

IEEE TRANSACTIONS on DIELECTRICS and Electrical Insulation

December 2016

Volume 23

Number 6

ITDEIS

(ISSN 1070-9878)

Reviewers of TDEI during the period of 1 October 2015 to 30 September 2016..... ii-iv

CONDITION MONITORING

Condition Assessment Strategies of Composite Insulator Based on Statistic Methods.....C. Chen, Z. Jia, W. Ye, Z. Guan and Y. Li 3231-3241

ELECTRICAL MACHINES

Study on Form-wound Machine Turn Insulation Subjected to Unipolar and Bipolar Square WavesM. S. Moonesan, S. H. Jayaram and E. A. Cherney 3242-3248

Frequency Spectrum Investigation and Analytical Diagnosis Method for Turn-to-Turn Short-Circuit

Insulation Failure in Stator Winding of Low Voltage Induction Motor.....S. E. Pandarakone, Y. Mizuno and H. Nakamura 3249-3255

ELECTRICAL TREES

The Role of Bulk Charge Transport Processes in Electrical Tree Formation and Breakdown Mechanisms in Epoxy Resins

.....N. M. Chalashkanov, S. J. Dodd, L. A. Dissado and J. C. Fothergill 3256-3266

GASEOUS DIELECTRICS

 DBD Plasma based Ozone Injection in a Biodiesel Exhaust and Estimation of NO_x Reduction by Dimensional Analysis Approach

.....D. S. Mukherjee and B. S. Rajanikanth 3267-3274

Time-domain Performance of Audible Noise for Positive DC Corona: Numerical Simulations and Measurements.....Y. Yi, C. Zhang and L. Wang 3275-3282

 Experimental Study on the Optimization of Dielectric Barrier Discharge Reactor for NO_x Treatment

.....P. Talebizadeh, H. Rahimzadeh, S. J. Anaghizi, H. Ghomi, M. Babaie and R. J. Brown 3283-3293

Investigation of Influence of Cathode Surface Conditioning on Mechanisms of Electrical Breakdown.....Č. A. Maluckov 3294-3302

Insulation Structure Design of the UV-preionization Gas SwitchY. Li, J. Liu, Z. Peng, M. He and J. Jiang 3303-3310

Synergistic Effect of the Insulation Characteristics of Gas Mixtures under the Influence of Pulse Voltages

.....N. Kartalović, K. Stanković, S. Aleksandrović and D. Brajović 3311-3318

3D Full Maxwell Research for Effect of Initial Electromagnetic Field on Very Fast Transient Overvoltage in GISB. Lu, Y. Shi, X. Lin and X. Bian 3319-3327

Effects of Coaxial Dielectric Barrier Discharge System on Water Treatment by Water Stream Well Mixed with Air.....S. Jiang, J. Rao, Z. Wu and Z. Li 3328-3335

Analysis on the Spectrum Characteristic of Corona Current and its Relationship with Radio Interference on UHVDC Transmission Line

.....Y. Liu, L. Zhou, Y. Liu, H. Yuan, L. Ji and Q. Wang 3336-3345

 Decomposition Characteristics of SF₆ Under Different Spark Energies.....J. Tang, X. Liu, X. J. Rao, F. P. Zeng, Q. Yao and Y. L. Miao 3346-3354

Moving Behaviors and Harmfulness Analysis of Multiple Linear Metal Particles in GISH. Ji, C. Li, Z. Pang, G. Ma, X. Cui, Z. Zeng and Z. Rong 3355-3363

LIQUID DIELECTRICS

The Role of Interfacial Zone in Dielectric Properties of Transformer Oil-based Nanofluids.....D.-E. A. Mansour, A. M. Elsaied and M. A. Izzularab 3364-3372

Influence of Thermal Aging on the Breakdown Characteristics of Transformer Oil Impregnated Paper.....P. Sun, W. Sima, M. Yang and J. Wu 3373-3381

Inhibition Effectiveness and Depletion Characteristic of Irgamet 39 in Transformer Oil.....Y. Zhao, Y. Qian, W. Su, Y. Li, L. Zhong and Q. Yu 3382-3388

Effect of Aging on the Physical, Chemical and Dielectric Properties of DodecylbenzeneJ. L. Hosier, J. E. A. Koilraj and A. S. Vaughan 3389-3396

Selection Criteria for Oil Transformer Measurements to Calculate the Health IndexK. Ibrahim, R. M. Sharkawy, H. K. Temraz and M. M. A. Salama 3397-3404

A New Fault Diagnostic Technique in Oil-Filled Electrical Equipment; the Dual of Duval TriangleG. K. Irungu, A. O. Akumu and J. L. Munda 3405-3410

A Study of Oil-impregnated Paper Insulation Aged with Thermal-Electrical Stress: PD Characteristics and Trap Parameters

.....Y.-H. Wei, H.-B. Mu, G.-J. Zhang and G. Chen 3411-3420

Low Thermal Fault Gases of Various Natural Monoesters and Comparison with Mineral Oil.....A. Rajab, M. Tsuchie, M. Kozako, M. Hikita and T. Suzuki 3421-3428

Quantitative Detection and Impact Evaluation of Phthalate Plasticizers in Insulating OilL. Zhang, W. Su, Y. Qian, Y. Zhao, Z. Zhu and D. Wang 3429-3434

Tracing Methane Dissolved in Transformer Oil by Tunable Diode Laser Absorption Spectrum

.....J. Jiang, G. Ma, H. Song, H. Zhou, C. Li, H. Wang, Y. Luo and H. Wu 3435-3442

MEASUREMENT TECHNIQUES

Analysis of the Electrode Design to Increase the Withstand Voltage of Solid State Meander Pulse-Forming LineL. Wang, J. Liu and Q. Zhang 3443-3449

Conceptual Study of a Bipolar Modular High Voltage Pulse Generator with Sequential ChargingA. Elserougi, A. Massoud and S. Ahmed 3450-3457

Application of Leakage Current Parameters for Technical Diagnostics of Surge Arresters.....P. Papliński and J. Wańkiewicz 3458-3465

NANODIELECTRICS

 Surface Potential Decay on LDPE and LDPE/Al₂O₃ Nano-Composites: Measurements and Modeling

.....J. R. S. S. Kumara, Y. V. Serdyuk and S. M. Gubanski 3466-3475

Modelling of Dielectric Breakdown through Charge Dynamics for Polymer Nanocomposites.....S. Li, D. Min, W. Wang and G. Chen 3476-3485

 Investigation of Surface Trap Distribution in LDPE/SiO₂ Nanocomposite Based on Simultaneous

Observation of Space Charge and Relaxation CurrentY. Wang, J. Wu and Y. Yin 3486-3493

Enhanced Breakdown Performance of Anatase and Rutile Titania based Nano-oilsA. Katiyar, P. Dhar, T. Nandi, L. S. Maganti and S. K. Das 3494-3503

Estimating the Inverse Power Law Aging Exponent for the DC Aging of XLPE and Its Nanocomposites at Different Temperatures

.....Y. Wang, Z. Lv, X. Wang, K. Wu, C. Zhang, W. Li and L. A. Dissado 3504-3513

OUTDOOR INSULATION

Protection Radius of Bird-Preventing Installation Design for 110 kV Suspension Insulators Based on Withstand Tests

.....Q. Yang, J. Ran, R. Han, S. Sun, Y. Chen and F. Zhou 3514-3522

Study on the Influence Rules of Soluble Contaminants on Flashover Voltage of Disc Suspension Insulators

.....Z. Yang, X. Jiang, Z. Zhang, D. Zhang and Y. Liu 3523-3530

(continued on inside)

IEEE TRANSACTIONS on DIELECTRICS and Electrical Insulation

December 2016

Volume 23

Number 6

ITDEIS

(ISSN 1070-9878)

PAPERS (CONTINUED)

Aging and Self-healing Properties of Superhydrophobic Silicone Rubber	Z. Yan, X. Liang, Y. Gao and Y. Liu	3531–3538
Analysis of Service-Aged 200 kV and 400 kV Silicone Rubber Insulation in the Gulf Region	R. A. Ghunem, L.-L. Tay, H. Terrab and A. H. El-Hag	3539–3546
Aging Characterization and Lifespan Prediction of Silicone Rubber Material Utilized for Composite Insulators in Areas of Atypical Warmth and Humidity	L. Cheng, L. Wang, Z. Guan and F. Zhang	3547–3555

PARTIAL DISCHARGES

Cross-spectrum Analysis based Methodology for Discrimination and Localization of Partial Discharge Sources using Acoustic Sensors	S. Biswas, D. Dey, B. Chatterjee and S. Chakravorti	3556–3565
Measurement and Evaluation of Partial Discharge Inception Voltage for Enameled Rectangular Wires under AC Voltage	T. Wakimoto, H. Kojima and N. Hayakawa	3566–3574
Remote Detecting and Locating Partial Discharge in Bushings by Using Wideband RF Antenna Array	Q. Zhang, C. Li, S. Zheng, H. Yin, Y. Kan and J. Xiong	3575–3583
Partial Discharge Characteristics of Uniform Gap in Oil-impregnated Paper Insulation under Switching Impulse Voltage	J. Deng, M. Wang, Y. Zhou, Z. Zhou, Y. Zhang, L. Zhang and X. Liu	3584–3592
Partial Discharge Test under Standard Oscillating Impulses on a Gas-insulated Bus with Artificial Metal Particle Defects on the Insulator Surface	M. Ren, M. Dong, R. Ye and Y. Liu	3593–3601
Effect of Superimposed Impulses on AC Partial Discharge Characteristics of Oil-Impregnated Paper	R. Nikjoo, N. Taylor and H. Edin	3602–3611

SOLID DIELECTRICS

Enhancement of Polar Phases in PVDF by Forming PVDF/SiC Nanowire Composite	J.-F. Huang, S.-J. Han, H.-J. Chen, G.-S. Liu, G.-T. Li, Y.-C. Wang, Z.-X. Wang, B.-R. Yang, Z.-H. Luo and H.-P. D. Shieh	3612–3619
Dielectric Spectroscopic Analysis of Degradation in Ethylene-Propylene-Diene Copolymer	D. Min, S. Li, N. Hirai and Y. Ohki	3620–3630
Moisture and Filler Induced Effects on the Dynamic Mechanical Properties of Glass Fiber Reinforced Epoxy Hybrid Composites	M. Suchitra, N. M. Renukappa, C. Ranganathaiah, T. Pasang and J. S. Rajan	3631–3640
Study on the Suitability of Bamboo Fiber for Manufacturing Insulating Presspaper	J. Huang, L. Zhang, Y. Zhou, M. Huang and Y. Sha	3641–3651
Structural and Electrical Properties of NaNbO ₃ Modified BiFeO ₃	S. Dash and R. N. P. Choudhary	3652–3658
Resistance of Surface Fluorinated Epoxy Resin to Corona Discharge in SF ₆ Gas	Z. An, F. Liu, Y. Tang, F. Zheng and Y. Zhang	3659–3667
Investigation of the Tracking and Erosion Resistance of Cured Liquid Silicone Rubber Containing Ureido-modified MQ Silicone Resin	W. Fang, X. Zeng, X. Lai, H. Li, C. Xie, W. Chen and Y. Zhang	3668–3675
Research on Aged Interfaces of Composite Insulators after Extended Water Diffusion Tests	L. Cheng, L. Wang, Z. Guan and F. Zhang	3676–3682
Dielectric Response of Filled High Temperature Vulcanized Silicone Rubber	Y. Gao, X. Liang, L. A. Dissado, S. J. Dodd and N. M. Chalashkanov	3683–3695

SPACE AND SURFACE CHARGES

Interface Charge Behaviors between LDPE and EPDM Filled with Carbon Black Nanoparticles	B. X. Du and J. Li	3696–3703
Effect of Temperature on Space Charge Detrapping and Periodic Grounded DC Tree in Cross-linked Polyethylene	Y. Wang, G. Li, J. Wu and Y. Yin	3704–3711
The Effect of Injection Properties of Contacts on the Dynamics of Unipolar Space-Charge Limited Currents	T. Christen	3712–3724
Effect of Space Charge Layers on the Electric Field Enhancement at the Physical Interfaces in Power Cable Insulation	M. Meziari, A. Mekhaldi and M. Teguvar	3725–3733
Surface Charge and Flashover Voltage of EVA/CB Nanocomposite under Mechanical Stresses	B. X. Du, J. Li, Q. Du and M. L. Fu	3734–3741
Investigation of Charge Trapping and Detrapping Dynamics in LDPE, HDPE and XLPE	F. Zhou, J. Li, Z. Yan, X. Zhang, Y. Yang, M. Liu, D. Min and S. Li	3742–3751

TRANSFORMERS

Diagnosis of Transformer Winding Faults Based on FEM Simulation and On-site Experiments	S. Liu, Y. Liu, H. Li and F. Lin	3752–3760
Determination of Nanosecond Pulse Parameters on Transfer Function Measurement for Power Transformer Winding Deformation	Z. Zhao, C. Yao, N. Hashemnia and S. Islam	3761–3770

VACUUM INSULATION

Micro-particle Impact Phenomena on Contact Surface under Different Applied Voltages in Vacuum Interrupters	Y. Zhang, L. Jin, X. Xu, Y. Zhang, J. Wang and Y. Geng	3771–3778
--	--	-----------

CALL FOR PAPERS

High Voltage Direct Current (HVDC) Insulation and Diagnostics	A. Cavallini, P. Morshuis and G. C. Montanari	3779
Special Issue of the IEEE Transactions on Dielectrics and Electrical Insulation on Electrostatics	T. Paillat and P. Notinger	3780

INDICES

Author Index		3781–3814
Subject Index		3815–3871