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A Test Stand for Investigating Multipulse Insulator Surface Flashover

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Insulator surface flashover in vacuum due to pulsed and DC voltages has been thoroughly investigated, however the characteristics of surface flashover under multiple, short duration, high-voltage pulses are not well understood. A test stand has been developed at Los Alamos National Lab to further understand the effects of these conditions on the surface flashover strength of various insulators. The test stand is designed to apply voltages of up to 350 kV across a variable spacing, uniform field, electrode gap. Models indicate the electric field varies by less than ± 2 percent over a 4 cm cylindrical radius at up to 4 cm gap spacing. The electrodes are designed to accommodate insulator test samples ranging in axial length from 1 - 4.5 cm, and up to 8 cm diameter. Measurements of breakdown field and current will be made with an E-dot probe and Pearson current transformer respectively. This paper details the design, modeling, and testing plan for this multi-pulse test-bed.

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