



The broadening of carbon spectral lines emitted from a pulsed atmospheric pressure gas discharge source with graphite cathode

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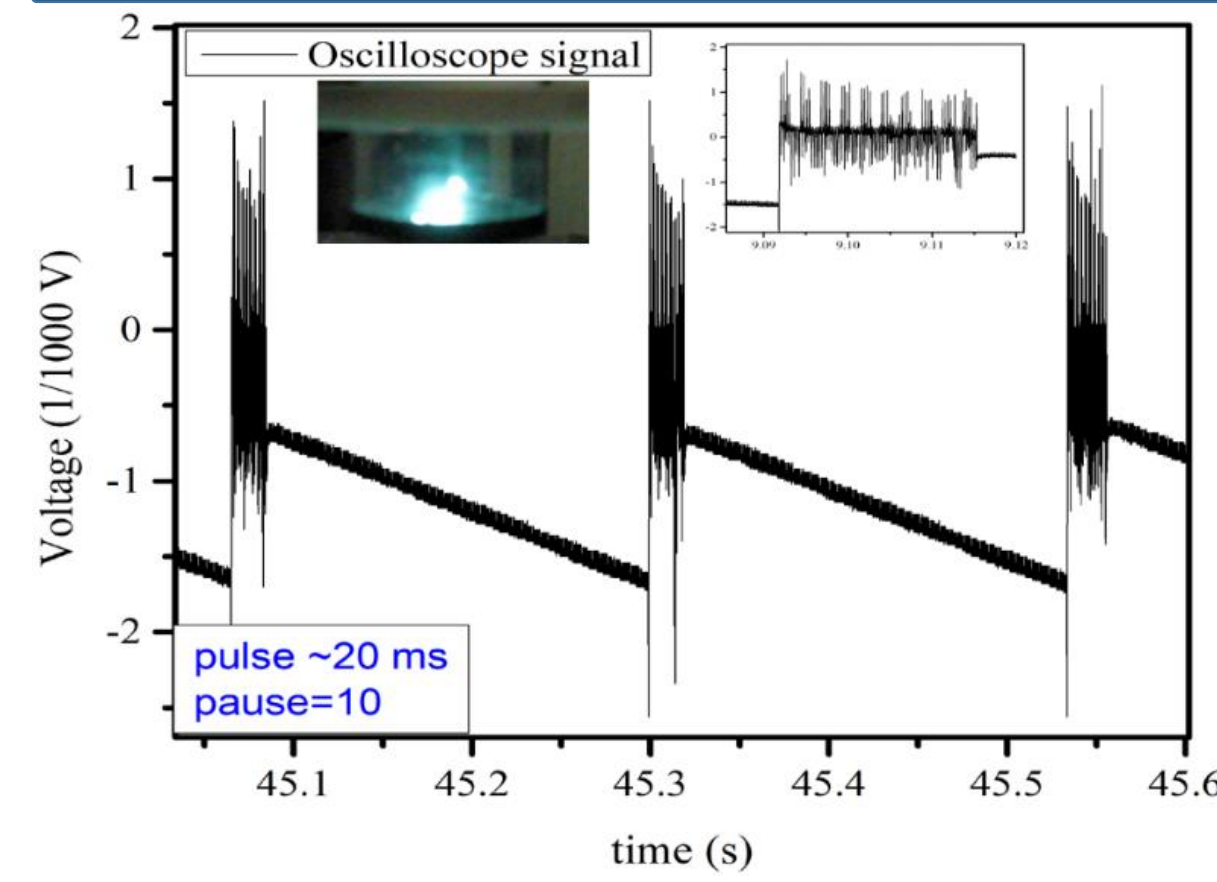


Figure 1

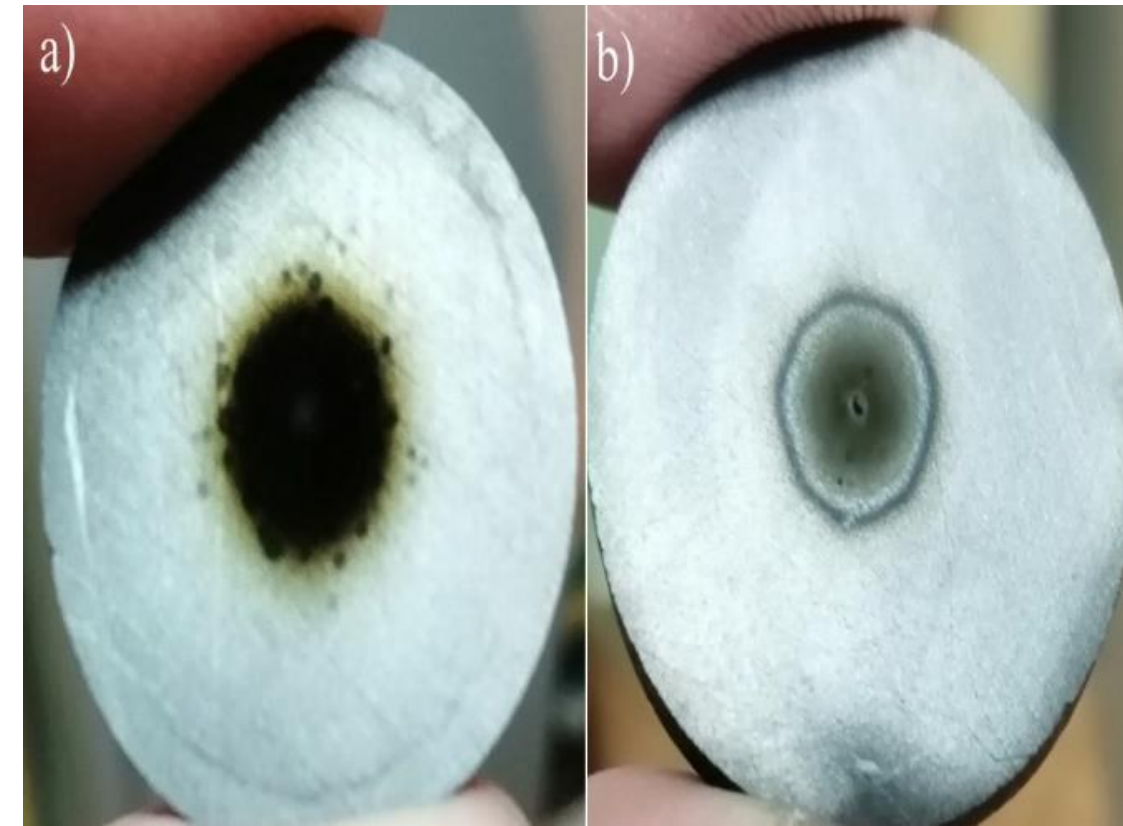


Figure 2

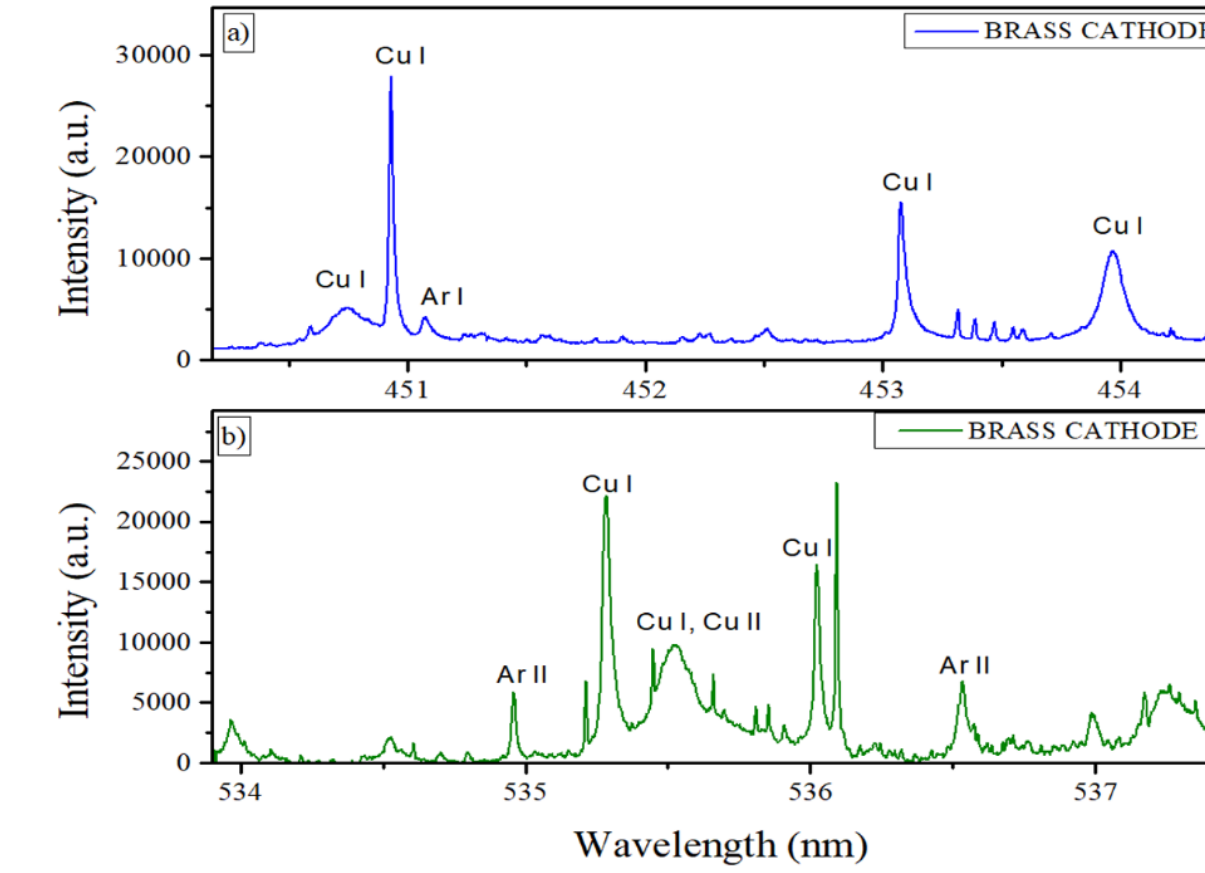


Figure 3

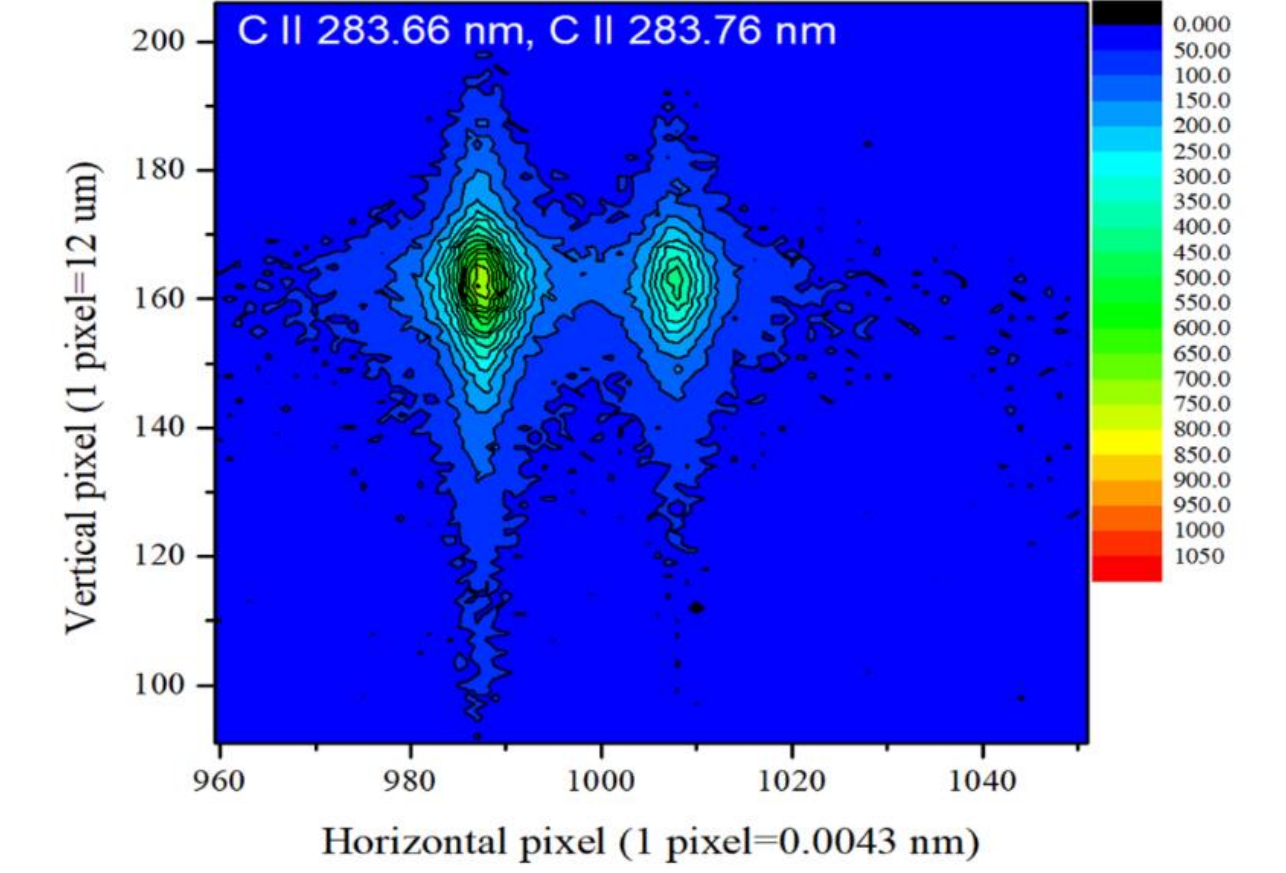


Figure 4

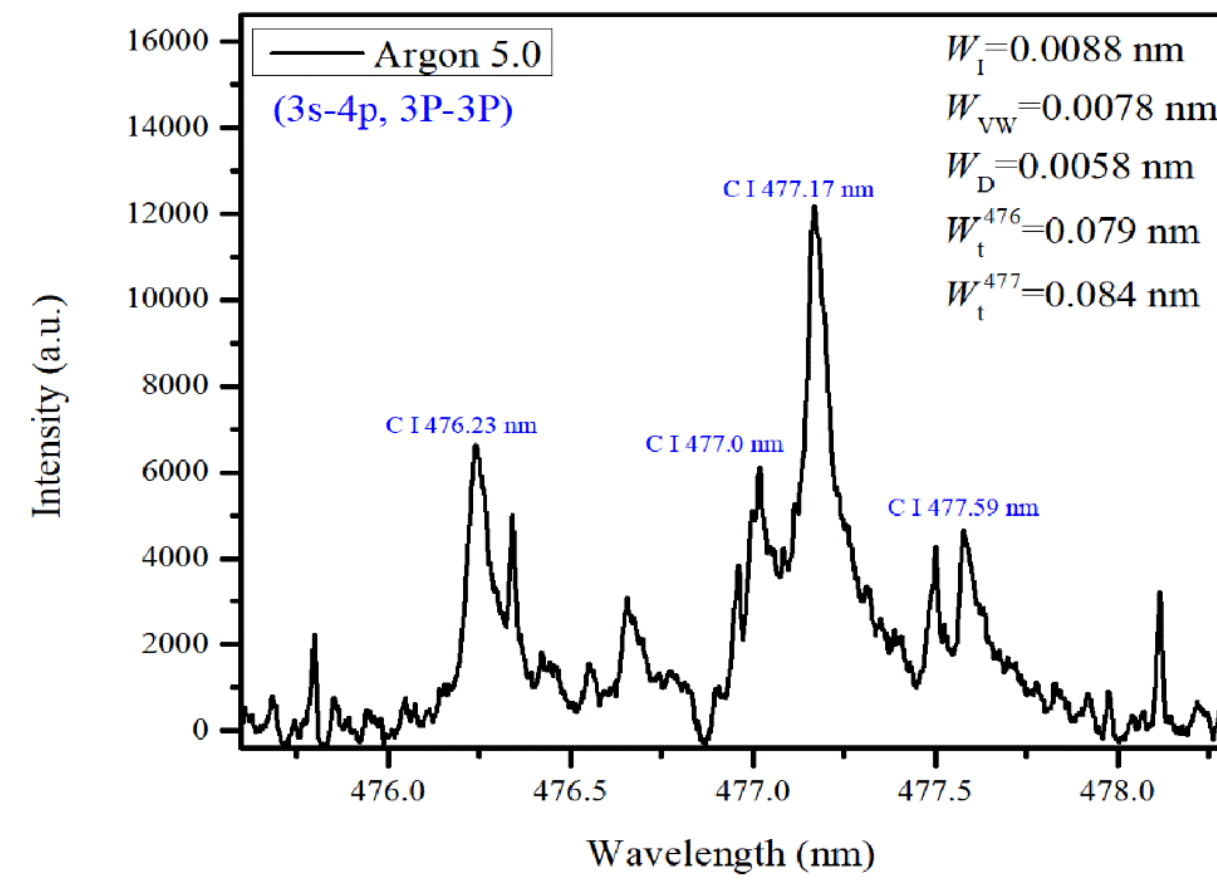


Figure 5

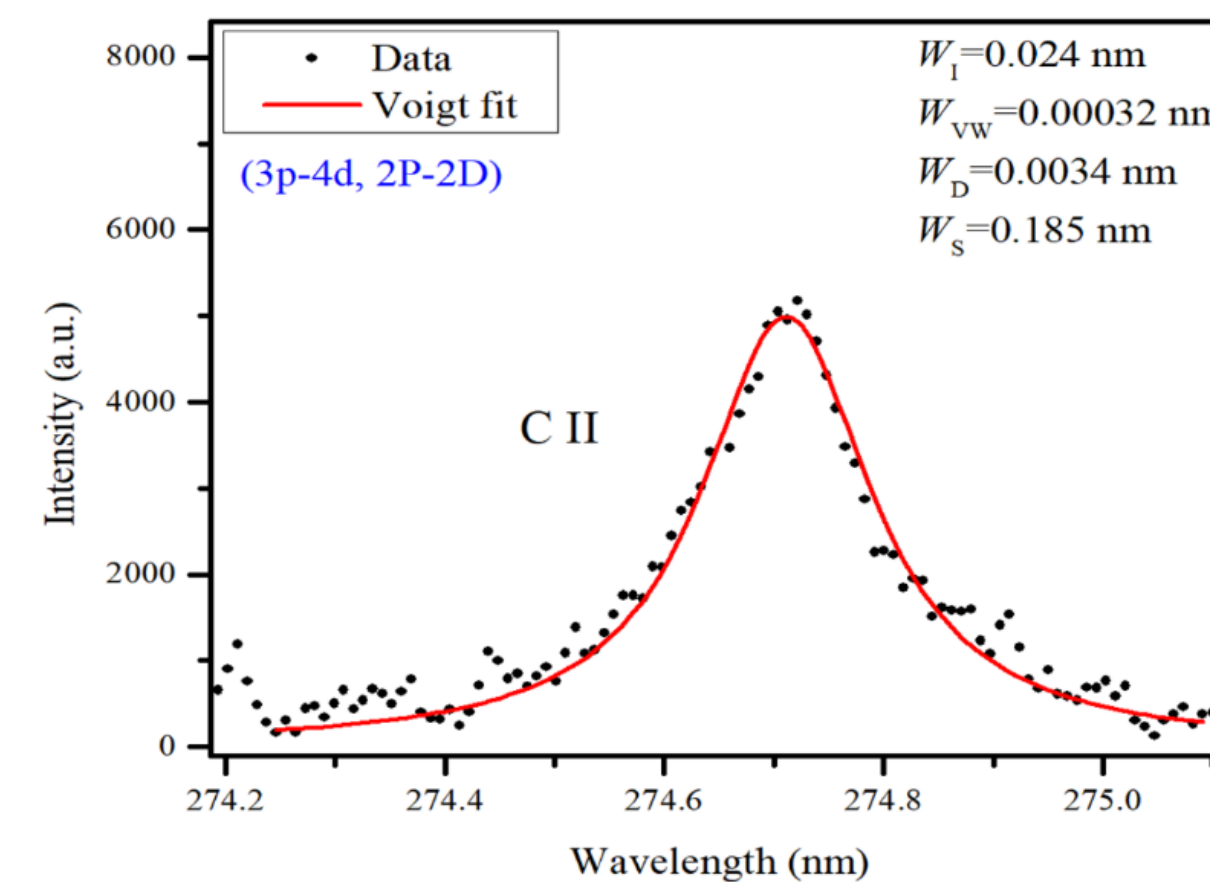


Figure 6.

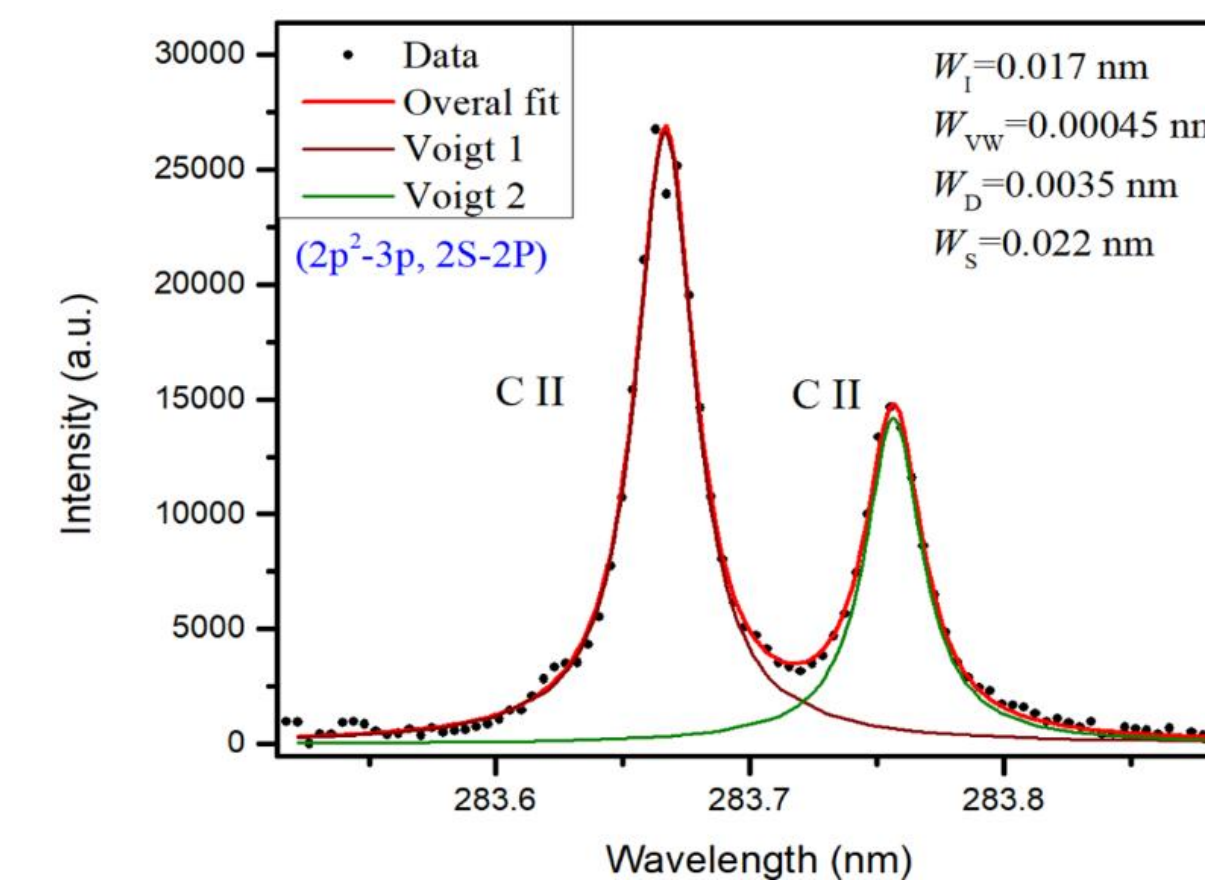


Figure 7

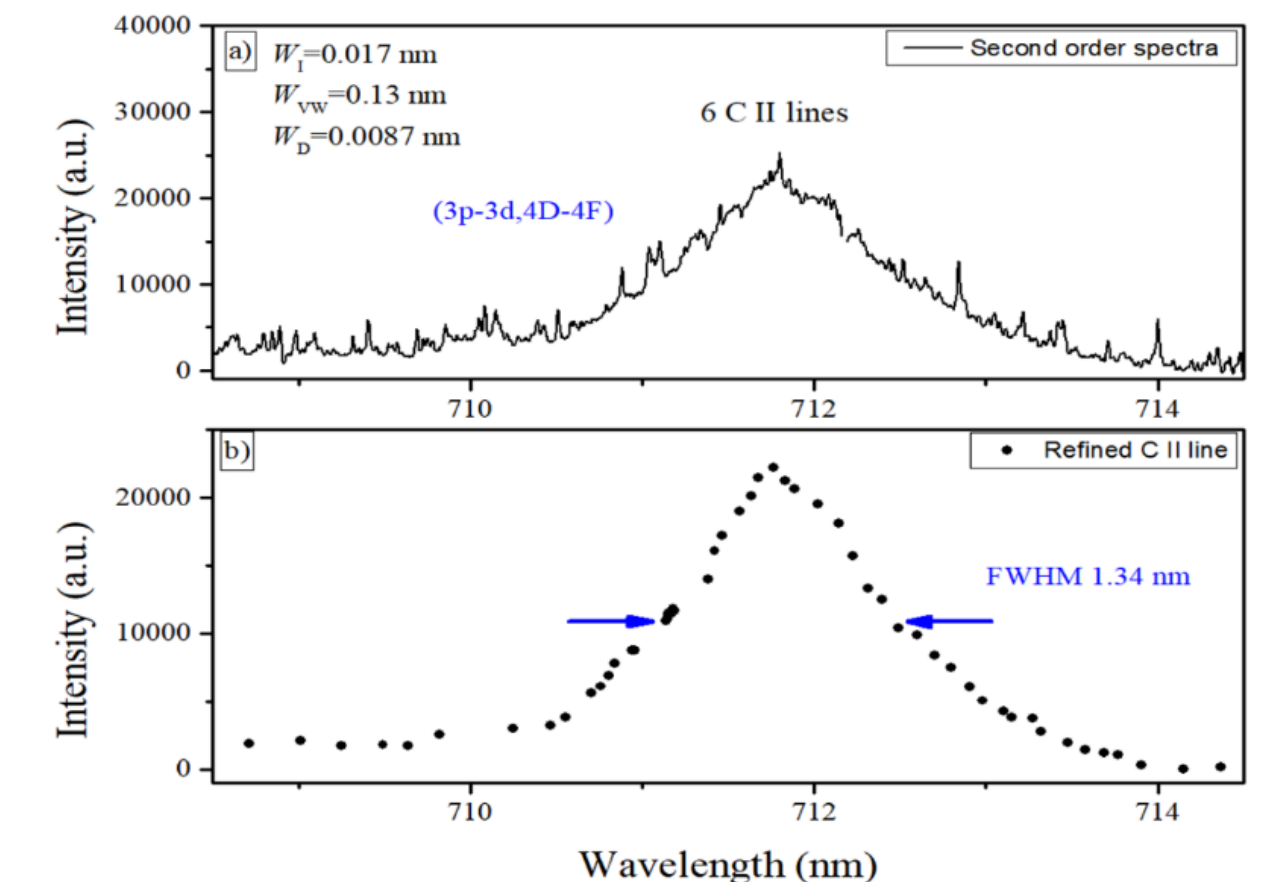


Figure 8.

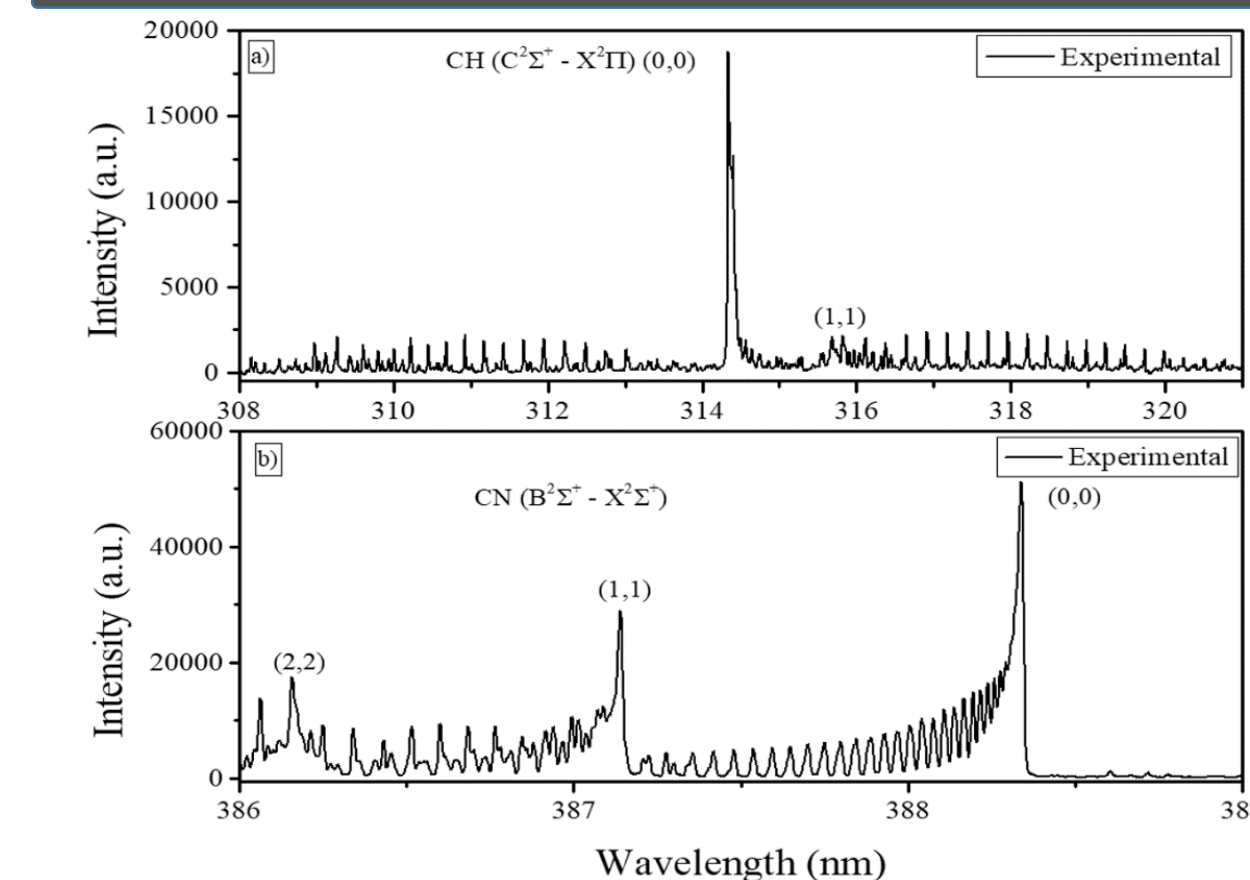


Figure 9

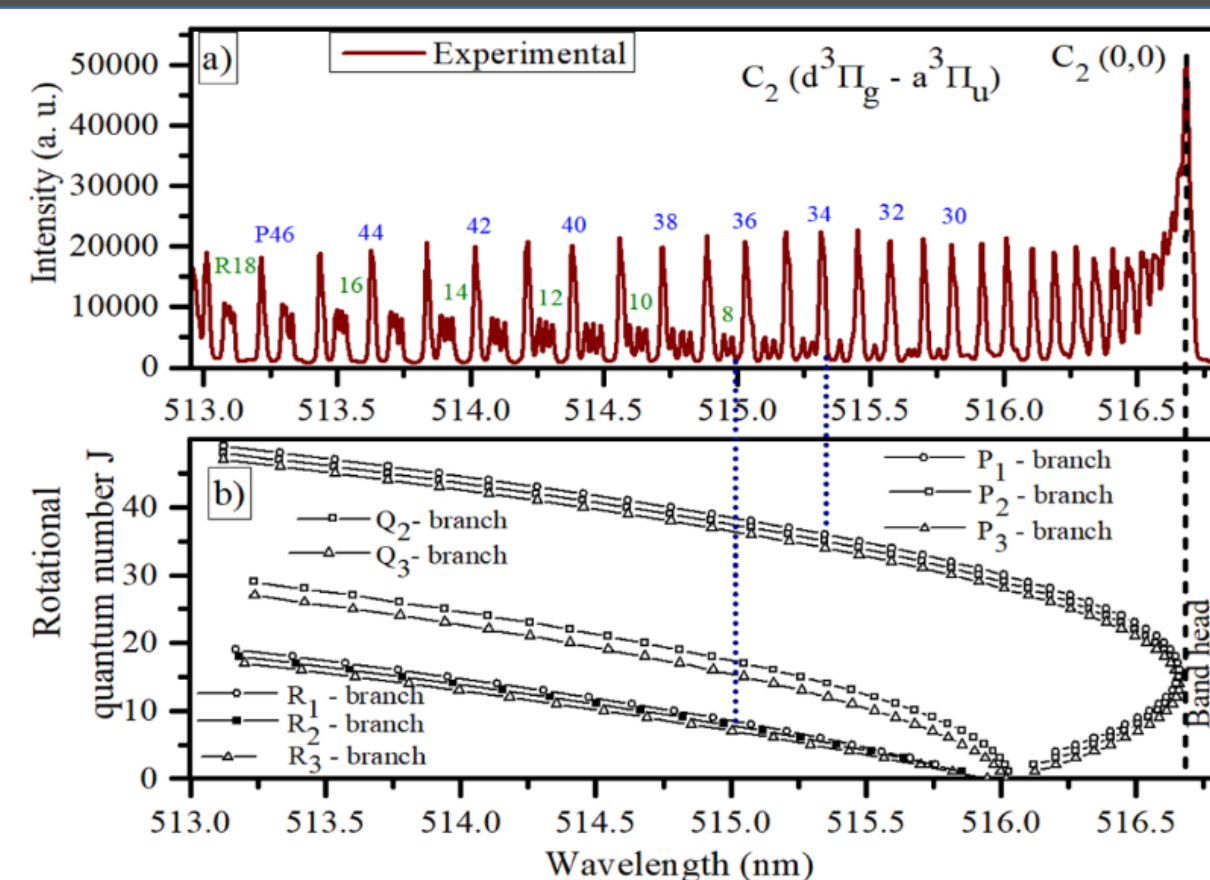


Figure 10

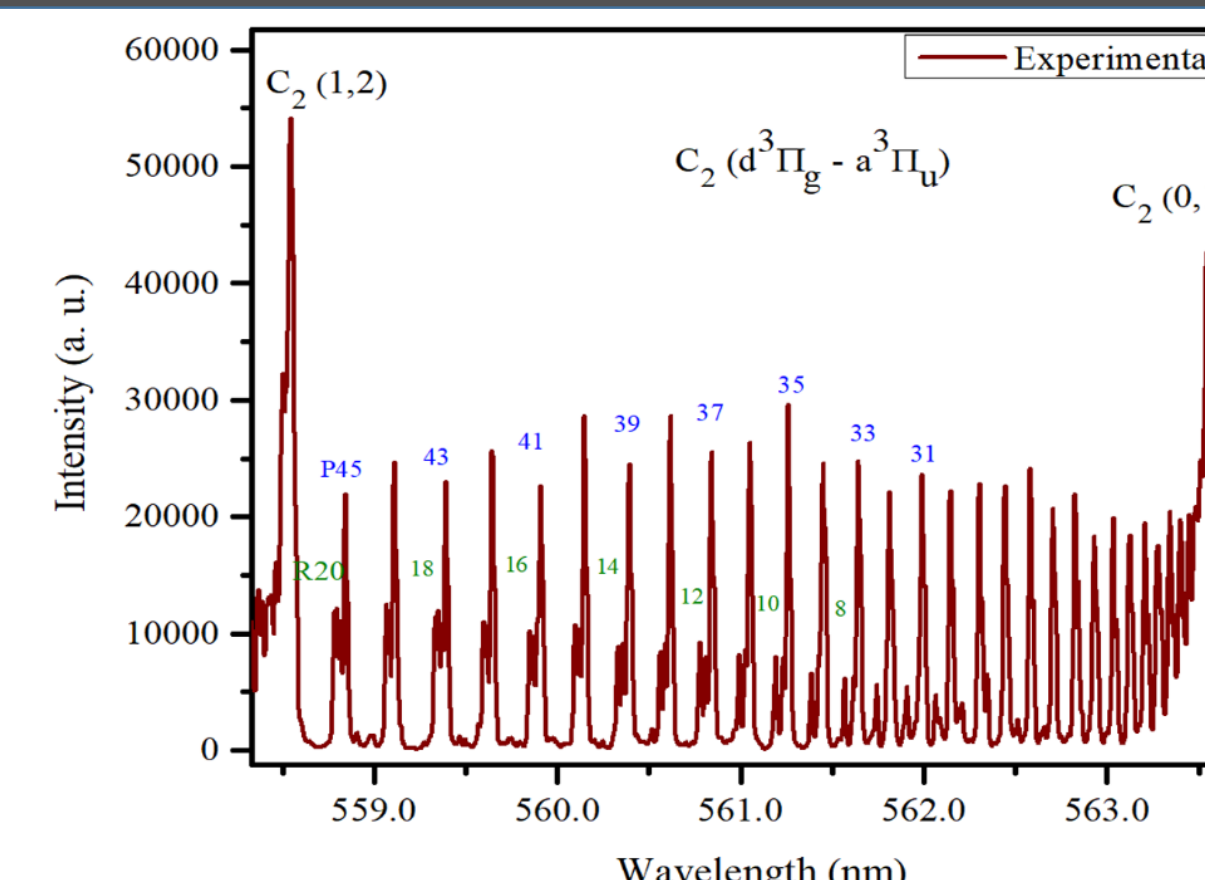


Figure 11

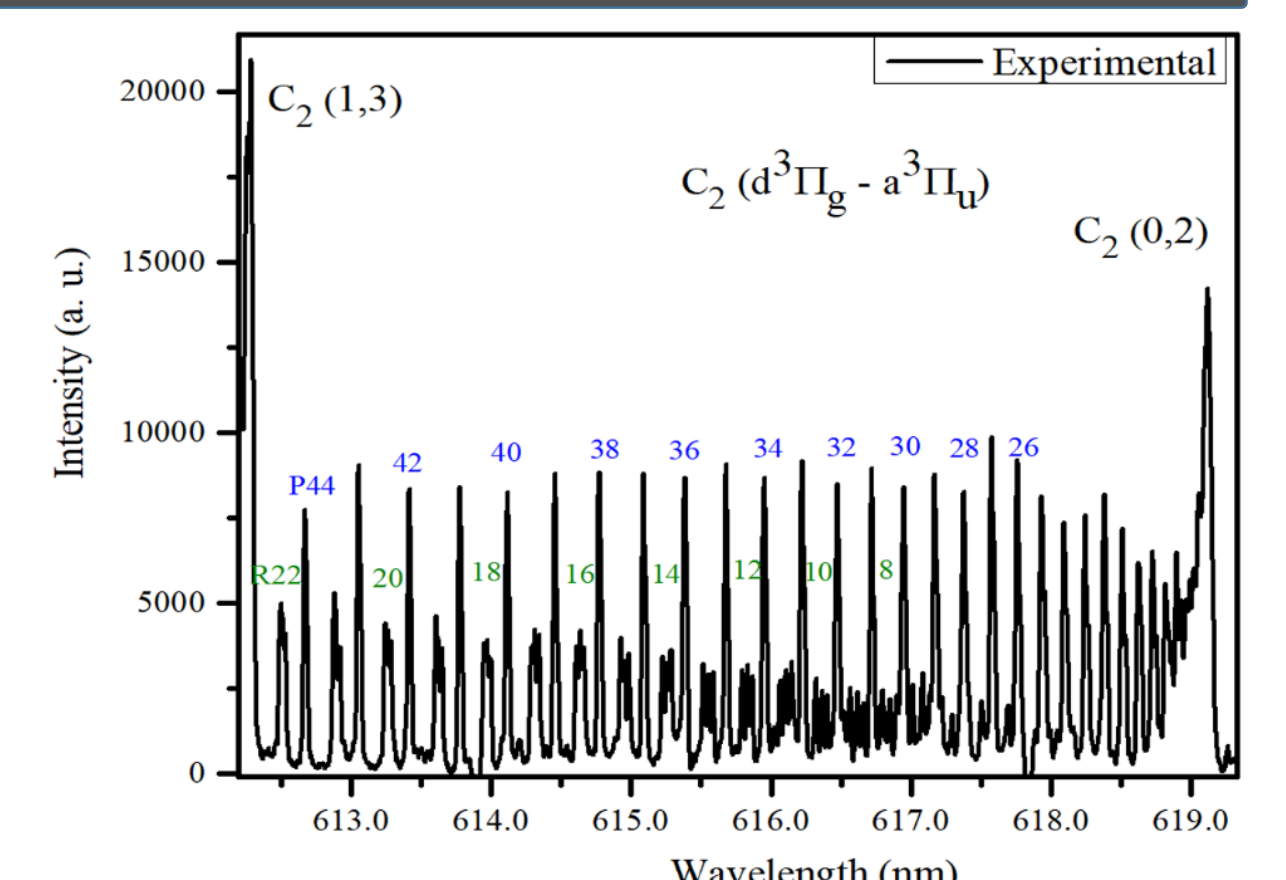


Figure 12.

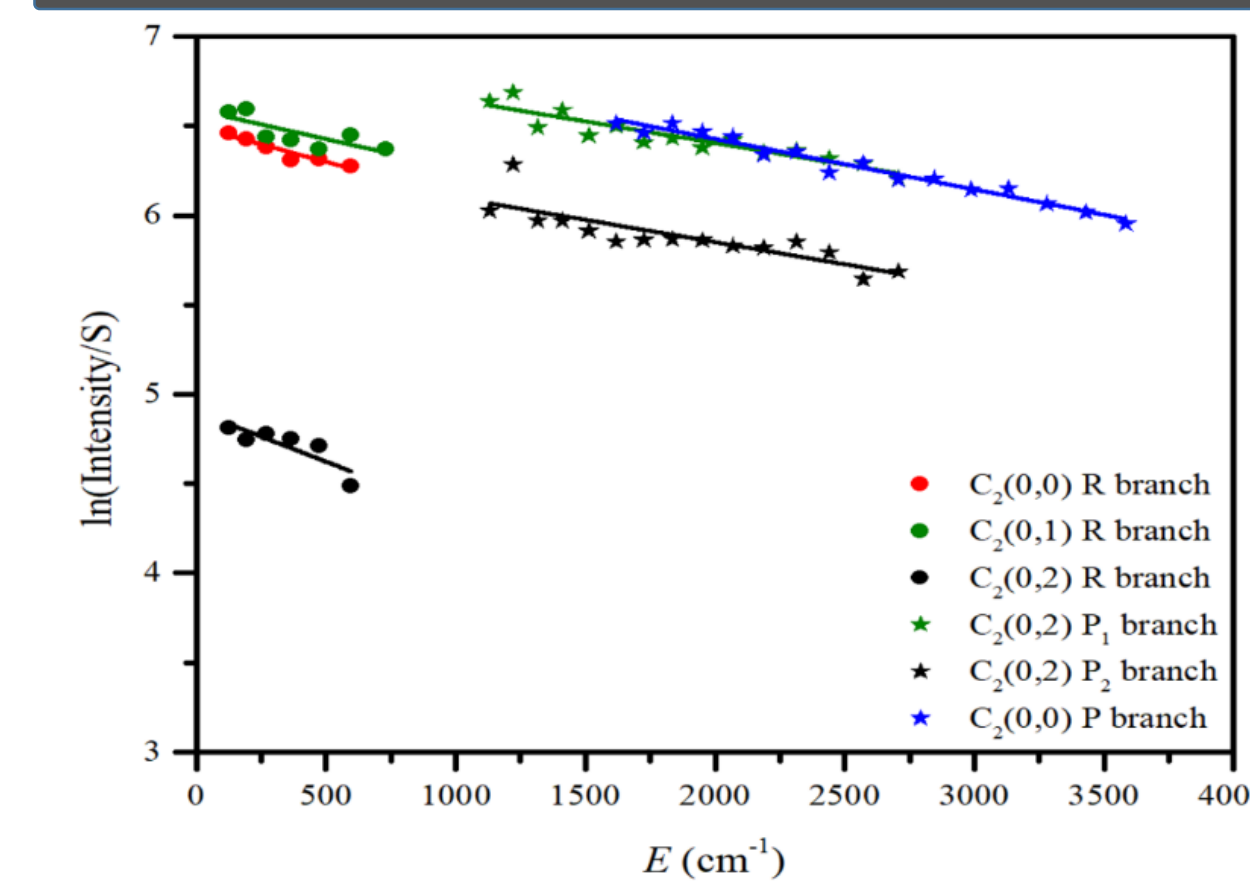


Figure 13

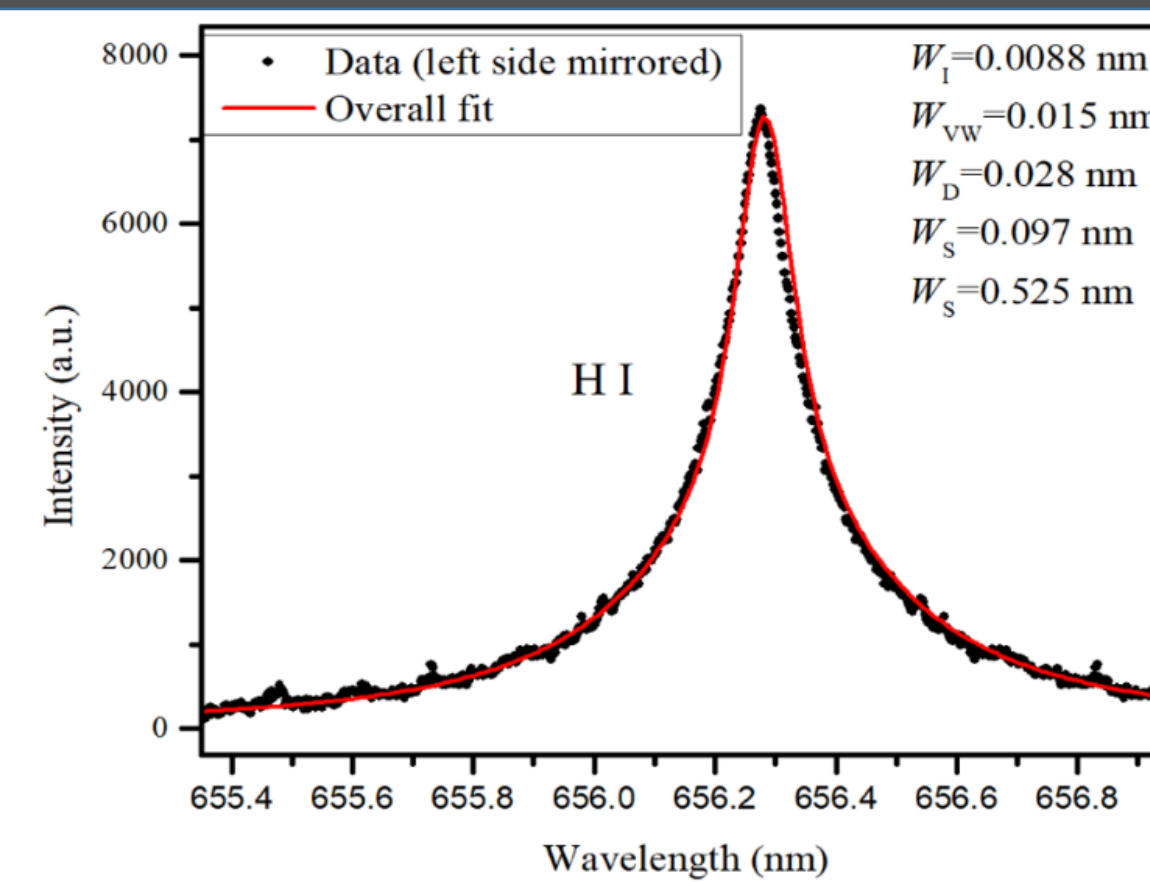


Figure 14

Table 1		
T_{rot} [K]	R branch	P branch
CH(0,0)	3560±600	4810±800
CN(0,0)		4100±600
C ₂ (0,0)	3020±500	5520±800
C ₂ (0,1)	2890±500	5300±800
C ₂ (0,2)	2890±500	5690±850

- [1] Jovović J., Majstorović, G. Lj., 2023, Contrib. Plasma Phys., 63 (1), e202200058.
[2] Jovović J., 2023, J. Anal. At. Spectrom., DOI: 10.1039/d2ja00429a.
[3] Konjević N., Wiese N. L., 1976, J. Phys. Chem. Ref. Data, 5 (2), 259.
[4] Konjević N., Roberts J. R., 1976, J. Phys. Chem. Ref. Data, 5 (2) 209.
[5] Mijatović Z., Konjević N., Kobilarov R., Djurović S., 1995, Phys. Rev. E, 51 (1) 613.
[6] Jovović J., Majstorović, G. Lj., 2019, Contrib. Plasma Phys., 59 (1), e201800147.

Table 2		
	$N_{e1} \times 10^{17} \text{ cm}^{-3}$	$N_{e2} \times 10^{17} \text{ cm}^{-3}$
Fe I 538.3 nm ¹	0.1	1.1
C I 477.17 nm	0.32-0.34	
C II 274.7 nm		1.75
C II 283.66 nm		1.2
H I 656.28 nm	0.34 (0.028)	