

3.1. (30)

**COMPARISON OF EXPERIMENTAL AND  
SEMI-CLASSICAL RESULTS FOR Ar II STARK  
BROADENING PARAMETERS FOR  
 $(^3P) \ 4s \ ^2P - (^3P) \ 4p \ ^2D^o$  MULTIPLET**

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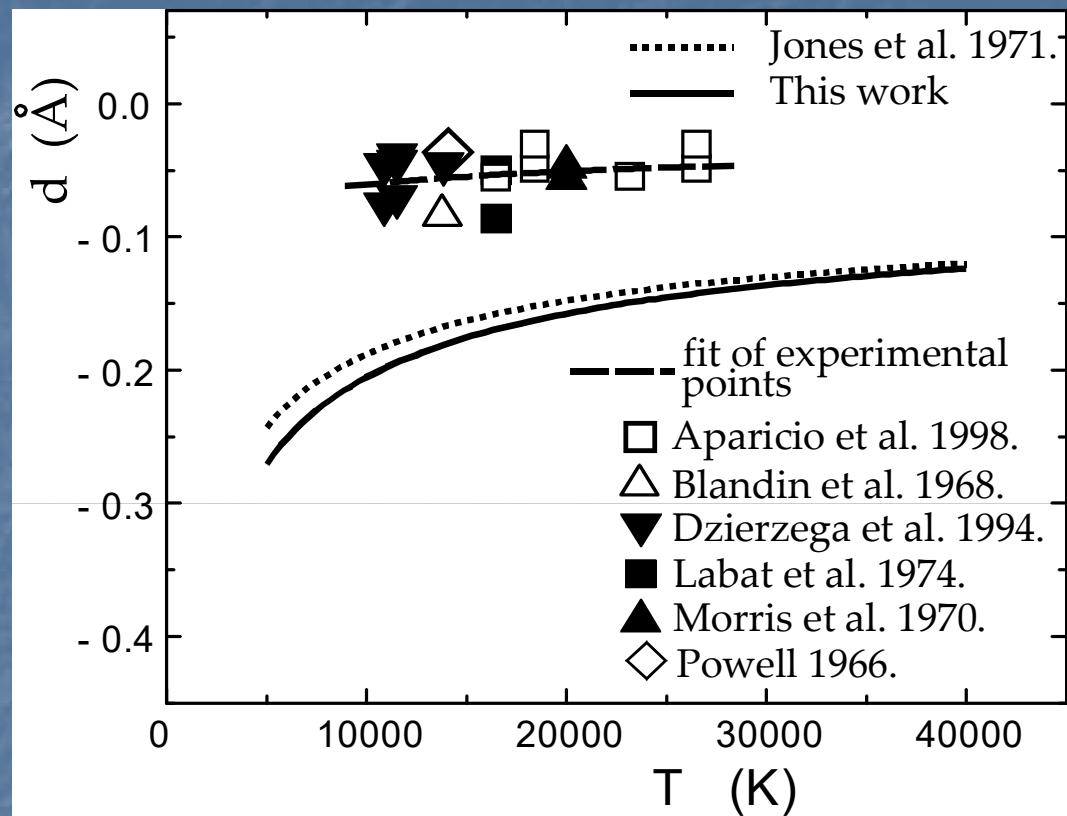
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# COMPARISON OF THE EXPERIMENTAL AND THEORETICAL DATA



Stark shifts  
at electron density  
 $N_e = 10^{17} \text{ cm}^{-3}$   
versus  
electron temperature.

Jones, W. W., Benett, S. M., Griem, H. R.  
: 1971, *Technical Report 71-128,*  
*University of Maryland, College Park.*

Powell, W. R. : 1966, *Dissertation, John Hopkins University.*

Blandin, J., Sahal-Bréchot, S., Chapelle, J., Sy, A. : 1968, *Phys. Lett.*, **26A**, 487.

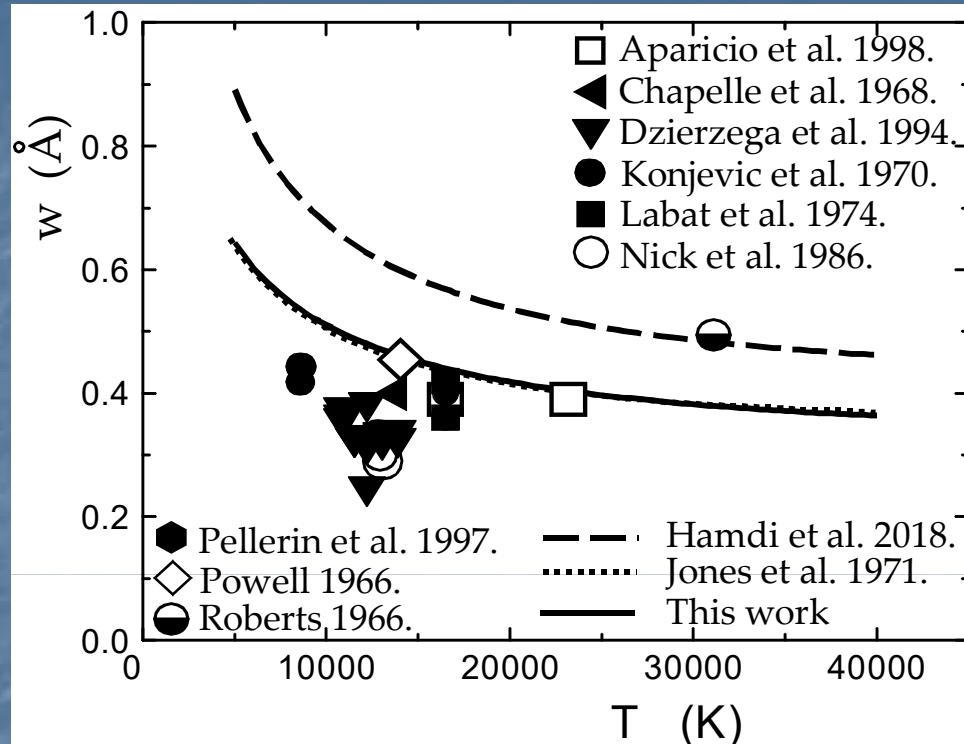
Morris, J. C., Morris, R. V. : 1970, *Aerospace Research Laboratories Report No. ARL 70 - 0038.*

Labat, J., Djeniže, S., Ćirković, Lj., Purić, J. : 1974, *J. Phys. B*, **7**, 1174.

Dzierzega, K., Musiol, K. : 1994, *J. Quant. Spectrosc. Radiat. Transfer*, **52**, 747.

Aparicio, J. A., Gigosos, M. A., Gonzalez, V. R., Perez, C., de la Rosa, M. I., Mar, S. : 1998, *J. Phys. B*, **31**, 1029.

# COMPARISON OF THE EXPERIMENTAL AND THEORETICAL DATA



Powell, W. R. : 1966, *Dissertation, John Hopkins University*.

Roberts, D. E. : 1966, *Phys. Lett.*, **22**, 417.

Chapelle, J., Sy, A., Cabannes, F., Blandin, J. : 1968, *J. Quant. Spectrosc. Radiat. Transfer*, **8**, 1201.

Konjević, N., Labat, J., Ćirković, Lj., Purić, J. : 1970, *Z. Phys.* **235**, 35.

Labat, J., Djeniže, S., Ćirković, Lj., Purić, J. : 1974, *J. Phys. B*, **7**, 1174.

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Dzierzega, K., Musiol, K. : 1994, *J. Quant. Spectrosc. Radiat. Transfer*, **52**, 747.

Pellerin, S., Musiol, K., Chapelle, J. : 1997, *J. Quant. Spectrosc. Radiat. Transfer*, **57**, 377.

Aparicio, J. A., Gigosos, M. A., Gonzalez, V. R., Perez, C., de la Rosa, M. I., Mar, S. : 1998, *J. Phys. B*, **31**, 1029.

Stark full widths at half maximum (FWHM)  
at electron density  
 $N_e = 10^{17} \text{ cm}^{-3}$   
versus  
electron temperature.

Jones, W. W., Bennett, S. M., Griem, H. R. :  
1971, *Technical Report 71-128*,  
*University of Maryland, College Park*.

Hamdi, R., Ben Nessib, N., Sahal-Bréchot  
S., Dimitrijević, M. S. : 2018, *Month. Not.  
Roy. Astron. Soc.*, **488**, 2473.

Theoretical Stark widths FWHM and shifts for electron density  
 $N_e = 10^{17} \text{ cm}^{-3}$  and temperatures in the range (5000 – 60000) K.

Ar II Multiplet ( ${}^3\text{P}$ ) $4\text{s}$ ${}^2\text{P}$ – ( ${}^3\text{P}$ ) $4\text{p}$ ${}^2\text{D}^\circ$					
$T$ (K)	Jones et al. 1971.		This work		Hamdi et al. 2018
	Mult. 4898 Å	Mult. 4898.681 Å	Line 4879.86 Å		
5000	0.644	- 0.243	0.645	- 0.271	0.891
10000	0.502	- 0.188	0.506	- 0.204	0.677
20000	0.416	- 0.148	0.423	- 0.158	0.535
30000					0.485
40000	0.368	- 0.120	0.362	- 0.123	0.464
60000			0.310	- 0.102	0.441

Jones, W. W., Bennett, S. M., Griem, H. R. : 1971, *Technical Report 71-128, University of Maryland, College Park.*

Hamdi, R., Ben Nessib, N., Sahal-Bréchot S., Dimitrijević, M. S. : 2018,  
*Month. Not. Roy. Astron. Soc.*, **488**, 2473.

## CONCLUSION

On the basis of the comparison of experimental and theoretical data for Ar II ( $^3P$ ) 4s  $^2P$  – ( $^3P$ ) 4p  $^2D^o$  multiplet one can conclude that this is rather well documented Stark shift case, which offers interesting possibility for theoretical study of electron temperature dependence and magnitude of shift values.