

Abstract Submitted  
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**Electrical and emission studies of a dielectric barrier APGD operating with flowing helium and a moving substrate**<sup>1</sup> WILLIAM GRAHAM, DAMIAN DELLA CROCE, Physics and Astronomy, Queens University Belfast, BT7 1NN, Northern Ireland, ALAN HYNES, Dow Corning Plasma Solutions, Middleton, Ireland — The electrical and emission characteristics of the APGD created in a Dow Corning Plasma Solutions LabLine<sup>TM</sup> system have been measured to study the behaviour of a relatively large scale APGD system with flowing gas and a moving film. The LabLine<sup>TM</sup> system creates a 340mm x 300mm electrode structure with an inter-electrode gap of 5mm. To create a discharge a sinusoidally-varying voltage of up to 16 kV p to p was applied to brine/glass electrodes at frequencies of around 20kHz. A PET film was suspended, parallel to the glass dielectrics. A Pearson probe measured the time dependence of the discharge current. The time resolved plasma emission was recorded using a gated ICCD. At operating powers of 900 W and with a helium flow rate of 20 l/min, a peak in the discharge current was observed twice per applied voltage period, typical of behaviour reported in other APGD systems. Imaging of emission both through the outer face of one glass/brine electrode and the inter-electrode gap indicated that during these current peaks a spatially uniform discharge is created between the film and electrode surface both when the film is static or moving at up to 1 m/min. The authors gratefully acknowledge the assistance of B Twomey, J Tynan and D Dowling (UC Dublin).

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