Seminar

Institute for Plasma Research

Title : Development of a Sub-nanosecond Impulse Generator for High Frequency E.M. Excitations

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Date : 05 September 2016 (Monday)

Time : 10.00 AM

Venue : Committee Room 4, (New Building), IPR

Abstract:

The diagnostics requirements in microwave plasma interaction experiments include measurement of high frequency (a few GHz) e.m. wave electric and magnetic fields in air / vacuum as well in plasma. Considerable database exists for field measurements in plasma at relatively low (a few Mega Hertz) frequencies. For measurements at higher frequencies, probes of appropriate bandwidth, suitably designed to minimize the inductance, that are commercially available are costly, delicate, and not generally compatible for measurements inside the plasma. In-house development of miniature, plasma compatible B-dot and E-dot probes is undertaken by our group. In order to calibrate the high frequency probes, high frequency e.m. exciters need to be set-up for excitations in vacuum / air as well as in plasma.

The present work is for developing a high voltage, sub-nanosecond pulse generator that will be used to excite e.m. radiations. In the preliminary stage, the pulse generator is developed to deliver nanosecond pulse and amplitude of few kV. The experimental method, obtained results and other developmental work will be discussed.