2012 IEEE International Conference on Condition Monitoring and Diagnosis

(CMD 2012)

Bali, Indonesia
23 – 27 September 2012

Pages 1-608

IEEE Catalog Number: CFP1230D-PRT
ISBN: 978-1-4673-1019-2

Contents

1.	KN-1	Development of Asset Management Support Tools for Electric Power Equipment *Tatsuki Okamoto[1], Tsuguhiro Takahashi[2] ([1]Electric Power Engineering Research Laboratory, CRIEPI, Nagasaka 2-6-1, Yokosuka, Japan, [2]Electric Power Engineering, Research Laboratory, CRIEPI, Nagasaka 2-6-1, Yokosuka, Japan)*	1
2.	KN-2	Condition Assessment of Power Transformers *Jitka Fuhr (AF Engineers + Consultants (AFEC), CH-3807 Iseltwald, Switzerland)*	9
3.	IS-1	Recent Progress of CMD Research and Applications in China *Cheng-rong LI[1,2], Guo-ming MA[1,2], Bo QI[1,2], Guang-jun ZHANG[3] ([1]State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources, North China Electric Power, University, Beijing, 102206, China, [2]Beijing Key Laboratory of High Voltage and EMC, North China Electric Power University, Beijing, 102206, China, [3]State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, 710049, China)*	18
4.	IS-2	Transmission Asset Management in PLN P3B Jawa Bali *Y. Hakim, Sugiartho, A. Pharmatrisanti (PT. PLN (Persero) P3B Jawa Bali, Depok, Indonesia)*	24
5.	IS-3	The Scope of High Voltage with CMD of the Smart Grid in Korea *Sang-Jin Kim[1*], Duck-Ki Seo[1], Dae-Kwon Kang[1], Wan-SeokSong[1],Yougn-Seek Cho[2] and Dae-HeePark[2] ([1]KEPCO Knowledge Data Network, Seoul, Korea, 137-862 [2]WonKwang University, Iksan, Korea, 570-749)*	30
6.	A-313	Analysis and Interpretation of Dissolved Gases in Transformer Oil A case study *S. N. Hettiwatte[1], H. A. Fonseka[2] ([1]School of Engineering and Energy, Murdoch University, Murdoch, Australia [2]Transpower New Zealand Ltd, Auckland, New Zealand)*	35
7.	A-36	Photo-Acoustic Spectroscopy for dissolved gas analysis Benefits and Experience *Donal Skelly (GE Energy, Lisburn, United Kingdom)*	39
8.	A-136	Study of Partial Discharge Induced Electromagnetic Wave Propagation Property in Power Transformer Model *Norio Morita[1], Masahiro Kozako[2], Masayuki Hikita[3], Soh Yoshida[4], Masaki Uchiyama[5], Shin Yamada[6](Kyushu Institute of Technology[1], Kyushu Institute of Technology[2], Kyushu Institute of Technology[3], TOSHIBA Corporation[4], TOSHIBA Corporation[5], TOSHIBA Corporation[6])*	44
9.	J-17	Influence of Insulation Paper Degradation on Economical Operation Period of Power Transformers *Bambang CAHYONO[1], SUWARNO[2], Nanang HARIYANTO[2], Tsuguhiro TAKAHASHI[3], Tatsuki OKAMOTO[3] ([1]Asset Management/School of Electrical and Informatics, PT. PLN (PERSERO)/Bandung Institute of Technology (ITB), Jakarta Selatan/Bandung, Indonesia, [2]School of Electrical and Informatics, Bandung Institute of Technology (ITB), Bandung, Indonesia, [3]Electric Power Engineering Research Laboratory, Central Research Institute of Electric Power industry (CRIEPI), Yokosuka, Kanagawa, Japan)*	48
10.	A-153	Modern Insulation Condition Assessment for Instrument Transformers *Stephanie Raetzke, Maik Koch, Martin Anglhuber (OMICRON electronics, Klaus, Austria)*	52

11.	A-43	New Diagnosis Method of Aging Degradation for Insulating Paper in Power Transformers by Measuring the Refractive Index of Cellulose Fibers *Masanobu Yoshida[1], Katsumi Uchida[1], Masamichi Kato[2], Yoshinori Konishi[2] ([1]Electric power Research & Development, Center, Chubu Electric Power Co., Inc, Nagoya, Japan [2]Research & Development Section, Yuka Industries Co., Ltd., Tokyo, Japan)*	56
12.	D-79	Dielectric Properties Measurements of Oil Immersed Pressboard *F. Pratomosiwi[1], N. Pattanadech[1], B. Wieser[1], M. Muhr[1], G. Pukel[2], M. Stössl[2] ([1]Institute of High Voltage Engineering and System Management, Technische Universität Graz, Inffeldgasse 18, A - 8010 Graz, Austria [2]Siemens Transformer Austria GmbH &Co KG, Elingasse 3, 8160 Weiz, Austria)*	60
13.	IL-6/A-4 (Invited)	Calculation of Impulse Voltage Distribution at High Voltage Resistive Cable Terminations *A. A Al-Arainy, N. H. Malik, F. R. Pazheri and M. I. Qureshi (Saudi Aramco Chair in Electrical Power, EE Department, College of Engineering, King Saud University, P. O. Box 800, Riyadh 11421, Saudi Arabia)*	64
14.	A-32	WEB Database for the Evaluation of PD Measurements on MV Cable System *H.T. Putter, D. Götz, F. Petzold, S. Böttcher (SebaKMT, Baunach, Germany, Freitaler Strom und Gasversorgung GmbH, Freital, Germany)*	68
15.	A-80	Experiments of power cable diagnosis by using Isothermal Relaxation Current Method *Teppei Ueyama, Toshio Mori, Kiyoka Suenaga (JFE Steel Corporation, Kurashiki, Japan)*	72
16.	A-17	Power Cable Joint Model In High Frequency *Yan Li[1], Peter A. A. F. Wouters[1], Paul Wagenaars[2], Peter C. J. M. van der Wielen[2], E. Fred Steennis[2] ([1]Electrical Energy Systems, Eindhoven University of Technology, Eindhoven, the Netherlands, [2]DNV KEMA Energy, Sustainability, Arnhem, the Netherlands)*	76
17.	A-12	Electric field distribution in 132 kV XLPE cable termination model from finite element method *H. A. Illias, Q. L. Ng, A. H. A. Bakar, H. Mokhlis, A. M. Ariffin (UMPEDAC, Electrical Engineering Department, Faculty of Engineering, University of Malaya, Kuala Lumpur, Malaysia, College of Engineering, Universiti Tenaga Nasional, Selangor, Malaysia)*	80
18.	A-83	Fundamental Study on Residual Charge Detection with Pulse Voltages as Diagnostic Method of Water Tree-Degraded XLPE Cables *Takashi Kurihara[1*], Tatsuki Okamoto[1], Taizo Tsuji[2], Katsumi Uchida[2], Myong Hwan Kim[3] and Naohiro Hozumi[3] ([1]Central Research Institute of Electric Power Industry, 2-6-1 Nagasaka, Yokosuka, Kanagawa 240-0196 JAPAN [2]Chubu Electric Power Co., Inc., Kitasekiyama, Ohdaka-cho, Midori-ku, Nagoya 459-8522 JAPAN [3]Toyohashi University of Technology, 1-1 Hibarigaoka Tenpaku-cho,Toyohashi, Aichi 441-8580 JAPAN)*	84
19.	K-5	Recyclable insulation Material Based on Polyethylene For Power Cable *Jae Soon Lee[1], Kyu Cheol Cho[2], Kwang Hoi Ku[3], Gyuchan Cho[4], June-Ho Lee[5] ([1.2.3.4]Polymer Lab, Global Technology, SK Innovation, Daejeon, Republic of KOREA [2]Dept. of Electrical engineering, Hoseo University, Asan, Republic of KOREA)*	88

20	IL-3 (Invited)	High Voltage and High Current Test Techniques *Ernst Gockenbach, Schering Institute, Leibniz Universität Hannover, Hannover, Germany*	91
21.	G-50	Calibration of Lightning EMP Sensor *Syarif Hidayat, Arga Aridarma (ITB, Indonesia)*	95
22.	G-37	PD Current Pulse Waveforms of Environmental Friendly Gases Measured with SHF_PDPW System and the Applicability of the UHF Method *Shinya Ohtsuka[1], Kohei Fukuda[2], Minoru Fukuzaki[3] (Kyushu Institute of Technology[1,2,3])*	99
23.	G-11	Analysis of UHF PD Monitoring Data by Means of Normalized Cross-Correlation *M. Beltle[1], A. Müller[2], S. Tenbohlen[3] (Institute of Power Transmission and High Voltage Technology, University of Stuttgart, Stuttgart, Germany[1,2,3])*	103
24.	G-16	Proposal of diagnosis technique for radiation of electromagnetic field generated by electronic device *Yuji Komine[1], Chiyo Noritaka[2], Masahiro Konomi[3], Yasuhiro Tanaka[4], Takashi Maeno[5](Tokyo City University, Measurement and Electric Machine Control Laboratory, Tokyo, Japan[1,2,3,4], National Institute of Information and* Communications Technology, Tokyo, Japan[5])	107
25.	G-41	A novel magnetic field sensor based on the combination use of microfiber knot resonator and magnetic fluid *Xianli Li[1], Hui Ding[2], Chunyang Han[3](State Key Laboratory of Electrical Insulation and Power Equipment Xi'an Jiaotong University[1,2,3])*	111
26.	G-22	Frequency Bandwidth Dependence of PD current Waveforms in Transformer Oil Measured with the SHF_PDPW system *Minoru Fukuzaki[1], Kohei Fukuda[2], Shinya Ohtsuka[3](Kyushu Institute of Technology[1,2,3])*	114
27.	B-1	Requirements for Fiber Optic Sensors for Stator Endwinding Vibration Monitoring *M. Sasic, H. Jiang, G.C. Stone (Iris Power – Qualitrol, Toronto, Canada)*	118
28.	D-17	Space Charge Accumulation in Coating Materials for Motor Windings under DC High Voltage *Motohiro Negishi[1], Kentaro Akada[2], Kaoru Takizawa[3], Hiroaki Miyake[4], Yasuhiro Tanaka[5], Tatsuo Takada[6](Tokyo City University[1,2,3,4,5,6])*	122
29.	G-2	Partial discharge location using 2 sensors and optical fibers *Jeongtae Kim[1], Dong-uk Kim[1], Gijin Nam[1], Won Choi[2], Youngjo Lee[2], Jayoon Koo[2] ([1]Dept. of Electrical Eng., Daejin University, Gyeonggi-Do, Korea, [2]Dept. of Electrical Eng., Hanyang University, Gyeonggi-Do, Korea)*	126
30.	A-97	Prediction of the State of Deterioration of High-Voltage Motors by Combining On-site, Online Diagnosis and Offline Diagnosis *Keisuke Etoh[1] (Idemitsu Engineering Co,Ltd. Engneering Design & Technical Department)*	130
31.	B-2	Rotor shape vs. rotor field pole shorted turns Impact on rotor induced vibration on hydrogenerators *Andre Tetreault (Tests & Diagnostics Division, VibroSystM Inc., Longueuil, Qc, Canada)*	133

32	A-44	Ageing-condition Assessment of Generator Transformer Bushings by means of Dielectric Simulation Models *M. H. Zink[1], V. Klipfel[1], F. Berger[2] ([1]EnBW Kernkraft GmbH, Philippsburg, Germany [2]Technische Universität, Ilmenau, Ilmenau, Germany)*	137
33.	IL-7/G-44 (Invited)	Location of Water Tree Degradation in a Long Polymeric Cable Line *Myong Hwan Kim[1], Yoshinobu Murakami[2], Masayuki Nagao[3], Takashi Kurihara[4], Tatsuki Okamoto[5], Taizo Tsuji[6], Katsumi Uchida[7], Naohiro Hozumi[8] (Toyohashi University of Technology[1,2,3,8], Central Research Institute of Electric Power Industry[4,5], Chubu* Electric Power Co., Inc[6,7])	141
34.	A-161	Analysis of Cable Insulation Condition using Dielectric Spectroscopy and Polarization/Depolarization Current Techniques *A. Mohd Ariffin[1], S. Sulaiman[1], A. Z. Che Yahya[2], A. B. Abd. Ghani[2] ([1]Department of Electrical Power Engineering, Universiti Tenaga, Nasional (UNITEN), Kajang, Selangor, Malaysia [2]TNB Research (TNBR) Sdn. Bhd., Kajang, Selangor, Malaysia)*	145
35.	A-121	New developments in on-site testing of long lengths of (E)HV power cable *Rogier Jongen, Ben Quak, Stefan Tenbohlen, Edward Gulski (Seitz Instruments AG, University Stuttgart, Poznan University of Technology)*	149
36.	A-237	A New Degradation Model with Critical Antioxidant Concentration Concept for Safety Cables *Noirkazu Fuse, Hiroya Homma, and Tatsuki Okamoto (High-voltage & Insulation Sector, Electric Power Engineering Research Laboratory, Central Research Institute of Electric Power Industry, Yokosuka, JAPAN)*	153
37.	A-218	The Application of Partial Discharge Detector and Electro-Acoustic Signals Analysis Methods for Power Cables Monitoring *Ju-Chu Hsieh[1,2], Cheng-Chi Tai[1], Ching-Chau Su[2], Chien-Yi Chen[1,2], Ching-Chau Su[2], Chien-Yi Chen[1,2], Jiann-Fuh Chen[1], Yu-Hsun Lin[3] ([1]Department of Electrical Engineering, National Cheng Kung University, Tainan 70101, Taiwan ROC [2]Department of Electrical Engineering, Nan Jeon Institute of Technology, Tainan 73746, Taiwan ROC [3]Department of Electrical Engineering, National Penghu University of Science and Technology, Penghu, Taiwan ROC)*	157
38.	A-158	Application of PD Localization Technology to 110kV Power Cable Circuit *Chen Min, Koji Urano, Liu Yi-gang (SE Technology Ltd., Hong Kong, China; Power Transmission Dept. of Guangzhou Power Co., Guangzhou, China)*	161
39.	K-8	Damages of Insulators due to Lightning Strikes in Indonesian Power System *Reynaldo Zoro (Lightning Research Center, School of Electrical Engineering and Informatics, Institute of Technology Bandung)*	166
40.	C-2	The Effect of Needle Curvature and Aluminum Foil on the Transition of Discharge Mechanism under Needle-plate Configuration *Kai Wu[1], Cheng Pan[2], Kai Qin[3], Yongpeng Meng[4](State Key Lab of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[1,2,3,4])*	172
41.	C-30	Characteristics of Lightning Discharges in Indonesia *Syarif Hidayat (ITB, Indonesia)*	176
42.	C-16	Bridging Phenomenon in Contaminated Transformer Oil *Shekhar Mahmud[1], George Chen[2], Igor O. Golosnoy[3], Gordon Wilson[4], Paul Jarman[5](University of Southampton, UK[1,2,3], National Grid, UK[4,5])*	180

43.	C-17	Evaluation on Current Transformer Assessment Method Based on Investigation Result *D. S. Rahmani[1], A. Muchtar[2], H. Gumilang[3], R. Siregar[4], A. Pharmatrisanti[5] (PT PLN (Persero) P3B Jawa Bali[1,2,3,4,5])*	184
44.	C-22	Simulation of positive point streamer propagation in SF_6 and its transient products *Ming Ren[1], Ming Dong[2], Ai-Ci Qiu[1,2](State Key Laboratory of Electrical Insulation for Power Equipment, EEC, Xi'an Jiaotong University[1,2,3], Northwest Institute of Nuclear Technology of China[1,2])*	189
45.	IL-1 (Invited)	Recent Progress in Diagnosis of Transformers using Non- Conventional Partial Discharge Measurements *Masayuki Hikita, Masahiro Kozako (Department of Electrical and Electronic Engineering, KyushuInstitute of Technology, Kitakyushu Japan 804-8550)*	193
46.	A-147	Investigation of Transformer Top-Oil Temperature Considering External Factors *Indera ARIFIANTO[1,2,3#], Fretz JOSUE[1,2,3], Robert SAERS[3], Johanna ROSENLIND[4], Patrik HILBER[4], SUWARNO[2] ([1]PT. PLN (Persero), Indonesia [2]School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Indonesia [3]Power Technologies, ABB Corporate Research, Sweden [4]School of Electrical Engineering, KTH Royal Institute of Technology, Sweden)*	198
47.	A-122	Electrostatic charging tendency of new and aged pressboard samples *A. Zlodnjak[1], T. Judendorfer[1], M. Muhr[1], W. Exner[2], S. Jaufer[2] ([1]Institute of High Voltage Engineering and System Management, Graz University of Technology, Graz, Austria [2]WEIDMANN Electrical Technology AG, Rapperswil, Switzerland)*	202
48.	A-154	Analysis of Frequency Domain Spectroscopy Measurements on power transformers by the use of a Finite Element based model *D. Geißler, M. Jaya, T. Leibfried (Institute of Electric Energy Systems and High Voltage Technology, Karlsruhe Institute of Technology (KIT), Karlsruhe, Federal Republic of Germany)*	206
49.	A-71	The Comparative Analysis of The Partial Discharge In The Inter-turn Insulation of Transformers Between Constant Voltage and Increasing Voltage *Hongxin Ji[1], Yangchun Cheng[1,2], Jingqing Wei[1], Shaoyu Liu[3], Chun Deng[3], Chengrong Li[1,2] ([1]Beijing Key Laboratory Of High Voltage And EMC, North China Electric Power University, Beijing, P.R.China, 102206 [2]State Key Laboratory Of Alternate Electrical Power System With Renewable Energy Sources, North China Electric Power University, Beijing, P.R.China, 102206 3North China Electric Power Research Institute Co.Ltd, Beijing, P.R.China)*	211
50.	A-210	Transformer Hot-Spot Temperature Estimation for Short-time Dynamic Loading *F. Josue[1,2,3,#], I. Arifianto[1,2,4], R. Saers[2], J. Rosenlind[5], P. Hilber[5], Suwarno[1] ([1]Institut Teknologi Bandung (ITB), Sekolah Teknik Elektro dan Informatika, Indonesia [2]ABB Corporate Research, Power Technologies, Sweden [3]PT.PLN (Persero), P3B Sumatera, Indonesia [4]PT PLN (Persero), P3B Jawa-Bali, Indonesia [5]KTH Royal Institute of Technology, School of Electrical Engineering, Sweden)*	217
51.	A-316	Effective Partial Discharge Measurement Method for XLPE Cables Based on Propagation Characteristics of High Frequency Signal *Toshihiro Takahashi[1], Tatsuki Okamoto[2] (Central Research Institute of Electric Power Industry[1], Central Research Institute of Electric Power Industry[2])*	221

52.	A-91	The Development of Condition Based Maintenance for 33kV Oil- Filled Cable *Zairul Aida Abu Zarim, Tashia Marie Anthony (HV Cable Diagnostics, TNB Research Sdn. Bhd., Kajang, Malaysia)*	225
53.	B-3	Comparison of Broadband Impedance Spectroscopy and Time Domain Reflectometry for Locating Cable Degradation *Naoshi Hirai[1], Takayuki Yamada[2], Yoshimichi Ohki[3] (Waseda University[1], Waseda University[2], Waseda University[3])*	229
54.	E-12	Transmission Line Assessment *Arief Ibrahim Wuller[1], Anita Pharmatrisanti[2] (PT PLN (Persero) P3B Jawa Bali[1])*	233
55	A-50	Organo-Montmorillonite as an Electrical Treeing Retardant for Polymeric Insulating Materials *A.A.A. Jamil[1], M. Kamarol[1], M. Mariatti[1], N. Bashir[2]*, M.H.Ahmad[2], Y.Z. Arief[2], N.A.Muhamad[2] ([1]Universiti Sains Malaysia, 14300 Nibong Tebal, Penang, Malaysia [2]Universiti, Teknologi Malaysia, 81310 Johor Bahru, Johor, Malaysia)*	237
56.	K-6	A Study on Electrical Properties of Eco-friendly Non-Crosslinked Polyethylene. *June-Ho Lee[1*], Seong-Jung Kim[1], Ki-Hyung Kwon[1], Chul Ho Kim[1], Kyu Cheol Cho[2] ([1]Hoseo University [2]SK Innovation)*	241
57.	E-13	Best Practices For Dielectric Frequency Response Measurements and Analysis in Real-world Substation Environment *Matz Ohlen[1], Peter Werelius[2], Joacim Skolding[3], Jialu Cheng[4] (Megger Sweden[1,2,3,4])*	244
58.	D-7	Diagnosis of HVDC Insulation Systems by use of Oil-conductivity Measuring Methods *F. Schober[1], M. H. Zink[2], A. Küchler[3], M. Liebschner[4], Ch. Krause[5] (University of Applied Sciences FHWS[1,2,3], Aalen University[4], Technology Services and Innovation, WEIDMANN Electrical Technology AG[5])*	250
59.	D-49	The Self-healing Property of Silicone Rubber after Degraded by Treeing *Rudi K[1], Andrew D.H[2], Managam R.[3], Zainuddin Nawawi[4], Naohiro Hozumi[5], Masayuki Nagao[6] (Dept. of Electrical Engineering Tanjungpura University[1,2,3], Dept. of Electrical Engineering, Sriwijaya University[4], Dept. of Electr. & Electronics Engg. Toyohashi University of Technology[5,6])*	254
60.	D-22	An investigation on the parameters affecting the conductivity of pressboard in oil by measuring leakage current under DC *S.J.Cho[1], Z.X.Nan[2], I.J.Seo[3], J.Y.Koo[4], Y.H.Kim[5], B.Y.Soek[6] (Dept. Electrical engineering Hanyang University, Ansan, Korea[1,2,3,4],Dept. Electrical engineering research Hyundai Heavy Industries Co., LTD[2], Yongin, Korea)*	258
61.	D-88	Depletion Rate of Oxidation Inhibitor in Hydroprocessed Mineral Insulating Oil and Naphthenic Oils *K. Baburao[1], Dr. Daya Shukla[2], Nalin Nanavati[3] (Department of Research & Development Raj Petro Specialities P. Ltd.[1,2,3])*	261
62.	D-15	Space Charge Behavior in Oil-paper Insulation under Polarity Reversed Voltage *Da Wang[1], Shiqiang Wang[2], Min Lei[3], Haibao Mu[4], Guan-Jun Zhang[5] (State Key Lab of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[1,2,3,4,5])*	265

63. A-81 Condition assessment method for power transformer as a part of condition based maintenance program in PLN P3B Jawa Bali 269
*Harry Gumilang[*1], Erwin Ansori[1], Rikardo Siregar[1], Imam Subrata[2], Henny Ika S[3], Rahmi Aenul[3], Endah Yuliastuti[3], Achmad Setiawan[3] ([1]Asset Management Department [2]Maintenance Department [3]Maintenance Unit PT PLN (PERSERO) P3B Jawa Bali, South Jakarta, Indonesia)*

64. A-82 Abnormality Diagnosis of Transformer Winding by Frequency Response Analysis (FRA) Using Circuit Model 273
Satoru Miyazaki[1], Yoshinobu Mizutani[2], Tatsuki Okamoto[3], Yoshihiro Wada[4], Chikara Hayashida[5] (Central Research Institute of Electric Power Industry[1], Central Research Institute of Electric Power Industry[2], Central Research Institute of Electric Power Industry[3], Kyuhen Co., Inc.[4], Kyuhen Co., Inc.[5])

65. A-101 Sensitivity Verification and Application of UHF Sensors for Partial Discharge Measurement in High Voltage Power Transformer 277
*J.R. Jung, K.R. Hwang, Y.E. Kim, E.T. Lyu, and H. J. Yang[4] (*Power & Industrial, System R&D Center, *Hyosung Coporation, Republic of Korea)*

66. A-129 Usability of Vibration Measurement for Power Transformer Diagnosis and Monitoring 281
M. Beltle and S. Tenbohlen (University of Stuttgart, Institute of Power Transmission and High Voltage Technology, Stuttgart, Germany)

67. A-137 Partial discharge behavior of mineral oil and oil-board insulation systems at HVDC 285
Jürgen Fabian[1], Michael Muhr[2], Stefan Jaufer[3], Wolfgang Exner[5] (Graz University of Technology[1], Graz University of Technology[2], WEIDMANN Electrical Technology[3], WEIDMANN Electrical Technology[5])

68. A-292 Time-based partial discharge localization in power transformers by combining acoustic and different electrical methods 289
S. M. Hoek[1], A. Kraetge[1], O. Kessler[2], U. Broniecki[3] ([1]OMICRON electronics GmbH, Klaus, Austria [2]OMICRON Energy Solutions GmbH Berlin, Germany [3]Berlin University of Technology, Berlin, Germany)

69. A-100 On-line and On-site PD Monitoring and Diagnosis of Power Transformer 293
Chun-She Xu[1], Zhen-Quan Sun, Guan-Jun Zhang (Xi'an Jiaotong University[1], Shaanxi Regional Electric Power Group Co., Ltd, Xi'an Jiaotong University)

70. IL-9/D-26 (Invited) Influence of Environmental and Operational Conditions on Breakdown Voltage of Oil in Switchgear 297
Dhiradj Djairam[1], M. Yu, L.Chmura[1], R.P.Y., Mehairjan[1], Q.Zhuang[1], P.H.F. Morshuis[1], J.J. Smit[1], Dirk Boender[2] ([1]High Voltage Technology & Asset Management, Delft University of Technology, Delft, the Netherlands [2] Asset Management, Stedin B.V., Rotterdam, the Netherlands)

71. G-5 Discrimination Technique of Streamer and Leader Type of Partial Discharge in SF_6 Gas Using UHF Method 301
Masahiro Hanai[1], Keisuke Suzuki[2], Ryunosuke Mizuno[3], Hiroki Kojima[4], Naoki Hayakawa[5], Hitoshi Okubo[6] (Nagoya University[1,2,3,4,5,6])

72. A-146 Emission and Propagation Mechanisms of PD Pulses for UHF and Traditional Electrical Measurements 305
S. M. Hoek[1], A. Kraetge[1], M. Koch[2], O. Kessler[2], M. Heindl[3] ([1]OMICRON electronics GmbH, Klaus, Austria [2]OMICRON Energy Solutions GmbH Berlin, Germany [3]Berlin University of Technology, Berlin, Germany)

73.	A-281	Effect of Excitation Current Waveform on PD Induced Electromagnetic Wave Propagation and Attenuation in Straight 154 kV GIS Model Tank with Epoxy Spacers *Kiichi Nishigouchi, Masahiro Kozako, Masayuki Hikita, Tosihiro Hoshino, Shiro Maruyama, Takashi Nakajima, Umar Khayam (Kyushu Institute of Technology, TOSHIBA Corporation, ITB)*	309
74.	A-298	Knowledge rules development for diagnostics outcomes in GIS *Muhannad Al-Suhaily[1], Sander Meijer[2], Johan J. Smit[3], Peter Sibbald[4] (Delft University of Technology, the Netherlands[1], Delft University of Technology, the Netherlands[2], Delft University of Technology, the Netherlands[3], TenneT TSO B.V., the Netherlands[4])*	313
75.	A-30	Estimating the remaining service life of switchgear insulators Application of the Mahalanobis-Taguchi (MT) method to diagnosis of degradation and estimation of the remaining service life of insulators *Hiroshi Okazawa[1], Shinsuke Miki[2] (1*Power Distribution Systems Center (Mitsubishi Electric Corporation (MELCO), Marugame City, Kagawa, Japan 2 Advanced Technology R&D Center, Mitsubishi Electric Corporation (MELCO), Amagasaki City, Hyougo, Japan)	317
76.	A-193	Characteristics of External Loop Sensor Located Near Bushing On Partial Discharge Measurement *Sriyono[1,2,3*], Yong Joo Kim[2,4], Umar Khayam[1], Suwarno[1], Masayuki Hikita[2] ([1]School of Electrical Engineering and Informatics, Institute Technology Bandung, Indonesia [2]Department of Electrical Engineering, Kyushu Institute of Technology, Japan [3]PT PLN (Persero), Indonesia 4Korea Electrotechnology Research Institute)*	320
77.	IL-4	Hydrophobicity Transfer Property of Silicone Rubber Material *Zhicheng GUAN, Kang Niu, Gongmao Peng, Fuzeng Zhang, Liming WANG, Bernhard Lutz (Laboratory of Electrical Engineering and Energy, Graduate School at Shenzhen, Tsinghua UniversityShenzhen 518055, PR China)*	324
78.	D-33	Space charge accumulation properties in XLPE with Carbon nano-filler *Takayuki Arakane[1], Tatsuya Motchizuki[2], Nozomi Adachi[3], Hiroaki Miyake[4], Yasuhiro Tanaka[5], Yoon Jin Kim[6], Jin Ho Nam[7], S.Tung Ha[8], Gun Joo Lee[9] (Tokyo City University[1,2,3,4,5], LS Cable & Systems Co.[6,7,8,9])*	328
79.	D-39	3D Shape Reconstruction System for Dielectric Material Specimens Surface Measurement *Jianli Shang[1], Changwan Lee[2], Seung Hwang-bo[3], June-Ho Lee[4], Jongkwon Kim[5] (Honam University[1,2,3], Hoseo University[4], Junsung E&R,Inc[5])*	332
80.	A-267	Understanding Copper Corrosion due to Sulphur in oil of Large Transformers by different approaches *Akshatha A[1], Anjana K[1], Ravi Kumar A[1], Shyam[1], Kumar Ch[1]. and J. Sundara Rajan[1], Keshava Murthy[2], Viswanath G[2] and Ravindra D[2]. ([1]R&D Management Division, Central Power Research Institute, Bangalore, India [2]Dielectric Materials Division, Central Power Research Institute, Bangalore, India)*	336
81.	D-40	Space Charge and Conduction Current Measurement Using Improved Pulse Generator *Minwoo Gwak[1], Jianli Shang[2], Seung Hwangbo[3], June-Ho Lee[4] (Honam University[1,2,3], Hoseo University[4])*	340

82.	A-307	Thermal aging of Paper and Pressboard in mineral and ester oils under air and nitrogen atmospheres *M-L. Coulibaly[1], C. Perrier[2], A. Beroual[3], M. Marugan[4] (ALSTOM Grid[1], ALSTOM Grid[2], Ecole Centrale de Lyon, AMPERE Lab[3], ALSTOM Grid[4])*	343
83.	D-42	High-permittivity and low-dielectric-loss polymer composites based on TiO2-nanorod functionalized carbon nanotubes *Chao Wu, Xingyi Huang, .Libing lv, Gan Chen, Jinhong Yu, Liyuan, Xie, and Pingkai Jiang* (Shanghai Key Lab of Electrical Insulation and Thermal Aging, Department of Polymer Science and Engineering, Shanghai Jiao, Tong University, Shanghai 200240, People's Republic of China)*	347
84.	D-47	New Carbon Material Derived from Mixture with Lubricating Oil and Sulfuric Acid and its Electric Property for EDLC *Sougoro Sugawara[1], Zulkarnain A. Noorden[2], Ryohei Okaoto[3], Satoshi Matsumoto[4] (Shibaura Institute of Technology[1,2,3,4])*	350
85.	A-39	SEM and EDX analysis of The Needle – Plane and Rod - Plane Electrodes for The Partial Discharge Inception Voltage Measurement and The Arcing Test of The Mineral Oil *N. Pattanadech[1], F. Pratomosiwi[1], M. Muhr[1], M. Baur[2] (Institute of High Voltage Engineering and System, Management. Inffeldgasse 18, A - 8010 Graz, 2Baur Prüf- und Messtechnik GmbH, Raiffeisenstr. 8, A - 6832 Sulz, Austria)*	353
86.	E-1	An Approach to Aging Assessment of Power Transformer Based on Multi-parameters *Yuan Li[1], Ming-jie Tang[2], Jun-bo Deng[3], Guan-jun Zhang[4], Shu-hong Wang[5] (Power Equipment, Xi'an Jiaotong University[1], State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[2], State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[3], State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[4], State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[5])*	357
87.	A-207	Accounting of Physicochemical Characteristics Interference in Multiple-Aspect Assessment of Oil Condition *Davidenko I.V., Kolushev D.N., Shyrokov A.V. (Ural Federal University, KEG branch of PC "Grid Company")*	361
88.	A-103	Development of Dissolved Gas Analysis(DGA) Expert System Using New Diagnostic Algorithm For Oil-immersed Transformers *Y.M.KIM*, S.J.LEE, H.D.SEO, J.R.JUNG and H.J.Yang (Power & Industrial System R&D Center, HYOSUNG COPORATION, Republic of KOREA)*	365
89.	A-217	New Designed Wideband Amplifier and Waveguide for Partial Discharge Location in Cast-Resin Dry-Type Transformer *Jia-Bin Wang[1], Ching-Chau Su[2], Cheng-Chi Tai[3], Jiann-Fuh Chen[4], Shih-Shong Yen[5] (Department of Electrical Engineering, National Cheng Kung University[1.3.4.5], Department of Electrical Engineering, Nan Jeon Institute of Technolog[2])*	370
90.	A-283	Improving accuracy of DGA interpretation of oil-filled power transformers needed for effective condition monitoring *Abubakar A. Suleiman[1,2] Ali S. Alghamdi[1,3], Nor Asiah Mohamad[1] and Nouruddeen Bashir[1], Mohd Aizam[1,4] ([2]National Agency for Science and Engineering, Infrastructure (NASENI), Abuja, Nigeria [1]Institute of High Voltage & High Current (IVAT), Faculty of Electrical Engineering (FKE), Universiti Teknologi Malaysia (UTM), Johor, Malaysia, [3]Technical & Vocational Training Corporation, Jeddah, Saudi Arabia, [4]TNB Research Sdn Bhd, Bangi Kajang, Selangor, Malaysia)*	374

91.	A-53	Characteristics of PD Induced Electromagnetic Wave Propagating through T-Branch of 154 kV GIS in the Presence of Epoxy Spacer *Umar Khayam, Toshihiro Hoshino, Takashi Nakajima, Shiro Maruyama, Kiichi Nishigouchi, Masahiro Kozako, Masayuki Hikita (School of Electrical Engineering and Informatics, TOSHIBA Corporation, Department of Electrical and Electronic Engineering)*	379
92.	A-164	The Influence of Free Moving Particles on Breakdown Voltages of GIS under Different Electrical Stresses *A.P.Purnomoadi[1*], M.A.G.Al-Suhaily[2**], S.Meijer[2], J.J.Smit[2], S.Burow, S.Tenbohlen[1] ([1]PT. PLN (Persero) P3B Jawa Bali [2]Department of Electrical Power Engineering, High Voltage Technology and Management Group, TU Delft, the Netherlands, [2]Institute of Power Transmission and High Voltage Technology, University of Stuttgart, Germany)*	383
93.	A-191	Influence of Spacer Aperture Size on PD-Induced Electromagnetic Wave Measured with UHF External Sensor in 66 kV GIS Model *Widya Anggoro Putro[1,3], Sriyono[1,3], K. Nishigouchi[2], Umar Khayam[1,2], Suwarno[1], Masahiro Kozako[2], Masayuki Hikita[2], Koji Urano[4], Chen Min[4] ([1]School of Electrical Engineering and Informatics, Bandung Institute of Technology, Indonesia [2]Department of Electrical Engineering, Kyushu Institute of Technology, Japan [3]PT PLN (Persero), Indonesia [4]SE Technology, Hongkong)*	387
94.	A-174	Partial Discharge (PD) Detection on medium voltage Switchgears Using Non-Invasive Sensing Methods *S. Kornhuber[1], K. Jani, M. Boltze[1], G. Valtin ([1]Doble-Lemke GmbH, Kesselsdorf, Germany [2]Doble-Lemke GmbH, Kesselsdorf, Germany)*	392
95.	A-206	Development of GIS condition monitoring and diagnosis system based on IEC61850 *Deok-Cheol Kim[1], Dae-Kwon Kang[2], Duck-Ki Seo, Yong-Moo Chang (Power IT Research Institute, Hanyang University)*	396
96.	A295	Designing PD couplers using the FDTD method *Takashi Ito[1], Toru Fukasawa[2] (Mitsubishi Electric Corporation[1], Mitsubishi Electric Corporation[2])*	N/A
97.	IL-2/D-4 (Invited)	Investigations on creeping discharges propagating over pressboard immersed in mineral and vegetable oils submitted to lightning impulse voltages *Viet-Hung Dang[1], A. Beroual[2], M-L. Coulibaly[3], C. Perrier[4] (Ecole Centrale de Lyon - Ampere Lab1,2, ALSTOM Grid / TICC3,4, ALSTOM Grid / ARC4)*	404
98.	D-52	Space Charge Formation and Physicochemical Properties of Aged XLPE Cable Insulation *Shengtao Li[1], Weiwei Li[2], Jianying Li[3], Xia Wang[4], Huan Li[5], Yu Jing[6] (State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[1,2,3,4,5,6])*	408
99.	D-83	Effect of Long-Term Aging Test Under DC Voltage on Roebel Bars *Mario Bélec[1], Calogero Guddemi[2], Charles Millet[3] (Institut de Recherche d'Hydro-Québec, IREQ[1,2], Appareillage de Production, Hydro-Québec[3])*	412
100.	D-84	Degradation of Insulating Polymer Materials Exposed to Partial Discharge under NOx Environment *Yoshiyasu Ehara[1], Daisuke Kubota[2] (Dept. of Electrical and Electronic Engineering, Tokyo City University[1])*	417

101.	D-70	Simulation of Electro-Thermal Aging Based on the Generic Life-Expression *Hisham A. Alghamdi[1], G. Chen[2], A. S. Vaughan[3] (The Tony Davies High Voltage Laboratory, University of Southampton[1,2,3])*	421
102.	D-50	Time Lag in CM-II Electrode System Attributed to Dielectric Surface Conditioning *Zainuddin Nawawi[1], Hussein Ahmad[2], Rudi Kurnianto[3], N. Hozumi[4], M. Nagao[5] (Dept. of Electrical Engineering, Sriwijaya University[1], Faculty of Engineering, Universiti Teknologi Malaysia[2], Dept. of Electrical Engineering, Tanjungpura University[3], Dept.of Electr.& Electron.Engg., Toyohashi University of Tech.[4,5])*	425
103.	A-167	Diagnosing winding and core condition of power transformer by vibration signal analysis *Buyung Sofiarto Munir[1], Johan J. Smit[2], I G. M. Rama Rinaldi[3] ([1]PT PLN (Persero), Jakarta, Indonesia [2]Delft University of Technology, Delft, The Netherlands [3]PT PLN (Persero), Jakarta, Indonesia)*	429
104.	A-165	Study on the Dissolved Gas Online Monitor Based on the Photoacoustic Spectroscopy *Zhu Qi[1], Yin Yi[2], Wang Qiaohua[3], Wang Zhihao[4], Li Zhe[5] (Shanghai Jiao Tong University[1,2,3,4,5])*	433
105.	A-228	Low-cost frequency response analyzer for transformer diagnosis *Ratanon Sriphuek, Supakit Chotigo (King Mongkut's University of Technology Thonburi)*	437
106.	A-232	Investigating the Partial Discharge Electromagnetic Wave Propagation in Power Transformers Considering Active Part Characteristics *H. R. Mirzaei[1], A. Akbari[1], M. Zanjani[1], E. Gockenbach[2], H. Borsi[2] ([1]Department of Electrical Engineering, K. N. Toosi University of Technology, Tehran, Iran, [2]Institute of Electric Power Systems, Schering-Institute, University of Hannover, Germany)*	442
107.	A-55	Characterization of Transformer FRA Signature under Various Winding Faults *Naser Hashemnia, A. Abu-Siada, Mohammad A.S. Masoum, and Syed M. Islam (Curtin University, Australia[1])*	446
108.	A-197	The application of FRA-SCR in the diagnosis of transformer coil deformation *Liang Xiaochen[1], Ji Shengchang[1] and Wang Wei[2] ([1]State key laboratory of electrical insulation and power equipment, School of Electrical Engineering, Xi'an Jiaotong University, Xi'an 710000, China [2]Shenzhen Power Supply Bureau, Shenzhen 518000, China)*	450
109.	A-200	Developing Norm for SF6 Quality of Tropical GIS *Annastasya Bastian[1], Dian Septi Rahmani[2], Ari Muchtar[3] (PT. PLN (Persero) P3B Jawa Bali Indonesia[1,2,3])*	454
110.	A-78	Effect of Electric Field on Contaminated Metallic Particle in Three Phase Dielectric Coated Common Enclosure Gas Insulated Busduct Using Charge Simulation Method *Naraparedy Rama Rao[1], J. Amarnath[2] ([1]Department of Electrical and Electronics Engineering, Nigama Engineering College, Karim Nagar, AP, INDIA [2]Department of Electrical and Electronics Engineering, JNTUH College of Engineering, Hyderabad, AP, INDIA)*	458

111.	A-110	Application of MV GIS Partial Discharge Measurement and Location *Min-Yen Chiu[1], Keng-Wei Liang[1], Chang-Hsing Lee[1], Chen-Li Fan[2], J. Cheng[2], Yu-Chih, Lin[3] (Power Diagnostic Service Co., Limited[1])*	462
112.	A-264	Noise discrimination from PD signal in pre-breakdown discharge detection test *Takashi Kuraishi, Toshihiro Takahashi, Takashi Kurihara, Tatsuki Okamoto (High-voltage & Insulation Sector, Electric Power Engineering Research Laboratory, Central Research Institute of Electric Power Industry, 2-6-1 Nagasaka, Yokosuka, Kanagawa 240-0196 JAPAN)*	466
113.	A-144	Influences of different absorbents on the detection of SF6 gas decomposition products *Wang Yuanyuan[1], Ren Jie[1], Liang Xiaochen[1], Ji Shengchang[1], Li Li[2], Wang Yu[2] (State Key Laboratory of Electrical Insulation and Power Equipment, Electric Power Test Research Institute)*	470
114.	K-2	Minimizing the Potential of SF6 Gas Emission *S. Naswil[1], R. Siregar[2], A. Pharmatrisanti[3] (PT PLN (Persero) P3B Jawa Bali[1,2,3])*	476
115	IL-5/G-47 (Invited)	Surface Trapping Parameters of Solid Dielectrics: Novel Measurement Method and Insulation Condition Characterization *Guan-Jun Zhang*, Wen-Wei Shen, Hai-Bao Mu, Jun-Bo Deng (State Key Lab of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi 710049, China)*	480
116.	F-4	On-load tap changer diagnosis with dynamic resistance measurements *Rogier Jongen[1], Paul P. Seitz[2], Thomas Strehl[3], Johan Smit[4], Rory Leich[5], Edward Gulski[6] (Seitz Instruments AG[1,2], Onsite hv technology AG[3], Delft University of Technology[4], Liandon N.V.[5], Poznan University of Technology[6])*	485
117.	G-3	Characteristics of partial discharge by AC and DC *Jeongtae Kim[1], Dongwook Kim[1], Kijin Nam[1], Won Choi[2], Bangwook Lee[2], Jayoon Koo[2] ([1]Dept. of Electrical Eng., Daejin University, Gyeonggi-Do, Korea [2]Dept. of Electrical Eng., Hanyang University, Gyeonggi-Do, Korea)*	489
118.	G-8	Monitoring of SF6 gas admixtures in gas-insulated electrical equipment *Th. A. Paul[1], A. Kramer[2] (Corporate Research, ABB Switzerland)*	493
119.	G-9	Investigating Partial Discharge UHF Electromagnetic Waves Propagation in Transformers Using FDTD Technique and 3D Simulation *M. Zanjani[1], A. Akbari[1], H. R. , N. Shirdel[1], E. Gockenbach[2], H. Borsi[2] ([1]Department of electrical and computer engineering, K. N. Toosi University of Technology, Tehran, Iran [2]Institute of Electric Power Systems, Schering-Institute, University of Hannover, German)*	497
120.	G-10	Adapting frequency domain spectroscopy as an on-line monitoring tool for the insulation of power transformers Michael Jaya, Yannick Rink and Thomas Leibfried (Institute of Electric Power, Systems and High Voltage Technology, Karlsruhe Institute of Technology, Karlsruhe, Germany)	501
121.	J-15	Integrated Assessment Model of GIS Operating Under Tropical Conditions *A. Pharmatrisanti[1], J.J. Smit[2] ([1]Asset Management Department, PT. PLN (Persero) P3B Jawa Bali, Depok, Indonesia [2]Electrical Sustainable Energy, Faculty of EEMCS, TU Delft, Delft, the Netherlands)*	505

122.	I-4	Developing the physical layer of future power grids required for automatic asset management and renewable energy integration *D. Djairam[1], R. Grizonic[2], Q. Zhuang[3], J. J. Smit[4] (High Voltage Technology & Management, Delft* University *of Technology[1,2,3,4])*	509
123.	J-1	Failure Statistics and Inventory Management for High Voltage Circuit Breaker using Statistical Distribution Techniques *T. Suwanasri[1], S. Wattanawongpitak[2], T. Homkeanchan[3], C. Suwanasri[4] (King Mongkut's University of Technology North Bangkok[1,2,3,4])*	513
124.	J-6	Statistical Approach to Establish Failure Behaviour on Incomplete Asset Lifetime Data *Ravish P.Y. Mehairjan[1], Dhiradj Djairam[2], Arjan M. van Voorden[3], Qikai Zhuang[4], Johan J. Smit[5] (High Voltage Technology & Asset Management, Delft University of Technology[1,2,4,5], Asset Management Stedin B. V.[3])*	517
125.	J-9	Transmission Power Transformer Assessment Using Furan Measurement with the aid of Thermal Model *Dongyin Feng[1], Zhongdong Wang[2], Paul Jarman[3] (School of Electrical and Electronic Engineering, The University of Manchester[1,2], National Grid[3])*	521
126.	J-10	Optimum Maintenance Plan of Electric Power Apparatus in Consideration of Maintenance History by Intelligent Grid Management System (IGMS) Kosei Sinoda[1], Masahiro Hanai[2], KaioWakaiki[1], Hiroki, Kojima[2], Naoki Hayakawa[2], and Hitoshi Okubo[1] ([1]Dept. of Electric and Electrical Engineering, [2]EcoTopia Science Institute, Nagoya University, Nagoya, Japan)	525
127.	A-201	The Condition-Based Maintenance Concept for 500 kV Circuit Breaker in PLN P3B Jawa Bali – Indonesia *Y. Wibisana, R. Setyo Wibowo, I. Arifianto (PT. PLN (Persero) P3B Jawa Bali-Jakarta)*	529
128.	IL-8/A-114 (Invited)	Advanced Condition Monitoring Of Insulation Systems: A Building Block For Smarter Grids *L. Fornasar[*1], A. Cavallini[#2], G. C. Montanari[#3] (*TechImp HQ Spa, University of Bologna)*	533
129.	A-294	De-noising approaches for partial discharge measurements – A comparison of methods and their practical application A. Kraetge[1], S. Hoek[1], R. Hummel[1], M. Krüger[1], O. Kessler[2], S. Hong[3] ([1]Product Management and Engineering Services, OMICRON, Klaus, Austria [2]Product Manager, OMICRON, Berlin, Germany, [3]Application Engineer, OMICRON, Seong Nam City, South Korea)	538
130.	A-48	On-line Partial Discharge Monitoring System for Distribution Networks. *Patrick Mulroy, Aritz Hurtado, David Badetz (Ormazabal Corporate Technology, Parque Empresarial Boroa, Parcela 24, Amorebieta-Etxano (Vizcaya), Spain*	542
131.	A-46	Pattern recognition rate comparison for Particial Discharges at Cryogenic temperature *H. S. Lee, I. J. Seo, W.Choi, Y. J. Lee, Y. M. Choi, B. W. Lee, J. Y. Koo (Hanyang University[1])*	546

132.	A-177	Research on the Fiber-optic On-line Monitoring System for Leakage Current of ±800 kV UHV DC Insulator *Liang Wang[1], Hong Wei[1], Yunpeng Liu[1], Wenyi Guo[2] ([1]Hebei Provincial Key, Laboratory of Power Transmission, Equipment Security Defense, North China Electric Power University, Baoding, China [2]Electric Power Research Institute National Engineering, Laboratory, China Southern Power Grid Co. Ltd, Guangzhou, China)*	N/A
133.	A-226	Development of Transformer Monitoring System for Condition-based Maintenance in PT. PLN Java-Bali Transmission and Load Dispatch Center *B. Pharmasetiawan[1], Hakim Ad Dairi[1], Yudi S. Gondokaryono[1], Anita Pharmatrisanti[2], Edy Subagja[2], Bambang Cahyono[2] ([1]School of Electrical Engineering and Informatics, Bandung Institute of Technology (ITB), Bandung, Indonesia [2]Asset Management Department , PT. PLN (PERSERO) P3B Jawa Bali, Depok, Indonesia)*	554
134.	G-30	PD Behavior of Basic Test Arrangements under Different Measurement and Evaluation Conditions *Stefan Kornhuber[1], Matthias Boltze[2], Rainer Haller[3], Petr Mraz[4], Josef Pihera[5] (Doble-Lemke GmbH[1,2], University of West Bohemia in Pilsen, Faculty of Electrical Engineering[3,4,5])*	557
135.	L-4	Optimum Power Flow Control Based on Power Apparatus Diagnosis by Intelligent Grid Management System (IGMS) *Masahiro Hanai[1], Kosei Shinoda[2], Kaio Wakaiki[3], Hiroki Kojima[4], Naoki Hayakawa[5], Hitoshi Okubo[6] (Nagoya University[1,2,3,4,5,6])*	561
136.	K-9	Fix Series Capacitor for Increasing Power Transfer on Transmission 150 kV at Sumatera Interconection System *Muhammad Nurdin[1], Nanang Hariyanto[2], Sudarmono Sasmono[3], Rizky Rahmani[4], Armaini[5], Ricky Faizal[6] (School of Electrical Engineering and Informatics, Bandung Institute of Technology, Bandung, Indonesia[1,2,3,4], Centre of Research and Development/Puslitbang PT PLN (Persero), Jakarta, Indonesia[5], PT PLN (Persero) P3BS, Padang, Indonesia[6])*	5
137.	A-52	Interpretation of Monitoring Data of Own Electromagnetic Radiation HV Transformers *Nikolay V. Kinsht[1], Natalia N. Petrunko[2] (Electrophisic and Electropower Lab., Institute of Automation & Control Processes of Far-Eastern Branch of RAS 5 Radio St., Vladivostok 690041, Russia[1,2])*	569
138.	A-149	Smart Grids: Romanian Experience in On-Line Monitoring and Condition Assessment of High Voltage Substations *Constantin Moldoveanu[1], Virgil Brezoianu[2], Aurelian Vasile[3], Victor Ursianu[4], Irene Ionita[5], Florin Goni[6], Constantin Radu[7], Stelian Gal[8], Vasile Metiu[9], Ioan Hategan[10], Vlad Rosca[11], Valentin Zaharescu[12], Gheorghe Moraru[13] (S.C. NOVA INDUSTRIAL S.A., Bucharest, Romania[1,2,3,4,5,6,7], CNTEE TRANSELECTRICA SA, Romania[8,9,10,11,12], Smart SA, Romania[13])*	573
139.	K-17	Alternative Spatial Approach on Spatial Demand Forecasting for Transmission Expansion Planning *Sudarmono Sasmono[1], Ngapuli Irmea Sinisuka[2], Mukmin W Atmopawiro[3] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Bandung, Indonesia[1,2,3])*	577
140.	A-62	A new On-line Monitoring Technology of Transmission Line Conductor Icing *Xinbo Huang[1], Xu Wei[2] (College of Electronic Information, Xi'an Polytechnic University, Xi'an, China[1], College of Mechanical and Electrical Engineering, Xi'an Polytechnic University, Xi'an, China [2])*	581

141.	C-3	Investigation Experience Due To High Number of CVTs Failure (Part: 1) *Rikardo Siregar[1], Achmad Setiawan[2] (Penyaluran dan Pusat Pengatur Beban Jawa Bali, PT. PLN (Persero), Jakarta, Indonesia[1,2])*	586
142.	A-2	Importance of Bushing DGA in Condition Assessment of Power Transformers *Bhaskar D Malpure[1], Sushil E Chaudhari[2] (Crompton Greaves Ltd, Mumbai[1,2])*	589
143.	A-16	Study on Transformer Oil Dissolved Gas Online Monitoring and Fault Diagnosis Method *Huimin He[1], Xiaotian Xu[2] (North China Electric Power Research Institute Beijing, China[1,2])*	593
144.	A-40	The Influence of The Test Methods on The Partial Discharge Inception Voltage Value of The Mineral Oil Using The Needle - Plane Electrode Configuration *N. Pattanadech[1], F. Pratomosiwi[2], M. Muhr[3], M. Baur[4] (Institute of High Voltage Engineering and System Management[1], Institute of High Voltage Engineering and System Management[2], Institute of High Voltage Engineering and System Management[3], BAUR prüf-und Messtechnik GmbH[4])*	597
145.	A-42	Influence Factors on FRA Waveforms *Takahiro Sano[1], Katsunori Miyagi[2] (Design Department, Trsansformer Business Division MEIDEN T&D CORPORATION Numazu-shi, Japan[1], Department of Electrical and Electronic Engineering Kanazawa Institute of Technology Nonoichi-shi, Japan[2])*	601
146.	A-45	Development of a Portable PDC Diagnostic System for Discriminating Transformer Insulation and Winding Faults Using Homoscedastic Probabilistic Neural Network *S. Natarajan[1] , R. Rajesh[2], S. Venkatesh[3], S. Mohamed Ghouse[4] (SASTRA University[1,2,3,4])*	605
147.	A-66	The Influence of Windings on UHF Electromagnetic Wave Propagation *Shusheng Zheng[1], Chengrong Li[2], Meng He[3] (Beijing Key Laboratory of High Voltage and EMC, North China Electric Power University[1,2,3], State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources, North China Electric Power University[1,2,3])*	609
148.	A-130	Apparatus for On-line Monitoring of Transformer Winding Deformation using Leakage Inductance Identification *Yao Zhoufei[1], Yin Yi[2], Wang Zhihao[3], Li Zhe[4], Wang Qiaohua[5] (Shanghai JiaoTong University[1], Shanghai JiaoTong University[2], Shanghai JiaoTong University[3], Shanghai JiaoTong University[4], Shanghai JiaoTong University[5])*	613
149.	A-138	Comparison of Online and Lab DGA Methods for Condition Assessment of Mineral and Vegetable Transformer Oils *X. Wang[1], X. Yi[2], S.T. Li[3], Z.D. Wang[4], J.V. Hinshaw[5], J. Noakhes[6] (University of Manchester[1], University of Manchester[2], University of Manchester[3], University of Manchester[4], BPL Global Ltd[5], TJ/H2b Analytical Services Pty Ltd[6])*	617
150.	A-139	Partial discharge behavior of environmentally friendly and hardly inflammable ester liquids compared to mineral oil for power transformers *Jürgen Fabian[1], Bettina Wieser[2], Michael Muhr[3], Robert Schwarz[4], Georg J. Pukel[5], Martin Stössl[6] (Graz University of Technology[1], Graz University of Technology[2], Graz University of Technology[3], Siemens Transformers Austria GmbH & Co KG[4], Siemens Transformers Austria GmbH & Co KG[5], Siemens Transformers Austria GmbH & Co KG[6])*	621

151. A-233 Investigating Suitable Positions in Power Transformers for Installing UHF Antennas for Partial Discharge Localization 625
H. R. Mirzaei[1], A. Akbari[2], M. Zanjani[3], K. Miralikhani[4] (Department of Electrical Engineering K. N. Toosi University of Technology Tehran, Iran[1,2,3], HV Test Field, Iran-Transfo Co. Zanjan, Iran[4])

152. D-69 A Comparison of AC and DC Surface Discharges Characteristics for Silicone Rubber 629
Jeong-Yun Heo[1], Han-Goo Cho[2], Lee-Yong Soon[3] (Korea Electrotechnology Research Institute(KERI)[1,2], Technology Institute, Sang Won Co., Ltd.[3])

153. A-312 Effects of Current and Voltage Harmonics on Distribution Transformer Losses 633
M. Shareghi[1], B.T. Phung[2], M.S. Naderi[3], T. R. Blackburn[4], E. Ambikairajah[5] (School of Electrical Engineering and Telecommunications University of New South Wales Sydney, Australia[1,2,3,4,5])

154. A-320 Degree of Polymerization Estimation of Insulation Papers in Power Transformers Based on Load and Temperature Histories in Java-Bali Region of Indonesia National Electric Company 637
Hanung N.S.[1], Suwarno[2], Nanang H.[3], Yoshinobu Mizutani[4], Tsuguhiro Takahashi[5], Tatsuki Okamoto[6] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung - PT PLN (Persero)[1], School of Electrical Engineering and Informatics, Institut Teknologi Bandung[2], School of Electrical Engineering and Informatics, Institut Teknologi Bandung[3], CRIEPI[4], CRIEPI[5], CRIEPI[6])

155. A-11 Electric field distribution in 132 kV one piece premolded cable joint structures 643
H. A. Illias[1], Z. H. Lee[2], A. H. A. Bakar[3], H. Mokhlis[4], G. Chen[5], P. L. Lewin[6] (UMPEDAC Electrical Engineering Department Faculty of Engineering, University of Malaya Kuala Lumpur, Malaysia[1,2,3,4], The Tony Davies High Voltage Laboratory University of Southampton Southampton, United Kingdom [5,6])

156. A-60 Insulation Ageing Diagnosis of XLPE Power Cables under Service Conditions 647
Fei Liu[1], Xingyi Huang[2], Jing Wang[3], Pingkai Jiang[4], (Shanghai Key Lab of Electrical Insulation and Thermal Aging, Department of Polymer Science and Engineering, Shanghai Jiao Tong University[1,2,3,4])

157. A-75 Application of Modern Testing and Diagnostic Methods for High Voltage Power Cables 651
Edward Gulski[1], Steve Burks[2], Piotr Cichecki[3], Chris Grodzinski[4] (Onsite hv solutions AG[1], onsite hv solutions Americas Inc[2], onsite hv solutions Benelux BV[3], onsite hv solutions Americas Inc[4])

158. A-113 Simulation of Partial Discharge Location in Medium-Voltage Power Cables 655
Keng-Wei Liang[1], Chang-Hsing Lee[2], Min-Yen Chiu[3], Chen-Li Fan[4], Yu-Chih[5], Lin[6] (Power Diagnostic Service Co., Limited[1,2,3], Taiwan Power Research Institute, Taiwan Power Company[4], National Synchrotron Radiation Research Center[6])

159. A-127 On-site testing and diagnosis of long medium voltage cables 659
Rogier Jongen[1], Ben Quak[2], Edward Gulski[3], Piotr Cichecki[4], Frank de Vries[5] (Seitz Instruments AG[1,2], Poznan University of Technology[3], Delft University of Technology[4], Alliander NV[5])

160. A-186 Simulation of Partial Discharge Pulse Propagation in 110kV XLPE Cable 663
Hongbo Liu[1], Huamao Zhan[2], Chengrong Li[3], Jingchun Wang[4] (Beijing Area Major Laboratory of High Voltage and EMC, North China Electric Power University[1,2,3,4], State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources, North China Electric Power University[1,2,3,4])

161.	A-241	Analysis and Calculation of Ampacity of 10kV Cables in Pipes under transient conditions *Yan-ling Zheng[1], Zhi-liang Xu[2], Guan-Jun Zhang[3] (Xi'an Jiaotong University[1,2,3], Baoji University of Arts and Sciences[1])*	667
162.	A-244	The Design of Temperature Monitoring System for Power Cable Joint *Chang Wenzhi[1], Han Xiaohui[2], Ge Zhendong[3], Li Chengrong[4] (North China Electric Power University[1], North China Electric Power University[2], North China Electric Power University[3], North China Electric Power University[4])*	671
163.	B-4	Improvement in Sensitivity of Broadband Impedance Spectroscopy for Locating Degradation in Cable Insulation by Ascending the Measurement Frequency *Takayuki Yamada[1], Naoshi Hirai[2], Yoshimichi Ohki[3] (Waseda University[1], Waseda University[2], Waseda University[3])*	677
164.	B-8	Evaluation of Accelerated Ageing Cables Used in Nuclear Power Plant *Sang-hwa Lee[1], Jae-do Lee[2], Moon-young Kim[3], Hong-seok Jang[4], Choong-heui Jeong[5] (Korea Institute of Nuclear Safety[1], Korea Institute of Nuclear Safety[2], Korea Institute of Nuclear Safety[3], Korea Institute of Nuclear Safety[4], Korea Institute of Nuclear Safety[5])*	681
165.	A-182	Study on the propagation characteristics of partial discharge electromagnetic waves in 252kV GIS *Tingli Yan[1], Huamao Zhan[2], Shusheng Zheng[3], Bo Liu[4], Jingchun Wang[5], Chengrong Li[6], Lihong Deng[7] (North China Electric Power University[1,2,3,4,5,6], Urban Construction Design & Research Institute[7])*	685
166.	A-183	GIS Partial Discharge Severity Assessment: A Digital Image Approach *ZhiyangJin[1], BoQi[2], ChengrongLi[3], Le Yu[4], ZhaoliangXing[5], DangguoXu[6], ShaoyuLiu[7](North China Electric Power University[1,2,3,4,5], North China Electric Power Research Institute [6,7])*	690
167.	A-187	The Study of Partial Discharge in GIS under Impulse Voltage Based on Time-frequency Analysis *Zhong Ren[1], Ming Dong[2], Ming Ren[3], Hai-bin Zhou[4], Jin Miao[5] (State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an[1,2,3,4,5])*	694
168.	A-190	Sensitivity Verification and Determination of the Best Location of Various External UHF Sensors for PD Measurement in GIS *Sriyono[1], Widya Anggoro Putro[2], Kichi Nishigouchi[3], Umar Khayam[4], Suwarno[5], Masahiro Kozako[6], Masayuki Hikita[7], Koji Urano[8], Chen Min[9](PT PLN(Persero)/ Indonesia state electricity company[1,2], ITB[1,2,4,5], Kyushu Institute of Technology[3,6,7], SE Technology[8,9])*	698
169.	A-195	On-line and long-term monitoring and diagnosis system for insulation on switchgear devices by wireless communication technique *Cheng-Chien Kuo[1], Hong-Chan Chang[2] (Saint John's University[1], National Taiwan University of Science and Technology[2])*	702
170.	A-1	Surveying Compressor C-2501 Vibration Problem By Analysis of Vibration and Its Analytical Report *Hamidreza Minaiepour[1], Ehsan Heydari[2], Hamid Sarabeigi[3] (Marun Petrochemical Company[1], Marun Petrochemical Company[2], Marun Petrochemical Company[3])*	706

171.	A-3	An application of Particle swarm optimization to the tracking of faulty lines for the monitoring of Outer-race bearing faults *Hubert Razik[1], Mohamed El Kamel Oumaamar[2] (Université Claude Bernard Lyon[1], Universit´e Mentouri[2])*	710
172.	A-5	Thermal Signatures for Pattern Recognition Approach Applied to Induction Motor Diagnosis *O. Olivier[1], E. Boutleux, G. Clerc[3] (Laboratory Ampere – FRANCE[1], Laboratory Ampere – FRANCE[2], Laboratory Ampere – FRANCE[3])*	714
173.	A-49	Dynamic Simulation and Experimental Results of Bearing Faults of Squirrel Cage Induction Motor *Ariunbolor Purvee[1], Gautam Banerjee[2] (School of Mining Engineering, Mongolian University Science and Technology[1], Longwall Mining Division Central Institute Mining and Fuel Research[2])*	718
174.	A-70	A Novel Aircraft Engine Fault Diagnostic and Prognostic System based on SVM *ZeFeng WANG[1], Jean-Luc ZARADER[2], Sylvain ARGENTIERI[3] (Institute for Intelligent Systems and Robotics (ISIR); University of Pierre and Marie Curie (PARIS IV)[1,2,3])*	723
175.	A-74	Investigating the causes of body failure of MV electromotor in centrifuge equipment *Hamidreza Minaiepour[1], Ehsan Heydari[2], Hamid Sarabeigi[3] (Condition Monitoring Department Marun Petrochemical Company[1], Mechanical Maintenance Department Marun Petrochemical Company[2], Critical Equipments Maintenance Department Marun Petrochemical Company[3])*	729
176.	A-163	Classification of Temporary Short Circuit in Three Phase Induction Motor Winding Based on Wavelet Transform *Dicky Nova Wardana[1], Dimas Anton Asfani[2], Ardyono Priyadi[3], Mauridhi Hery Purnomo[4] (Department of Electrical Engineering, Institut Teknologi Sepuluh Nopember Surabaya, Indonesia[1], Department of Electrical Engineering, Institut Teknologi Sepuluh Nopember Surabaya, Indonesia[2], Department of Electrical Engineering, Institut Teknologi Sepuluh Nopember Surabaya, Indonesia[3], Department of Electrical Engineering, Institut Teknologi Sepuluh Nopember Surabaya, Indonesia[4])*	N/A
177.	A-213	UVLS with Cascade Methode and Sensor to Protect Generator from Over Excitacy *Rukmito Ari Ardianto[1] (PT PLN (Persero) - P3B, Sumatera, Padang – West Sumatra – Indonesia[1])*	736
178.	B-7	Partial Discharge Analysis for Predictive Maintenance of Generator of Geothermal Power Plant *Djoko Darwanto[1], Deny Hamdani[2], Didik Dwi Hariyanto[3], Otto Hari Karyawan[4] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung[1,2], PT. Pertamina[3], Chevron Geothermal Indonesia, Ltd[4])*	740
179.	A-33	A Communication Interference Suppression Method for Ultra High-Frequency Partial Discharge Detection *Wang Caixiong[1], Zhang liangen[2], Hua Zhenghao[3], Tang Zhiguo[4], Chang Wenzhi[5], Li Chengrong[6] (North China Electric Power University [1,2,3,4,5,6])*	744
180.	A-41	A Feasibility and Method Research on the On-line Monitoring of the Parallel Compensation Capacitors *TaoZhao Tao[1], Liu Yunpeng[2], Lv Fangcheng[3] (North China Electric Power University[1], North China Electric Power University[2], North China Electric Power University[3])*	748

181. A-68 The Monitoring Sensor Unit Design of The Wire Transmission Line Comprehensive State 752
Xinbo Huang[1], Yawei Zhang[2] (College of Electronics and Information, Xi'an Polytechnic University, XPU, Xi'an, China[1,2])

182. A-69 Icing Thickness Prediction Model Using BP Artificial Neural Network 758
Xinbo Huang[1], Jiajie Li[2] (College of Electronics and Information, Xi'an Polytechnic University, XPU, Xi'an, China[1,2])

183. A-72 Multiprocessor based architecture for On-line Condition Monitoring of Transformers 761
Suraj Pardeshi[1], Ramakant Mahajan[2], UmaMahesh Pasumarthi[3], Rohit Kumar Arora[4] (CG Global R&D Center, Kanjur Marg, Mumbai[1,2,3,4])

184. A-73 Breakdown Characteristics of Liquid Nitrogen for Transmission-Class Superconducting Electric Equipment 766
Woo-Ju Shin[1], Jae-Sang Hwang[2], Jae-Kyu Seong[3], Jong-Geon Lee[4], Bang-Wook Lee[5] (Department of ElectronicSystems Engineering, Hanyang University[1,2,3,4,5])

185. A-85 Effect of humidity and electrode roughness on the AC and impulse breakdown characteristics of dry-air 770
Jae-Kyu Seong[1], Woo-Ju Shin[2], Jae-Sang Hwang[3], Jong-Geon Lee[4], Bang-Wook Lee[5], Kyung-Bo Seo[6], Dong-Hoon Jeong[7] (Hanyang University[1,2,3,4,5], Power & Industrial Systems R&D Center Hyosung Heavy Industry [6,7])

186. A-87 Design of Induced Power Apparatus for Monitoring System of Dynamic Increasing Capacity of High-voltage Transmission Lines 774
Dai Yuan[1], Chen Kai[2], Lin Jie-dong[3], Cheng Yang-chun[4], Nie Ming[5], Wang Wei[6] ([1]Guangdong Power Test & Research Institution, Guangzhou[1,3,5,6], State Key Laboratory of Alternate Electrical Power System with Renewable Energy Sources, Beijing Key Laboratory of High Voltage and EMC, North China Electric Power University[2,4])

187. A-92 Ethernet Communication Based on the IEC61850-line Monitoring of Electrical Equipment IED 778
Yunpeng Liu[1], Hong Wei[2], Liang Wang[3], Tao Zhao[4] (North China Electric Power University[1,2,3,4])

188. A-98 Accelerated multistress aging of polymer nanocomposites and its condition monitoring 782
P. Preetha[1], M. Joy Thomas[2] (Department of Electrical Engineering Indian Institute of Science[1,2])

189. A-109 Error Analysis of Location Algorithm for Partial Discharge in Substation 786
Hou Hui-juan[1], Sheng Ge-hao[2], Jiang Xiu-chen[3], Guan Hong[4], Shao Yu-ying[5] (Shanghai Jiao Tong University[1,2,3], Shanghai Municipal Electric Power Company[4,5])

190. A-131 Review on Software Development for Time-Domain High Voltage Equipment Condition Monitoring 790
R. A. Zainir[1], N. A. Muhamad[2] (Universiti Teknologi Malaysia[1], Universiti Teknologi Malaysia[2])

191. A-141 Frequency Domain Analysis of Electromagnetic Wave Radiated from Partial Discharge 794
Zhu Chaojie[1], Lu Yuncai[2], Zhang Ziyang[3], Yin Yi[4] (Department of Electrical Engineering, Shanghai Jiao Tong University[1,2], Jiangsu Electric Power Company Research Institute[3,4])

192. A-148 Fundamental study of Evaluation Methods of the Deepness of Immersed Water in Pole Mounted Air Switch by Air-coupled Ultrasound Method 798
Tomohiko Nagano[1], Sinya Ohtsuka[2] (Kyushu Institute of Technology[1], Kyushu Institute of Technology[2])

193. A-156 Review and Application of Diagnosis Methods for 22.9kV-y Distribution Systems 802
Oh-myeon Kwon[1], Byoun-hun Jung[2], Jong-man Joung[3], Dong-myung Kim[4] (Facility Diagnosis Center of Korea Electric Power Cooperation (KEPCO), Korea[1,2,3,4])

194. A-175 Study on Tension detection method for Overhead Transmission Line Based on Spectrum Analysis 805
Hai-bin Zhou[1], Ming Dong[2], Ai-ci Qiu[3] (State Key Laboratory of Electrical Insulation and Power Equipment, EEC, Xi'an Jiaotong University [1,2], Northwest Institute of Nuclear Technology of China[3])

195. A-236 The Design of Hilbert Fractal Antenna Array for Ultra-High-Frequency Partial Discharge Detection N/A
Peng Wang[1], Jian Li[2], Tianyan Jiang[3], Zhiman He[4] (College of Electrical Engineering,Chongqing University[1,2,3,4])

196. A-290 On-line Monitoring and prediction for transmission line sag 813
Ren Lijia[1], Li Hong[2], Liu Yan[3] (North Power Supply Company, Shanghai Municipal Electric Power Company[1,2,3])

197. A-310 Analysis of PD Characteristics depending on Causes of Solid insulated Load Break Switchgear 818
Chan Yong Park[1], Do Hoon Lee[2], Jong Ung Choi[3], Seok Weon Park[4] (LS Industrial System[1], LS Industrial System[2], LS Industrial System[3], LS Industrial System[4])

198. B-5 Phase angle calculation for UHF Partial Discharge detection in segment acquisition mode 821
Hu Yue[1], Si Liangqi[2], Sheng Gehao[3] , Jiang Xiuchen[4] ,Wang Hongbin[5], Zhu Wenjun[6] (Laboratory of Control of Power Transmission and Conversion, Ministry of Education Department of Electrical Engineering, Shanghai Jiao Tong University[1,2,3,4], Guangdong Electric Power Research Institute[5,6])

199. B-6 Adaptive Wavelet De-noising Method based on Segmented Processing Technology for PD Location 825
Zhang Tianchen[1], Hu Yue[2], Qian Yong[3], SHENG Gehao[4], JIANG Xiuchen[5], MIAO Peiqing[6], LI Xiuwei[7] (Key Laboratory of Control of Power Transmission and Conversion, Ministry of Education, Department of Electrical Engineering, Shanghai Jiao Tong University[1,2,3,4,5], Shandong Electric Power Research Institute[4], Shandong Electric Power Research Institute[6,7])

200. A-102 Studying the Paper-oil Insulation Aging Models of Power Transformer N/A
Yuan Wen[1], Gong Senlian[2], Wang Youyuan[3] (State Key Laboratory of Power Transmission Equipment & System Safety and New Technology, Chongqing, China[1,2,3])

201. A-111 Dynamic Out-of-step Simulation and Detection in 150 kV South Sulawesi System 833
H. Wihartady[1], R. Hutahaean[2], M. Popov[3], L. van der Sluis[4], V. Terzija[5] (PLN[1,2], Delft Technology University[1,3,4], The University of Manchester[5])

202. A-205 Electrical Power Quality Monitoring and Analysis of a Synchrotron Accelerator Facilities 838
Yu-Chih Lin[1], Yung-Feng Chiu[2], Tzong-Shyan Ueng[3], Kung-Cheng Kuo[4], Jui-Chi Chang[5] (National Synchrotron Radiation Research Center[1,2,3,4,5])

203.	A-242	Condition Monitoring in the Management of Maintenance in a Large Scale Precision CNC Machining Manufacturing Facility *N.Ahmed[1], A.J Day[2], J.L Victory[3], L. Zeall[4], B. Young[5] (University of Bradford, School of Engineering, Design, & Technology, Bradford, UK[1,2], BAE Systems Ltd Samlesbury Aerodrome, Balderstone[3,4])*	84
204.	A-255	Condition Based Management of Electrical Appliances *Pavel Trnka[1], Michal Svoboda[2], Jakub Soucek[3] (University of West Bohemia[1], University of West Bohemia[2], University of West Bohemia[3])*	846
205.	I-2	Formalization of the Interval Circuit Analysis *Nikolay V. Kinshtt[1], Natalia N. Petrunko[2] (Electrophisic and Electropower Lab., Institute of Automation & Control Processes of Far-Eastern Branch of RAS[1,2])*	850
206.	A-235	New Partial Discharge Location Method in Power Transformer based on Acoustic Wave Propagation Characteristics using Numerical Simulation *Masahiro Kozako[1], Hiroki Murayama[2], Masayuki Hikita[3], Hidenobu Koide[4], Kenji Kashine[5], Itaru Nakamura[6] (Department of Electrical Engineering and Electronics, Kyushu Institute of Technology[1,2,3], Transformer Division Fuji Electric Corporation[4], Electrical and Electric Engineering Kagoshima College of Technology[5,6])*	854
207.	J-2	Asset management of wind turbines *Chen-li Fan[1], Yang-lin Zeng[2], Tsai-Ho Cheng[3] (Taipower Research Institute, TPC[1], Contron Electric Co.Ltd[2], Taiwan Power Company[3])*	858
208.	J-3	Use Case Modelling for Risk Based Maintenance Management System *Qikai Zhuang[1], Dhiradj Djairam[2], Ravish P. Y. Mehairjan[3], Johan J. Smit[4] (High-voltage Technology and Management, EWI, Delft University of Technology[1,2,3,4])*	862
209.	J-7	Improved Risk Analysis Through Failure Mode Classification According to Occurrence Time *Ravish P.Y. Mehairjan[1], Qikai Zhuang[2], Dhiradj Djairam[3], Johan J. Smit[4] (High Voltage Technology & Asset Management, Delft University of Technology[1,2,3,4])*	866
210.	J-8	A Comparative Review of Transformer Reliability on a Individual and Population Scale and an Assessment of Reliability Methodologies *B. Patel[1], Z.D. Wang[2], J.V. Milanovic[3], P. Jarman[4] (School of Electrical & Electronic Engineering, The University of Manchester[1,2,3], National Grid[4])*	870
211.	J-18	A Smart On-line Over-voltage Layered Identification System *Du lin[1], Chen huan[2], Liu jun[3] (State Key Laboratory of Power Transmission Equipment and System Security and New Technology, Chongqing University[1,2], Chongqing Power Company[3])*	874
212.	A-6	Leakage Current Monitoring for Silane Epoxy Resin Insulator under Tropical Climate Conditions *Abdul Syakur[1], Hamzah Berahim[2], Rochmadi[3], Tumiran[4] (Department of Electrical Engineering Gadjah Mada University[1,2], Department of Chemical Engineering Gadjah Mada University[3,4])*	878
213	K-1	Designing angle bowl of Turbine for Micro-hydro at Tropical Area *Lie Jasa[1], Ardyono Priyadi[2], Mauridhi Hery Purnomo[3] (Udayana University[1], Sepuluh Nopember Institute of Technology[2,3])*	882
214.	K-7	Noise and Vibration Survey of ac Filter Capacitors in Feng Xian HVdc Converter Station *Zhu Lingyu[1], Ji Shengchang[2], Shen Qi[3] (Xi'an Jiaotong University[1,2,3])*	886

215.	A-10	Comparative PD characteristics of pressboard/ mineral oil and pressboard/vegetable oil insulating systems *Viet-Hung Dang[1], A. Beroual[2], E. A. Al-Ammar[3], M. Qureshi[2] (Ecole Centrale de Lyon, AMPERE CNRS, 36 avenue Guy de Collongue, 69134 Ecully Cedex, France[1,2], Saudi Aramco Chair in Electrical Power, Department of Electrical Engineering, King Saud University, Riyadh, Saudi Arabia[3,4])*	890
216.	A-14	Disequilibrium of Moisture In Oil-Pressboard Insulation Under Transient Temperature Condition *Wei Wang[1], Xin Wang[2], Zhiqing Ma[3], Chengrong Li[4], Shaoyu Liu[5], Yanwei Wu[6], Zhen Hao[7], Jixian Ma[8], Kaihua Long[9] (Beijing key laboratory of HV & EMC, State key laboratory of alternate electrical power system with renewable energy sources, North China electric power university[1,2,3,4], High voltage research institute, North China electric power research institute[5,6,7,8,9])*	894
217.	A-15	Distribution Of Moisture In Oil Immersed Pressboard Under Transient Temperature Condition *Wei Wang[1], Zhiqing Ma[2], Xin Wang[3], Chengrong Li[4], Jixian Ma[5], Kaihua Long[6], Zhen Hao[7], Shaoyu Liu[8], Yanwei Wu[9] (Beijing key laboratory of HV & EMC, State key laboratory of alternate electrical power system with renewable energy sources, North China electric power university[1,2,3,4], High voltage research institute, North China electric power research institute[5,6,7,8,9])*	897
218.	A-18	The Criteria of Dissolved Gas Analysis in Natural Ester Fluid *Dongjin, Kweon[1], Kyosun, Koo[2] (Power System Laboratory KEPCO Research Institute[1,2])*	901
219.	A-22	Analysis of Partial Discharge Phenomena of Twisted Pairs for Inverter-Fed Motor under Square Impulse Voltage *Huihui Xu[1], Guangning Wu[2], Yiqiang Zhang[3], Yang Luo[4], Kaijiang Cao[5] (School of Electrical Engineering , Southwest Jiaotong University, Chengdu[1,2,3,4,5])*	N/A
220.	A-23	A Review of Condition Monitoring of Underground Power Cables *Ammar Anwar Khan[1], Nazar Malik[2], Abdulrehman Al-Arainy[3], Saad Alghuwainem[4] (Saudi Aramco Chair in Electrical Power, Department of Electrical Engineering, College of Engineering, King Saud University[1,2,3,4])*	909
221.	A-25	The Investigation on dispersion of characteristic parameters for assessment of insulating state and economic feasibility in oil-paper insulation diagnosis *Wen Cao[1], Wei Shen[2], Xuetao Shi[3], Baosheng He[4], Kai Wu[5] (State Key Lab. of Elect. Insulat. and Power Equipment, Xi'an Jiaotong University[1,3,4,5], Shaanxi Electric Power Research Institute, Shaanxi Electric Power Corporation[2])*	913
222.	A-26	Monitoring of 420 kV XLPE Cable System in Underground Tunnel *D. Gieselbrecht[1], W. Koltunowicz[2], A. Obralic[3], T. Ritz[4], P. Christensen[5], B. Schneider[6], K. H. Cohnen[7] (OMICRON Energy Solutions, Berlin, Germany[1,2,3,4], nkt cables a/s, Brondby, Denmark[5,6], nkt cables, Cologne, Germany[7])*	917
223.	A-34	Frequency Domain Measurement as Quality And Diagnostic Tool for Power Transformers *P.K. Poovamma[1], T.R. Afzal Ahmed[2], C. Viswanatha[3], K. Mallikarjunappa[4] (Central Power Research Institute[1,2,3,4])*	N/A
224.	A135	Monitoring of Transformer Winding Deformation by CPRA Method *V.Rusov[1], S.Zhivodernikov[2] (Vibrocenter Perm, Russia[1], Vibrocenter Perm, Russia[2])*	925

225. A-56 Standardization of DGA Interpretation Techniques using Fuzzy Logic Approach 929
S. Hmood[1], A. Abu-Siada[2], Mohammad A.S. Masoum[3], Syed M. Islam[4] (Electrical and Computer Engineering Department, Curtin University, WA[1,2,3,4])

226. A-99 Analyze of the corona loss characteristics of the contamination conductor in a small cage N/A
Yunpeng Liu[1], Guoyang Zhou[2], Lei Zhu[3], Yuehan Li[4] (Department of Electrical Engineering, North China Electric Power University, Baoding, China[1,2,3,4])

227. A-124 Solubility Study of Different Gases in Mineral and Ester-based Transformer Oils 937
A. Müller[1], M. Jovalekic[2], S. Tenbohlen[3] (Institute of Power Transmission and High Voltage Technology, University of Stuttgart, Stuttgart, Germany[1,2,3])

228. A-126 Safety Risk Analysis of insulators in Electric transmission Line Based on Fuzzy Fault Tree Method 941
Wang Kai[1], Deng Yu-rong[2], Zhu Shi-yang[3], Wang You-yuan[4] (Guangxi Guangxi Power Grid Electric Power Research Institute, Nanning 530023, China[1,2,3], State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing 400044, China[4])

229. A-151 Intelligent Fault Diagnosis for On-line Condition Monitoring in Smart Distribution Networks 946
Murtaza Hashmi[1], Seppo Hänninen[2], Matti Lehtonen[3] (Energy System Knowledge Centre, VTT Technical Research Centre of Finland, Finland[1,2], Department of Electrical Engineering, School of Electrical Engineering, Aalto University, Finland[3])

230. A-160 Power Transformer Incipient Faults Diagnosis Using Dissolved Gas Analysis and Rough Set 950
Noor Akhmad Setiawan[1], Sarjiya[2], Zenith Adhiarga[3] (Electrical Engineering and Information Technology Department, Universitas Gadjah Mada, Indonesia[1,2,3])

231. A-192 PD Pattern of Various Defects Measured by UHF External Sensor on 66 kV GIS Model 954
Widya Anggoro Putro[1], Sriyono[2], K. Nishigouci[3], Umar Khayam[4], Suwarno[5], Masahiro Kozako[6], Masayuki Hikita[7], Koji Urano[8], Chen Min[9] (School of Electrical Engineering and Informatics, Bandung Institute of Technology, Indonesia[1,2,4,5], Department of Electrical Engineering, Kyushu, Institute of Technology, Japan[3,6,7], PT PLN (Persero), Indonesia[1,2], SE Technology, Hongkong[8,9])

232. A-194 Influence of the Structure Dimension of GIS on the Partial Discharge 958
Dengwei Ding[1], Wensheng Gao[2], Weidong Liu[3] (State Key Laboratory of Control and Simulation of Power System and Generation Equipment, Department of Electrical Engineering, Tsinghua University, Beijing, 100084, China[1,2,3])

233. A-199 Classification of Partial Discharge events in GILBS using Discrete Wavelet Transform and Probabilistic Neural Networks 963
Ming-Shou Su[1], Jiann-Fuh Chen[2], Chien-Yi Chen[3], Cheng-Chi Tai[4], Yu-Hsun Lin[5] (Department of Electrical Engineering National Cheng Kung University, Tainan, Taiwan[1,2,3,4], National Penghu University of Science and Technology, Penghu, Taiwan[5])

234. A-211 Estimation of Transmission Line Parameters Single-Core XLPE Cables Considering Semiconducting layer 967
Yan Li[1], Peter A. A. F. Wouters[2], Paul Wagenaars[3], Peter C. J. M. van der Wielen[4], E. Fred Steennis[5] (Electrical Energy Systems, Eindhoven University of Technology, Eindhoven, the Netherlands[1,2], DNV KEMA Energy & Sustainability Arnhem, the Netherlands[3,4,5])

235.	A-216	Influence of Partial Discharge on Breakdown of Air-Polymer Composite *Eka Putra Waldi (Department Electrical Engineering, Andalas University, Indonesia)*	971
236.	A-220	Vibration Characteristics during Mechanism Endurance Test of a High Voltage Circuit Breaker *Wenpeng Zhang[1], Yonggang Guan[2], Weidong Liu[3], Cheng Tang[4], Junhui Wu[5], Jianying Zhong[6], Zhiyong Yang[7] (Department of Electrical Engineering, Tsinghua University, Beijing, China[1,2,3], Pinggao-Tsinghua Electric Research Center, Henan Pinggao Electric Co., LTD, Pingdingshan, China[4,5,6,7])*	975
237.	A-227	UHF Sensor Array for Partial Discharge Location in Transformers *H.H. Sinaga[1], B.T. Phung[2], T.R. Blackburn[3] (University of New South Wales, School of Electrical Engineering and Telecommunications[1,2,3])*	979
238.	A-240	Recovery Experience of Power Equipment from Tsunami Disaster *M. Sasaki[1], K. Ito[2], Y. Adachi[3], N. Fuse[4], Y. Kabasawa[5], T. Takahashi[6], Y. Hori[7], K. Adachi[8], T. Okamoto[9] (Shin-Sendai Thermal Power Plant, Tohoku Electric Power Co., Sendai, Japan[1,2,3], Electric Power Engineering Research Laboratory, Central Research Institut of Electric Power Industry, Yokosuka, Japan[4,5,6,7,8,9])*	983
239.	A-261	Electric Material Model Aging for Online Diagnostic Systems *Michal Svoboda[1], Pavel Trnka[2], Jakub Soucek[3] (Department of technologies and measurement, University of West Bohemia, Pilsen, Czech Republic[1,2,3])*	987
240.	A-270	PD Monitoring and diagnosis of Power Transformer On-Line and on site *Xu Chunshe[1], Zhang Guanjun[2], Sun Zhenquan[3] (School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China[1,2], R&D center of smart distribution grid, SHAANXI REGIONAL ELECTRIC POWER GROUP CO., LTD, Xi'an ,China[3])*	N/A
241.	C-8	Failure Analysis of Cable Accessories Using Finite Element Method Magnetics (FEMM) Software *Aziz Suhaimi[1], Huzainie Shafi Abd Halim[2] (Failure Investigation, TNBR QATS Sdn. Bhd., Malaysia[1], Transmission and Distribution, TNB Research Sdn Bhd., Malaysia[2])*	995
242.	A-400	*Distributed Fault Location Based on Comprehensive Analysis of Fault Current* *Yadong Liu[1], Gehao Sheng[2], Xiaojun Shen[3], Xiuchen Jiang[4], Xuri Sun[5], Shiqiang Wang[6], Weiwei Yang[7] (Shanghai Jiao Tong University, Shanghai, China[1,2,3,4], Liaocheng Electric Power Company, Liaocheng, Shandong, China[5,6], Northeast Power Grid Corporation, Shenyang, Liaoning, China[7])*	999
243.	B-10	Statistical Analysis of Partial Discharge Characteristics for Predictive Maintenance of Generator of Geothermal Power Plant *Djoko Darwanto[1], Didik Dwi Hariyanto[2], Otto Hari Karyawan[3], Deny Hamdani[4] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Indonesia[1,4], PT. Pertamina, Indonesia[2], Chevron Geothermal Indonesia, Ltd, Indonesia[3])*	1003
244.	B-11	The Characteristics Of Soil Which Is Treated By Salt Solution, And Water As The Basic of Grounding Diagnostics. *Anggoro B[1], Irman D. B.[2] (Electrical Power Engineering Research Division, School of Electrical Engineering & Informatics, Bandung Institute of Technology, Indonesia[1], Electrical Power Engineering Research Division, Electrical Engineering Department, National Institute of Technology, Indonesia[2])*	1007

245.	B-12	The Consept of Grounding Impedance Diagnostics Method *Anggoro B. (Electrical Power Engeneering Research Division, School of Electrical Engineering & Informatics, Bandung Institute of Technology, Indonesia)*	1013
246.	A-209	Identification of joints affected by water ingress in complex hybrid MV cable networks *Tobias Neier[1], Alexander Gerstner[2], Martin Jenny[3] (Technical Advisor - Application Engineering, BAUR Prüf- und Messtechnik GmbH, Hong Kong – Asia Pacific[1], Product Management, BAUR Prüf- und Messtechnik GmbH, Sulz, Austria[2,3])*	1018
247.	C-7	Simulation of Propagation Characteristics in Three-Phase-Type GIS *Haifeng Ye[1], Yong Qian[2], Gehao[3], Sheng[4], Yue Hu[5], Xiuchen Jiang[6], Jing Chen[7], WanJian Bai[8] (Shanghai Jiao Tong University[1,2,3,4,5,6], Heze Electric Power Company[7,8])*	1023
248.	C-9	Induced Voltage Analysis with Adjacent Phases of the Three-limb and Five-limb Trasnformers *Jong-man Joung[1], Chul-bae Park[2], Han-hong Kim[3], Dong-yeol Shin[4], Dong-myung Kim[5] (Facility Diagnosis Center of Korea Electric Power Cooperation (KEPCO)[1,2,3,5], KEPCO Research Institute[4])*	1029
249.	C-10	Principal Failure Cases on Distribution Switchgear using in the 22.9kV-y Distribution System *Tae-Ho Kwon[1], Chong-Eun Cho[2], Jong-Man Joung[3], Dong-Myung Kim[4] (Facility Diagnosis Center, Korea Electric Power Corporation [1,2,3,4])*	1032
250.	C-11	Electrical Steels and Power Transformer Cores in Deep Saturation *Q. Tang[1], Z.D. Wang[2], P. Jarman[3] (School of Electrical and Electronic Engineering, The University of Manchester, Manchester, M13 9PL, UK[1,2], National Grid, National Grid House, Warwick Technology Park, Warwick, CV34 6DA, UK [3])*	1035
251.	C-12	Investigation on Electrical Characteristics of HDPE Mixed with EVA Applied for Recycleable Power Cable Insulation *Jung-Hun Kwon[1], Min-Hye Park[2], Kee-Joe Lim[3], Hyung-Kyu Lee[4] (Department of Electrical Engineering, CBNU, Cheongju, Republic of Korea[1,2,3], Department of Electrical Engineering, Chungju National University, Chungju, Republic of Korea[4])*	1039
252.	C-15	Study on Characteristics and Detection of DC Arc Fault in Power Electronics System *Liu Yuan[1], Ji Shengchang[2], Wang Jin[3], Yao Xiu[4], Zhu Yeye[5] (State key laboratory of electrical insulation and power equipment School of Electrical Engineering, Xi'an Jiaotong University[1,2,5], High Voltage and Power Electronics Lab, Ohio State University, Columbus OH43210, USA[3,4])*	1043
253.	C-25	The Effects of Coupling Agents on the electrical and mechanical Properties of Polyimide/ TiO_2 Hybrid Films *Xiaoxu Liu[1], Jinghua Yin[2], Minghua Chen[3] (School of Applied Science, Harbin University of Science and Technology[1,2], Center for engineering training and basic experimentation, Heilongjiang Institutes of Science andTechnology[1,3])*	N/A
254.	D-6	Distribution of electric field in medium voltage cable joint geometry *H. A. Illias[1], Z. H. Lee[2], A. H. A. Bakar[3], H. Mokhlis[4], A. Mohd Ariffin[5] (UMPEDAC, Electrical Engineering Department, Faculty of Engineering, University of Malaya, Kuala Lumpur, Malaysia [1,2,3,4], College of Engineering, Universiti Tenaga Nasional, Selangor, Malaysia [5])*	1051

255. D-11 Characteristics on Surface flashover of polyethylene nanocomposites film in vacuum 1055
Weiwang Wang[1], Shengtao Li[2], Fan Tang[3], Jianying Li[4] (State Key Laboratory of Electrical Insulation and Power Equipment, Xian Jiaotong University[1,2,3,4])

256. D-13 The Study of The Arcing Phenomena of The Mineral Oil Using The Rod - Plane Electrode Configuration 1059
N. Pattanadech[1], F. Pratomosiwi[2], B. Wieser[3], M. Muhr[4], M. Baur[5], (Institute of High Voltage Engineering and System, Management. Inffeldgasse 18, A - 8010 Graz[1,2,3,4], Baur Prüf- und Messtechnik GmbH, Raiffeisenstr. 8, A - 6832 Sulz, Austria[5])

257. D-19 Role of Insulating Barriers during Electrical Treeing in Composite Dielectrics Using Partial Discharge Signature Analysis Based on Adaptive Probabilistic Neural Network 1063
S. Venkatesh[1], S. Mohamed Ghouse[2], P.V. Ramamoorthi[3], S. Natarajan[4] (School of EEE, SASTRA University, Thanjavur, India[1,2,3,4])

258. D-20 Evaluation of Compression Behaviors of Oil-immersed Insulating Pressed-boards for Transformers 1067
Hisashi Morooka[1], Akira Yamagishi[2], Hideyuki Miyahara[3], Hiroyuki Sampei[4], Masaru Kashiwakura[5], Yukiyasu Shirasaka[6] (Dept. of Transmission & Distribution, Hitachi Research Lab., Hitachi, Ltd.[1], High Voltage Switchgear & Transformer Business Division, Hitachi Works, Power Systems Company, Hitachi, Ltd.[2,3,4,5,6])

259. D-23 Property Modification of SiR-EPDM Blends by Electron Beam Irradiation 1071
Dr. V. Rajini[1], R. Deepalaxmi[2] (Department of EEE, SSN College of Engineering, Kalavakkam, Chennai, Tamilnadu, India[1,2])

260. D-31 Preliminary Research on the influence of electrostatic precipitation on the anti-corona discharge of HVDC composite insulators N/A
Ying Liang[1], Yunpeng Liu[2], Xiaohui Yang[3], Wenyi Guo[4] (Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding, China[1,2,3], Electric Power Research Institute National Engineering Laboratory, China Southern Power Grid Co. Ltd, Guangzhou, China[4])

261. D-32 Study on Corona-resistance Property of HTV Silicone Rubber Material N/A
Xiaohui Yang[1], Ying Liang[2], Yunpeng Liu[3], Wenyi Guo[4] (Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding, China[1,2,3], Electric Power Research Institute National Engineering Laboratory, China Southern Power Grid Co. Ltd, Guangzhou, China[4])

262. D-35 Temperature effect of space charge distribution in cross-linked polyethylene 1085
Li Lan[1], Jiandong Wu[2], Yi Yin[3], Ulf. H. Nilsson[4], Hakan Lennartsson[5], Alex Zhou[6] (The department of Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China[1,2,3], Borealis AB, Stenungsund, Sweden [4], Borouge HongKong, HongKong, China [5], Borouge Shanghai, Shanghai, China [6])

263. D-41 Thermal Conductivity and Dielectric Properties of Epoxy Composites with Hyperbranched Polymer Modified Boron Nitride Nanoplatelets 1089
Xingyi Huang[1], Peng Peng[2], Wenyi Peng[3], Jinhong Yu[4], Fei Liu[5], Pingkai Jiang[6] (Shanghai Jiao Tong University[1,2,3,4,5,6])

264.	D-43	DC Degradation of ZnO Varistor and Its Restorability by Heat-Treatment *Xuetong Zhao[1], Jianying Li[2], Shengtao Li[3] (State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[1,2,3])*	1093
265.	D-45	The Electric Field Distribution in Oil-paper Insulation under Combined AC-DC Voltage *Hao Wu[1], ChengRong Li[2], Bo Qi[3], XiaoLin Zhao[4], JinZhuang.Lv[5], LinJie Zhao[6] (Beijing Key Laboratory of High Voltage & EMC, North China Electric Power University[1,2,3,4], EHV Power Transmission Company, China Southern Power Grid[5], Electric Power Research Institute, China Southern Power Grid[6])*	1097
266.	D-53	Development of Measurement System for Secondary Electron Emission Yield of Insulating Materials for Spacecraft Materials *Kazuaki Shibuya[1], Kazufumi Nomura[2], Hiroaki Miyake[3], Yasuhiro Tanaka[4], Masamichi Ohira[5], Teppei Okumura[6], Masato Takahashi[7] (Tokyo City University[1,2,3,4], JAXA[5,6,7])*	1102
267.	D-54	Breakdown characteristics of thermally degradated oil-impregnated insulation *Lukasz Chmura[1], P.H.F. Morshuis[2], E. Gulski[3], J.J. Smit[4] (High Voltage Technology and Management, Delft University of Technology[1,2,3,4])*	1106
268.	D-59	The thermal conductivity and electrical strength of epoxy resin with different filler content of micro and nano alumina *Wang Qi[1], Li Zhe[2], Wu Jiandong[3], Yin Yi[4] (The Department of Electrical Engineering, Shanghai Jiao Tong University[1,2,3,4])*	1110
269.	D-64	Investigation on Electroluminescence as Pre-Breakdown Phenomenon within Dielectric Materials used for Cable Insulation *A. Mohd Ariffin[1], N. Mat Tajudin[2], H. A. Illias[3] (Dept. of Electrical Power, Universiti Tenaga Nasional[1,2], Electrical Engineering Department, UMPEDAC,Faculty of Engineering, University of Malaya[3])*	1114
270.	D-66	The Development of TSC Measurement System and its Application *Cong Li[1], Fangcheng Lv[2], Hong Wei[3], Ying Liang[4], Yunpeng Liu[5], Tao Zhao[6], Wenyi Guo[7] (North China Electric Power University, Baoding, China[1,2,3,4,5,6], China Southern Power Grid Co. Ltd, Guangzhou, China[7])*	N/A
271.	D-68	Mechanism of Brittle Fracture by Acid in Nonceramic Insulator *Tae-Hwa Lee[1], Han-Goo Cho[2] (Nano Fusion Technology Research Center, Korea Electrotechnology Research Institute (KERI), Changwon, KOREA [1,2])*	N/A
272.	D-75	A modified Electrical conductivity model for insulating oil-based nanofluids *Jin Miao[1], Ming Dong[2], Liang-Ping Shen[3] (State Key Laboratory of Electrical Insulation for Power Equipment, EEC, Xi'an Jiaotong University[1,2], Faculty of Physics and Electronic Technology, Hubei University[3])*	1126
273.	D-76	Identify Moisture Distribution in Multilayer Oil-immersed Paper by Frequency Domain Spectroscopy *Hua-dong Peng[1], Ming Dong[2], Xue-zhou Wu[3], Yuan Liu[4] (State Key Laboratory of Electrical Insulation and Power Equipment, EEC, Xi'an Jiaotong University[1,2,3,4], Chongqing Electric Power Research Institute[1])*	1130
274.	D-89	Partial Discharge Inceptions and Patterns in arc Experienced Transformer Oils *Suwarno[1], Santosh[2] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung[1,2])*	1134

275.	D-90	Dielectric Properties of Silicone Oil, Natural Ester, and Mineral Oil under Accelerated Thermal Aging *Suwarno[1], T. Widyanugraha[2], PC Didit HS[3], Suharto[4] (School of Electical Engineering and Informatics, Institut Teknologi Bandung, Bandung, Indonesia[1,2], PLN Research and Development Center, PT. PLN Persero, Jakarta, Indonesia[3,4])*	1139
276.	D-91	Improving outdoor Insulator performances installed at coastal area using Silicone Rubber Coating *Suwarno[1], Ario Basuki[2], F. Lendy[3], Sumedi[4] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung[1,2,3,4])*	1143
277.	E-3	Hydrolysis Process in PLN P3BJB Transformers as an Effect of Oil Insulation Oxidation *Harry Gumilang[1] (Asset Management, Substation Maintenance System Development, PT PLN (PERSERO) P3B Jawa Bali, Indonesia[1])*	1147
278.	E-5	Development of Remaining Life Estimation for MV PILC due to Electrical Stress using Statistical Method *Zairul Aida Abu Zarim[1], Tashia Marie Anthony[2] (HV Cable Diagnostics, TNB Research Sdn. Bhd, Kajang, Malaysia[1,2])*	1151
279.	E-6	Operational Condition Assessment of In-Service Distribution Transformers *N. Azis[1], D. Zhou[2], Z.D. Wang[3], D. Jones[4], B. Wells[5], G.M. Wallwork[6] (The University of Manchester, Manchester M13 9PL, United Kingdom [1,2,3], Electricity North West, Cheshire WA3 XG, United Kingdom [4,5,6])*	1156
280.	E-8	Degradation Characteristic Analysis of Lithium Polymer Battery in Hybrid Vehicle *Kang-Won, Lee[1], Jai-Kyun, Mok[2] (Korea Railroad Research Institute, Uiwangsi, Korea[1,2])*	N/A
281.	E-10	Application of Time Domain Reflectometry Technique in Detecting Water Tree Degradation within Polymeric-Insulated Cable *A. Mohd Ariffin[1], T. M. Kuan[2], S. Sulaiman[3], H. A. Illias[4] (Dept. of Electrical Power, Universiti Tenaga Nasional[1,2,3], Electrical Engineering Department, UMPEDAC, Faculty of Engineering, University of Malaya[4])*	1163
282.	E-19	Current Harmonic Analysis of Electronics Loads on Induction Generator *Waluyo[1], Siti Saodah[2], Jaka Nurahmat[3] (Department of Electrical Engineering, National Institute of Technology, Bandung, Indonesia[1], Department of Energy Conversion Engineering, Bandung State Polytechnic, Bandung, Indonesia[2], Alumnus from Department of Electrical Engineering, National Institute of Technology, Bandung, Indonesia[3])*	1167
283.	G-1	Fiber-Optic Vibration Sensor for Physical Security System *Tatsuya Kumagai[1], Shinobu Sato[2], Teruyuki Nakamura[3] (Hitachi Cable, Ltd., Japan[1,2,3])*	1171
284.	G-6	Microwave-based detection of internal defects in composite insulators for outdoor application *B. Lutz[1], L. Cheng[2], Z. Guan[3], L. Wang[4] (Laboratory of Advanced Technology of Electrical Engineering and Energy, Graduate School at Shenzhen, Tsinghua University[1,2,3,4])*	1175

285. G-12 One Novel Type of UHF Antenna for Locating Partial Discharge and Simulation of UHF Signal Propagation within Transformer 1179
ZHU Chaojie[1], LU Yuncai[2], FEI Yijun[3], YIN Yi[4] (Department of Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China [1,4], Jiangsu Electric Power Company Research Institute, Nanjing, China[2,3])

286. G-17 Finite Element Simulation Based Sensitivity Analysis of UHF Sensing Modes for PD Detection 1183
LI Sufei[1], HU Yue[2], YE Haifeng[3], SHENG Gehao[4], JIANG Xiuchen[5], BAI Wangjian[6], CHEN Jing[7] (Key Laboratory of Control of Power Transmission and Conversion, Ministry of Education, Department of Electrical Engineering, Shanghai Jiao Tong University[1,2,3,4,5], Heze Power Supply Company[6,7])

287. G-18 Optical and Electric Diagnostics of DBD Plasma Jet in Atmospheric Pressure Argon 1187
Zhiyuan Hao[1], Shengchang Ji[2], Lipeng Zhong[3], Wene Ren[4] (State Key Lab of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi'an Jiaotong University[1,2,3], Insulation Technique Institution, School of Electrical Engineering, Xi'an Jiaotong University[4])

288. G-21 The Estimation of Insulation on MV Cables Using The VLF tanδ Diagnostic Measurement 1191
Sung-min, Kim[1], Beong-suk, Kim[2], Jang-seob Lim[3], Jin Lee[4], Yeon-ha Jung[5], Tae-wan Kim[6], Won-suck Choi[7], Kun-ho Lee[8] (The Head Office, KEPCO, SEOUL, KOREA[1,2], Electric Power Corporation Research Institute, KEPCO, DAE-JEON, KOREA[5,7], Division of MEC Engineering, Mok-Po National Maritime University, MOK-PO, KOREA[3,6,8], Dept of Electrical Engineering, Mok-Po National University, MOK-PO, KOREA[4])

289. G-23 Feasibility Study on a New Visualization Technique of Discharge-emitted Electromagnetic Waves with Time-domain Measurements 1197
Hiroki Shibata[1], Toshitake Umegane[2], Shinya Ohtsuka[3] (Department of Electrical Engineering and Electronics, Kyushu Institute of Technology[1,2,3])

290. G-25 Development of a Condition Monitoring System Using an Air-pack Type Pressure Sensor for Bedridden Patients in a Supine Position 1201
Harutoyo Hirano[1], Yusuke Komatsu[2], Abdugheni Kutluk[3], Yuichi Kurita[4], Shigeyuki Kojima[5], Yumi Ogura[6], Etsunori Fujita[7], Ryuji Nakamura[8], Noboru Saeki[9], Masashi Kawamoto[10], Masao Yoshizumi[11], Toshio Tsuji[12] (Graduate School of Engineering, Hiroshima University[1,2], Xinjiang Medical University[3], Faculty of Engineering, Hiroshima University[4], DELTA TOOLING Co., LTD.[5,6,7], Institute of Biomedical & Health Sciences, Hiroshima University[8,9,10,11], Faculty of Engineering, Hiroshima University[12])

291. G-39 A New Method for On-Line Monitoring of Bushings and Partial Discharges of Power Transformers 1205
Maik Koch[1], Michael Kruger[2] (Omicron Energy Solutions, Berlin, Germany[1], Omicron Electronics, Klaus, Austria[2])

292. G-40 An all-fiber electric field sensor based on tapered fiber-slab waveguide coupler 1209
Shaofei Dong[1], Chunyang Han[2], Hui Ding[3], Xianli Li[4], Xiaofeng Qi[5] (State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University[1,2,3,4,5])

293. H-1 Identification of Optimal Polymeric Blend for Cables using Particle Swarm Optimization Method 1213
R. Deepalaxmi[1], V.Rajini[2], M.Balaji[3] (Department of EEE, SSN College of Engineering, Kalavakkam, Chennai, Tamilnadu, India [1,2,3])

294.	H-4	Comparison of Some Neural Network Algorithms Used in Prediction of XLPE HV Insulation Properties Under Thermal Aging *L. Boukezzi[1], A.Boubakeur[2] (Materials Science and Informatics Labortory, MSIL, Djelfa University, Algeria[1], L.R.E./High voltage laboratory of ENP, ENP ofAlgiers, Algeria[2])*	1218
295.	H-5	The Influence Estimation of Aging Factor in MV Cable Using Weibull Distribution and Neural Networks *Sung-min, Kim[1], Beong-suk, Kim[2],Jang-seob Lim[3], Jin Lee[4], Yeon-ha Jung[5], Tae-wan Kim[6], Won-suck Choi[7], Kun-ho Lee[8] (The Head Office, KEPCO, SEOUL, KOREA[1,2], Electric Power Corporation Research Institute, KEPCO, DAE-JEON, KOREA[5,7], Division of MEC Engineering, Mok-Po National Maritime University, MOK-PO, KOREA[3,6,8], Dept of Electrical Engineering, Mok-Po National University, MOK-PO, KOREA[4])*	1223
296.	K-12	Application of Passive Filters to Mitigate Power Quality Problems Caused by Induction Furnaces *Muhammad Rehan Arif[1], Farhan Mahmood[2], Murtaza Hashmi[3], Seppo Hänninen[4] (Electrical Engineering Department, University of Engineering and Technology, Lahore, Pakistan[1,2], Energy Systems Knowledge Centre, VTT Technical Research Centre of Finland, Finland[3,4])*	1227
297.	K-18	An Approach of Generator Coherency for Underfrequency Load Shedding and Islanding Mechanism: Study on Sulawesi Selatan-Tenggara-Barat (Sulselrabar) System, Sulawesi, Indonesia *Fathin Saifur Rahman[1], Nanang Hariyanto[2], Muhammad Nurdin[3] (School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Bandung, Indonesia[1,2,3])*	1231
298.	K-19	The Performance Of Lightning Protection System on 275 Kv Transmission Lines Siguragura-Kuala Tanjung, North Sumatra, Indonesia *Reynaldo Zoro[1], Fri Murdiya[2] (Power Engineering Research Division, School of Electrical Engineering and Informatics, Institute of Technology Bandung (ITB) Bandung[1], Electrical Engineering, University of Riau, Pekanbaru[2])*	1236
299.	C-5	Electrical Insulation Evaluation of Crosslinked Polyethylene Nanocomposite Blended with ZnO *Yu-Min Kim[1], Young-Kwng Cha[2], Kee-Joe Lim[3], Jin-Ho Nam[4], Gun-Ju Lee[5] (Department of Electrical Engineering, CBNU, Cheongju, Republic of Korea[1,2,3], R&D Center, LS Cable, Anyang, Republic of Korea[4,5])*	1242
300.	A134	Comparison Data of Transformer's Oil Water Content Analysis Obtained by Differnt Methods *M.Anikeeva[1], R.Arbuzov[2], Y.Bodnya[3], S.Zhivodernikov[4] (Electrogridservice, Novosibirsk, Russia[1,2,3,4])*	1246
301.	C-23	Partial Discharge Properties and Dissolved Gas Analysis of Ricinnus Oils as Biodegradable Liquid Insulating Materials *Umar Khayam, Suwarno, Abdul Rajab (Institut Teknologi Bandung, Jl. Ganesha 10 Bandung 40132, Indonesia)*	1249
302.	D-80	Rotating Characteristics Of Electric Field Vector In Three-Phase Power Apparatus *Umar Khayam (School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Indonesia)*	1253