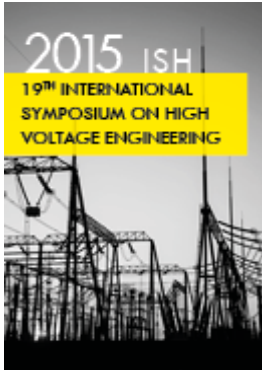


Reference: **ISH2015_590**



Type:
ISH Collection

Title:
Enhanced Calculation And Dimensioning Of Outer Corona Protection Systems In Large Rotating Machines

File Size:2,5 MB

Year: 2015

Abstracts

The primary components of electrical field grading systems in modern large rotating machines and especially in large turbo generators are applied to cope with locally increased electrical and thermal stresses affecting the electrical insulation system. In terms of future development and improvement of efficient insulation systems with a higher output to volume ratio adequate tools and techniques are necessary for dimensioning the electrical field grading system in a time and cost saving manner. Numerical calculation models based on the Finite Element Method (FEM) allow a theoretical approach to design electrical field grading systems before approving the functionality in real test setups. Additionally these calculation models help to get an in-depth understanding of specific theoretical aspects which are not possible to be measured physically or calculated with analytical equations at all. In this essay highly specialized FEM models are introduced which allow calculations of extensively structured OCP systems. Especially the results of investigations of electrical parameters (i.e. potential, field distribution, resistive losses) depending on varying OCP resistivity are discussed. Based on this it will be illuminated if and how an optimum OCP resistance could be defined at all based on the major influencing parameters.