The C I 247.8561 nm Resonance Line Stark Broadening Parameters

Stevan Djeniže, Aleksandar Srećković, and Srdjan Bukvić

Faculty of Physics, University of Belgrade, P.O.Box 368, 11001 Belgrade, Serbia

Reprint requests to Prof. S. D.; E-mail: steva@ff.bg.ac.yu

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The Stark width (W) and shift (d) of the neutral carbon (C I) 247.8561 nm resonance spectral line in the $2p^2\ {}^1S_0 - 2p3s\ {}^1P^o_1$ transition have been measured at 17,600 K electron temperature and $1.08 \cdot 10^{23}$ m^{-3} electron density in an oxygen-carbon plasma created in an optically thin, linear, low-pressure, pulsed arc discharge. They represent the first experimental results obtained at an electron temperature higher than 14,000 K. We have found a symmetrical line profile, generated dominantly by electrons as perturbers. Our W and d values have been compared to the existing experimental and theoretical data. Good agreement was found between the results calculated by a semiclassical approximation and our data, particulary in the case of the Stark shift.

Key words: Plasma Spectroscopy; Line Profiles; Atomic Data.