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A NEW EQUIVALENT CIRCUIT OF HIGH-VOLTAGE PULSE TRANSFORMER AND AN ACCURATE METHOD TO MEASURE IT'S PARAMETERS

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This paper presents a new type of equivalent circuit of a high-voltage pulse transformer and an accurate method to measure its parameters. The new equivalent circuit is obtained from the impedance characteristic curves when the primary and secondary coils are in different states (open circuit or short circuit). In the new equivalent circuit, the distributed capacitance between primary and secondary coils is equivalent to three capacitances, instead of a concentrated capacitance in the IEEE standard equivalent circuit. The parameters in the equivalent circuit are calculated by some equations which are deduced from resonance points when the primary and secondary coils are in some different states. Simulation and experimental results of impedance characteristic curves and the output waveform of the pulse transformer meets well, which confirm the accuracy of the equivalent circuit and the measuring method of its parameters.

Primary author: LIU, Xian (Institute of Electronic Engineering, CAEP)

Presenter: LIU, Xian (Institute of Electronic Engineering, CAEP)

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