

Seminar

Institute for Plasma Research

- Title :** Study of inter-winding capacitance of Multi-Secondary Transformer and its effect on the performance of High Voltage Power Supply
- Speaker:** Mr. L. N. Gupta
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- Date :** 04 October, 2018 (Thursday)
- Time :** 11.00 AM
- Venue :** Committee Room 3, (New Building), IPR

Abstract :

Pulse Step Modulation (PSM) based High Voltage Power Supplies (HVPS) are being used by high power radio frequency devices, Neutral Beam devices, High Energy particle accelerators etc. These HVPS are topologically modular in which small voltage sources are added using PSM technique to accomplish DC high voltage output. Small voltage sources are AC-DC power convertors namely Switched Power Modules (SPM) fed by multi-secondary transformers (MST).

Multi-secondary transformer provides input electrical power as well as HVDC isolation to the HVPS. It is having single primary and multiple isolated secondary wound across the core height. Isolated secondaries possess inter-winding capacitance (C_w) with adjacent windings and stray capacitance (C_g) with other grounder parts of the transformer.

During operation with different systems and under different load conditions, HVPS performance issues related to voltage imbalance across filter capacitors of SPM have been observed. This thesis discusses the observed operational problem of HVPS, assessment of the problems and its probable solutions. Report also discusses simulation results and mitigation methods.
