

表5 . スペクトル線強度と元素量 (1) 軽元素 (0 ~ Y)

元素名、波長 (λ)、下のレベルの励起ポテンシャル (eV)、g f 値、各星についてのデータ、の順で示す。
 各星について線の等価幅 (m)、synはスペクトル合成法によって元素量を求めたことを示す)、注意(信頼性を示す。 : はやや信頼性に欠け、 : : は相当信頼性に欠ける)、等価幅から得られた元素量abnd1 (太陽の水素量の対数値を12として示す)、磁場の効果を差し引いた時に得られる元素量abnd2を示す。

Atom	λ (\AA)	χ (eV)	log gf	53 Cam				HR4816				78 Vir				β CrB				HR 7575												
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2									
8.00	6156.778	10.740	-0.731					syn		8.25					syn		7.90									syn		8.12				
O I	mean abundance									8.25							7.90											8.12				
11.00	5889.951	0.000	0.117					156		7.00	5.61	136	7.29	6.81							183		6.82	5.47								
11.00	5895.924	0.000	-0.184					140		7.00	5.76	103	6.86	6.43	110	5.41	4.49				149		6.60	5.36								
Na I	mean abundance									7.00	5.69		7.08	6.62			5.41	4.49									6.71	5.42				
12.00	5528.405	4.346	-0.620					78		7.74	7.23	87	8.41	8.18	114	7.54	6.46				98		7.65	6.93								
12.00	5711.088	4.346	-1.833					43 :		8.37	8.14	32	8.60	8.54	52 :	7.73	7.39				40		7.89	7.68								
Mg I	mean abundance									8.06	7.69		8.51	8.36			7.64	6.93									7.77	7.31				
14.00	6087.805	5.871	-1.600					27		8.89		4 ::	8.35		29	8.23				33		8.61										
14.00	6142.483	5.619	-0.920	57 ::	8.22			45		8.44		4 ::	7.52		31	7.46				35		7.86										
14.00	6155.134	5.619	-0.400	137 :	8.72			94		8.68		7 ::	7.26		71	7.61				60		7.76										
14.00	6243.815	5.616	-0.770	80 :	8.45			52		8.42		2 ::	7.07		50	7.65				33		7.68										
14.00	6244.466	5.616	-0.690	68 :	8.18			43		8.18		1 ::	6.68		29	7.19				22		7.36										
14.00	6414.980	5.871	-1.100					57		8.91		1 ::	7.25		30 ::	7.77				25		7.97										
Si I	mean abundance									8.39			8.59				7.65										7.87					
20.00	5581.965	2.523	-0.710																	73		7.61	6.72									
20.00	5588.749	2.526	0.210	97 ::	7.32	5.92		57		6.90	6.31	30 :	6.97	6.81	128	7.32	5.66				110		7.52	6.03								
20.00	5590.114	2.521	-0.710	72	7.65	6.60		37 ::		7.38	7.00	17 :	7.53	7.40	103	7.81	6.27				81		7.81	6.73								
20.00	5601.277	2.526	-0.690					77		8.28	7.31	59	8.57	8.12	132 :	8.27	6.48				106		8.34	6.85								
20.00	5857.451	2.932	0.230	83 :	7.16	6.04		38		6.73	6.40	21 :	6.97	6.88	98	6.95	5.68				87		7.21	6.18								
20.00	6162.173	1.899	0.100	164	8.04	5.77		73		6.98	6.12				153	7.32	5.42				127		7.54	5.85								
20.00	6166.439	2.521	-0.900	31	6.87			16		7.03		5 ::	7.11		45	6.72				47		7.22										
20.00	6169.042	2.523	-0.550					20		6.81	6.60	11 ::	7.14	7.06	67	6.85	6.07				55		7.03	6.50								
20.00	6169.563	2.526	-0.270					33		6.85	6.55	15	7.03	6.93	92	7.14	5.93				71		7.11	6.32								
20.00	6439.075	2.526	0.470	134	7.66	5.70		53 :		6.55	6.05	18	6.39	6.29	125	6.95	5.37				104		7.12	5.82								
20.00	6449.808	2.521	-0.550	63 :	7.27	6.47		34		7.15	6.83	13 :	7.24	7.14	89	7.31	6.15				76		7.52	6.63								

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575				
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	
20.00	6499.650	2.523	-0.590	73		7.55	6.55	32	7.15	6.86	11	7.19	7.10	89	7.35	6.21	67	7.33	6.62	
Ca I	mean abundance					7.44	6.15		7.07	6.60		7.21	7.08		7.27	5.92		7.45	6.39	
20.01	5593.141	9.235	-1.534					14 :	8.07	7.90	10 :	8.00	7.96				13	7.95	7.79	
Ca II	mean abundance								8.07	7.90		8.00	7.96					7.95	7.79	
21.01	5641.001	1.500	-1.040					25	3.66	3.40	8 ::	3.30	3.19	49	3.64	3.16	34	3.57	3.25	
21.01	5667.149	1.500	-1.240					42	4.24	3.85	25 ::	4.12	3.95				40	3.90	3.53	
21.01	6245.637	1.507	-0.980					22	3.51	3.28				47	3.51	3.06	38	3.58	3.24	
Sc II	mean abundance								3.80	3.51		3.71	3.57		3.58	3.11		3.68	3.34	
22.01	6513.045	4.002	-1.310	1 ma	4.18	4.04		24	5.91	5.67	22 :	5.99	5.88	31 :	5.77	5.45	39	6.09	5.73	
22.01	6605.897	4.009	-1.206														45	6.12	5.68	
Ti II	mean abundance					4.18			5.91	5.67		5.99	5.88		5.77	5.45		6.11	5.71	
24.00	5628.621	3.422	-0.772		31	7.49	7.08	50	8.43	7.83	33 :	8.47	8.31	37	7.24	6.78	36	7.61	7.22	
24.00	5647.853	3.817	-1.073					18	8.15					12	7.10	6.83	16	7.63		
24.00	5648.230	3.826	-1.000		21 ::	7.72	7.37	45	8.75	8.14							45	8.31	7.71	
24.00	5664.041	3.435	-1.026		45 :	8.12	7.52	60	8.94	8.13				51 :	7.86	7.18	39	7.93	7.49	
24.00	5664.555	3.826	-0.787		16 :	7.34	7.04	37	8.37	7.96	23	8.45	8.34	33	7.45	7.01	23	7.58	7.31	
24.00	5702.323	3.449	-0.667		54 ::	8.00	7.20	58	8.55	7.77				43	7.31	6.76	40	7.62	7.15	
24.00	5783.093	3.323	-0.500					123	9.75	7.60	74	9.30	8.21	108 :	8.59	6.77	91	8.64	7.06	
24.00	6062.728	3.195	-1.874		16 :	8.00	7.72	34	8.98	8.58	13 :	8.83	8.70	28	7.94	7.57	25	8.27	7.97	
24.00	6135.734	4.824	-1.157		37	8.93		54	9.71		25 :	9.50								
24.00	6261.248	4.099	-1.409														23	8.37	8.10	
24.00	6542.083	5.217	-0.746											16	7.93	7.71	20	8.36	8.12	
24.00	6603.789	4.105	-1.944		4 ::	8.00		44			7 ::	9.16								
24.00	6661.078	4.193	-0.190					72	8.81	7.78	34	8.43	8.11	53	7.57	6.92	52	7.91	7.27	
Cr I	mean abundance					28	7.95	7.32		8.84	7.97		8.88	8.33		7.67	7.06		8.02	7.54
24.01	5502.067	4.168	-1.990														123	8.07	6.81	
24.01	5508.606	4.156	-2.110					139	8.62	7.46	123 ::	8.58	8.29				117	8.10	6.98	
24.01	5534.078	10.880	-0.312					52	9.07	8.25	42 ::	8.82	8.40	24 ::	8.62	8.20	29	8.60	8.15	
24.01	5542.488	6.868	-1.902		62 ::	8.53	7.49	80	9.01	7.81	54	8.40	7.98	53	8.30	7.50	61	8.50	7.65	
24.01	5550.353	10.893	0.250					88	9.15	7.76	50	8.46	7.96	34	8.35	7.78	56	8.67	7.79	
24.01	5563.985	10.845	0.043					75	9.12		43	8.46		32	8.48		56	8.84		

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575		
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1
24.01	5569.075	10.872	0.824	109 ::	8.89	7.05	126	9.02	7.47	88	8.64	7.98	73	8.60	7.35	95	8.71	7.38
24.01	5611.960	10.860	-0.085							10 ::	7.53		22	8.33		19	8.07	
24.01	5622.486	6.897	-2.419				47	8.71	8.11	30	8.30	8.02				28	8.15	7.78
24.01	5635.014	10.910	-0.690	14	8.53		36	9.11					19 :	8.86		25	8.87	
24.01	5678.390	6.484	-1.238	80	8.09	6.92	105	8.66	7.40	80	8.24	7.81	74	7.91	6.89	88	8.24	7.18
24.01	5710.518	10.910	-0.295				42	8.88		24 :	8.34					27	8.57	
24.01	5724.628	3.864	-4.936	11 :	8.07		22	8.63		6 ::	8.05		13	8.01		29	8.62	
24.01	5741.319	3.871	-4.056	25 ::	7.67		45	8.33								28	7.73	
24.01	5820.033	6.487	-2.273	48 ::	8.27	7.51	75	9.00	7.86	43	8.26	7.89	51	8.33	7.57	60	8.55	7.71
24.01	5827.263	6.605	-2.042	66	8.60	7.63	80	8.99	7.91	63	8.66	8.26	54	8.27	7.54	70	8.66	7.77
24.01	5836.179	4.316	-4.288	18	8.01		43	8.80		19	8.28		30	8.21		39	8.55	
24.01	5864.919	6.605	-2.446	47	8.51	7.79	71	9.18	8.16	46	8.60	8.25	37	8.23	7.71	51	8.60	7.95
24.01	5939.980	8.354	-1.903				47	9.12	8.49	32 ::	8.74	8.52	14	8.22	7.95	27	8.60	8.25
24.01	5940.859	6.641	-1.934				90	9.13		62 :	8.56		62	8.41		75	8.70	
24.01	5947.514	4.071	-3.693	41 ::	7.85	7.28	72	8.77	7.74	34 :	7.96	7.65	42	7.72	7.15	56	8.20	7.46
24.01	5966.519	6.686	-3.373				92	10.67	9.27							46	9.45	8.85
24.01	5996.639	6.487	-3.659				21	9.03	8.73	13 :	8.77	8.65	3 :	7.91	7.72	9	8.46	8.26
24.01	6010.675	6.605	-2.920	25 :	8.40	8.03	41	8.89	8.45	23 :	8.45	8.36	22 :	8.29	7.99	30	8.53	8.23
24.01	6043.768	6.641	-2.630	35 ::	8.41	7.91	54	8.96	8.29				25	8.12	7.77	37	8.45	8.04
24.01	6053.466	4.745	-2.160				144	9.03	7.43	100	8.56	7.72	106	8.20	6.93	124	8.62	7.18
24.01	6068.023	6.686	-1.736	99 :	9.10		101	9.20					75	8.57		86	8.81	
24.01	6071.904	11.075	-0.002				56	9.03	8.11	31	8.40	8.10	25	8.52	8.04	42	8.78	8.13
24.01	6072.885	6.484	-2.952	35 :	8.63	8.11	49	9.05	8.41	21 :	8.35	8.19	18	8.11	7.81	29	8.47	8.10
24.01	6081.456	6.487	-1.934	53	8.09	7.37	75	8.70	7.68	54	8.25	7.85	42	7.77	7.24	57	8.18	7.46
24.01	6107.963	6.605	-2.678	26	8.19	7.79	50	8.86	8.18	29	8.38	8.11	24	8.11	7.75	38	8.50	8.02
24.01	6112.261	4.745	-2.943	62	8.13	7.28	96	9.06	7.73	68	8.55	7.85	50	7.68	7.07	73	8.35	7.41
24.01	6116.438	6.282	-2.734				62	9.04	8.21				39	8.34	7.84	45	8.51	7.97
24.01	6121.123	4.415	-4.427				52	9.22					24 :	8.26		32	8.58	
24.01	6147.154	4.756	-2.843				100	9.05	7.65	74	8.62	7.83	74	8.20	7.20	81	8.46	7.37
24.01	6150.543	11.069	-0.313	51	9.32		51	9.25		30 :	8.70							
24.01	6153.961	3.871	-4.184				59	8.79	8.04	36	8.37	8.08	31	7.79	7.39	46	8.29	7.76
24.01	6178.233	4.415	-4.000	15	7.68	7.41	38	8.47	8.04	22 :	8.16	8.00	22	7.78	7.48	25	7.97	7.67
24.01	6182.340	11.076	0.452	71	8.93	7.60	88	9.12	7.72	58 :	8.63	8.09	48	8.65	7.81	64	8.80	7.80
24.01	6192.450	4.177	-3.868	50	8.31	7.37	76	9.11		45 :	8.49		54	8.27	7.32	60	8.55	
24.01	6193.551	11.041	0.012	49	8.94		73	9.34	8.17	40	8.65	8.30	34	8.75		51	8.97	8.19
24.01	6195.190	4.756	-2.802				106	9.13	7.74	78	8.69	8.03	63	7.88	7.10	80	8.40	7.38
24.01	6205.665	3.858	-4.906				18	8.48	8.22				18	8.14	7.85	11	8.02	7.80
24.01	6206.186	11.056	-0.695	16 :	8.77	8.42	21	8.86	8.51	9 :	8.28	8.17	5	8.28	8.09	14	8.68	8.42

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575			
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2
24.01	6208.193	4.760	-2.984	84		8.72	7.47	105	9.29	7.77	72	8.71	7.90				81	8.60	7.47
24.01	6225.095	6.282	-3.700					36	9.34		21 ::	8.99					24	8.92	
24.01	6226.638	4.756	-2.981					116	9.49	7.86				86	8.62	7.41	92	8.83	7.55
24.01	6231.676	11.075	0.061	45 :		8.84	8.11	60	9.09	8.17	38 :	8.58	8.22	26	8.51	8.08	38	8.68	8.12
24.01	6245.192	3.871	-4.520					37	8.61	8.22	19 :	8.25	8.10	24	7.94	7.65	28	8.21	7.90
24.01	6248.467	11.097	-0.144					48	9.06	8.35				9	8.06	7.85	22	8.46	8.11
24.01	6305.646	7.331	-1.400														57	8.21	7.47
24.01	6311.509	11.144	-0.190	49 :		9.21		71	9.57		36	8.82							
24.01	6324.198	11.124	-0.121					51	9.11	8.32	26 :	8.45	8.15				32	8.73	8.25
24.01	6358.153	7.331	-2.146					34	8.43	7.99	19 :	8.02	7.82	19 :	7.94	7.62	32	8.32	7.90
24.01	6379.792	4.497	-3.362	59		8.27	7.40	81	8.94	7.79	49 :	8.30	7.86	51	7.93	7.26	65	8.37	7.52
24.01	6418.903	6.686	-1.791	87		8.88	7.66	105	9.28	7.83	76	8.83	8.07	60	8.23	7.45	82	8.73	7.63
24.01	6501.575	11.234	-0.310	57		9.58	8.51	66	9.67	8.57	33	8.93	8.55	27	9.02	8.53	33	9.04	8.51
24.01	6522.581	7.380	-1.856					44	8.45	7.99	18	7.74	7.66	28	7.97	7.63	27	7.92	7.65
24.01	6536.680	11.234	0.026					61	9.26	8.37				17 :	8.37	8.07	38	8.83	8.29
24.01	6585.241	11.264	0.829	56		8.45	7.47	82	8.84	7.57	49	8.24	7.80	47	8.43	7.65	62	8.57	7.65
24.01	6608.626	6.487	-3.089					56	9.37	8.60				26 :	8.50	8.13	42	8.93	8.41
24.01	6636.427	11.248	0.573					73	8.94	7.75	46	8.41	7.89	37 :	8.44	7.82	64	8.84	7.83
Cr II	mean abundance					8.51	7.63		9.02	8.05		8.45	8.06		8.25	7.64		8.53	7.82
25.00	5536.456	5.541	-0.462					17	8.10	7.84	8 ::	8.10	8.00				19	7.75	7.47
25.00	6021.819	3.075	0.034					69	7.47	6.36	21	6.64	6.44	45	5.83	5.19	96	7.64	6.01
Mn I	mean abundance								7.79	7.10		6.64	6.44		5.83	5.19		7.70	6.74
25.01	5511.552	6.494	-1.897					70	8.46	7.52							63	8.24	7.45
25.01	5559.047	6.184	-1.318					80 :	7.97	6.78							91	8.13	6.87
25.01	5570.539	6.177	-1.444	20 :		6.42	6.12	67	7.76	6.98	30 :	6.82	6.72	27 :	6.60	6.25	84	8.12	7.28
25.01	5592.258	6.185	-2.422					33	7.85	7.38	16 :	7.36	7.18	25 :	7.53	7.12	45	8.07	7.43
25.01	5943.886	6.658	-2.056					21	7.46	7.19	7 ::	6.86	6.80	14	7.13	6.89	37	7.82	7.40
25.01	6190.962	6.833	-2.380					20	7.87	7.56				8 ::	7.29	7.05	24	7.94	7.59
25.01	6267.097	6.865	-1.958					29	7.74	7.34	11 ::	7.14	7.01	10 ::	7.00	6.76	42	8.01	7.44
25.01	6370.308	6.905	-1.663					54	8.13	7.37	15	7.06	6.89	12 :	6.83	6.59	63	8.31	7.41
Mn II	mean abundance					6.42	6.12		7.91	7.27		7.05	6.92		7.06	6.78		8.08	7.36
26.00	5522.447	4.209	-1.550	36		8.87	8.39				22	9.38	9.16	48	8.78		30	8.70	8.31
26.00	5546.500	4.371	-1.310	34 ::		8.68	8.14	46	9.43	8.78	27	9.38	9.13	76	9.40	8.04	47	9.01	8.33
26.00	5560.207	4.434	-1.190					30	8.95		23	9.19		48	8.59		26	8.40	

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575		
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1
26.00	5562.706	4.434	-0.659	52 :	8.56	7.64	46	8.82	8.15	35	8.99	8.65	61	8.41	7.36	39	8.19	7.65
26.00	5584.764	3.573	-2.320	11 :	8.42		19 :	9.21		16 :	9.56	9.36	33 :	8.68		15	8.58	
26.00	5600.226	4.260	-1.808				32 :	9.51	9.10				71	9.72	8.56	35	9.13	8.67
26.00	5619.587	4.386	-1.700				11 ::	8.81	8.57	16 :	9.45		33	8.67	8.17	12	8.40	8.16
26.00	5624.038	4.386	-1.480				47	9.64		38 :	9.87		51	8.91		27	8.68	
26.00	5633.975	4.991	-0.270	66	8.72	7.49	52	8.85	8.10	44	9.13	8.75	67	8.42	7.29	41	8.18	7.63
26.00	5641.436	4.256	-1.180	45 ::	8.76	8.01	35	8.95	8.50	32	9.33	9.11	66	8.93	7.82	32	8.41	8.01
26.00	5709.378	3.368	-1.240	111	9.98	7.85	68	9.36	8.23	53	9.45	8.86	93	9.08	7.43	58	8.55	7.65
26.00	5741.846	4.256	-1.730				26	9.26		10 :	9.14					19	8.60	
26.00	5753.121	4.260	-0.760				58	9.15	8.29	45	9.28	8.92	74	8.73	7.46	50	8.47	7.77
26.00	5814.805	4.283	-1.970				8	8.85	8.65	5 :	9.06					5	8.14	7.96
26.00	5816.367	4.548	-0.680	68 ::	9.08		52	9.08		43	9.31		78	8.92		55	8.71	
26.00	5862.353	4.548	-0.058				72	8.99	7.83	54	9.03	8.54	103 :	8.79	7.13	57	8.12	7.30
26.00	5905.689	4.652	-0.730	44	8.55	7.87	39	8.86	8.42				59	8.56	7.69	32	8.22	7.87
26.00	5984.814	4.733	-0.343	87 ::	9.25	7.53	66	9.22	8.17	55	9.44	8.88	77	8.66	7.34	52	8.40	7.65
26.00	5997.775	4.607	-1.704	45 :	9.52	8.78				25 :	9.88	9.68	51	9.28	8.50	20	8.84	8.55
26.00	6008.554	3.883	-1.078				47	8.92	8.30	37	9.15	8.86	59	8.35	7.47	39	8.23	7.74
26.00	6020.170	4.607	-0.270	111 :	9.56	7.56	97 ::	9.78	8.11	79	9.99	9.15				82	9.00	7.66
26.00	6055.992	4.733	-0.460	83	9.29	7.71	66	9.34	8.33	46 :	9.30	8.90	90	9.06	7.57	67	8.90	7.89
26.00	6065.482	2.608	-1.530	62	8.47	7.55	55	8.73	8.08	46	9.05	8.84	73	8.19	7.15	52	8.10	7.53
26.00	6093.666	4.607	-1.500	22	8.70		14	8.88		15 :	9.36		31	8.57		11	8.31	
26.00	6094.364	4.652	-1.940	36	9.56		37	10.02					23 :	8.83		24	9.22	
26.00	6103.186	4.835	-0.770													42	8.63	8.07
26.00	6136.615	2.453	-1.400	95	9.15	7.49	69	8.92	7.94	59	9.22	8.79	101	8.66	7.16	60	8.10	7.32
26.00	6137.694	2.588	-1.403	96	9.24	7.66	65	8.89	7.96	55	9.20	8.71	83	8.31	7.06	59	8.15	7.36
26.00	6165.361	4.143	-1.550	26	8.55	8.20	21	8.87	8.60	14 ::	9.08	8.97	32	8.30	7.90	18	8.31	8.06
26.00	6170.504	4.795	-0.440	80	9.25	7.68	59	9.18	8.26	45	9.30	8.83	81	8.89	7.47	51	8.53	7.78
26.00	6187.987	3.943	-1.720				30	9.16	8.78	20 :	9.35	9.14	44	8.62	8.00	29	8.66	8.29
26.00	6230.726	2.559	-1.281	87	8.88	7.46	80	9.17	7.92	65	9.37	8.67	90	8.33	6.99	68	8.25	7.28
26.00	6246.317	3.602	-0.960	119	9.96	7.79	79	9.54	8.19	60	9.57	8.80	118	9.38	7.49	71	8.80	7.66
26.00	6252.554	2.404	-1.687	86	9.15	7.67	60	8.89	8.07	43	9.00	8.65	91	8.64	7.27	54	8.16	7.47
26.00	6297.792	2.223	-2.740				20	8.76	8.47				40	8.20	7.66	14	7.99	7.75
26.00	6335.328	2.198	-2.230	49 :	8.48	7.72	42	8.81	8.28	25	8.91	8.70	74	8.54	7.37	39	8.17	7.68
26.00	6336.823	3.686	-1.050				81	9.73	8.29	55	9.56	8.79	104	9.27	7.52	72	8.97	7.77
26.00	6338.896	4.795	-1.060	31 :	8.64	8.18	32	9.11	8.67	19 :	9.18	8.96	44	8.59	7.94	32	8.66	8.22
26.00	6355.027	2.845	-2.420	25 :	8.49	8.11	23	8.95	8.65	11	9.01	8.90	34	8.22	7.78	10	7.96	7.76
26.00	6358.631	4.143	-1.040				18	8.27	7.99	12	8.49	8.34	35	7.86	7.37	22	7.93	7.61
26.00	6400.000	3.602	-0.520	163	10.01	7.54	113	9.91	7.97	89	10.03	8.99	139	9.21	7.21	96	8.99	7.40

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575		
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1
26.00	6408.016	3.686	-1.048				67	9.34	8.27	47	9.31	8.81	101	9.20	7.50	48	8.28	7.63
26.00	6411.647	3.654	-0.820	125	9.93	7.71	95	9.83	8.15	64	9.60	8.85	120	9.29	7.39	71	8.66	7.55
26.00	6419.942	4.733	-0.240	101	9.43	7.76	86	9.60	8.18				99	8.97	7.46	65	8.62	7.68
26.00	6430.844	2.176	-2.006	83 :	9.17	7.66				48 :	9.32	8.85	83	8.52	7.22	47	8.12	7.53
26.00	6496.469	4.795	-0.570				61	9.38	8.51	43 :	9.40	9.01				50	8.62	7.97
26.00	6592.913	2.727	-1.600	69	8.81	7.73	52	8.80	8.16	38	8.99	8.70	55	7.81	7.11	36	7.85	7.45
Fe I	mean abundance				9.07	7.81		9.16	8.30		9.31	8.89		8.72	7.54		8.47	7.79
group 1																		
26.01	5529.932	6.729	-1.875	137 ::	10.41	8.61	116	10.22	8.82	80	9.64	9.09	75	9.45	8.31	75	9.41	8.39
26.01	5643.880	7.653	-1.458	75 :	9.51	8.34	81	9.62	8.36	65 :	9.31	8.64	95 :	9.90	8.58	67	9.33	8.32
26.01	5768.458	10.853	-0.505				23	9.16	8.74	21	9.00	8.80	14	9.10	8.77	19	9.13	8.78
26.01	5795.845	7.274	-2.163				43	9.25	8.69	43	9.26	8.99	31	8.94	8.50	31	8.92	8.53
26.01	5804.913	5.570	-3.726				19	9.08	8.80	13	8.88	8.77	26	9.16	8.77	17	8.92	8.67
26.01	5813.046	6.208	-3.025	37 ::	9.23	8.66	39	9.34	8.89	30	9.12	8.99	32	9.08	8.64	29	9.01	8.68
26.01	5823.155	5.569	-3.070	45 ::	9.06	8.43	55	9.40	8.67	48	9.29	8.94	42	8.93	8.37	40	8.91	8.42
26.01	5871.799	10.829	0.017	52	9.46	8.43	61	9.55	8.54	39	9.04	8.68	63	9.86	8.73	78	9.89	8.69
26.01	5907.380	7.806	-2.445				42	9.84	9.22	27	9.42	9.14	19 :	9.23	8.90	23	9.31	8.97
26.01	5981.757	7.868	-2.145				40	9.53	8.98	28	9.19	8.94	30	9.32	8.88	25	9.11	8.76
26.01	6017.891	7.845	-1.948				45	9.45	8.81	31	9.08	8.76	26	8.99	8.60	28	9.01	8.61
26.01	6066.714	10.845	-0.722				20	9.32	8.95							15	9.21	8.91
26.01	6084.111	3.199	-3.808	92	9.29	7.90	80	9.18	8.13	67	9.06	8.59	87	8.98	7.83	66	8.63	7.82
26.01	6088.306	7.868	-2.138				35	9.40	8.89	24	9.08	8.82	25	9.17	8.77	23	9.06	8.72
26.01	6103.496	6.217	-2.171				67	9.20	8.27							59	8.92	8.15
26.01	6113.322	3.221	-4.158	70 :	9.15	8.10	61	9.07	8.36	58	9.18	8.83	65	8.83	8.00	53	8.67	8.11
26.01	6116.057	3.230	-4.691				32	8.89	8.62				39	8.71	8.30	26	8.53	8.32
26.01	6124.141	11.208	-0.752	35 :	10.11	9.41	41	10.15	9.46	23	9.59	9.35	40	10.41	10.01	47	10.38	9.61
26.01	6147.741	3.889	-2.721	149 ::	9.50	7.72	138	9.56	7.93	116	9.46	8.71	133	9.15	7.65	120	9.15	7.71
26.01	6149.258	3.889	-2.724	127	9.27	8.10	120	9.33	8.07	114	9.43	8.69	100	8.68	7.60	103	8.87	7.71
26.01	6175.146	6.222	-1.983				77	9.25	8.13	73	9.26	8.57	69	8.99	8.03	68	8.98	8.03
26.01	6199.181	5.569	-3.191	60 ::	9.59	8.60	62	9.71	8.74	46	9.38	8.81	71	9.79	8.66	60	9.57	8.66
26.01	6248.898	5.511	-2.696	72 ::	9.35	8.27	76	9.52	8.42				81 :	9.47	8.37	61	9.04	8.22
26.01	6317.394	6.222	-2.158				75	9.41	8.28	57 :	9.07	8.43	60	8.96	8.08	72	9.26	8.21
26.01	6383.722	5.552	-2.271	81	9.16	8.02	83	9.27	8.08	73	9.18	8.42	71	8.84	7.90	69	8.84	7.91
26.01	6385.451	5.552	-2.618	89	9.66	8.26	80	9.56	8.38	61	9.23	8.54	70	9.16	8.17	64	9.07	8.18
26.01	6407.251	3.889	-3.699				104	10.04	8.54	57 :	9.13	8.43	80	9.22	8.09	61	8.88	8.06
26.01	6451.094	11.075	-0.152	33	9.44	8.79	34	9.37	8.78	20	8.87	8.59	20	9.20	8.79	28	9.30	8.81
26.01	6482.204	6.219	-2.268				92	9.91	8.59	80	9.80	9.10	81	9.56	8.42	69	9.31	8.37

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575							
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2				
26.01	6487.339	6.807	-2.248	48		9.13	8.45	46		9.12	8.53	38 :	8.97	8.67	46		9.07	8.45	30		8.67	8.30	
26.01	6493.035	5.585	-2.575									82		9.73	9.00	59		8.88	8.11	52		8.74	8.10
26.01	6497.497	10.987	-0.073					46 :		9.56	8.77				16 ::		8.92	8.57	19		8.87	8.51	
26.01	6506.333	5.589	-3.111	67		9.72	8.63	72		9.93	8.85				70		9.70	8.65	52		9.28	8.57	
26.01	6541.356	11.050	0.452	71		9.64	8.22	59		9.34	8.31	58		9.33	8.68	33		8.99	8.35	49		9.20	8.37
26.01	6598.301	5.615	-3.477					39		9.45	8.94	28		9.22	8.95	29		9.02	8.60	33		9.17	8.75
26.01	6618.414	9.761	-1.324					21		9.40	9.04	12		8.98	8.78	8 ::		8.97	8.75	13		9.13	8.87
group 1 mean						9.48	8.39			9.47	8.62			9.24	8.79			9.20	8.45			9.10	8.44
group 2																							
26.01	5525.125	3.267	-4.609									77		10.13		83		9.78		64		9.47	
26.01	5591.368	3.267	-4.685					66		9.77		46		9.39		67		9.50		55		9.30	
26.01	5878.562	10.918	-0.908					18		9.45		16 ::		9.27		12		9.47		20		9.64	
26.01	6023.304	5.569	-4.035	10 ::		8.95		15		9.26		11		9.11		9		8.83		8		8.85	
26.01	6269.967	3.245	-4.625	47 :		9.03		48		9.22		43 :		9.26		44		8.77		36		8.74	
26.01	6586.699	5.605	-2.767	35		8.53		39 :		8.72						27		8.24		25		8.26	
group 2 mean						8.84				9.28				9.43				9.10				9.04	
group 3																							
26.01	5503.897	10.522	-0.645																	37		9.55	
26.01	5529.053	10.522	-0.250	138 ::		10.60						82		9.94		92		10.34		72		9.85	
26.01	5549.001	10.522	-0.230	74 ::		9.87		85		9.94		66		9.64		48		9.58		64		9.70	
26.01	5647.389	10.561	-1.171	9 :		9.18		20		9.54		15		9.24		8		9.26		20		9.64	
26.01	5648.904	10.561	-0.242					73		9.81		59		9.54		53		9.73		73		9.88	
26.01	5776.756	10.629	-0.580	30 ::		9.41		42		9.61		31		9.27		26		9.46		29		9.36	
26.01	5902.825	10.714	0.424					93		9.55		73 :		9.26		84 :		9.69		73		9.34	
26.01	5961.705	10.678	0.699	100		9.40		97		9.29		87		9.16		78		9.30		86		9.22	
26.01	5965.622	10.678	0.070					64		9.47		55		9.28						55		9.39	
26.01	6019.543	10.714	-1.019					22		9.60		12 ::		9.11		14 :		9.56		14		9.40	
26.01	6071.426	10.714	-0.188	74 ::		10.03		66		9.80		45		9.35		50		9.76		63		9.83	
26.01	6224.648	10.909	-0.648					37		9.79		23 :		9.33		17		9.45		28		9.65	
26.01	6357.162	10.909	0.169	81		9.93		77		9.77		57		9.42		56		9.67		63		9.61	
26.01	6367.413	10.930	-0.697					23		9.49		18 :		9.24						16		9.32	
26.01	6375.792	10.934	-0.085	52		9.69		51		9.58		41		9.33		36		9.49		45		9.53	
26.01	6377.679	10.909	-0.722					23		9.50		14		9.09		11		9.27		17		9.38	
26.01	6500.488	10.909	-0.395					43		9.73		22		9.10		23		9.43		30		9.47	
26.01	6510.733	10.909	-0.423	21		9.25		27		9.35		16 :		8.90		18		9.29		17		9.12	
group 3 mean						9.71				9.61				9.31				9.55				9.51	
Fe II	mean abundance					9.49	8.39			9.49	8.62			9.28	8.79			9.28	8.45			9.22	8.44
39.01	5662.925	1.944	0.160					27		2.87	2.41	32 ::		3.39	3.03	46		2.87	2.10	23		2.42	2.02

Atom	λ ()	χ (eV)	log gf	53 Cam		HR4816		78 Vir		β CrB		HR 7575	
				EW	rm abnd1 abnd2	EW	rm abnd1 abnd2	EW	rm abnd1 abnd2	EW	rm abnd1 abnd2	EW	rm abnd1 abnd2
<i>Y II</i>	<i>mean abundance</i>					<i>2.87</i>	<i>2.41</i>	<i>3.39</i>	<i>3.03</i>	<i>2.87</i>	<i>2.10</i>	<i>2.42</i>	<i>2.02</i>

表5 . スペクトル線強度と元素量 (2) 希土類 (Ba含む)

各項目は前の表5の(1)と同じ。Euについては超微細構造hfsを考慮した場合の結果も合わせて示しておいた。

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816				78 Vir				β CrB				HR 7575			
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1
56.01	5853.668	0.604	-1.000											83		4.12	2.12					
56.01	6496.900	0.604	-0.377				syn ::	2.82	2.77					syn ::	2.82	2.20						
Ba II	mean abundance						2.82	2.77					3.47	2.16								
57.01	5863.691	0.927	-1.590	11	3.46	3.10							10	2.94	2.57	12	3.44	3.22				
57.01	5936.210	0.173	-2.060	21	3.80	3.24																
57.01	6262.287	0.403	-1.240				27 :	3.82	3.26	4	3.22	3.05	49 ::	3.74	2.75							
57.01	6320.376	0.173	-1.610	42	4.14	3.16	8	3.21	2.88				24	2.91	2.31	38	3.83	3.41				
57.01	6390.477	0.321	-1.450	27	3.51	2.87	13	3.43	3.09				28	3.05	2.45	33	3.58	3.23				
57.01	6498.165	2.530	-0.770										23	3.95	3.42	16	3.93	3.71				
57.01	6671.404	0.403	-2.030										32 ::	3.82		22 :	3.85					
La II	mean abundance				3.73	3.09		3.49	3.08		3.22	3.05		3.40	2.70		3.73	3.39				
58.01	5504.595	1.838	-1.410													16	4.92	4.56				
58.01	5518.489	1.155	-0.670	30	4.31	3.54	45	5.29	4.56	28	5.09	4.51	44	4.52	3.77	48	4.98	4.22				
58.01	5582.556	1.666	-0.570				9	4.07	3.78				43	4.76	4.01	20	4.10	3.70				
58.01	5596.683	1.645	-1.050				15 :	4.83	4.48	15 :	5.26	4.87	29 :	4.65	4.09	28 :	4.88	4.37				
58.01	5599.064	1.876	-0.490				15	4.43	4.09	10	4.60	4.27	35	4.52	3.88	27	4.45	3.96				
58.01	5604.203	0.587	-2.040				34	5.81	5.22	14	5.52	5.14	29	4.79	4.24	31	5.19	4.64				
58.01	5613.694	1.420	-0.470				16	4.14	3.79				29	3.89	3.34	23	3.93	3.49				
58.01	5680.261	0.295	-1.600	12	3.89	3.44	30	5.00	4.47	21	5.18	4.72	33	4.27	3.67	25	4.31	3.85				
58.01	5683.119	1.889	-0.690				29	5.16	4.64				50	5.34	4.53	28	4.68	4.17				
58.01	5683.745	1.420	-0.820				19	4.60	4.22							20	4.18	3.78				
58.01	5693.097	0.900	-1.800				24	5.40	4.95	8	5.16	4.84				19	4.74	4.35				
58.01	5697.402	1.520	-1.840				6	5.02	4.77				19	4.95	4.54	10	4.83	4.53				
58.01	5711.437	1.458	-0.700				18	4.48	4.11	8	4.42	4.10	32	4.27	3.68	21	4.13	3.71				
58.01	5764.675	2.129	-0.670				6	4.23	3.97				16	4.10	3.72	11	4.14	3.84				
58.01	5766.273	1.412	-1.760				26	5.75	5.28	12	5.64	5.29	26	5.00	4.50	20	5.12	4.71				
58.01	5796.456	1.748	-1.090										26	4.64	4.13	16	4.51	4.16				
58.01	5803.236	1.828	-1.140				15	5.04	4.70				19	4.49	4.08	15	4.59	4.25				
58.01	5806.166	1.962	-0.920				8	4.55	4.28				22	4.49	4.04	14	4.43	4.10				
58.01	5817.837	1.194	-1.370				9	4.54	4.26				27	4.53	4.01	18	4.47	4.10				
58.01	5823.461	1.962	-0.580				15	4.56	4.23				29	4.42	3.87	20	4.32	3.93				
58.01	5826.868	1.581	-1.440				10	4.93	4.64							24	5.06	4.61				
58.01	5846.745	0.295	-2.040				8	4.52	4.25				25	4.39	3.91	17	4.45	4.09				

Atom	λ ()	χ (eV)	log gf	53 Cam			HR4816			78 Vir			β CrB			HR 7575				
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	
58.01	5858.545	1.279	-1.060					8	4.22	3.95				42	4.87	4.16	21	4.36	3.95	
58.01	5873.915	1.826	-0.970					11	4.64	4.23	3	4.40	4.13	32	4.75	3.95	22	4.69	4.13	
58.01	5906.298	1.748	-1.620					6	4.91	4.66				12	4.60	4.27	16	5.05	4.70	
58.01	5912.656	2.108	-0.690					13	4.65	4.35				25	4.49	4.01	14	4.30	3.97	
58.01	5928.252	1.644	-0.870											41 :	4.92	4.22	33	4.86	4.30	
58.01	5936.780	0.328	-2.170											13	4.08	3.74	18	4.64	4.27	
58.01	5937.711	2.003	-0.840					9	4.56	4.29				31 :	4.76	4.19	20	4.63	4.24	
58.01	5960.703	1.767	-0.990					9	4.54	4.27				23	4.44	3.98	18	4.51	4.14	
58.01	5980.119	0.812	-1.840											16	4.26	3.90	15	4.54	4.21	
58.01	5985.208	2.004	-1.250														7	4.38	4.12	
58.01	5997.031	2.008	-0.970					9	4.65	4.38				22	4.56	4.12	14	4.51	4.18	
58.01	6003.634	0.734	-1.700	3	3.58	3.26	6 :	4.29	4.05					18	4.14	3.76	12	4.22	3.92	
58.01	6033.583	1.959	-0.560					8	4.18	3.92	4	4.25	3.98	25	4.23	3.76	18	4.24	3.88	
58.01	6035.476	1.615	-0.670	5	3.43	3.08	16	4.46	4.13	5	4.25	3.97	37	4.53	3.89	28	4.44	3.96		
58.01	6043.373	1.206	-0.500					11	3.78	3.50				36	3.99	3.36	24	3.83	3.40	
58.01	6082.088	1.925	-0.830					8	4.43	4.17				38 ::	4.96	4.30	19	4.51	4.14	
58.01	6098.326	1.770	-0.320	14	3.75	3.31	18	4.30	3.95	14	4.56	4.20	41	4.47	3.77	33	4.43	3.87		
58.01	6115.157	1.481	-1.380					8	4.63	4.37				24	4.62	4.17	16	4.62	4.28	
58.01	6139.179	1.828	-1.240					8	4.77	4.51	2	4.52	4.28	20	4.61	4.21				
58.01	6139.830	1.784	-1.390					6	4.74	4.50				20	4.72	4.31	17	4.88	4.54	
58.01	6143.375	1.696	-0.580	12	3.87	3.45	18	4.50	4.15	16 ::	4.86	4.48	27	4.11	3.62	35	4.67	4.08		
58.01	6151.270	1.500	-1.340					8	4.60	4.30	3	4.56	4.30	27	4.66	4.03				
58.01	6201.836	0.417	-1.950					9	4.56	4.30	4	4.64	4.38	24	4.34	3.90	15	4.35	4.03	
58.01	6241.992	1.615	-1.190					13	4.80	4.51	3	4.52	4.27	27	4.60	4.11	13	4.37	4.07	
58.01	6286.580	1.212	-1.910														11	4.69	4.41	
58.01	6412.852	1.914	-1.000					11	4.75	4.48	2	4.34	4.10	20	4.43	4.04	15	4.50	4.18	
58.01	6422.904	1.895	-1.140					6	4.52	4.29				18	4.43	4.07	14	4.58	4.28	
58.01	6441.986	1.544	-1.530					8	4.81	4.57				22	4.73	4.31	19	4.92	4.56	
58.01	6503.277	2.108	-0.630					15	4.71	4.40				26	4.43	3.97	15	4.26	3.95	
58.01	6507.163	1.784	-1.070					10	4.69	4.43				28	4.68	4.19	20	4.67	4.31	
58.01	6624.422	1.014	-1.690					6	4.50	4.28				17	4.28	3.93	11	4.32	4.06	
58.01	6626.045	0.893	-1.930					16	5.20	4.90	5 ::	4.99	4.73	17	4.42	4.09	16	4.71	4.40	
58.01	6670.590	1.770	-1.350											11	4.27	3.98	9	4.43	4.18	
<i>Ce II</i>	<i>mean abundance</i>				<i>3.80</i>	<i>3.35</i>			<i>4.68</i>	<i>4.35</i>				<i>4.52</i>	<i>4.01</i>			<i>4.54</i>	<i>4.15</i>	
59.01	6165.891	0.923	-0.205					16	3.63	3.26	6	3.73	3.65				15	2.91	2.72	
<i>Pr II</i>	<i>mean abundance</i>								<i>3.63</i>	<i>3.26</i>									<i>2.91</i>	<i>2.72</i>

Atom	λ ()	χ (eV)	log gf	53 Cam		HR4816		78 Vir		β CrB		HR 7575						
				EW	rm abnd1 abnd2	EW	rm abnd1 abnd2	EW	rm abnd1 abnd2	EW	rm abnd1 abnd2	EW	rm abnd1 abnd2					
64.01	5644.829	1.102	-1.794			67	6.87	31 :	5.72	57	5.81	78	6.82					
64.01	5721.963	1.659	-1.344	35	5.17	32	5.33			55	5.74	75	6.67					
64.01	5749.389	1.314	-1.429	45	5.45	4.31	42	5.60	4.61	5	4.24	4.00	74	6.19	4.81	89	6.81	5.68
64.01	5815.830	1.584	-1.033				39	5.26	4.27	5	4.02	3.71	91	6.35	4.82	93	6.65	5.39
64.01	5840.457	1.598	-1.023	40	5.02	3.96	30	4.88	4.09				72	5.95	4.54	78	6.36	5.27
64.01	5855.215	1.598	-1.025	46	5.30	4.14	40	5.31	4.33	8	4.25	4.02	81	6.16	4.71	87	6.54	5.39
64.01	5856.948	1.134	-1.571	20	4.38	3.74	28	5.02	4.26				64	5.89	4.53	80	6.66	5.49
64.01	5860.727	1.060	-1.557	31	4.76	3.90	26	4.87	4.19				61	5.70	4.43	80	6.58	5.52
64.01	5877.229	1.425	-1.127				31	4.90	4.20				47	4.95		74	6.23	
64.01	5951.558	1.372	-1.261	16	4.07								47	5.05		74	6.32	
64.01	5956.447	1.102	-1.529				35	5.24	4.36				69	5.97	4.59			
64.01	6004.559	1.659	-0.984	6	3.44	3.04	41	5.34	4.38				68	5.80	4.46	92	6.62	5.46
64.01	6080.641	1.727	-0.926	40	5.01	3.96	32	4.94	4.14	5	4.00	3.71	65	5.68	4.36	86	6.51	5.31
64.01	6380.951	1.659	-1.164				40	5.46	4.51	9	4.50	4.18						
64.01	6382.170	2.623	-0.582	33	4.99		31	5.17		7	4.40		56	5.67		75	6.50	
64.01	6422.401	2.623	-0.474				27	4.89					33	4.59		50	5.53	
Gd II mean abundance					4.76	3.86		5.27	4.35		4.52	4.03		5.65	4.55		6.39	5.44
65.02	5847.232	0.348	-0.980				syn ::		2.40				syn ::		3.00			
65.02	6092.897	0.587	-1.100										syn :		3.20			
65.02	6323.620	0.776	-1.180										syn		3.30			
Tb III mean abundance								2.40						3.17				
69.01	5574.363	4.110	-0.180				syn :	4.20	4.10							6 ::	3.50	3.50
69.01	5709.966	2.770	-0.630				syn ::	4.10	4.00				syn :	3.40	3.40	syn ::	3.70	3.70
69.01	6059.237	4.560	-0.280				syn :	4.20	4.30				syn :	3.90	3.90			
Tm II mean abundance								4.17	4.13					3.65	3.65		3.60	3.60
70.01	5819.410	5.771	0.000				syn	4.20	4.10	6	4.10	4.10	syn	4.10	4.00	syn	4.40	4.40
Yb II mean abundance								4.20	4.10		4.10	4.10		4.10	4.00		4.40	4.40
71.01	6199.593	3.646	-0.330										syn :	2.80	2.70	10 :	2.77	2.75
Lu II mean abundance														2.80	2.70		2.77	2.75