

## Streak observation of DC pre-breakdown light in silicone oil / low-density polyethylene (LDPE) film composites using a long image guide scope

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### ABSTRACT

DC breakdown light of silicone oil and LDPE film composites between needle-sphere electrodes with the film placed on sphere electrode was observed using a streak camera. A long image guide scope (IGS) was attached to the streak camera as light delay path. This new system enables us to obtain a streak image of an initial process of the DC breakdown phenomena with a period of 10ns. Under positive polarity voltage, breakdown usually initiated from positive needle in all samples. Initiation of DC breakdown from film side was observed under negative polarity voltage condition.

### KEYWORDS:

Insulation; composite; discharge; optical observation; streak; silicone oil; LDPE

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