Physics. — *"A Relation between the Spectra of Ionized Potassium and Argon."* (Second Communication). By H. W. J. DIK and Prof. P. ZEEMAN.

(Communicated at the meeting of June 30, 1923).

The observations of the spectrum of potassium vapour under the influence of the discharge without electrodes have now been completed. These measurements go up to λ 2342,3 Å. They, too, have been made with a quartz spectrograph. We begin Table IV with 3514.0, so that Table I of our first communication [1]) and Table IV for a small part overlap. The values of Table IV are more accurate, and have been obtained by direct comparison with the standard iron lines.

TABLE IV. Potassium lines on discharge without electrodes.

Intensity.				λ	ν	Remarks.
EV	S	McL	D			
—	1		9	3514.0	28458	
—	—	1	9	3490.8	28647	
1	1		10	3480.9	28728	
1	1		10	3476.4	28765	
—	1		9	3468.3	28833	
—	—	—	3	3457.4	28923	
—	—	—	2	3447.8	29003	
10	2		—	3447.5		arc-line
	3		—	3446.5		arc-line
6	3		20	3439.9	29070	
1	2		15	3433.2	29128	
—	—	—	2	3427.0	29180	

[1]) These Proceedings, Vol. XXV, p. 67.

TABLE IV (*Continued*).

Intensity.				λ	ν	Remarks.
EV	S	McL	D			
1	1		15	3421.9	29223	
—	—	—		3421.0	29231	
—	—	--	1	3417.0	29266	
2	2		15	3404.2	29376	
—	1		9	3392.6	29476	
6	4		15	3384.6	29545	
6	4		15	3380.3	29583	
1	3		15	3373.5	29643	
—	6		20	3363.9	29727	
1	8			3362.5	29739	
	2		2	3358.6	29774	
—	2		2	3356.2	29796	
8	5	6	15	3345.0	29895	
—	—	—	2	3338.0	29958	
—	—	3	2	3336.1	29975	
1	—	—	—	3326.4		
—	—	3		3324.7		
1	4	—	15	3322.2	30101	
3	4	5	15	3311.9	30194	
—	--	3	15	3301.2	30292	
3	3	5	15	3289.8	30397	
—	—	—	1	3285.5	30437	
—	3	3	10	3278.6	30501	
—	2	3	10	3261.9	30657	
—	—	3	3	3258.6	30688	
—	—	—	3	3253.9	30732	
—	—	3	—	3244.5		
—	2	—	10	3241.2	30853	
—	—	--	4	3237.8	30885	

TABLE IV (*Continued*).

Intensity.				λ	ν	Remarks.
EV	S	McL	D			
—	—	—	1	3226.9	30989	
1	1	1	8	3224.2	31016	
2	2	0	10	3220.2	31054	
—	1	—	3	3218.5	31071	
2	1	—	—	3217.5		
—	—	0	—	3213.0		
1	4	—	10	3209 0	31162	
—	—	4	—	3205.6		
1	3	—	10	3201.8	31232	
2	2	5	10	3190.0	31348	
—	2	—	10	3187.7	31371	
—	—	2	3	3171.8	31528	
1	1	4	9	3169.6	31550	
1	1	3	6	3157.0	31676	
—	—	2	—	3148.6		
—	—	—	1	3145.1	31795	
3	—	—	4	3142.7	31820	
4	2	4	15	3128.8	31961	
—	—	—	5	3109.7	32157	
5	4	—	15	3104.9	32208	
1	1	6	4	3102.9	32228	
1	1	2	8	3074.7	32524	
1	—	—	—	3067.3		
6	5	5	20	3061.7	32661	
1	2	0	10	3056.5	32717	
1	3	2	15	3051.9	32767	
—	—	2	3	3047.0	32819	
1	1	3	9	3030.4	32999	
1	2	3	10	3023.5	33074	

TABLE IV (*Continued*).

Intensity.				λ	ν	Remarks.
EV	S	McL	D			
4	3	3	15	2992.4	33418	
1	1	2	9	2986.3	33487	
—	—	2	4	2965.1	33726	
—	1	—	—	2963.4		
—	—	1	4	2954.3	33849	
—	—	—	1	2950.9	33888	
—	—	—	1	2942.9	33980	
1	1	2	10	2938.6	34030	
—	—	—	3	2927.9	34154	
—	—	1	4	2925.8	34179	
—	—	2	8	2903.4	34442	
—	—	—	1	2898.9	34495	
—	—	—	1	2893.9	34555	
—	—	—	3	2880.2	34720	
—	—	—	1	2877.5	34753	
—	—	—	2	2872.5	34813	
1	1	2	10	2854.4	35034	
—	—	—	4	2851.7	35066	
—	—	—	1	2847.7	35117	
—	—	3	2	2834.7	35277	
1	1	—	—	2833.3		
—	—	2	3	2824.3	35408	
—	—	—	3	2821.9	35437	
1	1	3	10	2819.3	35469	
—	—	—	5	2809.0	35600	
—	—	—	9	2806.3	35634	
—	—	—	5	2804.6	35656	
—	—	5	—	2803.5		
—	—	—	3	2800.3	35711	

TABLE IV (*Continued*).

Intensity.				λ	ν	Remarks.
EV	S	McL	D			
1	1	—	—	2780.2		
—	—	1	5	2777.9	35998	
—	—	—	1	2776.1	36022	
—	—	1	—	2768.1		
—	—	—	1	2763.4	36187	
—	1	2	9	2743.5	36450	
1	1	4	5	2736.2	36547	
—	—	1	—	2732.0		
1	1	3	9	2690.0	37175	
1	—	3	3	2662.8	37555	
—	—	1	1	2657.1	37636	
1	1	4	10	2635.1	37950	
—	—	0	—	2630.0		
1	1	2	1	2613.8	38259	
—	—	—	3	2572.4	38874	
—	—	1	—	2569.8		
—	—	—	3	2561.3	39043	
—	—	2	—	2559.2		
2	1	4	10	2550.0	39215	
—	—	—	1	2542.0	39339	
—	1	—	—	2538.7		
—	—	3	5	2536.4	39425	
—	—	—	5	2504.6	39927	
—	—	2	—	2502.4		
—	—	—	1	2485.5	40234	
—	1	3	8	2473.2	40434	
—	—	3	—	2470.4		
—	—	2	1	2452.7	40771	
—	—	—	1	2448.9	40834	

TABLE IV (*Continued*).

Intensity.				λ	ν	Remarks
EV	S	McL	D			
—	—	4	1	2447.2	40864	
1	1	2	7	2440.0	40984	
—	—	4	1	2436.7	41039	
—	—	—	2	2431.1	41134	
—	—	—	1	2415.4	41401	
—	—	—	1	2414.4	41417	
—	—	3	—	2410.4		
—	—	—	1	2404.5	41588	
—	—	3	—	2402.0		
—	—	3	—	2393.4		
—	—	—	1	2389.1	41857	
1	1	—	2	2379.2	42031	
	—	4	—	2376.3		
	—	5	2	2369.6	42202	
	—	2	—	2365.8		
	—	7	—	2362.6		
1	1	—	—	2358.9		
1	1	3	—	2350.3		
—	—	4	—	2348.3		
1	—	—	—	2344.7		
1	1	3	1	2342.3	42693	

The constant differences seem soon to stop below λ 3000. This may be in connection with the appearance of the second spark spectrum of potassium.

We have, however, also started an investigation of the lines that satisfy formulae with fourfold and ninefold RIJDBERG constans. By this way the proof might be furnished that the observed spectrum belongs to once ionized potassium; besides, a quantitative comparison with the red argon spectrum may perhaps be possible.