



Contribution ID: 795

Type: **Poster Presentation of 1h45m**

## Creepage Discharge Characteristics of a Solid Insulation Material for Superconducting Applications

*Wednesday 30 August 2017 13:15 (1h 45m)*

Solid insulation materials for superconducting applications are required to be robust in terms of both mechanical and electrical performance. The electrical insulation performance of gaseous medium is inferior to that of liquid medium. Also, the characteristics of creepage discharge is inferior to those of penetration breakdown. Therefore, electrical breakdown of a high voltage superconducting apparatus easily occur at current lead part filled with gaseous insulation medium as a form of creepage discharge rather than as a form of penetration breakdown. In this study, dielectric experiments on the creepage discharge characteristics of epoxy resin under various pressures using two kinds of electrode systems are conducted. The first one is for the creepage discharge along the surface of epoxy resin in gaseous and liquid nitrogen. The other is for the creepage discharge along the interface between two different epoxy resins in contact. Dielectric experiments are conducted with respect to various pressures from 0.1 MPa to 0.5 MPa. As results, characteristics of electric field intensity at creepage discharge under AC and DC voltage are deduced as an empirical formula.

### Submitters Country

Republic of Korea

**Authors:** KANG, Hyoungku (Korea National University of Transportation); Ms LEE, Onyou (Electrical Engineering, Korea National University of Transportation)

**Co-author:** LEE, Hongseok (Korea National University of Transportation)

**Presenter:** Ms LEE, Onyou (Electrical Engineering, Korea National University of Transportation)

**Session Classification:** Wed-Af-Po3.10

**Track Classification:** F9 - Electrical Insulation for Magnets