Contribution ID: **65** Type: **Poster Presentation**

Saturation behavior of nano-crystalline pulse compression cores

Tuesday 5 June 2018 13:30 (1h 30m)

For simulation of pulse compression networks the saturation behavior of the pulse compression cores are an important parameter. The data from the supplier does not cover the region we need for the calculation. The challenge is to measure the relative permeability of the material from 1 A/m to 10 kA/m. The approach is threefold. In the range of 1 to 1000 A/m the hysteresis loop is used. In the range from 3 to 3000 A/m a transductor method is chosen. From 0.1 to 10 kA/m the measurements where done with a LC discharge circuit. In this case the ringing frequency is defined by the stray inductivity and the partly saturated core. The results give us a data of saturation behavior of the compression cores. This improves the precision of simulation of pulse compression networks.

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Session Classification: Poster 2 - High Voltage Design and Power Modulator Components