

2021 IEEE International Conference on the Properties and Applications of Dielectric Materials (ICPADM 2021)

**Virtual Conference
12 – 14 July 2021**



**IEEE Catalog Number: CFP21ICP-POD
ISBN: 978-1-7281-8239-1**

**Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. 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:	CFP21ICP-POD
ISBN (Print-On-Demand):	978-1-7281-8239-1
ISBN (Online):	978-1-7281-8238-4
ISSN:	2160-9225

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

RELIABILITY OF HVDC AND MVDC ELECTRICAL ASSET: THE CHALLENGE OF INSULATION DESIGN	1
<i>Gian Carlo Montanari; Riddhi Ghosh; Hadi Naderiallaf; Paolo Seri</i>	
HARMONIC CURRENTS GENERATED BY MV MODULAR CONVERTERS AND THERMAL INSULATION AGING OF POLYMERIC CABLES	9
<i>M. Bosworth; G. C. Montanari; M. Steurer; L. Wang; R. Ghosh; P. Lewis</i>	
OPTIMIZATION OF GRADING RING DESIGN FOR METAL OXIDE ARRESTER USING GRAVITATIONAL SEARCH ALGORITHM	13
<i>Hazlee Azil Illias; Chea Zern Hong; Kalaiselvi Aramugam; Hazlie Mokhlis; Azrul Mohd Ariffin; Mohd Fairouz Mohd Yousof</i>	
ELECTRIC THERMAL COUPLING FIELD CALCULATION OF GIS CONDUCTOR JOINT	17
<i>Zhikai Li; Shouwen Liu; Xiukun Li; Bo Yue; Peng Liu; Zongren Peng</i>	
THE EFFECT OF TAP CHANGER COKING AND PITTING ON FREQUENCY RESPONSE ANALYSIS MEASUREMENT OF TRANSFORMER	21
<i>Salem Mgammal Al-Ameri; Ahmed Allawy Alawady; Mohd Fairouz Mohd Yousof; Muhammad Saufi Kamarudin; Hazlee Azil Illias</i>	
CLASSIFICATION OF PARTIAL DISCHARGES IN INSULATION MATERIALS VIA SUPPORT VECTOR MACHINE AND DISCRETE WAVELET TRANSFORM	25
<i>Hazlee Azil Illias; Neoh Ying Ting; Ong Zhen Yu; Masaaki Kando; Azrul Mohd Ariffin; Mohd Fairouz Mohd Yousof</i>	
AGING EFFECTS ON STRUCTURE AND BREAKDOWN PROPERTIES OF POLYPROPYLENE/MULTI-ELEMENT OXIDE NANOCOMPOSITES	29
<i>A. Azmi; K. Y. Lau; N. A. Ahmad; Z. Abdul-Malek; Z. A. Noorden; M. A. Talib</i>	
FAULT IDENTIFICATION IN POWER TRANSFORMERS USING DISSOLVE GAS ANALYSIS AND SUPPORT VECTOR MACHINE.....	33
<i>Hazlee Azil Illias; Chan Kai Choon; Wee Zhao Liang; Hazlie Mokhlis; Azrul Mohd Ariffin; Mohd Fairouz Mohd Yousof</i>	
ELECTRIC FIELD AND POTENTIAL CHANGES STUDIES ON CAST-RESIN DRY-TYPE POWER TRANSFORMER HAVING MISALIGNMENT	37
<i>Muhammad Jazmi Jaafar; Nor Asiah Muhamad; Mohamad Kamarol Mohd Jamil; Norfadilah Rosle</i>	
INSULATING PROPERTIES OF ECO-FRIENDLY NATURAL ESTERS DERIVED FROM NON-EDIBLE VEGETABLE OIL	41
<i>Dhoral Gnanasekaran; Anil Chavan; P. Thomas</i>	
BREAKDOWN STRENGTH AND STABILITY OF PALM OIL TOUGHENED WITH NATURAL FIBRES AS LIQUID INSULATION	45
<i>Siti Sarah Junian; Mohamad Zul Hilmey Makmud; Jedol Dayou; Hazlee Azil Illias</i>	
SYNTHESIS, STRUCTURAL AND DIELECTRIC CHARACTERISTICS OF LIQUID CRYSTALLINE AZO-BASED COMPOUNDS WITH DIFFERENT TERMINAL LENGTH	49
<i>Zuhair Jamain; Samerah Habil; Mohamad Zul Hilmey Makmud; Melati Khairuddean</i>	
DISSOLVED GAS ANALYSIS OF THERMALLY AGED MINERAL OIL AND VEGETABLE OIL BASED NANOFLUIDS.....	53
<i>Prabhat Kumar Maiti; Manas Chakraborty</i>	
A COMPREHENSIVE SURVEY ON ALTERNATING FLUIDS USED FOR THE ENHANCEMENT OF POWER TRANSFORMERS	57
<i>S. Gopakumar; Sree R. R. Thangaswamy</i>	
STUDY ON THE THERMODYNAMIC STABILITY OF THE ORGANIC DIELECTRICS IN THE PHOTOVOLTAIC CELL.....	61
<i>Richard Kyung; Christopher Lee</i>	
ANTI-ELECTROSTATIC ELECTRIC DISCHARGE PERFORMANCE OF ZNO/SILICONE RUBBER COMPOSITE WITH NONLINEAR CONDUCTIVITY	65
<i>Ya Sun; Jun Hu; Zhikang Yuan</i>	
CHARACTERIZATION OF COLD PLASMA WITH GLOW DISCHARGE MECHANISM OF PLASMA JET SYSTEM.....	69
<i>N. M. Saman; M. H. Ahmad; Z. Buntat; Z. Nawawi; M. A. B. Sidik; M. I. Jambak</i>	
EFFECT OF AC INTERFERENCE ON HV UNDERGROUND CABLES BURIED WITHIN TRANSMISSION LINES RIGHT OF WAY	73
<i>Zoolnasri Abu Harun; Miszaina Osman; Azrul Mohd Ariffin; Mohd Zainal Abidin Ab Kadir</i>	

LOCALIZATION WITH PHASE RESOLVED PARTIAL DISCHARGE MEASURED WITH HIGH FREQUENCY CURRENT TRANSFORMER	77
<i>Kai Xian Lai; Nor Fazlinda Binte Mohd Affandi; Bing Hong Leck; Yongyi Fu; Seng Kok Ang</i>	
COMPARATIVE ANALYSIS OF THE EFFECT OF DIFFERENT SUBSTRATES MATERIALS ON MICROSTRIP PATCH ANTENNA OPERATING AT 3.6 GHZ	81
<i>Yakub B. Olufadi; Ibrahim Maina; Olaoluwa Ayodeji Adegboye; Ayodeji Ireti Fasiku</i>	
VACUUM DC FLASHOVER PERFORMANCE IMPROVEMENT BY CF₄ RADIO FREQUENCY CAPACITIVELY COUPLED PLASMA	85
<i>Chenxu Wang; Xingyu Chen; Bo Zhang; Yuhao Sun; Yanan Peng; Guanjun Zhang</i>	
MITIGATION OF DEGRADATION IN POLYMERS BY GAMMA RAYS	89
<i>Yoshimichi Ohki; Yu Miyazaki; Haolong Zhou; Momoka Sumita; Takumi Someya; Naoshi Hirai</i>	
RESEARCH ON AGING PERFORMANCE AND MECHANISM ANALYSIS OF CROSS-LINKED POLYETHYLENE WIRE AND CABLE MATERIALS	93
<i>Tian Chongjun; Daolin Ye; Weiyi Xing</i>	
ADVANCED POLYMERIC CABLE DEGRADATION DIAGNOSTICS USING TIME DOMAIN REFLECTOMETRY TECHNIQUE	95
<i>Tze Mei Kuan; Azrul Mohd Ariffin; Suhaila Sulaiman; Hazlee Azil Illias; Wong Jee Keen Raymond</i>	
DEVELOPMENT OF POWER TRANSFORMER REMAINING LIFE MODEL USING MULTI-PARAMETERS	99
<i>Rahman Azis Prasajo; Achmad Setiawan; I. Suwarno; Nur Ulfa Maulidevi; Bambang Anggoro Soedjarno</i>	
CLASSIFICATION OF DEGRADED POLYMER INSULATOR USING SUPPORT VECTOR MACHINE	103
<i>A. Din; M. A. M. Piah; A. R. Abdullah; F. S. Abdullah</i>	
THREE-DIMENSIONAL VISUALIZATION TECHNOLOGY FOR ULTRASONIC DETECTION OF PARTIAL DISCHARGES IN POWER TRANSFORMERS	107
<i>Hao Zhang; Wu Lu; Hui Liu; Jianan Weng; Wenbin Zhao; Zhiyan Peng</i>	
FAULT DIAGNOSIS OF THE EXTERNAL INSULATION INFRARED IMAGES BASED ON MASK REGION CONVOLUTIONAL NEURAL NETWORK AND PERCEPTUAL HASH JOINT ALGORITHM	111
<i>Wenbin Tang; Bingjie Wu; Wu Lu; Wenbin Zhao; Long Li; Hua Yin</i>	
A TOOL TO DETERMINE THE HYDROPHOBICITY OF INSULATORS USING CONTACT ANGLE OF A WATER DROPLET	115
<i>Supun Amarathunga; Lochana Ranathunga; Prabath Lakmal; Dimuth Saranga; Rasara Samarasinghe; Joseph Rohan Lucas</i>	
INVESTIGATION ON THE RELATIONSHIP BETWEEN FAILURE RATES AND HEALTH INDEX OF DISTRIBUTION TRANSFORMER POPULATION	119
<i>N. S. Shariifuddin; N. Azis; A. Mohd Selva; M. S. Yahaya; J. Jasni; M. A. Talib</i>	
PREDICTION OF A TRANSFORMER'S LOADING AND AMBIENT TEMPERATURE BASED ON SARIMA APPROACH FOR HOT-SPOT TEMPERATURE AND LOSS-OF-LIFE ANALYSES	123
<i>Najiyah Saleh; Norhafiz Azis; Jasronita Jasni; Mohd Zainal Abidin Ab Kadir; Mohd Aizam Talib</i>	
CORRELATING UV VISIBLE SPECTRAL RESPONSE AND THERMAL AGEING OF BLENDED TRANSFORMER OIL	127
<i>Manas Chakraborty; Niharika Baruah; Sisir Kumar Nayak; Prabhat Kumar Maiti</i>	
IMPLEMENTATION OF SELF-ORGANIZING MAP AND LOGISTIC REGRESSION IN DISSOLVED GAS ANALYSIS OF TRANSFORMER OILS	131
<i>Chandrima Saha; Niharika Baruah; Sisir Kumar Nayak</i>	
CLASSIFICATION OF PARTIAL DISCHARGE SOURCES BY SF₆ DECOMPOSITION BY-PRODUCTS	135
<i>Ammar Salah Mahdi; Zulkurnain Abdul-Malek; Amirreza Naderipour; Sanuri Ishak; Mohd Nur Khaidir Bin Hussein</i>	
INVESTIGATION OF SF₆ DECOMPOSITION UNDER PARTIAL DISCHARGE INDUCED BY PROTRUSION DEFECT	139
<i>Ammar Salah Mahdi; Zulkurnain Abdul-Malek; Amirreza Naderipour; Sanuri Ishak; Mohd Nur Khaidir Bin Hussein</i>	
EFFECT OF LARGE MECHANICAL STRESS ON ELECTRICAL TREE CHARACTERISTICS OF SILICONE RUBBER	143
<i>Weisun Jiaxing; Miao Siping; Xu Man</i>	
EFFECT OF STATIC FLOATING PARTICLE SHAPES ON PARTIAL DISCHARGE CHARACTERISTICS IN MINERAL OIL	147
<i>Daniar Fahmi; Hazlee Azil Illias; Hazlie Mokhlis; I. Made Yulistya Negara</i>	

INFLUENCE OF CELLULOSE FIBER CONTAMINATION AND BRIDGING ON BREAKDOWN VOLTAGE OF PFAE UNDER LIGHTNING IMPULSE STRESS.....	151
<i>S. Saaidon; M. N. K. H. Rohani; M. A. Talib; N. A. Muhamad; M. Kamarol</i>	
STUDY ON CHARGE TRAPPING PROCESSES OF EPOXY RESIN NANOCOMPOSITES.....	155
<i>Xi Pang; Peng Liu; Zongren Peng; Boyuan Cui; Xi Yang; Yaqin Wen</i>	
INVESTIGATION ON THE EFFECT OF THE CROSS-SECTION OF INSULATORS ON THE RADIAL DISCHARGE DISTRIBUTION OF CREEPING DISCHARGES.....	159
<i>Sampath Ediriweera; Pramod Jayarathna; Rasara Samarasinghe; Rohan Lucas</i>	
EFFECTS OF GRAPHENE COATINGS ON HINDERING SPACE CHARGE INJECTION IN EPOXY RESIN.....	163
<i>Paolo Seri; Simone Vincenzo Suraci; Davide Fabiani</i>	
HIGH DIELECTRIC AND ENERGY STORAGE POLYMER DIELECTRICS.....	167
<i>Shengtao Li; Yang Feng</i>	
CARBONIZED SURFACE TRACKING ON PRESSBOARD CYLINDER OF OIL FILLED TRANSFORMER UNDER MAIN INSULATION FAULTS.....	171
<i>Muzi Li; Long Li; Hua Yin; Wu Lu; Jianan Weng</i>	
TRENDING OF SF₆ DECOMPOSITION BY-PRODUCTS CHARACTERISTICS UNDER ARTIFICIALLY INDUCED PD IN GIS.....	175
<i>Ammar Salah Mahdi; Zulkurnain Abdul-Malek; Amirreza Naderipour; Sanuri Ishak; Mohd Nur Khaidir Bin Hussein</i>	
DESIGN OF GIS DEFECTS FOR PARTIAL DISCHARGE INDUCED SF₆ DECOMPOSITION.....	179
<i>Ammar Salah Mahdi; Zulkurnain Abdul-Malek; Amirreza Naderipour; Sanuri Ishak; Mohd Nur Khaidir Bin Hussein</i>	
RESISTIVE LEAKAGE CURRENT BASED CONDITION ASSESSMENT OF ZINC OXIDE SURGE ARRESTER: A REVIEW.....	183
<i>Abdullah Munir; Zulkurnain Abdul-Malek; Rai Naveed Arshad</i>	
ACCURACY OF FURANIC COMPOUND ANALYSIS IN DETERMINING THE AGEING OF POWER TRANSFORMERS.....	187
<i>Mohd Aizam Talib; Mohd Azhar Abdul Aziz; Young Zaidey Yang Ghazali; Mohd Rasyidi Zainal Abidin</i>	
A NEW TECHNOLOGY OF GIS PARTIAL DISCHARGE LOCATION METHOD BASED ON DFB FIBER LASER.....	191
<i>Long Li; Hua Yin; Wenbin Zhao; Chenglong Jia</i>	
THE APPLICATION OF MAGNETIC TAPE TO MEASURE LIGHTNING PEAK CURRENT IN INDONESIA.....	194
<i>Bryan Denov; Syarif Hidayat; I. Suwarno; Reynaldo Zoro</i>	
INVESTIGATING SURFACE CONDITION OF CORONA AGED EPOXY-AL NANOCOMPOSITES BY ADOPTING WAVELET TRANSFORM.....	198
<i>Myneni Suresh Babu; Chillu Naresh; R. Jayaganthan; Takahiro Imai; R. Sarathi</i>	
STRUCTURE AND BREAKDOWN PROPERTIES OF POLYPROPYLENE-BASED NANOCOMPOSITES.....	202
<i>A. Azmi; K. Y. Lau; N. A. Ahmad; Z. Abdul-Malek; C. W. Tan; K. Y. Ching</i>	
COMPARISON OF FLASHOVER VOLTAGES AND SURFACE DISCHARGES OF EPOXY RESIN WITH MONTMORILLONITE NANOFILLERS AND XLPE SAMPLES WITH SiO₂ AND Al₂O₃ NANOPARTICLES.....	206
<i>Dimosthenis Verginadis; Michael G. Danikas; Yi Yin; Ahmad Basri Abd Ghani; Ramanujam Sarathi</i>	
THE EFFECT OF WATER ABSORPTION ON THE DIELECTRIC RESPONSE OF CALCINED ZIRCONIA-BASED POLYETHYLENE NANOCOMPOSITES.....	210
<i>K. Y. Lau; C. W. Tan; K. Y. Ching; N. H. Rahim; A. S. Vaughan</i>	
STUDY ON THERMAL CONDUCTIVITY OF BNNS/MG(OH)₂/LDPE COMPOSITES BASED ON MELT BLENDING METHOD.....	214
<i>Chu Wang; Jinghao Wang; Changshun Wu; Weigang Li; Zhaowen Yang; Kai Wu</i>	
STUDY OF HEAT TRANSFER PROPERTY OF THE TRANSFORMER OILS ON ADDITION OF CUO NANOPARTICLES.....	218
<i>Sujita Srichandana Dey; Sangineni Rohith; Niharika Baruah; Sisir Kumar Nayak</i>	
EFFECT OF TITANIUM OXIDE NANOFILLER ON THE ELECTRICAL PROPERTIES OF POLYPROPYLENE NANOCOMPOSITES FOR HVDC INSULATION.....	222
<i>Muhammad Adnan; Zulkurnain Abdul-Malek; Kwan Yiew Lau; Muhammad Tahir</i>	
STUDY OF MAGNETIC PROPERTIES OF MINERAL OIL BASED NANOFLUIDS.....	226
<i>Deepak Kanumuri; Rohith Sangineni; Niharika Baruah; Sisir Kumar Nayak</i>	
CALCULATION OF ELECTROSPRAY PROFILE IN MULTI-ELECTRODE SYSTEM FOR PLASMA TREATMENT.....	230
<i>Ryohei Ishimaru; Hideki Motomura; Shinji Yudata; Ryotaro Ozaki; Kazunori Kadowaki</i>	

POLARITY EFFECT OF LARGE CURRENT SPIKES PRODUCED BY ARTIFICIAL CHARGE INJECTION FROM GAS PHASE INTO LDPE SHEET	234
<i>Keisuke Yamamoto; Shinji Yudate; Ryotaro Ozaki; Kazunoroi Kadowaki</i>	
ADDITIVE IMPACT ON SPACE CHARGE OF XLPE-BASED INSULATORS SUBJECTED TO RADIO-CHEMICAL AGING	238
<i>Simone Vincenzo Suraci; Davide Fabiani</i>	
DESIGN OF AN ULTRA-WIDE BAND MICROSTRIP PATCH ANTENNA FOR PARTIAL DISCHARGE DETECTION ON POWER TRANSFORMER.....	242
<i>Jean Pierre Uwiringiyimana; I. Suwarno; Umar Khayam</i>	
A HYBRID METHOD OF SELF ORGANIZING MAPS WITH STATISTICAL FEATURE EXTRACTION FOR ACCURATE AND EFFICIENT PARTIAL DISCHARGE RECOGNITION AND CLUSTERING	246
<i>Z. H. Bohari; M. Isa; P. J. Soh; A. Z. Abdullah; M. F. Sulaima; M. N. M. Nasir</i>	
AIR BUBBLE IN LIQUID FOOD UNDER PULSED ELECTRIC FIELD PASTEURIZATION USING COAXIAL CHAMBER	250
<i>Rai Naveed Arshad; Zulkurnain Abdul-Malek; Abdullah Munir; Mohd. Hafzi Ahmad; Muhammad Abu Bakar Sidik; Zainuddin Nawawi</i>	
CLASSIFICATION OF SALT FOG AGED SILICONE RUBBER MICRO NANOCOMPOSITES THROUGH PCA ASSISTED LIBS	254
<i>Chillu Naresh; Pabbati Vinod; Rengaswamy Jayaganthan; Stefan Kornhuber; R. Sarathi</i>	
PHYSICO-CHEMICAL CHARACTERISTICS AND BASIC PROPERTIES OF THE FLUORINATED BOPP SURFACE LAYER AND ITS EFFECT ON DIELECTRIC STRENGTH.....	258
<i>Xin Wang; Zhenlian An; Yanming Qin</i>	
EFFECT OF THE INTERPHASE AND AGGLOMERATION ON THE TENSILE PROPERTIES OF EPOXY/ALUMINA NANOCOMPOSITES	262
<i>Neelmani Neelmani; Hisayuki Suematsu; Ramanujam Sarathi; Toshikatsu Tanaka</i>	
EFFECT OF GAMMA-RAY IRRADIATION ON THE ELECTRICAL AND MECHANICAL PROPERTIES OF EPOXY/TIO₂ NANOCOMPOSITE	266
<i>Janjanam Naveen; S. K. Amizhtan; M. G. Danikas; Takahiro Imai; Ramanujam Sarathi</i>	
UNDERSTANDING THE FLOW ELECTRIFICATION OF SYNTHETIC ESTER FLUID ADOPTING SPINNING DISC METHOD	270
<i>S. K. Amizhtan; B. Thangabalan; R. Sarathi</i>	
INVESTIGATION OF TRANSFORMER OIL PROPERTIES WITH ADVANCED MULTIDIMENSIONAL METHODS.....	274
<i>Sebastian Schreiter; Holger Lohmeyer; Peter Werle</i>	
EFFECT OF UV AGEING ON THERMO-MECHANICAL PROPERTIES OF ETHYLENE-VINYL ACETATE NANOCOMPOSITE ENCAPSULANT.....	278
<i>Moumita Naskar; H. M. Dharmendra; K. P. Meena</i>	
ANALYSIS OF SURFACE POTENTIAL DECAY AND CHARGE TRAP CHARACTERISTICS OF WATER DIFFUSED SILICONE RUBBER NANOCOMPOSITES.....	282
<i>B. Thangabalan; Janjanam Naveen; M. G. Danikas; Ramanujam Sarathi</i>	
IMPACT OF GAMMA IRRADIATION ON SURFACE POTENTIAL AND THERMO-MECHANICAL PROPERTIES OF EPOXY MICRO-NANOCOMPOSITES	286
<i>Pabbati Vinod; Myneni Suresh Babu; M. G. Danikas; Takahiro Imai; R. Sarathi</i>	
INTERDIGITAL CAPACITANCE SENSOR FOR MONITOR AGEING OF POWER CABLE – SIMULATION	290
<i>L. Pu; X. Zhao; W. Duan; H. Sun; M. Hao; R. Hilleren; G. Chen</i>	
THERMAL DEGRADATION KINETICS OF HIGH TEMPERATURE POLYMERS FOR AERONAUTIC CABLES INSULATION	294
<i>Gilbert Teyssedre; Sorin Dinculescu; Séverine Le Roy; Thomas Hähner; Clara Lagomarsini; Patrick Rybski</i>	
INTEGRATION OF DUVAL PENTAGON TO THE MULTI-METHOD INTERPRETATION TO IMPROVE THE ACCURACY OF DISSOLVED GAS ANALYSIS TECHNIQUE	298
<i>Heri Sutikno; Rahman Azis Prasajo; I. Suwarno</i>	
STUDY ON THE AGEING PERFORMANCE ON KENAF INSULATING PRESSPAPER WITH NATURAL ESTER.....	302
<i>Nurul Hashim; Mohd Taufiq Ishak; Nurizah Insyirah Md Noh; Ja' Afar Adnan; Mohd Solehin Mohd Nasir; Siti Aminah Mohd Noor</i>	
IDENTIFICATION AND CLASSIFICATION OF INCIPIENT DISCHARGES IN GIS ADOPTING MACHINE LEARNING TECHNIQUES.....	306
<i>Sneha Jayaganthan; Nagaraju Guvvala; Sarathi Ramanujam</i>	

NEW THERMOPLASTIC INSULATION FOR TRACK-RESISTANT OVERHEAD CABLES WITH IMPROVED PROPERTIES	310
<i>Detlef Wald; Pasi Raikisto</i>	
CURING CHARACTERISTIC ANALYSIS AND LEAKAGE CURRENT PERFORMANCES OF SILICONE RUBBER VIA INCLINED PLANE TRACKING (IPT) TEST	314
<i>N. N. Ali; H. Zainuddin; J. A. Razak; R. Abd-Rahman</i>	
ELECTRIC FIELD DISTRIBUTION CONSIDERING THE BYPRODUCTS INHOMOGENEITY OF CROSSLINKING INSULATION IN HVDC CABLE	318
<i>Fei Li; Lisheng Zhong; Jinghui Gao; Wenpeng Li; Cong Wang; Hexiang Tao; Qinxue Yu; Chao Feng; Qingwu Li</i>	
CHARGING AND DISCHARGING CURRENT IN CHARACTERIZATION OF KRAFT PAPER IMMERSED IN PALM FATTY ACID ESTER INSULATION OIL	322
<i>Mohd Khairulanwar Mohmad Johar; Nor Asiah Muhammad; Mohamad Kamarol Mohd Jamil; Saiful Mohammad Iezham Bin Suhaimi</i>	
CLASSIFICATION OF FAULT AND STRAY GASSING IN TRANSFORMER OIL USING SVM, NB AND KNN ALGORITHMS	326
<i>Hussein Hasan Al-Katheri; Mohd Fairouz Mohd Yousof; Hazlee Azil Illias; Mohd Aizam Talib</i>	
ELECTRICAL EQUIVALENT CIRCUIT SIMULATION OF POLLUTED RTV SILICONE RUBBER COATED INSULATOR UNDER SALT FOG CONDITION	330
<i>Muhammad Fathur Majid; Adjie Bagaskara; Lunnetta Safura Lumba; I. Suwarno</i>	
CHARACTERIZATION OF THERMAL DEGRADATION OF GLASS FIBER REINFORCED POLYMER USED IN HIGH VOLTAGE COMPOSITE INSULATOR IN NITROGEN ATMOSPHERE BY FTIR AND MICRO-MORPHOLOGY ANALYSES	334
<i>Shuyuan Wang; Yanfeng Gao; Yi Lu; Jifei Zhang; Xu Zhang; Shuochao Fan; Jingzhe Yu; Yuan Chen; Xinsheng Ma; Hui Wang; Bin Su; Min Liu</i>	
ELECTROMAGNETIC FIELDS CHARACTERISTICS FROM OVERHEAD LINES, UNDERGROUND CABLES AND TRANSFORMERS DETERMINED USING FINITE ELEMENT METHOD	338
<i>Mohammed Khaled Omar Basharahil; Noor Azlinda Ahmad</i>	
COMPARATIVE STUDY ON ELECTRICAL EQUIVALENT CIRCUIT OF INSULATORS WITH AND WITHOUT RTV SILICONE RUBBER COATING UNDER CLEAN FOG CONDITION BASED ON LEAKAGE CURRENT WAVEFORMS	342
<i>Adjie Bagaskara; Muhammad Fathur Majid; Lunnetta Safura Lumba; I. Suwarno</i>	
FRA INDICATOR LIMIT FOR FAULTY WINDING ASSESSMENT IN ROTATING MACHINE	346
<i>Mohd Fairouz Mohd Yousof; Ahmed Allawy Alawady; Salem Mgammal Al-Ameri; Norhafiz Azis; Hazlee Azil Illias</i>	
EVALUATION OF THE IMPACT OF INITIAL THERMAL AGING ON THE PERFORMANCES OF THE METHYL ESTER/PAPER COMPOSITE INSULATION	350
<i>Gerard Ombick Boyekong; Ghislain Mengata Mengounou; Emeric Tchamdjio Nkouetcha; Adolphe Moukengue Imano</i>	
EFFECT OF GRAPHENE NANOPATELETS (GNP) ON THE DIELECTRIC AND THERMAL PROPERTIES OF POLYSTYRENE (PS)/POLYVINYLIDENEDIFLUORIDE (PVDF) BLENDS	354
<i>N. Ajith Kumar; V. Ravibabu; A. Ashokbabu; P. Thomas</i>	
DEVELOPMENT OF FLEXIBLE SENSORS BASED ON PIEZOELECTRIC NANOFIBERS	358
<i>Giacomo Selleri; Davide Fabiani; Andrea Zucchelli; Tommaso Maria Brugo; Filippo Grolli; Lorenzo Bordoni</i>	
ELECTRIC FIELD DISTRIBUTION IN POWER CABLE WITH NANO AND MICRO FILLER WITH HIGH AND LOW PERMITTIVITY	362
<i>S. S. Wahdain; N. K. Ludin; A. I. Mohamed; H. A. Illias; Mohamad Kamarol Mohd Jamil</i>	
EFFECT OF TRAP PROPERTY ON CHARGE TRANSPORT PARAMETERS OF BATIO₃/POLYIMIDE NANOCOMPOSITES	366
<i>Jiasheng Ru; Daomin Min; Shengtao Li; George Chen</i>	
PARTIAL DISCHARGE AND BREAKDOWN STRENGTH CHARACTERISTICS OF CROSS-LINKED POLYETHYLENE/SIO₂ NANOCOMPOSITES	370
<i>N. M. Saman; M. H. Ahmad; Z. Buntat; Z. Nawawi; M. A. B. Sidik; M. I. Jambak</i>	
INVESTIGATION OF BATIO₃ AND TIO₂ BASED NANO-FILLERS ON THE SPACE CHARGE AND ELECTRICAL STRENGTH OF CROSS-LINKED POLYETHYLENE (XLPE)	374
<i>A. B. Abd Rahman; M. S. Abd Rahman; A. Mohd Ariffin; N. H. Nik Ali; A. B. Abd Ghani; K. Y. Lau; M. S. Mohamad; M. Osman</i>	
INFLUENCE OF SIO₂ AND ZRO₂ NANOCOMPOSITE ON THE AC BREAKDOWN STRENGTH OF CROSS-LINKED POLYETHYLENE (XLPE)	378
<i>A. B. Abd Rahman; M. S. Abd Rahman; A. Mohd Ariffin; N. H. Nik Ali; A. B. Abd Ghani; K. Y. Lau; M. S. Mohamad; M. Osman</i>	
EFFECT OF CALCINATION AND ADDITION OF SURFACTANT ON MORPHOLOGICAL AND MECHANICAL PROPERTIES OF SILICONE NANOCOMPOSITES	382
<i>Khadija Kamwal Khanum; Arathi Mohan Sharma; Shesha H. Jayaram</i>	

SIMULATION ANALYSIS AND IMPROVEMENT DESIGN OF ELECTRIC FIELD DISTRIBUTION FOR SHIELDING DEVICE IN UHV CONVERTER STATION INDOOR DC YARD.....	386
<i>Zichen Zhao; Zehua Wu; Zongren Peng; Yongjie Li; Wei Zhang; Guohua Yang</i>	
OPTIMIZATION DESIGN ON SHIELDING ELECTRODES FOR PLC REACTOR IN UHV INDOOR DC YARD.....	390
<i>Yiyu Guo; Zichen Zhao; Wei Zhang; Guohua Yan; Yongjie Li; Zongren Peng</i>	
RESEARCH ON THE OPTIMIZATION OF GROUNDING METHODS AND POWER LOSS REDUCTION BASED ON AC 500KV XLPE SUBMARINE CABLE PROJECT.....	394
<i>Xiao Du; Xuezhong Liu; Yanxia Tang; Te Li; Shaohua Wang; Naiyi Li</i>	
CHARACTERISTICS OF POWER CABLE SHEATHING MATERIALS WITH THERMAL AGEING.....	398
<i>R. Arunjothi; Kumar P. V. Satheesh; Thirumurthy; G. K. Raja; K. P. Meena</i>	
CORONA RING DESIGN IMPACT ON THE ELECTRIC FIELD DISTRIBUTION SURROUNDING AN INSULATOR STRING.....	402
<i>Hazlee Azil Illias; Yeoh See Chean; Liong Yu Ling; Hazlie Mokhlis; Azrul Mohd Ariffin; Mohd Fairouz Mohd Yousof</i>	
ELECTRIC FIELD DISTRIBUTION IN HVDC CABLE JOINT IN NON-STATIONARY CONDITIONS.....	406
<i>Gilbert Teyssedre; Thi Thu Nga Vu; Séverine Le Roy</i>	
AGEING CLASSIFICATION OF METAL OXIDE SURGE ARRESTER USING ITS POWER FACTOR.....	410
<i>Abdullah Munir; Zulkurnain Abdul-Malek; Rai Naveed Arshad</i>	
HYDROPHOBICITY AND SURFACE MICROSTRUCTURE CHANGING REGULATIONS OF HTV SILICONE RUBBER UNDER CORONA ACCELERATED AGING.....	414
<i>Yanan Peng; Chenxu Wang; Guanjun Zhang</i>	
NEW APPROACH FOR MONITORING CONTAMINATION LEVEL ON OUTDOOR INSULATOR BASED ON HARMONICS COMPONENTS OF THE LEAKAGE CURRENT.....	418
<i>Ali Ahmed Salem; Rahisham Abd Rahman; Nor Akmal Mohd Jamail; Nordiana Azlin Othman; Irshad Ullah; Hafisoh Binti Ahmad</i>	
EFFECT OF THERMAL AGING ON DIRECT CURRENT INTEGRATED CHARGE CHARACTERISTICS OF XLPE CABLE INSULATION.....	422
<i>Hui Qi; Xinjun Zhang; Rushan Wang; Zhenghong Xu; Qi Wu; Heyu Wang; Zhonglei Li</i>	
ANALYSIS OF DIRECT CURRENT INTEGRATED CHARGE IN CABLE INSULATION WITH ELECTRICAL TREE.....	426
<i>Hui Qi; Xinjun Zhang; Rushan Wang; Zhenghong Xu; Wenquan Gu; Yufei Yao; Zhonglei Li</i>	
AGING OF OIL-IMPREGNATED PAPER AT DIFFERENT FREQUENCIES.....	430
<i>Mohamad Ghaffarian Niasar; Weichuan Zhao</i>	
POLARIZATION AND DEPOLARIZATION CURRENT ANALYSIS FOR FIELD DEGRADED CROSS LINKED POLYETHYLENE CABLES.....	434
<i>S. Sulaiman; A. Mohd Ariffin; T. M. Kuan; M. Osman; N. H. Nik Ali; H. A. Illias</i>	
MEASURING THERMAL DIFFUSIVITY OF THIN FILMS IN THICKNESS DIRECTION.....	438
<i>Shijie Chen; Feihu Zheng; Chenyu Huang; Yewen Zhang</i>	
STUDY OF HIGH VOLTAGE CONNECTORS FOR COAXIAL CABLES USED IN KICKER APPLICATIONS AT CERN.....	442
<i>Dimitrios Kontelis; Laurent Ducimetiere; Thomas Kramer; Luc Sermeus; Tobias Stadlbauer; Pavlina Trubacova</i>	
THE ELECTRIC FIELD CHARACTERISTICS IN CLEVIS TYPE POLYMER INSULATORS AFFECTED BY SIZE AND CONTACT ANGLE OF THE CONTAMINANTS: SIMULATION APPROACH.....	446
<i>I. Made Yulistya Negara; I. Gusti Ngurah Satriyadi Hernanda; Dimas Anton Asfani; Daniar Fahmi; Arief Budi Ksatria; Namira Roudlotul Jannah</i>	
DC LEAKAGE CURRENT MEASUREMENTS: CONTRIBUTION FOR THE QUALIFICATION OF EXTRUDED MVAC CABLES FOR DC OPERATION.....	450
<i>Patrik Ratheiser; Uwe Schichler</i>	
EFFECT OF COMPOUNDING PROCESS PARAMETERS SELECTION ON CONDUCTIVITY LEVEL OF POLYMER BLENDS WITH ALUMINIUM OXIDE AS NANOFILLER FOR HVDC CABLE APPLICATION.....	454
<i>Syatirah Mohd Noor; Nor Asiah Muhammad; Khairul Anwar Abdul Halim; Mohamad Kamarol Mohd Jamil; Sharin Ab Ghani</i>	
ANALYSIS OF PERMITTIVITY AND TEMPERATURE EFFECT ON CHARGE ACCUMULATION WITHIN CROSS-LINKED POLYETHYLENE (XLPE) VIA NUMERICAL SIMULATION.....	458
<i>N. H. Nik Ali; A. Mohd Ariffin; M. S. Abd Rahman; M. Osman; N. H. Zaini; N. Rameli</i>	

DIELECTRIC BARRIER DISCHARGE BASED DIESEL EXHAUST TREATMENT FOR THC REMOVAL THROUGH PLASMA CATALYSIS	462
<i>Katam Nishanth; B. S. Rajanikanth</i>	
INVESTIGATION ON PARTIAL DISCHARGE LOCALIZATION IN OIL BASED ON TIME OF ARRIVAL METHOD	466
<i>Ahmad Hafiz Mohd Hashim; Norhafiz Azis; Jasronita Jasni; Mohd Amran Mohd Radzi; Kozako Masahiro; Mohamad Kamarol Mohd Jamil</i>	
DEFECTS AND RESISTANCE DEGRADATION OF SPUTTERED DOPED LEAD ZIRCONATE TITANATE THIN FILMS	470
<i>Kuan-Ting Ho; Daniel Monteiro Diniz Reis; Karla Hiller</i>	
RESEARCH ON A NEW OPTICAL METHOD FOR SPACE CHARGE MEASUREMENT OF INSULATING MATERIALS	474
<i>Hanwen Ren; Qingmin Li; Haoyu Gao; Sihong Cheng; Yunzhen Shi; Zhongdong Wang</i>	
Author Index	