2023 INMR WORLD CONGRESS

Shangri-La Hotel, Bangkok, Thailand
Nov 12-15, 2023

Conference Program by Session

More speakers & topics still being added

Plenary General Session

This session will cover important topics impacting design, operation and maintenance of overhead lines, underground power cables and substations.

Session Chair: Marvin Zimmerman, INMR, Canada

Break-Out Session #1
Latest Developments in Insulator Design, Application & Inspection

This session will explore the latest technological developments aimed at optimizing insulator design and application as well as inspection processes and equipment to assess condition in service.

Session Chair: Dr. Igor Gutman, Independent Insulation Group, Sweden

Break-Out Session #2
Testing & Condition Assessment of Cable Systems & Accessories

This session will discuss approaches and methodologies to test cable systems both in the laboratory and on-site as part of pre-commissioning or condition monitoring.

Session Chair: Paul Leufkens, Power Projects Leufkens, United States

Break-Out Session #3
Technology & Service Experience in Application of Surge Arresters

This session will review condition monitoring technologies and experience in different applications of surge arresters to protect lines and substations.

Session Chair: Florent Giraudet, Metarresters, Germany

Break-Out Session #4
Bushings: Technologies, Standards, Condition Monitoring & Service Experience

This session will review latest developments and technologies in design, operation and condition monitoring of MV/HV bushings.

Session Chair: Lars Jonsson, Hitachi Energy, Sweden

Break-Out Session #5
Site Severity Assessment & Line/Substation Design for Polluted Service Environments

This session will explain procedures to assess pollution exposure and severity of electrical infrastructure and to specify insulation design suitable for this environment.

Session Chair: Alberto Pigini, T&D Expert, Italy

PLENARY SESSION

Session Chairman:
Marvin L. Zimmerman, INMR, Canada
(Speakers listed in alphabetical order of family name, not in order of presentation.)

Jeff Butler

Principal Engineer, Transmission, Hubbell Power Systems, United States

Enhanced Corrosion Protection for High Voltage Transmission Lines

Mr. Butler graduated from Georgia Tech (Georgia Institute of Technology) in Mechanical Engineering before entering the power utility industry in 2006. Since then, he has held various roles of international and U.S. domestic responsibilities in engineering, business development, sales and marketing. He is an internationally published author and presenter as well as a licensed professional engineer. In his current role, he is based in the manufacturing facility in Aiken, South Carolina

A. J. (Tony) Carreira

President, K-Line Insulators, Canada

Insulators and Live Line Work

Mr. Carreira received his B.Sc. in Electrical Engineering from the University of Waterloo and held engineering and management positions at a major electric utility before becoming President of K-Line Insulators. He serves on committees in CIGRE, IEC, CSA and IEEE and, with 40 years industry experience, has authored and presented technical papers on topics ranging from latent transmission power line hardware damage to insulator technology to the state-of-the-art of live line work. He received the 2014 Claude de Tourreil Memorial Award for Lifetime Achievement in the Field of Electrical Insulators and has been recognized as presenter of the Most Innovative Paper on New Live Line Tools and Framing Arrangements at ICOLIM. He is also recipient of an Honorary D.Phil. from the Budapest University of Technology & Economics. He is a member of the B2.64 and B2.87 CIGRE Working Group on Live Line Work

Michele de Nigris

Director, Sustainable Development & Energy Sources, RSE, Italy

Wildfires as Increasing Threat to Overhead Lines: Experience in Italy

Mr. de Nigris is Director of the Sustainable Development and Energy Sources Department of RSE – Research on the Energy System. An Electrical engineer, he actively worked in the transmission and distribution technologies sector at CESI and subsequently in RSE, before addressing main challenges related to the interaction of the energy systems with the environment. Active in the international context, he leads the European SetPlan Implementation Group on resilient energy networks and represents Italy in coordination committees of the International Energy Agency. He is actively involved in standardization as chair of the Committee "integrated energy systems" of the Italian Electrotechnical Commission.

Jean-Marie George

Scientific Director, Sediver, France

Standards: What Now, What's Next

Mr. George received his Electrical Eng. Degree from the HEI School in France and joined Sediver as Research Engineer in 1986. After working as Production Manager for the Composite Insulator Division and Quality Mgr. and Technical Dir. for North America, he is now Scientific Director, with responsibilities covering R&D and technical assistance worldwide. His cross-functional positions with more than 30 years of experience have given him expertise in insulator performance as well as research and development. He has published and co-authored extensively on overhead lines, with 40 papers and articles and he is also author/co-author of patents and utility models. He is a member of CIGRE, IEEE, NEMA, ANSI and CSA as well as 2018 recipient of the Claude de Tourreil Memorial Award for Lifetime Achievement in Electrical Insulators.

Shakir Hafeez

General Manager & Head of Transmission Lines, National Engineering Services, Pakistan

Corrosion of Transmission Line Material: Case Study from Pakistan

Mr. Hafeez obtained his BSc & MSc in Electrical Engineering at the University of Technology & Engineering in Lahore and over his career has had extensive experience in design and control of HV and EHV transmission line projects. He has supervised project planning and scheduling, including conceptual design, cost estimation and design of transmission lines and is an expert in preparing bid documents outlining drawing of towers, insulators, line hardware and accessories. His industry experience also includes inspection and type testing of transmission line material to ensure compliance with specifications. He is also responsible for conductor optimization and insulation coordination under applicable climatic conditions as well as isokeraunic and pollution levels.

Mohd Zainal Abidin Ab Kadir

Professor, Centre for Electromagnetic & Lightning Protection Research, Advanced Lightning, Power and Energy Research, Universiti Putra, Malaysia

1. Issues & Challenges in Voltage Uprating: Case Study of 132 kV Transmission Line in Malaysia
2. Efficient & Reliable Asset Utilization: Optimizing Line Ampacities through Dynamic Line Rating (DLR)

Prof. Kadir received his BEng and PhD from Universiti Putra Malaysia and University of Manchester, respectively. He is a Fellow of Academy of Sciences Malaysia and Fellow of the IET as well as an IEEE Power & Energy Society Distinguished Lecturer in lightning and high voltage engineering. He has authored or co-authored over 400 journals and conference papers. His research interests include high voltage engineering, lightning protection, electromagnetic compatibility, power system transients and renewable energy. Currently, he is Chairman of the NMC of IEC TC 81 (Lightning Protection) and Local Convener of CIGRE Malaysia C4 on System Technical Performance.

Rajkumar Padmawar

CEO, ASAsoft (Canada), Canada

Next Generation Silicone Rubber Insulator: Market Analysis, Product Design & High Voltage Testing

Mr. Padmawar developed efficient systems for manufacturing electroceramic products in Seto, Japan and later worked in development of cross-linked plastics with memory functions. He has been successful in creating composite insulators for T&D as well as for 25 kV applications for railways in infrastructure priority markets in South Asia.

Raghvendra Singh Pal

Business Development Manager (India & Sub-Continent), Engineering Silicones, Wacker Metroark Chemicals, India

High Performance Silicones for Transmission & Distribution Applications

Mr. Pal holds a Master's Degree in physical chemistry and a M. Tech in Plastics Engineering. He began his career at Wacker in 2013, working as Technical Manager for Elastomers with responsibility for India and Southeast Asia. He now heads the Elastomer Business for India and the Sub-Continent. His years of experience in this field have given him broad application and engineering knowledge of silicone elastomers in T&D applications, among other industrial sectors

Robert Ross

Professor HV Technology at TU Delft & Asset Management Strategy Expert at IWO, The Netherlands

Strategic Role of Diagnostics in Asset Management Under Ageing, Climate Change & Earthquake

Dr. Ross is Director at the Institute for Science & Development, Ede and Professor at HAN University of Applied Sciences. He worked in the past at KEMA in the area of reliability and post-failure forensic investigation and his present fields of specialization include reliability statistics, electro-technical materials, sustainable technology and superconductivity. He is author of 'Reliability Analysis for Asset Management of Electric Power Grids' based on his extensive experience with power utilities.

Markku Ruokanen

PPC Group Quality and R&D Director, Austria

Recycling Ceramic Insulators

Mr. Ruokanen has an M.Sc. degree in Materials Science from the University of Technology in Helsinki, Finland. Before joining PPC in 2014, he held several leading technical positions at Maxwell Technologies in both the Ultra-Capacitor and HV Capacitor Divisions. He is a member of Cigré Switzerland.

Manabu 'Gaku' Sakata

Executive Officer, Dept. of Research & Development, Nippon Katan, Japan

Packed Snow Accretion with Sea Salt on Insulators of Overhead Transmission Lines

Mr. Sakata received his M. S. Eng. Degree in Electrical Engineering from Waseda University in Tokyo. Over his career, he has had extensive experience in design, construction, maintenance, asset management and research and development of transmission lines. This work experience includes application of polymer insulators and snow-related failures of transmission lines.

Jens Seifert

Senior Expert, Reinhausen Power Composites, Germany

Foam-Filled Post Insulators for HVDC/ HVAC Substation & Compact OHL Applications

Dr. Seifert obtained his Ph.D. degree from TU Branschweig in 1998. He has had 20 years of experience in development of composite materials for high voltage insulating applications. In 2018 he joined the MR Group as Senior Expert for basic development. He serves as Chairman of IEC TC 36 Insulators and is also Convener of CIGRE Working Groups D1.58 and D1.59.

Anthony Walsh

Manager, Special Projects, Asset Management, ESB Networks, Ireland

Voltage Uprating of the Distribution Grid for Net Zero

Mr. Walsh holds the degrees of BE, MIE, MBA from University College Dublin, is an ACCA accountant and has over 35 years experience in distribution and transmission networks. Over a wide career, some of his interesting projects have been on the introduction of HTLS on transmission lines, introduction of mixed technology switchgear to reduce HV stations size, negotiation via Eurelectric on the EcoDesign Transformer Directive and agreement of regulatory funding requirements for electrification of Heat and Transport to 2025. Currently, he has developed the technical standards for introduction of embedded LV generation in Ireland.

Dan Windmar

Head, Transmission Line Technology, Svenska kraftnät, Sweden

Transmission Line Design: Experience at TSO in Sweden

Dr. Windmar received a Ph.D. degree in high voltage engineering from Uppsala University in Sweden in 1994. His professional experience includes extensive work in such areas as insulators (production, testing, materials), high power testing, high voltage testing and dielectric insulation. He has held several management positions at ABB and from 2009-2022 served as Vice President, High Voltage Technology and Testing at STRI. Since 2022 he is working for Svenska Kraftnät, the Swedish TSO.

LATEST DEVELOPMENTS IN INSULATOR DESIGN, APPLICATION & INSPECTION

Session Chairman:
Dr. Igor Gutman, Independent Insulation Group, Sweden
(Speakers listed in alphabetical order of family name, not in order of presentation.)

Ahmad Al-Thagafi

Manager, Insulator Tests Stations, Gulf Cooperation Council Interconnection Authority (GCCIA), Saudi Arabia

Performance of Silicone-Coated Porcelain & Glass Insulators at GCCIA After 15 Years Experience

Mr. Al-Thagafi holds a Bachelor of Science in Electrical Engineering from the King Fahd University of Petroleum & Minerals. He has 15 years of experience at the Saudi Electricity Company in asset management of overhead power lines and cable systems. Currently, he is responsible for maintenance and managing test stations for outdoor insulators whose goal is to optimize the performance of transmission lines in desert areas. He is author or co-author of several published papers in this field.

Samuel Arturo Asto Soto

Transmission Line Coordinator, Power Grid of Peru, Peru

Composite Insulator Performance in Distinct Service Environments: Coastlines, Mountains & Forests

Mr. Asto Soto is an Electrical Engineer, graduated in 2000 from the National University of the Center of Peru (UNCP 2000) with a Masters of Business Administration from the University Ricardo Palma. He has detailed experience in management, planning and supervision of electrical maintenance and projects in mining, concentrating plants and high voltage electrical transmission systems. He is a member of the Live Working Group of the Regional Energy Integration Commission. His work experience includes high voltage maintenance in transmission lines, live working, corrosion and insulation asset management.

Hassan Bakhshi

Overhead Transmission Line Designer, Stantec Consulting, Canada

Optimizing Design of HVDC Transmission Lines: Process, Calculations & Indicators

Mr. Bakhshi received his M. S. in Energy Management from the New York Institute of Technology (NYIT) in Vancouver, Canada. He has 16 years of experience supervising and designing overhead transmission lines and is a member of CIGRE Canada. His current research interests include optimizing and cost-effective overhead transmission line design (HVAC and HVDC) as well as renewable energy systems.

Jeff Butler

Principal Engineer, Transmission, Hubbell Power Systems, United States

Polymer Insulators for HVDC Applications

Mr. Butler graduated from Georgia Tech (Georgia Institute of Technology) in Mechanical Engineering before entering the power utility industry in 2006. Since then, he has held various roles of international and U.S. domestic responsibilities in engineering, business development, sales and marketing. He is an internationally published author and presenter as well as a licensed professional engineer. In his current role, he is based in the manufacturing facility in Aiken, South Carolina

Héctor de Santos Yubero

R&D Manager, La Granja Insulators, Spain

Diagnostic Techniques for Assessing Silicone-Coated Glass Insulators

Mr. de Santos received his Electrical Engineering Degree from the Technical University of Madrid and later completed his M.Sc. in Industrial Engineering. He is currently concluding the Ph.D. degree at the ICAI Engineering School of the Comillas Pontifical University. After working for different Spanish utilities as project engineer in the field of power lines, he joined Verescence La Granja Insulators as approvals and process development engineer. He is Sr. Member of IEEE, member of CIGRÉ and IEC and contributes to several international Technical Committees and Working Groups within these bodies.

DING Yujian

Senior Engineer, High Voltage Department, China Electric Power Research Institute, China

Altitude Correction for Air Gaps & Clean Insulators: Research Progress in China

Dr. Ding has participated in extensive research on air gap discharges, high voltage test technology, live-line working, high altitude discharges, etc., As Convenor, he has led compilation of Chinese industry standards including GB/42001 dealing with methods for altitude correction for external insulation flashover voltage of high voltage power transmission projects. He has also participated in compilation of an IEEE standard and has served as member of CIGRE Working Groups D1.50, D1.61, B2.64.

Jean-Marie George

Scientific Director, Sediver, France

Coating…of Course

Mr. George received his Electrical Eng. Degree from the HEI School in France and joined Sediver as Research Engineer in 1986. After working as Production Manager for the Composite Insulator Division and Quality Mgr. and Technical Dir. for North America, he is now Scientific Director, with responsibilities covering R&D and technical assistance worldwide. His cross-functional positions with more than 30 years of experience have given him expertise in insulator performance as well as research and development. He has published and co-authored extensively on overhead lines, with 40 papers and articles and he is also author/co-author of patents and utility models. He is a member of CIGRE, IEEE, NEMA, ANSI and CSA as well as 2018 recipient of the Claude de Tourreil Memorial Award for Lifetime Achievement in Electrical Insulators.

Igor Gutman

Sr. Specialist & Marketing Director, Independent Insulation Group, Sweden

Evaluation of Recovery of Hydrophobicity of Composite Insulators: Test Methods Available

Dr. Gutman received an MSc and PhD in HV engineering from the Leningrad Polytechnic Institute. He later joined STRI where his responsibilities included dimensioning of insulation in clean and polluted environments; ageing characteristics and accelerated ageing tests. He has published 200 papers, is a Sr. Member of IEEE, represents Sweden in IEC TC 36 “Insulators”, is a Distinguished Member of CIGRE and active within CIGRE/IEC/IEEE. He was 2012 recipient of the Claude de Tourreil Memorial Award for Lifetime Achievement in Electrical Insulators and also received IEC’s 1906 Award for service to technical standards..

Shakir Hafeez

General Manager & Head of Transmission Lines, National Engineering Services, Pakistan

Updated Results of Pilot Insulator Test Station

Mr. Hafeez obtained his BSc & MSc in Electrical Engineering at the University of Technology & Engineering in Lahore and over his career has had extensive experience in design and control of HV and EHV transmission line projects. He has supervised project planning and scheduling, including conceptual design, cost estimation and design of transmission lines and is an expert in preparing bid documents outlining drawing of towers, insulators, line hardware and accessories. His industry experience also includes inspection and type testing of transmission line material to ensure compliance with specifications. He is also responsible for conductor optimization and insulation coordination under applicable climatic conditions as well as isokeraunic and pollution levels.

Nik Hakimi Nik Ali

Sr. Lecturer, Universiti Teknologi MARA (UiTM), Technical Evaluator, TNB Labs, Malaysia

Electrical Stress Analysis & Mitigation for Polymeric Insulators with Different Materials

Dr. Nik Hakimi received his B.Eng. in Electrical Power Engineering from the Universiti Tenaga Nasional in Malaysia and a Ph.D. in Electronics and Electrical Engineering from the University of Southampton in the U.K. He worked as a post-doctoral researcher at the Institute of Power Engineering and currently is Sr. Lecturer at the School of Electrical Engineering, College of Engineering, Universiti Teknologi. He also serves as Technical Evaluator at Tenaga Nasional Berhad (TNB) Labs. His research interests include condition monitoring of HV cables and transformers, PD measurement, HV insulation/dielectric materials, transformer rating analysis and applied signal processing.

Dennis Hore

Department of Chemistry, University of Victoria, Canada

Micro- & Nano-Scale Characterization of Silicone Rubber Insulator Surfaces

Dr. Hore obtained his Ph.D. in Chemistry at Queen’s University and in Physics at the Royal Military College. He then became a post-doctoral fellow at the University of Oregon, studying solvent and surfactant structure using a variety of computational and spectroscopic techniques. He joined the Chemistry Department at the University of Victoria in 2006, where he develops advanced optical methods and complementary theory to resolve fine structural details of molecules adsorbed at the solid-liquid interface, with special interest in influence of water on interfacial polymer structure. Through collaboration with ASAsoft (Canada), he has been studying silicone surfaces in response to chemical, electrical and biological stresses.

HUANG Ruiping

Senior Engineer, High Voltage Department, China Electric Power Research Institute, China

Research on Altitude Correction of Pollution Flashover Voltage of UHVDC Insulators

Dr. Huang has participated in a large number of research projects on pollution and pollution flashover characteristics, including high-altitude discharges and altitude correction factors for insulators. He has worked on determining the pollution level affecting AC/DC UHV transmission lines in China and contributed to recommendations for suitable insulation configurations. He has also carried out experimental studies on altitude correction of insulator pollution flashover and is considered one of the country’s foremost experts in this area.

Mikko Jalonen

Transmission Line Maintenance Manager, Fingrid, Finland

Benchmarking Composite Insulators: Utility Perspective & European Initiative

Mr. Jalonen received his Master’s degree in electrical engineering with focus on high voltage electricity systems from the Tampere University of Technology. His current role in Fingrid as Transmission Line Maintenance Manager includes such areas as maintenance process, asset management, preparedness and technical specifications for electric components such as insulators.

Dalton Kellett

Engineering Team, K-Line Insulators, Canada

Life-Cycle Analysis of Polymer Composite & Porcelain Insulators

Mr. Kellett graduated from Queen's University in 2015 with a B.Sc in Engineering Physics. He recently joined K-Line after completing a career in auto-racing, where his experience included the testing and development of vehicle dynamics and aerodynamics components as well as development and tuning simulation models. As a member of the Engineering Team, he will be contributing to design and manufacture of reliable and innovative polymer insulators.

Jan Lachman

Director, EGU-HV Laboratory, Czech Republic

Interface Testing on Polymeric Insulators

Dr. Lachman graduated from the Czech Technical University in Prague, Faculty of Electrical Engineering where he later received his PhD degree. After graduation, he joined EGU-HV Laboratory as a test engineer. He has also had experience as a design engineer when working abroad. He is active in IEC/CIGRE Working Groups and represents the Czech Republic in SC D1.

Jens Lambrecht

Senior Application Engineer, Engineering Silicones, Wacker Chemie, Germany

Comparative Evaluation of Erosion Resistance Under DC Stress

Dr. Lambrecht completed his studies in Radio and Power Engineering with a Doctoral degree from the Technical University of Dresden/ Germany. After several years in the Development Department for Cable Accessories at Cellpack, he moved to the silicones industry. He has worked with Wacker Chemie in Munich since 2005 as an Application Engineer for all power-related silicone applications and is active in CIGRE as well as IEC, where he deals mainly with standardization of electrical erosion resistance under AC and DC stress.

Khosrow Maghsoudi

Manager of Molding, K-Line Insulators, Canada

Hydrophobic Recovery of HTV Silicone Rubber Insulators

Dr. Maghsoudi received his B.Sc. and M.Sc. degrees in Polymer Engineering from the University of Tehran in Iran. he later completed his Ph.D. in Engineering from the University of Quebec in Canada, specializing in the injection molding of silicone rubber materials for high voltage applications with advanced performance. He started his career with K-Line Insulators as Research & Development Engineer and has since participated in extensive research on polymer composites, polymer processing, surface engineering, superhydrophobic, icephobic and self-cleaning materials.

Wolfgang Manzke

Senior Engineer, KEMA Labs, Germany

Experience with Salt Fog Testing of Composite Insulators

Mr. Manzke received his graduate Engineer Degree in Electrical Engineering from the University of Applied Sciences in Darmstadt, Germany. In 2006, he joined FGH Engineering & Test, Germany, member of CESI Group and today known as KEMA Labs Mannheim as Test Engineer in the high voltage laboratory. Since 2017 he has worked as Senior Engineer with main field of activities in salt fog tests, solid layer tests, design tests on insulators, dielectric tests, mechanical and climatic tests. He is member of IEC working group for pollution tests on composite insulators as well as an Expert within the German DKE working group for insulators.

Markku Ruokanen

PPC Group Quality and R&D Director, Austria

Ageing Behaviour & Resistance of Ceramic Insulators

Mr. Ruokanen has an M.Sc. degree in Materials Science from the University of Technology in Helsinki, Finland. Before joining PPC in 2014, he held several leading technical positions at Maxwell Technologies in both the Ultra-Capacitor and HV Capacitor Divisions. He is a member of Cigré Switzerland.

Akira Mukai

Engineer, Dept. of Research & Development, Nippon Katan, Japan

Observation & Analysis Techniques for Overhead Transmission Lines in Japan

Mr. Mukai received his B.S. and M.S. Eng. Degrees in System Engineering from Wakayama University in Japan. He has been working on observation and analysis of overhead transmission lines at Nippon Katan since 2022.

Wallace Vosloo

Corporate Specialist High Voltage Engineering, Eskom, South Africa

Case History of an Insulator End-Fitting Failure That Was Not

Dr. Vosloo is a distinguished international expert in the field of electrical insulation. Over a career spanning decades at one of the world's largest power utilities, he has presented many training courses in the field and also authored over 100 papers on high voltage insulators. His published texts include: "The Practical Guide to Outdoor High Voltage Insulators", co-authored by Roy Macey and Dr. Claude de Tourreil, and "High Voltage Engineering Practice and Theory" along with Dr. Holtzhausen. He is recipient of the SAIEE President's Award for contribution to development of high voltage insulator research, investigation capabilities and standards in South Africa as well as the Claude de Tourreil Memorial Award for Lifetime Achievement in Field of Electrical Insulation. Dr. Vosloo is active in several national and international working groups.

ZHOU Jun

Vice Chief Engineer of High Voltage Department, China Electric Power Research Institute & Director of Tibet Test Base Management Office, China

Research Progress on Outdoor Insulators & Insulator Technology

Dr. Zhou has had many years experience in high voltage outdoor insulation and insulator technology and has headed or participated in numerous research projects in this field. These have included such topics as operation of composite suspension and post insulators, pollution impact on insulation, application of bushings, high altitude discharges, etc., As Convenor, he has also led the compilation of several industry standards, including China AC 1000 kV composite insulator national standards GB/T 26218.4. He participated in the compilation of three IEEE standards and has served as member of CIGRE Working Groups D1.44, D1.45, B2.57, D1.58, D1.59. Currently, he serves as a member of the IEC 60815 and IEC 62217 standards writing groups.

TESTING & CONDITION ASSESSMENT OF CABLE SYSTEMS & ACCESSORIES

Session Chairman:
Paul Leufkens, Power Projects Leufkens, United States
(Speakers listed in alphabetical order of family name, not in order of presentation.)

Mohd Azraei Bin Pangah

Sr. Researcher, Asset Performance Unit, TNB Research, Malaysia

Online PD Measurement as Early Condition Health Assessment for Massive Underground Power Cable Networks

Engr. Ts. Mohd Azraei received his Bachelor of Engineering in Electrical Power System & Master of Electrical Engineering from Tenaga Nasional University in Malaysia. He is a registered Professional Electrical Engineer with Board of Engineer

and Professional Technologist in Electrical with Malaysian Board of Technologists. He currently works as Senior Researcher at High Voltage Cable Diagnostic, Asset Performance Unit, TNB Research where his main research is focused on power cable testing, diagnostics, failure analysis and life assessment.

Michele de Nigris

Director, Sustainable Development & Energy Sources, RSE, Italy

Increasing Resilience of Underground Distribution Lines Against Heat Waves: Case Study from Milan, Italy

Mr. de Nigris is Director of the Sustainable Development and Energy Sources Department of RSE – Research on the Energy System. An Electrical engineer, he actively worked in the transmission and distribution technologies sector at CESI and subsequently in RSE, before addressing main challenges related to the interaction of the energy systems with the environment. Active in the international context, he leads the European SetPlan Implementation Group on resilient energy networks and represents Italy in coordination committees of the International Energy Agency. He is actively involved in standardization as chair of the Committee "integrated energy systems" of the Italian Electrotechnical Commission.

Mark Fenger

Sr. Global Technical Director, Kinectrics, Canada

Asset Condition Assessment of Aged HV & EHV Cable Systems

Mr. Fenger graduated with an M.Sc.E.E from the Technical University of Denmark and also holds an MBA from York University. In his role as Sr. Global Technical Director with respect to underground transmission cables, he has over 20 years' experience in condition assessment of insulation systems via field diagnostics and has also been involved with prequalification and type tests of HV & EHV cable systems. He is active in IEEE and CIGRE and currently serves as Chair of IEEE F11W "AC Testing of Cable Systems rated 5kV and above" and has been Convener of CIGRE WG B1.28 TB728 "On-site PD measurements' and CIGRE WG B1.28 TB841 "New Technologies for Testing of Solid Dielectric Cables".

Dalibor Filipovic-Grcic

Director, Koncar-Electrical Engineering Institute, Croatia

Experience with Laboratory Superimposed Impulse Voltage Testing of New HVDC Cable Systems Using Coupling Capacitor

Dr. Filipovic-Grcic received his M.Sc. and Ph.D. Degrees in Electrical Engineering from the University of Zagreb's Faculty of Electrical Engineering and Computing. He joined Koncar – Electrical Engineering Institute in 2004 and his main experience has been in the areas of laboratory and on-site testing and R&D of bushings and instrument transformers. He has over 40 publications in journals and conference proceedings in the area of transformers and high voltage testing and he serves as member of Technical Committees TO E 38 Instrument Transformers and TO E 42 High-Voltage Testing Techniques.

Edward Gulski

CEO, onsite hv solutions, Switzerland

Testing & Diagnosis of Long Power Cables of On/Offshore Wind Farms

Dr. Gulski, an IEEE Fellow, received his M.Sc. from Dresden Univ. of Technology, a Ph.D. from Delft Univ. of Technology and a Doctor Habilitatus from Warsaw Univ. of Technology. A former Professor at Poznan Univ. of Technology and now Prof. at Lodz Univ. of Technology, he is CEO of an organization providing knowledge to utilities. He has served as Chair of Cigré Working Groups, Chair of IEEE Working Group PE/IC/F05W/400.4 P400.4 and is presently Chair of IEEE PES ICC Sub G TNL. A Member of IEEE working groups: 400, 400.2, 400.3, 400.4, 1120 and the standardisation team at American Clean Power, he has 380 publications and 3 books on HV Diagnostics and Asset Management.

Klaus-Dieter Haim

Professor, Electrical Engineering, Zittau-Görlitz University of Applied Sciences, Germany

Results of Testing Different Cable Screen Connections for 66 kV Offshore Application with Direct Grounding Connections

Professor Haim studied Electrical Engineering at the University of Zittau earning his Doctor's degree in 1985 in the field of MV network design and optimization. His career has covered a diverse range of assignments, from a research project for EDF to serving as a Professor in Algeria. Between 1994 and 2005, he worked as Head of Production for medium voltage cable accessories before assuming his current position. He is a Sr. Fellow for electrical power systems and networks and Dean of the Electrical Engineering Department at University of Applied Sciences Zittau/Görlitz.

Rene Hummel

Senior Technical Director Europe, High Voltage Testing, Kinectrics, Germany

Partial Discharge & Commissioning Testing of Long (+20 km) 400 kV XLPE Cables

Mr. Hummel graduated from the University of Technology in Berlin with a Diplom Engineer Degree in High Voltage. An expert in partial discharges measurements, he has been offering consultancy and technical training in over 40 countries. He is a member of several IEEE ICC Standard Committees and has authored/co-authored more than 30 papers covering partial discharges in power cables.

Paul Leufkens

Cable Testing Expert, United States

HV Cable Testing, Diagnostics & Monitoring: Overview of Recent Developments

Mr. Leufkens holds an MS EE Degree from Delft Technical University in the Netherlands and has had more than 20 years' experience as an executive in the power sector. He worked internationally for consulting and testing companies, including 13 years with KEMA in Netherlands and in the United States. Previously he directed product development in the cable and switchgear industry. In recent years, he has built technical and business cases for new High Voltage, High Power and Energy Storage laboratories as well as a technical and commercial market introduction of new generation switchgear. His U.S.-based consulting firm now provides strategic support to manufacturers and testing organizations in growing their business.

Anthony Ng

Manager, Baur, Hong Kong

Increasing Confidence in Medium Voltage Cable Diagnostics: Evaluation Logics & Strategic Approach

Mr. Ng graduated from the University of Hong Kong in Electronics & Communication Engineering before entering the power utility industry in 2003. Over 20 years in the electrical sector and based on his experience in cable testing, cable fault location and cable diagnostics, he has developed a deep understanding of the industry and its needs. His extensive knowledge of product needs and applications in distribution systems have enabled him to provide essential expertise, working to develop new solutions to suit the utility sector.

Norasage Pattanadech

Associate Professor, King Mongkut University of Technology, Dika Labs, Thailand

Dielectric Measurement for Condition Monitoring & Testing of MV Cable: Experience in Thailand

Dr. Pattanadech received his Dr. Techn. in Engineering Sciences & Electrical Engineering from the Institute of High Voltage Engineering and System Management at Graz University of Technology, in Austria. He has more than 20 years of experience in the field of high voltage testing and analysis, especially in regard to condition monitoring of high voltage equipment. He has served on IEC TC42 MT 23 and MT 14 Committees and is author/co-author of more than 100 publications and four books on Electrical Engineering as well as on PD measurement.

Ronald Plath

Professor, Technical University of Berlin, Germany

Challenges in Sensitive PD Measurements on Extra-Long 525 kV HVDC Land Cables During AC After-Installation Testing (According to DIN IEC 62895:2019)

Dr. Plath received his PhD in High Voltage Engineering from the Technische Universität Berlin (TUB). He worked at CESI as consulting engineer in the first prequalification tests of AC 380 kV XLPE cables and later became Head of the HV Laboratories at IPH Berlin, now part of CESI Group. In addition to being a Lecturer at TUB, he was responsible for development of monitoring systems for HV devices and systems at Omicron and also served as Managing Director of HPS Berlin, with a focus on consulting and on-site HV testing worldwide. Since 2013, he has been a full Professor of HV Technology at TUB with research interests that include HV testing and diagnostics, especially PD measurement and monitoring, HV cables, HVDC, power electronic insulation systems and materials. He is a member of IEEE, CIGRE and VDE (DKE K124, German mirror committee of IEC TC 42, ETG Q2 Materials, Insulation Systems and Diagnostics and FNN project group "Deployment of 525 kV HVDC cables"). He served as German member of CIGRE WG B1.06, B1.28 and B1.38 and CIGRE German SC B1 mirror committee, corresponding member of CIGRE WG D1.54, JWG D1/B3.7, D1.66 and Convener of CIGRE WG D1.63. He is member of Jicable International Scientific & Technical Committee and in 2021 became a member of the Scientific Advisory & Project Board of 50hertz, one of four German TSOs.

Robert Probst

Product Manager, Cable Fault Location, Megger, Germany

Cable Fault Location on HV Versus MV Cables: Problems & Solutions

Mr. Probst graduated from Chemnitz University of Technology, Germany in Electrical and Power Engineering, with focus on HV insulation technology and where his activities dealt with transients, lightning strikes and HVAC cables. In 2010, he joined KEMA-Powertest in Pennsylvania as a high power test engineer, performing R&D, prototype and type testing on power apparatus. In addition, he was given responsibility for the HV test bay. He later joined Megger as an Applications Engineer in the Cable Infrastructure Division in Dallas where he covered cable fault location as well as cable testing and diagnostics. He is currently in charge of all portable and vehicle installed fault locating systems made in Germany.

Toshihiro Takahashi

Researcher, Central Research Institute of Electric Power Industry (CRIEPI), Japan

Insulation Capability & Degradation of Highly-Aged XLPE Cables Decommissioned from Service on Power Grids

Dr. Takahashi received his M.S. and Dr. Eng. Degrees from Nagoya University in Japan. After working as an Invited Researcher at Hydro-Quebec's IREQ facility in Varennes, Canada in 2000, he joined the Central Research Institute of Electrical Power Industry in Yokosuka, Japan, in 2001 and also served as Visiting Researcher at the University of Bologna in Italy. He has been involved in research on high electric field phenomena in insulation gas, cryogenic liquid dielectrics, solid dielectrics as well as diagnostic technologies for electrical apparatus and is currently a member of IEEE, the Institute of Electrical Engineers of Japan (IEEJ), CIGRE and other professional organizations.

Bas Verhoeven

Executive Vice President, KEMA Labs, Netherlands

Experience Type Testing HVAC/HVDC Cables & On Site Commissioning Tests of AC Cables

Mr. Verhoeven received a degree in Power Engineering from the Eindhoven University of Technology before joining KEMA in 1991 as R&D specialist on digital protection systems for high voltage power networks. In 2000, he was appointed Manager of KEMA's High Voltage Laboratory, which became the world's largest commercially operated laboratory under his guidance. Since 2011, he has acted in various senior management roles at KEMA Labs. He is a member of the Board of the NEC, the Dutch IEC and member of the board of the international Short Circuit Test Liaison (STL). He has authored numerous papers on testing and certification of power components.

TECHNOLOGY & SERVICE EXPERIENCE IN APPLICATION OF SURGE ARRESTERS

Session Chairman:
Florent Giraudet, Metarresters, Germany
(Speakers listed in alphabetical order of family name, not in order of presentation.)

Usama Ahmed

Transmission Solutions Manager, Shemar Power, Canada

Towards Ultimate Compaction of Overhead Transmission Lines: Integrating CICA & EGLA Technologies

Mr. Ahmed received his M.Sc. Degree in Electrical Engineering from the University of Engineering and Technology Lahore, Pakistan. He started his professional work in the field of transmission lines and insulation design with NESPAK. In 2020, he was appointed Transmission Solutions Manager for composite insulated cross-arms and compact lines in Shemar Power (Canada). He is a member of several CIGRE and IEEE Working Groups.

Puneeth Bhurat

Vijaya Sales Corporation, India

Application of Line Surge Arresters for Switching Overvoltages in UHV Transmission Systems

Mr. Bhurat completed his Bachelors in Electrical & Electronics Engineering from Vishveshwaraya Technological University and his Masters in Electrical Engineering from CPRI Research Center. He later worked as Jr. Research Fellow in the HV Div. of CPRI during which he performed insulation coordination studies on EHV & UHV transmission lines and analyzed application of line surge arresters. He was also involved in identifying suitable neutral grounding reactors for 765 kV transmission lines and in studies to determine surge arrester ratings for a large cable-connected distribution network. He has been an active member of IEEE and IEEE Power and Energy Society and has volunteered in technical conferences organized by both CPRI and IEEE.

David Cárdenas

Product Manager, Prolec-Celeco, Mexico

Improving Reliability of Distribution Class Arresters through Disruptive Innovations

Mr. Cárdenas received a B.S. from UANL University and an MBA in Energy from EOI School in Madrid, Spain. With over 15 years of product management, business development, marketing and innovation experience, he has developed a solid understanding of product needs and applications in distribution systems. As Product Manager, he presently collaborates in developing new products aimed at integrating innovative approaches to best meet utility sector needs and advancements.

William Chisholm

T&D Consultant, Canada

Balancing the Budget for Renovating Lines: Groundwires, OPGW, Insulation, Earthing & Arresters

Dr. Chisholm is an expert in the effects of adverse weather on overhead power lines, including lightning and grounding, icing on insulators and thermal rating. He has been an IEEE Fellow for a decade – a distinction given after his long career at Ontario Hydro and Kinectrics. He combines his consulting worldwide with teaching and writing for INMR as well as Wiley & McGraw Hill and also volunteers in the IEEE executive rotation as Chair and Past Chair of the PES T&D Committee. In 2017, he received the Claude de Tourreil Memorial Award for Lifetime Achievement in the Field of Electrical Insulators.


Frédérick Dubé, James Taylor

Product Engineer for Arresters, Studies & Standards, Hydro Québec, Canada
Sr. Principal Specialist Surge Arresters, Hitachi Energy, Sweden

IEC TC37: Major Developments in Standards for Substation & Line Surge Arresters

Mr. Dubé graduated from Laval University in Quebec in 2008 and started his career at Hydro-Quebec as a substation designer, initially involved in grounding (permanent and temporary), working methods and short-circuit management. He moved towards high voltage apparatus around 2010 and became the Product Engineer for arresters where he works in apparatus specifications, qualification and technical support. He is a member of l'Ordre des Ingénieurs du Québec (P. Eng.) and is involved in IEC TC37 where he has served as Convenor of MT10 since 2019.

Mr. Taylor received his Bachelor of Engineering in 1986 and has held various engineering positions in his career with ASEA, ABB and Hitachi Energy. In his current role as Senior Principal Specialist for high voltage surge arresters in Ludvika, Sweden, he is working with technical support, application consultancy and product development. He is the current Convenor of IEC TC37/MT4 and actively participates in multiple IEC and IEEE Standards committees for surge arresters and other electrical apparatus

Mohd Faris Ariffin

Specialist, Distribution Engineering Centre, Asset Management Dept., Distribution Network Div., Tenaga Nasional Berhad (TNB), Malaysia

Application of Line Lightning Protection Device onto 33 kV Overhead Lines with High Soil Resistivity to Mitigate Transient Interruptions Due to Lightning

Ir. Ts. Mohd Faris Ariffin earned a Masters in Electrical Engineering from UNITEN, Malaysia (2006) and before that graduated from Northern Arizona University in Flagstaff, Arizona with a BSc. in Engineering (Electrical). He has been working with TNB for 32 years within various Departments including Transmission Lines/ Substations Maintenance, Distribution System Operator, SCADA & Telecontrol and Distribution Overhead Lines Standards & Engineering Practices with the current department since 2003. He is a registered Professional Engineer with practicing certificate with the Board of Engineers, Malaysia, a registered professional technologist with Malaysia Board of Technologists, ASEAN Chartered Professional Engineer, Certified Class 1 Professional Drone Practitioner. He is also a Member of the Institution of Engineers, Malaysia.

Ryan Freeman

Senior Product Manager, Arrester Business Unit, Hubbell Power Systems, United States

Examining the Evolution of Line Surge Arrester Technology

Mr. Freeman graduated from the University of South Carolina in 2011 with a Bachelor of Science in Mechanical Engineering before joining Hubbell Power Systems as a Design Engineer for high voltage surge arresters. He maintained design responsibility for various arrester products including line surge arresters and later transitioned to the Application Engineering team in 2015, with roles of increasing responsibility, including Sr. Application Engineer and Product Manager. He has been a member of IEEE since 2012 and currently serves as Vice-Chair for IEEE SPDC WG 3.3.11. He is also a member of IEC TC37, IEEE 693 and involved with CIGRE

Diego Fuentes R.

Seismic & Structural Engineer, Deefe for Structure & Earthquake Engineering, Chile

Seismic Qualification of Surge Arresters through Shake Table Testing: Importance of Considering Support Structure

Mr. Fuentes R. is a Seismic/Structural Engineer with over a decade of experience in the design and review of electrical equipment. He has expertise in compliance with international seismic codes such as IEEE693-2005, IEEE693-2018, IEC62271-207, IEC62271-300, ETGI-1.020, and others. He utilizes his knowledge of static and dynamic analysis as well as shake-table tests to ensure high standards of safety and reliability. With a focus on foundations, steel structures and all aspects of civil/structural engineering, he has a proven track record delivering electrical substation projects up to 500 kV

GE Pingan

Chairman, Xi'an Tian Gong Electric, China

Advancing MOV Block Technology: Improving Performance, Stability & Protection

Mr. Ge holds a Bachelor of Science Degree in Semiconductor Physics from Northwest University and has been engaged in the industry since 1985. He has worked in various capacities at China XD Group and has 37 years of experience in the research and development of metal oxide varistors. Through his long career, he has made significant contributions to localization of MOV production technology and testing equipment in China. He is an expert in key industry technologies and has been recognized with over 20 provincial and municipal Science and Technology awards.

Florent Giraudet

Consultant, Metarresters, Germany

Performance of Current Limiting Gaps for Effective Lightning Mitigation

Mr. Giraudet received a Dipl.-Ing. Degree in Industrial and Electrical Engineering from CESI in Lyon, France in 2010. He joined Siemens, Germany as Area Sales Manager for surge arresters applications and subsequently took on additional responsibilities in business development of overhead line solutions that include application of transmission line arresters as well as polymeric insulators. Next, he joined Tridelta Meidensha with responsibility for Sales & Marketing. Currently, he offers consulting for lightning performance and surge arrester technologies.

Jesse Hoffman

Engineering Manager, Energy Systems Group, United States

Surge Protection Considerations for Synchronous Generators

Mr. Hoffman is an Engineering Manager with Energy Systems Group, a leading energy services provider that specializes in energy efficiency, resiliency, and infrastructure modernization. His expertise spans from design and implementation to management and development of power generation, critical power and renewable energy projects for federal, municipal, and private clients. His professional design experience centers on design and implementation of low voltage and medium voltage electrical power generation projects, spanning the project's life cycle from initial concepts to construction, startup and operations.

Nadiah Salwi Hudi

Principal Engineer, Tenaga Nasional Berhad (TNB), Malaysia

Lightning Performance of 132 kV, 275 kV & 500 kV Overhead Transmission Lines in Malaysia

Dr. Nadiah has been working in the field of overhead transmission lines for 16 years, with main interest in improvement of lightning and grounding issues. Her current role includes assessing and evaluating new overhead line products/technology, reviewing line performance and providing technical support to operational teams. She has been a member of CIGRE Study Committee B2 since 2019 and has also been active in the AORC-CIGRE B2 Panel Group since 2014.

Robert le Roux

Primary Plant Specialist, Engineering and Major Projects, ESB, Ireland

Reliability of MOSAs in Transmission Systems at Major Power Utilities

Dr. le Roux is an Electrical Specialist with a range of engineering skills and practical experience obtained internationally when it comes to specifying primary plant equipment. He has a track record working on large-scale HVDC, power plant and civil engineering projects and has been involved in such projects for ESB EMP in Ireland and ESB International in Bahrain and Southern Africa. He is co-author of several chapters in the CIGRE Green Book on Switching Equipment, including one devoted metal oxide surge arresters, and Convener of CIGRE WG A3.39.

Toru Miki

Senior Research Scientist, Central Research Institute of Electric Power Industry (CRIEPI), Japan

Applying EGLAs on Transmission Lines in Japan: Overview of Experience & Lightning Outage Data

Dr. Miki has extensive experience within CRIEPI, a research organization founded by Japanese domestic power utility companies. He has studied domestic engineering issues in regard to improving lightning protection for overhead transmission lines and also conducted lightning current observations for very high structures such as the Tokyo Skytree.

Thomas Paalhorn

Product Developer, Tridelta Meidensha, Germany

Development of Filament Cage Design Arresters: Long-Term Achievements

Mr. Paalhorn graduated with a Diplom Degree in Renewable Energy Systems at the Technische Universität Dresden in Germany. He began his career at Tridelta Meidensha in 2018 as Product Developer working on polymer-housed surge arresters. Since then, he has became an expert in developing surge arrester types with new filament cage design as well as in mechanical testing of surge arresters.

Ertugrul Partal

Technical Consultant at R&D Centre, ADM Electricity Distribution Corp., Turkiye

Effective Lightning Mitigation on Unshielded 36 kV Distribution Line in Turkey Applying Externally Gapped Line Arresters

Mr. Partal graduated from Teesside University in the field of Electrical Engineering and completed his post-graduate degree in Advanced Manufacturing Systems at this same university. He worked as a Power Systems Engineer at EDF Energy Networks Branch, one of the Power Distribution System Operators in England and later at National Grid Electricity Transmission as a Senior Power Systems Specialist, also serving as Department Head of the System Technical Performance. He continued his career at Turkish Electricity Transmission Corporation. Currently, he is member of Cigre WG C4.67, representing ADM electricity distribution company. His expertise lies in insulation coordination (lightning protection), grounding systems, and steady-state power quality.

Rizally Priatmadja

Assistant Manager of Transmission Maintenance Planning & Evaluation, PLN Persero (Indonesia TSO), Indonesia

EGLA Application on 70 kV Overhead Transmission Line in Indonesia: Statistics, Design, & Lightning Performance Review

Mr. Priatmadja received his B.A.Sc. from the Dept. of Electrical Engineering, Politeknik Negeri Semarang in 2010 and his M.Sc from the Dept, of Electrical Engineering at Institut Teknologi Bandung in 2019. He has worked for PT PLN (PERSERO) since 2010 and published several conference papers in the area of High Voltage and has 12 years of experience in research and maintenance of transmission systems. Among the electrical research projects he has handled are solid-state lighting, transmission line insulation system, transmission line lightning protection and transmission line equipment condition assessment.

Julius Purnama

Electrical Engineering Consultant, FPL (Italy), Teslatama & Wijaya Karya Industri & Konstruksi, Indonesia

Case Studies of Lightning Disturbances on Java-Madura-Bali Transmission Lines & Performance Improvement

Dr. Purnama earned his PhD in Materials Science in the Physics Department of Universitas Indonesia. In addition to his consulting activities, he has worked with Wika NGK Insulators and, more recently, served as Visiting Lecturer in the Mechanical Engineering Graduate Program of the Institut Teknologi Sepuluh Nopember (ITS).

Philipp Raschke

Manager, R&D Department, Tridelta Meidensha, Germany

Smart & Effective Monitoring of Surge Arresters

Mr. Raschke graduated with a Bachelors Degree in Electrical Engineering at the University of Cooperative Education in Gera, Germany. He began his career in 2009 as Product Developer working on overvoltage protection electronics for Gigabit Ethernet. He later received his Master's Degree in Electrical Engineering at the University of Applied Sciences in Leipzig. After that, he served as Product Specialist at Tridelta Meidensha, where he was responsible for development of polymer-housed surge arresters as well as surge arrester diagnostic products. He presently works as Manager of the R&D Department and contributes to several IEC TC37 Working Groups as well as the German Surge Arrester Committee.

Ankit Saboo

Executive Director, Elektrolites (Power), India

Experience-Driven Improvements in Surge Arrester Performance through Short Circuit Testing

Mr. Saboo is an Engineer from BITS Pilani and Purdue University in Indiana, USA. He has experience covering more than 10 years with traction systems - having hands-on experience in designing arresters for traditional 1x25 kV, new age 2x25 kV systems as well as metro rail systems. He has conducted studies across India at sites to identify problem areas and contributed towards a more reliable traction network. He holds 2 patents for switchgear products developed in India.

Mario Augusto Caetano dos Santos

Maintenance Engineering Division, Itaipu Binacional, Brazil

New Approach to Diagnose ZnO Surge Arresters Combining Resistive Leakage Current & Infrared Inspection

Mr. Santos received his BSc in Electrical Engineering from UNIDERP, Brazil in 2010 and his MSc in Technology Development from LACTEC Institute, Brazil in 2017. He joined AES Corporation as Area Maintenance Coordinator for distribution power grid in 1998 and later Eletrosul-Eletrobras, focusing on maintenance of high voltage equipment. Since 2011, he works in the Maintenance Engineering Division of Itaipu Binacional where he is responsible for managing high voltage assets. He is Secretary of CIGRÉ Study Committee A3 (Brazil) and Coordinator of the Technical Group for Substation Equipment – Association of Brazilian Power Transmission Companies.

Vid Voncina

Head of R&D, Izoelektro, Slovenia

Remote Monitoring & Advanced Analysis of Surge Arresters & Power Grids

Dr. Voncina earned his Bachelor of Mechanical Engineering at the University in Maribor and continued his education in 2016 when he enrolled in the PhD program in the Faculty of Electrical Engineering and Computer Science, which he completed at the end of 2021. He currently holds the position of Head of R&D at Izoelektro.

BUSHINGS: TECHNOLOGIES, STANDARDS, CONDITION MONITORING & SERVICE EXPERIENCE

Session Chairman: Lars Jonsson, Hitachi Energy, Sweden
(Speakers listed in alphabetical order of family name, not in order of presentation.)

Ricardo Arrigoni

Business Development Manager for Components, Maschinenfabrik Reinhausen, Germany

Interchangeability of MV Composite Bushings with Traditional Porcelain Types

Mr. Arrigoni has over 20 years of experience in the transformer industry as well as in the bushing and accessory business. He started his career working for Siemens Power Transformers Brazil in the Mechanical Design Department for large power transformers. Subsequently, he moved to Comem Brazil in Technical Sales for components. In 2007, he returned to Siemens as a mechanical design engineer for power transformers and reactors before being promoted to Technical Project Management. In 2018, he was transferred to Europe as R&D Manager for liquid immersed distribution transformers. He recently moved to Maschinenfabrik Reinhausen in the Components Div., where he now offers solutions to transformer OEMs as well as to the power utility sector.

Laura De Fina

R&D Expert for Bushings, GE Grid Solutions, Italy

Comparing Composite & Porcelain High Voltage Dry Bushings for Severe Service Conditions

Dr. De Fina received her M. S. Degree in Electrical Engineering from the Milano Polytechnic University in 2003. After graduation, she joined different companies in Energy and Automation business, working in technical area. Since 2017, she has been working as R&D Expert at GE Grid Solution for HVDC and RIP AC bushings and also in charge of development of HVDC bushings. She is member of the Italian Committee 36A - Bushings and is active in IEC Working Groups.

Frédéric Dollinger

Area Sales & Marketing Manager, Haefely, Switzerland

Best Practices for Bushing Diagnostics

Mr. Dollinger received a Master's Degree in Mechatronics from the renowned French engineering school, INSA, and has worked for Haefely successively as Product & Marketing Manager and now Area Sales & Marketing Manager. His extensive travel to meet customers worldwide has allowed broad application experience and deep product knowledge. He specializes in the field of transformer test systems as well as in other applications with frequency converter-based technology, such as on-site cable testing with variable frequency. He is knowledgeable on the American standard, IEEE C57.12.90-1999, as well as on the European standard IEC 60076 (in addition to other related standards), for routine and type tests on power and distribution transformers.

Teresa Gargano

Manager, R&D Technology Center for Bushings, Hitachi Energy, Switzerland

Advances in Condenser Core Transformer Bushing Technology & Qualification Methods

Ms. Gargano earned an M.Sc. Degree in Electrical Engineering from the Polytechnic University in Milan Italy. After 7 years as an R&D engineer in power electronics, she gained a decade of experience in HV bushings design, in the process contributing to development of new products and technologies. At present, she drives global R&D projects, enhancing processes and tools, including FEM analysis as a predictive tool to assess component performance in the testing phase as well as in operation. She is a member of National IEC Technical Subcommittee 36A and a bushing expert in the IEC group for bushing standardization.

Harry Gumilang

Manager of Asset Management, PLN Persero (Indonesia TSO), Indonesia

Transformer Bushing Life Cycle Management in Indonesia: Specification, Operation & Diagnostic Methods

Mr. Gumilang received his B.A.Sc. from the Dept. of Electrical Engineering, Politeknik Negeri Bandung in 2005 and his M.Sc from the Dept, of Electrical Engineering at Institut Teknologi Bandung in 2015. He has worked for PT PLN (PERSERO) since 2006 and published several conference papers in the area of High Voltage Power Transformer Diagnostics.

Lars Jonsson

Company Senior Specialist, Hitachi Energy, Components, Sweden

High Voltage Bushings: 100 Years of Technical Advancement

Mr. Jonsson has 35 years of professional experience working with high voltage bushings. This includes design, research & development, engineering solutions, applications, and testing. During the past two decades, he has been actively involved in developing methodologies and interpretation guidelines for condition assessments. This includes a large number of analysis of service-aged bushings and failure investigations of the different insulation concepts used in AC as well as in DC applications, ranging from 36 kV to 1200 kV. He has authored many articles and conference proceedings on related subjects and serves as Convenor of the IEC maintenance team for bushing standards since 2013 as well as Chairman of the IEC Technical Committee since 2017.

Ivan Jovanovic

Chief Product Management Officer, KUVAG Group, United States

Development of Dry Composite Insulators & Bushings for HV Cable Terminations

Mr. Jovanovic obtained his Electrical Engineering Degree from the University of Belgrade and his MBA from the University of Chicago. He then joined G&W Electric where he had global responsibility for Technology, Engineering and Product Management of products such as cable accessories, including development of HV and EHV terminations and joints for extruded and oil-impregnated paper cables up to 500 kV. In his present role at KUVAG, he is responsible for identifying customer needs and technology trends, and translating these into the R&D roadmap. He has authored many papers, been a speaker at conferences and represents the U.S. in CIGRE and IEC advisory boards and technical committees. He is Chair of PES Insulated Conductor Subcommittee B (Cable Accessories) and leads the IEEE Standard for Cable Terminations and Joints.

S. Gobi Kannan

Specialist Engineer, Grid Solution Expertise Dept. Tenaga Nasional Berhad (TNB), Malaysia

Evaluation of Bushing Performance for Shunt Reactor & GIS Connected Transformer Applications in the ASEAN

Mr. Kannan holds a Bachelors of Electrical Engineering and a Masters of Power Engineering and is responsible for new technology assessment, diagnostics, and equipment performance improvement for the transformer/reactor unit at TNB. A Registered Professional Engineer and an ASEAN Registered Electrical Engineer with TNB's Grid Division, he is also a CIGRE A2 Working Group member representing the Malaysia National Committee. He is currently in charge of design, assessment, consultation, failure analysis, and specification development as a product expert.

Henrik Löfås

Product Specialist for Bushings, Hitachi Energy, Sweden

Impact of VFT on Bushings & Necessary Protection When Using On-line Monitoring

Dr. Löfås earned his PhD and a M. Sc. Degrees from Uppsala University, Sweden and has had 10 years professional experience in the area of bushings, including design, R&D, engineering solutions and testing. He started as a scientist in the corporate research organization and later moved to engineering where he has been closely involved in failure investigations and questions related to condition assessment of aged bushings. He is a member of the PT 36414 Working Group within IEC TC 36 as well as the newly initiated CIGRE WG A2.68.

MA Rui

Testing Expert, TÜV Rheinland (Shanghai), China

Power Transformer Testing & Selection of Bushings for Specific Service Conditions at PV Plant

Mr. Ma received a Master's Degree in Electrical Engineering and Electric Motor Specialties and has worked as a test engineer for high voltage equipment and now as an expert. He specializes in certification and conformity assessment based on testing of HV components and equipment for PV and wind turbine power plants, based on IEC, IEEE or equivalent national standards. He is IECEE PAC (Peer Assessment) Lead Assessor, Convenor of CTL WG3 (Editorial works), member of CTL ETF15 (Committee Test Lab Expert Task Force for HV components) and CMC WG 09 (Test Report Format) in IECEE (IEC system of Conformity Assessment Schemes for Electrotechnical Equipment and Components).

Boris Nisslé

Head of HV Laboratories, MGC Moser Glaser, Switzerland

1. Best Practices for Bushing Installation

2. Simplifying Interchangeability of Transformer Bushings through Dimensional Standardization: IEC Work in Progress

Mr. Nisslé graduated with a Master of Sciences from the TUD (Technische Universität Darmstadt) and an Engineering Degree from ENSEA (Ecole Nationale Supérieure d'Electronique et de ses Applications). He joined MGC Moser-Glaser in 2011 in the R&D Department where he was responsible for the electrical, thermal and mechanical design of capacitive-graded RIP bushings. He has organized and attended all types of tests performed on transformer bushings for over 12 years and has been involved in different bushing and busbar failure investigations once he became Head of the HV-laboratories in 2018. He has been a member of IEC Working Groups TC36/SC36A, JWG7, JMT9 and JAHG8 since 2019.

Armando Pastore

Technology Leader, GE Grid Solutions, Italy

Pollution Design of Outdoor HVDC-UHVDC Bushings

Mr. Pastore received his Mechanical Engineering Master's Degree from the University of Naples Federico II. After graduation, he began his career in R&D and technology in the automotive and railway sectors. In 2012, he joined the power grid business working for Alstom Grid as R&D Mechanical Engineer for product industrialization of through-wall & transformer bushings with special focus on HVDC applications. Since 2015, he has been at GE Grid Solution covering different roles in engineering manufacturing, production and technical manager for high voltage bushings and relevant technologies.

Poorvi Patel

Manager, Strategic Insight, Technology Innovation, EPRI, United States

Dielectric Frequency Response (DFR): A Novel Diagnostic Tool for Bushings

Dr. Patel has many years of experience in transformers and transformer accessories such as bushings, including their online monitoring, forensics and diagnostics. She has also researched on how 24/7 monitoring of assets could be performed with a substation inspection robot. Poorvi has been a member of the PES of the IEEE since 2007 and is actively involved in the work of the IEEE/PES Transformers Committee. She is the key contributor of the C57.161 DFR Guide, C57.12.200 DFR Guide for bushings and is currently the Sub-Committee Chair of the IEEE Dielectric Tests. She is Vice-Chair in the revision of IEEE Monitoring Guide C57.143 and IEEE SFRA guide C57.149 and has also been a key contributor & TF-leader in the Cigre A2.53 SFRA Guide.

Brian D. Sparling

Senior Technical Advisor, Dynamic Ratings, Canada

Unusual Bushing Failure Modes Detected with Continuous Online Monitoring

Mr. Sparling is a Sr. Member of IEEE and has decades of experience in the field of power and distribution transformers. Over the last 30 years, he has been involved in all aspects of online monitoring/diagnostics and condition assessment of power transformers. He has authored or co-authored more than 35 technical papers, including columns in Transformers Magazine and he has also contributed to many Guides and Standards with the Canadian Electricity Association, the IEEE Transformers Committee and CIGRE A2 Transformers Committee.

SITE SEVERITY ASSESSMENT & LINE/SUBSTATION DESIGN FOR POLLUTED SERVICE ENVIRONMENTS

Session Chairman: Alberto Pigini, T&D Expert, Italy

(Speakers listed in alphabetical order of family name, not in order of presentation.)

Neelesh Arora

CEO, Epsilon Asia Group, India

Climate Change-Resilient Insulators: Design Optimization for Increased Transmission Reliability Based on Environmental Conditions in India

Mr. Arora is an expert in standardization and deployment of RTV high voltage insulator coatings for AC/DC applications up to 1200 kV and has contributed to introduction and adoption of this technology across India. He is co-author of the CIGRÉ WG B2.69 'Coatings for Power Networks' and has also been nominated by India to IEC 36/63432 "RTV Coatings for outdoor insulators". He has participated in over 150 RTV projects and this extensive field experience has given him expert knowledge of coating processes and related best practices. He has also authored many papers and lectured widely on this subject and served as a consultant to utilities. He is Indian Member of IEC 36 'RTV Coating on Insulators' (PT 63432) and sits on the Bureau of Indian Standards 'ETD-06 Insulator & Insulator Accessories'.

William Chisholm

T&D Consultant, Canada

Selecting Insulators by Adapting & Calibrating Satellite & Ground-Based Measurements of Air Pollution

Dr. Chisholm is an expert in the effects of adverse weather on overhead power lines, including lightning and grounding, icing on insulators and thermal rating. He has been an IEEE Fellow for a decade – a distinction given after his long career at Ontario Hydro and Kinectrics. He combines his consulting worldwide with teaching and writing for INMR as well as Wiley & McGraw Hill and also volunteers in the IEEE executive rotation as Chair and Past Chair of the PES T&D Committee. In 2017, he received the Claude de Tourreil Memorial Award for Lifetime Achievement in the Field of Electrical Insulators.

Michele de Nigris

Director, Sustainable Development & Energy Sources, RSE, Italy

Monitoring, Mapping & Mitigating Threat of Surface Contamination to Enhance Resilience: Case Study of Overhead Transmission Lines in Italy

Mr. de Nigris is Director of the Sustainable Development and Energy Sources Department of RSE – Research on the Energy System. An Electrical engineer, he actively worked in the transmission and distribution technologies sector at CESI and subsequently in RSE, before addressing main challenges related to the interaction of the energy systems with the environment. Active in the international context, he leads the European SetPlan Implementation Group on resilient energy networks and represents Italy in coordination committees of the International Energy Agency. He is actively involved in standardization as chair of the Committee "integrated energy systems" of the Italian Electrotechnical Commission.

Jean-Marie George

Scientific Director, Sediver, France

Insulators and Pollution

Mr. George received his Electrical Eng. Degree from the HEI School in France and joined Sediver as Research Engineer in 1986. After working as Production Manager for the Composite Insulator Division and Quality Mgr. and Technical Dir. for North America, he is now Scientific Director, with responsibilities covering R&D and technical assistance worldwide. His cross-functional positions with more than 30 years of experience have given him expertise in insulator performance as well as research and development. He has published and co-authored extensively on overhead lines, with 40 papers and articles and he is also author/co-author of patents and utility models. He is a member of CIGRE, IEEE, NEMA, ANSI and CSA as well as 2018 recipient of the Claude de Tourreil Memorial Award for Lifetime Achievement in Electrical Insulators.

Igor Gutman

Sr. Specialist & Marketing Director, Independent Insulation Group, Sweden

1. Progress in IEC Standardization of Test Methods for Pollution Testing of Composite Insulators

2. Advanced Pollution Modelling for Insulators: Verification by Direct Measurements & Service Experience

Dr. Gutman received an MSc and PhD in HV engineering from the Leningrad Polytechnic Institute. He later joined STRI where his responsibilities included dimensioning of insulation in clean and polluted environments; ageing characteristics and accelerated ageing tests. He has published 200 papers, is a Sr. Member of IEEE, represents Sweden in IEC TC 36 "Insulators", is a Distinguished Member of CIGRE and active within CIGRE/IEC/IEEE. He was 2012 recipient of the Claude de Tourreil Memorial Award for Lifetime Achievement in Electrical Insulators and also received IEC's 1906 Award for service to technical standards..

Hiroya Homma

Sr. Research Scientist, Central Research Institute of Electric Power Industry (CRIEPI), Japan

Battling Pollution Problems on Overhead Lines in Japan: Recent Research at CRIEPI

Dr. Homma has over 30 years of professional experience in outdoor insulation and polymeric insulating materials. His main areas of interest include evaluation of surface degradation of polymeric insulators and high voltage testing of outdoor insulators. He is a member of IEC TC36 MT19 as well as TC112 WG5 and also serves as Chairman of IEC TC112 (Japanese National Committee). He is a Senior Member of IEEE and a Fellow of IEEJ.

Amith Karanth

Application Engineer, PPC Insulators, Austria

World's Lightest & Slimmest 380 kV Porcelain Long Rod Insulator for Ultra-High Pollution Levels

Mr. Karanth holds a B. Eng Degree in Electronics and Communications Engineering from Visvesvaraya Technological University, India and an M.Sc. Degree (Engineering) in Electrical Power Engineering from the Technische Universität Darmstadt, Germany. He has worked in research & development and design engineering positions specializing in power electronics and renewable energies. Since 2015, he has been working as an Application Engineer at PPC Insulators Group, where his primary areas of interest include high-voltage engineering, power transmission & distribution, renewable & sustainable energy technology, power electronics, power converters, e-mobility and electromagnetics. He is a member of CIGRÉ Austria and the Institution of Electronic and Telecommunication Engineers, India.

Stefan Kornhuber

Professor, HV Engineering & Theoretical Electrical Engineering, University of Applied Sciences Zittau/Görlitz, Germany

Pollution Flashover Behaviour of Hydrophobic, Hydrophilic & Partly Hydrophobic Coated Glass Insulators

Prof. Kornhuber studied at Graz University of Technology where he received his Doctoral Degree in electrical power engineering. He later worked at the Test Institute for HV Engineering in Graz, then with Doble Lemke and also at ABB Power Transformers in Germany. In 2014, he became Professor with main research in outer and inner electrical interfaces of polymeric materials, test and measuring methods and methods for technical diagnostics. He serves on several WGs at CIGRE, IEC and DKE and is Convenor of CIGRE D1.58 and IEC TC 112 WG3. In 2021 he received the CIGRE Technical Council SC D1 Award and in 2022 the IEC 1906 Award.

Jan Lachman

Director, EGU-HV Laboratory, Czech Republic

Artificial Pollution Testing: Aspects to Be Considered

Dr. Lachman graduated from the Czech Technical University in Prague, Faculty of Electrical Engineering where he later received his PhD degree. After graduation, he joined EGU-HV Laboratory as a test engineer. He has also had experience as a design engineer when working abroad. He is active in IEC/CIGRE Working Groups and represents the Czech Republic in SC D1.

Vasudev Nagaraju

Consultant to GCC Electrical Testing Laboratory, Saudi Arabia & Power Grid Corp., India

Pollution Mapping & Dimensioning of Insulators for Transmission Lines

Dr. Nagaraju graduated in Electrical Engineering from Bangalore University and later served as Lecturer in RV College of Engineering until 1984. He completed his post-graduate work on power systems from Mysore University and received his Ph.D. from Bangalore University in 1999. He joined the Central Power Research Institute (CPRI) in 1987 and retired as Additional Director. Now a Consultant, his area of specialization includes design of external insulation from the viewpoint of pollution as well as ageing characteristics of polymeric insulators under AC & DC voltages. He has participated in developing porcelain insulators for the highest pollution severity and has headed the initiative in pollution mapping of India. He also has experience in evaluating RTV-coated insulators and contributed to current relevant IEEE standards. A senior member of IEEE, he has authored over 150 technical articles and acts as contributor to the Bureau of Indian Standards.

Marco Nosilati

R&D and Engineering Manager, GE Grid Solutions, Italy

Pollution Test Results on Live Tank Circuit Breakers with Polymeric Housings

Mr. Nosilati is an Electrical Engineer, graduated at the University of Padova with a Masters thesis in collaboration with the Helsinki University of Technology. He started his work experience in 2009 as R&D Test Engineer in Areva and he is currently the Technology Leader of air-insulated disconnectors in GE Grid Solutions. He is holder of several patent applications linked mainly to HV equipment and technological solutions for HVDC applications. He has served as a member of IEC as well as ad hoc Working Groups for DC switchgear.

Alberto Pigini

T&D Expert Consultant, Italy

Estimating DC Pollution Requirements: Comparison of Simplified IEC Approach and Statistical Approach

Dr. Pigini received a Doctoral Degree in Electrical Engineering from the University of Milan. He worked for more than 35 years at CESI, first as a researcher, then as Research Manager and finally as Division Director, responsible for a number of aspects of HV electrical system, including environmental impact and generation. He is a Distinguished Member of CIGRE, Fellow of IEEE and active in various WG and Committees at these bodies. Recipient of the 2015 Claude de Tourreil Memorial Award for Lifetime Achievement in the Field of Electrical Insulators, he acts as consultant to international clients and has also served as expert Contributor to INMR for more than 10 years.

Wallace Vosloo

Corporate Specialist High Voltage Engineering, Eskom, South Africa

Power Utility Perspective on Site Pollution Severity Assessment

Dr. Vosloo is a distinguished international expert in the field of electrical insulation. Over a career spanning decades at one of the world's largest power utilities, he has presented many training courses in the field and also authored over 100 papers on high voltage insulators. His published texts include: "The Practical Guide to Outdoor High Voltage Insulators", co-authored by Roy Macey and Dr. Claude de Tourreil, and "High Voltage Engineering Practice and Theory" along with Dr. Holtzhausen. He is recipient of the SAIEE President's Award for contribution to development of high voltage insulator research, investigation capabilities and standards in South Africa as well as the Claude de Tourreil Memorial Award for Lifetime Achievement in Field of Electrical Insulation. Dr. Vosloo is active in several national and international working groups.

Raouf Znaidi

T&D Expert, Tunisia

HV Insulator Coatings in Severe Service Conditions: Pollution Accumulation & Hydrophobicity

Mr. Znaidi has spent more than 35 years carrying out extensive field and laboratory testing programs on different Insulator materials and types under severe service environments, particularly in the Middle East, North Africa and Asia. This has included designing and building original naturally polluted insulator test stations In Tunisia, Algeria, Saudi Arabia, Kuwait and Pakistan. He is active in Cigre and has co-authored several Technical Brochures dealing with polluted insulators and high voltage insulator coatings. He has also presented numerous papers at major international technical events in the T&D field. He served as an editorial Contributor to INMR, where he published over a dozen articles based on field visits to power utilities across the globe. In 2020, he was selected recipient of the prestigious Claude de Tourreil Memorial Award for Lifetime Achievement in the Field of Electrical Insulators.

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Nov 12-15, 2023

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