

2015 IEEE Electrical Insulation Conference

(EIC 2015)

**Seattle, Washington, USA
7-10 June 2015**



**IEEE Catalog Number: CFP15EEI-POD
ISBN: 978-1-4799-7355-2**

TABLE OF CONTENTS

REAL-TIME ELECTRIC FIELD ESTIMATION FOR HVDC CABLE DIELECTRICS	1
<i>Huang, Z.Y. ; Pilgrim, J.A. ; Lewin, P.L. ; Swingler, S.G.</i>	
THERMAL ANALYSIS AND STATISTICAL EVALUATION OF EPR USED IN NUCLEAR POWER PLANTS	5
<i>Ji Yeon Kim ; Dae Hee Park</i>	
NUMERICAL STUDY INTO THE BREAKDOWN STRENGTH OF A TWO PHASE (GAS-LIQUID) INSULATION SYSTEM	13
<i>Wu, S ; Chippendale, R.D. ; Lewin, P.L. ; Hemrle, J. ; Kaufmann, L.</i>	
DEVELOPMENT OF ELECTRICALLY INSULATING PIPE SECTIONS FOR TWO-PHASE COOLING OF ELECTRICAL AND POWER-ELECTRONIC DEVICES	17
<i>Grading, Thomas B. ; Kaufmann, Patrik R.</i>	
THE DISTRIBUTING CHARACTERISTICS OF SEDIMENT DEPOSITED ON PIN-TYPE GRADING ELECTRODES IN INNER COOLING CIRCUIT OF HV CONVERTER VALVE	24
<i>Chenxing Wang ; Xuezhong Liu ; Xianrong Wang ; Ning Liu ; Xiuying Jiao ; Yijiang Tan</i>	
STUDY OF OCCURRENCE OF OVERVOLTAGE ALONG POWER TRANSMISSION LINES WITH ACCEPTABLE END VOLTAGE	29
<i>Couto, Vitor F. ; Cabral, Sergio H.L. ; Mustafa, Thair I.A.H. ; Puchale, Leandro H.B.</i>	
RESEARCH ON THE SHEDS STRUCTURE DESIGN OF THE COMPOSITE INSULATORS USED IN THE STRONG WIND AREA IN UHV TRANSMISSION LINES	33
<i>Wang, Xilin ; Zhu, Zhengyi ; Wang, Yan ; Lei Yunzhe ; Jia, Zhidong ; Guan, Zhicheng ; Li Yaozhong ; Fu hao ; Zhang, Zhenquan</i>	
PREDICTING CONDUCTOR SAG OF POWER LINES IN A NEW MODEL OF DYNAMIC LINE RATING	41
<i>Balango, David ; Nemeth, Balint ; Gocsei, Gabor</i>	
INVESTIGATION OF CHARGE INJECTION THRESHOLD FIELD IN EPOXY RESIN	49
<i>Miao He ; Dayuan Qiang ; Liu, Ning ; Chen, George ; Lewin, Paul L.</i>	
THE PRESSURE WAVE PROPAGATION METHOD FOR THE STUDY OF INTERFACE ELECTRIC FIELD	53
<i>Salame, Basil ; Hole, Stephane</i>	
PLATFORM FOR STUDYING ONLINE FREQUENCY RESPONSE ANALYSIS OF POWER TRANSFORMERS	57
<i>Rampersad, Ravi ; Singh, Arvind ; Bahadoorsingh, Sanjay ; Sharma, Chandrabhan</i>	
INFLUENCE OF BOARD DENSITY ON THE CONDUCTIVITY OF OIL-IMPREGNATED PRESSBOARD FOR HVDC INSULATION SYSTEMS	61
<i>Schober, F. ; Kuchler, A. ; Exner, W. ; Krause, Ch. ; Berger, F.</i>	
OIL-PRESSBOARD INTERFACE CHARGES UNDER COMBINED AC/DC ELECTRIC FIELD: THEIR CHARACTERISTICS AND INFLUENCE ON SURFACE FLASHOVER VOLTAGE	65
<i>Bo Qi ; Yilong Chen ; Chengrong Li ; Chunjia Gao ; Linjie Zhao ; Xiaqing Sun</i>	
EFFECT OF HIGH VOLTAGE TRANSIENTS ON SURFACE DISCHARGE CHARACTERISTICS OF OIL-PAPER INSULATION	69
<i>Nikjoo, Roya ; Taylor, Nathaniel ; Edin, Hans</i>	
DISSOLVED HYDROGEN MEASUREMENT WITH PALLADIUM-SILVER FBG SENSOR IN TRANSFORMER OIL	73
<i>Song, Hong-tu ; Ma, Guo-ming ; Jiang, Jun ; Li, Cheng-rong ; Luo, Ying-ting ; Wang, Hong-bin</i>	
COMPARATIVE STUDY OF PARTIAL DISCHARGE LOCALISATION TECHNIQUES WITHIN TRANSFORMER WINDINGS	81
<i>Rahman, M.S.Abd ; Lewin, P.L. ; Rapisarda, P.</i>	
ON-SITE APPLICATION OF NOVEL PARTIAL DISCHARGE MONITORING SCHEME FOR ROTATING MACHINE	85
<i>Kim, Yong Joo ; Seok Hoon Hong ; Tae Sik Kong ; Kim, Hee Dong</i>	
ANALYSIS OF THE MICROMECHANICAL DEFORMATION IN PRESSBOARD PERFORMED BY X-RAY MICROTOMOGRAPHY	89
<i>Girlanda, Orlando ; Sahlen, Fredrik ; Joffre, Thomas ; Gamstedt, E.Kristofer ; Schmidt, Lars E. ; Forsberg, Fredrik ; Sjodahl, Mikael</i>	
EFFECTS OF TESTING ON SERVICE AGED XLPE CABLES	93
<i>Abdolall, K. ; Vandermaar, A.J. ; Stephens, M. ; Tarampi, Dexter</i>	

ELECTRO-CHEMICAL DEGRADATION OF THIN FILM X2 SAFETY CAPACITORS.....	98
<i>Lewin, P L ; Fothergill, J C ; Dodd, S J</i>	
INFLUENCE OF ELECTRON BEAM IRRADIATION ON THE DIELECTRIC STRENGTH OF THIN PEN FILMS	102
<i>Lejun Qi ; Nan Li ; Sun, Hongjie ; Chen, Jiansheng ; Rocks, Jens</i>	
THERMAL STRESSES OF CONFORMAL COATINGS ON PRINTED CIRCUIT BOARDS.....	106
<i>Lowndes, R. ; Cotton, I. ; Emersic, C. ; Rowland, S. ; Freer, R</i>	
MANAGING CABLE THERMAL STRESS THROUGH PREDICTIVE RATINGS	110
<i>Huang, R. ; Pilgrim, J.A. ; Lewin, P.L. ; Scott, D. ; Morrice, D.</i>	
DISTRIBUTION NETWORK LOAD DISTRIBUTION STRATEGY CONSIDERING THE ECONOMY OF PARALLEL TRANSFORMERS.....	114
<i>Yanguang Huang ; Yanan Cai ; Youyuan Wang ; Hang Liu</i>	
INTELLIGENT ACOUSTIC DETECTION OF DEFECTIVE PORCELAIN STATION POST INSULATORS	118
<i>Lasalvia, L.A.B. ; Florentine, M.T.B. ; Ferreira, T.V. ; Germano, A.D. ; da Costa, E.G.</i>	
A HIGH-SPEED HVDC BREAKER TOPOLOGY WITH INTEGRAL VOLTAGE-CHANGING CAPABILITY	123
<i>Sellick, RL ; Agamy, MS ; Hao, L ; Weeber, KR</i>	
DIELECTRIC STRENGTH OF ALTERNATIVE INSULATION GASES AT HIGH PRESSURE IN THE HOMOGENEOUS ELECTRIC FIELD.....	131
<i>Hopf, Andreas ; Rossner, Michael ; Berger, Frank ; Prucker, Udo</i>	
SURGE AGEING OF METAL OXIDE VARISTORS	137
<i>de Salles, Credson ; Martinez, Manuel L.B. ; de Queiroz, Alvaro A.A.</i>	
MONITORING HV TRANSFORMER CONDITIONS: THE STRENGTH OF COMBINING VARIOUS DIAGNOSTIC PROPERTY OBSERVATIONS.....	141
<i>Montanari, Gian Carlo ; Morshuis, Peter ; Cervi, Alan</i>	
TRANSFORMER CONDITION ASSESSMENT USING DISSOLVED GAS ANALYSIS, OIL TESTING AND EVIDENTIAL REASONING APPROACH.....	145
<i>Irungu, G.K. ; Akumu, A.O. ; Munda, J.L.</i>	
THE RESEARCH ON SIMULTANEOUS DETECTION OF DISSOLVED GASES IN TRANSFORMER OIL USING RAMAN SPECTROSCOPY	154
<i>Wei Qi ; Chen, Weigen ; Youhui Xiong</i>	
END-TURN GRADING FOR PWM-DRIVEN MACHINES	158
<i>Boggs, Steven A. ; Kumada, Akiko ; Yoshimitsu, Tetsuo</i>	
TRANSIENT POTENTIAL MEASUREMENT ON STRESS GRADING UNDER MULTI-LEVEL PWM.....	161
<i>Nakamura, T. ; Kumada, A. ; Ikeda, H. ; Hidaka, K. ; Boggs, S.A. ; Tsuboi, Y. ; Yoshimitsu, T.</i>	
THERMAL MODELING OF A STATOR BAR - INFLUENCE OF GEOMETRY AND MATERIAL PROPERTIES.....	166
<i>Preda, I. ; Figueroa, J. ; Noel, S. ; Soulieres, B. ; David, E.</i>	
SIMULATION OF THE EFFECT OF ARMOR COATING CONDUCTIVITY ON THE STRESS GRADING COATING PERFORMANCE UNDER PWM MULTILEVEL WAVEFORMS	172
<i>Espino-Cortes, Fermin P. ; Asiain-Olivares, Tomas I. ; Gomez, Pablo</i>	
CRITICAL REVIEW OF THE DIELECTRIC TESTING OF SOME LIVE LINE TOOLS	176
<i>Cselko, Richard ; Nemeth, Balint ; Gocsei, Gabor ; Mucsi, Denes ; Kiss, Istvan</i>	
VIABILITY OF USING MONOFILAMENT POLYAMIDE LINES IN AC LIVE WORK.....	181
<i>Gomes, A.M.M.B. ; Ferreira, T.V. ; Araujo, J.F. ; Barbosa, L.A. ; Lucena, M.D. ; Costa, E.G.</i>	
NEW CHALLENGES IN LIVE-LINE MAINTENANCE.....	185
<i>Gocsei, Gabor ; Nemeth, Balint</i>	
DESIGN OF A MICROWAVE RADIOMETER FOR MONITORING HIGH VOLTAGE INSULATOR CONTAMINATION LEVEL.....	189
<i>Jiang, Yan ; McMeekin, Scott G. ; Reid, Alistair J. ; Nekahi, Azam ; Judd, Martin D. ; Wilson, Alan</i>	
BALANCED NANOCOMPOSITE THERMOSETTING MATERIALS FOR HVDC AND AC APPLICATIONS	193
<i>Stevens, G.C ; Freebody, N.A. ; Hyde, A. ; Perrot, F. ; Szkoda-Giannaki, I. ; Vaughan, A.S. ; Virtanen, S. ; Baker, P. ; Bon, S.A.F. ; Coles, S.R. ; Medlam, J.A.</i>	
ELECTROSPUN NANOFIBERS WITH PIEZOELECTRIC PROPERTIES	197
<i>Fabiani, Davide ; Zaccaria, Marco ; Zucchelli, Andrea ; Belcari, Juri ; Bocchi, Oliviero</i>	
THE EFFECTS OF SURFACE HYDROXYL GROUPS IN POLYETHYLENE-SILICA NANOCOMPOSITES	201
<i>Praeger, M. ; Hosier, I.L. ; Vaughan, A.S. ; Swingler, S.G.</i>	

DIELECTRIC AND THERMAL PROPERTIES OF NANOSTRUCTURED EPOXY COMPOSITES INVOLVING REACTIVE POSS AND C-BN.....	205
<i>Heid, Thomas ; Frechette, Michel ; David, Eric</i>	
EVALUATION OF SPACES FOR THE SEPARATION OF SIGNALS DUE TO MULTIPLE PD SOURCES	209
<i>Contin, A. ; Pastore, S. ; Paganin, R.</i>	
WAVELET AND MATHEMATICAL MORPHOLOGY AS THE DE-NOISING METHODS FOR PD ANALYSIS OF HIGH VOLTAGE TRANSFORMER WINDINGS	214
<i>Ali, N H Nik ; Rahman, M.S.Abd ; Hunter, J.A. ; Lewin, P L ; Rapisarda, P</i>	
DEEP NEURAL NETWORKS FOR UNDERSTANDING AND DIAGNOSING PARTIAL DISCHARGE DATA.....	218
<i>Catterson, V.M. ; Sheng, B.</i>	
EFFECT OF SURFACE DISCHARGE ON NANO FILLED POLYIMIDE FILM UNDER SQUARE VOLTAGE	226
<i>Akram, Shakeel ; Guangning Wu ; GuoQiang Gao ; Yang Liu</i>	
PREPARATION AND MECHANISM OF CHARGE CARRIER TRANSPORTATION OF MSO/LDPE NANOCOMPOSITES	230
<i>Zha, Jun-Wei ; Wu, Yun-Hui ; Dang, Zhi-Min</i>	
SYNTHESIS AND CHARACTERIZATION OF ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE FILLED WITH BORON NITRIDE MICRO AND NANO-PARTICLES.....	234
<i>Vanga-Bouanga, C. ; Savoie, S. ; Frechette, M.F. ; David, E.</i>	
FABRICATION AND DIELECTRIC PROPERTIES OF HIGHLY LOADED POLYPROPYLENE MICRO- AND NANO-COMPOSITES.....	238
<i>Couderc, H. ; Vanga, C. ; Frechette, M. ; David, E.</i>	
MATHEMATICAL ANALYSIS OF PARTIAL DISCHARGES IN AN ELECTRICAL INSULATION STRUCTURE WITH AC RAMP INPUT VOLTAGE.....	243
<i>Dhara, Rohitha ; Vivas-Barber, Ana ; Sutton, Daniel ; Taylor, Charles M. ; Basappa, Prathap</i>	
AN INVESTIGATION INTO THE EFFECT OF VARYING THE MAIN FIELD AND LOCAL FIELD ON THE PD CHARACTERISTICS OF NANOFILLED POLYPROPYLENE FILMS	247
<i>Basappa, Prathap ; Dhara, Rohitha ; Rab, Md.Afzalur ; Watson, Antwarn E. ; Taylor, Charles M. ; Vivas-Barber, Ana</i>	
TRANSFER FUNCTION MODELING OF PARTIAL DISCHARGE BEHAVIOR EVOLVED DURING APPLICATION OF A TIME VARYING POWER FREQUENCY VOLTAGE	251
<i>Vivas-Barber, Ana ; Dhara, Rohitha ; Rab, Md.Afzalur ; Basappa, Prathap ; Sunmi Lee</i>	
COMPARISON OF PD AMPLITUDES OF STATOR BARS TAKEN WITH DIFFERENT INSTRUMENTS.....	255
<i>Petit, Andre</i>	
THE EFFECTS OF SQUARE WAVE VOLTAGE RISE TIME ON PD STATISTICS IN TIME AND FREQUENCY DOMAIN	262
<i>Wang, Peng ; Cavallini, Andrea ; Montanari, Gian Carlo</i>	
EFFECTS OF AMBIENT CONDITIONS ON PARTIAL DISCHARGES AT VERY LOW FREQUENCY (VLF) SINUSOIDAL VOLTAGE EXCITATION.....	266
<i>Nguyen, H.V.P. ; Phung, B.T. ; Blackburn, T.</i>	
INTERFERENCE MONITORING DURING THE FACTORY PD TESTS OF ± 800KV CONVERTER TRANSFORMER.....	270
<i>Bo Qi ; Zongwang Zhu ; Hongxin Ji ; Li, Chengrong ; Zhao, Linjie ; Li, Ruihai</i>	
PARTIAL DISCHARGES MEASUREMENTS AT THE CONSTITUENTS' LEVEL OF AEROSPACE POWER ELECTRONICS CONVERTERS	274
<i>Cella, Benjamin ; Lebey, Thierry ; Abadie, Cedric</i>	
APPLYING THE PD F-FACTOR TO VERIFY THE INTEGRITY OF LARGE MOTOR STATOR INSULATION DESIGN.....	278
<i>Vouk, Alfred O. ; Stone, Greg</i>	
A HOLISTIC COMBINED ELECTRICAL AND MECHANICAL CONDITION MONITORING TECHNIQUE FOR OIL AND GAS HIGH VOLTAGE ROTATING MACHINES	283
<i>Giussani, Riccardo ; Renforth, Lee ; Seltzer-Grant, Malcolm ; Zachariades, Christos</i>	
EVALUATION OF ECONOMIC AND ECOLOGIC POTENTIAL OF INDUCTION HEATING IN THE CONTEXT OF INSULATION SYSTEMS WITHIN ELECTRIC DRIVES	288
<i>Hofmann, Benjamin ; Spreng, Simon ; Kuhl, Alexander ; Franke, Jorg</i>	
AGING ELECTRIC MACHINES	292
<i>Penrose, Howard W ; Frost, Nancy</i>	

EVALUATION OF NOVEL IMPULSE VOLTAGE GENERATOR FOR QUALIFICATION TEST OF IEC60034-18-42.....	297
<i>Ueno, Takahisa ; Nakaya, Hirotaka ; Kozako, Masahiro ; Hikita, Masayuki ; Tsuda, Toshihiro ; Kisakibaru, Tomohito ; Yoshimitsu, Tetsuo ; Hirose, Tatsuya ; Hiroshima, Satoshi</i>	
AN INVESTIGATION OF SELF-REPAIR SYSTEMS FOR SOLID EXTRUDED POLYMERIC AND FLUID FILLED CABLES.....	301
<i>German, I. ; Rhodes, R. ; Stevens, G.C. ; Thomas, J.</i>	
ASPECTS OF SEMICONDUCTIVE SHIELDS UNDER ACCELERATED WET ELECTRICAL AGING CONDITIONS OF POWER CABLES.....	305
<i>Suh Joon Han ; Kjellqvist, Jerker</i>	
FAULT DEVELOPMENT ON WATER INGRESS IN DAMAGED UNDERGROUND LOW VOLTAGE CABLES WITH PLASTIC INSULATION.....	309
<i>Kruizinga, B. ; Wouters, P.A.A.F. ; Steennis, E.F.</i>	
AN ANALYSIS METHOD OF ELECTRICAL POWER CABLE RETIREMENT POLICY.....	313
<i>Hang Liu ; Youyuan Wang ; Jun Liu ; Weigen Chen</i>	
ANTI-OXIDANT ADDITIVE FOR UNDERGROUND CABLE REJUVENATION FLUIDS.....	317
<i>Bertini, Glen ; Busby, David ; Varjian, Richard</i>	
INVESTIGATION OF THE MORPHOLOGY IN ALN FILLED EPOXY BASED COMPOSITE MATERIALS.....	321
<i>Andritsch, Thomas ; Zhang, Sixiang ; Kochetov, Roman</i>	
BIMODAL BRUSH FUNCTIONALIZED TiO₂/SILICONE NANOCOMPOSITES WITH IMPROVED DIELECTRIC PROPERTIES.....	325
<i>Huang, Yanhui ; Krentz, Timothy M. ; Nelson, J.Keith ; Schadler, Linda S. ; Bell, Michael ; Benicewicz, Brian</i>	
FABRICATION AND DIELECTRIC PROPERTIES OF POLYPROPYLENE / SILICA NANO-COMPOSITES.....	329
<i>Couderc, H. ; Frechette, M. ; David, E.</i>	
THE EFFECT OF MATERIAL PROCESSING ON THE DIELECTRIC PROPERTIES OF POLYSTYRENE BORON NITRIDE NANOCOMPOSITES.....	333
<i>Ayoob, R. ; Andritsch, T. ; Vaughan, A.S.</i>	
IMPACT OF PARTICLE DISTRIBUTION ON THE ELECTRICAL CONDUCTIVITY OF EPOXY NANOCOMPOSITES.....	337
<i>Tsekmes, I.A. ; Kochetov, R. ; Morshuis, P.H.F. ; Smit, J.J.</i>	
USING INTEGRATED GENERATOR DIAGNOSIS TO PERFORM CONDITION BASED MAINTENANCE.....	341
<i>Hudon, C. ; Amyot, N. ; Levesque, M. ; Essalihi, M. ; Millet, C.</i>	
ANALYSIS OF PHASE RESOLVED PARTIAL DISCHARGE PATTERNS WITH MICROSTRIP ANTENNA.....	346
<i>Sako, Hiroshi ; Mio, Koji ; Okada, Shinichi</i>	
INSULATION SYSTEM RELIABILITY IN WIND GENERATION.....	358
<i>Penrose, Howard W</i>	
DEVELOPMENT OF A RECOMMENDED PRACTICE FOR THE MEASUREMENT OF PD FROM STATOR COILS AND BARS.....	362
<i>McDermid, W.</i>	
HOW CRITICAL ARE IEC 60034-27-3 MAXIMUM VALUES FOR DIELECTRIC DISSIPATION FACTOR AND TIP-UP TO DETERMINE THE RELIABILITY OF MOTOR STATOR INSULATION?.....	364
<i>Omranipour, Ramtin ; Haq, Saeed Ul</i>	
DIELECTRIC STRENGTH OF ALTERNATIVE INSULATION GASES AT HIGH PRESSURE IN THE INHOMOGENEOUS ELECTRIC FIELD.....	369
<i>Hopf, Andreas ; Rossner, Michael ; Berger, Frank ; Prucker, Udo</i>	
CFD ANALYSIS OF THE THERMAL INTERRUPTION PROCESS OF GASES WITH LOW ENVIRONMENTAL IMPACT IN HIGH VOLTAGE CIRCUIT BREAKERS.....	375
<i>Ye, X. ; Dhotre, M.T. ; Mantilla, J.D. ; Kotilainen, S.</i>	
SF₆ ALTERNATIVE DEVELOPMENT FOR HIGH VOLTAGE SWITCHGEARS.....	379
<i>Kieffel, Yannick ; Biquez, Francois</i>	
INFLUENCE OF FLUORINATION TIME ON SURFACE FLASHOVER OF EPOXY IN INSULATING GAS.....	384
<i>Mohamad, A. ; Chen, G. ; Du, B.X.</i>	
SSIMS MOLECULAR SELECTIVE IMAGING: A NEW DIAGNOSTIC TOOL TO INVESTIGATE METAL PASSIVATORS IN SCRAPPED TRANSFORMERS.....	388
<i>Facciotti, M. ; Amaro, P.S. ; Brown, R.C.D. ; Lewin, P.L. ; Pilgrim, J.A. ; Wilson, G. ; Jarman, P.N.</i>	

INVESTIGATION OF THE ELECTRICAL AND CHEMICAL PROCESSES CAUSING THE FAILURE EVENT IN A COPPER SULFIDE RELATED TRANSFORMER FAILURE	392
<i>Amaro, P.S. ; Facciotti, M. ; Lewin, P.L. ; Pilgrim, J.A. ; Brown, R.C.D. ; Wilson, G. ; Jarman, P.N.</i>	
MECHANICAL BREAKDOWN OF AGED INSULATING PAPER AROUND CONTINUOUSLY TRANSPOSED CONDUCTORS FOR POWER TRANSFORMERS UNDER THE INFLUENCE OF SHORT-CIRCUIT FORCES - ANALYSIS BY NUMERICAL SIMULATIONS	401
<i>Geissler, Daniel ; Leibfried, Thomas</i>	
STUDY ON GAS SENSING PROPERTIES AND MECHANISM OF AG-DOPED SnO₂ GAS SENSOR TO H₂.....	407
<i>Lingfeng Jin ; Chen, Weigen ; Shangyi Peng ; Qu Zhou</i>	
INSULATION SYSTEM MODELING OF MOTOR CIRCUITS	416
<i>McKinnon, David L. ; Penrose, Howard W ; Frost, Nancy</i>	
DEGRADATION OF PRINTED CIRCUIT BOARD COATINGS DUE TO PARTIAL DISCHARGE.....	420
<i>Emersic, Christopher ; Chao Zhang ; Cotton, Ian ; Lowndes, Robert ; Rowland, Simon ; Freer, Robert</i>	
LOCATING PARTIAL DISCHARGE SOURCES IN PROPULSION COILS OF SUPERCONDUCTING MAGLEV SYSTEMS USING AN ON-BOARD RADIO INTERFEROMETER SYSTEM.....	424
<i>Kawada, Masatake ; Suzuki, Masao ; Ikeda, Ryohei ; Ota, Satoru</i>	
COMPARISON OF POWER FREQUENCY AND IMPULSE BASED PARTIAL DISCHARGE MEASUREMENTS ON A VARIETY OF AEROSPACE COMPONENTS AT 1000 AND 116 MBAR	430
<i>Gardner, Richard ; Cotton, Ian ; Kohler, Mario</i>	
IMPACT OF THERMAL CYCLING ON HIGH VOLTAGE COILS USED IN MARINE GENERATORS USING FEA METHODS.....	434
<i>Peesapati, V. ; Gardner, R ; Lowndes, R ; Cotton, I. ; Twomey, B. ; Dunsby, L. ; Balcombe, R</i>	
ELECTRICAL PROPERTIES OF POLYMER NANO-COMPOSITES BASED ON OXIDE AND NITRIDE FILLERS	438
<i>Hosier, I.L. ; Praeger, M. ; Vaughan, A.S. ; Swingler, S.G.</i>	
DIELECTRIC NANOCOMPOSITE WITH HIGH DIELECTRIC PERMITTIVITY AND LOW DIELECTRIC LOSS.....	442
<i>Jin, Youngho ; Xia, Ning ; Gerhardt, Rosario A.</i>	
AC BREAKDOWN STRENGTH OF EPOXY-BORON NITRIDE NANOCOMPOSITES: TREND & REPRODUCIBILITY	446
<i>Tsekmes, I.A. ; Kochetov, R. ; Morshuis, P.H.F. ; Smit, J.J.</i>	
PREPARATION AND ELECTRICAL PROPERTIES OF TITANIA NANOWIRE-EPOXY NANOCOMPOSITES	450
<i>Xie, Q ; Niu, C-M ; Cheng, Y-H</i>	
STATISTICAL ANALYSIS OF SIMULTANEOUS PARTIAL DISCHARGE MEASUREMENTS FROM IEC60270, HFCT AND HFCT EMI METHODS	454
<i>Gillie, R. ; Nesbitt, A. ; Ramirez-Iniguez, R. ; Stewart, B.G. ; Kerr, G.</i>	
IDENTIFICATION OF PD SOURCES AND INSULATION TECHNOLOGIES IN ROTATING MACHINES	458
<i>Contin, A. ; Aizza, M. ; Fantin, F. ; Piccolo, A.</i>	
CHARGE ESTIMATION METHODS IN PARTIAL DISCHARGE CABLE TESTS.....	463
<i>Mor, Armando Rodrigo ; Morshuis, Peter H.F. ; Smit, Johan J.</i>	
AUTOMATED RECOGNITION OF PARTIAL DISCHARGE IN OIL-IMMERSED INSULATION.....	467
<i>Janani, Hamed ; Jacob, Nathan D. ; Kordi, Behzad</i>	
OPTICAL ANTENNAS FOR A COMPLETE ELECTRIC FIELD CHARACTERIZATION	471
<i>Jarrige, Pierre ; Dahdah, Jean ; Lecoche, Frederic ; Duvillaret, Lionel ; Gaborit, Gwenael ; Gillette, Laurane</i>	
TOWARDS A COMPACT VOLTAGE CLAMP FOR MONOCONDUCTOR OR MULTICONDUCTORS CABLE	475
<i>Gillette, Laurane ; Gaborit, Gwenael ; Grau, Anne ; Dahdah, Jean ; Lecoche, Frederic ; Duvillaret, Lionel</i>	
EVALUATION OF ROEBEL BARS AGED UNDER SERVICE CONDITIONS IN LARGE HYDROGENERATORS.....	479
<i>da Silva, M.J. ; Pereira, F. ; Lamas, T.E. ; Goncalves, C.S. ; Cordeiro, J.F. ; Aoki, T.K. ; Faria, E. ; Hildinger, T.</i>	
GRAPHENE-BASED POLYMER COMPOSITES: WHAT ABOUT IT FOR THE HV ELECTROTECHNICAL ARENA?.....	483
<i>Frechette, M.F. ; Vanga-Bouanga, C. ; Fabiani, D. ; Castellon, J. ; Diaham, S.</i>	
EFFECT OF AC CORONA DISCHARGE ON AGING OF SILICONE RUBBER NANOCOMPOSITES AT HIGH ALTITUDE	488
<i>Nazir, M.Tariq ; Phung, B.T.</i>	

INFLUENCE OF NANO-SIO₂ AND BN ON SPACE CHARGE AND AC/DC PERFORMANCE OF EPOXY NANOCOMPOSITES	492
<i>Qiang, Dayuan ; He, Miao ; Chen, George ; Andritsch, Thomas</i>	
DIELECTRIC RESPONSE AND THERMAL CONDUCTIVITY OF NANOSTRUCTURED MICROCOMPOSITES: HIGH DENSITY POLYETHYLENE FILLED WITH A MIXTURE OF ZNO AND HCL DOPED POLYANILINE.....	496
<i>Vanga-Bouanga, C. ; Frechette, M.F. ; David, E.</i>	
MICA TAPE AND VPI RESIN INSULATION SYSTEMS OPTIONS - CONTINUED STUDIES.....	501
<i>Frost, Nancy ; Winkeler, Mark ; Tuckwell, Stephen</i>	
FORMALDEHYDE-FREE VARNISHING ON STATOR CORE SHEETS TO PREVENT FORMALDEHYDE EMISSIONS	506
<i>Klamt, T. ; Bechir, E.</i>	
APPLICATION OF NEWLY DEVELOPED EPOXY-ANHYDRIDE VPI RESIN FOR HIGH VOLTAGE MOTORS AND GENERATORS	511
<i>Yu Xia ; Wen Wang ; Chunchu Tao ; Cuicui Li ; Shaobo He ; Chen, William</i>	
TEMPERATURE EFFECT ON INSULATION RESISTANCE OF GENERATOR STATOR BAR AFFECTED BY WATER INGRESS.....	515
<i>Petit, Andre</i>	
PHYSICAL MODELS FOR FIELD BASED PARTIAL DISCHARGE MEASUREMENTS	519
<i>Callender, G. ; Hunter, J.A. ; Rapisarda, P. ; Lewin, P.L.</i>	
A NOVEL SENSING DEVICE FOR UNDERGROUND CABLE CONDITION ASSESSMENT	523
<i>Lauletta, John L. ; Sozer, Yilmaz ; De Abreu-Garcia, Jose Alexis</i>	
AN ONLINE CONDITION MONITORING THERMAL PROGNOSTIC INDICATOR SYSTEM FOR MV CABLE CIRCUITS	535
<i>Christou, S. ; Lewin, P.L. ; Pilgrim, J.A. ; Swingler, S.G.</i>	
THERMOPLASTIC HIGH PERFORMANCE CABLE INSULATION SYSTEMS FOR FLEXIBLE SYSTEM OPERATION.....	543
<i>Vaughan, A.S. ; Green, C.D. ; Hosier, I.L. ; Stevens, G.C. ; Pye, A. ; Thomas, J.L. ; Sutton, S.J. ; Geussens, T.</i>	
EPOXY COMPOSITES FOR INSULATING PROPERTIES	547
<i>Halawani, N. ; Auge, J.-L. ; Pruvost, S. ; Gain, O.</i>	
DEVELOPING A NOVEL ENVIRONMENTAL FRIENDLY POLYESTER-IMIDE IMPREGNATING RESIN.....	551
<i>Yu Xia ; Cheng Zhou ; We Wang ; Xueping Wen ; Shaobo He ; Chen, William</i>	
LOW TEMPERATURE CO-FIRED CERAMICS (LTCC) FOR THE INSULATION COATING OF HIGH TEMPERATURE ELECTRICAL CONDUCTORS	559
<i>Wang, Zijing ; Freer, Robert ; Fang, Le ; Cotton, Ian</i>	
PARTIAL DISCHARGE RECOGNITION OF INSULATION DEFECTS IN HVDC GIS AND A CALIBRATION APPROACH	564
<i>Blufpand, Serge ; Mor, Armando Rodrigo ; Morshuis, Peter ; Montanari, Gian Carlo</i>	
EFFECT OF X-RAY IRRADIATION ON PARTIAL DISCHARGE INCEPTION AND EXTINCTION CHARACTERISTICS IN CAST RESIN TRANSFORMER	575
<i>Inatomi, Atsushi ; Kozako, Masahiro ; Hikita, Masayuki ; Nakamura, Yusuke ; Iida, Kazuo ; Umemura, Tokihiro ; Maeda, Teruhiko ; Higashiyama, Masakazu</i>	
A RESEARCH ON DISCHARGE PHENOMENA AND MECHANISM OF THE SUSPENDED NEEDLE.....	579
<i>Ruimin Chen ; Wenguo Gu ; Xingwang Li ; Zengbin Wan ; Qizheng Ye ; Chu Yang</i>	
OPTIMIZATION OF REACTIVE EPOXY CASTING PROCESS OF 15 KV OUTDOOR SENSOR USING ADVANCED CFD SIMULATIONS.....	584
<i>Raschka, David ; Singh, Bhandeep</i>	
THE PERFORMANCE OF HVDC WALL BUSHINGS WITH SILICONE RUBBER SHEDS.....	588
<i>Wu, Dong ; Gustavsson, Dan</i>	
INFLUENCE OF ENVIRONMENTAL FACTORS ON HYDROPHOBICITY TRANSFER PROPERTY OF SILICONE RUBBER MATERIAL	596
<i>Zhao, Chen-long ; Zhu, Ming-xi ; Mei, Hong-wei ; Wang, Li-ming ; Guan, Zhi-cheng</i>	
EXPERIENCE WITH 550 KV CURRENT TRANSFORMERS	600
<i>McDermid, W. ; Black, T.</i>	
BARRIER LIGHTNING IMPULSE TEST FOR DRY TYPE TRANSFORMER MAIN INSULATION DESIGN.....	603
<i>Wang, Zepu</i>	
THERMAL ANALYSIS OF TRANSFORMERS INSULATION BASED ON VEGETABLE ESTERS	606
<i>Delgado, F. ; Fernandez, I. ; Ortiz, F. ; Renedo, C. ; Ortiz, A. ; Carcedo, J.</i>	

STATISTICAL TEXTURE ANALYSIS OF MORPHOLOGICAL CHANGES IN PRESSBOARD INSULATION DUE TO THERMAL AGING AND PARTIAL DISCHARGES.....	610
<i>Jacob, Nathan D. ; Oliver, Derek R. ; Sherif, Sherif S. ; Kordi, Behzad</i>	
EPOXY BASED HIGH PERMITTIVITY NANODIELECTRICS FOR ELECTRIC STRESS MITIGATION	614
<i>Zafar, Romana ; Gupta, Nandini</i>	
AB-INITIO MODELING OF INTERFACIAL REGION IN NANOCOMPOSITE DIELECTRICS	618
<i>Kubyskhina, Elena ; Jonsson, B.L.G. ; Unge, Mikael</i>	
INFLUENCE OF INTERFACE CHEMISTRY ON DIELECTRIC PROPERTIES OF EPOXY/ALUMINA NANOCOMPOSITES.....	621
<i>Jiang, Pingkai ; Yu, Jinhong ; Huang, Xingyi</i>	
Author Index	