
.5423	.9491		.654	.6256	.0025		.680
.5437	.9500	.305		.6263	.0029	.314	
.5446	.9506		.670	.6270	.0034		.681
.5513	.9549	.305		.6280	.0040	.321	
.5520	.9553		.658	.6321	.0066		.689
.5530	.9560	.303		.6328	.0071	.327	
.5537	.9564		.656	.6335	.0075		.685
.5568	.9584	.306		.6342	.0080	.323	
.5575	.9588		.660	.6349	.0084		.696
.5585	.9595	.310		.6353	.0087	.333	
.5589	.9597		.641	.6398	.0116		.724
.5634	.9626	.314		.6409	.0123	.341	
.5641	.9631		.654	.6416	.0127		.706
.5648	.9635	.313		.6423	.0132	.346	
.5655	.9640		.661	.6433	.0138		.691
.5690	.9662	.307		.6443	.0144	.334	
.5696	.9666		.638	.6481	.0169		.691

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.6488	.0173	.346		.4926	.1983		.616
.6499	.0180		.693	.4960	.2005	.317	
.6509	.0187	.333		.4967	.2009		.632
.6541	.0207	.346		.4974	.2014	.320	
.6582	.0233	.337		.4981	.2018		.666
.6606	.0249		.688	.5012	.2038	.304	
.6652	.0278	.370		.5023	.2045		.634
540.3930	0.1345		+ 0.656	.5071	.2076	.288	
.3933	.1347	+ 0.294		.5081	.2082		.631
.3946	.1355	.283		.5095	.2091	.285	
.4002	.1391	.313		.5106	.2098		.619
.4012	.1398		.656	.5116	.2105		.622
.4023	.1405	.286		.5155	.2130	.275	
.4092	.1449		.663	.5162	.2134		.630
.4092	.1449	.328		.5172	.2141	.293	
.4113	.1462		.637	.5179	.2145		.625
.4179	.1505		.636	.5186	.2150	.288	
.4266	.1560		.625	.5193	.2154		.635
.4376	.1631		.664	.5200	.2159	.304	
.4449	.1678	.289		.5248	.2189	.323	
.4463	.1687	.311		.5259	.2196		.639
.4469	.1690		.642	.5266	.2201	.303	
.4516	.1721	.273		.5273	.2205		.631
.4526	.1727		.630	.5297	.2221		.640
.4537	.1734	.292		.5352	.2256	.300	
.4547	.1740	.302		.5359	.2260		.610
.4554	.1745		.626	.5363	.2263	.299	
.4595	.1771	.292		.5370	.2268		.617
.4599	.1774		.626	.5380	.2274	.297	
.4606	.1778	.282		.5391	.2281		.609
.4623	.1789		.601	.5421	.2300	.301	
.4630	.1794	.284		.5429	.2305		.631
.4641	.1801		.616	.5436	.2310	.298	
.4690	.1832	.309		.5440	.2312		.630
.4703	.1840		.622	.5449	.2318	.289	
.4710	.1845	.293		.5461	.2326		.647
.4717	.1849		.622	.5581	.2403		.654
.4748	.1869	.311		.5599	.2414	.296	
.4752	.1872		.626	.5606	.2419		.642
.4759	.1876	.298		.5613	.2423	.300	
.4769	.1883		.640	.5616	.2425		.647
.4780	.1890	.326		.5627	.2432	.300	
.4787	.1894		.640	.5664	.2456		.629
.4821	.1916	.325		.5672	.2461	.284	
.4828	.1920		.634	.5679	.2465		.614
.4835	.1925	.317		.5690	.2472	.271	
.4845	.1931		.640	.5696	.2476		.615
.4852	.1936	.330		.5706	.2483	.284	
.4859	.1940		.654	.5769	.2523		.633
.4894	.1963		.636	.5776	.2528	.287	
.4898	.1965	.314		.5790	.2537		.630
.4905	.1970		.638	.5794	.2539	.276	
.4915	.1976	.324		.5801	.2544		.646

Segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.−	Fase	Δm Bleu	Δm Giallo
.5811	.2550	293		.4506	.0930		.633
.5863	.2583		.657	.4575	.0974		.676
.5873	.2590	.296		.4585	.0980	.330	
.5877	.2592		.650	.4589	.0983		.663
.5884	.2597	.298		.4596	.0987	.307	
.5891	.2601		.640	.4631	.1010		.650
.5898	.2606	.300		.4645	.1019	.294	
.5949	.2638	.278		.4655	.1021		.640
.5956	.2643		.621	.4669	.1034	.299	
.5960	.2645	.284		.4703	.1056		.655
.5967	.2650		.624	.4717	.1065	.304	
.5970	.2652	.276		.4724	.1069		.639
.5977	.2656		.621	.4735	.1076	.311	
.6085	.2725		.629	.4770	.1099		.660
.6092	.2730	.306		.4780	.1105	.296	
.6099	.2734		.636	.4791	.1112		.670
.6106	.2739	.307		.4801	.1119	.325	
.6116	.2745		.626	.4839	.1143		.657
.6123	.2750	.307		.4849	.1149	.325	
.6162	.2775		.608	.4859	.1156		.649
.6165	.2777	.280		.4867	.1161	.314	
.6172	.2781		.592	.4905	.1185		.656
.6183	.2788	.305		.4912	.1190	.304	
.6193	.2795		.592	.4923	.1197		.633
.6203	.2801	.322		.4930	.1201	.295	
.6242	.2826		.600	.5006	.1250	.303	
.6252	.2832	.311		.5023	.1261		.600
.6259	.2837		.631	.5030	.1265	.286	
.6266	.2841	.318		.5037	.1270		.632
.6273	.2846		.620	.5071	.1292	.295	
.6280	.2850	.305		.5078	.1296		.662
.6321	.2877		.620	.5092	.1305	.276	
.6331	.2883	.323		.5099	.1310		.655
.6338	.2888		.633	.5162	.1350	.258	.638
.6352	.2897	.322		.5180	.1361		.648
.6359	.2901		.653	.5207	.1379	.263	
.6363	.2904	.312		.5210	.1381		.635
.6467	.2970		.619	.5217	.1385	.261	
.6477	.2977	.308		.5224	.1390		.637
.6481	.2979		.651	.5231	.1394	.261	
.6488	.2984	.321		.5238	.1399		.646
.6495	.2988		.645	.5273	.1421	.319	
.6502	.2993	.309		.5284	.1428		.646
543.4072	0.0652	+ 0.327		.5291	.1433	.281	
.4089	.0663		+ 0.655	.5298	.1437		.635
.4142	.0697	.341		.5305	.1441	.275	
.4146	.0699		.660	.5312	.1446		.633
.4221	.0747	.347		.5419	.1514		.633
.4266	.0776		.671	.5430	.1522	.301	
.4332	.0818	.318		.5433	.1523		.621
.4409	.0868		.660	.5443	.1530	.317	
.4430	.0881	.305		.5450	.1534		.645
.4500	.0926	.312		.5457	.1539	.334	

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.5495	.1563	.308		.3932	.3502	.316	
.5506	.1570		.631	.3959	.3520		.672
.5516	.1577	.289		.3970	.3527	.296	
.5523	.1581		.624	.3977	.3531		.646
.5527	.1584	.269		.3984	.3536	.304	
.5534	.1588		.638	.4015	.3556		.648
.5652	.1664		.612	.4022	.3560	.306	
.5659	.1668	.293		.4029	.3565		.659
.5662	.1670		.625	.4047	.3576	.315	
.5673	.1677	.322		.4095	.3607		.650
.5680	.1682		.605	.4102	.3611	.336	
.5687	.1686	.300		.4116	.3620		.670
.5714	.1703		.626	.4130	.3629	.298	
.5717	.1705	.315		.4172	.3656		.628
.5724	.1710		.612	.4175	.3658	.319	
.5731	.1714	.289		.4182	.3663		.629
.5738	.1719		.608	.4189	.3667	.326	
.5745	.1723	.278		.4209	.3680	.319	
.5821	.1772		.615	.4251	.3707		.635
.5828	.1776	.277		.4262	.3714	.307	
.5856	.1794		.611	.4269	.3718		.622
.5863	.1799	.298		.4283	.3727	.315	
.5877	.1808	.331		.4293	.3734		.632
.5916	.1833	.283		.4304	.3741	.316	
.5926	.1839		.647	.4345	.3767		.649
.5940	.1848	.292		.4355	.3773	.317	
.5946	.1852		.614	.4362	.3778		.656
.5953	.1857	.272		.4373	.3785	.318	
.5988	.1879		.602	.4422	.3816		.655
.5995	.1883	.260		.4432	.3823	.289	
.6002	.1888		.584	.4439	.3827		.638
.6020	.1899		.637	.4445	.3831	.300	
.6092	.1946	.288		.4463	.3842		.641
.6099	.1950		.622	.4491	.3860	.310	
.6103	.1953	.327		.4540	.3892		.625
.6110	.1957		.634	.4547	.3896	.308	
.6166	.1993	.267		.4554	.3901		.633
.6173	.1997		.578	.4561	.3905	.316	
.6180	.2002	.282		.4568	.3910		.632
.6187	.2006		.595	.4578	.3916	.306	
570.3658	0.3327		+ 0.648	.4619	.3942		.624
.3665	.3331	+ 0.316		.4630	.3949	.297	
.3713	.3362		.658	.4637	.3954		.620
.3727	.3371	.300		.4644	.3958	.294	
.3783	.3407		.623	.4654	.3965		.633
.3790	.3411	.282		.4664	.3971	.298	
.3848	.3449		.638	.4716	.4005		.643
.3855	.3453	.294		.4723	.4009	.301	
.3859	.3456		.628	.4737	.4018		.648
.3866	.3460	.292		.4744	.4022	.317	
.3908	.3487		.635	.4754	.4029		.638
.3915	.3491	.280		.4769	.4038	.309	
.3925	.3498		.632	.4922	.4136		.630

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4929	.4141	.277	
.4932	.4143		.615
.4939	.4147	.291	
.4946	.4152		.627
.4953	.4156	.292	
.5019	.4199	.307	
.5026	.4203		.636
.5064	.4227	.330	
.5071	.4232		.631
.5088	.4243	.311	
.5102	.4252		.657
.5137	.4274	.304	
.5144	.4279		.659
.5154	.4285	.310	
.5161	.4290		.643
.5165	.4292	.306	
.5175	.4299		.648
.5279	.4365		.637
.5286	.4370	.328	
.5290	.4372		.637
.5300	.4379	.316	
571.3758	0.9796	+ 0.330	
.3758	.9796		+ 0.681
.3782	.9812	.320	
.3841	.9849		.667
.3848	.9854	.309	
.3855	.9858		.681
.3900	.9887		.672
.3907	.9892	.316	
.3928	.9905		.675
.3935	.9910	.314	
.3969	9931		.653
.3976	.9936	.314	
.3983	.9940		.644
.3990	.9945	302	
.3997	.9949		.642
.4004	.9954	.304	
.4039	.9976		.666
.4050	.9983	.317	
.4057	.9988		.651
.4070	.9996	.304	
.4077	.0000		.673
.4087	.0007	.310	
.4122	.0029		.665
.4133	.0036	.317	
.4140	.0041		.667
.4147	.0045	.318	
.4161	.0054		.708
.4168	.0059	.355	
.4202	.0081		.657
.4209	.0085	.316	
.4212	.0087		.666
.4226	.0096	.337	

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4233	.0100		.688
.4247	.0109	.335	
.4279	.0130		.689
.4286	.0134	.323	
.4293	.0139		.671
.4300	.0143	.330	
.4307	.0148		.693
.4310	.0150	.341	
.4372	.0189	.323	
.4379	.0194		.712
.4390	.0201	.340	
.4397	.0205		.722
.4448	.0238	.353	
.4455	.0243		.711
.4462	.0247	.375	
.4483	.0261		.696
.4518	.0283	.345	
.4525	.0287		.717
.4532	.0292	.332	
.4539	.0296		.709
.4546	.0301	.335	
.4550	.0303		.705
.4594	.0332	.353	
.4601	.0336		.720
.4608	.0341	.344	
.4615	.0345		.718
.4633	.0357	.345	
.4640	.0361		.720
.4702	.0401	.347	
.4712	.0407		.706
.4719	.0412	.362	
.4726	.0416		.719
.4733	.0421	.367	
.4751	.0432		.723
.4782	.0452	.359	
.4789	.0457		.740
.4809	.0469	.363	
.5150	.0688		.703
.5154	.0690	.357	
.5161	.0695		.720
.5175	.0704		.707
.5182	.0708	.355	
.5219	.0732		.717
.5230	.0739		.719
.5237	.0743	.347	
.5244	.0748		.717
.5251	.0752	.348	
.5303	.0786		.729
.5307	.0788	.359	
.5316	.0794		.696
.5320	.0797	.355	
.5327	.0801		.715
.5337	.0808	.370	

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.5369	.0828		.699	.4119	.6433	.326	
.5376	.0832		.701	.4126	.6437		.677
.5390	.0841	.327		.4175	.6468	.329	
.5400	.0848		.696	.4186	.6475		.685
.5407	.0852	.317		.4213	.6493	.329	
.5414	.0857		.691	.4220	.6497		.659
.5421	.0862	.329		.4237	.6508	.332	
.5469	.0892		.696	.4244	.6513		.676
.5483	.0901	.347		.4272	.6531	.309	
.5490	.0906		.686	.4279	.6535		.655
.5515	.0922		.715	.4286	.6540	.299	
.5570	.0957		.673	.4293	.6544		.644
.5577	.0961	.298		.4300	.6548	.312	
.5584	.0966		.661	.4307	.6553		.658
.5601	.0977	.306		.4331	.6568	.312	
.5650	.1008		.674	.4338	.6573		.669
.5657	.1012	.287		.4345	.6577	.313	
.5664	.1017		.680	4352	.6582		.676
.5682	.1028	.329		.4362	.6588	.308	
.5712	.1048		.658	.4369	.6593		.666
.5719	.1052	.303		.4401	.6613	.303	
.5730	.1059		.670	.4411	.6620		.664
.5737	.1064	.279		.4415	.6622	.289	
.5744	.1068		.641	.4422	.6627		.649
.5751	.1073	.291		.4432	.6633	.294	
.5820	.1117	.284		.4439	.6638		.660
.5865	.1146	.309		.4480	.6664		.651
.5883	.1157		.651	.4487	.6668	322	
572.3630	0.6119		+ 0.687	.4501	.6677		.623
.3689	.6157	+ 0.312		.4505	.6680	.307	
.3699	.6163		.664	.4519	.6689		.630
.3702	.6165	.314		.4561	.6716		.661
.3720	.6177		.649	.4567	.6720	.307	
.3755	.6199	.303		.4574	.6724		.668
.3765	.6206		.680	.4591	.6735	.284	
.3772	.6210	.301		.4602	.6742		.643
.3779	.6215		.680	.4609	.6746	.312	
.3786	.6219	.320		.4612	.6748		.627
.3797	.6226		.715	.4619	.6753	.304	
.3827	.6246	.297		.4626	.6757		.671
.3834	.6250		.690	600.4031	0.5722	+ 0.786	
.3841	.6254	.336		.4038	.5726		+ 1.146
.3852	.6262		.704	.4107	.5770	.707	
.3862	.6268	.323		.4114	.5775		1.023
.3869	.6272		.678	.4152	.5799	.627	
.3925	.6308	.321		.4163	.5806		.967
.3932	.6313		.650	.4197	.5828	.619	
.3942	.6319	.331		.4204	.5833		.935
.4005	.6360	.333		.4246	.5859	.520	
.4022	.6370		.656	.4260	.5868		.838
.4036	.6379		.675	.4325	.5910	.504	
.4084	.6410	.327		.4336	.5917		.822
.4095	.6417		.675	.4378	.5944	.434	

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4385	.5948		.772	.5460	.0689	.322	
.4420	.5971	.401		.5467	.0694		.689
.4445	.5987		.752	.5509	.0720	.324	
.4457	.5995	.393		.5520	.0727		.669
.4468	.6002	.366		.5537	.0738		.665
.4475	.6006		.720	.5544	.0743	.313	
.4510	.6029	.364		.5585	.0769		.704
.4517	.6033		.705	.5592	.0774	.343	
.4524	.6038	.369		.5634	.0800		.698
.4538	.6046		.695	.5645	.0807	.363	
.4586	.6077	.334		.5680	.0830		.677
.4593	.6082		.683	.5687	.0834	.317	
.4607	.6091	.328		.5731	.0863	.322	
.4614	.6095		.686	.5738	.0867		.673
.4694	.6146	.316		.5798	.0906	.322	
.4704	.6153		.672	.5805	.0910		.691
.4721	.6164	.350		.5849	.0938	.344	
.4728	.6168		.650	.5856	.0943		.672
.4763	.6191	.355		.5916	.0981		.672
.4774	.6198		.672	660.3746	0.9851		+ 0.673
.4781	.6202	.343		.3795	.9882		.661
.4794	.6210		.677	.3837	.9909	+ 0.299	
.4829	.6233	.351		.3850	.9918		.669
.4836	.6237	.358		.3883	.9939	.317	
.4846	.6244		.669	.3887	.9941		.643
.4853	.6248	.329		.3893	.9945	.306	
.4864	.6255		.649	.3907	.9954		.668
.4920	.6291	.335		.3942	.9977		.675
603.3915	0.4863		+ 0.682	.3952	.9983	.327	
.3922	.4868	+ 0.312		.3959	.9987		.675
.4144	.5010	.473		.3966	.9992	.323	
.4151	.5014		.806	.4061	.0053	.292	
.4208	.5051	.502		.4068	.0057		.664
.4304	.5112	.639		.4075	.0062	.304	
.4315	.5119		.948	.4084	.0068		.657
.4401	.5174	.681		.4130	.0097	.325	
.4408	.5179		1.030	.4137	.0101		.677
.4440	.5199	.724		.4175	.0126		.715
.4446	.5203		1.080	.4181	.0130	.335	
.4474	.5221	.778		.4191	.0136		.703
.4484	.5227		1.128	.4199	.0141	.311	
.4588	.5294		1.187	.4246	.0171	.334	
.4598	.5301	.904		.4260	.0180	.326	
.4669	.5346		1.240	.4270	.0187		.726
.4678	.5352	1.011		.4294	.0202	.348	
610.5287	0.0578	+ 0.354		.4300	.0206		.724
.5296	.0584		+ 0.711	.4309	.0212	.333	
.5342	.0613	.338		.4334	.0228		.696
.5349	.0618		.720	.4339	.0231	.307	
.5384	.0640	.336	[illegible]	.4351	.0239		.696
.5394	.0647		.704	.4357	.0242	.331	
.5433	.0672	.337		.4470	.0315	.340	
.5440	.0676		.706	.4480	.0321		.718

segue tabella IIa

G.G. elioc. 2435000.+	Fase	Δm Bleu	Δm Giallo
.4486	.0325	.350	
.4494	.0330		.721
.4540	.0360		.725
.4549	.0365	.325	
.4594	.0394	.365	
.4598	.0397		.764
.4618	.0410	.329	
.4654	.0433		.712
.4660	.0437	.330	
.4698	.0461		.729
.4704	.0465	.345	
.4728	.0480		.750
.4735	.0485	.323	
.4775	.0510		.745
.4783	.0515	.358	
.4789	.0519		.742
.4797	.0524	.332	
.4827	.0543		.729
.4833	.0547	.339	
.4840	.0552		.733
.4845	.0555	.349	
.4897	.0588	.329	
.4904	.0593		.704
.4945	.0619	.334	
.4970	.0635		.710
.4990	.0648	.317	
.5047	.0684		.678

TABELLA IIb

G.G. elioc. 2436000.+	Fase	Δm Bleu	Δm Giallo
254.4804	.5195		+1.081
.4857	.5229		1.119
.4899	.5256		1.156
.4931	.5277		1.182
.4957	.5293		1.199
.4970	.5302		1.227
.4996	.5318		1.244
.5010	.5327		1.275
.5035	.5343		1.305
.5051	.5354		1.301
.5091	.5379		1.370
.5110	.5391		1.358
.5126	.5402		1.348
.5148	.5416		1.386
.5161	.5424		1.365
.5198	.5448		1.419
.5214	.5458		1.421

G.G. elioc. 2436000.+	Fase	Δm Bleu	Δm Giallo
.5244	.5477		1.412
.5256	.5485		1.432
.5287	.5505		1.399
.5312	.5521		1.395
.5319	.5525		1.390
.5335	.5535		1.366
.5341	.5539		1.368
.5366	.5555		1.370
.5382	.5566		1.346
.5387	.5569		1.348
.5412	.5585		1.319
.5427	.5594		1.320
.5526	.5658		1.237
.5546	.5671		1.175
.5571	.5687		1.175
.5599	.5705		1.126
.5615	.5715		1.140
.5646	.5735		1.077
.5658	.5742		1.079
.5685	.5760		1.036
.5691	.5763		1.017
.5704	.5772		1.014
.5710	.5776		1.014
.5740	.5795		0.989
.5744	.5797		0.985
.5756	.5805		0.980
.5760	.5808		0.966
.5765	.5811		0.957
.5793	.5829		0.935
.5797	.5831		0.925
.5803	.5835		0.928
.5818	.5845		0.902
.5839	.5858		0.894
.5855	.5869		0.883
.5862	.5873		0.865
.5895	.5894		0.835
.5918	.5909		0.798
.5927	.5915		0.799
.5933	.5918		0.789
.5977	.5947		0.758
.5981	.5949		0.756
.5987	.5953		0.748
.5999	.5961		0.744
.6005	.5965		0.733
.6011	.5968		0.734
.6047	.5992		0.715
.6052	.5995		0.715
.6057	.5998		0.706
.6072	.6008		0.707
.6079	.6012		0.704
.6120	.6038		0.679
.6126	.6042		0.685
.6151	.6058		0.688

segue tabella IIb

G.G. elioc. 2436000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2436000.+	Fase	Δm Bleu	Δm Giallo
.6156	.6061		0.670	.5838	.5073		.849
.6161	.6065		0.663	.5882	.5101		.887
.6193	.6085		0.676	.5886	.5104		.884
.6198	.6088		0.652	.5891	.5107		.894
.6203	.6091		0.676	.5908	.5118		.921
.6216	.6100		0.658	.5912	.5121		.912
.6220	.6102		0.648	.5939	.5138		.943
.6227	.6107		0.656	.5943	.5140		.934
.6255	.6125		0.634	.5948	.5144		.940
.6259	.6127		0.644	.5961	.5152		.952
.6264	.6131		0.643	.5965	.5155		.959
.6278	.6139		0.641	.5969	.5157		.963
.6283	.6143		0.638	.5999	.5176		.983
.6336	.6177		0.651	.6003	.5179		.990
.6404	.6220		0.643	.6007	.5181		.993
.6410	.6224		0.631	.6025	.5193		1.029
.6416	.6228		0.629	.6028	.5195		1.031
.6423	.6232		0.638	.6033	.5198		1.037
.6429	.6236		0.640	.6060	.5215		1.060
.6435	.6240		0.648	.6066	.5219		1.066
.6441	.6244		6.646	.6071	.5222		1.066
.6460	.6256		0.642	.6076	.5226		1.100
257.5411	0.4800		+0.635	.6082	.5230		1.107
.5434	.4814		.634	.6089	.5234		1.126
.5441	.4819		.636	.6126	.5258		1.130
.5478	.4843		.654	.6153	.5275		1.180
.5483	.4846		.657	.6159	.5279		1.188
.5503	.4859		.659	.6164	.5282		1.207
.5510	.4863		.660	.6178	.5291		1.219
.5535	.4879		.678	.6183	.5294		1.220
.5541	.4883		.682	.6188	.5297		1.227
.5548	.4887		.672	.6193	.5301		1.229
.5552	.4890		.681	.6230	.5324		1.265
.5579	.4907		.693	.6236	.5328		1.259
.5584	.4911		.692	.6242	.5332		1.262
.5589	.4914		.688	.6257	.5342		1.320
.5621	.4934		.704	.6272	.5351		1.314
.5626	.4937		.695	.6277	.5354		1.305
.5644	.4949		.702	.6281	.5357		1.306
.5649	.4952		.709	.6309	.5375		1.340
.5675	.4969		.720	.6314	.5378		1.352
.5694	.4981		.748	.6319	.5381		1.357
.5699	.4984		.758	.6324	.5385		1.374
.5749	.5016		.787	.6452	.5467		1.393
.5752	.5018		.781	.6456	.5469		1.411
.5756	.5021		.798	.6480	.5484		1.390
.5772	.5031		.806	.6509	.5503		1.408
.5777	.5034		.817	.6522	.5511		1.419
.5781	.5037		.830	.6550	.5529		1.416
.5811	.5056		.839	.6560	.5536		1.394
.5815	.5059		.837	.6588	.5554		1.347
.5819	.5061		.848	.6696	.5623		1.258
.5833	.5070		.845	.6700	.5625		1.254

segue tabella IIb

G.G. elioc. 2436000.+	Fase	Δm Bleu	Δm Giallo	G.G. elioc. 2436000.+	Fase	Δm Bleu	Δm Giallo
.6727	.5643		1.241	.6926	.5770		1.029
.6733	.5647		1.235	.6954	.5788		0.993
.6737	.5649		1.219	.6990	.5811		.934
.6770	.5670		1.193	.7022	.5832		.925
.6796	.5687		1.164	.7061	.5857		.894
.6835	.5712		1.124	.7066	.5860		.882
.6861	.5728		1.106	.7073	.5864		.870
.6879	.5740		1.078	.7079	.5868		.867
.6913	.5762		1.038				

BIBLIOGRAFIA

([1]) A.N. 4747 (1914).
([2]) A.N. 5113 (1921).
([3]) A.N. 5755 (1930); Veränd. Sterne Nishni Novgorod 25-26 (1930).
([4]) Veröff. Ber., Bab., IX N. 5 (1932).
([5]) A.A.c. 5-5 (1952); 5-7 (1952); 5-10 (1952; 5-51 (1953) 5-189 (1955); 6-141 (1956); 7-187 (1957).
([6]) Harvard Monograph N. 8 ,Cambridge (1950).
([7]) Princeton Contr. N. 24 (1953).
([8]) Z. Kopal: Close Binary Systems, p.p. 480-500, Chapman § Hall, London 1959.