


<http://doi.org/10.69646/14sbac03a>

ASTROPHYSICAL APPLICATIONS OF STARK BROADENING OF SINGLY IONIZED PALADIUM SPECTRAL LINES

MAGDALENA D. CHRISTOVA¹, MILAN S. DIMITRIJEVIĆ^{2,3} 

¹*Department of Applied Physics, Technical University of Sofia, 1000 Sofia*

²*Astronomical Observatory, Volgina 7, 11060 Belgrade, Serbia*

³*LERMA, Observatoire de Paris, Université PSL, CNRS, Sorbonne Université,
F-92190 Meudon, France*

E-mail: mchristo@tu-sofia.bg

Spectral lines of Pd II are detected in a post-asymptotic giant branch star of spectral type B8 III in the globular cluster 47 Tucanae (NGC 104) and in Hg Mn star χ Lupi spectrum, for example. For hot stars as Hg-Mn stars, A and late B type stars, and white dwarfs, the Stark broadening data are of particular interest since they contribute to the spectra analysis and profile modelling of spectral lines. We found in the literature only one publication on the Stark width estimation of Pd II line, 1363.3 Å corresponding to $4d^9 \ ^2D-5p^2F^o$ transition. The approximate estimation is made based on Stark width dependence of ionization potential of the lower level of the corresponding transition. In this contribution, modified semi-empirical method is applied for the calculation of Pd II spectral lines for an electron density of 10^{17} cm^{-3} and for a temperature from 5 000 K to 80 000 K. The influence of Stark broadening in Pd II spectra of DB and DO white dwarfs, and of A type stars is examined.