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**Experimental investigation of electron density in pulse plasma source by microwave resonance probe** ALBERT R. ELLINGBOE, VLADIMIR MILOSAVLJEVIC[1], NCPST & School of Physics, Dublin City University, Dublin, Ireland — The time-dependent spatial electron density distribution in a constricted, pulsed plasma source is measured using a floating hairpin resonance probe and an extrapolation method is described for determining the peak in electron density from the experimental data. Using these techniques a detailed characterization of the spatio-temporal evolution of the electron density, outside the constricted region above the anode of the pulsed plasma source is presented. The electron density increases sharply during the creation phase and the rate of increase is found to decrease with distance from the axis of the constricted channel. By modeling the plasma creation characteristics versus position, the electron density along the axis of the constricted pulsed plasma sources can be determinated.

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