A HIGH VOLTAGE PIEZOELECTRIC TRANSFORMER FOR ACTIVE INTERROGATION

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Abstract

A resonant piezoelectric transformer circuit was developed for high voltage generation. The goal of this project was to produce 100 kV with a reasonably sized piezoelectric crystal. Several mechanisms leading to less than expected high voltage have been addressed. This project addresses problems associated with high power, high stress, high voltage, mechanical loss, and high output impedance measurements. A method for eliminating unwanted discharges and a technique for measuring the true output voltage of the transformer were tested. A way to minimize the mechanical stress while creating high voltage was developed. The research performed in this project extended the state of the art for high voltage piezoelectric transformers.