



Contribution ID: 576

Type: Poster

3P79 - Electro-Optical Measurement of Electric Fields for Pulsed Power Systems

Wednesday 26 June 2019 13:30 (1h 30m)

The electric field strength from the cathode to the anode (or Voltage) of a pulsed power machine is one of the most important operating parameters of the device. However, to date, accurate and precise Voltage measurements on these high energy pulsed power systems have proved difficult if not virtually impossible to perform. In many cases, the measurements to be performed take place in an environment cluttered with electromagnetic interference (EMI), radio frequency interference (RFI), electron pollution, potential for electrical discharge (or arcing), limited physical access or deemed unsuitable due to radiation safety concerns. We report on an electro-optical based approach to measuring strong, narrow-pulse-width electric fields that requires no interfering metallic probes or components to disturb the measurement field. Here we focus on device theory, operating parameters and a laboratory experiment.

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy National Nuclear Security Administration under contract DE-NA000352

Authors: OWENS, Israel (Sandia National Laboratories); Dr GRABOWSKI, Chris (Sandia National Laboratories); JOSEPH, Nathan (Sandia National Laboratories); COFFEY, Sean (Sandia National Laboratories); Mr ULMEN, Benjamin (Sandia National Laboratories); Mrs KIRSCHNER, Debrah (Sandia National Laboratories); RAINWATER, Kirk (Sandia National Laboratories); Dr STRUVE, Ken (Sandia National Laboratories)

Presenter: OWENS, Israel (Sandia National Laboratories)

Session Classification: Poster - Industrial/Commercial/Medical Applications and Plasma and Pulse Power Diagnostics

Track Classification: 9.3 Pulsed Power Diagnostics