

TECHNICAL PROGRAM

Monday, June 27

9:00 **Opening ceremony**

9:30 **Hans Tropper Lecture:**
Fundamental Physics with Noble Liquid Detectors,
C. W. Fabjan, (CERN, Switzerland)

10:30 **Coffee Break**

Oral Session: 10:50 – 12:35

10:50 **INVITED TALK: Electron and Ion Transport in Dense Gases**
Borghesani A. F., *University of Padua, Italy*

11:20 **Ionization Potential and Nature of Charge Carriers of Fluid Hydrogen in Wide Pressure Interval**
Khrapak A. G. (1), Schmidt W. F. (2) and Yoshino K. (3)
(1) Institute for High Energy Density, Moscow, Russia; (2) Freie Universität Berlin, German; (3) Osaka University, Osaka, Japan

11:35 **A Comparison Between Excited States Detected Through VUV Photoionization and VUV Photon Absorption in Dielectric Liquids**
Guelfucci J. P., *Université Paul Sabatier, Toulouse, France*

11:50 **Physical and Chemical Processes Driven by Excess Electrons Drifted through Condensed Rare Gases**
Gordon E. B., *Institute of Problems of Chemical Physics, Moscow, Russia*

12:05 **Thermal Analysis of the Dielectric Behavior of Complex Liquids**
D. Senatra, *University of Florence, INFN, Italy*

12:20 **Properties of Liquids and Liquid Crystals in Nano-Scale Space**
K. Yoshino, R. Ozaki, Matsuhisa Y., Hiwatashi S. and Ozaki M.
Osaka University, Japan

12:35 **Luncheon**

Oral Session: 14:00 – 15:30

14:00 **INVITED TALK: Scintillation of Liquid Xenon and Its Application to Nuclear Radiation Detectors**
T. Doke, *Waseda University, Japan*

14:30 **Two-Phase Electron Emission Radiation Detectors**
Bolzdynya A. I., *Case Western Reserve University, Ohio, USA*

14:45 **The ZEPLIN III Dark Matter Detector**
Araújo H. M., *Imperial College, London, UK and on behalf of the UKDM Collaboration*

- 15:00 **Development of a Micromegas Micro Pattern Charge Readout Device for use in Two Phase Xenon Dark Matter Detectors**
Lightfoot P. K., Hollingworth R. J., Tovey D. and Spooner N. J. C.
University of Sheffield, UK
- 15:15 **Study of Liquid Xenon Scintillation for Dark Matter Search**
Neves F., Chepel V., Solovov V., Pereira A., Lopes M. I., Pinto da Cunha J, Mendes P., Lindote A., Silva C. P., Ferreira Marques R. and Policarpo A. J. P. L.
LIP-Coimbra and University of Coimbra, Portugal
- 15:30 **Saturation Curves and Energy Resolution of LRG Ionization Spectrometers**
I. Obodovski, *Moscow Engineering and Physical Institute, Moscow, Russia*
- 15:45 **Coffee Break**

Poster Session I: 16:00 – 17:30

Collision Induced Selection rules for Formation of molecular Clusters in Polar Liquids Through Dielectric Study

S. C. Mehrotra, *B.A.M.University, Aurangabad, India*

Interface Stability of Oil-Water System under Electric Stress

Bandaru S., Tiwari A., Bohori A. and Asokan T.
GE India Technology Center, Bangalore, India

Temperature Dependence of Kerr coefficient of some New Kerr Solutions

K.Rajagopal, *Government College of Engineering, Tirunelveli, Tamilnadu, India*

Experimental Study and Computer Simulation of Surface Conductivity at Liquid/Solid Interface

Korobeynikov S. M., Melekhov A. V. (2), Royak M. E.(1), Trakimus Yu. (1), Agoris D. P. (3)
(1) *Novosibirsk State Technical University, Novosibirsk, Russia;* (2) *Institute of Laser Physics, Novosibirsk, Russia;* (3) *University of Patras, Patras-Rio, Greece*

The Electrical Double Layer and Cavity Quantum Electrodynamics

T. Prevenslik, *Hong Kong*

Time-of-Flight Method for Determination of Concentration of Molecular Impurity in Atomic Liquids

Atrazhev V. M.(1), Chernysheva I. V. (2), Bonifaci N. (3) and Denat A.(3)
(1) *Institute for High Energy Densities of Associated Institute for High Temperatures, Russia;* (2) *Moscow Engineering Physics Institute (MEPhI), Moscow, Russia;* (3) *Laboratoire d'Electrostatique et de Materiaux Dielectriques, CNRS, Grenoble, France*

Vapor bubble formation in superheated liquids in the external electric field

V.S Vorob'ev (1), S.P. Malysenko (2);
(1) *Institute for High Energy Densities, Moscow, Russia;* (2) *Institute for High Temperatures, Moscow, Russia*

Electroacoustic and Dielectric Dispersion of Concentrated Colloidal Suspensions

Ahualli S.(1), Arroyo F. J.(2), Carrique F.(3), Jiménez M. L. (1) and Delgado A. V. (1)

(1) University of Granada, Spain; (2) University of Jaén, Spain; (3) University of Málaga, Spain

Tunable Pattern Structures in Dielectric Liquids under High DC Electric Fields

Espin M. J., Delgado A. V. and Ahualli S., *University of Granada, Granada, Spain*

Fluctuation in Energy Loss Measurement in Allene-Doped Liquid Argon for Heavy Ions

Masuda K.(1), Nishikido F.(2), Shibamura E.(3), Kikuchi J. (2), Doke T. (2) and Murakami T.(4)
(1) Nagoya Univ.Nagoya, Japan; (2) Waseda University, Japan; (3) College of Health Science, Saitama, Japan; (4) HIMAC, National Institute of Radiological Science, Chiba, Japan

Threshold Dependence of Fluctuations of Thermal Neutron Ionization Yield on Density of Xe+ 3He Gas Mixture

Bolozdynya A. I. (1) and Bolotnikov A. E. (2)

(1) Case Western Reserve University, Cleveland, Ohio, U. S.A.; (2) Brookhaven National Laboratory, Upton, New York, U.S.A.

Performance of Dual Phase XeTPC with CsI Photocathode and PMTs Readout for the Scintillation Light

Aprile E., Giboni K. L., Kamat S., Majewski P., Ni K., Singh B. K. and Yamashita M.

Physics Department and Astrophysics Laboratory, Columbia University, New York, NY, USA

Excess Electron Mobility in Liquid Kr-CH₄ Mixtures

Borghesani A. F. (1), Folegani M. (2), Frabetti P. L. (3) and Piemontese L. (4)

(1) University of Padua Padua, Italy; (2) AIM S.p.A., Milan, Italy; (3) I.N.F.N., University of Bologna Bologna, Italy; (4) I.N.F.N., University of Ferrara Ferrara, Italy

Progress of Xenon Liquefaction Technology by Using a Pulse Tube Cryocooler

Haruyama T., *High Energy Accelerator Research Organization (KEK), Tsukuba, Japan*

Simulation of a High Performance γ -Camera Concept for PET Based on Liquid Xenon and Gaseous Photomultiplier

Grignon C. (1), Breskin A. (2), Carlier T. (4), Couturier O. (4), Cussonneau J.P. (1), Ferrer L. (4), Luquin L. (1), Métivier V. (1), Peskov V. (3), Pheron F. (1), Servagent N. (1), Thers D. (1), Vasseur A. (4)

(1) Subatech, IN2P3 CNRS, Université de Nantes, Nantes, France; (2) Weizmann Institute, Israel; (3) Pole Universitaire Léonard de Vinci, Paris, France; (4) Service de Médecine Nucléaire, Hôpital de Nantes, France

Liquid Argon Ionization Detector for Double Beta Decay Studies

V.D.Ashitkov (1), A.S.Barabash (1), S.G.Belogurov (1), G.Carugno (2), S.I.Konovalov (1), F.Massera (3), G.Puglierin (2), R.R.Saakyan (1,4), V.N.Stekhanov (1), V.I.Umatov (1)

(1) Institute of Theoretical and Experimental Physics, Moscow, Russia; (2) Università di Padova, Padova, Italy; (3) INFN, Sezione di Bologna, Bologna, Italy; (4) University College London, London, UK

A new measurement of refractive index of liquid xenon at the VUV region

S. Nakamura, *Yokohama National Laboratory, Japan*

17:30 Reception at City Hall

Tuesday, June 28

Oral Session: 9:00 – 10:30

- 9:00 **KEYNOTE TALK: Non-Polar Liquids as Detection Media in Radiation Detectors**
W. F. Schmidt, *Freie Universität Berlin, Berlin, Germany*
- 9:30 **Electron Transport Coefficients in Liquid Xenon**
Atrazhev V. M. (1), Berezhnov A. V. (1), Dunikov D. O. (1), Chernysheva I. V. (2), Dmitrenko V. V. (2) and Kapralova G. (2)
(1) *Institute for High Temperatures, Russian Academy of Sciences, Moscow, Russia;*
(2) *Moscow Engineering Physics Institute (MEPhI), Moscow, Russia*
- 9:45 **Properties of Liquid Rare Gas Scintillation and Ionization Detectors**
A. Hitachi, *Kochi Medical School, Japan*
- 10:00 **Measurement of the Ionization and Scintillation Yield of Nuclear Recoils in Liquid Xenon**
Aprile E., Giboni K. L., Kamat S., Majewski P., Ni K., Singh B. K. and Yamashita M.
Physics Department and Astrophysics Laboratory, Columbia University, New York, USA
- 10:15 **Transparency of a 100 Liter Liquid Xenon Scintillation Calorimeter Prototype and Measurement of its Energy Resolution for 55 MeV Photons**
Signorelli G. *INFN and University of Pisa, Italy and on behalf of the MEGA Collaboration*
- 10:30 **Coffee Break**

Oral Session: 11:00 – 12:30

- 10:00 **INVITED TALK: High Field Conduction and Prebreakdown Phenomena in Dielectric Liquids**
A. Denat, *LEMD, CNRS & Joseph Fourier University, Grenoble, France*
- 11:30 **The Peculiarities of Transient Currents in Dielectric Liquids**
Dikarev B. N., Romanets R. G. and Karasev G. G.
Pridniprovs'ka Academy of Civil Eng. and Architecture, Dnipropetrovsk, Ukraine
- 11:45 **The Incipient Mode of Streamers in a Dielectric Liquid as a Function of Electric Field**
Kim M., Reedy S. D. and Hebner R. E., *University of Texas, Austin, Texas, USA*
- 12:00 **Influence of Gas Bubbles on Electrical Discharges in Small Working Gaps**
Schulze H.-P., Mecke K. and Wollenberg G.
Otto-von-Guericke-University Magdeburg, Magdeburg, Germany
- 12:15 **Optical Field Dependence of Breakdown in Liquids by Q-Switched Lasers**
Yasojima Y., *Electronic Engineering and Computer Science, Kinki University, Japan*
- 12:30 **Luncheon**

Oral Session: 14:00 – 15:30

- 14:00 **Breakdown Processes in Transformer Insulation under LI Voltages**
Liu R. and Jaksts A., *ABB AB, Corporate Research, Västerås, Sweden*
- 14:15 **Effect of High-Speed Repetition of Traveling Wave Voltage Pulse on Streamer Initiation in Water**
Kadowaki K., Nishimoto S. and Kitani I., *Ehime-University, Ehime, Japan*
- 14:30 **Models of Pulse Conductivity of Streamers Propagating in Dielectric Liquid**
Kupershtokh A. L. and Karpov D. I.,
Lavrentyev Institute of Novosibirsk, Novosibirsk, Russia
- 14:45 **Characterization and Spectroscopic Study of Positive Streamers in Water**
Nieto-Salazar J. (1,2), Bonifaci N. (1), Denat A. (1) and Lesaint O. (1)
(1) *CNRS & Joseph Fourier University, Grenoble, France*; (2) *CONACyT/National Council of Science and Technology, México*
- 15:00 **Modeling of phenol decomposition induced by pulsed corona discharge in water**
Dors M. (1), Nichipor G. V. (2), Mizeraczyk J. (1)
(1) *Institute of Fluid Flow Machinery, Gdańsk, Poland*; (2) *Joint Institute of Power and Nuclear Research, Minsk-Sosny, Belarus*
- 15:15 **Partial Discharge Characterisation in Liquid Nitrogen Composite Systems**
Swaffield D. J., Lewin P.L., Tian Y., Chen G. and Swingler S. G.
University of Southampton, UK
- 15:30 **Coffee Break**

16:00 Concert and visit to Old University

Wednesday, June 29

Oral Session: 9:00 – 10:30

- 9:00 **INVITED TALK: Electrohydrodynamic Induction Pumping of Dielectric Liquid Films**
Seyed-Yagoobi J., *Illinois Institute of Technology, Chicago, Illinois, USA*
- 9:30 **Dual Ferrohydrodynamic and Electrohydrodynamic Flow Instabilities and Patterns in Uniform DC, AC and Rotating Fields**
Zahn M., *Massachusetts Institute of Technology, Cambridge, USA*
- 9:45 **Field-Induced Deformation and Disruption of a Planar Water-Oil Interface under the Influence of a Conducting Sphere**
Atten P. (1), Aitken F.(1) and Koulova-Nenova D. (2)
(1) *LEMED, CNRS and Université Joseph Fourier, Grenoble, France*; (2) *Institute of Mechanics, Sofia, Bulgaria*
- 10:00 **Impulse Creeping Discharge Characteristics in Insulating Oils with EHD Function Reinforced by Added HFC Gas Components**
Hanaoka R. (1), Nakamichi H. (1), Takata S. (1), Koide H. (2) and Hatta Y. (2)

(1) Kanazawa Institute of Technology, Ishikawa, Japan; (2) Japan AE Power Systems Ichihara, Japan

10:15 **Numerical Approach of the Electro-Thermo-Convective Motion in a Layer of a Dielectric Liquid**, Traoré Ph. (1), Koulova-Nenova D. (2) and Romat H. (1);
(1) *Laboratoire d'Etudes Aérodynamiques, Futuroscope-Chasseneuil, France;*
(2) *Institute of Mechanics, Sofia, Bulgaria*

10:30 **Coffee Break**

Poster Session II : 11:00 – 12:30

Peculiarities of Formation of the Impulse Discharge in Liquids: To the Existence of Transition Zone Attached to a Potential Electrode

Torshin Yu. V., *The All Russian Electrotechnical Institute, Moscow, Russia*

Optical Spectral Diagnostics of Electrical Discharges in Oil

Boczar T. and Zmarzły D., *Technical University of Opole, Opole, Poland*

Transient Processes in Dielectric Liquids

Zhakin A.I., *Kursk State Technical University, Kursk Russia*

1/f Noise in Streaming Electrification

Zmarzły D., *Technical University of Opole, Opole, Poland*

The pre-breakdown current-voltage and EHD characteristics calculation of liquid insulators

Apfelbaum M. S., *Institute for High Energy Density, Moscow, Russia*

Comparison of Streamers in Mineral and Synthetic Insulating Oils with Electrical Treeing in Solids

Al-Sulaiman A. A. and Iqbal Qureshi M., *King Saud University, Riyadh, Saudi Arabia*

Influence of Cofield Liquid Flow on the Breakdown Strength of Mineral Oil under Highly Nonuniform Field

Zaky A. A. (1) and Megahed I. Y. (2)

(1) *Arab Academy for Science and Technology Alexandria, Egypt;* (2) *Alexandria University, Alexandria, Egypt*

Experimental Investigation of the Behavior of Microscopic Bubbles in Insulating Liquids: Influence of Pressure and Temperature

Qotba R., Aitken F. and Denat A., *CNRS & Joseph Fourier University, Grenoble, France*

Pre-Breakdown Behaviour of Oil-Board-Arrangements under Lightning Impulse Stress

Lick W. and Muhr M., *University of Technology, Graz, Austria*

Streamer Initiation in Cyclohexane, Midel 7131 and Nytro 10X

Hestad Ø. L., Ingebrigtsen S. and Lundgaard L. E.

SINTEF Energy Research, Trondheim, Norway

Change of Ignition Conditions at the Spark Erosion Process by Adding Molecules with Defined Chemical Structures to a Dielectric Fluid

Rehbein W. (1) and Schulze H.-P. (2)

(1) *Oelheld GmbH, Stuttgart, Germany*; (2) *Otto-von-Guericke-University, Magdeburg, Germany*.

Optical and Electrical Investigations on Creeping Discharges over Solid/Liquid Interfaces under Impulse Voltage

Kebbabi L. and Beroual A., *Ecole Centrale de Lyon, CNRS, France*

Stochastic Model of Partial Discharge Activity in Liquid and Solid Dielectrics

Kupershtokh A. L. (1), Stamatelatos C. (2) and Agoris D. P. (2)

(1) *Lavrentyev Institute of Hydrodynamics, Novosibirsk, Russia*; (2) *University of Patras, Rion, Greece*

Characterisation of Surface Partial Discharge Behaviour in Liquid Nitrogen

Swaffield D. J., Lewin P.L., Tian Y., Chen G. and Swingler S. G.

University of Southampton, UK

Modelling of Positive Streamers Propagation in Transformer Oil

Aka-Ngnui T. and Beroual A., *Ecole Centrale de Lyon, CNRS, France*

High Field Transport Phenomena in Point-Plane Geometry in Liquid Helium

Zhiling L.(1), Bonifaci N. (1), Denat A. (1) and Atrazhev V (2)

(1) *CNRS and Joseph Fourier University, Grenoble, France*; (2) *Institute for High Energy Densities, Moscow, Russia*

The Investigation of the Recombination Area of Symmetric-Opposite EHD Flows

Stishkov Yu. K. and Elagin I. A.

St. Petersburg State University, St. Petersburg, Russia

Electrophysical Principles of Electrogas- and Electrohydrodynamic Control of Gas and Dielectric Liquid Jets and Flows

Nagornyi V. S., *St.Petersburg State Polytechnic University, St. Petersburg, Russia*

Electrohydrodynamic Change of Flow Pattern of Dielectric Fluid Streams and Jets under Electric Field and Use of it as Applied to Control System

Nagornyi V. S. and Grishin A. S.

St.Petersburg State Polytechnic University, St. Petersburg, Russia

Numerical Calculation of AC Electrical Conduction Associated with EHD Motion in Mineral Oil

Nakano M., *Ichinoseki National College of Technology, Japan*

Electrocoalescence in Stagnant Emulsions

Ingebrigtsen S., Berg G. and Lundgaard L. E.

SINTEF Energy Research AS, Trondheim, Norway

Interfacial EHD Instability of a Liquid of Finite Conductivity under Unipolar Charge Injection

Chicón R. (1) and Pérez A. T. (2)

(1) *Universidad de Murcia, Spain*; (2) *Universidad de Sevilla, Spain*

Self-Similar Solutions for Conic Cusps Formation at the Surface of Dielectric Liquids in Electric Field

Zubarev N. M., *Institute of Electrophysics, Ekaterinburg, Russia*

Pumping Of Liquids Using Travelling Wave Electro-Osmosis: A Nonlinear Analysis

González A., Ramos A. and Castellanos A., *Universidad de Sevilla, España*

Motion and Deformation of a Water Droplet in Oil Subjected to a Nonuniform Electric Field

Benselama A. M.(1,2), Pham P. (2), Glière A. (2) and Atten P. (1)

(1) *LEMD, CNRS-UJF, Grenoble, France*; (2) *LETI – CEA Recherche Technologique, Grenoble, France*

Observation of Electrohydrodynamically Atomized Dielectric Liquids by Real-Time and High Speed Infra-Red Thermal Images

Chang J. S. (1), Brocilo D. (1), Ewing D. (1), Lebert A. (1), Harvel G.D. (1), Urashima K. (1), Hirata H. (2) and Matsumoto S. (2)

(1) *McMaster University, Hamilton, Canada* ; (2) *Toyota Motor Co., Toyota, Alchi, Japan*

The nonlinear effects of electric fields on thin evaporating films

Lyushnin A.V., *Perm State Pedagogical University, Perm, Russia*

12:30 **Luncheon**

14:00 Excursion to Conimbriga and Montemor-o-Velho

Thursday, June 30

Oral Session: 9:15 – 10:30

9:15 **Critical Conditions for Electrically Induced Coalescence of Two Very Close Water Droplets in Oil**

Atten P., *LEMD, CNRS and Université Joseph Fourier, Grenoble, France*

9:30 **Experiments on AC Electrokinetic Pumping of Liquids Using Arrays of Microelectrodes**

García P. (1), Ramos A. (1), Green N. (2) and Morgan H. (2)

(1) *Universidad de Sevilla, Spain*; (2) *University of Southampton, UK*

9:45 **Mechanism of Dielectric Fluid Transport by Air-Wave Type Electrohydrodynamic Pumps**

Ohyama R. (1), Kumeta M. (1), Ueda A. (1), Watson A. (2) and Chang J. S. (3)

(1) *Tokai University, Kanagawa, Japan*; (2) *University of Windsor, Ontario, Canada*; (3) *McMaster University, Ontario, Canada*

10:00 **Elongation of Water Drops in Oil During Transient Electric Fields**

Berg G. (1), Lundgaard L. (1) and Hansen F. K. (2)

(1) *SINTEF Energy Research, Trondheim, Norway* (2) *University of Oslo, Oslo, Norway*

10:15 **Experimental Analysis of Electrohydrodynamic Chaotic Regimes in Low Conducting Liquids Subjected to Corona Discharge**
Soria C., Pérez A. T. and Khayari A., *Universidad de Sevilla, Spain*

10:30 **Coffee Break**

Oral Session: 11:00 – 12:30

11:00 **INVITED TALK: Testing, Evaluation and Standardisation of Transformer Oils**
Pompili M. (1), Mazzetti C. (1) and Bartnikas R. (2);
(1) *University of Roma “La Sapienza”*; (2) *Institute de Recherche d’Hydro-Quebec, Varennes, Québec Canada*

11:30 **Analyses of Electro-Chemical Characteristics of Vegetable Oils as an Alternative Source to Mineral Oil-Based Dielectric Fluid**
Amanullah Md. (1), Islam S. M. (2), Chami S. (2) and Ienco G. (3)
(1) *CSIRO Petroleum, Perth, Australia*; (2) *Curtin University of Technology, Perth, Australia*; (3) *Testing and Commissioning Services, Perth, Australia*

11:45 **Moisture Effects on the Electric Strength of Oil/Pressboard Insulation Used in Power Transformers**
Krause Ch., Brupbacher P., Fehlmann A. and Heinrich B.
WEIDMANN Transformerboard Systems, Rapperswil, Switzerland

12:00 **Properties of Ester Liquid Midel 7131 as an Alternative Liquid to Mineral Oil for Transformers**
Borsi H. and Gockenbach E.
Schering-Institute, University of Hannover, Germany

12:15 **Aging of Kraft Paper by Acid Catalyzed Hydrolysis**
Lundgaard L. E. (1), Hansen W. (1), Ingebrigtsen S. (1), Linhjell D. (1), Dahlund M. (2);
(1) *SINTEF Energy Research, Trondheim, Norway*; (2) *ABB Transformers, Ludvika, Sweden*

12:30 **Luncheon**

Oral Session: 14:00 – 15:30

14:00 **On the Criterion for the Design of Oil-Cellulose Structures**
Shaw C. (1), Nelson J. K. (1) and Prevost T. A. (2)
(1) *Rensselaer Polytechnic Institute, Troy, NY, USA*; (2) *EHV-Weidmann Industries, St. Johnsbury, VT, USA*

14:15 **Improvement of Power Transformers by Using Mixtures of Mineral Oil with Synthetic Esters**
Perrier C. (1,2), Beroual A. (1) and Bessede J.-L. (2)
(1) *Ecole Centrale de Lyon, France*; (2) *AREVA T&D, ARC, Villeurbanne, France*

14:30 **Interaction Mechanisms of Natural Ester Dielectric Fluid and Kraft Paper**
Rapp K. J., McShane C. P. and J. Luksich J.
Cooper Power Systems, Waukesha, Wisconsin, USA

14:45 **Partial Discharge Detection in Oil with Optical Methods**

Schwarz R., Muhr M. and Pack S.
Institute of High Voltage Engineering and Systemmanagement, Graz, Austria

15:00 Dielectric Spectroscopy by Differential Measurements in Transmission Lines on Self-Associating Nanostructures

Lanzi L., Carlà M., Gambi C. M. C. and Lanzi L.
University of Florence and INFN, Sesto Fiorentino, Italy

15:15 Impulse and ac PD Inception Characteristics of LN2/Polypropylene Laminated Paper Composite Insulation System

Okubo H. (1), Nagino M. (1), Kojima H. (1), Hayakawa N. (1), Takahashi T. (2) and Yasuda K. (3)
(1) Nagoya University, Nagoya, Japan; (2) Central Research Institute of Electrical Power Industry, Yokosuka, Japan; (3) Super-GM, Osaka, Japan

15:30 Coffee Break

Poster Session III : 16:00 – 17:30

Time-Frequency Analysis of the Acoustic Emission Pulses Generated by Multi-Source Partial Discharges in Oil

Boczar T., *Technical University of Opole, Poland*

An Optimal Wavelet Filtering Method for Noise Suppression of PD Measured Signal and its Location in Power Transformer Winding

Naderi Mo. S. (1,2), Vakilian M. (1), Blackburn T. R. (2), Phung B. T. (2), Nam O H. (2) and Naderi M. S. (3)
(1) Sharif University of Technology, Tehran, Iran; (2) University of New South Wales, Sydney, Australia; (3) Amirkabir University of Technology, Tehran, Iran.

A Fuzzy Information Optimization Processing Technique for Monitoring the Transformer in Neural-Network On-Line

Mei D. and Min H., *South China University of Technology, Guangzhou, China*

Dielectric Response of Oil-Impregnated Cellulose from 0.1 mHz to 3 MHz

Linhjell D. (1), Hestad Ø. L. (1), Gäfvert U. (2) and Lundgaard L. E. (1)
(1) SINTEF Energy Research, Trondheim, Norway; (2) ABB Corporate Research, Västerås, Sweden

Temperature Dependent Dielectric Spectroscopy in Frequency Domain of High-Voltage Transformer Oils Compared to Physicochemical Results

Paraskevas C. D., Vassiliou P. and Dervos C. T.
National Technical University of Athens, Greece

Application of Low Frequency Dielectric Spectroscopy to Estimate Condition of Mineral Oil

Shayegani A. A. (1), Borsi H. (1), Gockenbach E. (1) and Mohseni H. (2)
(1) Schering-Institute, University of Hannover, Germany; (2) University of Tehran, Iran

Experimental Research on Relationship between Discharge in Insulation Oil and Emerging Speed of Fault Gas

Zhou L., Wu G., Zhang J. and Sheng J., *Southwest Jiaotong University, Chengdu, China*

Software System and Realization of Fault Diagnosis for Traction Transformer Based on Compound Gas Analysis and Bayesian Statistics

Su C., Zhou L., Wu G., Wang H., *Southwest Jiaotong University, Chengdu, China*

A Novel Method to On-Line Measuring of Power Factor ($\tan \delta$) and Capacitance of Transformers' Bushings

Setayeshmehr A., Akbari A., Borsi H. and Gockenbach E.

Schering-Institute, University of Hannover, Germany

Research on the Fault Diagnosis of Oil-filled Transformer Based on Correlation of Fault-related Gases

Zhang J., Zhou L., Sheng J. and Wu G., *Southwest Jiaotong University, Chengdu, China*

Electrical Characteristics before and after Thermal Ageing of Main Insulating Materials for Pole Transformers

J. Jung and Y. Lim, *Korea Electrical Safety Research Institute, Korea*

DC Breakdown Voltage Characteristics in the Presence of Metallic Particles in Saturated Liquid Helium

Hara M. (1), Maeda Y. (1), Nakagawa Y. (1), Suehiro J. (1) and Yamada S. (2)

(1) *ISEE, Kyushu University, Fukuoka, Japan*; (2) *National Institute of Fusion Science, Toki, Japan*

Analyses of Physical Characteristics of Vegetable Oils as an Alternative Source to Mineral Oil-Based Dielectric Fluid

Amanullah Md. (1), Islam S. M. (2), Chami S. (2) and Ienco G. (3)

(1) *CSIRO Petroleum, Perth, Australia*; (2) *Curtin University of Technology, Perth, Australia*; (3) *Testing and Commissioning Services, Perth, Australia*.

X-Wax Formation in Transformer Liquid Dielectrics

Asokan T. and Bandaru S., *GE India Technology Center, Bangalore, India*

Kerr Electro-Optic Measurement of Electric Field Distribution in Rapeseed Ester Oil and Pressboard Composite System

Nakamura K. (1), Kato K. (1), Koide H. (2), Fujii K. (2) Okubo H. (1)

(1) *Nagoya University, Nagoya, Japan*; (2) *Japan AE Power Systems Corporation, Chiba, Japan*

Electrical Measurements of Insulating Materials Used in Oil Filled HVDC Cables: Paper and Paper-Polypropylene-Paper Laminates

Cavallini A., Montanari G. C. and Palmieri F., *DIE-LIMAT, University of Bologna, Italy*

Preliminary Investigations on the Insulating Liquid used in some Loading Resistances to Quantify Premature Damage Causes

Fofana I. (1), Wasserberg V. (2), Borsi H. (2), Gockenbach E. (2) and Farzaneh M (1)

(1) *International Research Centre for Atmospheric Icing and Power Network Engineering (CenGivre), University of Quebec in Chicoutimi, Qc, Canada*; (2) *Schering- Institute, University of Hanover, Germany*

Study on Loss-of-Life of Oil-Filled Traction Transformer Using On-Line DGA Technology

Zhou L., Wu G., Sheng J. and Zhang J., *Southwest Jiaotong University, Chengdu, China*

Effect of Dampness on Oil-paper Insulation Aging Rate

Wang H., Zhou L., Wu G. and Su C., *Southwest Jiaotong University, Chengdu, China*

Flow Electrification in Power Transformers: Study of a Potential Remedy

Bourgeois A., Paillat T. (1), Mortha G. (2), Moreau O. (3), Bertrand Y. (4) and Touchard G. (1)
(1) *LEA, Université de Poitiers, France*; (2) *Ecole Française de Papeterie et des Industries Graphiques, Domaine Universitaire, St Martin d'Hères, France*; (3) *Electricité De France R&D, Clamart, France*; (4) *Electricité de France R&D, Moret sur Loing, France*

Study on Thermal Aging Characteristic of Traction Transformer with Oil - paper Insulation

Sheng J., Zhou L., Zhang J., Wu G., *Southwest Jiaotong University, Chengdu, China*

Research of Spontaneous and Ionization Current in the Mixture of Cyclohexane and Honey

Matuszewski T. and Reglińska B., *Merchant Academy in Gdynia, Gdynia, Poland*

Sign Inversion of Dominant Photocarrier of Poly (3-alkylthiophene) Associated with Solid to Liquid Phase Transition

Onoda M. and Tada K., *University of Hyogo, Japan*

Impedance Spectroscopy of Water Confined in Porous Dielectric Matrixes

Korolev F. A., Kytin V. G. and Kozlov S. N.
M.V. Lomonosov Moscow State University, Moscow, Russia

Broad Band Electromagnetic Characterization Method of Nematic Liquid Crystals Using Coplanar Waveguide

Hinojosa J., *Universidad Politécnica de Cartagena, Spain*

Conducting and Photo-active Polymers in Liquid and Solution States Studied by Acoustic Shear Horizontal Wave

K. Yoshino (1), R. Ozaki (1), H. Moritake (2) and K. Toda (1)
(1) *Osaka University, Japan*; (2) *Electrical and Electronic Engineering, National Defense Academy, Japan*

Effect of Dielectric Saturation of Water on Transmembrane Potential in Biological Cells,

El-Hag A. H., Zheng Z., Boggs S. A. and Jayaram S. H.
University of Waterloo, Ontario, Canada.

Controlled Deposition of Electrospun Poly (Ethylene Oxide) Fibers via Insulators

Ying Y. (1), Zhidong J. (2) and Zhicheng G. (2)
(1) *Tsinghua University, Beijing, China*; (2) *Tsinghua University, Shenzhen, Guangdong China.*

Application of High Conducting Gel Electrolytes Using Ionic Liquids to the Dye-Sensitized Solar Cell

J. Kyokane (1), M. Yoshimura (1), H. Sawada (2)
(1) *Nara National College of Technology, Nara, Japan*; (2) *Hirosaki University, Hirosaki, Japan.*

19:00 Conference Dinner at “Palácio de S. Marcos”

Friday, July 1

Oral Session: 9:00 – 10:30

- 9:00 **Analysis of Partial Discharge Phenomena in Paper-Oil Insulation Systems as a Basis for Risk Assessment Evaluation**
Cavallini A. (1), Montanari G. C. (1) and Ciani F. (2)
(1) DIE-LIMAT, University of Bologna, Italy; (2) TechImp Srl, Bologna, Italy
- 9:15 **Dielectric Spectroscopy and Gas Chromatography Methods Applied on High-Voltage Transformer Oils**
Dervos C. T. (1), Paraskevas C. D. (1), Skafidas P. D. (1), and Stefanou N. (2)
(1) National Technical University of Athens, Greece; (2) Public Power Corporation, Aegaleo, Greece.
- 9:30 **Effects of Physical-Chemical Properties of Oil on the Dielectric Response of Transformer Oil Samples and Transformer Insulation**
Babuder M. and Končan-Gradnik M.
Milan Vidmar Electric Power Research Institute, Ljubljana, Slovenia
- 9:45 **Early Detected Transformers Incipient Faults by means of Physical-Chemical Diagnostics**
Varl A. and Končan-Gradnik M.
Milan Vidmar Electric Power Research Institute, Ljubljana, Slovenia
- 10:00 **Dynamic Viscosity Change Measurement of Liquid and Liquid Crystal Using Propagation Velocity Change of Shear Horizontal Wave**
Moritake H. (1), Kim J. (1), Toda K. (1) and Yoshino K. (2)
(1) National Defense Academy, Kanagawa, Japan; (2) Osaka University, Japan.
- 10:15 **A Study on Effect of Medium Conductivity on its Electric Strength under Different Source Conditions in Nanosecond Regimes**
Grenier J., Jayaram S. H., El-Hag A. H. and Kazerani M.
University of Waterloo, Ontario, Canada
- 10:30 **Coffee Break**

Oral Session: 11:00 – 11:45

- 11:00 **Application of Perfluorocarbon Liquids for a-C:F Film Production on Electrodes by Plasma Enhanced Chemical Vapor Deposition**
Sakai Y., Tazawa S., Bratescu M-A., Suda Y. and Sugawra H.
Hokkaido University, Sapporo, Japan

11:15 Dielectric Properties of Non-Toxic Tissue-Equivalent Liquids for Radiowave Safety Tests

Fukunaga K. (1), Watanabe S. (1), Asou H. (2) and Sato K. (2)

(1) *National Institute of Information and Communications Technology, Tokyo, Japan;*

(2) *NTT Advanced Technology, Tokyo, Japan*

11:30 Dielectric Properties of Alternative Refrigerants - A Review

Mardolcar U. V., Santos F. J. V. and Nieto de Castro C. A.

(1) *Instituto Superior Técnico, Lisboa, Portugal;* (2) *Faculdade de Ciências da Universidade de Lisboa, Portugal.*

11:45 Electrostatic Charging tendency Measurements in Terms of Temperature

P. Mas (1), G. Touchard (1) , and H. Muller (2)

(1) *Laboratoire d'Études Aérodynamiques, Futuroscope-Poitiers, France;*

(2) *Électricité de France, Clamart, France*

12:00 Closing Ceremony