

# **Conference Record of the 2012 IEEE International Symposium on Electrical Insulation**

## **(ISEI 2012)**

**San Juan, Puerto Rico, USA  
10-13 June 2012**



**IEEE Catalog Number:** CFP12ISE-PRT  
**ISBN:** 978-1-4673-0488-7

# Table of Contents

- Analytical Results of Harmonic Influenced Experimental Electrical Tree Growth Images** ...%  
S. Bahadoorsingh, R. Balliram, C. Sharma, S.M. Rowland
- Occurrence of Partial Discharges in Low-voltage Cables at the Failure Spot** ...()  
Richárd Cselkó, Ádám Tamus
- On the Cross-linking Temperature Dependence of Charge Transportation Characteristics of High Voltage XLPE Cable Insulation** ...B#5  
Y. Gao, B.X. Du
- The Electrical Trees Initiation At Different Electric Field Strength In XLPE Cable Insulation** ...%  
Libin Hu, Yang Xu, Xiangrong Chen, Huachun Li, Yi Feng, Zhigang Ren
- The Relationship between Electric Tree Aging Degree and the Equivalent Time-Frequency Characteristic of PD Pulses in High Voltage Cable** ...%  
W. Wang, S. Chen, K. Yang, D. He
- Study on the Oxidative Stability of Palm Fatty Acid Ester (PFAE) as an Insulating Oil for Transformers** ...&&  
T. Kano, T. Suzuki, R. Oba, A. Kanetani
- Partial Discharge Properties of Ester Oils Having Different Molecular Structures** ...\*&  
Masayuki Hikita, Junichiro Tokiyoshi, Motoo Tsuchie, Masahiro Kozako, Takashi Suzuki, Akinori Kanetani, Takaaki Kano
- Study Of Electrical And Rheological Properties Of Natural And Other Oils** ... \$  
Milan Spohner, Martin Frk, Karel Liedermann
- First Principles Calculations of Intrinsic Breakdown in Covalently Bonded Crystals** ...()  
Ying Sun, Steven Boggs, Rampi Ramprasad
- Sparkover Characteristics Of Air – CO<sub>2</sub> Mixed Gas In Non – Uniform Field Gap** ... ,  
Hideto Mashidori, Tatsuya Ogawa, Yasuji Izawa, Kiyoto Nishijima
- Electrical Resistivity Characterizationof Silicon Carbide Powders By Various Methods** ...(')  
C. Vanga Bouanga, S. Savoie, M. F. Fréchette, H., E. Couderc, David
- Recovery of Hydrophobicity of a New Nano-composite Coating for Ceramic Insulators** ...B#5  
Igor Gutman, Jens Seifert, Corinne Greylings
- Dielectric Response Of Filled And Flexibilized Epoxy Resin** ...')  
I. Preda, H. Couderc, M. Fréchette, S. Savoie, A. Krivda, J. Castellon
- Dielectric Properties Of UV-Cured Epoxy Films Treated With Layer-By-Layer Nanosilica Architectures** ... -  
C. Vanga Bouanga, H. Couderc, G. Malucelli, M.F. Fréchette, G. Camino, S. Savoie
- Dielectric And Thermal Properties Of Boron Nitride And Silica Epoxy Composites** ...\*(  
H. Couderc, M. Reading, M. Fréchette, A.S. Vaughan, S. Savoie

**Effect of TiO<sub>2</sub> Nanofillers on Electrical, Thermal and Mechanical Parameters of Epoxy Resin** \*\*\* -

M.M. Saei Shirazi, H. Borsi, E. Gockenbach

**Modern Investigation of Rapid Flashover Solid Layer Pollution Testing as an Alternative To Current Standard Diagnostic Methods** \*\*\*B#5

Igor Gutman, Joha Shamsujjoha, Clive Lumb, Jean-Marie George, Serge Roude

**A Coastal Trial Facility For High Voltage Composite Cross-Arms** \*\*\*+,

C. Zachariades, S. M. Rowland, I. Cotton, F. Peesapati, P.R. Green, D. Chambers

**Study on Aging Characteristics of Silicone Rubber Insulator Sheds using FTIR** \*\*\* , ,

Hui Zhang, You-ping Tu, Yu-liang Tong

**Flashover Mechanism of Polluted Insulator in Intermittent High Speed Wind** \*\*\*B#5

Jixing Sun, Guangning Wu, Guoqiang Gao, Lijun Zhou, Mingxiang Li, Dajian Li

**Numerical Simulations of Ice-Covered EHV Post Station Insulator Performance Equipped with Booster Sheds** \*\*\*- %

C. Volat, S. M. Ale Emran, M. Farzaneh

**Detection of AC Corona Discharges Using an Electro-Optic E-field Sensor** \*\*\* - )

C. Volat, L. Duvillaret, G. Gaborit

**Locating Partial Discharge Generated in PLG Type-Ground Coil for Superconducting Maglev Using Radio Interferometer System** \*\*\* - -

Masatake Kawada, Masao Suzuki, Satoru Ota, Ryohei Ikeda

**A Cost Effective Trigger Circuit For An On-Line Multi-Sensor Partial Discharge Monitoring System** \*\*\*%\$()

M. Al Zaabi, Muaz Salah, M. Qasim, Ayman El-Hag, Aydin Yesildirek

**Study on the Failure Mechanism of Magnet Wires** \*\*\*B#5

Yang Luo, Guangning Wu, Peng Wang, Kaijiang Cao, Yi Cui, Liren Zhou

**Laboratory Measurements for Power System Equipment Condition Monitoring** \*\*\*%/%

Donald G. Kasten, Stephen A. Sebo, John L. Lauletta

**The Numerical Modelling and Experimental Validation of a Partial Discharge within an Air Filled Cavity Bound in Oil** \*\*\*%#+

D. J. Smith, S. G. McMeekin, B. G. Stewart, P. A. Wallace

**Partial Discharge Pattern Classification for an Oil-Pressboard Interface** \*\*\*%&&

A. Abubakar Mas'ud, B.G. Stewart, S.G. McMeekin, A. Nesbitt

**Comparison Of IEC 60270 And RF Partial Discharge Detection In An Electromagnetic Noise-Free Environment At Differing** \*\*\*%&+

R. Giussani, I. Cotton, R. Sloan

**Detection Of Corona With RF Methods And Spectra Analysis** \*\*\*% &

R. Giussani, I. Cotton, R. Sloan

**Study on Identification Methodology of Instantaneous and Permanent Fault for High-voltage Overhead Transmission Line** \*\*\*% +

QUAN Yu-sheng, ZHAO Bo, CHEN Shu-yong, XU Tie-ying, JI Li-xin

**Performance of Flashover on the Resin Spacer Surface in N2-SF6 and SF6-Air Gas Mixture under Power Frequency**

Cong Wang, YouPing Tu, Xiao Li, Rong Tan

**Lightning Impulse Surface Flashover Characteristics of Insulators in SF6/N2 and SF6/Air Below 0.25 MPa**

Rong Tan, Youping Tu, Cong Wang, Xiao Li

**Characteristics of Planar Capacitor Sensors with Dielectric Window for Very Fast Transient Overvoltage Measurement in Gas Insulated Switchgears**

Guo-ming MA, Cheng-rong LI, Wei-jiang CHEN, Ze-lai SUN, Pan-hui GUO, Zhi-bing LI

**Study on the Methodology of Detection for Transformer Winding Insulation Defects Based on Applied Voltage Test**

QUAN Yu-sheng, NING Zi-sen, CHEN Shu-yong, LI Wei, XU Tie-ying

**Study on the Methodology Monitoring Insulation Defects of High-voltage Bushing**

QUAN Yu-sheng, NING Zi-sen, CHEN Shu-yong, XU Tie-ying, ZHOU Yu

**Forecasting The Remaining Life of Transformers after Overheating Based on Catastrophe Theory**

QUAN Yusheng, WANG Beibei, CHEN Shuyong, NING Zisen, XU Tieying

**Glass Transition Temperature and Mechanical Properties in Amorphous Region of Transformer Insulation Paper by Molecular Dynamic Simulations**

Youyuan Wang, Tao Yang, Jian Li

**Improvements of the Transformer Insulation XY Model Including Effect of Contamination**

Jialu Cheng, Diego Robalino, Peter Werelius, Matz Ohlen

**The Analysis of the Impact Point of the Power Transformer Core of Torsional Load on the Measured Parameters of the Vibroacoustics Signals**

Sebastian Borucki, Tomasz Boczar, Andrzej Cicho?, Pawe? Fr?cz

**Diagnostics of Power Transformer Cores Using a Modified Vibroacoustic Method**

Sebastian Borucki, Pawe? Fr?cz, Tomasz Boczar, Dariusz Zmarz?y

**Detection Of Defects In On-Load Tap-Changers Using Acoustic Emission Method**

Andrzej Cicho?, Tomasz Boczar, Pawe? Fr?cz, Dariusz Zmarz?y

**Preliminary Study on Infrared Spectral Characteristics of Mineral Oil Impregnated Polymer Materials under Electro-thermal Aging**

Dongxin He, Wei Wang, Kai Yang, Shengke Chen, Caipeng Yue

**High Voltage Machines Operating at High Altitude – Dielectric Considerations**

Thomas Klamt

**Root Cause Analysis of Generator Failures**

C. Hudon, M. Lévesque, D.-H. Nguyen, C. Millet, F. Truchon

**Comparative AC VET On New Bars And On Bars Previously Subjected To DC VET**

Charles Millet, Mario Bélec, Calogero Guddemi

**Comparison Of Transient Time-Domain And Harmonic Quasi-Static Solution Of Electrical And Thermal Coupled Numerical Stress Grading Calculations For Large Rotating Machines** ····&\$-

Christian Staubach, Friedhelm Pohlmann, Frank Jenau

**Evaluation of Induction Warming Stator Cores for Coil Removal** ····&%

Leo F. Dreisilker, Howard W Penrose

**Evaluation Of Underground Submersible Distribution Transformers Through Oil Analysis** ····&%+

Bernard Noirhomme, Jacques Côté

**Gases Dissolved in Natural Ester Fluids Under Thermal Faults in Transformers** ····&'

Yu Liu, Jian Li, Zhaotao Zhang

**Engineering of Enhanced Performance Insulating Cellulose Papers for Application in Distribution Transformers** ····&+

Kevin Biggie, William Ernst, Michael Franchek, Aleksandr Levin

**Failure of Service Aged 230 kV Current Transformers** ····& )

W. McDermid, T. Black

**Localizing Partial Discharge In Power Transformers By Combining Acoustic And Different Electrical Methods** ····& +

S.M. Hoek, A. Kraetge, U. Broniecki, B. Kästner

**The Influence Of Voltage Source And Withstand Duration For Identifying Lifelimiting Defects In Newly Laid HV & EHV XLPE Cable Systems** ····&( &

M. Fenger

**How Much Does Studying Polyethylene Tell Us About XLPE** ····& \$

Detlef Wald, Nigel Hampton

**Use Static Inverters for Performing Field Testing on HVAC Cables** ····& )

J. Rickmann, D. Kremer

**Quantifying The Operational Benefits Of New HV Cable Systems In Terms Of Dielectric Design Parameters** ····&\* %

J.A. Pilgrim, P.L. Lewin, A.S. Vaughan

**Water Tree Growth of Wet XLPE Cables Stressed with DC and High Frequency AC Voltage Superimposed** ····&\* \*

Frank Mauseth, Martin Amundsen, Hallvard Faremo

**The Effect of Water Ingress on Dielectric Properties of Polyethylene Cable Insulation** ····&+\$

S. Bernier, J.-F. Drapeau, D. Jean, É. David

**Proposed Maintenance Hipot Levels for Generator Rotor Windings** ····&++

G.C. Stone, R. Ilie

**Comparison Of EMI Signatures To Improve Condition Assessment Of Generator Stator Insulation** ····&, %

James E. Timperley, José M. Vallejo

**End-Winding Vibration Monitoring And Interpretation** ···· & , )

Marc R. Bissonnette

**Flexible Medium Voltage Stator Coil Insulation System for On-site Winding** ···· &- %

Saeed Ul Haq, Ramtin Omranipour, George Hanna, William Lucas, Michael Znidarich

**Dielectric Frequency Response Measurements and Dissipation Factor Temperature Dependence** ···· &- \*

Peter Werelius, Matz Ohlen, Jialu Cheng, Diego M. Robalino

**FRA vs. Short Circuit Impedance Measurement in Detection of Mechanical Defects within Large Power Transformer** ···· \$%

Mehdi Bagheri, Mohammad Salay Naderi, Trevor Blackburn, Toan, Phung

**Diagnostic Evaluation Of Power Transformers By An Expert System** ···· \$\*

Csaba Vörös, Sándor Szabó, Bálint Németh, István Berta

**Study of Parameters Influencing the Performance of Connectors Used for Load and Temperature Tests on Transformers** ···· %%

Salvador Magdaleno-Adame, J. C. Olivares-Galvan, R. Escarela-Perez, I. Fofana, L. Loiselle, P. S. Georgilakis

**Cable System Aging Management for Nuclear Power Plants** ···· %

Gary J. Toman, Andrew Mantey

**Comparison of Parametric Partial Discharge and Dissipation Factor Characteristics of the MV PILC Cables** ···· %

I. Mladenovic, Ch. Weindl, Ch. Freitag

**Defect Investigation in Medium-Voltage EPR Cable** ···· &

Alistair J. Reid, Xiao Hu, Martin D. Judd, W. H. Siew

**Axial Water Ingress In Watertight MV XLPE Cable Designs** ···· &+

Knut Brede Liland, Svein Magne Hellesø, Sverre Hvidsten, Karl Magnus Bengtsson, Arve Ryen

**A Review of New Insulation Development for Wind Generator Applications** ···· &

William Chen, George Gao

**Simulating Insulation Systems Under Various Environmental Conditions in the Laboratory** ···· \*

D.L. McKinnon

**Development of a Finite-Element-Model for Transient Thermal Analysis of Thermal Cycle Tests on Stator Bars for Large Rotating Machines** ···· (%)

Christian Staubach, Christian Foelting, Amir Taghipour Anvari, Frank Jenau

**Effect Of Mineral Charge With High Relative Permittivity In Impregnation Varnish On The Life Expectancy Of Electrical Machines** ···· (\*)

D. Cozonac, S. Duchesne, G. Velu

**Use Of An Electronic Nose To Estimate Paper Insulation Degradation** ···· ) \$

M-C Lessard, B. Noirhomme, G. Larocque, M. Vienneau

**A Comparative Study on the Electrical Properties of Hydrogenated Transformer Oil and**

**Naphthenic Transformer Oil** ) \*

Yihua Qian, Yongpin Lin, Haiyan Wu, Yibin Huang, Zhensheng Zhong

**A Methodology to Predict the Lightning Insulation Strength for Distribution Transformers by Applications of Reduced Lightning Standard Impulse Voltages** \* %

G. P. Lopes, M. L. B. Martinez, R. Salustiano, I. P. Faria, V. G. C. Telles

**A New Technique for a Better Sweep Frequency Response Analysis Interpretation** \*\*\*

Esam Al Murawwi, Braham Barkat

**Partial Discharge Diagnostics of Defective MV Three-Phase PILC Cables** +%

J A Hunter, L Hao, P L Lewin, C Walton, M Michel

**Electrical Conductivity Of Medium Voltage XLPE Insulated Cables** +\*

Øystein Leif Hestad, Frank Mauseth, Ruth Helene Kyte

**Deployment Methods for Magnetic Integrity Testing of Concentric Neutral Wires in Energized Underground Power Distribution Cables** , %

Igor Paprotny, Michael Seidel, Clint Morris, Tomas N. Czamanski, Richard M. White, Paul K. Wright

**Initiation of Vented Water Trees from the Conductor Screen of MV XLPE Insulated Cables** , \*

Hallvard Faremo, Mildrid Selsjord, Sverre Hvidsten, Karl Bengtsson, Arve Ryen

**Partial Discharge On-Line Monitoring of Outdoor Insulators** - %

Ibrahim Y. Shurrah, Ayman El-Hag, Khaled Assaleh, Refat Ghunem

**Developments of High Voltage Porcelain Post-Insulators** - )

T. Morocutti, T. Berg, M. Muhr, G. Gödel

**AC and Transient Electric Field Distributions Along a 380 kV Vee String Insulator** --

Suat Ilhan, Aydogan Ozdemir, Shesha Jayaram, Edward Cherney

**Added Critical Flashover Voltage By Fiberglass Crossarm To 15 KV Polymer Suspension Insulator** (\$

S. Grzybowski, S. Talabathula, R. Ward

**Consideration into CIGRE Round Robin Contamination Tests of Polymer Insulators** (\$-

Ryosuke Matsuoka, Kenji Sakanishi

**Development Of A Low Viscosity Insulating Fluid Based On Vegetable Oil** (%

Yves BERTRAND

**Charge Behavior in Palm Fatty Acid Ester Oil (PFAE) / Pressboard Composite Insulation System under Voltage Application** (%)

Hiroki Kojima, Naoki Hayakawa, Katsumi Kato, Hitoshi Okubo, Keizo Kawanishi, Hidenobu Koide

**Comparative Experimental Study Of Dielectric Strength Of Oil-Cellulose Insulation For Mineral And Vegetable-Based Oils** (&

Dejan Vukovi?, Mark Jovalekic, Stefan Tenbohlen, Jörg Harthun, Christophe Perrier, Mamadou Coulibaly, Harald Fink

**Understanding the Properties and Aging Characteristics of Natural Esters for Applications in Fluid Filled Electrical Apparatus** (&-

Arthur W. Lemm

**Automatic Separation of Multiple PD Sources Using an Amplitude-AutoCorrelation Relation Diagram** ····(· (

A. Contin, S. Pastore

**Simultaneous Measurement of Partial Discharge using TEV, IEC60270 and UHF Techniques** ····(· -

Alistair J. Reid, Martin D. Judd, Graeme Duncan

**A Feature Based Method for Partial Discharge Source Classification** ····(· ·

P L Lewin, L A Petrov, L Hao

**FEA Modelling Of A Water Droplet Vibrating In An Electric Field** ····(· -

Q. Li, R. Shuttleworth, I. Dupere, G. Zhang, S. Rowland, M., R. S. Morris

**Emission and Propagation Mechanisms of PD Pulses for UHF and Traditional Electrical Measurements** ····(· (

S.M. Hoek, M. Koch, A. Kraetge, P. Winter, M. Heindl

**Inclined Plane Initial Tracking Voltage for AC, +DC and -DC** ····(· -

Refat Atef Ghunem, Shesha H. Jayaram, Edward A. Cherney

**3D Electric Field Computation of a Composite Cross-Arm** ····(\* (

V. Peesapati, C. Zachariades, Q. Li, S. M. Rowland, I. Cotton, F. Allison, D. Chambers

**Influence of the Electric Field on TSC Characteristics of 110kV Silicone Rubber Insulator Sheds in Service** ····(\* -

Hui Zhang, Youping Tu, Yi Lu, Jingjing Chen, Conghui Chen, Lifang Xie

**Association Between Hydrophobicity And Dry Band Arcing On ADSS Fiber Optic Cables And Dampers** ····(+ ·

Kumaraguru Prabakar, George G. Karady

**Water Absorption And Water Vapor Permeation Characteristics Of HTV Silicone Rubber Material** ····(+,

B. Lutz, Z. Guan, L. Wang, F. Zhang, Z. Lü

**Stability of Environmental Friendly Fluids under Electrical and Thermal Stresses** ····(, ·

L. Loiselle, I. Fofana, J. C. Olivares-Galvan, E. Campero

**Behaviour Of Alternative Insulating Liquids At Cold Temperatures** ····(, +

W. Lick, H. M. Muhr, M. Stössl, R. Schwarz, G. Pukel

**Gassing Behavior Of Various Alternative Insulating Liquids Under Thermal And Electrical Stress** ····(- \$

M. Jovalekic, D. Vukovic, S. Tenbohlen

**The Influence Of Test Voltage Waveforms On Partial Discharge Activity In XLPE** ····(- (

C. G. Azcarraga, A. Cavallini, G. C. Montanari

**Comparative Study of PD Characteristics and Degradation of PET Insulation with a Self-contained Void, Void with Closed** ····(- ,

D. Adhikari, D. M. Hepburn, B. G. Stewart

**Evaluation of FDTD Modelling as a Tool for Predicting the response of UHF Partial Discharge Sensor**) \$&

A. M. Ishak, M. D. Judd, W. H. Siew, P. C. Baker

**A Novel Sensing Device for Power System Equipment Condition Monitoring**) \$+

John L. Lauletta, Stephen A. Sebo

**Detection And Location Of PD Activities Using An Array Of Fiber Laser Sensors**) %%

Peter Kung, Lutang Wang, Maria Comanici, Lawrence Chen

**Breakdown and Tracking Properties of Rubber Materials for Wind Turbine Blades**) %\*

Anna Garolera, Joachim Holboell, Mogens Henriksen

**Influence of Insulation Thickness on the Electric Properties of Unfilled ?m-sized Thermosets**) &\$

Sebastian Azer, Christian Föltинг

**Investigation of the Physical Properties of Elastic Syntactic Foams**) &\*

M. Kessler, C. Roggendorf, A. Schnettler

**Effect of Gamma-Ray Irradiation on Surface Charge Decay through Bulk of Epoxy Resin**) ' %

Y. Gao, B.X. Du

**Face Protection Investigation Against Electric Field On Live Line Workers**) ' )

Gábor Göcsei, Bálint Németh, Zoltán Tamus, István Kiss

**On Calculating Surface Potential Gradient of Overhead Conductors**) (\$

Q. Li, R. Shuttleworth, G. Zhang, S. M. Rowland, R. S. Morris

**Thermal Grading around Overhead Transmission Line Under Various Environments and Its Influence to Load Capacity**) ()

Lihua Chen, Zhong Zheng, Shaoyu Liu, Liang Guo, Chun Dun

**Determination of Optimum Resistor Sequence in a Ballistic Breaker**) (-

R. W. Faulkner, C. Taylor

**The Influence Of Oil Speed And Temperature On PD Phenomena In Transformer Insulation**) (

C.G. Azcarraga, A. Cavallini, G.C. Montanari

**On-site Transformer Partial Discharge Diagnosis**) ,

D. W. Gross, M. Soeller

**On-line Partial Discharge Testing of In-Service Rotating Machines in Ex Hazardous Environments by Employment of Central Monitoring Solutions**) \*)

L. Renforth, S. Goodfellow, M. Foxall, D. Clark, R., Shuttleworth

**Alarm Management in Permanent PD Monitoring for Generators**) +%

L. Fornasari, G.C. Montanari, A. Cavallini

**Partial Discharge Detection During Electrical Aging of Generator Bar Using Acoustic Technique**) +\*

S. Ahmadi, M.R. Naghashan, M. Shadmand

**Effect Of High Field On Dielectric Relaxation Properties Of Polycarbonate** (\*) +

H. Couderc, M. Fréchette, S. Savoie, E. David

**Investigations On The Dielectric Strength Of Syntactic Foam At Cryogenic Temperature And The Impact Of The Filler Material** (\*) , &

D. Winkel, A. Schnettler

**Bio-Based Engineering Plastics for Low Voltage Applications** (\*) , +

L. Petersson, H. Martini, M. Chiaravalli, P. Faure Ragani

**The Mechanism of Clearing in Metallized Film Capacitors** (\*) - &

S. Qiu, S. Ma, S.A. Boggs

**Qualification Test Results on Stator Bars of Large Hydro Generators** (\*) - \*

Reza Soltani, Luc Lafortune, Robert Draper, Amir Khosravi

**Study Of Wire Distribution In A Slot Of A Motor Fed By Steep Fronted Pulses For Lifetime Extension** (\*) \$%

S. Duchesne, V. Mihaila, G. Velu, D. Roger

**Study of Insulation Resistance Profiling Use on Random and Form Wound Machines Under 6kV** (\*) \$\*

Howard W Penrose

**The Effect Of Hydrostatic Pressure On Electrical Treeing In Silicone Cable Joints** (\*) \$-

G. Berg, H.H. Sæternes, J. Aakervik, S. Hvidsten

**Sensitivity Assessment for HV & EHV Field Partial Discharge Measurements via Laboratory Testing** (\*) %

M. Fenger

**A Comparison of Partial Discharge Detection with 50Hz and 0,1Hz at XLPE Cables** (\*) %

C. Sumereder

**Water Tree Initiation And Growth In XLPE Cables Under Static And Dynamic Mechanical Stress** (\*) &

S. Hellesø, J.T. Bejaminsen, M. Selsjord, S., Hvidsten

**Water Treeing of XLPE Cables during Dynamic Mechanical Tension** (\*) &

E. Ildstad, T.A. Lindseth, H. Faremo

**Surface Resistance Of Epoxy-Based Composites To Electrical Discharge** (\*) &

M.F. Fréchette, S. Savoie, H. Couderc, M. Reading, A. S. Vaughan, J. Castellon, L., Banet

**Dielectric Relaxation Spectroscopy Of Epoxy Resins With TiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, Wo<sub>3</sub> And SiO<sub>2</sub> Nanofillers** (\*) +

M. Klampar, K. Liedermann

**Dielectric Response Of LLDPE/Clay Nanocomposite Melt Compounded From A Masterbatch** (%)

E. David, C. Daneau, B. Zazoum, A.D. Ngo, M.F. Fréchette, S. Savoie

**DC Electrical Properties Of XLPE Insulation With Nanostructured-Coating** (\*)

D. Fabiani, G. C. Montanari, F. Palmieri, M. Toselli, A. Saccani

**Effect of Nanoparticles on Electrical Characteristics of Transformer Oil-Based Nanofluids Impregnated Pressboard<sup>\*\*\*</sup>) \$**

Y. Zhou, Y. Zhong, M. Chen, S. Zhang, Y. Du, Y. Lv, C. Li, T. Liu

**Influence of the Surrounding Medium on the Dielectric Strength Measurement of LLDPE/Clay Nanocomposites<sup>\*\*\*</sup>) (**

C. Daran-Daneau, É. David, M.F. Fréchette, S. Savoie

**IEEE Guide for the Measurement of Partial Discharges in AC Electric Machinery<sup>\*\*\*</sup>) -**

W. McDermid