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）に同じ。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(Å)	χ(eV)	log gf	53 Cam			HR4816			78 Vir			βCrB			HR 7575		
				EW	rm	abnd1 abnd2	EW	rm	abnd1 abnd2	EW	rm	abnd1 abnd2	EW	rm	abnd1 abnd2	EW	rm	abnd1 abnd2
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(Å)	χ(eV)	log gf	53 Cam				HR4816				78 Vir				βCrB				HR 7575			
				EW	rm	abnd1	abnd2	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
Ce II	*mean abundance*					*3.80*	*3.35*			*4.68*	*4.35*			*4.78*	*4.45*			*4.52*	*4.01*			*4.54*	*4.15*
59.01	6165.891	0.923	-0.205					16		3.63	3.26	6		3.73	3.65					15		2.91	2.72
Pr II	*mean abundance*									*3.63*	*3.26*			*3.73*	*3.65*							*2.91*	*2.72*

Atom	λ(Å)	χ(eV)	log gf	53 Cam				HR4816				78 Vir				βCrB				HR 7575			
				EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2	EW	rm	abnd1	abnd2
59.02	5956.043	0.522	-0.610				3.05								2.70					syn	::	4.00	3.20
59.02	5998.931	0.173	-1.800	33	::	4.17		18	::	3.81	2.80					29	::	3.89	2.70	27	::	3.85	
59.02	6053.004	0.000	-1.840					42	::	4.58										36	::	4.10	
59.02	6090.010	0.359	-0.820				2.60	21	:	3.03					2.60					26		2.99	2.90
59.02	6160.233	0.173	-0.980					24		3.21	2.95					syn		2.90	2.60	35		3.34	3.05
59.02	6195.620	0.000	-1.040	syn		2.90		26		3.22	3.10	15		3.02		27		2.93	2.80	30		3.09	
Pr III	*mean abundance*					*3.54*	*2.83*			*3.57*	*2.95*			*3.02*	*2.65*			*3.24*	*2.70*			*3.56*	*3.05*
60.02	5633.541	0.141	-2.060				3.80	17	:	4.11	3.90									21	:	4.07	3.90
60.02	5677.145	0.631	-1.410	41	:	4.62	3.80	33	:	4.42	3.90	19	:	4.00	3.70	22	::	3.82	3.40	43	:	4.63	3.90
60.02	5845.068	0.631	-1.130					27		3.89		27		4.04						45		4.43	
60.02	6145.070	0.296	-1.327	87		5.84	3.80	59	:	5.10	4.00	35		4.31	4.00	68	:	5.22	3.60	85		5.76	3.80
60.02	6327.244	0.141	-1.360	60	::	4.96	3.70	27		3.76	3.60	29		4.02	3.80	40		4.07	3.40	51		4.45	3.70
Nd III	*mean abundance*					*5.14*	*3.78*			*4.25*	*3.85*			*4.09*	*3.83*			*4.37*	*3.47*			*4.67*	*3.83*
62.01	6104.781	1.798	0.040	syn			2.70	syn	::		3.30					syn	::		2.80	syn			3.35
Sm II	*mean abundance*						*2.70*				*3.30*								*2.80*				*3.35*
63.01	5818.746	1.230	-1.374	22	:	3.68	2.20	48		5.18	2.85					121		6.08	2.50	107		6.29	4.33
63.01	5872.978	1.250	-1.585	37		4.48	2.60									92		5.87	2.50				
63.01	5966.056	1.250	-1.046					61		5.42	2.60					127		5.81	2.20	103		5.92	4.36
63.01	6049.513	1.279	-0.801	83	:	5.39	2.20	93		6.02	2.50					133		5.59	2.00	131		5.99	
63.01	6173.029	1.320	-0.854	105		5.85	2.30	87	:	6.05	2.90					119	:	5.58	2.50	105		5.78	3.97
63.01	6303.423	1.279	-0.854	14		2.85	1.90	46		4.58	2.35	25		4.28	2.60					85		5.38	3.76
63.01	6437.640	1.320	-0.276	76		4.75	1.70	75		5.15	2.10	43		4.55	2.40	161		5.34	1.70	137		5.52	3.51
63.01	6645.064	1.380	0.204	141		5.18	1.50	113		5.41	1.80	67		5.14	2.30	231		5.24	1.40	209		5.53	3.48
Eu II	*mean abundance*					*4.60*	*2.06*			*5.40*	*2.44*			*4.65*	*2.43*			*5.64*	*2.11*			*5.77*	*3.90*
63.02	6666.347	3.977	-1.450	52	::	6.88	5.70	60		7.08	5.80	40		6.32	5.60	62		7.38	6.00	82		7.69	6.20
Eu III	*mean abundance*					*6.88*	*5.70*			*7.08*	*5.80*			*6.32*	*5.60*			*7.38*	*6.00*			*7.69*	*6.20*
64.01	5500.449	1.372	-1.333																	57	:	5.87	
64.01	5524.600	2.449	-0.597					24		4.77						44		5.12		50		5.60	
64.01	5538.385	1.288	-1.593					38		5.55	4.71	13		4.87	4.54	57		5.78	4.72	62		6.25	5.44
64.01	5560.678	1.372	-1.468					30		5.18	4.41					54		5.63	4.44	80		6.73	5.68
64.01	5597.193	1.425	-1.620					37		5.66		7		4.68		54		5.81		77		6.85	
64.01	5616.192	1.060	-1.831					24		5.08	4.46					45	::	5.28	4.24	53		5.93	5.22
64.01	5621.411	2.316	-0.792					33		5.28		8		4.49		53		5.63		59		6.07	

Atom	λ(Å)	χ(eV)	log gf	53 Cam			HR4816			78 Vir			βCrB			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*