

Abstract Submitted  
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**Behavior of ion sheath adjacent to a planar capacitive discharge operated in pulsed mode** C. GAMAN, S.K. KARKARI, A.R. ELLINGBOE, Dublin City University, Ireland — The dynamics of a radio-frequency sheath is important in understanding the ion-energy distribution at the substrate during a plasma process. The ion-energy depends on the mean ion-transit time through the sheath with respect to the rf-angular frequency, the rf-amplitude and the position in the sheath where the ions are created. When the radio-frequency discharge is operated in pulsed mode, the capacitive rf-fields rapidly penetrate in to bulk plasma which results in sheath expansion by exclusion of electrons from the sheath boundary. The spatial and phase-resolve behaviour of electron density has been experimentally investigated using a floating hairpin resonance probe in a hydrogen discharge, which is created in a confined symmetric parallel plate capacitively coupled radiofrequency discharge. The results show time-variation in spatial electron density as a function of rf phase during the beginning of the on-phase of the pulsed rf and relaxation of electron density in the sheath during the off-phase of the rf cycle.

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