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**Measurement of electric fields in plasma using Stark spectroscopy of krypton atoms** TAO JIANG, Eindhoven University of Technology, M.D. BOWDEN, The Open University, UK, E. WAGENAARS, G.M.W. KROESEN, Eindhoven University of Technology — The electric field is one of the most important discharge parameters. In glow discharges, it is the driving force behind many processes at the plasma boundary. But it is difficult to measure, because of perturbation problems. We report a spectroscopic method for the measurement of the electric field in a glow discharge in krypton. The method to determine the electric field is based on the comparison of the results of experimental laser opto-galvanic (LOG) spectra and theoretical calculations, obtained by solving the Schrödinger equation of krypton atoms in an electric field. For high electric fields, there is a good agreement between experiment and calculation for excitation from 5s to f states of krypton atoms in an electric field. For lower electric fields, the resolution of the technique is lower using f state. However, excitation from 5s to p-states results in a larger LOG signal and larger Stark shifts were observed. Therefore, the resolution of the technique is better using p-states for low electric fields.

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