Draft Program of ICHVE 2018

Opening Ceremony

Time: Monday, 10/Sep/2018: 9:00am - 9:30am

IEEE Awards

Time: Monday, 10/Sep/2018: 9:30am - 10:30am

IEEE Lifetime Achievement award

IEEE Young-Professional Achievement award

Keynote Speeches

Time: Monday, 10/Sep/2018: 11:00am - 12:30am

Keynote Speech 1

Keynote Speech 2

Keynote Speech 3
O-GS1: Oral session for Grounding Systems

**Study on the Effect of Peak Value of Currents on Double-pulse Recovery Characteristics of Soil**

Donghui Luo, Wenxia Sima, Tao Yuan, Xiaochuan Li, Potao Sun, Ming Yang
Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; l_dh@cqu.edu.cn, cqsmwx@cqu.edu.cn, yuantao_cq@cqu.edu.cn, lixiaochuan_cq@cqu.edu.cn

**The Research on New Type of Earth Resistivity Exploring Method for HVDC Deep-well Earth Electrode**

Maoheng Jing¹, Hansheng Cai², Zhuohong Pan¹, Shangmao Hu², Hailiang Lu¹, Gang Liu¹, Lei Jia², Xishan Wen¹
¹School of Electrical Engineering, Wuhan University, China; ²Electric Power Research Institute, CSG, Guangzhou, China;
jingmaoheng@hotmail.com

**Electric Resistivity Variation of Ground Enhancing Compounds Under Field Conditions**

V.P. Androvitsaneas, C.A. Christodoulou, I.F. Gonos, I.A. Stathopulos
NATIONAL TECHNICAL UNIVERSITY OF ATHENS, GREECE; v.andro@mail.ntua.gr

**Determination of Earthing System for 5MVA Medium Voltage Distribution Substations**

Nurul Azlina Abd Rahman¹, Norhasliza Mohd Hatta¹, Hannah Ahmad Rosli², Aziz Marzuki Ahmad Marican³
¹TNB Research Sdn Bhd, Malaysia; ²Tenaga Nasional Berhad, Malaysia; ³DCS Engineering Sdn Bhd, Malaysia; nurul.azlina@tnb.com.my

**Electrochemical test and Simulation of corrosion rate of five common ground electrode materials**

Zhihui ZHENG¹, Hansheng CAF, Shangmao HU³, Maoheng JING¹, Gang LUI², Lei JIA², Hailiang LU¹, Xishan WEN¹
¹School of Electrical Engineering, Wuhan University, China, People's Republic of; ²Electric Power Research Institute, CSG, Guangzhou, China, People's Republic of; ³2016202070095@whu.edu.cn

**A New Method to Include Complex Grounding System in Lightning Transient Studies and EMI Evaluations**

Lasse Hugo Sivertsen, Vegard Steinsland, Emil Cimpan, Shujun Zhang
Western Norway University of Applied Sciences, Norway; 182992@stud.hvl.no
O-IS1-Cable: Oral session for High Voltage Insulation Systems

Time: Monday, 10/Sep/2018: 2:00pm - 4:30pm  ·  Location: Room 2

An experimental investigation of the flashover behavior of outdoor cable terminations under lightning impulse application
Myriam Koch¹, Jens Hohloch²
¹Pfisterer Kontaktsysteme GmbH, Germany; ²Pfisterer Ixosil AG, Switzerland; myriam.koch@pfisterer.com

Dispersion of Carbon Blacks and Their Influence on the Properties of Semiconductive Materials use for High-voltage Power Cables
Weikang Li¹, Chong Zhang¹, Junwei Zha², Zhimin Dang³
¹Global Energy Interconnection Research Institute Co. Ltd, China, People's Republic of; ²University of Science & Technology Beijing, 100083, P. R. China; ³Tsinghua University, Beijing, 100084, P. R. China; zhajw@ustb.edu.cn

Research on Parameters of Step-stress Test to Obtain Life Exponent of XLPE-material used in DC Cable
HaoRan Bian, LiJun Yang, ZhiPeng Ma, ZhongXuan Li
Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; cqubianhr@sina.com, yljcqu@cqu.edu.cn, 745868437@qq.com

Investigation on Interaction between Lubricants and Polymeric Cable Insulations
Christoph Felix Niedik, Frank Jenau
Institute of High Voltage Engineering, TU Dortmund University, Germany; felix.niedik@tudortmund.de

Partial Discharges in XLPE Cable Accessories under Superimposed Transient Waveforms
Jiayang Wu, Luis Castro Heredia, Armando Rodrigo Mor, Johan Smit
Delft University of Technology, Netherlands, Thc; j.wu-3@tudelft.nl

Study on the neutral inductance of shut reactor of insulation level for UHV transmission lines
Qian Wang, Wen Sun, Chenjie Ji
Xi'an University of Technology, China, People's Republic of; 420136276@qq.com
O-MD1: Oral session for Monitoring and Diagnostics

**Time:** Monday, 10/Sep/2018: 2:00pm - 4:30pm  **Location:** Room 1

**High Frequency Model of Cables for Frequency Domain Analysis from Fault Localization Perspective**

Younes Norouzi
Nexans Deutschland GmbH, Germany; younes.norouzi@nexans.com

**Gas Production Mechanisms of Camellia Oil-paper Insulation under Thermal Stress Based on Molecular Dynamics Simulation**

Jinghan Zhou1, Chenmeng Xiang2, Jian Li1, Yachao Wang1, Chaoyu Wang1, Dongchun Ma1, Ruibao Li3
1State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing 400044, China; 2State Grid Hebei Electric Power Research Institute, Shijiazhuang 050021, China; 3Jinzhong Power Supply Company of State Grid Shanxi Electric Power Company, Shanxi 030001, China; cquzjh@cqu.edu.cn

**Influence of Dielectric Coatings on AE Signals Generated in High Voltage Gas Insulated Systems**

Arkadiusz Dobrzycki1, Władysław Opydo2, Sebastian Zakrzewski3
1Poznan University of Technology, Poland; 2University of Science and Technology, Poland; 3Tele-Fonika Kable S.A., Poland; Sebastian.Zakrzewski@tkable.com

**Derivation and Verification of a Calculation Method for the Overhead Line Voltage Measurement considering the Influence of the Earth Conductor**

Erwin Burkhardt, Frank Jenau
TU Dortmund University - Institute of High Voltage Engineering, Germany; erwin.burkhardt@tu-dortmund.de

**Positive Streamer Development in Selected Dielectric Liquids in a Point-to-Sphere Electrode System with Pressboard Barrier**

Pawel Rozga, Marcin Stanek, Konrad Strzelecki
Lodz University of Technology, Poland; pawel.rozga@p.lodz.pl

**Fundamental Difference of Partial Discharge Phenomena under AC and DC Stresses**

Hassan SAADATI1, Peter WERLE1, Jens Martin SEIFERT2, Ernst GOCKENBACH1, Hossein BORSI1
1Leibniz Universität Hannover, Germany; 2LAPP Insulators GmbH, Germany; saadati@ifes.uni-hannover.de
P-AM: Poster session for Aging, Space Charge, and Maintenance

*Time*: Monday, 10/Sep/2018: 2:00pm - 6:00pm  
*Location*: Poster Area

**Evaluation of the damage caused by bird pecking activity along composite high voltage insulators**

NIKOLAOS C. MAVRIKAKIS1, PANTELIS N MIKROPOULOS1, KIRIAKOS SIDERAKIS1, IOANNIS PELLAS2, EMMANOUEL THALASSINAKIS2

1School of Electrical and Computer Engineering, Aristotle University of Thessaloniki; 2Islands Network Operations Department, Hellenic Distribution Network Operator S.A.; mavrika@eng.auth.gr

**Analysis on carbohydrate as a criterion for solid insulation aging of transformer**

Qiang Fu1, Mengjüan Wang1, Lei Peng1, NIKOLAOS C. MAVRIKAKIS1, PANTELIS N MIKROPOULOS1, KIRIAKOS SIDERAKIS1, IOANNIS PELLAS2, EMMANOUEL THALASSINAKIS2

1School of Electrical and Computer Engineering, Aristotle University of Thessaloniki; 2Islands Network Operations Department, Hellenic Distribution Network Operator S.A.; mavrika@eng.auth.gr

**A Novel Methanol-detection-method for the Aging Prediction of Paper Insulation in Power Transformer**

Lei Peng, Qiang Fu, Musong Lin, yihua Qian, Yaohong Zhao

Electric Power Research Institute, Guangdong Power Grid Co., Ltd., China, People's Republic of; penglei1025@whu.edu.cn

**Interaction of Partial Discharge in Air with Silicone Rubber**

Kazuki Komatsu, Mitsuki Shimada, Yukio Mizuno

Nagoya Institute of Technology, Japan; 30413080@stn.nitech.ac.jp

**Space Charge Analysis of Polyethylene with Chemical Defects Based on Density Function Theory**

Tao Lin1, Xi Chen2, Xuefeng Zhao1, Jianming Li1, Junbo Deng1, Jing Liu1, Lu Pu3, Peng Gao2, Nan Wang3, Minghao Fan4

1State Grid Xi'an Electric Power Supply Company, Xi'an, China; 2Xian Jiao tong University State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an, China; 3Research Institute of State Grid Shaanxi Electric Power Company, Xi'an, China; 4Research Institute of State Grid Anhui Electric Power Company, Anhui, China; lintao@sn.sgcc.com.cn

**Preliminary Measurements and Simulations for Space Charges in Aeronautical Cables**

Eddy AUBERT, El Hadji, Ndongo DIAW

Safran Electrical & Power, France; eddy.aubert@safrangroup.com

**Development of a Setup for Long-Term Investigations of Dielectric Ageing under Liquid Nitrogen**

Stefan Seibel

RWTH Aachen University, Germany; seibel@ifht.rwth-aachen.de

**Study on space charge characteristics during aging process of DC ZnO Resistors**

QIAN WANG, JIE LI, Chenjie Ji

Xi'an University of Technology, China, People's Republic of; 3956388487@qq.com, 340576982@qq.com

**Influence of Coupling Materials on Space Charge Measurements of Silicone Elastomers**

Simon Spelzhausen, Mario-Rafael Ionian, Ronald Plath

Technische Universität Berlin, Germany; plath@ht.tu-berlin.de

**Statistical Study of Needle-plate Partial Discharge Stage Characteristics under DC Voltage**

Disheng Wang, Lin Du

Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, China, People's Republic of; 20161101032@cqu.edu.cn, dulin@cqu.edu.cn

**Partial Discharge Patterns during Accelerated Aging of Medium Voltage Cable System**

Martin Kneenicky, Radek Prochazka, Jan Hlavacek

Czech Technical University in Prague, Faculty of Electrical Engineering, Czech Republic; knenimac@fel.cvut.cz

**Study on the Protective Effects of TTA, Irgamet39 and T571 Passivators on Multiple Corrosive Sulfides**

HAOXI CONG1, Xiang Shu1, Minhao Zhang1, Peng Ren1, Shiyou Du1, Qingmin Li1, Hu Jin2

1School of Electrical and Electronic Engineering, North China Electric Power University, China; 2Electric Power Research Institute, China Southern Power Grid, China; np2800@126.com
Decoupling of the Effect of Multiple Sulfides Based on the Entropy-weight method

Minhao Zhang¹, Haoxi Cong¹, Xiang Shu¹, Shiyue Du¹, Qingmin Li¹, Hu Jin²
¹North China Electric Power University, China, People's Republic of; ²Electric Power Research Institute, China Southern Power Grid; mbzhang0317@163.com

The Effect of Charge Rate on Space Charge Accumulation in Damped Alternating Current (DAC) Testing for Power Cable

Wei Wang¹, Da Jiang¹, Wenyuan Dong¹, Zhongzheng Ning¹, Jun Xiong¹, Gang Du²
¹Beijing Key Laboratory of High Voltage & Electromagnetic Compatibility, China, People's Republic of; ²Electric Power Test & Research Institute, Guangzhou Power Supply Co. Ltd., China, People's Republic of; ww790324@163.com

Impact of Thickness on Space Charge and Breakdown Field of XLPE Insulation

Zhipeng Ma, Lijun Yang, Yuan Yuan, Haoran Bian, Muhammad Shoaib Bhutta
Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; cqrmzp@ sina.com

Measurement of Space Charge Distribution in a Corona Cage under Influence of different Atmospheric Conditions

JULES SIMPLICE DJEUMEN¹, JEREMIAH JESAJA WALKER¹, NICHOLAS JOHN WEST²
¹VAAL UNIVERSITY OF TECHNOLOGY, South Africa; ²University of the Witwatersrand; julesd@vut.ac.za

Space charge simulation of oil-paper insulation with multi-layer oil gap and oil impregnated pressboard

Runhao Zou¹, Jian Hao¹, Lianpeng Wang², Ruijin Liao¹, Min Dan¹, Chao Tang²
¹The State Key Laboratory of Power Transmission Equipment & System Security and New Technology, China, People's Republic of; ²TBEA Shenyang Transformer Group Co., Ltd. Shenyang, China.; College of Engineering and Technology, Southwest University, Chongqing 400715, China; zuorunhao@qq.com

Detecting Fillers Distribution of Silicone Rubber via Laser-induced Breakdown Spectroscopy

Qishen Lyu¹, Rognhui Huang¹, Xiao Hong¹, XILIN WANG², Zhidong Jia¹
¹Shenzhen Power Supply Co. Ltd, Shenzhen, China; ²Graduate School at Shenzhen, Tsinghua University, China; wang.xilin@sz.tsinghua.edu.cn

Influence of Defect Type within Solid Insulation on the Behaviour of High Voltage Cables

Yacine MECHERI, Slimane BOUAZABIA
Université of Science and Technology, USTHB, Algiers, Algeria, Algeria; yacmeheri@gmail.com

A Compact High-Voltage, Nanosecond Pulse Generator for Triggering Applications

Panagiotis G. Pouraimis, Alexios. P Platis, John M. Koutsoubis, Christos X. Manasis
Technological Educational Institute of Sterea Ellada, Greece; ppouraimis@gmail.com

Thermal Behavior Analysis in a Porcelain-Housed ZnO Surge Arrester by Computer Simulations and Thermography

Arthur Francisco Andrade, Josué Marcos Batista Fernandes, Helem Monyelle de Melo Alves, Edson Guedes Costa
Universidade Federal de Campina Grande, Brazil; edson@dee.ufcg.edu.br
O-GS2: Oral session for Grounding Systems

Time: Monday, 10/Sep/2018: 4:45pm - 6:15pm
Location: Room 3

Seasonal Variation and Timeless Evolution of Ground Resistance
V.P. Androvitsaneas\(^1\), G.J. Tsekouras\(^2\), I.F. Gonos\(^1\), I.A. Stathopulos\(^1\)
\(^1\)NATIONAL TECHNICAL UNIVERSITY OF ATHENS/HIGH VOLTAGE LABORATORY, Greece; \(^2\)UNIVERSITY OF WEST ATTICA, Greece; v.andro@mail.ntua.gr

A New Method of Grounding Grid Fault Diagnosis Based on Grounding Conductor Soundness
Shaojing Wang\(^1\), Wenrong Si\(^1\), Kai Gao\(^1\), Fenghua Wang\(^2\)
\(^1\)Electric Power Research Institute, State Grid Shanghai Electric Power Company, China, People's Republic of; \(^2\)Key Laboratory of Control of Power Transmission and Conversion, Ministry of Education, Shanghai Jiao Tong University, Shanghai, China; jing_skr@163.com

Comprehensive Modelling Technique to Allow DC Interference Evaluations on Buried Pipeline Systems near Photovoltaic Installations
Andreas Dimitriou, Charalambos A. Charalambous
University of Cyprus, Cyprus; charalambous.a.charalambous1@ucy.ac.cy

Corrosion Condition Detect of Entire Grounding System in a 500kV Converting Station Using Electrical Impedance Imaging Method
Yifan He\(^1\),\(^2\), Xianjun Shao\(^1\), Jiayuan Hu\(^1\), Yuancheng Liu\(^1\), Chaohui Jin\(^1\), Jianqiao Pan\(^3\)
\(^1\)Research Institute of State Grid Zhejiang Electric Power Limited Company; \(^2\)Xi'an Jiaotong University Electric Engineering Institute; \(^3\)Pinghu Electric Service Company of State Grid Zhejiang Electric Power Limited Company; yifan.he@126.com

An improved scheme for flexible grounding fault suppression in distribution system based on IGBT
Jiaquan Ran, Qing Yang, Song Chen, Lewei He
Chongqing University, China, People's Republic of; 20114510@cqu.edu.cn

Manual Wiring Measurement of DC Deep Well Grounding Resistance
shangmao hu\(^1\), jiafeng chen\(^1\), hansheng cui\(^2\), shaodong li\(^1\), lei jia\(^1\), gang liu\(^1\), huijiang lu\(^1\)
\(^1\)Wuhan University, China, People's Republic of; \(^2\)State Key Laboratory of HVDC, Electric Power Research Institute, CSG, Guangzhou, China; husm@csg.cn, 29521099338@qq.com, caihs@csg.cn, 1131841040@qq.com, jialei@csg.cn, liugang@csg.cn, luhailiang@whu.edu.cn
O-IS2-Air: Oral session for High Voltage Insulation Systems

Time: Monday, 10/Sep/2018: 4:45pm - 6:15pm  
Location: Room 2

Air Gap Discharge Characteristics and Altitude Correction of 500 kV Tower at Areas Higher than 4000m above Sea Level
Yujian Ding¹, Xiuyuan Yao¹, Ming Liang², Buqiong Xiao³
¹CHINA ELECTRIC POWER RESEARCH INSTITUTE, China, People's Republic of; ²Southwest Electric Power Design Institute, China, People's Republic of; ³Tibet Electric Power Research Institute, China, People's Republic of; dingyj@epri.sgcc.com.cn

Influence of Surface Roughness on Breakdown in Air Gaps at Atmospheric Pressure Under Lightning Impulse
Odd Christian Feet, Frank Mauseth, Kaveh Niayesh
Norwegian University of Science and Technology (NTNU), Trondheim, Norway; kaveh.niayesh@ntnu.no

Surface charging of dielectric barriers in short rod-plane air gaps – experiments and simulations
Hans Kristian Meyer¹, Andreas Blaszczyk², Schueller Michael³, Mauseth Frank¹, Pedersen Atle¹
¹Norwegian University of Science and Technology (NTNU), Norway; ²ABB Ltd., Switzerland; ³Hochschule für Technik, Rapperswil, Switzerland; ⁴SINTEF Energy Research, Trondheim, Norway; hans.meyer@ntnu.no

Electric Field Feature Extraction and Breakdown Voltage Prediction of Sphere Gaps with Quasi-uniform Field
Zhibin Qiu, Jiangjun Ruan, Xuezong Wang, Qi Jin
Wuhan University, China, People's Republic of; whuerliuming@whu.edu.cn

Internal fault diagnosis of SF6 high voltage circuit breaker based on gas composition analysis
Yulong Miao¹, Siving Wu², Ju Tang², Fuping Zeng³, Qiang Yao¹
¹Electric Power Research Institute, State Grid Chongqing Electric Power Company, China, People's Republic of; ²Wuhan University, China, People's Republic of; ³1623231099@qq.com

Breaking Capacity of Disconnectors and Earthing Switches Operated in Alternative Gases
Torsten Psotta¹, Volker Hinrichsen¹, Bernhard Lutz²
¹TU Darmstadt /FG Hochspannungstechnik, Germany; ²Siemens AG, High Voltage Products, Germany; psotta@hst.tu-darmstadt.de
O-MD2-PD: Oral session for Monitoring and Diagnostics

Time: Monday, 10/Sep/2018: 4:45pm - 6:15pm · Location: Room 1

Classification of multiple PD Sources by Signal Features and LSTM Networks
Benjamin Adam, Stefan Tenbohlen
Institute of Power Transmission and High Voltage, Germany; benjamin.adam@ieh.uni-stuttgart.de

Comparison of PD Characteristics Induced by Metal Particles and Bubbles in Flowing Transformer Oil
Yongze Zhang1, Ju Tang1, Cheng Pan1, Shouxiao Ma1, Qiang Yao1, Yulong Miao1, Yi Luo2
1State Key Laboratory of Power Transmission Equipment & System Security and New Technology Chongqing University, China; 2School of Electrical Engineering, Wuhan University, Wuhan, China; 3Institute of Water Resources and Electric Power, Qinghai University, Qinghai, China; 4Electric Power Research Institute of State Grid Chongqing Electric Power Company, Chongqing, China; 1164160547@qq.com

Efficient PD Monitoring of HV Electrical Systems Using HFCT Sensors
Fernando Alvarez1, Eduardo Arcones1, Fernando Garnacho2, Ángel Ramírez3, Javier Ortego4
1Universidad Politécnica de Madrid, Spain; 2LCOE-FFII; 3DIAEL; eduardo.arcones@upm.es

Generation of Reproducible Reference Insulation Defects in Experimental Tests Cells for Controlled PD monitoring
Fernando Alvarez1, Fernando Garnacho2, Ángel Ramírez3, Eduardo Arcones1, Pablo García1, Carlos Alberto Vera1
1Universidad Politécnica de Madrid, Spain; 2LCOE-FFII; eduardo.arcones@upm.es

A Versatile System for PD Diagnostics
Wojciech Koltunowicz, Laurentiu Viorel Badicu, Oliver Krause
OMICRON Energy Solutions GmbH, Germany; wojciech.koltunowicz@omicronenergy.com

Recognition of partial discharge types based on SF6 decomposed components under negative DC
Yulong Miao1, Xu Yang2, Fuping Zeng2, Ju Tang2
1Chongqing Electric Power Company Electric Power Research Institute, Chongqing, China; 2School of Electrical Engineering, Wuhan University, Wuhan, China; 2876938742@qq.com
O-MD3-PD: Oral session for Monitoring and Diagnostics

Time: Tuesday, 11/Sep/2018: 9:00am - 10:30am · Location: Room 3

Safety Analysis of Inner Capacitive Coupling Partial Discharge Sensor for 10kV Cable Joints under Lightning Impulse
Qinghua Zhan¹, Liezheng Tang², Xiaomei Ou¹, Yijun Liu¹, Tiecheng Li², Fan Yi², Guowei Li¹, Junbo Wang¹
¹Foshan Power Supply Bureau, China, People's Republic of; ²Wuhan University, China, People's Republic of; tlb9402@163.com

Modern Noise Rejection Methods and their Applicability in Partial Discharge Measurements on HVDC Cables
Andreas Elben¹, Tobias Fechner², Xianzhang Lei³, Ronald Plath¹, Mingyu Zhou²
¹TU Berlin; ²Global Energy Interconnection Research Institute Europe GmbH; elben@ht.tu-berlin.de

Calculation Method of Partial Discharge Severity Assessment Index Weight Using Factor Analysis Based on Mutual Information
Yulong Miao¹, Miao Jin², Ju Tang², Fuping Zeng², Siyuan Zhou², Yin Zhang²
¹Chongqing Electric Power Research Institute, Chongqing Power Company, Chongqing, China; ²School of Electrical Engineering, Wuhan University, Wuhan, China; whu_phd_jinmiao@163.com

Partial discharges in free helium bubbles in transformer oil
Sergey Korobeynikov¹,², Alexander Ridel¹,², Denis Karpov², Marina Merediva³, Alexander Ovsyannikov³
¹Novosibirsk State Technical University, Russian Federation; ²Lavrentyev Institute of Hydrodynamics; korobeynikov@corp.nstu.ru

Understanding Corona Discharges using Digital Imaging
Shakthi Prasad D, Subba Reddy Basappa
Indian Institute of Science, Bangalore, India; sreddy@iisc.ac.in

Analysis of UHF sensor response to EM waves excited by surface discharge in air using FDTD simulation
Alaa Loubani, Noureddine Harid, Huw Griffiths
Khalifa University of Science and Technology, United Arab Emirates; alaloubani@pt.ac.ae
O-PA1: Oral session for Power and Industrial Applications

Time: Tuesday, 11/Sep/2018: 9:00am - 10:30am · Location: Room 2

Application of a Linear Transformer Driver (LTD) to Dielectric Barrier Discharge
Xin Feng1, Haiyun Luo2, Jiangtao Li1, Chenjie Li1, Yifeng Wang1, Qingyu Li3
1Xi'an Jiao Tong University, China, People's Republic of; 2Tsinghua University, China; fengxin19952013@163.com

Resonant Fault Current Limiter for MV applications
Wojciech Piasecki, Adam Rusczyk, Mariusz Stosur
ABB Corporate Research, Poland; wojciech.piasecki@pl.abb.com

Studies on the Variation of Transformer Reactive Power Caused by DC Bias and Its Impacts on System Voltage
Hanli Weng1, Lei Liu1, Yi Wan2, Xiangning Lin1, Zhenxing Li1, Jingguang Huang2
1College of Electrical Engineering & New Energy, China Three Gorges University, China; 2Three Gorges Electric Energy Co., Ltd, Yichang, China; honey_weng@163.com

Analysis of Shock Wave Overpressure Induced by Impulse Discharge Arc
Jiaming Xiong, Lee Li
Huazhong University of Science and Technology, Wuhan, China, China, People's Republic of; xjm@hust.edu.cn

Advanced analysis and diagnostics for remote on-line PD monitoring of HV rotating machines
Andreas Kokkotis
HVPD, United Kingdom; andreas.kokkotis@hvpd.co.uk

Broadband Far-infrared Spectroscopic Identification and Quantification of Antioxidants in Polymeric Insulation
Takaaki Ogishima, Takuya Kozai, Naoshi Hirai, Yoshinichi Ohki
Waseda University, Japan; yohki@waseda.jp
Statistical Analysis Research on Dynamic Testing Index Optimization of High Voltage Power Equipment

YIPING CUI¹, YUEHAN WANG²
¹Electric Power Test & Research Institute of Guangzhou Power Supply Co. Ltd., China, People's Republic of; ²Guangdong Power Grid Co., Ltd.; cuyping@126.com

Precision electric characterization of LDPE specimens made by different manufacturing processes

Xiangdong Xu¹, Karolina Gaska¹, Mattias Karlsson¹, Henrik Hillborg¹, Ulf Gedde²
¹Chalmers university of technology, Sweden; ²Royal Institute of Technology, Sweden; cuyping@126.com

Methods for Post-Processing and Trend Analysis of Conductivity Measurement Data

Claudius Freye, Frank Jenau
TU Dortmund University, Germany; claudius.freye@tu-dortmund.de

Study on Suppressing Voltage Increase of Current-Switching Capability Test

Lu Wang, Chunqiang Su
Xi'an High Voltage Apparatus Research Institute Co., Ltd., China, People's Republic of; 29464383@qq.com, suchunqiang@xihari.com

Effect of Fluorination and Isothermal Crystallization on Polypropylene Electret Fiber films for Transformer-oil filtration

Feipeng Wang, Chunxiang Wan, Jian Li, Zhengyong Huang, Fan Fan, Gang Wen
Chongqing Univerisity, China, People's Republic of; fpwang@cqu.edu.cn, wan_cx@cqu.edu.cn

Study of Nitrogen-Oxygen Reaction Efficiency for High Current Graphite-electrode Gas Switch

Bin Yu¹, Li Li¹, Hongyu Dai¹, Ming-yang Wu¹, Haibo Wu¹, Jiaming Xiong¹, Zhixue Wang²
¹State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science & Technology, Wuhan 430074, China; ²State Grid Wuhan Power Supply Company, Wuhan 430012, China; 616928315@qq.com, 616928315@qq.com
P-GS: Poster session for Grounding Systems

Examination of the effectiveness of the grounding systems of distribution substations
Katerina Damianaki, Georgios Poulimenos, Christos Christodoulou, Vasilios Androvitsaneas, Ioannis F. Gonos
National Technical University of Athens, Greece; kdam@central.ntua.gr

Research on the Method of Risk Probability Evaluation of Grounding grid
peng kang1, weidong shi1, xiaochuan li1, sen wang1, zhizhong li1, tao yuan1
1China Electric Power Research Institute, Beijing, China; 2Chongqing University, China, People's Republic of; 3State Grid Shanxi Electric Power Research Institute, Xian, China; lixiaochuan_cq@cqu.edu.cn

Examining the operation of the grounding system of a PV installation
Ioannis Naxakis, Grigoris Michos, Sokratis Pastromas, Eleftheria Pyrgioti
University of Patras, Greece; naxakis@ece.upatras.gr

Assessment of Wind Turbine Grounding System
SOKRATIS PASTROMAS, KONSTANTINOS MAIMARIS, IASON STASINOS, IOANNIS NAXAKIS, ELEFTHERIA PYRGIO
High Voltage Laboratory, University of Patras, Greece, Greece; pastromas@ece.upatras.gr

Calculation of the assembled grounding resistance from complex grounding systems by using analytical considerations only
Martin Hannig
DEHN + SÖHNE GmbH + Co.KG., Germany; martin.hannig@dehn.de

Regularity of Current Dispersal in Different Kinds of Grounding Electrode
Hanwu Luo1, Lekai Zou1, Fan Yang1, Muhammad Tanveer Riaz2, Shigang Cui1, Bing Gao2
1State Grid East Inner Mongolia Electric Power Maintenance Company; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology, School of Electrical Engineering, Chongqing University; zoulekai@cqu.edu.cn

Measurement and Analysis of Impulse Grounding Impedance for UHV Transmission Tower
Wenrong SI1, Chenzhao FU1, Tianyi WU1, Shaojing WANG1, Peng YUAN2
1State Grid Shanghai Electrical Power Research Institute, China, People's Republic of; 2Xi’an MaoRong Power Equipment Co., Ltd; siwenrong@126.com

Optimal Arrangement of Long Vertical Rods to Reduce Ground Resistance considering Their Shielding Effect
Sen Wang1, Yongli Wang1, Jian Zhang1, Zhizhong Li1, Wei Li1, Xiniang Lv2
1Shaanxi Electric Power Research Institute, China, People's Republic of; 2State grid Shaanxi Electric Power Company; shizbcn@sina.com
P-TE: Poster session for Transients and EMC

Time: Tuesday, 11/Sep/2018: 9:00am - 1:00pm · Location: Poster Area

Experiment and Research on Induced Electric Field Generated by 110kV AIS Disconnecting Switch
Zihao Gao, Jie Guo, Xuni Rao, Mengzhen Li, Wei Zhang
Xi'an Jiao Tong University, China, People's Republic of; 371528896@qq.com

Study on 330kV GIS Transient Enclosure Voltage Caused by Disconnecting Switch Operation
Xuni RAO, Jie GUO, Zihao GAO, Xiaoke WU, Zexin ZHAO
School of electrical engineering of Xi'an Jiao Tong University, China, People's Republic of; 471196881@qq.com

Computation of transient profiles along non-uniform transmission lines using the numerical Laplace transform
RODRIGO NURICUMBO GUILLEN1, FERMIN PASCUAL ESPINO CORTES1, PABLO GOMEZ2, CARLOS TEJADA MARTINEZ2
1INSTITUTO POLITÉCNICO NACIONAL, Mexico; 2WESTERN MICHIGAN UNIVERSITY, USA; rodrigo.ng.85@gmail.com

Parameters Analysis of Measured Lightning Overvoltages from a Substation
Qinzhu Chen1, Huangjing Zhang1, Jian Yin1, Wenxia Sima2, Song Huang1, Potao Sun1, Yang Yu1, Zhengzheng Fu2
1Hainan Power Grid Co. Ltd, Haikou 570311, China; 1Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing 400030, China; 1945283808@qq.com

High Frequency Transients Suppression at Substation
Sergey Korobeynikov, Nikolay Ilyushov, Yury Lavrov, Stanislav Shevchenko, Valentim Loman
Novosibirsk State Technical University, Russian Federation; korobeynikov@corp.nstu.ru

Calculation and Analysis of Audible Noise of Transmission Lines in the Crossing Area
Gonghao Xie1, Wangling He1, Wanzhang Fu1, Lei Lan1, Changcheng Zhu2, Yeqiang Deng1
1Wuhan University, China, People's Republic of; 2State Grid Hubei Electric Power Company limited Research Institute; xiegonghao@whu.edu.cn, wanglinghe88@gmail.com, 598682349@qq.com, leilan69@163.com, 1960473996@qq.com, 78345659@qq.com

An investigation of lightning surge effects on a grid-connected photovoltaic plant
Pitshou Bokoro, Wesley Doorsamy
University of Johannesburg, South Africa; pitshoub@uj.ac.za

Transient Overvoltage in 10kV Hybrid OHL-Cable System during Energization
Xuefeng Zhao1, Jianming Li2, Lu Pu1, Zeli Ju1, Shuangzran Ren1, Wei Duan1, Haoei Sun1, Minghao Fan1, Xi Chen2, Junbo Deng2
1Electric Power Research Institute of State Grid Shaanxi Electric Power Company, China; 2Xi'an Jiao tong University State Key Laboratory of Electrical Insulation and Power Equipment, China, People's Republic of; 2Electric Power Research Institute of State Grid Anhui Electric Power Company,China; 78345659@qq.com
O-MD4-Monitoring: Oral session for Monitoring and Diagnostics

Fiber-Enhanced Raman Spectroscopic Monitoring of Fault Characteristic Gases Dissolved in Transformer Oil by Hollow-Core Photonic Crystal Fiber

Jianxin Wang¹, Weigen Chen¹, Fu Wan¹, Pinyi Wang¹, Jiaxuan Wang¹, Haiyang Shi¹, Xiaobo Li², Ronghua Zhang²
¹Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; ²State Grid Dezhou Power Supply Company; wangjianxin16@163.com

Comparative Analysis Between Three Attributes Used for Monitoring High Voltage Insulators
José Alexandro R. Xavier, José Maurício B. Bezerra, Ayrlw Manyson C. Arcanjo
UFPE - Universidade Federal de Pernambuco, Brazil; jmbb.ufpe@gmail.com

Condition Monitoring of Metal-oxide Surge Arresters using Leakage Current Signature Analysis
Pitshou Bokoro, Wesley Doorsamy
University of Johannesburg, South Africa; pitshoub@uj.ac.za

Energy Monitoring and Control of Distribution Network using Smart Metering
Subba Reddy Basappa, Umanand I.
Indian Institute of Science, Bangalore, India, India;reddy@iisc.ac.in

Substation-oriented PMU placement considering transformer tap settings
Nikolaos M. Manousakis¹, George N. Korres²
¹University of West Attica; ²National Technical University of Athens; manousakis_n@yahoo.gr, gkorres@cs.ntua.gr

Nondestructive Testing Method of Weak Adhesion Defects in Composite Insulation Equipment Based on Analysis of Ultrasonic Signal
Sida Zhang¹, Hanqing Wang¹, Li Cheng¹, Ruijin Liao¹, Chenjun Guo²
¹State Key Laboratory of Power Transmission Equipment & System Security and New Technology, China, People's Republic of; ²China South Power Grid International Co. LTD.; zsdstar@126.com, cheng16@cqu.edu.cn
O-PA2: Oral session for Power and Industrial Applications

Time: Tuesday, 11/Sep/2018: 11:00am - 12:30pm  
Location: Room 2

Induced Losses in Non-Magnetically Armoured HVAC Windfarm Export Cables

Dimitrios Chatzipetros¹, James A. Pilgrim¹
¹University of Southampton; ²Hellenic Cables S.A.; dc2r15@soton.ac.uk

The Research on Selective Discharge Experiment of Double Scaling Wind Turbines

Yeqiang Deng, Xishan Wen, Yu Wang
Wuhan University, People's Republic of China; dengyeqiang@whu.edu.cn

Two-stage Cascaded EHD Air Pump Evaluation

ANTONIOS MORONIS, EMMANOUIL FYLLADITAKIS, IOANNIS RAPTIS
University of West Attica, Greece; amoronis@teiath.gr

Enhanced Oil Recovery by Repetitive Electrohydraulic Shock Waves: Fracturing and Enhanced-Permeability

Siwei Liu, Yi Liu, Hua Li, Qin Zhang, Fuchang Lin
State Key Laboratory of Advanced Electromagnetic Engineering and Technology (Huazhong University of Science and Technology); lswliusiwei@hust.edu.cn

Physical Constraints at Design of a High Current Damping Inductor for the High Energy Capacitor Bank

Haibo Wu, Lee Li, Hongyu Dai, Jiamei Xiong, Bin Yu, Mingyang Peng
Huazhong University of Science and Technology, China, People's Republic of; hustwu@hust.edu.cn

On the Modelling of a Hybrid HVAC-HVDC Overhead Transmission Line: Techniques and Challenges

Effrosyni Maria Gralista¹, Madeleine Gibescu¹, Konstantinos Velitsikakis²
¹Eindhoven University of Technology, The Netherlands; ²DNV GL Energy Advisory, The Netherlands; mfros@gmail.com
O-TM2-Trans: Oral session for High Voltage Testing and Measurement

Time: Tuesday, 11/Sep/2018: 11:00am - 12:30pm · Location: Room 1

Voltage Dependence of Dissipation Factor Measurements on High Voltage Instrument Transformers

David Archie Wallace, Joni Klüss, Zeeshan Ahmed
Mississippi State University, United States of America; david@ece.msstate.edu

A Model Considering Deep Saturation of the Iron Core for 10 kV Potential Transformers

Yuan Zhou1, Cuiru Yang1, Wenxia Sima2, Linglong Cai1, Tao Zhang1, Xiaochuan Li2, Tao Yuan3, Yonglai Liu2
1Electric Power Research Institute of Guangdong Power Grid Co. Ltd., Guangzhou, Guang Dong, China; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing, China; 3Maoming Zhenneng Thermal Power Co., Ltd., Maiking, Guangdong, China; lixiaochuan_cg@cqu.edu.cn

Development of a Pulsed High Frequency Source for Testing Cellulosic Insulation Material for High Voltage Solid State Transformer Applications

Michael Schueller1, Philipp Schmitt2, Stefan Jaufer2, Christoph Krause2, Giuseppe Gatti3, Reto Christen1, Matthias K. Bucher1
1University of applied Sciences Rapperswil, Institute for Energy Research, Switzerland; 2Weidmann Electrical Technology AG, Switzerland; mschuell@hsr.ch

On-line Monitoring of Current Transformer Dielectric Loss Based on Absolute Measurement

Kai Wang1, Jun Jiang1, Chaohai Zhang1, Min Chen2, Hanjun Liu2, Hong Zheng3
1Nanjing University of Aeronautics and Astronautics, China, People's Republic of; 2State Grid Zhejiang Electric Power Co. Ltd. Research Institute; 3Hangzhou Kelin Electric Power Equipment Co., Ltd; ijiangjun0628@163.com

Study on Applying Corona Effect to Prevent Ice Disaster of Transmission Line

Meilin Zhu
Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; 467972197@qq.com

Study on MVU Tests Method of ±1100kV Thyristor Valves for HVDC Power Transmission

Chunqiang Su1, Chen Liu1, Mingang Zhou1, Dongfei Huang1, Qiang Li1, Yantao Lou2
1Xi'an High Voltage Apparatus Research Institute Co., Ltd., China, People's Republic of; 2Xi'an XD power systems Co., Ltd., China, People's Republic of; swangq@qq.com, liuchen@xihari.com
O-MD5-Trans: Oral session for Monitoring and Diagnostics

**Time:** Tuesday, 11/Sep/2018: 2:00pm - 4:30pm  
**Location:** Room 3

**Sensitivity of Connection Schemes for Detection of Axial Displacement of Transformer Winding by Frequency Response Analysis**  
*Satoru Miyazaki*¹, Mehran Tahir², Stefan Tebohlen²  
¹Central Research Institute of Electric Power Industry, Japan; ²University of Stuttgart; ms-satoru@criepi.denken.or.jp

**Validation of Simulated UHF Electromagnetic Wave Propagation in Power Transformers**  
*Takahiro Umemoto*¹, Stefan Tebohlen²  
¹Mitsubishi Electric Corporation, Japan; ²University of Stuttgart, Germany; umemoto.Takahiro@df.MitsubishiElectric.co.jp

**Effect of Humidity on the Detection of Dissolved Gases in Transformer Oil for Tin Oxide Based Gas Sensor**  
*Zikai Jiang*¹, Weigen Chen¹, Lingfeng Jin¹, He Zhang¹, Fang Cui¹, Ronghua Zhang²  
¹State Key laboratory of Power Transmission Equipment and System Security, Chongqing university, China, People's Republic of; ²State Grid DeZhou Power Supply Company; cqujzk@cqu.edu.cn

**Experiences with Measurement and Analysis of the Dielectric Response of Instrument Transformers**  
*Maik Koch*¹, Martin Anglhuber²  
¹University of Applied Sciences Magdeburg-Stendal, Germany; ²Omicron Elektronik GmbH; maik.koch@hs-magdeburg.de

**Power Transformer Fault Diagnosis Model Based on Association Rules Analysis**  
*Rongbin Xie*¹, Chunlei Ma¹, Jing Xue¹, Xuanhong Liang², YouYuan Wang², Houying Li²  
¹Guiyang Power Supply Company, China Southern Power Grid, China, People's Republic of; ²Chongqing University, China, People's Republic of; liangxh1@126.com

**State Assessment on Distribution Network Equipment Oriented by Big Data Visualization**  
*YIPING CUI*, LE LUAN, YUQUAN LIU, WENXIONG MO, HONGBIN WANG  
Guangzhou Power Supply Co. Ltd.; cuyping@126.com
O-PA3: Oral session for Power and Industrial Applications

Time: Tuesday, 11/Sep/2018: 2:00pm - 4:30pm  ·  Location: Room 2

Improving the Process for Distribution Network Optimization in Medium Voltage Level (11) kV by Developing Short Term Load Forecast Method

Maha Ismail AlDahmi, Omar Reyadh AlAhmad
AlAin Distribution Company, United Arab Emirates; maha.aldahmi@aadc.ae

Study on fault current suppression and commutation failure in inverter side of ±1100kV DC system

Ziyuan REN, Jiangtao LI, Jiaxin HE, Yi SUN, Yuhao LIU
Xi'an Jiaotong University, China, People's Republic of; 1697028742@qq.com

Controlled HVDC links between RES and strong or weak power grids: comparative review

Christos Dikaiakos¹, Panos Papageorgiou², Antonio Alexandridis², George Papaioannou¹
¹Independent Power Transmission Operator, Greece; ²Department of Electrical and Computer Engineering, University of Patras, Greece; c.dikeakos@admie.gr, papageorgiou@ece.upatras.gr

Calculation of Losses in Three-Core Submarine Cables for Fractional Frequency Transmission Operation

DIMITRIOS KOSSYVAKIS, ANDREAS CHRYSOCHOS, KONSTANTINOS PAVLOU
HELLENIC CABLES, Greece; achrysochos@fulgor.vionet.gr

Simulation of a DC Superconducting Fault Current Limiter for the Design of Online Monitoring System

Jiajun Pan¹, Yaxiong Tan¹, Chao Sheng², Leishi Xiao², Jian Li¹, Weigen Chen¹
¹Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; ²Electric Power Research Institute of Guangdong Power Grid Corporation, Guangzhou 510080, China; tyxtqq@126.com

Enhancement of DUBAL Network Operational Performance Using HTS-FCL

Hamood Naji Ahmed¹, Noureddine Harid¹, Huw Griffiths¹
¹Khalifa University of Science and Technology, United Arab Emirates; ²Dubai Global Aluminium, Abu Dhabi, United Arab Emirates; noureddine.harid@ku.ac.ae
O-TM3-Cables: Oral session for High Voltage Testing and Measurement

**Time:** Tuesday, 11/Sep/2018: 2:00pm - 4:30pm  
**Location:** Room 1

**Evaluation, Optimization and Test of a Standard Air-Dielectric Coaxial Cable Filled With Oil for Possible Use in HV Kicker Systems at CERN**

*Dimitrios Kontelis*¹,², Alvaro Ferrero Colomo¹, Ioannis Gonas¹, Thomas Kramer¹, Tobias Stadlbauer²

¹National Technical University of Athens, Greece; ²CERN, CH-1211 Geneva 23, Geneva, Switzerland; dimitrios.kontelis@cern.ch

**On-Site Acceptance and Diagnostic Testing of Submarine Inter-Array Cables at Offshore Wind Farms using Damped AC**

*Rogier Jongen¹, Edward Gulski¹, Matthijs de Heus², Aleksandra Rakowska¹, Krzysztof Siodla¹, Hans Gaal¹*

¹onsite hv solutions ag, Switzerland; ²onsite hv solutions Benelux BV, the Netherlands; ³Poznan University of Technology, Poland; ⁴Visser and Smit Hanab BV, the Netherlands; aleksandra.rakowska@pmt.poznan.pl

**Contemporary Techniques and Case Studies in Offline Condition Assessment of MV Underground Power Cables**

*Adeola Adebomi, Hein Putter, Philipp Legler*

Megger Germany; adeola.adebomi@megger.com

**Impact of Icing Voltage on Audible Noise Characteristics of Soft Rime Ice-Covered HVDC Conductors**

*Gaohui He¹, Qin Hu¹, Lichun Shu¹, Xingliang Jiang¹, Bing Wu¹, Huadong Peng¹, Raji Sundararajan³*

¹State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University; ²State Grid Chongqing Electric Power Company; ³Purdue University; hegaohui@cqu.edu.cn

**Analysis of Alternative Parameters of Dynamic Resistance Measurement in High Voltage Circuit Breakers**

*Herbet Filipe Sousa¹, Adriano Costa de Oliveira¹, Henrique Nunes de Santana¹, Edson Guedes da Costa¹, Tarso Vilela Ferreira²*

¹Federal University of Campina Grande, Brazil; ²Federal University of Sergipe; edson@dee.ufcg.edu.br

**Short-Circuit Making of Medium Voltage Load Break Switches Using a Grid Connected Test Circuit**

*Philipp C. Jabs¹, Kaveh Niayesh¹, Nina Sasaki Støa-Aanensen²*

¹NTNU, Norway; ²SINTEF Energy Research, Norway; philipp.jabs@ntnu.no
P-IS: Poster session for High Voltage Insulation Systems

**Study on Electric Field Distribution and Metal Joints Optimization of Insulated Rods for UHV Live Working**

Yuqun FANG¹, Guangkai YU², Bin WANG¹, Chen CHEN¹, Tian WU³
¹State Grid Jinhua Power Supply Company, China; ²China Electric Power Research Institute, China; ³Three Gorges University, China;
yarchergk@gmail.com

**Surge Arrester with High Performance Metal Oxide Varistors for Deeply Suppressing Overvoltage in AC UHV Systems**

Pengfei Meng, Yao Zhou, Jun Hu, Jiliang He
Tsinghua University, China, People's Republic of; mjf15@mails.tsinghua.edu.cn

**Effect of temperature on dielectric loss factor of biodegradable transformer oil**

Maciej Jaroszewski¹, Abderrahmane Beroual², Damian Gołębiowski³
¹Wroclaw University of Science and Technology, Poland; ²University of Lyon, Ecole Centrale de Lyon, AMPERE Lab;
maciej.jaroszewski@pwr.edu.pl

**Analysis of Dielectric Properties and Breakdown Characteristics of Vegetable Insulating Oil With Modified by ZnO Nanoparticles**

Gang Chen¹, Jian Li¹, Hua Yin¹, Zhengyong Huang², Qian Wang², Lin Liu³, Jianxin Sun³, Jianfeng He³
¹State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing 400044, China; ²State Grid Shanxi Electric Power Company, Shanxi 030001, China; ³Jinzhong Power Supply Company of State Grid Shanxi Electric Power Company, Shanxi 030600, China; cs545689552@163.com

**Negative Corona Characteristics on RTV SIR Coated Glass Insulating Surface under Ramp High Voltages**

NIKOLAOS. C MAVRIKAKIS, PANTELIS. N MIKROPOULOS
ARISTOTLE UNIVERSITY OF THESSALONIKI, SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING;
mavrikakisnikos@gmail.com

**A study on the Breakdown Characteristics of Natural Ester Based Nanofluids with Magnetic Iron Oxide and SiO2 Nanoparticles**

Georgios D. Peppas¹, Vassilios P. Charalampakos², Eleftheria C. Pyrgioti³, Aristides Bakandrítos⁴, Aikaterini D. Polykrati⁵, Ioannis F. Goutras⁶
¹Raycap, S.A; ²Department of Electrical Engineering, Technological Educational Institute of Western Greece, Patras, Greece; ³Department of Electrical and Computer Engineering, University of Patras, Patras, Greece; ⁴Department of Physical Chemistry, Palacky University in Olomouc, Czech Republic; ⁵School of Electrical and Computer Engineering, National Technical University of Athens, Athens, Greece; ⁶gpeppas@raycap.com

**Calculation Method of Corona Loss of Transmission Line Based on AC/DC Power Flow**

Wenxia Pan, Xin Chen, Yi Li
The College of Energy and Electrical Engineering, Hohai University, China; pwxhh@hhu.edu.cn, ChenX_hhu@163.com

**Study of the Motion Pattern of a Spherical Metal Particle in DC GIL**

Qianqiu Shao, Wenxia Sima, Potao Sun, Hang Xu, Ze Yin, Zhengzheng Fu
Chongqing University, China, People's Republic of; 1945283808@qq.com

**The diagnostic method of decomposed components for sulfur hexafluoride electrical equipment**

Qiang YAO¹, Zhicheng LEI², Yulong MIAO², Ju TANG², Fuping ZENG²
¹Electric Power Research Institute of Chongqing Power Company Electric Power Research Institute of Chongqing Power Company; ²Wuhan University, China, People's Republic of; 623463348@qq.com

**HVDC Cable: LDPE Nano dielectric and its response to low frequencies**

NAGESHWAR RAO BURJUPATI, NANDAKUMAR V S, ANJU R K, ASHWIN PARTHASARATHY, KANDIBAN R
CENTRAL POWER RESEARCH INSTITUTE, BANGALORE, INDIA, India; nageshburjupati@gmail.com

**Study on the Noise Characteristics of 10kV Vegetable Insulating Oil Transformer**

Nageshwar Rao Burjupati, V Manisha, Sudhakar K. Nadi, Ashwin Parthasarathy, Kandiban R
Central Power Research Institute, Bangalore, India; nageshburjupati@gmail.com
Study on Flashover Characteristic and External Insulation Configuration of ±1100 kV DC Transmission Line

Liang Tian, Ruiping Huang, Jun Zhou, Bo Liu, Songsong Zhou
China Electric Power Research Institute; 251001181@qq.com

Electrical Field Distribution in ±600 kV Converter Transformer Bushing Core with the Application of Epoxy Resin with Nonlinear Conductivity

Jin Li, Boxue Du, Hucheng Liang, Meng Xiao, Mingli Fu, Yi Jing, Y. Gao
1School of Electrical Engineering & Automation, Tianjin University; 2Electric Power Research Institute, China Southern Power Grid; duboxue@tju.edu.cn

Study on Flashover Characteristic and Critical Flashover Current of icing and polluted 110kV Composite Insulators

Maojiang Bi1, Zhangang Yang2, Tianyan Jiang1, Xi Chen1, You Wang3
1Chongqing University of Technology, China, People's Republic of; 2State Grid Chongqing Jiangbei Electric Power Supply Branch, China, People's Republic of; 3Chongqing Vocational Institute of Engineering, China, People's Republic of; bimaoqiang@cqu.edu.cn

Surface Charge Accumulation Behavior on GIL Spacer Under DC Voltages in SF6/N2 Mixtures

Ke-Feng Li1, Yan-Qin Liu1, Xiao-Feng Fan1, Xiang-Yu Liu1, Jian-Yi Xue1, Jun-Bo Deng1, Guo-Jun Zhang2
1State Grid Sichuan Electric Power Company Chengdu Power Supply Company; 2Xi'an Jiaotong University, State Key Laboratory of Electrical Insulation and Power Equipment, China, People's Republic of; jyxue@126.com

AC Breakdown Characteristics of Air Insulated Sphere-Plane Gaps with Glass Barriers

Yuesheng Zheng1, Yong Chen2, Hongzhi Zhang1, Yuriy V. Serdyuk2
1Fuzhou University, People's Republic of China; 2Chalmers University of Technology, Sweden; yueshengzheng@fzu.edu.cn

Study on Lightning Protection of Wind Turbine Blades

Qian Wang, Jie Li, Jun Lu
X'ian University of Technology, China, People's Republic of; qianqian82@126.com, lijirogers@sina.com

Study on the Insulation Reliability Model of Printed Circuit Boards Under Continuous Square Impulse Voltage

Taotao Xiong, Quan Zhou, Tianyan Jiang, Mingqian Wen, Xi Ouyang
Chongqing University, China, People's Republic of; 201711021036@cqu.edu.cn

Optimal Design of Spacer for High Voltage Gas Insulated Switchgear

HyunWoo Joo, ChaeYoon Bae, JongUng Choi, YoungGeun Kim
LS Industrial Systems, Korea, Republic of (South Korea); hwjoo@lsis.com

Simulation and Analysis on Surface Discharge Development in Composite Dielectrics

CHONG PAN1, YOU WANG2
1Chengdu Power Supply Company of State Grid, China, People's Republic of; 2Chongqing Vocational Institute of Engineering, China, People's Republic of; emailpc@163.com

Numerical Simulation of Surface Erosion of Pantograph Strip during the Pantograph Lowering Process

Pan Xu, Guoqiang Gao, Zefeng Yang, Chengkun Li, Xuewei Duan, Wenfu Wei, Guangning Wu
Southwest Jiaotong University, China, People's Republic of; snjdegs@163.com

Study on the Influence of slight looseness of steel foot on performance of suspended porcelain insulators

Maoqiang Bi1, Jinlin Hu1, Tianyan Jiang1, Xi Chen1, You Wang3
1Chongqing University of Technology, China, People's Republic of; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing 400030, China; 3Chongqing Vocational Institute of Engineering, Chongqing, 402260, China; bimaoqiang@cqu.edu.cn

Thermal and electric conductivity of insulating oils with magnetite nanoparticles

Aikaterini D. Polykrafti1, C.S. Koutsia1, Vasilios Charalampakos2, A. Kyritsis1, Georgios Peppas1, Ioannis F. Gonas1, Eleftheria Pyrgioti1
1National Technical University of Athens, Greece; 2Technological Educational Institute of Western Greece; 3University of Patras, Greece; apolyk@central.ntua.gr
Performance Evaluation of Polymeric Insulators from a Dynamic Variations Analysis of Voltage Distribution along the String
Victor Andrade L. Ferreira, José Maurício B. Bezerra, Diego S. Lopes
UFPE - Universidade Federal de Pernambuco, Brazil; jmbb.ufpe@gmail.com

Predicting Critical Conditions in Polluted Distribution Insulators Using Phase Angle Index of Leakage Current
Mousalreza Faramarzi Palangar1, Mohammad Mirzaie1, Amin Mahmoudi2
1Babol Noshiravani University of Technology, Iran, Islamic Republic of; 2Flinders University, Australia; r.faramarzi89@gmail.com

Acid Rain Pollution Effect on the Electric Field Distribution of a Glass Insulator
Chibuike Ilomuanya, Shahab Farokhi, Azam Nekahi
Glasgow Caledonian University, United Kingdom; chibuike.ilomuanya@ec.ac.uk

In-lab electrical erosion test for decay-like fracture of composite insulators
Weining Bao1, Xidong Liang1, Yanfeng Gao2, Qian Wang1, Tingyu Jiang1
1State Key Laboratory of Power System, Department of Electrical Engineering, Tsinghua University, China, People's Republic of; 2State Grid Jibei Electric Power Co. Ltd. Research Institute, North China Electric Power Research Institute Co. Ltd., China, People's Republic of; lxd-dea@mail.tsinghua.edu.cn

Effect of electric field and temperature on the diffusion of water molecules in oil - paper insulation system
Weini Wang, Wenyan Dong, Da Jiang, Zhongzheng Ning
Beijing Key Laboratory Of High Voltage & Electromagnetic Compatibility, China, People's Republic of; ww790324@163.com

Corona Resistance Improvement of Polymide Films by Non-Thermal Plasma Modification
Yan Yang
Southwest Jiaotong University, China, People's Republic of; yangyanyy@home.swjtu.edu.cn

Electric Field Calculation and Optimization of Shielding Device for Filter Capacitor Tower in ±1100kV Indoor DC Yard
Bo Yue1, weiqi Li2, Jialong Wang1,2, Shuo Wang1, Zehua Wu1, Zongren Peng1
1 State Power Economic Research Institute, Beijing, 102209, China; 2 State Grid Chongqing Electric Power Company Chongqing Electric Power Research Institute, China, People's Republic of; zehua_wu@qq.com

Effect of Accelerated Thermal Aging on the Properties of Paper-Ester Composite Insulation
Harjo Suwarno
ITB, Indonesia; swwarno@stei.itb.ac.id

The Electro-Thermal Coupling Computation of Resin Impregnated Paper Oil-SF6 Immersed Bushings
Shiling Zhang1, Qiang Yao2, Chenvu Zhao1
1 State Grid Chongqing Electric Power Company Chongqing Electric Power Research Institute, China, People's Republic of; 2 State Grid Chongqing Electric Power Company Chongqing Electric Power Research Institute, China, People's Republic of; zch9671801@stu.sjtu.edu.cn

Study on the Analysis and Diagnosis of Dissolved Gases in Camellia Insulating Oil
Hanxiang Wang, Jian Li, Zhengyong Huang, Feipeng Wang, Chenmeng Xiang, Xiangrong Li, Jinghan Zhou
Chongqing University, China, People's Republic of; 1301503043@qq.com, lijian@cqu.edu.cn, huangzhengyong@cqu.edu.cn, fpwang@cqu.edu.cn, 437074525@qq.com, 731496207@qq.com, zhoudong0511@hotmail.com

New and Reclamation Transformer Oil Behavior under Accelerated Thermal Aging
Fettouma GUERBAS
LSEI Laboratory, University of Science and Technology Houari Boumediene, Algeria; f.guerbas@yahoo.fr

Study on current density and conductivity mathematical model of SF6 under DC uniform field strength
Zhousheng Zhang, Na Dong
College of Electrical Engineering/Shanghai University of Electric Power, China, People's Republic of; zzsheng417@163.com

Functionalized high-k Nanowires Polymer Nanocomposites with Enhance Energy Storage Capability
Xingyi Huang, Guanyao Wang, Yingke Zhu, Pingkai Jiang
Shanghai Jiao Tong University, China, People's Republic of; xhuang@sjtu.edu.cn

Outdoor Insulator Surface Condition Evaluation using Image Classification
O-MD6-Insulators: Oral session for Monitoring and Diagnostics

Time: Tuesday, 11/Sept/2018: 4:45pm - 6:15pm · Location: Room 3

Analytical modeling of arc re-ignition conditions on polluted insulating surfaces

HADJRIOUA FARID1, MAHI Djillali1, SLAMA Mohammed El Amine2
1Laghouat university, Algeria; 2Advanced High Voltage Engineering Centre, School of Engineering, Cardiff University, The parade, CF24 3AA, Cardiff, UK.; 1hadjrioua@lagh-univ.dz, d.mahi@lagh-univ.dz, amineslama@yahoo.fr

Studies on High Voltage Composite Insulators under very low Temperature

Dinesh Sharma, Subba Reddy Basappa
Indian Institute of Science, Bangalore, India, India; ds68006@gmail.com, sreddy@iisc.ac.in

Safety Condition Evaluation of the Contaminated Insulators Based on the Characteristic of the UV images

Shenghui Wang1, Leilei Niu1, Nan Li1, Fangchong Lv1, Yunpeng Liu1
1North China Electric Power University, People's Republic of China; 2State Grid Baoding Electric Power Supply Company, People's Republic of China; hdwsh@ncepu.edu.cn, raynewwood@qq.com

110kV Cable Joint Temperature Computation Based on Radial Basis Function Neural Networks

Qinghua Zhan1, Liezheng Tang2, Xiaomei Ou1, Yijun Liu1, Ke Tang2, Rou Chen1, Guowei Li1, Junbo Wang1
1Foshan Power Supply Bureau, China, People's Republic of; 2State Grid Baoding Electric Power Supply Company, People's Republic of; lb9302@163.com

1H NMR Tests on Damaged and Undamaged XLPE Samples

Taiji Wang1, Lydia Gkoura2, Noureddine Harid1, Georgios Papavassilou2, Huw Griffiths1
1Khalifa University of Science and Technology, United Arab Emirates; 2National Centre for Scientific Research "Demokritos", Athens, Greece; wang.taiji@ku.ac.ae, lgkouri@inn.demokritos.gr, noureddine.harid@ku.ac.ae, g.papavassilou@inn.demokritos.gr, huw.griffiths@ku.ac.ae

Effects of Suspended Moisture Particles on AC Breakdown Voltage and Electric Field Distribution of Vegetable Insulation Oil

Muhammad Ali Mehmood, Jian Li, Huang Zhengyong, Wang Feipeng, Li Xi, Muhammad Shoaib Bhutta, Li Xudong
Chongqing University, China, People's Republic of; muhammadali@cqu.edu.cn
O-PA4: Oral session for Power and Industrial Applications

Time: Tuesday, 11/Sep/2018: 4:45pm - 6:15pm  Location: Room 2

Effect of spark plasma sintering process on dielectric properties of CaCu3Ti4O12 ceramics

Chao Xu, Xuetong Zhao, Lulu Ren, Jianjie Sun, Ruijin Liao
Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, China, People's Republic of; xuchao1995@cqu.edu.cn

A Research on the Super-hydrophobic Surface Constructing Method for the Outdoor Insulator Based on the Recycling of Composite

Xiangjun Zeng¹, Xueer Wang¹, Li Cheng², Sida Zhang², Ruijin Liao²
¹Electric Power Research Institute. CSG. Guangzhou, China; ²State Key Laboratory of Power Transmission Equipment & System Security and New Technology, China, People's Republic of; lucarelli@foxmail.com, lucarelli@foxmail.com

Influence of Pulse Bursts on PD Magnitude Distributions in SF6 Gas under Positive DC Voltage

Xinyu Luo¹, Ju Tang¹,², Cheng Pan², Qiang Yao¹, Yulong Miao³
¹State Key Laboratory of Power Transmission Equipment and System Security and New Technology, Chongqing University, China; ²School of Electrical Engineering, Wuhan University, China; ³Electric Power Research Institute of State Grid Chongqing Electric Power Company, Chongqing, China; luoxinyu@cqu.edu.cn

Experimental Study on Reducing Ice Accretion of Conductor Using Self-heating Ring with Eddy Current

Yafei Huang, Xingliang Jiang, Ledong Hong, Meilin Zhu, Xingbo Han
CHONGQING UNIVERSITY, China, People's Republic of; 1075207751@qq.com
Experimental investigation on corona charge-voltage characteristics in the coaxial configuration under lightning impulse voltages
Evanthia Bousiou, Pantelis Mikropoulos
Aristotle University of Thessaloniki; ebousiou@auth.gr

Investigations of transformer winding responses to standard full and chopped lightning impulses
Marek Florkowski¹, Jakub Furgal¹, Maciej Kuniewski², Piotr Pająk²
¹ABB Corporate Research; ²AGH University of Science and Technology; maciej.kuniewski@agh.edu.pl

Generation of Non-standard Lightning Impulse Unipolar Waveshapes
Miltom Shigihara, Alexandre Piantini, Celso Braz, Daiana Silva, Clovis Kodaira
University of Sao Paulo, Brazil; piantini@iee.usp.br

Application of Neural Network in Atmospheric Correction of High Voltage Test
Chen Liu, Meng Shen, Qiang Li, Chunqiang Su, Peng Wei
Xi’an High Voltage Apparatus Research Institute; liuchen331@gmail.com

Determination of Corona Inception Voltages of Rod-Plane Electrode Systems
suat ilhan¹, aytug font¹, aydogan ozdemir¹, fermin espino-cortes²
¹ISTANBUL TECHNICAL UNIVERSITY, Turkey; ²SEPI ESIME Zacatenco, Instituto Politécnico Nacional, Mexico; ilhansu@itu.edu.tr

Experimental Study on the Flashover Characteristics of Polluted Insulators under Short-tail Lightning Impulse Waveform
Pei Xiao, Hengxin He, Junjia He, Chen Cheng, Mian Xiao
State Key Laboratory of Advanced Electromagnetic Engineering and Technology, China, People's Republic of; 491950187@qq.com
O-AM1: Oral session for Aging, Space Charge, and Maintenance

**Time:** Wednesday, 12/Sep/2018: 9:00am - 10:30am  ·  **Location:** Room 3

**Discharge Characteristics of Different Air Terminals for Lightning Protection**

Chijie Zhuang, Zezhong Wang, Rong Zeng, Lei Liu, Te Li, Min Li, Yinghe Cui, Jinfang He

Tsinghua University, China, People's Republic of; China Southern Grid (CSG) Electric Power Research Institute; Electric Power Research Institute of Zhejiang Power Grid; chijie@tsinghua.edu.cn

**Test of Durability of Epoxy Resin Insulation of Converter Valve Saturable Reactor Under Pulsed Voltage and Pulsed Heat**

Yi Zhang, Zhiguo Tang, Chongshan Zhong, Chenhao Zhao, Xueheng Gao

North China Electric Power University, China, People's Republic of; China Agricultural University, China, People's Republic of; tangzhyguo@163.com

**Theoretical and Empirical-Based Thermal Modelling of Power Transformers**

Ahmed Gamil, Ali Al-Abadi, Franz Schatzl, Eberhard Schluecker

SGB Power Transformer (SGB-SMIT Group), Regensburg, Germany; Institute of Process Machinery and Systems Engineering (iPAT), Friedrich-Alexander-University, Erlangen, Germany; ahmed.gamil@sgb-smit.group

**Partial Discharges under DC Voltage Stress Simulation and Measurement**

Lucas Hoefer, Josef Kindersberger

Technical University of Munich, Germany; lucas.hoefer@tum.de

**Surface Charge Distribution Measurement before and after DC Flashover: A Novel Insight to the Influence of Surface Charge on Flashover Voltage**

Yu Gao, Minghang Wang, Ning Zhao, Ziyi Li, Yong Liu, Tao Han

Tianjin University, China, People's Republic of; hmgaoyu@tju.edu.cn

**Effect of UV Radiation on Liquid Silicone Rubber**

Qian Wang, Xidong Liang, Weining Yao, Tingyu Jiang, Shaohua Li

Tsinghua University, China, People's Republic of; 769553463@qq.com
O-IS3-Oil: Oral session for High Voltage Insulation Systems

Effect of Different Impurities on Motion Characteristics and Breakdown Properties of Insulation Oil under DC Electrical Field

MIN DAN¹, JIAN HAO¹, WEI QIN¹, RUIJIN LIAO¹, RUHAO ZOU¹, ZHU MENGZHAO², SHUAIWEI LIANG³
¹Chongqing University, China, People's Republic; ²State Grid Shandong Electric Power Co. LTD. Shandong Electric Power Research Institute Jinan, China; ³State Grid Zhejiang Electric Power Co. LTD. Ningbo Electric Power Company Ningbo, China;
1132319778@qq.com, eqhuaonian@126.com, 1132319778@qq.com

Comparative Study on the AC Breakdown Voltage of Transformer Mineral Oil with Transformer Oil-based Al2O3 Nanofluids

Usama Khaled¹, Abderrahmane Beroual²
¹King Saud University, College of Engineering, Department of Electrical Engineering, Saudi Arabia; ²University of Lyon, Ecole Centrale de Lyon, AMPERE Lab CNRS UMR 5005, France; Abderrahmane.Beroual@ec-lyon.fr

Enhancement DC Breakdown and Thermal Property of Oil Impregnated Pressboard by Deposition Al2O3/PTFE Nano-Structure Functional Film

Jian Hao¹, Cong Liu¹, Yanqing Li¹, Shengxun Zheng², Ruijin Liao¹, Qu Zhou¹
¹The State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, China, People's Republic of; ²State Grid Zhejiang Electric Power Co. LTD. Hangzhou Electric Power Company, Hangzhou, China.; ³College of Power Engineering, Chongqing University, Chongqing 400044, China; ⁴College of Engineering and Technology, Southwest University, Chongqing 400715, China; cquhaojian@126.com

AC Breakdown Strength of Natural Ester Oil based Nanofluid with Graphene Nanosheets

ELEFTHERIA PYRGIOI², VASILEIOS CHARALAMPAKOS¹, EVANGELOS CHATZIKALYMNIOS², GEORGIOS PEPPAS³, ARISTEIDIS BAKANDRITSOΣ¹, AIKARIERINI POLYKRATH², IOANNIS GONOS³
¹Technological Educational Institute of Western, GREECE; ²University of Patras, GREECE; ³Raycap S.A., Athens, Greece; ⁴Palacky University in Olomouc, Czech Republic.; ⁵National Technical University of Athens, Athens, Greece; jelofc1@gmail.com

The Effect of Alumina Nanorods on Breakdown Performance of Transformer oil

Muhammad Rafiq
North China Electric Power University, jutt96@gmail.com

Experience with Iso-Paraffinic Insulating Oil for Power Transformers

William Malcolm McDermid
Manitoba Hydro, Canada: billmcde@mymts.net
O-TM5-Insulation: Oral session for High Voltage Testing and Measurement

**Time:** Wednesday, 12/Sep/2018: 9:00am - 10:30am  
**Location:** Room 2

**Is dry-band characteristic a function of pollution and insulator design?**

Maurizio Albano, A. Manu Haddad, Nathan Bungay  
Cardiff University, United Kingdom; albanom@cardiff.ac.uk

**Creeping Discharge Development Over Insulator Surfaces in Natural Gases: Design and Implementation of Test Procedure**

Michail Michelarakis¹, Phillip Widger¹, Abderrahmane Beroual², Abderrahmane {Manu} Haddad³  
¹Advanced High Voltage Engineering Research Centre School of Engineering, Cardiff University, The Parade, Cardiff, United Kingdom;  
²University of Lyon, Ecole Centrale de Lyon, Ampere CNRS UMR 5005, 36 avenue Guy Collongue, 69134 Ecully, France;  
³MichailakisM@cardiff.ac.uk

**AC Breakdown Strength and Volume Resistivity Characteristics of Epoxy Resin Composite with Surface Modified Alumina Nanoparticles**

Muhammad Zeeshan Khan, Feipeng Wang, Jian Li, Muhammad Arshad Shehzad Hassan, Jawad Ahmad, He Li, Kaizheng Wang  
State Key Laboratory of Power Transmission Equipment System Security and New Technology, School of Electrical Engineering, Chongqing University, Chongqing 400044, China;  
zeeshankhanee@cqu.edu.cn, fpwang@cqu.edu.cn

**Breakdown Characteristics of C3F7CN/CO₂ Gas Mixtures in Rod-Plane Gaps**

Loizos Loizou, Lujia Chen, Qiang Liu  
The University of Manchester, United Kingdom; loizos.loizou@manchester.ac.uk

**Streamer Mode Effect on Impulse Breakdown Characteristics in Mineral Oil Gap**

Tao Zhao¹,², Xiangrui Cheng¹,², Yunpeng Liu¹,², Fochi Wang¹,², Fangcheng Lv¹,², Nijie Chao¹,²  
¹Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense; ²North China Electric Power University, People's Republic of China; TZhao@ncepu.edu.cn
THE EFFECT OF INSULATION DEFECTS ON ELECTRIC FIELD DISTRIBUTION OF POWER CABLES

Chitat Cagdas Uydu1, Oktay Arikan2, Ozcan Kalenderli3
1Trakya University, Turkey; 2Yildiz Technical University, Turkey; 3Istanbul Technical University, Turkey; chihatcagdasuydur@gmail.com

Simulation Analysis on Influence of Combustion Particles on the Gap Electric Field under DC Voltage

Ziheng Pu1, Yuyao Xiong1, Tian Wu1, Zejun Lu2, Chunhua Fang1
1College of Electrical Engineering and New Energy, China Three Gorges University, Yichang, China; 2Wuhan NARI Limited Company, State Grid Electric Power Research Institute, Wuhan, China; pzhds@ctgu.edu.cn

Digital Filter Based on Chaos Theory Used for Removing Narrow-Frequency-Band Noise in PD Signals

Tianyan Jiang1,2, Shouhua Cheng3, Xi Chen1, Maoqiang Bi1, Xiafei Yang1
1Chqinghua University of Technology, China, People's Republic of; 2State Key Laboratory of Power Equipment & System Security and New Technology, Department of High Voltage and Insulation Engineering, School of Electrical Engineering, Chongqing University; 3China Nuclear Power Engineering Co., Ltd.; jyjiao_zhiy@163.com, yuan@tsinghua.edu.cn

Survey of Electromagnetic Interference of ±1100kV HVDC Project on Communication Network for DC Filter Necessity Research

Yi Ming Ji1, Jin Zhang2, Peng jiao Zhang3, Bo Yue1, Yiming Yang1, Fangjie Wu1
1State Grid Economic and Technological Research Institute Co., LTD, China, People's Republic of; 2State Grid Co., LTD, China, People's Republic of; 3Northwest Electric Power Design Institute Co., Ltd, China, People's Republic of; yuebo@chinaperi.sgcc.com.cn, yangyiming@chinaperi.sgcc.com.cn

Simulation Calculation of Electric Field Protection for Live Working on UHV Transmission Line

Li Zhi1, YU JIAO ZHANG2, Xiongfeng Huang1, Yanjun Shen1, Jiansheng Yuan2
1China Three Gorges University, People's Republic of; 2Tsinghua University China, People's Republic of; zhiwanzhili@126.com, jyjiao_zhiy@163.com, xdxhuangxf@163.com, 332929061@qq.com, yuan@tsinghua.edu.cn

Electric Field Distribution and Optimization of Different Shielding Device for Composite Insulators in ±1100kV Indoor DC Yard

Bo Yue1, Shuo Wang1, Jialong Wang1, Weiqi Li1, Chenyu Zhao1, zongren Peng1
1State Key Laboratory of Electrical Insulation and Power Equipment, China, People's Republic of; 2State Power Economic Research Institute, Beijing, 102209, China; 1959158321@qq.com, zchy9671801@stu.xjtu.edu.cn

Voltage Sharing Design of a Novel 363kV Vacuum Circuit Breaker

Ai Shaogui1, Yu Xiao2, Huang Yongming3, Yang Fan2, Fan Yiping1, Li Xing2
1Electric Power Research Institute of Ningxia Electric Power Company of State Grid Corporation of China; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology, School of Electrical Engineering, Chongqing University; yuxiao@cqu.edu.cn

Electric Field Analysis of ±1100 kV Resin Impregnated Paper UHVDC Wall Bushing under Different Voltage Forms

Chenyu Zhao1, Zongren Peng1, Peng Liu1, Shiling Zhang2, Naqy Li1, Yunhao Mo1
1Xi'an Jiaotong University State Key Laboratory of Electrical Insulation and Power Equipment, China, People's Republic of; 2State Grid Chongqing Electric Power Company Chongqing Electric Power Research Institute; zchy9671801@stu.xjtu.edu.cn

3D Electric Field Simulation of Converter Transformer with Real Insulation Materials Utilized in HVDC Systems

Weidong Sun1, Lijun Yang1, Jian Hao2, Firuz Zare2
1Chongqing University, China, People's Republic of; 2The University of Queensland, Australia; weidongonepiece@gmail.com
P-PA: Poster session for Power and Industrial Applications

Time: Wednesday, 12/Sep/2018: 9:00am - 1:00pm - Location: Poster Area

Numerical and Experimental Analysis of the Aging Impact on the Cooling Capacity of a Natural Ester-Based Oil Used in Power Transformers
Alfredo Ortiz, Fernando Delgado, Félix Ortiz, Inmaculada Fernández, Agustín Santisteban
University of Cantabria, Spain; deleadof@unican.es

Investigation of lightning strike effects on wind turbine critical components
SOKRATIS PASTROMAS, KONSTANTINOS SANDROS, KONSTANTINOS KOUTRAS, ELEFHERIA PYRGIOI
High Voltage Laboratory, University of Patras, Greece; pastromas@ece.upatras.gr

Research on the key technical parameters of the 10kV disconnector on surge arrester
Muliang CAI1, Tao ZHANG1, Yeqiang DENG2, Changing LIU2, Huayun WANG1, Shuijiang ZHENG1, Zhixiang DENG1, Bei LIU1, Yu WANG2
1Jiangxi Electric Power Design Institute, China, People's Republic of; 2Wuhan University, China, People's Republic of;
2427685256@qq.com, 504022869@qq.com, 595236780@qq.com, 451877871@qq.com, huayunw@163.com, 2036068004@qq.com,
zr5040@163.com, 3448769886@qq.com, wy_20002@163.com

Electric Field Analysis and Structure Design of the Baffle of Bird Guard Used in 220 kV Transmission Line
Yanjun KUANG1, Yanglin LI1, Yongqing DENG2, Daochun HUANG2, Zhibin QIU2, Yiming XIE2
1State Grid Jiangxi Electric Power Research Institute, Nanchang 330096, China; 2School of Electrical Engineering, Wuhan University, Wuhan 430072, China; whuerliuming@whu.edu.cn

The Behaviour of Water and Straw Powders as the Contaminants of Shell Diała B Transformer Oil
Moch Dhofir, Rini Nur Hasanah, Hadi Suyono, Hesti Vini Widiastuti, Lestari Ayuningsih, Hery Purnomo
Faculty of Engineering - Brawijaya University, Indonesia; dhofir@ub.ac.id

Equivalent Circuit Parameters of Power Tap-Off from Insulated Shield Wires of High Voltage Transmission Lines at Different Rated Voltages
Guowei Qi1, Yuesheng Zheng1, Kai Xia2, Wenbin Wu2, Fuwang Liao2, Shengwen Shu2
1Fuzhou University, People's Republic of China; 2Electric Power Research Institute State Grid Fujian Electric Power Co. Ltd., People's Republic of China; yueshengzheng@fzu.edu.cn

Partial Discharges Activity within an Internal Void at AC Voltage Disturbed by High Frequency Components
RADEK PROCHAZKA, ONDREJ SEFL, MARTIN KNEVICKY
CZECH TECHNICAL UNIVERSITY IN PRAGUE, FACULTY OF ELECTRICAL ENGINEERING, Czech Republic; XPROCHAZ@FEL.CVUT.CZ

Negative Sequence Current Control of Offshore Wind Farm Based on Diode Rectifier HVDC
Sang Heon Chae, Jin Hong Ahn, Min Hyeok Kang, Gi Hoon Kim, Seungmoo Yang, Ho Min Kim, Eel-Hwan Kim
Jeju National University, Korea, Republic of (South Korea); chae@jejunu.ac.kr

A Study on the Operation Method of Hybrid Energy Storage System Connected with Wind Turbine
Min Hyeok Kang, Sang Heon Chae, Jin Hong Ahn, Gi Hoon Kim, Seong Hoon Lee, Seoungmoo Yang, Ho Min Kim, Eel-Hwan Kim
Jeju National University, Korea, Republic of (South Korea); minh0131@gmail.com

Multi-objective control of active distribution systems incorporating various types of distributed energy resources
Dimitrios Slagkas, Panagiotis Karafotis, Pavlos Georgilakis
NTUA, Greece; helion91@hotmail.com

Multi-Objective Distribution Network Reconfiguration Based on Deep Learning Algorithm
Xingang CHEN, Hao TAN, Bing YU, Changxin LI, Xiaoqing CHEN
Chongqing University of Technology, China, People's Republic of; chenxingang@cqut.edu.cn, lmc1479806711@gmail.com

Investigating the effect of convection, radiation and solar radiation heat loss on the rating of buried power cables using Finite Element Simulations
Jerry Walker, Taryn Becker
VAAL UNIVERSITY OF TECHNOLOGY, South Africa; jerrywalker@walnet.co.za

Key Technology and Engineering Application of the Disassembly-transported UHV AC Transformer
Hui-hao Guo, Min-feng Shao, Sheng-wei Cai, Jing Yin, Hui LI, Jiang-bo Chen, Cheng Chen
Numerical Calculation of Static Temperature Distribution of Transformer Bushings and Analysis of Influential Factors

Zehua Wu1, Huidong Tian1, Haoran Wang1,2, Shivi Zhou1, Ran Shi1, Liu Peng1, Zongren Peng1

1Xi'an Jiaotong University, China, People's Republic of; 2China Electric Power Research Institute, China, People's Republic of;
zehua_wu@qq.com, zehua_wu@qq.com, zehua_wu@qq.com, zehua_wu@qq.com, zehua_wu@qq.com, zehua_wu@qq.com

Thermal Simulation Analysis of Temperature Distribution Characteristics in 220kV GIS

Shanyuan Sun1, Liang Zhang1, Junhao Li1, Xutao Wu1, Xiguang Li2, Bo Ma2, Pei Ding2

1School of Electrical Engineering, Xi'an Jiaotong University; 2State Grid Electric Power Company LTD. Electric Power Research Institute; zhangliang129@stu.xjtu.edu.cn

Design and Construction of a Sensitive Electronic Control System for the Injection of Fast Transient Pulses into a Current Measurement System

NICOLAAS OOSTHUYSEN1, JERRY WALKER2

1VAAL UNIVERSITY OF TECHNOLOGY, South Africa; 2VAAL UNIVERSITY OF TECHNOLOGY, South Africa;
nicon@telkomsa.net

Experimental study on thermal shock damage characteristics of pantograph strip

Yijuan Song, Wenfu Wei, Zefeng Yang, Ming Lu, Guoqiang Gao, Guangning Wu

School of Electrical Engineering, Southwest Jiaotong University, China, People's Republic of; wfwei@swjtu.edu.cn

A New Method on Calculation of Lightning Trip Rate of 35 kV or Under Overhead Distribution Lines in Ungrounded Neutral Point System

Muliang Cai1, Jian Wang2, Yejiang Deng2, Haoyun Wang1, Ziqiang Wei1, Yu Zhang1, Yu Wang2, Xishan Wei2, Yi An1, Zhisiang Deng2

1Jiangxi Electric Power Design Institute, China, People's Republic of; 2School of Electrical Engineering, Wuhan University, China;
wangjian2013@whu.edu.cn, wangjian2013@whu.edu.cn, huayunw@163.com, 1041189392@qq.com, 2327685256@qq.com, guanshi110@gmail.com, zt50409163.com

GIS Implementation for Small Hydraulic Power Plants Placement

Konstantin Nikishin1, Ekaterina Tolstikhina2, Eugeny Golovan3, Anton Pletyonkin3

1NovaWind, Russian Federation; 2SO UPS, Russian Federation; 3Siberian Federal University, Russian Federation; iwendea@gmail.com

A Fast, High-Voltage, Pulse Power Driving Circuit for Copper-Halide Lasers

Basilios S. Tsikimis, Tomas Ch. Chardalias, Athanasios K. Ftoulis, John M. Koutsoubis, Christos X. Manasis

Technological Educational Institute of Sterea Ellada, Greece; vtsikimis@gmail.com
O-AM2: Oral session for Aging, Space Charge, and Maintenance

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: Room 3

Rubber Bladder Puncture - A case Study
Issouf Fofana¹, Eduardo Briosso²
¹UQAC, Canada; ²Salto Grande, Uruguay. Issouf_Fofana@uqac.ca

Accumulation Characteristics of Surface Charge on a Cone-type Model Insulator under DC Voltage
Boya Zhang¹, Zhe Qi², Wenqiang Gao³, Guixin Zhang³
¹State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Shaanxi 710049, China; ²Department of Electrical Engineering, Tsinghua University, Beijing 100084, China; zhangby13@mails.tsinghua.edu.cn, guixin@tsinghua.edu.cn

Mapping of discharge clusters in void based on surface resistivity
Marek Florkowski¹, Barbara Florkowska², Maciej Kuniewski², Paweł Zydroń²
¹ABB Corporate Research, Kraków, Poland; ²AGH University of Science and Technology, Kraków, Poland; marek.florkowski@pl.abb.com

Electrical Treeing Initiation in Polypropylene under Low Temperature with Different Power Frequencies
Lewei Zhu, Boxue Du, Tao Han, Jingang Su, Zhonglei Li, Jin Li
School of Electrical and Information Engineering, Tianjin University, China, People's Republic of; duboxue@tju.edu.cn

Long-Term Performance of Switch Blade Restraint for Safe Operation during Maintenance
Joni Kluss, David Wallace, Zeeshan Ahmed
Mississippi State University, United States of America; joni@ece.msstate.edu
O-IS4-Oil: Oral session for High Voltage Insulation Systems

AC Breakdown Characteristics of A Novel Three-Element Mixed Insulation Oil for Power Transformer

Dawei Feng1, Jian Hao1, Qian Wang2, Xiong Liu2, Ruijin Liao1, Lijun Yang1

1Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; 2State Grid Chongqing Electric Power CO. LTD. Chongqing Electric Power Research Institute; josaturday@163.com

Elimination of DBDS in mineral insulating oil by sodium reagent

Yuncai Lu1, Dong Ding2, Chao Wei1, Jiang Zhang1, Lijun Yang2

1Electric Power Research Institute of State Grid Jiangsu Power Grid Co., Ltd.,China, People's Republic of China; 2Chongqing University, China, People's Republic of China; adang91@yeah.net

Study of field aged transformer insulation oil properties using GC-MS

Muhammad Ali Mehmood, Jian Li, Huang Zhengyong, Wang Feipeng, Muhammad Shoaib Bhutta, Li Xudong, Jawad Ahamd

Chongqing University, China, People's Republic of; muhammadali@cqu.edu.cn

Suppression of Surface Charge Accumulation of Dry and Oil-impregnated Nomex Paper by Surface Fluorination

Li He, Feipeng Wang, Jian Li, Tao Zhang, Khan Muhammad Zeeshan, Yushuang He, Tianyan Jiang

Chongqing University, China, People's Republic of; 285381108@qq.com, fpwang@cqu.edu.cn

Positive Streamer Initiation and Propagation in a Synthetic Ester Liquid under Lightning Impulse in Semi-uniform Field

Shuhang Shen, Qiang Liu, Zhongdong Wang

School of Electrical & Electronic Engineering The university of Manchester, United Kingdom; shuhang.shen@postgrad.manchester.ac.uk

A Comparative Study of Natural Ester and Synthetic Ester based Nanofluids with TiO2 Nanoparticles

Vassilios Charalampakos1, Theodoros Fanariotis2, Eleytheria Pyrgioti2, Georgios Peppas3, Argiris Kolokithas4

1Technological Educational Institute of Western Greece, Department of Electrical Engineering, Greece; 2University of Patras, Department of Electrical and Computer Engineering, Greece; 3Raycap S.A., Greece; 4University of Patras, Department of Material Science, Greece; theodoris.fanariotis@gmail.com
O-TM6-Sponsors: Oral session for High Voltage Testing and Measurement

Time: Wednesday, 12/Sep/2018: 11:00am - 12:30pm · Location: Room 2

Intercomparison of reference measuring systems for lightning impulses between three National Metrology Institutes

Johann Meisner¹, Alf-Peter Elg², Jari Hällström³, Stephan Passon¹, Jussi Havunen³, Anders Bergman², Mathias Nordlund²
¹Physikalisch-Technische Bundesanstalt, Germany; ²RISE – Research Institutes of Sweden; ³VTT Technical Research Centre of Finland

Location: Room 2

New modular test system for testing super long cables

Thomas Steiner, Bilinski Enrico, Siebert Günther
HIGHVOLT Prüftechnik Dresden GmbH, Germany; bilinski@highvolt.de

Current Step Generation and Measurement with Nanosecond Rise Time using Coaxial Cable Generator

Muhammad Ziaur Rehman¹, Jari Hällström², Jussi Havunen²
¹Aalto University, Finland; ²VTT Mikes, Finland; muhammad.rehman@aalto.fi

Characterization and Verification of Suitability of a Digitizer for Lightning Impulses

Tim Christoph Schlüeterbusch¹, Stephan Passon¹, Johann Meisner¹, Zhaozhi Long²
¹Physikalisch-Technische Bundesanstalt, Germany; ²CEPRI China Electric Power Research Institute; tim-christoph.schlueterbusch@stud.hs-hannover.de

PD measurement at Large Capacitors Using a Modified HFCT

Andrei Marinescu¹, Ionel Dumbrava¹, Lucian Mandache²
¹ICMET, R&D Institute Craiova Romania; ²University of Craiova Romania; ancor2005@gmail.com

Superimposed Impulse Voltage Test for DC-Cables

Andreas Voss
Haefely Test AG, Switzerland; avoss@haefely.com
O-AM3: Oral session for Aging, Space Charge, and Maintenance

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:30pm · Location: Room 3

**Aging Degradation of Insulation Paper in Power Transformers by XRD Method**
Lei Peng, Qiang Fu, Musong Lin, yihua Qian, Wangyan Lv
Electric Power Research Institute, Guangdong Power Grid Co., Ltd., China, People's Republic of; penglei1025@whu.edu.cn

**Study on the Mechanism of Thermal Aging Performance of Insulation Paper Under the Effect of Multiple Corrosive Sulfides**
Minhao Zhang¹, Haoxi Cong¹, Xiang Shu¹, Shiyue Du¹, Qingmin Li¹, Hu Jin²
¹North China Electric Power University, China, People's Republic of; ²Electric Power Research Institute, China Southern Power Grid; conghaoxi@ncepu.edu.cn

**Effect of different curing parameters on UV aging resistance of silicone rubber**
Ying Lin¹, Liming Wang¹, Fanghui Yin¹, Masoud Farzaneh², Siming Gao²
¹Graduate School at Shenzhen, Tsinghua University, China, People's Republic of; ²Université du Québec à Chicoutimi; dr.lynnlin@foxmail.com

**Effect of thermal aging on DC conductivity of nano-CB/XLPE insulating composites**
Changyou Suo, Yao Qin, Zhonghua Li, Yunlong Sun
Harbin University of Science and Technology, China, People's Republic of; drzhhli@hrbust.edu.cn

**Short Time Breakdown and Long Time Electrical Aging of Nano and Micro Particles/Epoxy Composites**
Zhe Li, Gehao Sheng, Xiucheng Jiang
Shanghai Jiao Tong University, China, People's Republic of China; zhe.li@sjtu.edu.cn

**CFD Investigation of Temperature Distributions by Non-uniform Heat Losses inside Windings**
Saeed Khandan Siar, Stefan Tenbohlen
University of Stuttgart, Germany; saeed.khandan@ieth.uni-stuttgart.de
O-IS5-Insulators: Oral session for High Voltage Insulation Systems

**Study on the Icing Accretion Characterization of Porcelain and Glass Insulator**

**Tian Liang, Zhijin Zhang**

Chongqing University, China, People's Republic of; liangtian@cqu.edu.cn

---

**Contamination Characteristics of Suspension Composite Insulators in Wind Tunnel under Energized Condition**

**Xinhan Qiao, Zhijin Zhang**

Chongqing University, China, People's Republic of; qiaoxinhan@cqu.edu.cn

---

**A new model for polluted insulators flashover under HVDC**

Tarek Chihani¹, Abdelouahab Mekhaldi¹, Abderrahmane Beroual², Madjid Teguar²

¹Ecole Nationale Polytechnique, Algeria; ²Ecole Centrale de Lyon, France; Abderrahmane.Beroual@ec-lyon.fr

---

**A Study on Artificial-Natural Snow Accretion and Flashover Characteristics of 110kV Post Insulators**

Jianlin HU, Wei MENG, Hongchun YANG, Ke Ke, Xingliang JIANG, Lichun SHU

College of Electrical and Electronic Engineering, Chongqing University, China, People's Republic of; 20161102063t@cqu.edu.cn

---

**A Predictive Dynamic Model of Creeping Discharge Along Solid Insulator in Air at Atmospheric Pressure**

Mohammed El Amine SLAMA¹, Abderrahmane BEROUAL², Abderrahmane HADDAD³

¹University of Cardiff, United Kingdom; ²Ecole Centrale de Lyon, France; SlamaME@cardiff.ac.uk

---

**The Influence of Kraft Papers and Mica Insertion on the Insulator Leakage Current of Coaxial Electrodes**

Hadi Suyono, Moch Dhofir, Rini Nur Hasanah, Rifka Agustina, Sinta Dwiferma

Faculty of Engineering - Brawijaya University, Indonesia; hadis@ub.ac.id
O-TM7-PD: Oral session for High Voltage Testing and Measurement

Time: Wednesday, 12/Sep/2018: 2:00pm - 4:30pm · Location: Room 2

Study on the Interference of Partial Discharge Test of 750kV Shunt Reactor in Substation
Jiaxin He, Jiangtao Li, Ziyuan Ren, Yi Sun, Yuhao Liu
Xi'an Jiaotong University, China, People's Republic of; 270295557@qq.com

Superimposed voltage testing of HVDC equipment with oscillating impulse voltage
Martin Hallas, Christian Dorsch, Volker Hinrichsen
Technische Universitaet Darmstadt, Germany; hallas@hst.tu-darmstadt.de

De-noising of GIS partial discharge signal corrupted with narrow-band noise using Shannon wavelet
yulong miao1, SIYUAN ZHOU2, Ju TANG2, XIAOXING ZHANG2, FUPING ZENG2, Yin Zhang2
1Electric Power Research Institute, State Grid Chongqing Electric Power Company, Chongqing 401123, China; 2wuhan university, China, People's Republic of; 13527526963@163.com

Partial Discharges and Breakdown of Protrusion in GIS under Oscillating Lightning Impulses
Liang Zhang, Xutao Han, Cong He, Junhao Li
Xi'an Jiaotong University, State Key Laboratory of Electrical Insulation and Power Equipment, China, People's Republic of; zhangliang129@stu.xjtu.edu.cn

Background Noise of Partial Discharge Detection and Its Suppression in Complex Electromagnetic Environment
Chenxi Ma, Han Li, Wenjun Zhou, Jianhui Yu, Lingzhi Wang, Shuai Yang, Shizhuo Hu
School of Electrical Engineering, Wuhan University, China, People's Republic of; li_han@whu.edu.cn

Study of partial discharge activity by excess current
Xiangdong Xu
Chalmers university of technology, Sweden; xiangdong.xu@chalmers.se
P-MD: Poster session for Monitoring and Diagnostics

Experimental Study of Double Partial Discharge Source Location in oil Based on Conformal Ultrasonic Array Sensor
Chengliang Wang1, han wu1, Si Li3, Xubi Liu1, Xiangqiang Yue1, Jianfeng Zhang4
1Jiangsu frontiter electric technology co., Ltd, Nanjing 211102, Jiangsu province, China; 2Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 3State Grid Beijing Electric Power Company Information & Telecommunication Branch, Beijing 100070, China; 4Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 15352342222@qq.com; 1347992367@qq.com; 1543546322@qq.com; 1834673464@163.com

Detection of furfural in oil based on surface enhanced Raman spectroscopy
Haoyang Shi, Weigens chen, XiaoBo Li, Fu Wan, Shuhua Zhang, Pinyi Wang, Jianxin Wang, WeiRan Zhou
Chongqing University, China, People's Republic of; shihaiyang@cqu.edu.cn, wangjinxin16@163.com

Dissolved Gas Diffusion Coefficients and Properties in Camellia Insulating Oil
Jianfeng He1, Jian Li1, Jinghan Zhou1, Gaolin Wu2, Qian Wang2, Yong Li3, Yongfu Li3, Qiang Wang3, Li Han1, Xinting Wu4
1State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing 400044, China; 2State Grid Chongqing Electric Power Co. Electric Power Research Institute, Chongqing 401123, China; 3State Grid Shanxi Electric Power Company, Shanxi 030001, China; 4Jinzhou Power Supply Company of State Grid Shanxi Electric Power Company, Shanxi 030600, China; Hayf@cqu.edu.cn

Research on Defect Pattern Recognition of GIS Equipment Based on X-ray Digital Imaging Technology
Xianhai Pang1, yansuxin qi2, Xiaofeng Li1, Han Wu1, Jing Hau1, Qiong Xie1
1State Grid Hebei Electric Power Research Institute, State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 2Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 3State Grid Hebei Electric Power Research Institute, State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 4Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 5Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 6State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 7Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 15342445232@qq.com; 1429260901@qq.com; 1535234562@qq.com; 1347992367@qq.com; 1642345733@qq.com; sx_ncepu@126.com

Analysis of correlation between Internal discharge in GIS and SF6 decomposition products
Xianhai Pang1, han wu1, jin Pan1, Yanxun Qi1, Xiaofeng Li1, Jianfeng Zhang4, Qiong Xie1
1State Grid Hebei Electric Power Research Institute, State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 2Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 3State Grid Hebei Electric Power Research Institute, State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 4Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 5State Grid Hebei Electric Power Research Institute, State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 6Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 7Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 8State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 050000, Hebei province, China; 15342445232@qq.com; 1429260901@qq.com; 1535234562@qq.com; 1347992367@qq.com; 1642345733@qq.com; sx_ncepu@126.com

Comparison of FRA Data measured by Different Instruments with Different Frequency Resolution
Satoru Miyazaki1, Yoshinobu Mizutani2, Mehran Tahir3, Stefan Tenhblen4
1Central Research Institute of Electric Power Industry, Japan; 2University of Stuttgart; m-satori@criepi.denken.or.jp

Partial Discharge Characteristics of Surface Defect in SF6 Under Oscillating Impulse Voltage
Xutao Han, Peichuan Pang, Liang Zhang, Qian Zhang, Junhao Li
Xi'an Jiaotong University, China, People's Republic of; xjthxutao@qq.com

High Frequency Alternating Current (AC) Tangent Delta Measurement Technique for Underground Power Cable System
Ahmad Basri A. Ghani1, Chandan Kumar Chakrabarty2, Agleswari K Ramasamy2, Avinash Ashwin Raj1, Huzainie Shafi A. Halim1, Navitharshaani Permal2, Michael G Danikas3
1TNB Research, Malaysia; 2Univerisiti Tenaga Nasional, Malaysia; 3Democritus University of Thrace, Xanthi, Greece; basri.ghani@tnb.com.my

The Simulation Study of the Influence of the Conformal Array Vector Curvature on the Direction-finding Precision of the PD Source
Junpeng Ma1, yansuxin qi2, Zixuan Zhang1, Xiaobiao Yang1, Xubi Liu1, Jianfao Zhang6
1State Grid Shanxi Electric Power Research Institute, State Grid Shanxi Electric Power Supply Co., Ltd., Shijiazhuang 211102, Shanxi province, China; 2University, Baoding 071003, China; 3State Grid Hebei Electric Power Research Institute, State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 211102, Hebei province, China; 4Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 5Hebei Provincial Key Laboratory of Power Transmission Equipment Security Defense, North China Electric Power University, Baoding 071003, China; 6State Grid Hebei Electric Power Supply Co., Ltd., Shijiazhuang 211102, Hebei province, China; 1347992367@qq.com; 1429260901@qq.com; 1535234562@qq.com; 1347992367@qq.com; 1642345733@qq.com; sx_ncepu@126.com
**Condition Assessment of XLPE Cable based on HV Lightning Impulse**

Wei Zhao¹, You Fang¹, Yongsheng Duan¹, Tao Zhou¹, Minmin Wei¹, Jianmin Kong², Kai Zhou¹, Shilin Zhao¹

¹Kunming Power Supply Bureau in Yunnan Electric Power Grid Co., Ltd.; Kunming, 650200, China; ²School of Electrical Insulation and Power Equipment, Xi’an Jiaotong University Xi’an, China; ³freak_big@163.com

**Study on Vibration Distribution Characteristics of a Three-Phase Three-Phase Transformer Core**

Chunhui Gu¹, Wenxiong Mo¹, Wefeng Lu², Lin Gan², Yuquan Liu², Yong Wang²

¹Guangzhou Power Supply Co. Ltd., China Southern Power Grid Co., Ltd. Guangzhou, China; ²State Key Laboratory of Electrical Insulation and Power Equipment, Xi’an Jiaotong University Xi’an, China; hefasa@stu.xjtu.edu.cn

**Transient Characteristic Parameters Monitoring and Diagnosis of the Hybrid HVDC Circuit Breaker**

Han Yan¹, Lin Du¹, Yaxiong Tan¹, Xueguang Wu²

¹State Key Laboratory of Power Transmission Equipment & System Security and New Technology, School of Electrical Engineering, Chongqing University, China, People’s Republic of; ²Global Energy Interconnection Research Institute; 201711113017@cqu.edu.cn, dulin@cqu.edu.cn, yxtan@cqu.edu.cn

**On-site Detecting Method for the Loss Characteristic in 110kV Power Transformer**

Ronglun Zhang, Shuai Wang, Haibo Mu, Guanjun Zhang, Song Huang

State Key Laboratory of Electrical Insulation and Power Equipment, Xi’an Jiaotong University, China, People’s Republic of; wangshaowei@stu.xjtu.edu.cn, haiboamu@xjtu.edu.cn

**Fault prediction of Power Transformer by Association Rules and Markov**

Houying Li¹, Youyuan Wang¹, Yiagrant He¹, Yushun Zhao², Xuanhong Liang¹

¹Chongqing University, State Key Laboratory of Power Transmission Engineering & System Security and New, China, People’s Republic of; ²HeFei University of Technology, HeFei, China; ¹1374757093@qq.com

**Partial discharge measurements and techniques for pattern recognition and life prediction of medium voltage XLPE cables**

Zeechan Ahmed, Joni Klüss, David Wallace

Mississippi State University; ra200@msstate.edu

**IoT Application in Transformer Fault Prognosis Using Vibration Signal**

M. Bagheri¹, V. Nurmanova², A. Zolanvari³, S. Nezhivenko³, B.T. Phung¹

¹University of New South Wales, Australia; ²Nazarbayev University, Astana, Kazakhstan; ³toan.phung@unsw.edu.au

**High Impedance Fault Detection by Convolutional Deep Neural Network**

Tharmakulasigam Sirojan, Shibo Lu, B.T. Phung, Daming Zhang, Eliahanby Ambikairajah

University of New South Wales, Australia; toan.phung@unsw.edu.au

**Mechanical Features Extraction of On-Load Tap-Changer Based on Multi-Wavelet Transform**

Xiajxun Li¹, Tuoyu Gao¹, Zhixian Zhang³, Jing Zhang¹

¹State Grid Jiangsu Electric Power Maintenance Branch Company, Nanjing, China; ²State Key Laboratory of Power Transmission Equipment and System Security and New Technology, Chongqing, China; ³zhang.zhixian@cqu.edu.cn

**The Influence of Sample Configuration on PD Frequency at DC Voltage**

Cheng Pan, Wenbin Song, Ju Tang, Yi Luo, Xinyu Luo

Wuhan University, China, People’s Republic of; pancheng2036@gmail.com

**Simulation Study on the Vibration Characteristics and Vibration Fault Propagation of Insulated Metal-Enclosed Switchgear (GIS)**

Qian Wang¹, Xingjie Jiang², Jianwen Tan¹, Jian Hao¹, Zheng Liao¹, Gaoxin Wu¹

¹The State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University; ²State Grid Chongqing Electric Power CO. Chongqing Electric Power research institute; ¹12845995@qq.com, cqphbaotian@126.com

**Power Quality Indices for Electrical Power Systems under Non-Stationary Disturbances**

Panagiotis Karafotis, Konstantinos Christodoulou - Galanopoulos, Dimitrios Siagkas, Pavlos Georgilakis
Experimental Investigation on the Propagation Characteristics of UHF signals in an Actual 110kV Power Transformer

Jinchao Du1, Chengzhui Zhu2, Weigen Chen3, Zhixian Zhang4, Stefan Tenbohlen5
1Chongqing University, China; 2University of Stuttgart, Germany; 3State Grid Zhejiang Power Company, China; dujinchao@cqu.edu.cn

Correlation Characteristics Between Partial Discharge Quantity and SF6 Decomposition Component Under Negative DC

Yulong Miao1, Dong Yang2, Fuping Zeng3, Ju Tang2
1Chongqing Electric Power Company Electric Power Research Institute; 2School of Electrical Engineering, Wuhan University; sxyangedong@163.com

Condition assessment of 230 kV cables at a power plant. Study of remaining life and life extension

AITOR KORTAJARENA1, IMANOL LOUREIRO1, MIKEL SARALEGI, SEBASTIÁN MORENO2
1TECNALIA, Spain; 2INFISAT, Spain; aitor.kortajarena@tecnalia.com

Return Voltage Measurements - a Promising Tool for the Diagnosis of the Insulation Condition of Power Transformers

Rainer Patsch
University of Siegen, Germany; rainer.patsch@uni-siegen.de

Design and Application of an UHF Microstrip Circular Antenna for Partial Discharges Detection in Power Transformers

Federal University of Campina Grande, Brazil; edson@dee.ufcg.edu.br

Instrumental Inspection Methodology to Evaluate Corrosion in Transmission Line Glass Insulator Metallic Pins

Ricardo Bezerra1, Edemir Luiz Kowalski2, Fernando Wilson Conceicao1, Jose Maria Teixeira Jr1, Oswaldo Santos Filho1
1Eletrobras Eletronorte, Brazil; 2Institutos LACETEC, Brazil; oswaldo.filho@eln.gov.br

A Structure for Automatically Extracting and Identifying Internal Overvoltage Measured in Distribution Networks Based on FSWT-SSAE

Xun Zhang1, Han Zhang3, Rongbin Xie1, Zhengzheng Fu3, Lijin Zhao1, Huarong Zeng1, Yi Wen1, Wenxia Sima2
1Electric Power Research Institute of Guizhou Power Grid Co. Ltd; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology Chongqing University; 1945283808@qq.com

Fault Diagnosis Methods for Vegetable Oil Transformers

Shiyue Du, Haoxi Cong, Qingmin Li
North China Electric Power University, China, People's Republic of; conghaoxi@ncepu.edu.cn

Study on Residual Life Prediction Method of Basin-type Insulator Based on Activation Energy

Peng Ren1, Haoxi Cong1, Qingmin Li1, Hu Jin1, Ruihai Li2
1North China Electric Power University, China, People's Republic of; 2Electric Power Research Institute, China Southern Power Grid, Guangzhou 510663, China; jp2800@126.com

Polarisation mechanisms and their effects in cable joints

THERESA JOUBERT, Jerry Walker
VAAL UNIVERSITY OF TECHNOLOGY, South Africa; theresa@vut.ac.za

Application of Raman Spectroscopy for the Analysis of Methyl Acetate Dissolved In Transformer Oil

Zhaoliang Gu1, Wenbing Zhu1, Mengzhao Zhu1, Jiaxin Zhou1, Jian Wang1, Qingdong Zhu1, Weigen Chen1
1State Grid Shandong Electric Power Research Institute, China, People's Republic of; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology (Chongqing University); zhaoliang_gu@foxmail.com

Transformer Fault Diagnostics- Feature Selection for Classification (Artificial Intelligence Techniques)

Tamilagaman Natarajan
Curtin University, Australia; t.natarajan@postgrad.curtin.edu.au

A Temperature Monitoring System for SF6 Circuit Breaker Quenching Pot Based on Temperature Field Analysis

Chen Xingang, Li Changxin, Ma Jun
A generalized model for wind turbine anomaly identification using combination prediction approach and information entropy

Peng Sun, Xiaokou Kou, Gang Fu
State Grid Company, China, People's Republic of: sun.peng1020@163.com

Transient Temperature Rise Characteristic of Oil Immersed Distribution Transformer
Hongbin Wang1, Wenxiong Mo1, Kuang Yin1, Wei Cao2, Yin Qin1, Yadong Fan2, Lin Gan1, Jianguo Wang2
1Power Test and Research Institute Guangzhou Power Supply Company, China, People's Republic of; 2School of Electrical Engineering, Wuhan University; 664558446@qq.com

Only Divide Data: Mechanical Fault Severity Diagnosis Method of High Voltage Circuit Breaker
Yuanwei Yang, Yonggang Guan
Tsinghua University, China, People's Republic of; yww16@mails.tsinghua.edu.cn, guanyg@tsinghua.edu.cn

Research on SF6 Sulfur-containing Decomposition Components by Different Metallic Wire-type Free Conducting Particles under Positive DC Partial Discharge
Zhengqin Cao1, Fuping Zeng2, Ju Tang2
1Chongqing University, China, People's Republic of; 2State Grid Henan Electric Power Company Electric Power Research Institute, China, People's Republic of: Fuping.Zeng@whu.edu.cn

Gas Sensors Based on Flower-like ZnO Structures: Detection of Acetylene Gas Dissolved in Transformer Oil
He Zhang1, Weigen Chen1, Zihao Song1, Zikai Jiang1, Xiaobo Li1, Ronghua Zhang2
1Dept. of High Voltage and Insulation Engineering, School of Electrical Engineering, Chongqing University, Chongqing, China; 2State Grid Dezhou Power Supply Company, Shandong, China; sophy905410@163.com

Laboratory Experimental Research on Circuit Breaker Extinguishing Performance
Wei Wang1, Zhongzheng Ning1, Bo Zhang2, Dong Wang3, Xingquan Huang2, Wenyao Dong1, Da Jiang3
1Beijing Key Laboratory of High Voltage &EMC, China, People's Republic of; 2State Grid Henan Electric Power Company Electric Power Research Institute, China, People's Republic of; ww790324@163.com

Comparison of Infrared and Ultrasonic Detection
Qian Wang, Chenjie Ji, Jinge Sun, Wen Sun
Xi'an University of Technology, China, People's Republic of: quanjian82@126.com

Equivalence Analysis of Off-line Test and On-line Detection Technology Based on Data Accuracy
Rongbin Xie1, Chunlei Ma1, Jing Xue1, Yu Chen1, Youyuan Wang2, Leifeng Huang2
1Guiyang power supply bureau, China Southern Power Grid; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University.; 251553878@qq.com

Fiber Optic Fabry-Perot Sensor with Stabilization Technology for Acoustic Emission Detection of Partial Discharge
Wei-chao ZHANG1,2, Qi-chao CHEN1, Li-yong ZHANG1, Hong ZHAO1
1Harbin University of Science and Technology, Harbin, Heilongjiang Province, People's Republic of China; 2FuTong Group Co., Ltd., Hangzhou, Zhejiang Province, People's Republic of China; weichaozhang@163.com

Research of the vibration characteristics in GIS Disconnectors under different Contact State
Yong-yong Jia1, Bang Wu2, shanyuan Sun2, Jinggang Yang1, Siqi Song1, Junhao Li
1State Grid Jiangsu Electric Power Company Research Institute, China, People's Republic of; 2State Key Laboratory of Electrical Insulation and Power Equipment in Xi'an Jiaotong University: 15105168898@163.com

The Influence of Free Wire-type Conducting Particles on SF6 Sulfur-containing Decomposition Components Under Positive DC Partial Discharge
Yongjian ZHOU1, Fuping ZENG2, Zhengqin CAO1, Ju TANG2, Qiang YAO1, Yulong MIAO1
1Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New Technology, China, People's Republic of; 2School of Electrical Engineering, Wuhan University, Wuhan 430072, China; 3Chongqing Power Company, Chongqing 401123, China; 1490154757@qq.com, Fuping.Zeng@whu.edu.cn, caozhengqin@vip.sina.com

Instrumentation for Monitoring and Analysis of Partial Discharges: Viewer and Report Generator
Helio Amorim1, Vinicius Landeira1, Andre Tomaz1, Daniel Argolo1
1Cepel; 2Cepel; 3Cepel; ; amorim@cepel.br
O-AM4: Oral session for Aging, Space Charge, and Maintenance

Effect of Low Molecular Weight Acids and Moisture on Space Charge of Oil Impregnated Paper Insulation
Zhou Mu, S.Y Matharage, Zhongdong Wang, Qiang Liu
The University of Manchester, United Kingdom; qiang.liu@manchester.ac.uk

Effect of Thermally Induced Self-assembly of β Nucleating Agents on Space Charge in Isotactic Polypropylene
LING ZHANG1,2, Zhaowei PENG1, Yuanxiang ZHOU1,4, Yonggang GUAN1
1State Key Laboratory of Control and Simulation of Power Systems and Generation Equipment, Department of Electrical Engineering, Tsinghua University, Beijing 100084, China; 2State Key Laboratory of Electrical Insulation and Power Equipment, Xi’an Jiaotong University, Xi’an 710049, China; 3School of Electrical Engineering, Xinjiang University, Urumqi 830047, China; qzhang15@tsinghua.edu.cn

Empirical Conductivity Equation for the Simulation of Space Charges in Polymeric HVDC Cable Insulations
CHRISTOPH JOERGENS, Markus Clemens
UNIVERSITY OF WUPPERTAL, Germany; joergens@uni-wuppertal.de

Influence of Field Strength and Temperature on the Space Charge Distribution in Epoxy under DC Stress
Thomas Wendel1, Josef Kindersberger1, Maria Hering2
3Technical University of Munich - Chair of High Voltage Engineering and Switchgear Technology, Germany; 2Siemens AG, Energy Management Division, Germany; thomas.wendel@tum.de

PEA Space Charge Performance of HTV Silicone Rubber in the Process of Water Permeation
Tingyu Ji, Xidong Liang, Shaohua Li, Weining Bao, Qian Wang
Tsinghua University, China, People's Republic of; jty16@mails.tsinghua.edu.cn

High Repetition Rate Space Charge Measurement of Heat-treated Low-density Polyethylene at Prebreakdown
Lina ZHANG1,2, Zekai LU3, Zixia CHENG2, Yuanxiang ZHOU1,4, Xiaoyang CUI1
1State Key Laboratory of Control and Simulation of Power Systems and Generation Equipment, Department of Electrical Engineering, Tsinghua University, Beijing 100084, China; 2State Key Laboratory of Electrical Insulation and Power Equipment, Xi’an Jiaotong University, Xi’an 710049, China; 3School of Electrical Engineering, Zhengzhou University, Zhengzhou 450001, China; 4School of Electrical Engineering, Xinjiang University, Urumqi 830047, China; 5Department of Chemical Engineering, Tsinghua University, Beijing 100084, China; zhangling15@tsinghua.edu.cn
O-IS6: Oral session for High Voltage Insulation Systems

Time: Wednesday, 12/Sep/2018: 4:45pm - 6:15pm · Location: Room 1

Micro Structural and Electrical properties of Liquid Silicone Rubber Used for External Insulation
Sijiao Wang¹, Zhimin Dang¹, Junwei Zha²
¹Tsinghua University, China, People's Republic of; ²University of Science and Technology Beijing, People's Republic of China; WANGSI9999@163.COM

Pin-Pex Insulation for AAAC Conductor of a 20-kV Medium-Voltage Power Network System
Rini Nur Hasanah, Moch Dhofir, Hadi Suyono, Unggul Wibawa, Lunde Ardhenta, Rizki Adhi Priawan
Faculty of Engineering - Brawijaya University, Indonesia; rni.hasanah@ub.ac.id

Effect of Nano-Al₂O₃ Doping Modification on AC/DC Superimposed Breakdown Characteristics of Insulating Paper
Chao Wei¹, Yang Mo², Yuncai Lu¹, Ruijin Liao², Lijun Yang³, Yuan Yuan²
¹Electric Power Research Institute of State Grid Jiangsu Power Grid Co., Ltd., Nanjing, China; ²Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; moyang_cqu@163.com, rjliao@cqu.edu.cn

Simulation Study on the Cause of Diameter Distribution of Contamination Particle on Porcelain Insulator Surface in High Voltage Electrostatic Field
Yunpeng Jiang¹, Lee Li¹, Runmeng Wang¹, Ming Lu², Yiwen Jiang³, Zehui Liu³
¹State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science & Technology, China, People's Republic of; ²State Grid Henan Electric Power Research Institute; lianlyunpeng@hust.edu.cn, leeli@hust.edu.cn

Dielectric Properties and 3D Printing Fesibility of UV Curable Polymer Composites
Wen-Dong Li, Li-Yuan Zhang, Chao Wang, Xiao-Ran Li, Man Xu, Guan-Jun Zhang
Xi'an Jiaotong University, China, People's Republic of; wendongli0211@163.com

Analysis of Morphology and Electrical Insulation of 3D Printing Parts
Xiaoran Li, Jia Guo, Wendong Li, Liyuan Zhang, Chao Wang, Baohong Guo, Guanjun Zhang
Xi'an Jiaotong University, State Key Laboratory of Electrical Insulation and Power Equipment, China, People's Republic of; lixiaoran1996@foxmail.com
O-EM1: Oral session for Aging, Space Charge, and Maintenance

Time: Thursday, 13/Sep/2018: 9:00am - 10:30am · Location: Room 3

Research on the Measuring System for IGBT Current Distribution
Xianwei Ma, Mengyue Hu, Heli Meng, Yangchun Cheng, Jun Zhang
North China Electric Power University, China, People's Republic of; 50100921@ncepu.edu.cn

Application of Multiple Modelling Techniques for Analysis of Very Fast Transient Overvoltages in GIS
Jonathan James¹, Maurizio Albano², Dongsheng Guo³, Manu Haddad⁴
¹Cardiff University; ²Cardiff University; ³National Grid; ⁴Cardiff University; jamesj33@cardiff.ac.uk

Conductive Interference Analysis in Photovoltaic Installations with Neighboring Pipelines
Theofilos Papadopoulos¹, Andreas Chrysochos², Konstantinos Pavlou³, George Georgallis³, Katia Damianaki³, Ioannis Gonas³
¹Democritus University of Thrace, Greece; ²Cablel Hellenic Cables S.A., Viohalco Group; ³National Technical University Of Athens; thpapad@ee.duth.gr, achrysochos@fulgor.vionet.gr, kpavlou@fulgor.vionet.gr, georgal@cablel.vionet.gr, katiadamianaky@msn.com, i.gonas@cs.ntua.gr

Research on Dynamic Response of Power Transformer Windings under Short Circuit Condition
Shuang Wang, Shuhong Wang, Ting Zhu, Naming Zhang, Hailin Li, Hao Qiu
State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, China, People's Republic of; shwang@xjtu.edu.cn, 501520956@qq.com

Development of Nanosecond Pulse Generator Based on Dual-Driver
JIANHAO MA, SHOULONG DONG, HONGMEI LIU LIU, JIANWEN TAN, CHENGUO YAO
State Key Laboratory of Power Transmission Equipment &System Security and New Technology Chongqing University Chongqing 400044 China; majianhao@cqu.edu.cn, dsl@cqu.edu.cn

Measuring Transient and Steady State Electric Field Emissions of Space Equipment for EMC and Cleanliness Purposes
Christos D. Nikolopoulos, Anargyros T. Baklezos, Christos N. Capsalis
National Technical University of Athens, Greece; chris.d.nikolopoulos@gmail.com
O-IS7: Oral session for High Voltage Insulation Systems

Impregnation Efficiency of Selected Dielectric Liquids Assessed on the Basis of Capillary Effect

Pawel Rozga
Lodz University of Technology, Institute of Electrical Power Engineering, Poland; pawel.rozga@p.lodz.pl

Effects of Temperature on Partial Discharge and Breakdown Characteristics of an Ester Liquid under AC stress

Yiming Huang, Qiang Liu, Zhongdong Wang
School of Electrical & Electronic Engineering The university of Manchester, United Kingdom; yiming.huang@postgrad.manchester.ac.uk

Sealed Vessel Tests of Plain Kraft to Determine Arrhenius Curve Parameters

Kevin James Rapp1, Alan Sbravati2, Patrick McShane1, John Lukshich2
1Cargill, Inc, United States of America; 2Lukshich - Consultant; kevin_rapp@cargill.com

The Transition of Surface Charge Accumulation Dominating Way in HVDC GIS

Yi Luo1, Ju Tang1, Cheng Pan1, Jia Yin1, Yongze Zhang2, Bo Zhang3, Quansheng Zhu4
1Wuhan University, China, People's Republic of; 2State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, China, People's Republic of; 3Pinggao Group Co., Ltd, State Grid Corporation of China, China, People's Republic of; 4State Grid Henan electric power company, State Grid Corporation of China, China, People's Republic of; 328664489@qq.com

Estimation of Switching Surge Flashover Rate for a 1200 kV UHVAC Transmission Line by Considering Switching Overvoltage Waveshape

RAMCHANDRA REDDY ANNADI, CHANDRA SEKHAR PASTA
Mahatma Gandhi Institute of Technology; arcreddy13@gmail.com

Factors affecting the water droplet behavior on mica sheets under the influence of homogeneous electric fields

S. Maslougkas1, Michael Danikas1, R Sarathi2, Ahmad Basri A. Ghani1
1Democritus University of Thrace, Greece; 2IIT Madras; 3TNB Research Sdn. Bhd., 43000 Kajang, Selangor, Malaysia; mdanikas@ee.duth.gr
O-TE1: Oral session for Transients and EMC

**Time:** Thursday, 13/Sep/2018: 9:00am - 10:30am  
**Location:** Room 2

**Resistive Coupling Effect to Customer Premises Equipment (CPE) due to Non-equipotential Earthing System**

**ANNUAR RAMLI, NORAZLIN JAMLUS, AZMI IBRAHIM, FADZIL AMIRUDDIN**  
TELEKOM MALAYSIA, Malaysia; annuar@tmrnd.com.my

**Effect of Concentrated Tower Grounding System Modeling on the Minimum Backflashover Current and BFR of 150 and 400 kV Overhead Transmission Lines**

**Zacharias G. Datsios, Pantelis N. Mikropoulos, Thomas E. Tsovilis, Sofia I. Angelakidou**  
High Voltage Laboratory, Aristotle University of Thessaloniki, Greece; tsovilis@ee.auth.gr

**Zero missing effect transient analysis on the 150 kV AC interconnection between Crete and Peloponnese**

**Dimosthenis Spathis¹, Thekla Boutsika¹, John Prousalidis², Konstantinos Tsirekis², John Kabouris², Athanasios Georgopoulos²**  
¹PROTASIS, Greece; ²NTUA; ³ADMIE; ds pathology protasis.net.gr

**220 kV Circuit Breaker Modeling and Its Parameter Determination Based KAMA Arc Model**

**Xun Zhang¹, Kai Dai², Lijin Zhao¹, Zhengzheng Fu¹, Huarong Zeng¹, Yi Wen¹, Rongbin Xie¹, Xiaohong Ma¹, Wexia Sima²**  
¹Electric Power Research Institute of Guizhou Power Grid Co. Ltd. Guiyang 550002, China; ²State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing 400044, China; ³Guiyang Power Supply Bureau, Guiyang 550002, China; 1945283808@qq.com

**Calculation and Site Tests on Artificial Grounding Experiments of UHVDC Transmission Lines**

**Bing LUO, Jian Shi, Fuzheng ZHANG, Fusheng ZHOU, Wei XIAO, Yifan LIAO, Lei XIA, Ruxian LI, Yi ZHANG**  
Electric Power Research Institute, CSG, China, People's Republic of; shujian@csg.cn

**Lightning Induced Overvoltages in the Electric Network of a Ship**

**Fleni Nicolopoulou, Ioannis F. Gonas, Ioannis Stathopoulos**  
National Technical University of Athens; hvelem@mail.ntua.gr
P-TM: Poster session for High Voltage Testing and Measurement

Research of Grading Ring for High Altitude 500 kV Compact Transmission Line
Cao jing
China electric power research institute; 4302245@qq.com

Determination of Estimated, Consumed and Remaining Lifetimes of Paper - Oil Transformers Insulation Based on Winding Insulation Resistance
PETRU NOTINGHER1, GABRIEL TANASESCU2
1University POLITEHNICA of Bucharest, Romania; 2SIMTECH INTERNATIONAL Bucharest, Romania; petrunot@elmat.pub.ro

Numerical Modelling of Guarded Conductivity Measurement Setups: Identification of Fringing Influences and Design Recommendations
Claudius Freye, Lukas Höttelecke, Frank Jenaу
TU Dortmund University, Germany; claudius.freye@tu-dortmund.de

Effect of Surface Charges on the Surface-breakdown Characteristics of Polytetrafluoroethylene
Wenxia sima, Hang Xu, potato sun, Qianqiu Shao, ze Yin
Chongqing University, State Key Laboratory of Power Transmission Equipment & System Security and New, China, People's Republic of; xuhang@cqu.edu.cn

An online monitoring device for pantograph catenary arc temperature based on atomic emission spectroscopy
Zheng Xu, Guoqiang Gao, Zefeng Yang, Wenfu Wei, Guangning Wu
Southwest Jiaotong University .Chengdu High-tech zone.Sichuan Province.China; wfwei@home.xwitu.edu.cn

CaSO4 Content in Contamination Influence on AC Pollution Flashover Characteristics of XWP2-160 Porcelain Insulator String
Daochun Huang, Wei Lu, Yongqing Deng, Jiangjun Ruan, Ziteng Xiong
School of Electrical Engineering, Wuhan University, China, People's Republic of; huangdc99@163.com

Simulation Study on Interturn Short Circuit of Rotor Windings in Generator by RSO Method
Tianhui Li1, Boyan Jia1, Bin Ding1, Hui Fan1, Ming Tang1, Xiaofeng Li1, Chi Dong1, Tianran Li1, Lu Sun1, Zhen Liu1, Ersong Chen1
1State Grid Hebei Electric Power Research Institute, People's Republic of China; 2ABB Cooperate Research Ltd, Switzerland; wdlth826@gmail.com

Kelvin probe for surface potential measurements on epoxy insulator for HVDC applications
Michael Schueller1, Robin Gremaud2, Matthias Bauer2, Lorenz G. Herrmann2, Jasmin Smajic1
1University of applied sciences Rapperswil / Institute of Energy Technology (IET), Switzerland; 2ABB Cooperate Research Ltd, Switzerland; mschuell@hsr.ch

Experimental Study of Live Working Safety Distance on UHV DC Transmission Line by Helicopter Hanging Basket
Yujian Ding1, Weidong Liu2, Yi Wu2, Xiuyuan Yao1
1CHINA ELECTRIC POWER RESEARCH INSTITUTE, China, People's Republic of; 2State Grid General Aviation Company, China, People's Republic of; dinya@epri.sgcc.com.cn

Different Approaches for Mathematical Evaluation of Resorption Currents in Nanodielectrics
Jaroslav Hornak, Pavel Trnka, Václav Mentlik, Ondřej Michal, Pavel Toltzaу
University of West Bohemia, Czech Republic; jhornak@rice.zcu.cz

Investigation of MV Power Cable Lines Using DAC Method for Assessment of the Technical Conditions of the Lines
Slawomir Noske1, Aleksandra Rakowska1, Krzysztof Siodla1
1Energa Operator S.A.; 2Poznan University of Technology; krzysztof.siodla@put.poznan.pl

Verification of Relative Permittivity Models for Composite Nanodielectrics at Elevated Temperatures
Jaroslav Hornak, Ondřej Michal, Pavel Trnka, Petr Kadlec, Václav Mentlik, Pavel Toltzaу
University of West Bohemia, Czech Republic; jhornak@ket.zcu.cz, mjonge@ket.zcu.cz

Metrology for very fast current transients
Stephan Passon1, Jussi Havunen2, Johann Meisner1, Michael Kurrat1
1Physikalisch-Technische Bundesanstalt, Germany; 2VTT Technical Research Centre of Finland Ltd; 3TU-Braunschweig, elenia; stephan.passon@ptb.de
Discussion and overvoltage analysis of NSDD in the capacitive current switching test of vacuum circuit-breaker

Guangwei FAN, Haojun LIU, Yuqiang SHI
Xi'an High Voltage Apparatus Research Institute Co., Ltd., China, People's Republic of; 273720853@qq.com

Research on Calibration System for Electric Transformer in Alpine region

Zhao huan¹, Fei ye², Chen jiangbo³, Mao anlan¹, Wang jingjing¹, Yu chunlai¹, Chen zhiwei¹
¹China Electric Power Research Institute, China, People's Republic of; ²China Southern Power Grid, China, People's Republic of; ³State Grid Electric Power Research Institute, China, People's Republic of; ⁴Heilongjiang Electric Power Research Institute, China, People's Republic of; ⁵North China Electric Power University, China, People's Republic of; beyondfeiye@163.com

Research and Application of Performance Verification Platform and Evaluation System for Partial Discharge Detector

Jin Wang, Min Zhang, Lin Gan, Wenxiong Mo, Hongbin Wang, Yu Qin, Simin Luo
Guangzhou Power Supply Bureau, China, People's Republic of; 8128458@qq.com, ZhangM.scut@126.com, 1017014562@qq.com, 1030212300@qq.com, 13503095341@139.com, qny1985@qq.com, 81157183@qq.com

A New model of Metal Oxide Arresters and the Recognition of Model Parameters

Li Xiong Sun¹, Kun Qin¹, Daming Cun¹, Jiayu Tan², Lin Du²
¹Southern Power Grid Company Limited Baoshan Power Supply Bureau; ²State Key Laboratory of Power Transmission Equipment & System Security and New Technology; 903401981@qq.com

A Study of Partial Discharge Behavior of Multiple Cavity Defects in Epoxy Insulation Material

ISAAC KWABENA KYERE³, JERRY WALKER², CUTHBERT NYAMUPANGEDENGU³
¹Vaal University of Technology, South Africa; ²Vaal University of Technology, South Africa; ³University of the Witwatersrand, Johannesburg, South Africa; isaack@vut.ac.za

Effects of Airflow on Atmospheric Pressure Surface Dielectric Barrier Discharge

Wenfu Wei, Shuai He, Shuai Wang, Xin Yan, Guoqiang Gao
School of electrical engineering, Southwest Jiaotong University, China, People's Republic of; vanxin.chongqing@163.com

Procedure for Determining the Growth of Water Trees in Cable Samples during 500 Hz Accelerated Ageing

ADEWUMI OLJUANA ADENIYI¹, JERRY WALKER², CUTHBERT NYAMUPANGEDENGU³
¹VAAL UNIVERSITY OF TECHNOLOGY, SOUTH AFRICA; ²VAAL UNIVERSITY OF TECHNOLOGY, SOUTH AFRICA; ³UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG, SOUTH AFRICA; adewumia@vut.ac.za

Effect of moisture on breakdown strength of oil-paper insulation under different voltage types

Leifeng Huang¹, Youyuan Wang¹, Xi Li¹, Chao Wei⁵, Yuncai Lu²
¹ChongQing University, China, People's Republic of; ²Jiangsu Electric Power Company Research Institute, Nanjing, China; hill_fei@163.com, y.wang@cqu.edu.cn

1200KV High Power Testing Laboratory Configuration and Optimized Design Method of Oscillating Circuit

Wenjie Zhou, Shen Hong, Yong Chen, Ling Zhang
NARI Group Corporation(State Grid electric power research institute), China, People's Republic of; zhouwenjies@qq.com

Study on Time-Frequency Entropy Method to Make Feature Extraction for DC PD Pulse Waveforms

Wenrong SI¹, Chenzhao FU¹, Lu CHEN¹, Shaojing WANG¹, Peng YUAN¹
¹State Grid Shanghai Electrical Power Research Institute, China, People's Republic of; ²Xi'an MaoRong Power Equipment Co., Ltd; siwenrong@126.com

Partial Discharge Growth Characteristics of Transformer Insulation Board Under AC-DC Compound Electric Field

Xinru Yu, Jianxin Guan, Huanchao Cheng, Pengfei Jia, Chao Wu
CHINA ELECTRIC POWER RESEARCH INSTITUTE, China, People's Republic of; yuxinru@aliyun.com

Integration Wiring Design of Routine Tests for 1000 kV Power Transformers

Miao Ye¹, Mengzhou Zhu¹, Guang Chen¹, Jiansheng Li¹, Jun Jiang²
¹State Grid Jiangsu Electric Power Co. Ltd. Research Institute, Nanjing 211103, China, People's Republic of; ²Nanjing University of Aeronautics and Astronautics, Nanjing 211106, China, People's Republic of; yunxiaodyufoxmail.com

Analysis of Partial Discharge Signals from Generator Propagation in Excitation Transformer by EMTP

Tianyan Jiang¹², Xiang Liu¹, Maoqiang Bi¹, Xi Chen¹, You Wang²
Research on Moisture Content Evaluation Algorithm of Transformer Oil-Paper Insulation System

Mingze ZHANG\(^1\), Ji LIU\(^1\), Pengshuai QI\(^1\), Qingguo CHEN\(^2\), Jialu LV\(^1\), Yufei SUN\(^1\), Xin CHEN\(^2\)
\(^1\)Harbin University of Science and Technology, China, People's Republic of; \(^2\)Heilongjiang Electric Power Research Institute, People's Republic of

Displaced neutral on woodpole structures with a 300 kV BIL

Taryn Robin Becker, Jerry Walker
VAAL UNIVERSITY OF TECHNOLOGY, South Africa; taryn@walmet.co.za

Cable Condition Diagnosis Based on Cable Surface Temperature

Huajie Yi
Glasgow Caledonian University, United Kingdom; Huajie.Yi@gcu.ac.uk

Leakage Current Patterns Observed in Polymeric Insulators Rotating Subjected to Wheel and Dip Test

Alok Ranjan Verma, Subba Reddy Basappa
Indian Institute of Science, Bangalore, India, India; alokranjanv@iisc.ac.in

The Effect of an Electrostatic Probe on Measurement of the Surface Charge

Bo Chen, Tiebing Lu, Donglai Wang, Yuan Wang
North China Electric Power University, Beijing, China; tiebinglu@ncepu.edu.cn

Multi frequency ultrasonic detection of water content in transformer oil with GA-BPNN

Zhuang Yang\(^1\), Qu ZHOU\(^1,2\), Xiaodong Wu\(^1\), Chao Tang\(^1,2\), Jian Hao\(^2\), Weigen Chen\(^2\)
\(^1\)Southwest University, China, People's Republic of; \(^2\)Chongqing University, China, People's Republic of; zhouqu@swu.edu.cn

Research on the Multiple Status Parameter Detection Technology of the Substation Equipment

Chen Min\(^1\), Zheng Hong\(^1\), Haojun Liu\(^1\), Kai Wang\(^1\), Jun Jiang\(^3\)
\(^1\)State Grid Zhejiang Electric Power Co. Ltd. Research Institute, China, People's Republic of; \(^2\)Hangzhou Kelin Electric Power Equipment Co., Ltd; \(^3\)Nanjing University of Aeronautics and Astronautics; jiangjun0628@163.com

Cables XLPE-insulation Residual Life Monitoring

Dmitry A. Polyakov\(^1\), Dmitry A. Yurchuk\(^1\), Konstantin I. Nikitin\(^2\)
\(^1\)Omsk State Technical University, Russian Federation; \(^2\)Tyumen Industrial University (Tobolst Industrial Institute), Russian Federation; polyakovdmitry@yandex.ru
O-EM2: Oral session for Aging, Space Charge, and Maintenance

**Time:** Thursday, 13/Sep/2018: 11:00am - 12:30pm  
**Location:** Room 3

**A Static Field Equivalence Method for Simulation of Fitting Surface Electric Field of ±500 kV DC Yards in Converter Stations**

Yiming Xie¹, Shuo Jin¹, Zhiye Du¹, Yu Shi², Zhibin Qiu¹, Yongqing Deng¹, Sheng Zhou¹

¹School of Electrical Engineering, Wuhan University, China, People's Republic of; ²College of Electrical and Information Engineering, Anhui University of Science and Technology, Huaian, China, People's Republic of; Technical Training Center of State Grid Hubei Electric Power Co., Ltd. Wuhan 430072, China; xieming@whu.edu.cn

**Design of Termination for an AC Disruptive Voltage Test on a 35 kV Cable**

Arthur Francisco Andrade, Edson Guedes Costa, Filipe Lucena Medeiros Andrade, Clarice Sofia Henrique Soares, George Rossany Soares Lira

Federal University of Campina Grande, Brazil; george@dee.ufcg.edu.br

**Design of Grading Ring for Composite Cross-arm in 500 kV Single-Circuit Transmission Tower**

Penglong He¹, Zhenhua Yu¹, Qingzhou Yang², Bo Zhang¹

¹Tsinghua University, China, People's Republic of; ²Hubei Electric Engineering Corporation, Wuhan, China, People's Republic of; shizhen@tsinghua.edu.cn

**Optimization of Corona Radio Interference Levels in HVDC Transmission Lines**

Carlos Tejada-Martinez¹, Fermin P. Espino-Cortes¹, Suat Ilhan², Aydogan Ozdemir³

¹Instituto Politécnico Nacional, Mexico; ²Istanbul Technical University, Turkey; carlos.tejada179@gmail.com

**Study on the Electromagnetic Field Distortion in HVDC/AC Hybrid Submarine Cable Tunnel**

Ting Zhu, Shuhong Wang, Naming Zhang, Ze Guo, Shuyu Wang

Xi'an Jiaotong University, China, People's Republic of; 13787006747@163.com, shwang@mail.xjtu.edu.cn

**Static Voltage Distribution of a Multi-Break Mechanical Switch for Hybrid HVDC Breaker**

Daochun Huang, Xuezong Wang, Zhibin Qiu, Jiangjun Ruan, Qiuyu Yang

School of Electrical Engineering, Wuhan University, China, People's Republic of; huangdc99@163.com
O-IS8-Epoxy: Oral session for High Voltage Insulation Systems

**Time:** Thursday, 13/Sep/2018: 11:00am - 12:30pm  
**Location:** Room 1

**Surface Electrical Performance of Epoxy Resin and Polytetrafluoroethylene under Arc Ablation**
Ze Yin, Wenxia Sima, Potao Sun, Qianqiu Shao, Hang Xu  
Chongqing University, China, People's Republic of; cquyinze@cqu.edu.cn

**Study on Residual Stress of Epoxy Resin under Different Cooling methods**
yushun zhao, tianqi zheng, kerong yang, yuanhan he, xuepei wang  
Hefei university of technology, China, People's Republic of; yushunzhao@126.com

**Electric properties and dielectric spectra of epoxy-based nanocomposites**
Marlene Stuefer, Josef Kindersberger  
Technical University Munich TUM, Germany; marlene.stuefer@tum.de

**Modelling and Measurement of the Dielectric Behavior of Mineral Oil**
Hans-Peter Oeftering1, Patrick Rumpelt2, Andreas Küchler3, Frank Jenau2, Ronny Fritsche1  
1FHWS University of Applied Sciences Wuerzburg-Schweinfurt, Germany; 2TU Dortmund, Germany; 3Siemens AG, Germany; hans-peter.oeftering@fhws.de

**Influence of Electric Field Type and Its Intensity on Contamination Accumulation Characteristics of Glass Specimen**
Hongwei Mei1, Mingze Li1, Song Gao2, Jie Chen2, Liming Wang3, Zhicheng Guan3  
1Graduate School at Shenzhen, Tsinghua University, China, People's Republic of; 2Jiangsu Electric Power Company Research Institute; runnermhw@163.com

**Study on Thermal and Electrical Properties of Epoxy Resin chain extension for Basin-type insulators**
kerong yang1, yushun zhao1, weijiang chen2, xuepei wang1, yuanhan he1  
1Hefei university of technology, China, People's Republic of; 2China Electric Power Research Institute, China, People's Republic of; yushunzhao@126.com
O-TE2: Oral session for Transients and EMC

**Time:** Thursday, 13/Sep/2018: 11:00am - 12:30pm  
**Location:** Room 2

**Research on DC Component Decay Time Constant of 1000 kV AC Filter Circuit Breakers in UHV Converter Station**

*Zhenqiang Li*¹,², *Mian FAN*², *Zhipeng ZHA*¹,², *Peihong ZHOU*¹,²

¹State Key Laboratory of Power Grid Environmental Protection, China, People's Republic of; ²China Electric Power Research Institute, China, People's Republic of; ¹133630004@qq.com

**The simulation model of SFCL and its cooperation with circuit breaker**

*MingQian WEN, Quan ZHOU, Xi OUYANG, TaoTao XIONG*

Chongqing University, China, People's Republic of; ¹1876453002@163.com, zhouquan@cqu.edu.cn

**On the Dynamic Electric Field Distribution of 500kV GIS Basin-type Insulators Under Very Fast Transient Over-voltage**

*Tao YANG, Rui YANG, Hengxin HE, Junjia HE*

State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, China, People's Republic of; ²2256061385@qq.com

**Parameter Identification of Surge Arrester Models Using Levenberg-Marquardt and Shuffled Complex Evolution Methods**

*Thainá Santos Xavier*¹, *George Rossany Soares Lira*², *Valdemir Silva Brito*²

¹Federal University of Campina Grande, Brazil; ²Federal Institute of Paraiba; george@dee.ufcg.edu.br

**Accuracy of Switching Transients Measurement with Open-air Capacitive Sensors near Overhead Lines**

*Peter WOUTERS*¹, *Fani BARAKOU*¹, *Shima MOUSAVI GARGARI*¹, *Jacco SMIT*², *Fred STEENNIS*²

¹Eindhoven University of Technology, Netherlands; ²TenneT TSO B.V., Netherlands; ³DNV GL, Netherlands; p.a.a.f.wouters@tue.nl