

OSCILLATOR STRENGTHS OF SOME COPPER LINES IN THE COULOMB APPROXIMATION

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Oscillator strengths for some copper lines from s-p and p-d transitions were evaluated using Bates and Damgaard tables¹⁾ and were compared with the experimental values of several authors (Table.). The results were reported elsewhere⁵⁾. It is interesting to note the excellent agreement between simple Coulomb approximation (C. A.) and the experimental values given by V. N. Kolesnikov, V. V. Bogdanova²⁾ and M. Rieman⁴⁾. This circumstance brings about a possibility to use relative and absolute intensities of copper spectral lines in plasma diagnostics.

Table

Some copper oscillator strengths

λ (Å)	transition	$g_m A_{mn}$ (10^8 sec^{-1})			
		C. A.	(2)	(3)	(4)
5220,07	$4d \ ^2D_{3/2} - 4p \ ^2P_{3/2}$	0,55	0,48	0,95	0,651
5218,20	$4d \ ^2D_{5/2} - 4p \ ^2P_{3/2}$	4,98		5,8	5,59
5153,23	$4d \ ^2D_{3/2} - 4p \ ^2P_{1/2}$	2,88	2,64	4,7	3,09
4530,78	$6s \ ^2S_{1/2} - 4p \ ^2P_{3/2}$	0,142		0,65	
4480,35	$6s \ ^2S_{1/2} - 4p \ ^2P_{1/2}$	0,072		0,325	
4022,7	$5d \ ^2D_{3/2} - 4p \ ^2P_{1/2}$	1,03		0,77	

References :

- 1) H. R. Griem, *Plasma Spectroscopy*, McGraw-Hill, 1965;
- 2) V. N. Kolesnikov, V. V. Bogdanova, *Optika i spektroskopija*, 1 (1956) 846;
- 3) Ch. H. Corliss, W. R. Bozman, *NBS Monograph* 53 (1963);
- 4) M. Rieman, *Z. Physik* 179 (196) 38;
- 5) V. Vujnović, T. Ivezić, A. Tonejc-Mejaški, *IVth Yugoslav Symposium on Physics of Ionized Gases, Herceg Novi 1968 Contributed papers* p. 37.