World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:8, No:08, 2014

Simulation and Modeling of High Voltage Pulse Transformer

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Abstract : This paper presents a method for calculation of parasitic elements consisting of leakage inductance and parasitic capacitance in a high voltage pulse transformer. The parasitic elements of pulse transformers significantly influence the resulting pulse shape of a power modulator system. In order to prevent the effects on the pulse shape before constructing the transformer an electrical model is needed. The technique procedures for computing these elements are based on finite element analysis. The finite element model of pulse transformer is created using software "Ansys Maxwell 3D". Finally, the transformer parasitic elements is calculated and compared with the value obtained from the actual test and pulse modulator is simulated and results is compared with actual test of pulse modulator. The results obtained are very similar with the test values.

Keywords : pulse transformer, simulation, modeling, Maxwell 3D, modulator
Conference Title : ICEE 2014 : International Conference on Electrical Engineering
Conference Location : Istanbul, Türkiye
Conference Dates : August 18-19, 2014

Open Science Index, Electrical and Computer Engineering Vol:8, No:08, 2014 publications.waset.org/abstracts/12530/pdf