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High-field measurements with kHz repetition rate, microsecond dc pulses

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Measurement of different aspects of high-field behaviour including pre-breakdown processes, breakdown events and parameters for conditioning of materials ongoing in pulsed dc systems at CERN are described. The system uses parallel plate electrodes with 40 and 62 mm diameter together with a well-controlled high-voltage high repetition rate generator up to 6 kHz. The dc pulsed experiments are complemented by breakdown localization technique and post-mortem microscopic analysis.
The dependences of several factors (as surface electric field, pulse width, repetition rate and others) to BDR were investigated. The data for different electrodes material and dependencies are collected to the wide database. The results from the different electrodes, along with selected radio frequency results, and ideas for next tests are presented.

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