IEEE / DEIS

ELECTRICAL INSULATION CONFERENCE

PRELIMINARY PROGRAM

19th to 22nd June 2016

Hotel Bonaventure
Montréal, QC, Canada
EIC 2016 Preliminary program

Some papers are still under review and may not be present in the final program

Schedule  SUNDAY 19th
8:30 to 14:30  Registration desk
9:00 to 17:30  Short courses
18:00 to 21:00  Reception and Poster session #1

Poster sessions #1

Transformers
- High-Temperature Insulation System Thermal Evaluation for Fluid Filled Transformer
- Investigation on the possibility of silent partial discharges inside power transformers
- Influence of Metallic Particles on the Breakdown Strength of Insulating Oil at AC-DC Combined Voltages
- Ageing Time Effect on the Breakdown Strength of Oil-Paper Insulation at AC-DC Combined Voltages
- A Maintenance Decision Optimization Method Based on Life Cycle Cost of Converter Transformer
- Studying Power Transformers Cooling Effectiveness from Computational Fluid Dynamics approach
- Experiments on the Multi-functional Current Sensor for condition detection of Transformer Bushings
- 3D Thermal Model and Experimental Validation of a Low Voltage Three-Phase Busduct
- Effect of Electric Field on Sulfur Corrosion Deposition and Its Diffusion Model Research in Power transformer
- Research on the Effects of Passivator on Insulation Life and Electrical Properties of Paper Insulation
- Theoretical Study of Corrosion Inhibition on Copper in Hydrocarbon Media
- Conception of Metrics for Detection of Partial Discharges by Acoustic Emission Technique to support Decision-making

Cables
- On-line calibration of partial discharge monitoring for power cable by HFCT method
- Development of a Measurement System for Off-line Diagnosis of MV Cables
- Evaluation of UV Stability of Outdoor Dielectric Compounds for Covered Overhead Lines
- The attenuation characteristic of PD signal in 10 kV power cable under damped AC voltages
Nanodielectrics
- Study on Influence of Temperature and Humidity on Corona Resistance of Polyimide Film Doped with Nano Alumina Particle
- Dielectric response and breakdown strength improvement of LDPE/TiO2 nanocomposites by using POSS as compatibilizing agent

Outdoor Insulation
- Effect of Uneven Wetting on E-Field Distribution along Composite Insulators
- Influence of Dry Band Width and Location on Flashover Characteristics of Silicone Rubber Insulators
- The Study on the effect of aging degree on composite insulator flashover voltage
- A new method to measure RTV coatings thickness with laser-induced breakdown spectroscopy (LIBS) technique
- Design of Wind-resistant Composite Insulator in Different Level of Wind Speed
- Effects of Conductive Components on AC Flashover Performance of Insulators at Various Contamination Environments
- Research on Application Effect and Painting Methods of RTV Coating in Guangdong Region
- Adaptation of the application of portable protective air gap to the Hungarian live-line maintenance technology

Testing
- Partial discharge testing in aeronautic environment on magnet wire and feeders cable
- Static and dynamic behavior of dry and oil-impregnated pressboard
- Investigation on Applicability of Sagnac and Speckle Fiber Optic Sensor in Partial Discharge Monitoring
- Transducer for impulsive current peak on tall structures
### Schedule

**MONDAY 20\textsuperscript{th}**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 to 8:00</td>
<td>Breakfast</td>
</tr>
<tr>
<td>7:00 to 8:00</td>
<td>Authors breakfast</td>
</tr>
<tr>
<td>7:30 to 9:30</td>
<td>Registration desk</td>
</tr>
<tr>
<td>8:00 to 9:00</td>
<td>Plenary lecture given by: Prof. Beroual Abderrahmane, Dakin Award recipient</td>
</tr>
<tr>
<td>9:00 to 12:30</td>
<td>Oral sessions S1 – S6</td>
</tr>
<tr>
<td>12:30 to 14:00</td>
<td>Lunch and Exhibition</td>
</tr>
<tr>
<td>14:00 to 15:30</td>
<td>Oral sessions S7 – S9</td>
</tr>
<tr>
<td>15:30 to 16:00</td>
<td>Exhibition and Poster session #2</td>
</tr>
</tbody>
</table>

### Monday Oral sessions

**Transformers S1**
- Dielectric Prototype Test of a Full-scale 400 kV Power Transformer High-voltage Lead-exit Insulated with Natural Ester Liquid
- The safe and environmentally friendly operation of 400 kV transformers filled with natural or synthetic esters
- Gases Generation under Electrical Faults in Vegetable-Oil-Filled Transformers

**Rotating Machines S2**
- Water Cooled Stator Windings
- Upgrading of Old Large Turbo Generators
- Evaluation of Electrical Insulation Quality for High Voltage Stator Windings through Visual Inspection of Dissected Coils

**Outdoor Insulation S3**
- Breakdown and partial discharge measurements on mold compounds after different treatments
- Flashover Prediction of Iced Composite Insulators Based on Leakage Current’s Feature Parameters
- Flashover Performance of Polluted Composite Insulators under AC and Hybrid AC/DC Field Stress

**Transformers S4**
- The Assess Method of Validity for DGA Sensor Based on Multiple Criterion
- Short Term Trend Forecast of On-line Monitoring Data of Dissolved Gas in Power Transformer
- Power Transformer Condition Assessment Method based on Environment and Property Analysis
Rotating Machines S5
- Accelerated aging, partial discharges and breakdown of Type II turn-to-turn insulation system of rotating machine
- On-Line Partial Discharge Measurement in Hydrogen-Cooled Generators
- On the variability of PD results among independent expert laboratories
- The Effects of Temperature on PD Statistics and Endurance for Inverter-fed Motor Insulation under Repetitive Square Wave Voltages

Outdoor Insulation S6
- High voltage insulator contamination level monitoring with conventional and novel methods
- Lightning Withstanding of Medium Voltage Cut-out Fuses Stressed by Non-standard Impulse Shapes – Experimental Results
- Study on the Effect of Corona on Hydrophobicity Recovery Performance of RTV Silicone Rubber and its Failure Criterion
- AC Pollution Flashover Characteristics of Polluted Insulators at Natural Fog Conditions

Transformers S7
- General Diagnosis of Transformer Winding Axial Displacement Faults Based on FEM Simulation and On-site Experiments
- Transformer Structural Faults Detection Based on FRA and SCI Measurement
- Field Experience on Diagnostic Condition Assessment of Three Phase Distribution Class Transformers over a Wide Frequency
- Tests on 550 kV Inductive Voltage Transformers

Rotating Machines S8
- PD Acceptance Tests for New Bars and Coils
- Round-Robin Test of Repetitive Partial Discharge Inception Voltage Measurements on Complete Winding of 4 kW Random-Wound Motor
- A Proposed Procedure for Endurance Testing of Turn Insulation in Rotating Machine Coils
- Improving Detection Sensitivity of an On-Board Radio Interferometer System for Locating Partial Discharge Sources in Propulsion Coils of Superconducting Maglev Systems

Outdoor Insulation S9
- Experimental Investigation of Internal Defect Detection of a 69-kV Composite Insulator
- Failure analysis and inspection of long-term behaviour of selected medium voltage equipment
- Proposal and evaluation of a technique based on ultrasound for composite insulator monitoring
Poster sessions #2

Rotating Machines
- The calculation of the working conditions of the inner corona protection layer on large turbine generator
- Study on the frequency domain dielectric spectroscopy of rotating machine insulation
- Feasibility Research of Aging Status Assessment of Steam Turbine Generator Insulation by Frequency-Domain Dielectric Spectroscopy
- Experiences with Resin Rich Mica Taping Materials
- Effect of Moisture on the Test of Frequency Domain Spectroscopy of Large Turbine-Generator Stator Insulation
- Numerical Investigation of Transient Potential Distribution along Stress Grading on Form-Wound Stators (Roebel Bar Type)

Switchgear
- Application of Gaussian Copulas in Describing Station Impinging Lightning Overvoltages
- Discharge Characteristics of CF3I/N2 with and without Insulator under Standard Lightning Impulse
- The transient Field Distribution of HVDC-GIL with alternative gas to SF6
- Design of an UHF Snowflake Multifrequency Microstrip Antenna Built in High-Voltage Switchgears to Detect Partial Discharge
- Insulation Fault Overview and Analysis on Wall Bushings Used in Medium Voltage Switchgears
- PD pattern recognition based on transient earth voltage (TEV) pulse amplitude-frequency spectrograms for switchgears

New Materials
- Calculation of breakdown field of hot 30%CF3I-70%CO2 gas mixtures in arc extinction process
- Phase change materials for the use in thermal and electrical stressed insulation for high voltage applications
- Influences of Fabrication on Resistance to Dielectric Breakdown
- Insulation Performance and Gas Discharge Breakdown By-products in CF3I-N2 Mixed Gas
- Influence of Electron Beam Irradiation on Electrical Properties of Engineering Thermoplastics
- Several Fabrication Techniques and Characterization of the thus obtained Epoxy/Polyaniline composite films

Testing
- Thermoplastic Materials Surface Aging Performance under Multi-stress Conditions
- Comparison of failure detection capability of available low-voltage cable diagnostic methods
- Design of UHF-SHF sensor for the Partial Discharge detection of GIS with metal enclosed insulator structure
**Exhibitor list**

<table>
<thead>
<tr>
<th>Booth #</th>
<th>Exhibitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>ELANTAS PDG, Inc.</td>
</tr>
<tr>
<td>25</td>
<td>Electrom</td>
</tr>
<tr>
<td>12</td>
<td>ELTEK International Laboratories</td>
</tr>
<tr>
<td>27</td>
<td>Giffin Koerth Forensic Engineering</td>
</tr>
<tr>
<td>19</td>
<td>HAEFELY HIPOTRONICS</td>
</tr>
<tr>
<td>11</td>
<td>Highvolt</td>
</tr>
<tr>
<td>8</td>
<td>HV Technologies</td>
</tr>
<tr>
<td>21</td>
<td>Iris Power - Qualitrol</td>
</tr>
<tr>
<td>10</td>
<td>Isovolta</td>
</tr>
<tr>
<td>28</td>
<td>Kapteos</td>
</tr>
<tr>
<td>14</td>
<td>Kinectrics</td>
</tr>
<tr>
<td>17</td>
<td>Manitoba Hydro</td>
</tr>
<tr>
<td>3</td>
<td>Morgan Schaffer, Inc</td>
</tr>
<tr>
<td>4</td>
<td>Motor Doc LLC</td>
</tr>
<tr>
<td>16</td>
<td>ndb Technologies</td>
</tr>
<tr>
<td>1</td>
<td>Nippon Rika</td>
</tr>
<tr>
<td>30</td>
<td>OMICRON Lab</td>
</tr>
<tr>
<td>13</td>
<td>Phenix Technologies</td>
</tr>
<tr>
<td>20</td>
<td>Power Monitoring and Diagnostics Technology Ltd.</td>
</tr>
<tr>
<td>15</td>
<td>QPS Photronics</td>
</tr>
<tr>
<td>19</td>
<td>Tony Davies High Voltage Laboratory</td>
</tr>
<tr>
<td>29</td>
<td>Trek</td>
</tr>
<tr>
<td>9</td>
<td>TRM Consulting</td>
</tr>
<tr>
<td>24</td>
<td>VibrosystM Inc</td>
</tr>
<tr>
<td>23</td>
<td>Zeus</td>
</tr>
</tbody>
</table>
Schedule

Tuesday 21st

7:00 to 8:00  Breakfast
7:00 to 8:00  Authors breakfast
7:30 to 9:30  Registration desk
8:00 to 12:30  Oral session S10 – S15
12:30 to 14:00  Lunch and Exhibition
14:00 to 17:45  Oral session S16 – S21
18:00 to 21:00  Reception and Dinner Banquet

Tuesday Oral sessions

Transformers S10

- A new accelerated thermal aging test for over-load condition transformer
- Effect of higher insulation material thermal conductivity on transformer temperature rise
- Transformer thermal modelling - Assessing different CFD methodologies and associated best practices
- Limitations relative to the determination of water content in transformer solid insulation
- Study on Aging Degree and Moisture Content Assessment Methods of oil-paper in Transformer based on FDS

Cables S11

- AC and DC partial discharge measurements on defective cables
- Partial discharge and aging of AC cable systems under repetitive voltage transient supply
- The Use of Partial Discharge Analysis for the Diagnosis of Electrical Ageing in Polymeric Insulation Containing Cavities
- Investigating the dependence of PD activity on applied field structure
- Experimental results of a diagnostic measurement method for power cables using interference characteristics of travelling waves

Rotating Machines S12

- Stator Magnetic Core Failures
- Main causes of failure of electrical generators installed in refineries and petrochemical plants
- Failure Evaluation and Root Cause Analysis of Electrical Insulation for High Voltage Stator Windings through Visual Inspection of Dissected Coils
- Life-time investigation of mica-based insulation for high voltage machines subjected to converterlike voltages
- Aging tests on coils turn insulation
Transformers S13
- Composition and Micro-Structure: Another Kind of Certain Influence Factors for Copper Corrosion in Mineral Oil with Corrosive Sulfur
- Influence of wrapped paper and atmosphere on the deposition of copper sulfide induced by the dibenzyl disulfide in oil-immersed insulation
- Laser Raman Spectroscopy Applied in Detecting Dibenzyl Disulfide(DBDS) in Transformer Oil
- Study of Influence on Metal Passivator Effectiveness

Cables S14
- Impact of Contact Pressure and Elastic Modulus on Breakdown Strength of Solid-Solid Interfaces Under Dry, Wet and Lubricated Environments
- Wattmeter clamp for multicore cable: a breakthrough in electrical diagnostics
- The effect of composition and processing on electric characteristics of XLPE for use in HVDC cable applications
- Comparison of Polymeric Insulation Materials on Failure Development in Low-Voltage Underground Power Cables.

Rotating Machines S15
- A novel repetitive impulse voltage source for endurance tests on insulation for rotating machines fed by power electronics
- Temperature Dependence of Insulation Resistance and Current Components for Generator Stator Bars
- Rotor Temperature Monitoring using Fiber Bragg grating
- Life-time investigation of mica-based insulation for high voltage machines subjected to converterlike voltages

Transformers S16
- Correlation of microscopic textural features and degree of polymerization for thermally deteriorated cellulose insulation
- Correlation of microscopic textural features and degree of polymerization for thermally deteriorated cellulose insulation
- Influence of the Geometric Orientation of Cellulosic Fibers on the Electrical Behavior of Pressboard under DC Stresses
- Analysis of Acetone Dissolved in Transformer Oil using Laser Raman Spectroscopy

Cables S17
- Test setup for measuring medium voltage power cable and joint temperature in high current tests using thermocouples
- Long Term Testing and Analysis of Dielectric Samples under DC Excitation
- Observation of non-monotonic dependence of leakage current to temperature during thermal dynamics
- Manitoba Hydro: Underground Feeder Rehabilitation Program
Testing S18

- Evaluation of Form Wound Insulation with Motor Circuit Analysis
- A state of the art review- methods to test and evaluate electrical performance of composite cross-arms and composite-based towers
- Influence of pressure on partial discharge spectra
- Virtual Instrumentation for High Voltage Power Capacitors Assessment through Capacitance Monitoring and Acoustic Partial Discharge Detection

Transformers S19

- Life Estimation of RIP Transformer Bushing using Partial Discharge Data
- Classification and Localisation of Multiple Partial Discharge Sources Within a High Voltage Transformer Winding.
- Comparison of Acoustical Partial Discharge Signals under AC and DC Stress
- Temperature Characteristics of Partial Discharge occurring in Micro-defects of solid insulation.

Switchgear S20

- Synergistic Effect of c-C4F8/N2 Gas Mixtures in Slightly Non-uniform Electric Field Under Lightning Impulse
- Greenhouse Gas Emission Reductions through the use of Sustainable Alternatives to SF6
- A new approach to assess moisture content in SF6-insulated equipment
- Dielectric Strength of SF6 Alternative Insulation Gases in the Strong Inhomogeneous Electric Field

Testing S21

- A New Methodology for the Evaluation of the Influence of Discrete Spectral Interference on Partial Discharge Measurements in the Field
- Data Driven GIS UHF Partial discharge rapid location method
- Analysis of electromagnetic waves emitted from PD in air using the UHF and HFCT methods
- Electrical diagnostics of high voltage devices via high resolution near field mapping
Schedule  Wednesday 22\textsuperscript{nd}
7:00 to 8:00  Breakfast
7:00 to 8:00  Authors breakfast
7:30 to 9:30  Registration desk
8:00 to 12:00  Oral session S22 – S26
13:00 to 17:00  IREQ tour (50 pers. max)
13:00 to 17:00  Working group meeting (Detailed program to follow)

**Wednesday Oral sessions**

**Transformers S22**
- Calibration of Partial Discharge Measurements for Power Transformers by means of the Electrical and UHF-Method
- Nonmetallic Particle Effect on the Breakdown Strength of Insulating Oil at AC-DC Combined Voltages
- Electrical Properties of Composite Materials Containing Microvaristors and Several Shaped ZnO fillers

**Nanodielectrics S23**
- Effect of Water Absorption on Dielectric Spectrum of Nanocomposites
- Dielectric properties of a functional epoxy : the case of composites containing Carbon Black and reactive POSS
- Morphological and electrical properties of block copolymer/carbon nanotubes nanocomposites
- Evaluation of dielectric behavior of polyethylene/thermoplastic elastomer blends containing zinc oxide (ZnO) nanoparticles for high voltage insulation
- Impact of Nanoparticles on Primary and Secondary Motor Insulation in Stators

**New Materials S24**
- Dielectric Properties of Environmental Friendly Cooling Fluids
- Phase change materials for the use in thermal and electrical stressed insulation for high voltage applications
- Developing a Novel Environmental Friendly Solvent free Impregnating Epoxy Resin without Anhydride for High Voltage Motor Application
- High voltage insulator contamination level monitoring with conventional and novel methods
- Thermoplastic Materials Aging under Various Stresses
Switchgear S25
- Insulation performance investigation on 12kV Switchgear with withdrawable VCB
- A practical test circuit for combined high direct voltage and switching impulse voltage multi-stress tests

Nanodielectrics S26
- Partial Discharge Characteristics of Polyimide Film Doped with Different Types of Nano Particles
- Effect of grafene-oxide content on space charge characteristics of PE-based nanocomposites
Schedule    Thursday 23rd
8:00 to 17:00   Working group meeting (Detailed program to follow)