

2024 10th International Conference on Condition Monitoring and Diagnosis (CMD 2024)

**Gangneung, South Korea
20-24 October 2024**



**IEEE Catalog Number: CFP2430D-POD
ISBN: 979-8-3503-5387-7**

**Copyright © 2024, Korean Institute of Electrical Engineers (KIEE)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP2430D-POD
ISBN (Print-On-Demand):	979-8-3503-5387-7
ISBN (Online):	978-8-9865-1022-5
ISSN:	2374-0167

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Effectiveness of PD Methods to Detect Insulation Defects in Power Transformers	1
<i>Mathieu Lachance, Wojciech Koltunowicz, Bogdan Gorgan</i>	
Analysis of Multi-Physical Signal Characteristics of Inter-Turn Oil-Paper Insulation Partial Discharge.....	5
<i>Hao Wang, Ming Dong, Yizhuo Hu, Zhili Tian, Haoxin Chang</i>	
Design of a Small Antenna for Detecting UHF Partial Discharges in Power Transformers.....	9
<i>Irfan Zidny, Behnam Balali, Moritz Kuhnke, Peter Werle, Suwarno</i>	
Improving Sensitivity and Detection Frequency of Special UHF Partial Discharge Sensors for Power Transformer Monitoring Systems.....	13
<i>Behnam Balali, Moritz Kuhnke, Irfan Zidny, Peter Werle, Asghar Akbari</i>	
Multi-Physical Signal Development Law and Discharge Stage Classification of Oil-Paper Insulation Tip Discharge.....	17
<i>Haoxin Chang, Ming Dong, Yizhuo Hu, Yu Guan, Hao Wang, Zhili Tian, Yang Luo, Bochao Kang</i>	
Moisture Detector in Biodegradable Esters.....	21
<i>Pavel Trnka, Zdislava Mokra, Pavel Slama, Ondrej Michal, Jaroslav Hornak</i>	
Stray Gassing Performance of New and Retrofilled Natural Ester Immersed Transformers.....	25
<i>Ruifeng Wang, Yihua Qian, Bruce Forsyth, Qing Wang</i>	
Advancing Transformer Diagnosis: A Modernized Key-Gas Approach for Enhanced Dissolved Gas Analysis.....	29
<i>Grisaru Marius</i>	
Frequency Domain Spectroscopy-Based Classifications of Moisture Content on Power Transformer Paper Insulation Using Machine Learning Techniques	33
<i>M. A. Omar, M. Z. H. Makmud, Tuan A. Z. Rahman, M. A. C. Musni, M. K. W. Ibrahim</i>	
Aging State Monitoring of Natural Ester Oil Paper Insulation System Based on Fluorescence Spectrum Analysis.....	37
<i>Qian Wu, Qing Li, Yizhuo Hu, Zhili Tian, Ming Dong</i>	
Application of Multipurpose Intelligent Pulse Signal Generator in Cable PD Detection Technology Training	41
<i>Chen Min, Masayuki Hikita, Masahiro Kozako, Zhou Zhipeng, Liu Yingying</i>	
About the Feasibility and Performances of Automatic DC PD Sources Discrimination	45
<i>Giacomo Ciotti, Andrea Caprara, Paolo Pieroni, Giovanni Mazzanti</i>	
Review of IEC 60270 Regarding PD Measurements Under DC Voltage.....	49
<i>Bernhard Schober, Uwe Schichler</i>	
Online Localization of Cable Partial Defects Using Broadband Transmission Coefficient Spectrum Under Impulse Voltage	53
<i>Hai-Song Xu, Xu-Lu, Peng-Yu, Jie-Tian, Hai-Bao Mu, Da-Ning Zhang</i>	
Evaluation on Practical Application of Gas Analysis Diagnosis for 77KV XLPE Cable Termination.....	57
<i>Kobayashi Shin-Ichi, Futami Hiroyuki, Shutani Ryo</i>	

Current Integration Method, an Innovative Tool for Examining the Insulation Integrity of Electric Cables.....	61
<i>Yoshimichi Ohki, Naoshi Hirai, Yasuhiro Tanaka</i>	
Winding Shape Monitoring of Submarine Hybrid Cable in Storage Using Optical Distributed Temperature and Strain Sensing	65
<i>Kwanhee Han, Daejin Park, Jungnyun Kim</i>	
Direct Observation of Space Charge and Leakage Current in 6.6 kV CV Cable Using Very Long Pulse Voltage Without Deconvolution.....	69
<i>Kazunori Kadowaki, Mayu Maehata, Shinji Yudate, Ryotaro Ozaki</i>	
Towards Robust Qualification Procedures for Metallic Return Cable.....	73
<i>Lukasz Chmura, Ioannis Chatzis, Tanumay Karmokar, Nikolay Hristanov, Bastian Soppe, Roland Dongping Zhang, Frank De Vries</i>	
Assessing the Feasibility of Using Distributed Strain Sensing to Monitor the Laid Shapes of Dynamic Cables for Floating Offshore Wind Farms	77
<i>Tatsuya Hirano, Jinron Tan, Masaharu Nakanishi</i>	
A Novel Capsule Network for Multi-Source Partial Discharge Diagnosis in Gas-insulated Switchgear.....	81
<i>Yanxin Wang, Jing Yan, Jianhua Wang, Yingsan Geng, Dipti Srinivasan</i>	
Analysis of Signal Frequency Components and Signal Propagation Time of Transient Earth Voltage Caused by Partial Discharge.....	85
<i>Hideki Ueno, Megumi Nakayama, Yotaro Ishida, Sho Okada, Tatsuya Mutakamihigashi</i>	
Sensitivity of UHF PD Diagnostics of Eco-Efficient Gas-Insulated Switchgear	89
<i>Uwe Riechert, Johanna Linke, Michel Fernandes, Dennis Christen, Maria Kosse</i>	
Measurement of Partial Discharge in a GIS Model at Various Pressures Using TEV Sensor	93
<i>Arpan Zaeni, Umar Khayam, Suwarno</i>	
A Novel Transformer-LSTM-Based Multitask Network for Partial Discharge Condition Assessment in Gas-Insulated Switchgear.....	98
<i>Jing Yan, Yanxin Wang, Jianhua Wang, Yingsan Geng, Dipti Srinivasan</i>	
Analysis of the Operation of 115 kV Rated Circuit Breakers for the Maintenance and Stabilization of Power Distribution: *Note: Sub-Titles Are Not Captured in Xplore and Should Not Be Used	110
<i>Supawud Nedphokaew, Nattachote Rugthaicharoencheep, Pakawat Kerpasit, Natchapol Ruangsap</i>	
Research on Detection Algorithms for Trace Components H ₂ S and CO ₂ in Gas Insulated Electrical Equipment Based on CRDS	114
<i>Xin-Ran Zhang, Hao-Nan Lv, Jin-Deng, An-Hao Jiang, Chaohai Zhang</i>	
Diagnostics, Prognostics and Selection Methodologies for Uninterrupted Functionality of K-Out-Of-N Systems	121
<i>Robert Ross, Aart-Jan De Graaf</i>	
Immunity Analysis Due to Direct Power Injected Broadband Noise	125
<i>Gyeongryun Choi, Taewook Kwon, Hongsik Keum, Geunho Kim, Se-Eun Park, Wansoo Nah</i>	
Exercisability of Python in Inclined Plane Tracking and Erosion Energy Calculations.....	128
<i>Parambalath Narendran Ashitha, Tangella Bhavani Shanker, Meena K. Parameswaran</i>	

Evaluation of Tracking Characteristics of Ecofriendly Insulating Materials Using Fractal Analysis.....	131
<i>Keonhee Park, Munseop Lim, Sehee Park, Sanga Ryu, Jangseob Lim</i>	
Understanding Power Transformer Current-Voltage (I-V) Lissajous Pattern Under Different Faults.....	134
<i>Nanda Redha Arsyah, Suwarno, A. Abu-Siada</i>	
Aging Test and Lifetime Evaluation of Insulating Paper in Rapeseed-Oil-Immersed Transformer	139
<i>Taisei Homma, Yoshinobu Mizutani, Satoru Miyazaki</i>	
Optical Radiation Characterization and Parameter Estimation of Arc Discharge in Oil	143
<i>Yizhuo Hu, Ming Dong, Haoxin Chang, Hao Wang, Qian Wu, Ming Ren</i>	
Application of Dielectric Spectroscopy Analysis to Identify Unhealthy Surge Arrester by Using PDC Measurement Technique	147
<i>Chaitawat Chuayin, Norasage Pattanadech, Matthieu Zinck, Suthat Suksagoolpanya, Winai Methavithit, Chanin Bunlaksananusorn</i>	
Partial Discharge Characteristics of Aluminum Foil/Oil-Impregnated Paper Composite Insulation System with Misaligned Aluminum Foils	151
<i>Naoki Hayakawa, Kyohei Hayashi, Yuya Nagaki, Hiroki Kojima, Masanobu Yoshida</i>	
Combined Vibro-Acoustic Measurement(VAM) and Dynamic Resistance Measurement(DRM) to Analyze on-Load Tap Changer(OLTC)	155
<i>Cicero Kyu-Woong Lee</i>	
Study for Establishing of Partial Discharge Diagnosis Technology for Oil Impregnated Paper Bushings	159
<i>Katsuya Hayashi, Masahiro Sasaki, Kojiro Aoki, Toshihiro Maekawa</i>	
Enhanced Edge-Device Analysis for Online DGA Monitoring in OLTCs: A Machine Learning Approach	161
<i>Alexander Alber</i>	
Development and Diagnosis Results of Transformer Bushing Defect Diagnosis Device Utilizing Surface Current Sensor.....	165
<i>Masahiro Sasaki, Katsuya Hayashi, Kojiro Aoki, Toshihiro Maekawa</i>	
Moisture Absorption Analysis in Silicone Gel for Power Modules: Experiments and Modeling	168
<i>Takahiro Umemoto, Masahiro Sato, Tatsuki Nawata, Kunihiro Hidaka, Sho Takano, Yuji Hayase, Keisuke Yamashiro, Akiko Kumada</i>	
Electrical Conduction Properties and Charge Transport of Novel Dielectrics for Insulated Metal Substrate in High-Voltage Power Electronic Applications	172
<i>Bagas Maulana Sutardi, Andrea Cavallini, Paolo Seri, David Demian, Suwarno</i>	
Study of Gate Designs to Suppress Electric Field Crowding Effect at the Gate Oxide of 1.2 kV SiC MOSFETs	176
<i>Hyowon Yoon, Ogyun Seok</i>	
High Field Dielectric Spectroscopy for Epoxy Moulding Compound Used in Power Electronics	179
<i>Irvan Lewi, Andrea Cavallini, Suwarno, Muhammad Tanveer Riaz, Mattia Rossetti</i>	
Research on a Machine Learning Approach to Classifying Radiation Degradation on Epoxy Molding Compound.....	183
<i>Dong-Hyeon Kim, Sung-Uk Zhang</i>	

Intelligent Diagnosis and Evaluation of MOA's Operating Status	187
<i>Peiyan Liu, Yang Feng, Chuang Zhang, Shengtao Li, Bin Zhou, Lingqi Guo</i>	
Artificial Intelligence-Based Condition Monitoring and Predictive Maintenance of Medium Voltage Cables: An Integrated System Development Approach.....	191
<i>Haresh Kumar, Muhammad Shafiq, Kimmo Kauhaniemi, Mohammed Elmusrati</i>	
Exploring Electromagnetic Time-Reversal as a Method to Monitor Cable Temperature in Medium-Voltage Networks	196
<i>Antonella Ragusa, Peter A. A. F. Wouters, Hugh Sasse, Alistair Duffy, Farhad Rachidi, Marcos Rubinstein</i>	
Conductor Temperature Comparative Analysis for EHV 500 kV XLPE Submarine Cable Under Different Laying Conditions.....	200
<i>Haolun Che, Jian Hao, Zhen Gao, Xinlong Zheng, Weilong Peng</i>	
Simple Water-Tree Diagnostic Method for XLPE Cables by Measuring the Frequency Response of the AC Impedance	204
<i>Toshihiro Takahashi</i>	
Some Experiments on Thermal Aging of XLPE Underground Cables.....	207
<i>Harshith Kumar Azmeera, C C Reddy</i>	
Influence of Thermal Aging on Insulation Properties of Voltage Stabilizer Blended Cross-Linked Polyethylene	211
<i>Zelin Hong, Tianyin Zhang, Kai Yin, Ashish Paramane, Xiangrong Chen</i>	
Leakage Current Measurement as a Diagnostic Tool for MVDC Cable Systems	215
<i>Ario Wulung, Patrik Ratheiser, Uwe Schichler, Suwarno</i>	
Automatic Machine Condition Indicator Integrated with Airborne Capacitive Plate to Monitor Partial Discharge and Arc Signal from High Voltage Electric Equipment.....	219
<i>Yong-Joo Kim, Jin Lee</i>	
Improvement of Partial Discharge Initiation Voltage of Polyimide Film by Adding Boehmite Alumina Nanofiller.....	222
<i>Abghi Ilman Arif, Masahiro Kozako, Masayuki Hikita, Suwarno, Umar Khayam, Seiji Bando, Noriyuki Hayashisaka</i>	
Investigating the Thermal Aging Effect on Hairpin PEEK Insulated Wires Through PDIV Measurements.....	226
<i>Hadi Naderiallaf, Michele Degano, David Gerada, Christopher Gerada</i>	
Influence of Superimposed Harmonic Voltage on Partial Discharge in Stator Coil	230
<i>Shin Nakamura, Takashi Kuraishi, Satour Miyazaki</i>	
Partial Discharge Measurement with Gap Time Analysis to Determine Severity of Defect in Rotating Machines.....	234
<i>Nattapon Panmala, Thanapong Suwanasri, Phanupong Fuangpian, Cattareeya Suwanasri</i>	
High Power Density Motors for Transport Electrification: State-Of-the-Art and Challenges.....	238
<i>Andrea Cavallini</i>	
Pre-Trained Partial Discharge Evaluator for Diagnosis of Rotating Machine	242
<i>Yong Joo Kim, Jin Lee</i>	

Differences Between Partial Discharge Test Results on Non-GVPI and GVPI Stator Windings	246
<i>Mladen Sasic, Howard G. Sedding, Greg C. Stone</i>	
Metaheuristic-Based Feature Selection Algorithm for Electric Motor Condition Monitoring	250
<i>Tuan A. Z. Rahman, Leong Wen Chek, Baarath Kunjnni</i>	
Electrical Diagnostic Method for Enhanced Reliability in Stator Core Condition Monitoring of Three Phase Induction Motor Under Operation	254
<i>Chanseung Yang, Myung Jeong</i>	
Off-Line and On-Line Automatic and Unsupervised Partial Discharge Diagnostics of Electrical Asset Components.....	258
<i>Norasage Pattanadech, Siwakorn Jeenmuang, Patt Udomluksananon, Komin Chumpiboon, Muhammad Shafiq, Sukesh Babu Myneni, Gian Carlo Montanari</i>	
Applicable Insulation Condition Assessment Methods by Partial Discharge Measurement and Monitoring Systems	264
<i>Markus Söller, Daniel Hering</i>	
Dielectric and Electrical Performance of Epoxy/CNC Nanocomposites for Biomaterial-Based Electrical Insulation.....	268
<i>M. Z. H. Makmud, M. Michael, Tuan A. Z. Rahman, Z. Jamain, K. N. M. Amin, H. A. Illias</i>	
Separation of Partial Discharges at DC Voltage Using PD Pulse Parameters.....	272
<i>Bernhard Schober, Uwe Schichler</i>	
Monitoring of Transient Overvoltages from Switching in High-Voltage Networks Using Non- Invasive Capacitive Sensing	276
<i>Peter A. A. F. Wouters</i>	
Effect of ATA Additive on Oil-Solid Surface Flashover Characteristics Under Dc Electric Field	280
<i>Hao Xu, Lu Gao, Yao Qin, Yi Ge, Zepeng Lv, Kai Wu</i>	
Are the Current Condition Monitoring & Diagnosis Solutions Robust to Aviation Applications?.....	284
<i>Robin Acheen, Loucif Benmamas, Thierry Lebey</i>	
Styrene Content Determined Charge Trap Modulation Towards Enhanced Dielectric Energy Storage Characteristics of Ethylene-Styrene Gradient Copolymers	288
<i>Haomiao Li, Jie Liu, Jiahui Li, Shengtao Li, Yuanwei Zhu</i>	
Calculation of Breakdown Strength for the Polymeric Material After Thermal Aging Process	292
<i>Minhee Kim, Yong Sung Cho, Se-Hee Lee</i>	
Research on Optimization of Valve-Side Bushing Electric-Thermal Field Based on Capillary Heat Pipe.....	296
<i>Minjie Li, Xuandong Liu, Gaoyi Shang, Hao Tang, Xining Li</i>	
Harmonic Current Effect on the Electric Field and Temperature Distribution of the UHV Valve- Side Bushing Based on Simulation Analysis.....	304
<i>Jian Hao, Ruochun Xia, Dingqian Yang, Dandong He, Guanghu Xu, Qian Zeng, Haolun Che</i>	
Research on High-Frequency Wideband Composite Piezoelectric Transducer for Non-Destructive Testing in High-Voltage Power Equipment	308
<i>Fangyuan Zhang, Yi Tian, Linpei Dang, Qingqing Miao, Haotian Niu, Xinbo Huang</i>	

Advancements in Multi-Channel SAW-Based UV Corona Sensor for Localizing and Positioning Corona Discharge Events in Power Facilities.....	312
<i>Faisal Nawaz, Hyunho Lee, Cheol Choi, Jungwoong Park, Keekeun Lee</i>	
The Influence of Transient Earth Voltage Sensor Dimensions on Its Performance as a PD Detector	315
<i>Arpan Zaeni, Umar Khayam, Suwarno</i>	
Research on Identification and Localization of Internal Defects in Insulation Components Based on Ultrasonic Non-Destructive Testing Technology.....	320
<i>Linpei Dang, Yi Tian, Fangyuan Zhang, Qingqing Miao, Haotian Niu, Xinbo Huang</i>	
Insights from Implementing Singapore Online Partial Discharge Monitoring for Medium Voltage Network.....	324
<i>Kai Xian Lai, Bing Hong Leck, Kem Wah Lo, Javan Chun Fong Lee, Shaozhen Qin, Fook Long Chong, Muhammad Fakharuddin Mashure, Nor Fazlinda Mohd Affandi</i>	
GIS Overhaul Prioritization Based on the GIS Health Index	328
<i>Umar Khayam, Tina Wahyuningsih, Muhammad Kodrat, Arpan Zaeni, Rachmawati</i>	
Performance Evaluation of HV Equipment in a Powerplant Switchyard for Life Extension, Practical Experience in Thailand.....	332
<i>Thanapong Suwanasri, Nattapon Panmala, Cattareeya Suwanasri, Thanachat Thanasettagone, Sakda Lacharochana</i>	
A Practical Approach to Benchmark Between On-Line PD Measurement Versus IVPD Measurement for Singapore Distribution Network Transformer.....	336
<i>Kai Xian Lai, Nor Fazlinda Mohd Affandi, Jun Li, Guang Wang Tan, Bang Kok Ng, Kalpani Jayamaleethantirige, Ranjan Thiruchelvam</i>	
Real-Time Monitoring Technology for Long Distance HVDC Transmission	340
<i>Chaekyun Jung, Suhwan Kim, Jinwoo Park, Seongweon Kim, Hoki Kim</i>	
Synergistic Approach to Condition Assessment of Medium Voltage Network After a Power Quality Disturbance.....	342
<i>Kai Xian Lai, Bryan Zhen Yuan Lee, Qing Min Cui, Kok Heng Sun, Khim Mong Chua, Kong Peng Tan, Ban Soon Deong, Chun Fong Lee, Nor Fazlinda Mohd Affandi, Muhammad Fakharuddin Mashure</i>	
Benefit Analysis on Online Condition Monitoring of Substation Equipment	346
<i>Masashi Kitayama</i>	
Transmission Line Age Determination with Statistical Health Index and Failure Probability Curve Fitting Technique.....	350
<i>Cattareeya Suwanasri, Ittiphong Yongyee, Thanapong Suwanasri</i>	
Study on Partial Discharge Characteristics Under the Thermal-Electrical Coupling Effect of Epoxy-impregnated Paper Insulation in High-Voltage Dry-type Valve Side Bushing	354
<i>Wanhao Shi, Xuandong Liu, Hao Sun, Gaoyi Shang, Yingman Sun, Hao Tang, Xining Li</i>	
Partial Discharge and Electrical Treeing Phenomena Within Two Spherical Voids in Epoxy Resin.....	358
<i>Swe Zin Linn Htet, Takuya Kondo, May Thin Khaing, Tatsuya Sakoda, Yoshihiro Harada, Katsutoshi Takei, Masaru Ikeda, Kazunori Miyazaki</i>	
Research on the Insulation Enhancement of Epoxy Based Nanocomposites with Plasma Treated Nano-Alumina at High Temperature	362
<i>Chao Dai, Chenghui Zhang, Xinhong Jiang, Yundan Li, Man Ding</i>	

Effect of Temperature on the Conducting and Partial Discharge Characteristics of Electrical Trees Under Combined AC and DC Voltage in Epoxy Resin	366
<i>Yingman Sun, Xuandong Liu, Gaoyi Shang, Hao Sun, Wanhao Shi, Hao Tang, Xining Li</i>	
Temperature Characterization of Epoxy Resin Electrical Tree Insulation Under a Multi Harmonic Composite Voltage.....	370
<i>Hao Sun, Xuandong Liu, Wanhao Shi, Yingman Sun, Dingqian Yang</i>	
Development of Wireless Salinity Deposition Sensing System Using Galvanic Couples.....	374
<i>Norikazu Fuse, Jun-Ichi Tani, Yoshiharu Shumuta</i>	
Effects of nSiO ₂ -Filled RTV Silicone Rubber Coating on Leakage Current Characteristics of Outdoor Insulators.....	378
<i>Rachmawati, Aulia Ramadhana Alifianda, Agustinus Danu Nalendra, Fitri Aulia Permatasari, Suwarno</i>	
A Novel Method for Loosened Bolt Localization in Transmission Towers.....	382
<i>Guanru Wen, Jingyao Wang, Jiayue Cui, Dong Lv, Peng Yuan, Long Zhao</i>	
Diagnosis of Degradation Degree on SiR Surface Used for Insulator by Surface Discharge.....	386
<i>May Thin Khaing, Takuma Miyake, Tatsuya Sakoda, Shigehiko Goto, Tomikazu Anjiki, Tomoki Chiba, Yasunori Kasuga</i>	
Real-Time State Estimation of Lithium-Ion Battery Using Image-Based Regression with CNN	390
<i>Hun Park, Young Soo Kim, Yong-June Shin</i>	
Identification Method of Partial Discharge Sources by Clustering and Wavelets Transform for High Voltage Rotating Machine	394
<i>Tomoki Kamiya, Yusuke Nakamura, Tetsushi Okamoto, Shinsuke Kikuta</i>	
Research on Safe and Efficient Power Design of Unmanned Tunnel Inspection Robot Using Lithium Iron Phosphate(LFP) Battery	398
<i>Byung-Sung Ko, Seok-Tae Kim, Jae-Heon Park, Seo-Hyeon Ryu, Joon-Young Park, Min-Hee Choi</i>	
Health Index-Based Framework for Circuit Breakers	401
<i>Changyeong Cheon, Inki Hwang, Byeongmin Kim, Myungchin Kim</i>	
Stable and High Capacity Power Harvest Method on Overhead Transmission Lines Based on Capacitive Coupling Between Conductors and Ground Wires.....	407
<i>Zherui Cui, Zhuocheng Liu, Peng Yang, Yijun Ji, Jing Pan, Bo Zhang</i>	
Experience with Analysis of Partial Discharge Initiated by Dielectric Coated Metallic Object in 362kV GIS.....	411
<i>Ha Young Lee, Hyun Taek Park, Jae Dong Bang, Duck Soo Choi, Hyunho Kwon, Jin Ho Lee</i>	
Asset Management System for Distribution Cable.....	415
<i>Jungji Kwon, Jumi Seo, Gyujin Jung, Wonyoung Kim, Jaehyung Lee, Heejin Jung</i>	
A Study on Anomaly Detection in 29kV eGIS Using the Optical Sensing Technology.....	418
<i>Jonghyun Eom, Dong-Zoon Lee, Jun-Yong Park</i>	
Fault Analysis of Ethane-Led Oil Dissolved Gas Generation in an Oil-immersed Power Transformer	420
<i>Jongmin Park, Changseok Yang, Dongkwan Seo, Soonyong Kim</i>	

A Study of Dissolved Gas Analysis According to the Type of Partial Discharge and Defects in Power Transformers.....	426
<i>Kwangon-Don. Bae, Byoung-Woon. Min, Danbi. Lee</i>	
Development and Field Application of a Monitoring System Utilizing a Novel Partial Discharge Detection Algorithm	428
<i>Tai Yokoyama, Takefumi Shimoguchi, Tetsuo Goto, Torn Miyoshi, Shinnosuke Hosoya, Yusuke Ikeda, Kimihiro Iwasaki</i>	
Analysis of LIRA Diagnostic Results for Assessing the Condition of Distribution Cables	431
<i>Jongman Joung, Byungseok Park, Injin Seo</i>	
Advanced Application and Statistical Analysis of VLF Tan Δ in Korea.....	435
<i>Sehee Park, Keonhee Park, Munseop Lim, Jangseob Lim</i>	
Concept of Condition Monitoring for Capacitor Voltage Transformers	439
<i>Hiroko Isaji, Yuya Nagaki, Masanobu Yoshida, Hiroki Kojima, Naoki Hayakawa</i>	
Lead-Free AE Sensor Based on NKLNT Ceramics for Power Equipment Diagnostics.....	443
<i>Dong-Jin Shin, Bo-Kun Koo, Jin-Young Kim, Seunghom Ryu, Dong-Suk Hong, Min-Soo Kim, Soon-Jong Jeong, In-Sung Kim, Young-Rae Cho</i>	
Deep Learning-Based Infrared Image Detection Method for Power Equipment.....	447
<i>Mingshu Han, Huijuan Hou, Gehao Sheng, Lingming Kong, Yong Wang, Xiuchen Jiang</i>	
Dynamic Wavelet Filter Design for Denoising Partial Discharge Signal from Insulated Power Cables	452
<i>Faisal Peer Mohamed, Siew Wha Hoon, Branislav Vuksanovic, Ahmad Ayub, Shekhar Mahmud</i>	
Infrared Image Segmentation and Temperature Monitoring Based on YOLO Model Object Detection Results.....	456
<i>Yuijen Zhan, Huijuan Hou, Gehao Sheng, Yue Zhang, Xiuchen Jiang</i>	
Comparison of Modified Camera Prototypes for the Detection of Corona Partial Discharges	461
<i>Philipp Elfers, Sebastian Azer, Moritz Kuhnke, Peter Werle</i>	
Partial Discharge Feature Selection and Classification Recognition Based on Maximal Information Coefficient.....	465
<i>Zehao Chen, Jiayang Li, Yong Qian, Zhiren Xu, Chao Pan, Gehao Sheng</i>	
Failure Forecast Diagnosis of Transmission Tower Using Acoustic Emission Sensor	469
<i>Toshifumi Yuji, Akihito Minami, Ryotaro Abe, Toshio Bouno, Noritsugu Kamata</i>	
Infrared Spectral Characteristics of Decomposition Gases SO ₂ F ₂ and SOF ₂ in SF ₆ and Its Gas Mixture	471
<i>Xianglian Yan, Yin Huang, Wan Wang, Keli Gao, Yalin Bian, Yang Tian, Yuanwei Zhu, Shihang Wang, Shengtao Li</i>	
A Study of VLF PD Diagnosis Using Extend Exciting Cable	475
<i>Byoungghan Jang, Young-Gi Hong, Yong-Sung Lee, Prof. Beomsoo Kim</i>	
VLF High-Voltage PD Measurement Test Using HFCT Sensor.....	478
<i>Byoungghan Jang, Yong-Sung Lee, Min-Woo Jin, Beom Soo Kim</i>	

A Study on the Distributed Acoustic Sensing Technology for Deep Learning-Based Environmental Monitoring and Failure Classification of Underground Facilities	482
<i>Dae-Gil Kim, Chan Il Yeo, Si Woong Park, Kyeeun Kim, Hyoung Jun Park</i>	
Exploring Safety Management Approaches for Construction Sites Using Smart Devices	485
<i>Daesik Lim, Dongyeop Lee, Youngho Moon, Soojeong Woo, Aesol Jeong, Jongseok Park</i>	
Earthquake Monitoring System for the Electrical Substations in the South Korea	489
<i>Kwan-Hee Yun, Kyeong-Min Hwang, Kang-Ryel Lee, Shin-Kyu Choi</i>	
Partial Discharge Pattern Analysis of Metallic Particle Influence on Polymer Surfaces in MVDC Stations	493
<i>Jaeseong Im, Donghun Oh, Minju Kim, Euichan Lee, Yonghak Kim</i>	
DC Partial Discharge Characteristics of MVDC Cable Terminations Considering Multi-Layer Interfaces Defect.....	496
<i>Chanyeol Ryu, Ho-Seung Kim, Ryul Hwang, Dong-Hun Oh, Min-Ju Kim, Bang-Wook Lee</i>	
Measurement of the Space Charge Distribution in the Imide-Based Material Under Square Wave Voltage Application at High Temperature.....	500
<i>Keita Sakakibara, Kosuke Sato, Hiroaki Miyake, Yasuhiro Tanaka</i>	
Analysis Results of Surface Partial Discharge Pattern by Crack in MVDC Station Based on Novel Diagnosis Approach.....	504
<i>Euichan Lee, Donghun Oh, Minju Kim, Jaeseong Im, Yonghak Kim</i>	
A Study on the Interfacial Charge Properties in Double-Layer Dielectric of Eco-Friendly HVDC Power Cable System.....	507
<i>Chul-Ho Kim, Ji-Ho Park, Jae-Ryoung Choi, Hye-Gyo Hong, June-Ho Lee</i>	
Evaluation and Ranking of Abnormal Conditions of Oil-Impregnated Insulation Systems in Aged Oil-Filled Cable Joints and Terminations Removed After Service.....	509
<i>Takashi Kurihara, Yuta Makino, Toshihiro Takahashi, Tsuguhiro Takahashi</i>	
EIS Analysis of Aged Lithium-Ion Battery by Comparing RC Parallel Equivalent Circuits.....	513
<i>Seong Min Choi, Young Soo Kim, Hun Park, Seong Jin Jeong, Yong-June Shin</i>	
Additional Properties of Natural Esters and Nanoesters for Industrial Use.....	517
<i>Pavel Trnka, Jaroslav Hornak, Rainer Haller, Zdislava Mokra, Pavel Slama, Ousama A. A. Zedan, Jan Leffler, Ondrej Michal, Jozef Kudelcik, Stefan Hardon</i>	
Dielectric Properties of 3D Printed Insulators with Microfillers for High-Voltage Applications.....	521
<i>Binh P Nababan, Suwarno, Oliver Pischler, Uwe Schichler</i>	
Effect of Changes in Partial Discharge Activity on Resin Erosion in Simulated Voids.....	525
<i>Yusuke Aoki, Ken Takeuchi, Masahiro Kozako, Masayuki Hikita, Daiki Ito, Kimiharu Oyama, Tetsuo Nakamae, Teruhiko Maeda, Tamon Ozaki</i>	
Water Tree Characteristic of the TR-XLPE with Various Conditions	529
<i>Yiseul Yang, Hyunjung Jung, Kyungsu Kim</i>	
Comparison of AC and DC Tracking and Erosion Characteristics for Outdoor Polymer Composite	532
<i>Seungmin Bang, Ohmin Kwon</i>	
Development and Comparison of an Optimised Pulsed Electroacoustic (PEA) Measurement System	536
<i>Sebastian Braun, Christian Kohlsaat, Peter Werle, Henry Hirte, Stefan Kornhuber</i>	

Research on Dielectric Strength Properties of Synthetic Ester Oil.....	540
<i>Seohyun Lee, Hyeongu Jeong, Jaeyong Park, Bok-Yeol Seok, Jaeseop Ryu, Chaeyoon Bae</i>	
Space Charge Characteristics of Silicone Rubber Based on Cross-Linking Differences for Cable Accessories.....	543
<i>Hyun Cheol Jung, Soo Yeon Ryu, Yeon Woo Jo, Jae Cheol Jung, Seok Hwan Choi</i>	
Enhancement of Dielectric Constant of Aromatic Polyimides by Introducing 4,5-Diazafluorene Structure	546
<i>Ben Tan, Shichun Hu, Liuqing Yang, Benqin Zhu, Liuhao Jiang, Yang Feng, Yishi Yue, Zezhong Sun</i>	
Filler Particle Size Effect on Thermally Properties of Thermal Conductive Thermoplastic Polyimide/Hexagonal Boron Nitride Composite Fabricated by the Electrostatic Adsorption Method.....	550
<i>Yoshinobu Murakami, Yujin Ichiba, Tomohiro Kawashima, Naohiro Hozumi</i>	
Investigating the Aging Mechanisms of Polyethylene Under Numerous Actions Produced by Non-Thermal Plasma	554
<i>Seong-Hun Kim, Jin-Gyu Kim</i>	
Effect of Polymer Chain Rearrangement in the Interfacial Area Caused by Chemical Bonding on Thermal Diffusion	558
<i>Tianyou Xu, Zezhao Bai, Liuqing Yang, Yuchen Yan, Runtao Jing</i>	
A New Test Setup Designed for Evaluation of Insulation Systems Exposed to Power Electronics Induced Stresses	562
<i>Thomas Hammarstroem, Yuriy Serdyuk</i>	
Development of Mold Transformer Life Evaluation Technology.....	566
<i>Jung-Hun Kwon, Jae-Hun Yoon, Myung-Chin Kim</i>	
Optimization of Transformer Replacement Strategies for Cost Efficiency	570
<i>Insu Do, Gi-Hun Park, Yong-Hyeon Kim, Byungseok Park</i>	
Evaluation of Stator Winding Insulation Performance in High-Voltage Motors Based on Inter-Turn Insulation Application Methods.....	573
<i>Dong Kwan Seo, Young Hee Hong, Soon Yong Kim, Jong Min Park, Ji Hyun Cha, Chang Seok Yang</i>	
Condition Assessment for Extending the Life of Aged 25.8kV GIS Using Worst Code Approach.....	576
<i>Yechan Kim, Minkyung Jeong, Bonhyuk Ku, Junyoung Park, Herviana, Hyoungku Kang</i>	
Assessment of Tan δ , Crystallinity and Dielectric Strength in XLPE Cables Through Accelerated Aging.....	580
<i>Jiho Jung, Ho-Rim Ahn, Gyeong-Seop Choi, Bang-Wook Lee</i>	
Lifetime Estimation of Power Transformers in Operation by Furanic Compounds	584
<i>Jong-Ho Sun, Tae- Yoon Hong, Yong-Sung Cho</i>	
Experimental Study of Oil-Immersed Transformer Temperature Features Under Incipient Turn-to-Turn Short-Circuit Fault	588
<i>Si Chen, Gehao Sheng, Lijing Zhang</i>	
Breakdown Characteristics of Synthetic Ester Oil Considering Electrode Configurations and Large Gap Distances Under Positive Lightning Impulse.....	592
<i>Geon Kim, Jin-Yong Na, Ryul Hwang, Jinlong Wu, Sa-Hoon Kim, Bang-Wook Lee</i>	

Comparison of Field Mitigation Methods for HVDC Cable Joint Using Numerical Analysis.....	597
<i>Hyeongjun Kim, Se-Hee Lee</i>	
Analysis of Increasing Current Carrying Capacity Through the Application of an Air Cooling System in Underground Pipeline Section	599
<i>Dong Kyu Kim, Yeon Wook Kang, Chae Kyun Jung, Dong Chul Koo, Jong Pil Lim, Soon Myung Hong</i>	
Design of Ultra-High Voltage Insulator for Offshore Substations Using Multiphysics Simulation	602
<i>Kyuho Kim, Seokhoon Kong, Kwangheum Han</i>	
Processing for Diagnosis Data of Eco-Friendly GIS	605
<i>Hongjun Chae, Jeongwon Jang, Dongwon Namgung, Jinho Im, Suhyeong Jang</i>	
Feature Extraction Techniques from Contaminated-Insulator Leakage Current Data for Deep Learning Applications in Condition Monitoring of High Voltage Insulators.....	608
<i>Umer Amir Khan, Mansoor Asif, Jiho Jung, Luai Alhems, Bang-Wook Lee</i>	
Artificial Intelligence-Based Recognition and Classification of PRPD Patterns in Power Cable	612
<i>Jaesang Kim, Minkyung Jeong, Hobin Lee, Yechan Kim, Hyoungku Kang</i>	
Research and Application of an Algorithm for Identifying Hazards in UAV Inspection Images of High-Voltage Cable Channels	616
<i>Wei Zhang, Xinyue Liu, Bingchen Song, Zhenxing Wang, Jiamin Xu, Hai Li, Xingang Zhan, Fei Wang, Shengtao Li, Shihang Wang, Yuanwei Zhu</i>	
Development of a Measuring Technique to Determine the Acidity of Insulating Paper	620
<i>Büsra Özdemir, Behnam Balali, Peter Werle</i>	
The Study on the Optimal Placement and Evaluation System of Partial Discharge Sensors in Transformers.....	624
<i>Byoung-Woon Min, Danbi Lee, Kwang-Don Bae</i>	
Proposal of Diagnostic Technique of Partial Heating Q(t) Method for Partially Degraded Long Cable.....	627
<i>Natsuki Maruyama, Kouji Kawasaki, Hiroaki Miyake, Yasuhiro Tanaka</i>	
Deep Packet Inspection for Enhanced Security in Microgrids: A Focus on the Modbus RTU Protocol	631
<i>Jaehyun Lee, Jeonghyun Joo, Heewoon Kang, Yoojin Kwon</i>	
Characteristics of Partial Discharge Under AC and DC Using Artificial Defects	633
<i>Hyeonseok Lee, Daejin Park, Bum An, Jungnyun Kim</i>	
Configuration of Performance Verification Environment for Web-Based Integrated Preventive Diagnostic System.....	637
<i>Seokpyeong Seon, Changkuk Choi, Jeonghwa Lee</i>	
Implementation and Verification of IoT-Based Aviation Obstacle Indicator Remote Monitoring System	640
<i>Myung-Hye Park, Young-Hyun Kim, Hyeon Yang, Jae-Ju Song, Chang-Soo Eun</i>	
Partial Discharge Progress and Breakdown in Oil-Impregnated Paper Insulation System of Capacitor Voltage Transformers	644
<i>Yuya Nagaki, Kyohei Hayashi, Hiroki Kojima, Masanobu Yoshida, Naoki Hayakawa</i>	

Development of Low Frequency Current Transformer for Partial Discharge Measurement of Long-Distance HVDC MI Cables	648
<i>Yonguk Won, Youngjun Bae, Minwoo Jeong, Jeongtae Kim</i>	
Prediction of Vacuum Circuit Breaker Condition Based Arcing Energy	652
<i>Jaehun Yoon, Junghun Kwon, Jongchul Jung, Hyungjun Jeon, Myungjin Kim</i>	
Research on GIS Mechanical Defect Diagnosis Method Based on Gramian Angular Field and Lightweight Neural Network.....	655
<i>Jianfeng Cai, Ruifeng Zhu, Xiaobo Huang, Songping Tang, Xu Li, Jian Hao</i>	
Statistical Estimation of Propagation Constants Using Stepped-Frequency Waveform Reflectometry	659
<i>Hyun-Mo Seong, Chang Hyeon Hong, Seung Jin Chang</i>	
A Study on the Applicability of the Power Transformer Condition Diagnostic Method Using DGA-Based Aging Index	662
<i>Munseop Lim, Keonhee Park, Sehee Park, Sanga Ryu, Jangseob Lim</i>	
Propagation Characteristics of Surface Currents Induced by Partial Discharges in an Oil-Filled Bushing on Transformer Tank	665
<i>Shion Toyoda, Mizuki Miyagawa, Masayuki Hikita, Masahiro Kozako, Yutaka Kitoh, Masahiro Sasaki, Toshihiro Maekawa, Kojiro Aoki</i>	
Fundamental Study on Partial Discharge Measurement in High-Voltage Cable Terminal Joint Model and Waveform Reconstruction by Deconvolution Processing	669
<i>Tomohiro Kawashima, Yoshinobu Murakami, Naohiro Hozumi</i>	
Research on Gas-Insulated Cut-Off Switch Partial Discharge Precision Diagnosis Device and Technology	673
<i>Won Choi, Bok-Yeol Seok, Jeon-Seon Lee</i>	
A Case Study for Transformer Diagnosis Via Partial Discharge Measurement Device Capable of High-Speed Sampling.....	677
<i>Daeryeong Baek, Jae-Hong Koo, Hyung-Jun Ju, Seung-Ryle Oh, Jong-Geon Lee</i>	
Study on Behavior and Monitoring of Capacitor Aging.....	681
<i>Byeongmin Kim, Inki Hwang, Yejung Kim, Myungchin Kim</i>	
Research on Nondestructive Identification and Location of Conductor-Discontinuous Cable Based on the Improved Integral Transformation.....	685
<i>Su-Zhou Wu, Xiao-Jun Zhang, Ze-Yang Lei, Wen-Bing Zhuang, Hai-Song Xu, Da-Ning Zhang</i>	
Research on Simulation Technology of Transient Electromagnetic Disturbance in Miniature GIS	693
<i>Lin Cheng, Jian Liu, Yanhua Han, Quantao Wang, Zhen Liu, Haitao Sun, Yuanwei Zhu</i>	
Proposal of a Method for Evaluating Amounts of Space Charge Using the Current Integrated Charge Method	698
<i>Shunsuke Shinogi, Yugo Suwama, Hiroaki Miyake, Yasuhiro Tanaka</i>	
Comparative Analysis of Partial Discharge Pattern Recognition Using Deep Learning and Machine Learning	702
<i>Tae-Yun. Hong, Hyun-Mo. Ahn, Hyun-Jae. Jang, Jun-Kyu. Park, Jong-Ho. Sun, Jin-Gyu. Kim</i>	
Study on the Application of Laser Communication Terminal for Large-Capacity Data Transmission of Environmental Monitoring in Underground Facilities	705
<i>Siwoong Park, Chan Il Yeo, Young Soon Heo, Keo Sik Kim, Dae Gil Kim, Hyoung Jun Park</i>	

Development of Operator Training Simulator for Distribution Line Maintenance Robot System	708
<i>Kun-Jung Kim, Yoon-Geon Lee, Young-Sik Jang, Mi-Yeon Cho, Min-Hee Choi</i>	
A Study on DC Breakdown Properties According to Additive Contents of Insulating Materials for HVDC Eco-Friendly Power Cables.....	710
<i>Ji-Ho Park, Chul-Ho Kim, Hye-Gyo Hong, June-Ho Lee</i>	
Sound Field Analysis on a 16-Channel Device for Measuring Space Charge in Cable Joint	712
<i>Shafira Zahra, Tomohiro Kawashima, Yoshinobu Murakami, Naohiro Hozumi, Peter Morshuis, Young-Il Cho, Yoon-Hyoung Kim</i>	
A Study on Temperature Control Method and Space Charge Measurement of HVDC Cable Insulation Material Using Induction Heating	716
<i>Junedo Park, Soo Yong Shin, Dongmin Shin, Hyuncheol Jung, Hyunggyu Kim, Seung Hwangbo</i>	
HPPC-Based Cell-Level Performance Evaluation and Result Analysis of LiB ESS.....	720
<i>Sung-Eun Lee, Chanho Noh, Hyun Gi Jo, Hyun Geun Jo</i>	
Internal Resistance Modeling for Proactive Safety Monitoring in Batteries and Energy Storage Systems.....	723
<i>Chae Won Kim, Se-Hee Lee</i>	
Polarity Effects of Residual Charge on Impulse PD of Three-Layer Polyester Films with a Void.....	727
<i>Yuanhang Yao, Mizuki Miyagawa, Yuri Nagatani, Masayuki Hikita, Masahiro Kozako</i>	
Comparison of Flat and Cylindrical Interface Models for Analyzing Interface Characteristics of Ultra-High Volatage Cable Joint.....	731
<i>Yonguk Won, Youngjun Bae, Minwoo Jeong, Jeongtae Kim, Sungwon Ahn, Jiyeon Yoon</i>	
Investigation for Shared Voltage of DC and Pulsed in PEA Measurement for Double-Layer Sample.....	734
<i>Yeongguk An, Hiroaki Miyake, Yasuhiro Tanaka</i>	
Investigation of Breakdown Strength and Dielectric Properties of Polypropylene/Polyolefin Elastomer Blends with Mixing Temperature	738
<i>Hana Kim, Keisuke Shinozaki, Masayuki Hikita, Masahiro Kozako, Ohuk Lee, Seunggun Yu</i>	
Breakdown Voltage Characteristics on Synthetic Ester(MIDEL 7131) and Mineral Oil for Inter-Turn Insulation Model of Large Power Transformer	741
<i>Kang-San Lee, Jin-Seok Yeo, Hyeongu Jeong, Jaeyong Park, Won Choi, Bok-Yeol Seok</i>	
Investigation of the Relationship Between Impulse Pre-Stress and Subsequent AC Partial Discharge.....	744
<i>Yuri Nagatani, Koki Miyazaki, Masahiro Kozako, Masayuki Hikita, Hiroaki Miyake, Yasuhiro Tanaka, Yuuki Fujii, Yusuke Nakamura, Daiki Ito, Tetsuo Nakamae, Kimiharu Oyama, Tamon Ozaki</i>	
Characteristics of Silicon Carbide Particles by Modification Conditions	748
<i>Sung-Jei Hong</i>	
Near IR Cutting Properties of Transparent Electrodes by Using ITO-NPs	752
<i>Sung-Jei Hong</i>	
The Oil Temperature Influence on the Dual-Temperature Aging for the Electrical Insulation Systems in Direct Oil-Cooled Motors of Electric Vehicles	755
<i>Yabo Sun, Chaoqun Shi, Zhenguo Zhang</i>	

Ultrathin Functional 2D Nanosheets Promote Energy Storage Performance of BNNS/PP Nanocomposites	759
<i>Biao Liu, Lu Cheng, Wenfeng Liu, Shengtao Li</i>	
Study on the Health Index for Condition Assessment of Pad Mounted Switchgear.....	768
<i>Hongseok Lee, Jongman Yoon, Jungwook Woo</i>	
Condition Assessment for Extending the Life of Aged 7.2kV Switchgear Using Worst Code Approach	770
<i>Bonhyuk Ku, Minkyung Jeong, Yechan Kim, Herviana, Jaesang Kim, Hyoungku Kang</i>	
Lifespan Evaluation of GIS Under Tropical Climate Conditions: An Environmental Impact Analysis.....	774
<i>Minkyung Jeong, Yechan Kim, Bonhyuk Ku, Jaesang Kim, Herviana, Hyoungku Kang</i>	
A Study on the Statistical Life Analysis of 154kV XLPE Cable Based on the Accelerated Stress Aging Test with the Reduced-Size Model Cable	777
<i>Ju-Homg Eom, Hyeon-Sang Ko, Min-Seok Hong, Si-Young Lee</i>	
Feature Extraction Using Kullback-Leibler Divergence for Long-Term Trend Analysis of PRPD Patterns of Cast Resin Transformer	785
<i>Mizuki Miyagawa, Takumi Satake, Hideaki Kawano, Masayuki Hikita, Masahiro Kozako, Yoshihiro Harada, Katsutoshi Takei, Masaru Ikeda, Kazunori Miyazaki, Kazuhiro Futakawa</i>	
Phase Field Simulation of Electric Tree Propagation in Material Consisting of Two Layers with Different Elastic Moduli	789
<i>Shinji Yudate, Tomoya Tachibana, Ryotaro Ozaki, Haruo Ihori, Kazunori Kadowaki</i>	
Review of Various Failure Modes in High-Voltage Insulated Gate Bipolar Transistors During Short Circuit Operation.....	793
<i>Eunho Kim, Kwang Hoon Oh, Yong Sang Kim</i>	
Study on the Feasibility of Monitoring HvdC Cables by Using Physics-Informed Neural Networks	797
<i>Young-Il Cho, Yoon-Hyoung Kim, Bong-Seok Kim</i>	
Fully Coupled Finite Element Analysis of Space Charge Propagation with Floating Metal in Dielectric Liquid.....	801
<i>Yonghee Kim, Hyemin Kang, Se-Hee Lee</i>	
Finite Element Analysis of Air-Insulator Discharge Current with Discharge Distance	803
<i>Hyemin Kang, Yonghee Kim, Se-Hee Lee</i>	
A Study Curing Analysis of Thermoset Depend on Molding Temperature Control	805
<i>Ju Hyeong Son, Seok Hoon Gong, Kyu Ho Kim, Kwang Heum Han, Seong Hee Park, Young Gi Hong</i>	
Pre-Processing Techniques for Leakage Current Data: Enabling Machine Learning in High Voltage Insulator Monitoring.....	808
<i>Mansoor Asif, Umer Amir Khan, Chanyeol Ryu, Khalid Alsoufi, Bang-Wook Lee</i>	
Inheritable Object-Oriented Bayesian Networks: An Efficient Fault Diagnosis Model for Complex Equipment Systems	816
<i>Yongxuan Fang, Shigang Zhang, Lei Li, Xu Luo, Chenxu Xing, Mengqiao Chen</i>	
Classification of Partially Labelled Partial Discharge Datasets Using Semi-Supervised Learning.....	820
<i>Pablo Donoso-Daille, Vidyadhar Peesapati, Colin Smith, Koen Tavernier, Gwen Tavernier</i>	

Development and Application of Partial Discharge Diagnostic Technology for Underground Transmission Lines Using AI	824
<i>Yeonha Jung, Sungsoo Kim, Nakhoon Jung</i>	

Classification of Partial Discharges at DC Voltage Based on 1-Dimensional CNN Approaches	826
<i>Minhee Kim, Ju Jin Son, Yong Sung Cho</i>	

Author Index