

Poster

## VAN DER WAALS BROADENING IN ATMOSPHERIC PRESSURE SURFACE WAVE DISCHARGES SUSTAINED IN RARE GASES

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Research on van der Waals broadening has become one of the most important issues in recent spectroscopy studies since the values of this parameter can be easily related by means of the Lindholm-Foley theory to that of the gas temperature, being the knowledge of the later determining on the heavy particles kinetics.

In the present study, the profiles of several rare gas atomic lines arising from an atmospheric pressure microwave (2.45GHz) surface wave discharge have been studied in order to determine the most suitable lines for measuring gas temperatures.

Special attention has been paid to the contribution of the Stark broadening to the Lorentzian width, from which the van der Waals broadening is obtained. The comparison with previous methods (namely  $OH$  and  $N_2^+$  ro-vibrational bands) is also provided.

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## VELOCITY ELLIPSOID - IMPORTANCE OF LINE-OF-SIGHT VELOCITIES

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After the Hipparcos Mission a lack of data concerning line-of-sight velocities has appeared. As a result a number of surveys have been undertaken. This has contributed that now space velocities are available for many stars from the Solar Neighbourhood. Consequently, methods of determining velocity ellipsoid from space velocities have become important. They should offer significant improvements in our knowledge of motions of stars in the Solar Neighbourhood.