AW  Welcome Session
Sunday June 23rd, 2019 - 17:15 - 18:30 - Room: A (Richelieu)

AW.1  ITER Project: bringing hydrogen fusion power to reality
       BIGOT Bernard; ITER Organization Director-General, France
HVDC Technology key issues for future grids
SZECHTMAN Marcio; Director General of CEPES (Brazilian National Power Research Institute), Brazil
Monday June 24th, 2019 - 11:00

**A1  HV and EHV cable systems**

**Topic 7: HV and EHV AC Cable Systems**

*Monday June 24th, 2019 - 11:00 - 12:30 - Room: A (Richelieu)*

Chairman: **AWAD Ray**; Independent Consultant, Canada

Rapporteur: **STELLA Romain**; Prysmian, France

A1.1  *North American Performance Experience of HV and EHV Extruded Cable Systems*

**RILEY Caryn**, **HAMPTON Nigel**; NEETRAC, Atlanta, USA

A1.2  *EHV Cables in Subsea Road Tunnels – Vision or Reality?*

**SOLHEIM Kristian Thinn**, **RISE Torun**, **FAREMO Hallvard**; SINTEF, Trondheim, Norway

**HILLESUND Carl Erik**; Statnett SF, Oslo, Norway

A1.3  *Experiences and Challenges with the 420 kV XLPE Cable Systems of the London Power Tunnels Project*

**WEINLEIN Andreas**, **MEMMER Horst**, **PETERS Ulrich**, **HAERING Dominik**; Südkabel GmbH, Mannheim, Germany

**BURDEN Gareth**; National Grid, Warwick, United Kingdom

**HAMMES Christo**; HVI Ltd, London, United Kingdom

**SCHELTINGA Leo**; KEMA DNV GL, Arnhem, Netherlands

A1.4  *Topography scanning as a part of process monitoring in power cable insulation process*

**HARJUHAHTO Jaakko**, **HARJUHAHTO Janne**, **LAHTI Mikko**; Maillefer, Vantaa, Finland

**HANHIROVA Jussi**; Aalto University, Espoo, Finland

**SONERUD Björn**; Veredlink Consulting, Gothenburg, Sweden

A1.5  *Refurbishment of the Copenhagen Transmission Grid - Project Planning and Execution*

**OLSEN Rasmus**, **BRØNDUM Daniel**; Energinet Transmission, Fredericia, Denmark

**GRIFFIOEN Willem**; Plunettaz SA, Gouda, Netherlands

**THOMASEN Kim**; NCC, Copenhagen, Denmark

**STADIE Gerolf**; Nexans High Voltage, Hannover, Germany

A1.6  *Electrical and physical characterisation of a 138 kV XLPE insulated cable with 12 years service life*

**FRENTZAS Frank**, ComEd (Commonwealth Edison), Chicago, USA

**KELLEY Nathan**; Prysmian Group, Lexington, USA

**LOYENS Wendy**, **SMEDBERG Annika**; Borealis AB, Stenungsund, Sweden

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**B1  Materials and characterization (A)**

**Topic 1: Materials, New Materials and Ageing Assessment in AC and DC**

*Monday June 24th, 2019 - 11:00 - 12:30 - Room: B (Lulli)*

Chairman: **GAO Jinghui**; Xi'an Jiaotong University, China

Rapporteur: **CAPON Guillaume**; Nexans, France

B1.2  *Comparative Study on LLDPE, LDPE Nano Dielectric for application in HVDC cables: Dielectric response, Electrical and Thermal properties*

**BURJUPATI Nageshwar Rao**; Central Power Research Institute, Bangalore, India

B1.3  *Leakage current behaviors under high electric field in polymer minicables*

**CHARRIER Dimitri**; Nexans Research Center, Lyon, France

**PEREGO Gabriele**; Nexans Italia SPA, Piotello, Italy

**FROHNE Christian**; Nexans Deutschland GmbH, Hannover, Germany

**JARVID Markus**; Nexans Norway AS, Halden, Norway

**EYSSAUTIER Quentin**; Nexans France, Calais, France

B1.4  *Investigation of the PD behaviour of boundary surfaces with alternative PD-detection methods for AC and DC application*
B1.5  
**Space Charge Properties of XLPE and PDMS Dual-dielectric with Graphene Coating**  
LEI Zhipeng, FABIANI Davide, PALMIERI Fabrizio, LI ChuanYang, SELLERI Giacomo, SPERANZA Marco, GROLLI Filippo; University of Bologna, Italy  
CRISTIANO Francesco, BERTOCCO Francesco; Nanesa Srl, Arezzo, Italy

B1.6  
**HVDC dielectric material comparison from cable characterizations as a mean for material selection**  
BOYER Ludovic, BUDDARAJU Pavani, HENRIKSEN Martin, CHEMARTIN Laurent, FESTAZ Xavier; SuperGrid Institute, Villeurbanne, France

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**C1  Distribution network diagnostic and maintenance**  
**Topic 4: Diagnosis, Monitoring, Remaining Life Estimation**  
**Monday June 24th, 2019 - 11:00 - 12:30 - Room: C (Condé / Pascal)**  
Chairman: WALD Detlef; Eifelkabel, Switzerland  
Rapporteur: MOREAU Christophe; EDF R&D, France

C1.1  
**PD alarm - Lightweight automated diagnostic device for online detection and location of partial discharges on non-shielded accessories of a Medium Voltage Distribution Network**  
REYNAUD Lionel, PINEAU Daniel, CHARETTE Martin; Hydro-Québec, Varennes, Canada  
TRÉPANIER Michel; Hydro-Québec Distribution, Canada

C1.2  
**A new approach for evaluating the condition of cable systems and estimation of remaining life time of MV underground power cables**  
NEIER Tobias, KNAUEL Jens, BAWART Manfred; BAUR GmbH, Sulz, Austria  
Kim Sung-min; KEPCO (Korea Electric Power Corporation), Seoul, Korea, Republic of

C1.3  
**Comparative Investigations of PD-Behaviour on an Artificial Accessory Failure under medium Voltage AC and Damped AC (DAC)**  
MÜLLER Daniel, BACH Robert; FH SWF, Soest, Germany  
WALTER Christian; Bayernwerk, Bayreuth, Germany

C1.4  
**Operating Extruded Distribution Cable Systems at Elevating Temperatures**  
RICHARDSON Brent; Dow Chemical, Midland, USA  
SHU Essay Wen, HARTLEIN Rick, HAMPTON Nigel; NEETRAC, Atlanta, USA  
HAWIG Yushin; Southwire, Villa Rica, USA  
SMALLEY Michael; WEC Energy Group, Milwaukee, USA

C1.5  
**Reducing cost throughout the power cable network with Online Condition Monitoring using Integrated SMART-SENSING**  
SINGH Kuljit, MINTO Chris, GODFREY Alastair, ELLWOOD Robert; OptaSense Ltd, Farnborough, United Kingdom

C1.6  
**Proposition of New Diagnostic Features for VLF Tan Delta Measurements in Order to Improve Their Interpretative Value**  
DRAPEAU Jean-François; Institut de recherche d’Hydro-Quebec, Varennes, Canada  
BANERJEE Sarajit; Kinectrics Inc., Toronto, Canada

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**D1  Non-Electrical tests**  
**Topic 3: Testing Methods: Electrical and non Electrical**  
**Monday June 24th, 2019 - 11:00 - 12:30 - Room: D (Colbert)**  
Chairman: KVARTS Thomas; Orsted Wind Power as, Denmark  
Rapporteur: CALVERAS Daniel; Prysmian, Spain

D1.1  
**Test Regimes for HV and EHV Cable Connectors**  
UZELAC Milan, HEAD Julian; CIGRE WG B1.46,
D1.3 Full-scale compression capacity test of an offshore power cable
KLÆBO Frank, GIERTSEN Egil; SINTEF Ocean, Trondheim, Norway
TYRBERG Andreas; NKI HV Cables AB, Karlskrona, Sweden

D1.4 A calorimetric measuring system for measurement of loss in high voltage cable conductors
RYDLER Karl-Erik, TRANEFORS Kai, NIEMINEN Tatu, LARSSON Bo, BERGMAN Anders; RISE Research Institutes of Sweden, Borås, Sweden

D1.5 Curative maintenance to be accounted for in compliance tests
CHRÉTIEN Antoine, SALOMON Violaine; Rte, Paris, France

D1.6 Relevant accelerated corrosion tests for buried low voltage power cables
KEROMNES Laurent, LEVIGOUREUX Sophie, DELATTRE Sophie, DELEU Fabien, GIFFARD Philippe; SYCABEL, Paris, France
GUILLOU Delphine; CETIM, Senlis, France

D1.7 Online monitoring of the cross-linking process of XLPE-insulated power cables during cable production using ultrasound
BRAMMER Dr. Gregor, SCHMIDT Fabian; FGH e.V., Mannheim, Germany

E1 Sheath bonding and parallel circuit
Topic 2: Cables and Accessories – design and modelling
Monday June 24th, 2019 - 11:00 - 12:30 - Room: E (Montesquieu)
Chairman: MOSIER Rachel; Power Delivery Consultants, USA
Rapporteur: NGUYEN TUAN Minh; EDF R&D, France

E1.1 Capacitive and Inductive Coupling in Cable Systems – Comparative Study between Calculation Methods
CHRYSOCHOS Andreas, ALEXANDROU Konstantinos, CHATZIPETROS Dimitrios, KOSSYVAKIS Dimitrios, PAVLOU Konstantinos, TASTAVRDIS Konstantinos, GEORGALLIS Georgios; Cablel Hellenic Cables S.A., Viohalco Group, Athens, Greece
ANDERS George J.; Technical University of Lodz, Poland

E1.2 Sheath circulating currents calculation in asymmetrical installation schemes for power frequency models
ALEXANDROU Konstantinos, TASTAVRDIS Konstantinos, GEORGALLIS Georgios; Cablel Hellenic Cables S.A., Viohalco Group, Athens, Greece
ANDERS George J.; Department of Microelectronics and Computer Science of the Technical University of Lodz, Poland

E1.3 An updated method for evaluating current sharing between parallel single-core cables: Case studies and correlation with field measurements
LESUR Frédéric; Nexans, Calais, France
KLINK Jacob; TU Clausthal University of Technology, Clausthal, Germany
KOSSYVAKIS Dimitrios, Cablel Hellenic Cables S.A., Viohalco Group, Athens, Greece

E1.4 Induced Sheath Voltages and Currents in Cross-Bonded Power Cables with Consideration of Improper Connections of the Bonding Leads
NOUFAI Sameh; CDGA Engineering Consultants, Cork, Ireland
ANDERS George J.; Technical University of Lodz, Poland

E1.5 A practical method to compute the metallic sheath circulating current for non standard cases
EL CHMOURI Mohamad; RIYADH CABLES GROUP, Riyadh, Saudi Arabia
Monday June 24th, 2019 - 14:30

A2  Design of HV and EHV cable systems

Topic 7: HV and EHV AC Cable Systems

Monday June 24th, 2019 - 14:30 - 16:00 - Room: A (Richelieu)

Chairman: TYRBERG Andreas; NKT, Sweden
Rapporteur: TEYSSÈDRE Gilbert; Laplace-CNRS, France

A2.1  Standardization and Optimization of High Voltage Cables Design
ALGHOFAILI Hisham, METWALLY Ahmed; National Grid Saudi Arabia, Riyadh, Saudi Arabia

A2.2  Hybrid analytical / finite-elements model to design optimal HVDC joint bays
SALAME Basil, CHARMETANT Adrien; Nexans, Lyon, France
LESUR Frédéric; Nexans, Calais, France

A2.3  Thermal analysis of 3-core SL-type cables with jacket around each core using the IEC standard
RAMIREZ Leon Dario, KAMARA Woulèye; EATON, Saint Bruno, Canada
ANDERS George J.; Lodz University of Technology, Poland

A2.4  Asymmetric joints for extruded and fluid-filled cables - Traditional use and new applications
TSAKONAS Panos, BODEGA Riccardo, GEENE Henk; Prysmian Group, Delft, Netherlands
MAMMERI Mohamed, BOFFI Paolo; Prysmian Group, Milan, Italy

A2.5  Retrofitting HV External Gas Pressure Cable Systems
VAN ROSSUM Jos, WEGBRANS Bas, KOLTUNOWICZ Tomasz, TSEKMES Alex, VAN EEDEN Corné; Prysmian Group, Delft, Netherlands
ZUIJDERDUIN Roy, SMIT Jacco; TenneT, Arnhem, Netherlands

A2.6  Hornsea projects 1 and 2 - Design and Optimisation of the Cables for the World Largest Offshore Wind Farms
ZOURARAKI Maria, KVARTS Thomas, ØSTERØ Rogvi, PAGE Trevor, HJERRILD Jesper; Orsted Offshore, Gentofte, Denmark
VILHELMSEN Morten Ahrenkiel; Orsted Offshore, Gentofte, Curaçao

B2  Materials and characterization (B)

Topic 1: Materials, New Materials and Ageing Assessment in AC and DC

Monday June 24th, 2019 - 14:30 - 16:00 - Room: B (Lulli)

Chairman: RAKOWSKA Aleksandra; Poznan University of Technology, Poland
Rapporteur: CHARRIER Dimitri; Nexans Research Center, France

B2.1  Interface Polarization Characteristics of Water-Tree Aged Cables based on Polarization and Depolarization Current Method
ZHOU Kai, RAO Xianjie, CHEN Zelong, ZHU Guangya; Sichuan University, Chengdu, China

B2.2  A study on partial discharge and bubble behavior in oil gap on oil-impregnated paper insulation system
MAKINO Yuta, KURIHARA Takashi, TAKAHASHI Toshihiro; CRIEPI (Central Research Institute of Electric Power Industry), Kanagawa, Japan

B2.3  Study on Degassing Efficiency of Crosslinked Polyethylene High Voltage Cable
SUN Yabin, MIAO Shawn, YANG Yongyong, JI Clive; Dow Chemical (China) Invest. Co. Ltd., Shanghai, China
PERSON Timothy; The Dow Chemical Company, Collegeville, USA
KJELLQVIST Jerker; Dow Europe GmbH, Horgen, Switzerland

B2.4  Studies of diffusion of byproducts formed by the peroxide-induced cross-linking of polyethylene
YANG Yafan, NARAYANAN NAIR Arun Kumar, SUN Shuyu; King Abdullah University of Science and Technology (KAUST), Thuwal, Jeddah, Saudi Arabia
SUN Yabin; Dow Chemical (China) Invest. Co. Ltd., Shanghai, China
VAN DUN Jozef, KJELLQVIST Jerker; Dow Europe GmbH, Zürich, Switzerland
The effect of mechanical pressure on the electrical resistivity and water transport capabilities of a semi-conductive superabsorbent tape

Torbjørn Andersen, Olsen Maria Nicté Polanco, Hvidsten Sverre; SINTEF Energy Research, Trondheim, Norway
Furuheim Knut Magne; Nexans, Norway
E2  Monitoring of lapped insulation and remaining life evaluation of transmission cable systems
Topic 4: Diagnosis, Monitoring, Remaining Life Estimation
Monday June 24th, 2019 - 14:30 - 16:00 - Room: E (Montesquieu)
Chairman: ZENGER Walter; USI, USA
Rapporteur: BELE William; RTE, France

E2.1  Condition Assessment of Pipe-Type Joints Utilizing Limited-Angle Computed Tomography X-Ray Technology
MAKOVOZ Arie, BOSE Sanjay; Consolidated Edison of New York, USA
MAZIUK Robert; V J Technologies, Inc., East Haven, CT, USA
HALLIWELL Stephen; V J Technologies, Inc., Bohemia, NY, USA

E2.2  A Study on Partial Discharge Pattern Analysis for HVDC MI-PPLP Cables
JUNG Chae-Kyun, HWANG Jae-Sang, KIM Minju, WOO Jungwook, KANG Jiwon; KEPCO Research Institute, Daejeon, Korea, Republic of
KIM Seongweon, KIM Kyungoh; KEPCO (Korea Electric Power Corporation), Naju, Korea, Republic of

E2.3  How Can Life Assessment and Diagnostic Monitoring Influence the Choice of MV to EHVDC Cables for Interconnected Grids
MORSHUIS Peter; Xi'an Jiaotong University, China
MONTANARI Gian Carlo; University of Texas, USA
STEVENS Gary C.; Gnosys Global, Guildford, United Kingdom
SERI Paolo; University of Bologna, Italy
VAUGHAN Alun; University of Southampton, United Kingdom

E2.4  Chemical ageing of subsea mass impregnated insulation cable paper
LESAINT Cédric, LILAND Knut Brede, HESTAD Øystein; SINTEF Energy Research, Trondheim, Norway

E2.5  Water tree Degradation on Long Term Operated 60 kV Class XLPE Cables Decommissioned from Actual Power Grid
TAKAHASHI Toshihiro, KURIHARA Takashi, TAKAHASHI Tsuguhiro, OKAMOTO Tatsuki; CRIEPI, Yokosuka, Japan

E2.6  Power cables and accessories survey - learnings from type tests, tests after installation and in-service failures
VAN DER WIJLEN Peter, HE Hong, VAN MAANEN Bernd, PULTRUM Edwin; DNV GL, Arnhem, Netherlands

F2  Young Researcher’s Contest
Monday June 24th, 2019 - 14:30 - 16:00 - Room: F (Galerie Le Nôtre)
Chairman: JEROENSE Marc; MJ MarCable Consulting AB, Sweden
Rapporteur: TEYSSÈDRE Gilbert; CNRS / Laplace, University P. Sabatier, France

F2.1  Thermal rating of submarine cables installed in J-tubes using Lumped Element Method
ARANCIO Jeremy, OULD EL MOCTAR Ahmed; LTEN (Heat Transfer and Energy Laboratory at Nantes), Nantes, France
NGUYEN TUAN Minh; EDF, Paris, France
TAYAT Faradj, ROQUES Jean-Philippe; TOTAL, Paris, France

F2.2  Modeling thermal distribution of submarine three-core XLPE cable with respect to the buried depth and thermal conductivity of the soil
WANG Weiwang, WANG Zhaohui, BU Wen, LI Shengtao; Xi’an Jiaotong University, China
HU Yiru, ZHANG Lina; China National Offshore Oil Corporation (CNOOC) Research Institute Ltd., China

F2.3  Electrical properties of nanostructured polypropylene: a matter of morphology?
SERI Paolo; Department of Electrical, Electronic and Information Engineering (DEI), University of Bologna, Italy
F2.5 Assessment of financial benefits in overplanted windfarm export cable
HERNANDEZ COLIN Maria Angelica, PILGRIM James A.; University of Southampton, United Kingdom

F2.6 DC Conductivity measurements of polymeric HVDC insulation materials under consideration of a dynamic temperature profile
HÄRING Dominik; Südkabel GmbH, Mannheim, Germany
JENAU Frank; University Dortmund, Germany

F2.7 Analysis of longitudinal interfaces by using frequency domain spectroscopy
LOH Jun Ting, DRESSLER Mario, KITTAN Stefan, KORNHUBER Stefan; University of Applied Sciences, Zittau, Germany
ARNDT Stephan; BBC Cellpack Electrical Products – Behr Bircher Cellpack Radeberg GmbH, Radeberg, Germany

F2.8 Post-irradiation effect investigation on low-voltage XLPE cables through dielectric spectroscopy
SURACI Simone Vincenzo, FABIANI Davide; Department of Electrical Engineering (DEI) University of Bologna, Italy

F2.9 Identification and experimental determination of important thermal and hydraulic properties of bedding materials for energy cables
SCHEDEL Markus, DREIFKE Christoph, SAAS Ingo; Technische Universität Darmstadt, Geothermal Science and Technology, Germany
JACOBS Natalie Simone, BRÜGGMANN Jan; Amprion GmbH, Dortmund, Germany

F2.10 Role of holes in conduction phenomenon of Low Density Polyethylene under high fields and temperatures
UPADHYAY Avnish Kumar, REDDY Chandupatla Chakradhar; Indian Institute of Technology Ropar, Ropar, India

F2.11 Partial discharge detection using distributed acoustic sensing
KIRKCALDY Laurie, PILGRIM James; University of Southampton, United Kingdom
ROGERS Rosalie, LEES Gareth; AP Sensing, United Kingdom

F2.12 MV Insulated cables and screen arrangements: single-point bonding vs solid-bonding
DAMBONE SESSA Sebastian, BENATO Roberto; University of Padova, Italy
MARCHESO Oscar, TANZI Luca, ZAPPILLONI Roberto; E-distribuzione, Rome, Italy

F2.13 HV Cable Diagnostic by Time Domain Reflectometry or Frequency Domain Analysis? A Comparison of Sensitivity to Fault Impedance and Cable Length
NOROUZI Younes, FROHNE Christian; Nexans Deutschland GmbH and Leibniz university Hannover, Germany
WERLE Peter; Leibniz university Hannover, Institute of Electric Power Systems, Germany

F2.14 Application of Recurrent Neural Network with Long Short-Term Memory Cells for Partial Discharge Identification
YEÔ Joel, YUEN Chau; SUTD Singapore University of Technology & Design, Singapore, Singapore
JIN Hui Fei, NG Chee Seng; T Yeo Engineers, Singapore, Singapore

F2.15 Electrical stresses of cable sheaths under normal and fault condition
KÜCHLER Benjamin, SCHMIDT Uwe, HAIM Klaus-Dieter; University of Applied Sciences Zittau/Görlitz, Germany

F2.16 Modelling of electrical history effect on polymer conductivity
GUSSFOND Raphaël; Nexans, Lyon, France
COMBESISS Anthony; Nexans, Lens, France
HOLÉ Stéphane; Laboratoire de Physique et d’Étude des Matériaux, (LPEM, UMR8213) CNRS, PSL Research University ESPCI-ParisTech, Sorbonne Universités, UPMC Univ Paris 6, Paris, France

F2.17 Aging Index of C&I Cable in Nuclear Power Plants via Time-Frequency Domain Reflectometry
LIM Hobin, LEE Geon Seok, BANG Su Sik, KWON Gu-Young, LEE Yeong Ho, JI Gyeong Hwan, SHIN Yong-June; Yonsei University, Seoul, Korea, Republic of

F2.18 Investigation on Transition Joint Materials and Electric Field in Different Layers of Joint Insulation
JOHRI Pranav, REDDY Chandupatla Chakradhar; Indian Institute of Technology Ropar, Ropar, India

F2.19 Global basis functions method for the efficient computation of power losses in submarine three-core cable armor
GIUSSANI Luca, DI RIENZO Luca; Politecnico di Milano, Dipartimento di Elettronica, Informazione e Bioingegneria, Milan, Italy
BECHIS Massimo; Prysmian spa, Milan, Italy
DE FALCO Carlo; Politecnico di Milano, MOX – Modeling and Scientific Computing, Dipartimento di Matematica, Milan, Italy

F2.22  FEM analysis on influence of semiconductors in 3-core submarine power cables regarding cable losses  
STURM Sebastian, PAULUS Johannes; University of Applied Sciences, Schweinfurt, Germany  
BERGER Frank; Ilmenau University of Technology, Germany

F2.23  Numerical and Empirical Determination of the Influence of Hydrodynamic Loads on the Fatigue Life of Submarine Cables  
SCHÜTT Clemens, OTTO Christoph, MENZEL Peter, PASCHEN Mathias; University of Rostock, Faculty of Mechanical Engineering and Marine Technology, Chair of Ocean Engineering, Germany  
ZERBST Stephan, SCHUMANN Kai; TenneT Offshore GmbH, Lehrte, Germany

F2.24  Local surface field- and charge distributions and their impact on breakdown voltage for HVDC cable insulation  
DOEDENS Espen, JARVID Markus; Nexans, Holden, Norway  
SERDYUK Yuri; Chalmers Univ. of Technology, Gothenburg, Sweden  
GUFFOND Raphaël, CHARRIER Dimitri; Nexans Research Centre, Lyon, France

F2.25  Influences of changed Grid Utilization by Renewable Energies on the Ageing Behaviour of Medium Voltage Cables  
MÜLLER Ann-Catrin, BLENK Tobias, WEINDL Christian; Coburg University of Applied Sciences and Arts, Germany  
SCHRAMM Judith; Rheinische NETZGesellschaft, (Germany), Germany

F2.26  Space Charge Behaviour in HVDC Cable Insulation  
ZHAN Yunpeng, CHEN George; University of Southampton, United Kingdom

F2.28  Investigation on the tensile strength of silicone layers with different amount of graphite filler  
AGANBEGOVIC Mirnes, WERLE Peter; Institute of Electric Power Systems, Division of High Voltage Engineering and Asset Management, Schering-Institute, Leibniz Universität Hannover, Germany
## A3  Installation and testing of cable systems

**Topic 7: HV and EHV AC Cable Systems**  
**Monday June 24th, 2019 - 16:30 - 18:00 - Room: A (Richelieu)**

**Chairman:** CHINOSI Sergio; Prysmian, Italy  
**Rapporteur:** GALERON Didier; Nexans, France

| A3.1 | Modular Test System for testing super long AC & DC cables | BILINSKI Enrico, KALTENBORN Uwe, HENSEL Michael; HIGHVOLT Prüftechnik Dresden GmbH, Germany |
| A3.2 | Projects with remote installation (“tube post”) of energy cables in ducts | GRIFFIOEN Willem, GUTBERLET Christophe, UHL Alexandre, LAURENT Gregory, GROBETY Selim; Plumettaz SA, Bex, Switzerland |
| A3.3 | Tehachapi Renewable Transmission Project: North America’s first 500 kV XLPE Cable System | BUSBY Jon; Burns & McDonnell Engineering, Kansas City, USA |
| A3.4 | A super-digital underground link to improve asset management policy | COUTURIER Nicolas, FABRE Mathilde; RTE, Paris, France |
| A3.5 | Combined qualification according to IEC IEEE ICEA of 345 - 400 kV cable components and system | DUBOIS David, MIREBEAU Pierre, AIT AMAR Abdellatif, GALERON Didier; Nexans, Calais, France |

## B3  Fire performance

**Topic: Fire Performance**  
**Monday June 24th, 2019 - 16:30 - 18:00 - Room: B (Lulli)**

**Chairman:** VERCELLOTI Uberto; CESI, Italy  
**Rapporteur:** COLOMBIER Serge; Prysmian Câbles & Systèmes, France

| B3.1 | Special Communication (25 minutes allocated time) Products Construction Regulation: do HVAC and DC cable have to answer? | CHARLES Fabien; Prysmian Group, Montereau, France  
MIREBEAU Pierre; Nexans, Calais, France  
BENARD Laurent; Prysmian Group, SENS, France  
ROUET Francis; SYCABEL, Paris, France |
| B3.2 | ElecLink Cable Fire Performance and Bespoke Fire Test | HUANG Ziyi (Uta), WALKER Michael; Mott MacDonald, Brighton, United Kingdom  
DHILLON Steve, JOYEZ Patrick; ElecLink, Folkstone, United Kingdom  
SVOMA Roman; PowerSure Technology, London, United Kingdom |
| B3.3 | LSZH sheath cracking in harsh environment | THOMBRE Arun; DUCAB, Dubai, UAE |
| B3.4 | Current ratings and installation considerations for Fire Resistant Wiring Systems | HOSIER Richard; Mineral Insulated Cable Company Co. Ltd., Washington, United Kingdom |
| B3.5 | A Study of Smoke Release of Complete Cables and components of the cables | ARUNJOTHI Rajendran, THIRUMURTHY T., MEENA K.P.; Central Power Research Institute, Bangalore, India |

## C3  Online diagnostic and maintenance

**Topic 4: Diagnosis, Monitoring, Remaining Life Estimation**  
**Monday June 24th, 2019 - 16:30 - 18:00 - Room: C (Condé / Pascal)**
C3.1 Investigation of temperature effect on partial discharge patterns in high voltage XLPE insulated cables
HAGHJOO Farhad; Shahid Abbaspour School of Engineering, Shahid Beheshti University, Tehran, Iran, Islamic Republic of
KARIMI Reza, SABOURI Davood; Abhar Cable Co., Tehran, Iran, Islamic Republic of

C3.2 Performance of the Partial discharge equipment and the future of online monitoring system in National Grid SA network
ALMALKI Abdullah; National Grid SA - Saudi Electricity Company, Riyadh, Saudi Arabia

C3.3 Experience with the commissioning and operation of a monitoring system on a 380 kV cable system in Belgium
LEEMANS Pieter, SARENS Mario; Elia, Brussels, Belgium
BRONIECKI Ulrike, GEBHARDT Daniel, KOLTUNOWICZ Wojciech; OMICRON Energy Solutions, Berlin, Germany

C3.4 High voltage outdoor terminations with integrated optical partial discharge measurement
EIGNER Alexander, DANIEL Rhoda, RADHAKRISHNAN Snehalatha; Tyco Electronics Raychem GmbH, Ottobrunn, Germany

C3.5 In-service Partial Discharge Measurements on Power Cable Terminations
CAO Hongyan, LI Jun, LO Kem Wah, ONG Kian Hai; SP Group, Singapore

C3.6 Integral sensing of HV cable joints - monitor operation and predict failures early
GRUND Ruben; Pfisterer, Winterbach, Germany
HOLOCH Jens; Pfisterer, Atdorf, Switzerland
ROGERS Rosalie, KAMMLER Anja, POHL Clemens; AP Sensing, Böblingen, Germany
ROLAND Henrik; Energinet, Fredericia, Denmark

D3 Partial Discharge Methods and Measurement
Topic 3: Testing Methods: Electrical and non Electrical
Monday June 24th, 2019 - 16:30 - 18:00 - Room: D (Colbert)
Chairman: FENGER Mark; Prysmian Group, Canada
Rapporteur: CASTELLON Jerôme; University of Montpellier, France

D3.1 Fifteen Years Damped AC On-site Testing and Diagnosis of Transmission Power Cables
GULSKI Edward, JONGEN Rogier; onsite hv solutions ag, Lucerne, Switzerland
QAUK Ben; Seitz Instruments AG, Niederrohrdorf, Switzerland
PARCIAK Jaroslav; onsite hv solutions Central Europe Sp. z o.o., Warsaw, Poland
RAKOWSKA Aleksandra, SIODŁA Krzysztof; Poznan University of Technology, Poland

D3.2 Partial discharge inception voltage and magnitude in polymeric cables under AC and DC voltage supply
MONTANARI Gian Carlo, HEBNER Robert; Center for Electromechanics (CEM) of the Texas University at Austin, Austin, USA
SERI Paolo, NADERIALAF Hadi; DEI - University of Bologna, Italy

D3.3 Application of PD monitored voltage withstand test method for high voltage power cable lines
XIAO Chuan Qiang, ZUO XianKun; SINDIA Instruments Co., Ltd., China, Beijing, China

D3.4 Non-destructive after laying test with PD localization
SMIT Jacco; TenneT TSO B.V., Arnhem, Netherlands
VAN RIET Maarten; Alliander, Arnhem, Netherlands
STAARINK Bram; Qirion, Arnhem, Netherlands

D3.5 Partial discharge localization in gas pressure cable routes through double sided-synchronous-multi point-measurement
STAMENKOVIC Vladimir, FELSHEIM Frédéric, BRUSENBACH Roy, PLATH Ronald; Technische Universität Berlin, Germany

E3 Challenges for integrated optical fibers
E3.1  Model-based predictive control for use in RTTR temperature sensing systems of high voltage cables  
AEGERTER Damian; Braavos GmbH, Stetten, Switzerland  
MEIER Stephan; Emetor AB, Västerås, Sweden

E3.2  Combined distributed fibre optic sensing: the revolution in managing and reducing risks and costs of offshore power cable  
ROCHAT Etienne, CHIN Sanghoon, RAVET Fabien, CURRAT Matthieu; Omnisens SA, Morges, Switzerland

E3.3  Inherently safe designs of fibre optic cables integrated in three-core submarine power cables  
KVARTS Thomas, COJOCARU Claudia Georgiana; Orsted Offshore, Gentofte, Denmark

E3.4  Fibre optic related failure modes of submarine power cables  
DU PLESSIS Thinus, PLET Dr. Cornelis A., DE WILD Frank; DNV GL, Arnhem, Netherlands  
VAN DER WIELEN Peter; Eindhoven University of Technology, Netherlands

E3.6  Electromagnetic coupling in HV and EHV three-core submarine cables during test and operation  
KARLSTRAND Johan; JK Cablegrid Consulting AB, Karlskrona, Sweden  
OLSEN Espen; Nexans Norway AS, Halden, Norway  
HATLO Marius; Unitech Power Systems AS, Oslo, Norway
A4.1 Strategies for maintenance and repair of EHV cable systems
SMIT Jacco, MOUSAVI Shima, DE BES Robert-Jan; TenneT TSO B.V., Arnhem, Netherlands
MACHL Anita; APG, Vienna, Netherlands
REICH Michael; APG, Vienna, Austria
KLEIN Michael, SVEJDA Georg; Wienernetze, Vienna, Austria

A4.3 Failure Experience on 380 kV Joints and Terminations in Saudi Arabia Transmission Network
ALDHUWAIAN Abdullah; Saudi Electricity Company, Buraydah, Saudi Arabia

A4.4 Qualification and experiences with large 400 kV XLPE cable systems installed on the Arabian Peninsula
KAUMANNS Johannes, HEUSER Jürgen, FRANKE Dirk, OPPERMANN Thomas, HÄRING Dominik, SCHÖDER Gero,
WEINLEIN Andreas; Südkabel GmbH, Mannheim, Germany

A4.5 Degradation of silicone insulating fluids in cable sealing ends
VIRTANEN Suvi, CALLENDER George, WHEATLEY David, PILGRIM James A., ANDRITSCH Thomas, BROWN Richard,
LANGLEY John, LIU Xiang; University of Southampton, United Kingdom
CWIKOWSKI Oliver; National Grid Electricity Transmission, Warwick, United Kingdom

A4.6 Investigation and Mitigation of HV Cable Joint Failures in Thailand Metropolis
RAJAKROM Asawin; MEA, Bangkok, Thailand
THANANCHANA Annop, CHANDARASUPSANG Tirapot, CHALPITAK Nopasit; Chiangmai University, Thailand

B4.1 Enhanced performance thermoplastic insulation systems
STEVENS Gary C., PYE Amy, FREEBODY Nicola, BASU Susmit; Gnosys Global, Guildford, United Kingdom
GERMAN Ian, THOMAS Janet; Gnosys Global, Guildford, United Kingdom
HOSIER Ian, VAUGHAN Alun S, ANDRITSCH Thomas; University of Southampton, United Kingdom

B4.2 Development of a thermoplastic insulation system for medium voltage cables
WALD Detlef; Eifelkabel, Villmergen, Switzerland
POTS Laurens; TKF, Haaksbergen, Netherlands

B4.3 Comparison of characteristics and behaviour of XLPE and P-laser MV-cable
SOEPBOER Piet, BROERSMA Tjeerd; Enexis, ‘s-Hertogenbosch, Netherlands
HENNUY Blandine, SIMAL Robin; ENGIE-Laborelec, Linkebeek, Belgium
VAN ROSSUM Jos, LAUWERS Sander; Prysmian Netherlands B.V., Delft, Netherlands

B4.4 A polystyrene pinning crosslinked polyethylene for potential application in HVDC cable insulation
CAO Liang, CHONG Lisheng, YANG Xiaoyu, GAO Jinghui, CHEN Guanghui; Xi’an Jiaotong University, China
LI Wenpeng, YIN Xin, ZHANG Chong; Global Energy Interconnection Research Institute Co., Ltd., Beijing, China
LI Zhenyu, GUAN Jianxin; STATE GRID Corporation of China, Beijing, China

B4.5 Performance of a strippable thermoplastic medium voltage cable
C4  Space charge measurement (Interface and Material)
Topic 8: DC Cable Systems: LV, MV, HV and EHV
Tuesday June 25th, 2019 - 09:00 - 10:30 - Room: C (Condé / Pascal)
Chairman: DOEDENS Espen; Nexans Norway AS, Norway
Rapporteur: GUFFOND Raphaël; Nexans, France

C4.1 Development and Optimization of a Pulsed Electroacoustic System Suitable for Silicone Rubbers with Carbon Black Nanofillers
HUSSAIN Rashid, MOXTER Julian, HINRICHSen Volker; Technische Universität Darmstadt, High-Voltage Laboratories, Germany

C4.2 Space Charge Accumulation between Different Insulating Materials Simulated Cable Joint for HVDC
IGUCHI Kumiko, TOHMINE Tsuyoshi, MIYAKE Hiroaki, TANAKA Yasuhiro; Tokyo City University, Japan
MURATA Yoshinao, INOUE Yoshiyuki; Sumitomo Electric Industries, Ltd., Tokyo, Japan

C4.3 Space charge properties of EPDM under different electric field and thermal ageing
MEN Rujia, LEI Zhipeng, GENG Pulong, SONG Jiancheng, LI Yuanyuan, TIAN Muqin; Taiyuan University of Technology, China
HAN Tao; Tianjin University, China
LI ChuanYang; Tsinghua University, Beijing, China
FABIANI Davide; University of Bologna, Italy

C4.4 HVDC extruded cable space charge measurement under operating condition with temperature difference
HOU Shuai, FU Mingli, HUI Baojun, LI Xiaolin; Electric Power Research Institute China Southern Power Grid, Guangzhou, China

C4.5 Comparison and evaluation of deconvolution techniques for processing space charge measurement data
LUNGE Kevin, NIEDIK Christoph Felix, JENAU Frank; TU Dortmund University, Germany

C4.6 Measurement of Trapped Charge Density and Trap Depth in XLPE Based on Polarization and Depolarization Current Method
ZHOU Kai, LI Mingzhi; Electrical Engineering and Information Technology College of Sichuan University, Chengdu, China

D4  Partial Discharge Methods and Measurement - Equipment
Topic 3: Testing Methods: Electrical and non Electrical
Tuesday June 25th, 2019 - 09:00 - 10:30 - Room: D (Colbert)
Chairman: KIM Jung Nyun; LS Cable, Korea
Rapporteur: SANTANA José; Prysmian Câbles & Systèmes, France

D4.1 Optimized test setup and decoupling strategy for onsite PD measurements
VATERRODT Klaus, SPIELER Martin, KÖSZEGI Andreas, NIERHAUS Tjalf, KUCHARCZYK Krzysztof; IPH GmbH, Berlin, Germany

D4.2 Innovative PD Site Location Optimized for FAT in the Cable Industry
MRAZ Petr, TREYER Patrick, HAMMER Urs; Haefely Test AG, Basel, Switzerland

D4.3 HV withstand test for a 500 kV Power Cable Project Using 8 modular variable Frequency Resonant Test Systems
XIAO Chuan Qiang, ZHANG FengXi, DAI Hongbin, ZUO XianKun; SINDIA Instruments, Beijing, China

D4.4 Procedures to qualify PD measuring instruments to use in the insulation condition of cable systems
GARNACHO Fernando, KHAMILCHI Abderrahim, RAMÍREZ Ángel, ROVIRA Jorge; FFII-LCOE, Madrid, Spain
ÁLVAREZ Fernando, ARCONES Eduardo; Universidad Politécnica de Madrid, Spain
D4.6  Partial discharge propagation in high voltage XLPE insulated cables - measurement vs. Modelling
BOCHENSKI Boguslaw; Kinectrics Inc., Toronto, Canada

E4  Monitoring of mechanical issues
Topic 4: Diagnosis, Monitoring, Remaining Life Estimation
Tuesday June 25th, 2019 - 09:00 - 10:30 - Room: E (Montesquieu)
Chairman: MAIOLI Paolo; Prysmian SpA, Italy
Rapporteur: CABAU Matthieu; RTE, France

E4.1  Determination of the Depth of Burial of Submarine Power Cables from Temperature Measurements in Real-Time
LUX Jonathan, OLSCHEWSKI Martin, CZERNIUK Thomas, HILL Wieland; NKT Photonics GmbH, Cologne, Germany

E4.2  Experiences with depth of burial monitoring in the North Sea using Distributed Temperature Sensing
VAN OOSTEROM Jozua, VAN DOELAND Wouter, KONING Richard; Energy Solutions B.V., Delft, Netherlands

E4.3  Fault Localisation with Distributed Acoustic Sensing (DAS) – Service Experience
OLESEN Rasmus, STEFFANSEN Simon, OLESEN Kristian; Energinet Transmission, Fredericia, Denmark
ROGERS Rosalie, LEES Gareth; AP Sensing, Stuttgart, Germany

E4.4  Ultra-Long Reach Fiber Distributed Acoustic Sensing for Power Cable Monitoring
CEDILNIK Gregor, LEES Gareth; AP Sensing GmbH, Böblingen, Germany
SCHMIDT Poul Erik, HERSTRØM Søren, GEISLER Tommy; OFS, Brøndby, Denmark

E4.5  Online chafing fault diagnosis and characterization in twisted pair cables based on multi-carrier reflectometry and genetic optimization algorithms
BEN HASSEN Wafa, KAFAL Moussa, CABANILLAS Esteban; CEA, LIST, Laboratoire de Fiabilité et Intégration Capteurs, Gif-sur-Yvette, France

E4.6  Non-electric detection of internal discharges in High-Voltage Cable Accessories
VATERRODT Klaus, PETERSEN Andreas; IPH Institut Prüffeld für elektrische Hochleistungstechnik GmbH (CESI Group), Berlin, Germany
LEISTNER André; Polymers GmbH, Berlin, Germany
GRÄF Thomas; HTW Hochschule für Technik und Wirtschaft Berlin, Berlin, Germany
Tuesday June 25th, 2019 - 11:00

**A5**  HV and EHV Submarine cables

*Topic 9: Submarine Cable Systems (AC & DC)*

*Tuesday June 25th, 2019 - 11:00 - 12:30 - Room: A (Richelieu)*

**Chairman:** COLLA Luigi; Prysmian Power Link Srl, Italy  
**Rapporteur:** CHARLES Fabien; Prysmian Sud Europe, France

**A5.1** Corrosion, we just have to live with it  
WALD Detlef; Eifelkabel, Villmergen, Switzerland  
ORTON Harry; Orton Consulting Engineers Int., North Vancouver, Canada  
ALJINOVIĆ Srećko; HOPS, Split, Croatia  
DROPULIĆ Toni; Dalekovod-Projekt, Zagreb, Croatia

**A5.2** Study on Degassing Process of the World's First 500 kV XLPE Insulated AC Submarine Cable  
WANG Wen-chao, ZHAO You-lin, ZHANG Jian-min, YE Cheng, HU Ming, WANG Liyuan; Zhongtian Technology Submarine Cable Co., Ltd., Nantong, China  
XIE Shuhong; Zhongtian Technology Group Co., Ltd., Nantong, China

**A5.3** Research and Application of XLPE Insulated AC and DC Submarine Cables in China  
ZHANG Hongliang, YAN Zhiyu, HU Ming, LU Xiniang, YAN Yan, SUN Zhe, YU Hongmiao; Zhongtian Technology Submarine Cable Co., Ltd., Nantong, China

**A5.5** Toward Detecting Ship Characteristics and Movements using DAS and Machine Learning  
MALAPRADE Jacques, HUNT Ryan, LEES Gareth; AP Sensing, Basingstoke, United Kingdom  
DRAPP Bernd; AP Sensing, Böblingen, Germany

**A5.6** Light armour cables for submarine deep water power application  
OTTE Olaf, TROLLI Alessandro, CONSONNI Enrico; Prysmian Group, Milan, Italy

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**B5** New materials (B)

*Topic 1: Materials, New Materials and Ageing Assessment in AC and DC*

*Tuesday June 25th, 2019 - 11:00 - 12:30 - Room: B (Lulli)*

**Chairman:** CASIRAGHI Flavio; Prysmian SpA R&D Material Director, Italy  
**Rapporteur:** SAHYOUN Jihane; Nexans, France

**B5.1** Advancements in TR-XLPE Insulation Technology to Enable Use in High Voltage Cable Applications  
CARONIA Paul, PERSON Timothy, COGEN Jeff, SENGUPTA Saurav; The Dow Chemical Company, Collegeville, USA  
CREE Steve; The Dow Chemical Company, Horgen, Switzerland  
SUN Yabin, HE Chao; The Dow Chemical Company, Shanghai, China

**B5.2** Fully-Crosslinked XLPE with low conductivity for DC insulation  
PERSON Timothy; The Dow Chemical Company, Collegeville, USA  
CREE Stephen; The Dow Chemical Company, Horgen, Switzerland  
YANG Yong Yong; Dow Chemical (China) Invest. Co. Ltd., Shanghai, China

**B5.3** Formula and preparation of special rubber sheath material for Rolling Stock Cables  
XIE Xiangqian, LIANG Bin, LU Ruquan, BAO Degui; Zhongtian Technology Industrial Wire & Cable System Co., Ltd, Nantong, China

**B5.4** Development of Novel Liquid Silicone Rubber Solutions for HVDC Cable Accessories  
DRAKE Robert; Dow Performance Silicones, Barry, United Kingdom  
WOLF Hans Peter, SCHENK Xiao Phung; Dow Performance Silicones, Wiesbaden, Germany  
PERSON Timothy; The Dow Chemical Company, Collegeville, USA

**B5.5** Recent Developments to Improve the degassing and long run extrusion performance of HV Cables
**B5.6**  Self-healing dielectric fluids for fluid filled cables: from lab to circuits
D5.3 Underground networks MV and LV - Certification of jointers
MAZET Françoise; SICAME, Pompadour, France
TANZEGHTI Houssam, ALDEBERT Thierry; ENEDIS, Paris, France

D5.5 MV cable under severe mechanical forces applied during its installation (case study)
ASKAR Mohammed, DESSUKY Rayan; Bahra Cables Company, Jeddah, Saudi Arabia

D5.6 MV enhanced thermoplastic polypropylene based cables to upgrade power distribution and transmission networks
PEREGO Gabriele, MAZEL Christelle, KOELBLIN Christian, CHARRIER Dimitri; Nexans, Lyon, France
CHA Ki-Ho; Nexans, Jincheon, Korea, Republic of
STUERMER Michael; Nexans, Hannover, Germany
PAIXAO Marcelo; Nexans, Nüremberg, Germany
TUNDO Alessandro; Nexans, Pomezia, Italy
CACCIOtti Mauro; Nexans, Battipaglia, Italy
KAYOUN Pierre; Nexans, Paris, France

E5  Non PD health assessment
Topic 4: Diagnosis, Monitoring, Remaining Life Estimation
Tuesday June 25th, 2019 - 11:00 - 12:30 - Room: E (Montesquieu)
Chairman: ORTON Harry; Consultant, Canada
Rapporteur: COUTURIER Nicolas; RTE, France

E5.1 Belgian experience with a sheath current monitoring system installed on a critical 150 kV cable
LEEMANS Pieter, DE RIDDER Peter, DE MUYTER Laurence; Elia, Brussels, Belgium
VAN OOSTEROM Jozua, GEVERS Vincent; ENSOL, Delft, Netherlands

E5.2 Real Time Monitoring of EHV Cable system
SHARMA Arvind kumar; University of Southampton, United Kingdom
GODBOLE Sandeep, KHAMKAR Paresh, KHOLIYA Sanjaykumar, SONAR Vikas; Adani Electricity, Mumbai, India

E5.4 Condition assessment of cross-bonded HV cable system
SMIT Jacco, VAN DOORN Joris, ZUIJDERDUIN Roy; TenneT TSO B.V., Arnhem, Netherlands
ROEFS Richard; Qirion, Duiven, Netherlands
VILLAS Georgios, VAN EEDEN Corne, WEGBRANS Bas; Prysmian Netherlands B.V., Delft, Netherlands

E5.5 Cable sheath diagnosis in cross bonding cable systems
SHOKRY Marina Adel, KHAMLICHI Abderrahim, GARNACHO Fernando, ROVIRA Jorge; LCOE-FFII, Madrid, Spain
MARTINEZ Julio; UPM, Spain
GONZALO Angel, PRIETO Diego, LLANDRES Jesus; UFD, Spain

E5.6 Visualization based on HDR Image Processing for X-ray Inspection of Power Transmission Cable Joints
JINNO Takao, YOSHIDA Yuki, TAKAMIYA Riku, KOJIMA Toshiki; Osaka Institute of Technology, Osaka, Japan
HOZUMI Naohiro; Toyohashi University of Technology, Japan
NAGOYA Yoshihisa; Furukawa Electric Co., Ltd., Chiba, Japan
IWASAKI Kimihiko; TEPCO Power Grid, Inc., Tokyo, Japan
A6  HVDC submarine cables
Topic 9: Submarine Cable Systems (AC & DC)
Tuesday June 25th, 2019 - 14:30 - 16:00 - Room: A (Richelieu)
Chairman: GASPARI Roberto; Nexans Norway, Norway
Rapporteur: CORLU Yannis; RTE, France

A6.0  Special Communication (25 minutes allocated time)
Invited Conference on NEMO Project
VISSER Gerke; Nemo Link, United Kingdom

A6.1  Qualification, installation and commissioning of world's first DC 400 kV XLPE cable system
IGI Tsuyoshi, ASAI Shinya, NISIKAWA Satoshi, MASHIO Shoji; Sumitomo Electric Industries, Ltd., Tokyo, Japan
TOMIOKA Satoshi, MIYAZAKI Takuya; Sumitomo Electric Industries, Ltd., Osaka, Japan
KAZAMA Tatsuya; Sumitomo Electric Industries, Ltd., Hitachi, Japan

A6.3  Design features of HVDC cables crossing the German North Sea EEZ
CAVALEIRO Pedro; Fichtner GmbH &Co. KG, Stuttgart, Germany

A6.4  UK to Iceland HVDC Interconnector: Key Project Considerations
SVOMA Roman; PowerSure Technology, Bexleyheath, Kent, United Kingdom
STURGEON Chris; Red Penguin, Fareham, Hampshire, United Kingdom
TRUELL Matthew; Atlantic Superconnection, London, United Kingdom

A6.5  Continuous monitoring of HVDC Power cables with integrated fibre optic cables
SVOMA Roman; PowerSure Technology, Bexleyheath, Kent, United Kingdom
MASHIO Shoji; Sumitomo Electric Industries, Ltd., Osaka, Japan

B6  Ageing and lifetime (A)
Topic 1: Materials, New Materials and Ageing Assessment in AC and DC
Tuesday June 25th, 2019 - 14:30 - 16:00 - Room: B (Lulli)
Chairman: MONTANARI Gian Carlo; Texas University, Austin, USA
Rapporteur: MIREBEAU Pierre; Nexans, France

B6.1  Extracting optimal value from a medium voltage (MV) Qualification (wet ageing) Test?
WALD Detlef; Eifelkabel, Villmergen, Switzerland
HAMPTON Nigel; None, Peachtree City, USA

B6.2  Implementation of Ageing Laws and Cable Models to Estimate Service Life for MV Cable Designs using Laboratory Endurance Tests
SHU Essay Wen, PERKEL Josh, HAMPTON Nigel; NEETRAC, Atlanta, USA

B6.3  Can Cables Last 100 Years?
JOSEPH Michael, LANZ Ben, BYRNE Darren, ZIEGLER Steffen; IMCORP, Manchester, CT, USA
HUMMEL Rene; IMCORP, Berlin, Germany

B6.4  Lifetime prediction based on electro-thermal aging test and electric field simulation of a new ac 500 kV submarine cable
LIU Zhiqian, HAO Jian, DAI Xize; State Key Laboratory of Power Transmission Equipment & System Security and New Technology Chongqing University, Chongqing, China
GAO Zhen, LI Hanping; Zhoushan Power Supply Company of State Grid Zhejiang Electric Power Supply Company, Zhoushan, China

B6.5  Aging of oil impregnated insulation paper of subsea HV cables in decades of service
FURUHEIM Knut Magne; Nexans Norway AS, Halden, Norway
**B6.6**  
**Dielectric spectroscopy response and Mechanical properties of XLPE mini-cable aged under thermal stresses**

**PELZER Quentin, BEN HASSINE Mouna, RESMOND Adrien; EDF, Ecuelles, France**  
**PERRIN Lara, FLANDIN Lionel; LEPMI, Chambéry, France**  
**NOTINGHER Petru; IES, Montpellier, France**  
**COLIN Xavier; PIMM, Paris, France**  
**TANZEGHTI Houssam; ENEDIS, Paris, France**

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**C6**  
**Cable rating**

**Topic 2: Cables and Accessories – design and modelling**
**Tuesday June 25th, 2019 - 14:30 - 16:00 - Room: C (Condé / Pascal)**

**Chairman:**  
**DUPLESSIS Thinus; DNV GL, The Netherlands**

**Rapporteur:**  
**LESUR Frédéric; Nexans, France**

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**C6.1**  
**Use of conformal transform for current rating calculations of underground cable systems**  
**LESUR Frédéric, DUBOIS David, SESSOUC François; Nexans, Calais, France**

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**C6.2**  
**Ampacity calculation of multiple independent cable systems in ventilated tunnels**  
**AEGERTER Damian; Braavos GmbH, Stetten, Switzerland**  
**MEIER Stephan; Emetor AB, Västerås, Sweden**

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**C6.3**  
**Extended approach for calculating thermal stress and ampacity of high voltage cable systems based on experimental data**  
**AINHIRM Florian, WOSCHITZ Rudolf; High Voltage Test Laboratory Graz Ltd., Graz, Austria**  
**BOLZER Andreas; Wiener Netze GmbH, Vienna, Austria**

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**C6.4**  
**Novel Cooling Technique for Cables Crossing a Road Ramp**  
**ANDERS George J.; Lodz University of Technology, Poland**  
**BOCHENSKI Boguslaw; Kinectrics Inc., Toronto, Canada**  
**MIKKILI Leena; Black&Veatch, Kansas City, USA**

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**C6.6**  
**Special Communication (25 minutes allocated time)**  
**Overview of CIGRÉ WG B1.56 regarding the verification of cable current ratings**

**DE WILD Frank; DNV GL, Arnhem, Netherlands**  
**ANDERS George J.; Technical University of Lodz, Poland**  
**BASCOM III Earle C. (Rusty); Electrical Consulting Engineers P.C., Mesa, USA**  
**CRAY Stefie; National Grid, Warwick, United Kingdom**  
**JOO Jeayun (Jerry); LS Cable & System, Gumi-si, Korea, Republic of**  
**KAMARA Woulèye; Cyme, Canada**  
**KVARTS Thomas; Ørsted Wind Power a/s, Gentofte, Denmark**  
**LESUR Frédéric; Nexans, Calais, France**  
**LOTFTI Abbas; Nexans Norway AS, Halden, Norway**  
**MOUTASSEM Wael; USI, Ronkonkoma, USA**  
**PINKEST Kyrre; NKT, Germany**  
**PILGRIM James A.; University of Southampton, United Kingdom**  
**RIZOU Varvara; Hellenic Cables, Athens, Greece**  
**VAN ROSSUM Jos; Prysmian Group, Delft, Netherlands**  
**THYRVIN Ola; NKT HV Cables AB, Lyckeby, Sweden**

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**D6**  
**Interaction of the Cable System with the Environment**

**Topic 5: Cable Systems, Environment and Sustainable Development**
**Tuesday June 25th, 2019 - 14:30 - 16:00 - Room: D (Colbert)**

**Chairman:**  
**GILLE Alain; Verbraeken Infra, Belgium**

**Rapporteur:**  
**DENIZET Isabelle; General Cable, France**

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**D6.1**  
**Application of Fluoronitrile-based alternative gas to SF6 to a High Voltage GIS cable termination**

**LESUR Frédéric, AIT AMAR Abdellatif; Nexans, Calais, France**
D6.2 Recycling XLPE from cable waste
HUUVA Ramona, RIBARITS Elisabeth; Borealis AB, Stenungsund, Sweden

D6.3 Enhanced adoption of the two-zone model to implement the drying out of soil in ampacity calculations of directly buried cable systems for different types of soil
BALZER Constantin, HINRICHSEN Volker; High Voltage Laboratories, TU Darmstadt, Germany
DREFKE Christoph, SCHEDEL Markus, SASS Ingo; Geothermal Science and Technology, TU Darmstadt, Darmstadt, Germany
HENTSCHEL Klaus; Bayernwerk AG, Regensburg, Germany

D6.4 Fluidized and Self Compacting Backfill with High Thermal Conductivity for Underground Insulated Cables Systems
LOPES Julio, PINHEIRO Walter, ARAÚJO Simone, ALMEIDA Geraldo; TAG Inovação Tecnológica, São Paulo, Brazil
ROCHA Rogerio, DE SOUZA Paulo, LEANDRO Eduardo, DIOGO Anderson; Eletropaulo Elétrica de São Paulo, Brazil

E6 Poster session: Materials
Poster session: Materials
Tuesday June 25th, 2019 - 14:30 - 16:00 - Room: E (Montesquieu)
Chairman: ALBERTINI Marco; Prysmian SpA, Italy
Rapporteur: NOTINGHER Petru; University of Montpellier, France

E6.5 Study of inception mechanism of electrical trees from bow-tie trees
KATAKAI Shoshi, HIWATASHI Shigeo, SUZUKI Hiroshi; Sumitomo Electric Industries, Ltd., Hitachi, Japan
SUZUKI Kozo, MASHIO Shoji; Sumitomo Electric Industries, Ltd., Tokyo, Japan

E6.6 Manhole Monitoring via IoT and GIS
KANGKUN Watchara, TUNGDUANGDEE Paphawee; Metropolitan Electricity Authority, Bangkok, Thailand

E6.7 The Propagation Retardation of Electrical Tree in XLPE under Negative Impulse Superimposed AC Voltage
ZHOU Kai, LI Zerui, CHEN Shijia, ZHU Guangyu, HUANG Yongli; College of Electrical Engineering and Information Technology, Sichuan University, Chengdu, China

E6.8 Space Charge Behavior in Polyethylene under Elevating Stepwise DC Voltage
OGURA Kotaro, MIYAKE Hiroaki, TANAKA Yasuhiro; Tokyo City University, Japan

E6.9 Space charge behaviours of PP-based nanocomposites for HVDC cable insulation varying with temperatures
HOU Zhaohao, DU Boxue, LI Zhonglei, LI Jin, HAN Chenlei, HAN Tao, XIAO Meng; Tianjin University, China

E6.10 Suppressing Space Charge Accumulation in XLPE with Voltage Stabilizer
HAN Chenlei, DU Boxue, LI Zhonglei, HOU Zhaohao, LIU Chang, LI Jin, HAN Tao, XIAO Meng; Tianjin University, China

E6.11 Advanced cable self-repair materials for subsea and underground cables
BASU Susmit, GERMAN Ian, RHODES Rhys, STEVENS Gary C., THOMAS Janet; Gnosys Global Ltd, Guildford, United Kingdom

E6.12 Comparative Analysis on Partial Discharge Inception Voltage in Interfacial Void Models with Different Materials for AC XLPE Cable Joints
YOON Sung-Ho, SON Hyeong-Wook, KIM Jeong-Tae; Daejin University, Pocheon, Korea, Republic of
E6.13 Effects of switching impulse voltage on characteristics of electrical trees within silicone rubber
HUI Baojun, FU Mingli, HOU Shuai, ZHANG Yifan, LI Xiaolin; Electric Power Research Institute, CSG, Guangzhou, China
PENG Yunshun, XU Man; Xi’an Jiaotong University, (China), China

E6.15 Innovation in cable ageing management for nuclear safety in long-term operation of generation II and III reactors
MARQUE Grégory; EDF R&D, Moret-sur-Loing, France
PAUL Adeline, SKOGSATER Sara; ARTTIC, Paris, France

F6 Poster session: Cable Systems
Poster session: Cable Systems
Tuesday June 25th, 2019 - 14:30 - 16:00 - Room: F (Galerie Le Nôtre)
Chairman: FROHNE Christian; Nexans, Germany
Rapporteur: HAERING Dominik; Südkabel GmbH, Germany

F6.2 Modelling and Testing of Temporary Protective Grounds Cable Systems for High Fault Current Applications
PODA Anil; NEETRAC, Atlanta, Uganda
PERKEL Josh, LANCANCER Thomas, HAMPTON Nigel; NEETRAC, Atlanta, USA

F6.3 Quality Checks on LV and MV cables as an act of Supplier Quality Management
SOEPBROJ Piet; Enexis Netbeheer BV, ’s-Hertogenbosch, Netherlands
SIMAL Robin, HENNYU Blandine; ENGIE- Laborielec, Linkebeek, Belgium

F6.6 Development and testing of XLPE-insulated medium-voltage cables with sector-shaped conductors in Russia
KAMENSIK Mikhail, SLIVOV Alexey, SHUVALOV Mikhail; JSC “VNIIP”, Moscow, Russian Federation

F6.7 The Influence of Communication towards the Implementation of MEA Underground Cable Project and Communication Line Arrangement in Thailand
JULLASAK Kittisak; Metropolitan Electricity Authority, Bangkok, Thailand

F6.8 Simulation study on DC electric field of a layer type HVDC MI-PPLP cable
HWANG Jae-Sang, JUNG Chae-Kyun, KANG Ji-won, WOO Jung-wook; KEPCO Research Institute, Daejeon, Korea, Republic of
PARK Jin-Woo, KIM Jong-chae, KWON Kyu-bum; KEPCO (Korea Electric Power Corporation), Naju, Korea, Republic of
KWON Ik-Soo, LEE Bang-Wook; Hanyang University, Ansan, Korea, Republic of

F6.10 Study on the Mechanism of Buffer Layer Ablation on High Voltage XLPE Insulated Cable with Corrugated Aluminium Sheath Structure
JIANG Lei, XIN Yue, ZHAO Xiyuan, YAN Wenbo, YAO Ruifeng, GAO Jinghui, ZHONG Lisheng; Xi’an Jiaotong University, China
WU Changshun, YANG Juanjuan; Shanghai Intelligent Service and Technology Co, Ltd, Shanghai, China

F6.11 Optimal Design of HV Underground XLPE Power Cables
AIIAT Majdi; Dubai Electricity and water authority, Dubai, UAE
AMOURA Fathi K.; Yarmouk university, Irbid, Jordan

F6.12 Dynamic and fatigue analysis of Dynamic Cable (riser cable) for FOWT - Fukushima FORWARD Project
KAGOURA Toru, SASAKI Takahiro; Furukawa Electric Co., Ltd., Ichihara, Japan
FUJII Shigeru, SAKAKIBAR Hiroyuki; Furukawa Electric Co., Ltd., Tokyo, Japan

F6.13 How coordinated, collaborative engagement with industry, regulators and stakeholders can help achieve the aims of promoting safety and protection of subsea cables
MCCALL Rachel; European Subsea Cable Association, London, United Kingdom
ZYMELKA Tony; European Subsea Cable Association, London, United States Minor Outlying Islands

F6.14 Development of VSC DC 320 kV XLPE cable system
LEE Soo-bong, JUNG Eui-hwan, HONG Sung-pyo, CHO Dong-sik, SON Si-ho, NAM Jin-ho; LS Cable & System, Gumi-si, Korea, Republic of
Challenges and solutions for power cables with low smoke halogen free polymers requirements and reaction to fire performance

SCHRÖDER Gero, NISHABURI Afsaneh, FENSKE Dietmar, KAUMANNS Johannes, HÄRING Dominik; SüdKabel GmbH, Mannheim, Germany
Tuesday June 25th, 2019 - 16:30

### A7 Submarine cables installation

**Topic 9: Submarine Cable Systems (AC & DC)**

**Tuesday June 25th, 2019 - 16:30 - 18:00 - Room: A (Richelieu)**

**Chairman:** SVOMA Roman; PowerSure Technology, UK

**Rapporteur:** GIFFARD Philippe; SYCABEL, France

**A7.1** Installation engineering of export cables for offshore wind farm connections  
**GUSTAFSSON Ola, JOHANNESSON Kenneth, CRONHOLM Kent; NKT HV Cables AB, Karlskrona, Sweden**

**A7.2** Madeira-Porto Santo very high water depth submarine cable feasibility study  
**COTRIM José, NETO Miguel; EEM, Funchal-Madeira, Portugal**

**CRIPPA Alessandro, MEREGALLI Sergio; CESI, Milan, Italy**

**A7.3** Tensile Test and Finite Element Analysis of Flat Steel Wire Armoured Submarine Fiber Optic Composite Power Cable  
**WANG Wenchao, ZHANG Jianmin, ZHAO You-lin, CHEN Jie, HU Ming, XUE Jianling, YE Cheng; Zhongtian Technology Submarine Cable Co., Ltd., Nantong, China**

**A7.4** Cable in pipe in an Offshore Windfarm  
**SOERENSEN Johnny; SGRE, Brande, Denmark**

**A7.5** Submarine Cable Route Optimizing System Based on Marine Environmental Conditions  
**TANAKA Miiku, MAYAMA Shuuji; Sumitomo Electric Industries, Ltd., Osaka, Japan**

**OGURA Yu, BABA Junpei; The University of Tokyo, Japan**

**A7.6** Fatigue- Creep in conductors and armouring as constraint for allowable installation depth  
**JOHANSON Audun; Nexans Norway, Oslo, Norway**

**ADEDAYO Adedayo; Nexans Norway, Halden, Norway**

**ALVARO Antonio; Sintef Industry, Trondheim, Norway**

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### B7 Ageing and lifetime (B)

**Topic 1: Materials, New Materials and Ageing Assessment in AC and DC**

**Tuesday June 25th, 2019 - 16:30 - 18:00 - Room: B (Lulli)**

**Chairman:** ISUS FEU Daniel; General Cable, Spain

**Rapporteur:** CHRETIEN Antoine; RTE, France

**B7.1** Thermal-electrical aging of selected polymeric LVAC cables under DC voltage stress  
**FUCHS Karsten, BERGER Frank, SCHAFFRINNA Dominik, APEL René; Technische Universität Ilmenau, Germany**

**EGE Guido, KOERNER Werner; U.I. Lapp GmbH, Stuttgart, Germany**

**B7.2** Phased propagation characteristics of water trees in XLPE cables during the accelerated water tree aging experiment  
**ZHOU Kai, LI Kang; College of Electrical Engineering and Information Technology, Sichuan University, China**

**B7.3** Influence of Thermal Ageing on Water Sorption in EPDM Rubbers  
**LACUVE Maxime, COLIN Xavier; PIMM, Paris, France**

**TOURCHER Christophe, RESMOND Adrien, BEN HASSINE Mouna; EDF R&D, Moret-sur-Loing, France**

**FLANDIN Lionel; LEPMI, Chambéry, France**

**NOTINGHER Petru; IES, Montpellier, France**

**TANZEGHTI Houssam; ENEDIS, Paris La Défense, France**

**B7.4** Assessment of the impact of the electrical stress on the ageing for a HVDC model cable  
**CÈNES Julien, TEYSSÈDRE Gilbert, LE ROY Séverine, BERQUEZ Laurent; LAPLACE, Toulouse, France**

**HONDÀA Pierre; RTE, Paris La Défense, France**

**ERIKSSON Virginie, BAILLEUL Marc, LOYENS Wendy; Borealis AB, Stenungsund, Sweden**

**MOREAU Christophe; EDF R&D, Moret-sur-Loing, France**
B7.5  
Estimation of chemical changes of thermally aged XLPE cable insulator  
MISAKA Hideki, TAKAHASHI Toshihiro; Central Research Institute of Electric Power Industry, Yokosuka, Japan

C7  
Cable rating (armour losses and dynamic effects)  

Topic 2: Cables and Accessories – design and modelling  
Tuesday June 25th, 2019 - 16:30 - 18:00 - Room: C (Condé / Pascal)  
Chairman: MOUTASSEM Wael; USi, USA  
Rapporteur: GODARD Alexandre; RTE, France

C7.2  
DC Cable Thermoelectric Rating Design  
HUANG Ziyi (Uta), SALVATORE Marco, BENTON Kenneth; Mott MacDonald, Brighton, United Kingdom

C7.3  
Endowing a configurable and computationally light underground cable temperature prediction algorithm with real-time rating capabilities  
MILLAR John, LEHTONEN Matti; Aalto University, Espoo, Finland

C7.4  
FAST Modelling of armour losses in 3D validated by measurements  
WILLEN Dag, THIDEMANN Carsten; NKT Group A/S, Brøndby, Denmark  
THYRVIN Ola; NKT HV Cables AB, Karlskrona, Sweden  
WINKEL Daniel, ZERMENO Victor M. R.; NKT Gmbh & Co. KG, Cologne, Germany

C7.5  
An electrical method for measuring the complex magnetic permeability of steel wires  
ABKEN Karl-Ludwig; Prysmian Group, Nordenham, Germany  
COLLA Luigi; Prysmian Group, Milan, Italy  
TIMMERBERG Josef; Jade-Hochschule, Wilhelmshaven, Germany

C7.6  
Parametric analysis of three-core submarine power cables by means of simplified 3D FEM simulations  
DEL-PINO-LÓPEZ Juan Carlos, CRUZ-ROMERO Pedro; Departamento de Ingeniería Eléctrica, Universidad de Sevilla, Spain

D7  
System Considerations for Sustainability  
Topic 5: Cable Systems, Environment and Sustainable Development  
Tuesday June 25th, 2019 - 16:30 - 18:00 - Room: D (Colbert)  
Chairman: ZHONG Lisheng; Xi'an Jiaotong University, China  
Rapporteur: SARTIEAUX Anne-Catherine; Nexans, Belgium

D7.1  
Special Communication (25 minutes allocated time)  
Eco Designs in Power Cables - a Case Study  
KOLTUNOWICZ Tomasz, MIDDEL Frank, VAN ROSSUM Jos, TSEKMES Alex; Prysmian Group, Delft, Netherlands  
BAREGGI Alberto; Prysmian Group, Milan, Italy

D7.2  
Qualification of a fully dry 225 kV cable system from outdoor terminations to GIS & transformer terminations  
MIREBEAU Pierre, AIT AMAR Abdellatif; Nexans, Calais, France  
GAHUNGU François; FGC, Maubeuge, France  
STREIT Pascal; Bouygues E&S EnerTrans SA, Prilly, Switzerland

D7.3  
Behaviour of Cable Systems under Large Disturbances – Status Report  
ORTON Harry; OCEI International, Vancouver, Canada  
CHERUKUPALLI Sudhakar; BC Hydro, Burnaby, Canada  
WEN Yingli; Consolidated Edison of New York, USA  
TOP Abdou-Karim; Prysmian Cables, Paris, France  
JOYCE Richard; TransPower, Christchurch, New Zealand  
BERGAMO Giulia; CESI, Milan, Italy  
KRISTIANDOTTIR Unnur; Landsnet, Reyjavik, Iceland  
JOHNSON Dennis; Power Engineers, Kansas, USA  
MAXIMO Juan; CMSA, Mexico City, Mexico  
EIDINGER John; Eidinger and Associates, San Francisco, USA
E7 Poster session: Diagnosis, Monitoring, Testing Methods, Cables and Accessories, Emerging Technologies

Poster session: Diagnosis, Monitoring, Testing Methods, Cables and Accessories, Emerging Technologies
Tuesday June 25th, 2019 - 16:30 - 18:00 - Room: E (Montesquieu)
Chairman: BASCOM III Earle C. (Rusty); Electrical Consulting Engineers, P.C., USA
Rapporteur: LAGOMARSINI Clara; Nexans, France

E7.2 The development of intelligent self-driving monitoring system for 345 kV underground transmission line in tunnel
PARK Jae Yong, YOON Jong Keon, KIM Du Jin, LIM Seung-myun, CHOI Sung Won; KEPCO (Korea Electric Power Corporation), Seoul, Korea, Republic of

E7.3 Study on Water Tree Degradation Diagnosis for Dry-cured and Extruded Three-layer 6.6 kV XLPE Cables with Penetrated Water Tree
KURIHARA Takashi; Central Research Institute of Electric Power Industry, Yokosuka, Japan
SATO Tomoyuki, KABASAHA Yuichiro, NAGASHIMA Tomohiro; Tohoku Electric Power Co., Inc., Sendai, Japan

E7.5 On-site Application of the VHF Partial Discharge Detection Method for the Underground Power Cable Terminations
KANG Shin Sub, PARK Sangsuh, KANG Yu Won, ROH Tae Hyung, KIM Jae Seung, KIM Jong Chae, KIM Youn Chan; KEPCO (Korea Electric Power Corporation), Naju, Korea, Republic of
LIM Jae Seop, JOH Gye Hyun; KEPCO (Korea Electric Power Corporation), Daejeon, Korea, Republic of

E7.8 Discovery of a New Degradation Mechanism of Self-Contained Fluid-Filled Cables (SCFF or SCOF) and Development of Diagnostic Technology
AIHARA Yasuhiro, NAKAMURA Takeshi; TEPCO Holdings, Inc., Tokyo, Japan
IWASAKI Kimihiro, MASHIMO Nobuhiro, GOTO Yo, MATSUI Takeo; TEPCO Power Grid, Inc., Tokyo, Japan
SUGIMOTO Shu, HANEDA Jyunya, NAGAHARA Shigeki; Tokyo Densetsu Service Co., Ltd., Tokyo, Japan

E7.10 Effect of air density factors on performance of EHV cable terminations during lightning transients
MEENA K.P., THIRUMURTHY T., ARUNJOTHI Rajendran; Central Power Research Institute, Bangalore, India

E7.11 Standardization of sample preparation for mechanical tests on cable Insulation and sheathing materials
SATHEESHKUMAR P.V., RAJA G.K., MEENA K.P.; Central Power Research Institute, Bangalore, India

E7.14 Integrated Testing and Diagnosis of Distribution Cables using Damped AC and Very Low Frequency Voltages
CEJKA Gregor; onsite hv international ag, Lucerne, Switzerland
GULSKI Edward, JONGEN Rogier; onsite hv solutions ag, Lucerne, Switzerland
QUAK Ben; Seitz Instruments AG, Niederrohrdorf, Switzerland
PARCIASS Jaroslav; onsite hv solutions Central Europe Sp. z o.o., Warsaw, Poland
RAKOWSKA Aleksandra; Poznan University of Technology, Poznan, Poland

E7.15 Evolution of MV Extruded Cable Designs Used in the US from 1996 to 2014
SHU Essay Wen, HAMPTON Nigel; NEETRAC, Atlanta, USA

E7.16 How cables fail – Debunking the myths and reinforcing the fundamentals to ensure long cable life
E7.17 New Generation of Accessories for EHVDC extruded power transmission applications
BOFFI Paolo, MAMMERI Mohamed, POZZATI Giovanni, POGLIANI Stefano, CAIMI Luigi, IADANZA Andrea, GIANNINI Simone, ORIGO Graziella; Prysmian spa, Milan, Italy

E7.18 Ampacity calculation of multi-system cable crossings at 40 MVA frequency converter station Mendrisio
AEGERTER Damian; Braavos GmbH, Stetten, Switzerland
MEIER Stephan; Emetor AB, Västerås, Sweden

E7.19 Pure Mathematical DLR Model for Implementation in Embedded IT Systems – Modelling Principles and Accuracy
OLSEN Rasmus, SARTO Tommaso, MEYBODI Soroush; Energinet, Fredericia, Denmark

E7.20 Basic Engineering for Overhead Insulated Transmission Line
ALMEIDA Geraldo; Techsys, Santo Andre (SP), Brazil
VASCONCELOS Gil; Consulting, São Paulo, Brazil
MACEDO Amadeu; ENEL BRAZIL SP, São Paulo, Brazil

E7.21 A study of field enhancement from semiconductive protrusions in power cables
NILSSON Ulf H.; Borealis AB, Stenungsund, Sweden

E7.22 Cable Degassing, Strand Filling Mastic and Cable Defects
JOSEPH Michael, LANZ Ben; IMCORP, Manchester, CT, USA
SMALLEY Michael; WE Energies, Milwaukee, USA
HUMMEL Rene, KINGSKE Mathias; IMCORP, Berlin, Germany
A8  Development and testing of DC cable systems
Topic 8: DC Cable Systems: LV, MV, HV and EHV
Wednesday June 26th, 2019 - 09:00 - 10:30 - Room: A (Richelieu)
Chairman:  TANAKA Hideo; Furukawa Electric, Japan
Rapporteur:  REMY Christian; Prysmian, France

A8.1  Influence of Relaxation Polarization on Charge Transportation in a Cable Geometry
SUN Yunlong, LI Zhonghua, GUO Wenmin, HAN Yongsen; Harbin University of Science and Technology, China

A8.2  Recommendation of Pre-Qualification Test for the DC 500 kV MI-PPLP cable
PARK Jin-woo, KIM Sang-jun, LEE Jung-won, KIM Kyung-oh, KIM Seong-woen, KIM Jae-seung, KIM Jong-chae; Korea Electric Power Corporation, Naju, Korea, Republic of
JUNG Chae-Kyun; KEPCO Research Institute, Daejeon, Korea, Republic of

A8.3  Twenty years of extruded HVDC cables from a material supplier’s perspective
ENGLUND Villgot, LOYENS Wendy, NILSSON Ulf H.; Borealis AB, Stenungsund, Sweden

A8.4  Application of extruded MVAC cables for DC Power Transmission
BUCHNER Anton, SCHICHLER Uwe; Institute of High Voltage Engineering and System Performance, Graz, Austria

A8.5  Follow up of space charge distributions in HVDC cable during a Pre-Qualification test using the Pulse ElectroAcoustic technique and the Thermal Step Method
BOYER Ludovic; SuperGrid Institute, Villeurbanne, France
MIREBEAU Pierre; Nexans, Calais, France
VERSHININ Konstantin, TZIMAS Antonios; General Electric, Stafford, United Kingdom
CASTELLON Jérôme, NOTINGHER Petru; Institut d’Electronique et des Systèmes, Université Montpellier 2, France

A8.6  Development and set-up of a non-intrusive technique for measuring space charges in specimens of DC cables
JEBLI Mourad, BOYER Ludovic; SuperGrid Institute, Villeurbanne, France
MARTIRE Thierry, LAURENTIE Jean-Charles, CASTELLON Jérôme, NOTINGHER Petru; Université de Montpellier/CNRS, France

B8  Dynamic cables and mechanical design
Topic 2: Cables and Accessories – design and modelling
Wednesday June 26th, 2019 - 09:00 - 10:30 - Room: B (Lulli)
Chairman:  SALES Lluis; Prysmian, Spain
Rapporteur:  LAURE Emmanuelle; RTE, France

B8.1  Full Scale Fatigue Test on Dynamic Submarine Power Cable
PAN Pan, SHAO Pengjng, WANG Haitao; Zhongtian Technology Submarine Cable Co., Ltd., Nantong, China
XIE Shuhong; Zhongtian Technology Group Co., Ltd., Nantong, China

B8.3  An Experimental and Modelling Approach for Assessing Dynamic Cable Capability to Withstand Operational Constraints
MAISON Antoine, DAMBLANS Guillaume, BERHAULT Christian; France Energies Marines, Plouzané, France
FRANCHET Maud; EDF, Moret-sur-Loing, France
DEMMOUCHE Younes; ENSTA Bretagne, Brest, France
CARTRAUD Patrice, MENARD Fabien; Ecole Centrale de Nantes, France
GERMAIN Grégory; Ifremer, France

B8.4  Large HVAC export cables under tensile loading
TJAHJANTO Denny; ABB AB, Corporate Research, Västerås, Sweden
TYRBERG Andreas; NKT HV Cables AB, Karlskrona, Sweden
KLUTHE Arne; NKT Gmbh & Co. KG, Cologne, Germany
**B8.5** Load and fatigue evaluation for 66 kV floating offshore wind submarine dynamic power cable

**THIES Philipp, HARROLD Magnus J, JOHANNING Lars**; University of Exeter, Penryn, United Kingdom

**GRIVAS Konstantinos, GEORGALLIS Georgios**; Fulgor SA, Athens, Greece

**B8.6** A new time-domain model-based diagnosis method for assessing the offshore floating wind turbine umbilical state of health

**SCHAEFFER Emmanuel**; IREENA, Université de Nantes, France

**MATINE Abdelghani**; IFSTTAR (The French Institute of Science and Technology for Transport, Development and Networks), Nantes, France

**SOULARD Thomas**; SEMREV, Ecole Centrale de Nantes, Nantes, France

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**C8** Modelling of HV and EHV cable systems

**Topic 7: HV and EHV AC Cable Systems**

**Wednesday June 26th, 2019 - 09:00 - 10:30 - Room: C (Condé / Pascal)**

**Chairman:** PILGRIM James; Univ. Southampton, UK

**Rapporteur:** BARATON Philippe; EDF R&D, France

**C8.1** 3D FEM analysis of armour loss in three core submarine cables

**MATSUMOTO Yuki, YONEYA Kazuhiro**; Furukawa Electric Co., Ltd., Ota-ku, Japan

**HIRAYAMA Yosuke**; Furukawa Electric Co., Ltd., Yokohama, Japan

**MARUYAMA Satoru**; Furukawa Electric Co., Ltd., Ichihara, Japan

**C8.2** Impact of Laying Conditions on Temperature Distribution in HVDC Cables Based on Numerical Simulations

**FROBIN Saskia Josefine, FRIEBE Kerstin, JENAU Frank**; TU Dortmund University, Germany

**C8.5** Numerical analysis of methane degassing from XLPE Insulated cable: role of cable conductor

**YOUNG Dong Joon, LI Jingfa, SUN Shuyu**; King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

**SUN Yabin; Dow Chemical (China) Invest. Co. Ltd., Shanghai, China**

**KJELLQVIST Jerker, VAN DUN Jozef**; Dow Europe GmbH, Horgen, Switzerland

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**D8** Risk Assessment and management of cable systems

**Topic 11: Asset Management of cable systems all along their life cycle**

**Wednesday June 26th, 2019 - 09:00 - 10:30 - Room: D (Colbert)**

**Chairman:** SMIT Jacco; TenneT, The Netherlands

**Rapporteur:** DURCIK Elie; EDF, France

**D8.1** Risk management in the presence of partial discharges in HV joints by means of periodic monitoring

**BALZA Xabier**; Prysmian Group, Barcelona, Spain

**D8.2** Challenges of cable engineering from offshore to onshore and project to operation

**ZHANG Dr. Roland Dongping, FREITAG Dr. Christian, WAGNER Dr. André**; TenneT TSO GmbH, Bayreuth, Germany

**D8.3** Quality Control of HVDC Cables - The next industry challenge

**JEROENSE Marc**; MJ MarCable Consulting AB, Karlskrona, Sweden

**D8.4** Enhanced Overvoltage Protection for Reliability beyond the First Decade

**HUMMEL Rene**; IMCORP, Berlin, Germany
D8.5  European Subsea Cable Association: providing technical advice to manage the life cycle of subsea cables
DREWS Anja, MCCALL Rachel, ZYMELKA Antony; European Subsea Cable Association, Guisborough, United Kingdom

D8.6  Application of a Combined Technical Approach for Medium Voltage Cable Aging Management at South Texas Project Nuclear Operating Company
KHONDKER Raihan; South Texas Project Nuclear Operating Company, Bay City, USA
BANERJEE Sarajit, EASTERLING Rick, ROUISON David; Kinectrics Inc., Toronto, Canada
A9  Qualification of HV DC cable systems

Topic 8: DC Cable Systems: LV, MV, HV and EHV

Wednesday June 26th, 2019 - 11:00 - 12:30 - Room: A (Richelieu)

Chairman: JEROENSE Marc; MJ MarCable Consulting AB, Sweden
Rapporteur: PAILLER Benjamin; RTE, France

A9.1 Investigation and Qualification of ±320 kV HVDC cable systems for VSC and LCC applications
HÄRING Dominik, SCHRÖDER Gero, KAUMANNS Johannes; Südkabel GmbH, Mannheim, Germany

A9.2 PQ Test of Extruded HVDC 525-kV-Underground Cables: Results and Conclusion
POEHLER Stephan, MARTIN Florian; TenneT TSO GmbH, Bayreuth, Germany
BRAUN Armin, BRÜGGMANN Jan; Amprion GmbH, Dortmund, Germany
SCHRANK Thorsten, KRAUSE Marcel; 50Hertz Transmission GmbH, Berlin, Germany
SENER Olaf, EXL Florian; TransnetBW GmbH, Stuttgart, Germany
KLEIN Thomas; Strescon GmbH, Esslingen, Germany

A9.3 Qualification of 400 and 525 kV HVDC XLPE cable systems including a multitude of accessory configurations
FRISK Nils-Bertil, GASPARI Roberto, DOEDENS Espen; Nexans, Halden, Norway
EYSSAUTIER Quentin; Nexans, Calais, France
FROHNE Christian; Nexans, Hannover, Germany

A9.4 Performance evaluation of 525 kV and 640 kV extruded DC cable systems
ABBASI Amirhossein, HOANG Anh, BERGELIN Pehr, ERIKSSON Erik, FÄLTH Fredrik; NKT HV Cables AB, Karlskrona, Sweden

A9.5 Development of 350 kV and 525 kV HVDC extruded cable system
NAOTO Shigemori, MASASHI Yagi, TAKAHISA Tabuchi; Furukawa Electric Co., Ltd., Ichihara, Japan
HIROKI Mori; Furukawa Electric Co., Ltd., Hameda, Japan

A9.6 270 kV DC Extruded Land Cable Systems for LCC Power Transmission
MAMMERI Mohamed, PAUPARDIN Marie-Laure, GENESTE Mathieu, DHUICQ Bernard; Prysmian, Montereau, France

B9  Submarine cables current rating

Topic 9: Submarine Cable Systems (AC & DC)

Wednesday June 26th, 2019 - 11:00 - 12:30 - Room: B (Lulli)

Chairman: STØLAN Ronny; Nexans Norway AS, Norway
Rapporteur: JOUBERT Vincent; General Cable (Silec Cable), France

B9.1 Accurate measurement of losses in three core armoured cables
PILGRIM James A., GODDARD Kevin; University of Southampton, United Kingdom

B9.2 Analysis of an array of wires in a low-frequency time-harmonic magnetic field
GIUSSANI Luca, DE FALCO Carlo, DI RIENZO Luca; Politecnico di Milano, Milan, Italy
BECHIS Massimo; Prysmian spa, Milan, Italy

B9.3 Research on improving the ampacity of high voltage single core submarine cable
WANG Liyuan, ZHANG Xiaolong, ZHAO You-lin, ZHANG Jianmin, HU Ming, YAN Zhiyu; Zhongtian Technology Submarine Cable Co., Ltd., Nantong, China
XIE Shuhong; Zhongtian Technology Group Co., Ltd., Nantong, China

B9.4 Investigation of the biofouling thermal effects on offshore wind turbine power cables
MATINE Abdelghani; IFSTTAR (The French Institute of Science and Technology for Transport, Development and Networks), Nantes, France
SCHAFFER Emmanuel; IREENA, Université de Nantes, France
BONNARD Charles-Henri; SATIE, Ecole Normale Supérieure de Rennes, Rennes, France
Towards optimum construction of HV AC cables
MAIOLI Paolo, BECHIS Massimo; Prysmian spa, Milan, Italy
COLLA Luigi; Prysmian Powerlink, Milan, Italy

Seabed soil controls on the design and lifetime performance of marine HV cables.
DIX Justin, PILGRIM James A., CALLENDER George, ELLIS Daniel, PORTER Hannah; University of Southampton, United Kingdom

Development of Accessories
Topic 2: Cables and Accessories – design and modelling
Wednesday June 26th, 2019 - 11:00 - 12:30 - Room: C (Condé / Pascal)
Chairman: UZELAC Milan; G&W Electric, USA
Rapporteur: SALAME Basil; Nexans, France

Analysis and testing of internal arc phenomena in gas insulated outdoor HVDC cable termination up to ± 640 kV
KARMOKAR Tanumay, FÄLTH Fredrik; NKT HV Cables AB, Karlskrona, Sweden
ADITYA Julian; DNV GL B.V., Arnhem, Netherlands

Technical evolution of high power EHV systems
AIT AMAR Abdellatif; Nexans, Calais, France
GENIN Guillaume; Nexans, Cortaillod, France
STAUCH Gert; Nexans, Hof, Germany

Development of Augmented Reality (AR) application for Cable Terminations and Joints
JOVANOVIC Ivan; G&W Electric Company, Bolingbrook, USA
MAKOVOZ Arie; Con Ed, New York City, USA

Qualification of a 220 kV transition joint to connect MI pipe-type cable with extruded single-core cables
AIT AMAR Abdellatif; Nexans, Calais, France
AUE Volker; Nexans, Hannover, Germany
MIREBEAU Pierre; Nexans, Courbevoie, France
SALOMON Violaine; RTE, Paris La Défense, France

Maintenance of cable systems
Topic 11: Asset Management of cable systems all along their life cycle
Wednesday June 26th, 2019 - 11:00 - 12:30 - Room: D (Colbert)
Chairman: ZHANG Roland Dongping; TenneT TSO GmbH, Germany
Rapporteur: CHARVET Jean; RTE, France

Condition Assessment of Aged Medium Voltage Network Cables
WHEATLAND Russell; AusNet Services, Melbourne, Australia
LEE Dong Chur; Select Solutions a Division of AusNet Services, Melbourne, Australia

O&M and design challenges of floating wind farm power cables
CHARVET Jean, LAURE Emmanuelle, SBRAGGIA Fanny, GABARROT François; RTE, Paris La Défense, France

Safe and non-destructive Verification of Absence of Voltage (VAT) prior to maintenance works on long cable lengths
MIREBEAU Pierre; Nexans, Calais, France
DHUICQ Bernard; Prysmian Group, Montereau, France
TACHÉ Clément; Prysmian Group, SENS, France
ROUET Francis; SYCABEL, Paris, France
SCHERRER Bruno; FAMECA, Rixheim, France

Towards Active Cable Reburial Monitoring using Distributed Fiber-Optic Sensing over 40 km of a High Voltage Marine Interconnector
ROGERS Rosalie, ERDMANN Matthias, LEES Gareth; AP Sensing, Basingstoke, United Kingdom
E9  Nuclear and LV cables diagnostic and remaining life evaluation

Topic 4: Diagnosis, Monitoring, Remaining Life Estimation

Wednesday June 26th, 2019 - 11:00 - 12:30 - Room: E (Montesquieu)
Chairman:  FABIANI Davide; DEI - University of Bologna, Italy
Rapporteur:  BEN HASSINE Mouna; EDF R&D, France

E9.1  Aging assessment of XLPE LV cables used in nuclear power plants
SURACI Simone Vincenzo, LI Chuangyang, FABIANI Davide; Department of Electrical Engineering (DEI) University of Bologna, Italy
XU Anne, ROLAND Sébastien, COLIN Xavier; PIMM (UMR CNRS 8006), Arts et Métiers ParisTech, Paris, France

E9.3  Detection of Vibration Faults of I&C Cables via Time-Frequency Domain Reflectometry
LEE Hyeong Min, LEE Chun-Kwon, SHIN Yong-June; Yonsei University, Seoul, Korea, Republic of

E9.4  Low Frequency Dielectric Spectroscopy as a condition monitoring technique for low voltage cable in nuclear plants
BANERJEE Sarajit, ROUISON David; Kinectrics Inc., Toronto, Canada
MANTEY Andrew; EPRI, Charlotte, USA

E9.5  Condition monitoring of thermally aged low voltage cables with polarization-depolarization current testing
BANERJEE Sarajit, ROUISON David; Kinectrics Inc., Toronto, Canada
MANTEY Andrew; EPRI, Charlotte, USA

E9.6  Low-voltage cable systems: aluminium conductor corrosion and online monitoring
VAN DEURSEN Armand, WOUTERS Peter; Eindhoven University of Technology, Eindhoven, Netherlands
VAN DER WIELEN Peter, STEENNIS Fred; DNV GL, Arnhem, Netherlands

E9.7  A multiscale analysis on K1 qualified cables, taken on nuclear power plants, face to thermal ageing, irradiation and accidental conditions (LOCA)
BEN HASSINE Mouna; EDF R&D, Ecuzeles, France
FRANÇOIS Sandrine; EDF Nuclear Engineering Division, Lyon, France
**A10  Testing for DC cables**

*Topic 3: Testing Methods: Electrical and non Electrical*

*Wednesday June 26th, 2019 - 14:30 - 16:00 - Room: A (Richelieu)*

Chairman:  
**PLATH Ronald**; Technische Universität Berlin, Germany

Rapporteur:  
**DUMONT Adrian**; Prysmian, France

**A10.1  Superimposed voltage tests on DC cables**

**GAMLIN Michael**,** TREYER Patrick**, **HAMMER Urs**; Haefely Test AG, Basel, Switzerland

**A10.2  Cost-effective and practical solutions for testing HVDC cable systems**

**HE Hong**, **SLOOT Wouter**, **BEVERWIJK Chris**, **KUIJPERS Pieter**, **SMEETS Rene**; DNV GL KEMA Laboratories, Arnhem, Netherlands

**A10.3  Testing experiences on extruded cable systems up to 525 kV DC in the first third party worldwide laboratory**

**VERCELLOTTI Uberto**; CESI, Milan, Italy

**JAHN Heiko**; FGH Engineering & Test GmbH, Mannheim, Germany

**A10.4  Enhancing the Effectiveness of Partial Discharge Measurements on HVDC**

**ELBEN Andreas**, **PLATH Ronald**; Technische Universität Berlin, Germany

**FECHNER Tobias**, **ZHOU Mingyu**; GEIRI Europe GmbH, Berlin, Germany

**A10.5  Modular DC Test System for testing long DC Cables including a fault location system**

**PIETSCH Ralf**, **BILINSKI Enrico**, **HENSEL Michael**, **STEINER Thomas**; HIGHVOLT Prüftechnik Dresden GmbH, Germany

**A10.6  Safe discharge of high cable capacitances under HV DC Stress**

**GUSTKE Ulf**, **STEIN Gunnar**; Megger Hagenuk KMT GmbH, Radeburg, Germany

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**B10  Submarine cables testing**

*Topic 9: Submarine Cable Systems (AC & DC)*

*Wednesday June 26th, 2019 - 14:30 - 16:00 - Room: B (Lulli)*

Chairman:  
**TROLLI Alessandro**; Prysmian Group, Italy

Rapporteur:  
**FRANCHET Maud**; EDF R&D, France

**B10.1  After Installation Testing of Inter-array Cables at Offshore Wind Farms using Damped AC Voltages**

**JONGEN Rogier**, **GULSKI Edward**; onsite hv solutions ag, Lucerne, Switzerland

**RAKOWSKA Aleksandra**, **SIODLA Krzysztof**; Poznan University of Technology, Poland

**GAAL Hans**, **Visser & Smit Hanab BV**, Papendrecht, Netherlands

**B10.2  Full Scale Wet Age Testing of XLPE Insulated Power Cables in Salt Water**

**FEATHERSTONE Jeremy**, **WAN Jingyi**; JDR Cable Systems Ltd, Littleport, United Kingdom

**NEUMANN Alex**, **HARRIS Lee**; ORE Catapult, Blyth, United Kingdom

**B10.3  On-Site Testing of 66 kV Subsea Array Cables for Off-Shore Windfarms**

**STEPHAN Uwe**, **COORS Peter**, **HENSEL Michael**, **PIETSCH Ralf**, **KALTENBORN Uwe**; HIGHVOLT Prüftechnik Dresden GmbH, Germany

**B10.5  Bend stiffness of submarine cables - an experimental and numerical investigation**

**TYRBERG Andreas**, **HEDLUND Johan**; NKT HV Cables AB, Karlskrona, Sweden

**TJAHJANTO Denny**, **EVENBOM Marcus**; ABB AB, Corporate Research, Västerås, Sweden

**B10.6  Conditioning of High Voltage XLPE Cables in Salt Water - A Review of Ion Diffusion and Impact on Water Treeing**

**VE Torbjørn Andersen**, **HÔLTO Jorunn**, **HVIDSTEN Sverre**; SINTEF Energy Research, Trondheim, Norway

**BENGTSSON Karl Magnus**; Nexans Norway AS, Oslo, Norway
C10  Dry type accessories

Topic 2: Cables and Accessories – design and modelling
Wednesday June 26th, 2019 - 14:30 - 16:00 - Room: C (Condé / Pascal)
Chairman: MAMMERI Mohammed; Prysmian, Italy
Rapporteur: AIT AMAR Abdellatif; Nexans, France

C10.1  Electro-thermal simulation methodology for HVDC cable GIS termination
TOIGO Caterina, ANDRE Aymeric, VU-CONG Thanh, GIRODET Alain, HENRIKSEN Martin; SuperGrid Institute, Villeurbanne, France

C10.2  A unique dry 145 kV prefabricated one-piece self-supporting outdoor cable-termination
SÖRQVIST Torbjörn, LUNDBLAD Anders, SVAHN Jörgen; NKT HV Cables AB, Alingsås, Sweden

C10.3  Design and Qualification of 500 kV dry terminations and joints for extruded cables
JOVANOVIC Ivan; G&W Electric Company, Bolingbrook, USA
WU Grand; G&W Electric Company, Shanghai, China

C10.4  New generation of dry type high voltage termination
EIGNER Alexander, KRANZ Thomas, SCHEINER Andreas; Tyco Electronics Raychem GmbH, Ottobrunn, Germany

C10.5  Development of Self-supporting Dry Type Outdoor Terminations for 100 kV Extruded Underground Cable Connection in AIS Substation
MAMMERI Mohamed, TOP Abdou-Karim, AIELLO Carlo, DHUICQ Bernard; Prysmian, Montereau, France

C10.6  A High Voltage Dry Type Outdoor Cable Termination
ADILI Sedat, SUN Guoyan, SEKULA Oldrich, NASSI Andrea; Brugg Kabel AG, Brugg, Switzerland

D10  Management of data received from diagnostic tests and monitoring systems

Topic 11: Asset Management of cable systems all along their life cycle
Wednesday June 26th, 2019 - 14:30 - 16:00 - Room: D (Colbert)
Chairman: PENSERINI Paul; RTE, France
Rapporteur: CHANIOLLEAU Julia; RTE, France

D10.1  Asset Management of MV Cables using Data Driven Health Indices for Water Treeing
HAMPTON Nigel, PERKEL Josh, WILLIAMS Dean; NEETRAC, Atlanta, USA

D10.2  A new algorithm to define a health index for HV and MV polymeric cables
SERI Paolo, MONTANARI Gian Carlo; Department of Electrical, Electronic and Information Engineering (DEI), University of Bologna, Italy
HEBNER Robert; Center for Electromechanics (CEM) of the Texas University at Austin, Austin, USA

D10.3  Optical System for Underground Cable Maintenance, Mixed Lines Fault Discrimination and Underground Cable Fault Location
BENGOCHEA Javier; Lumiker, Derio - Vizcaya, Spain
SARTO Tommaso; Energinet, Copenhagen, Denmark

D10.4  Large Scale Monitoring of Extruded Cables – Review of TSO’s Needs and Options
NIELSEN Jonas, OLSEN Rasmus; Energinet Transmission, Fredericia, Denmark

D10.5  Multilevel design approach for industrial distribution network optimization
LAGOMARSINI Clara, BLONBOU Franck, CHARMETANT Adrien; Nexans, Lyon, France

E10  Emerging Technologies

Topic 10: Emerging technologies and challenges
Wednesday June 26th, 2019 - 14:30 - 16:00 - Room: E (Montesquieu)
Chairman: TO BE DEFINED
Rapporteur: SAUGRAIN Jean-Maxime; Nexans, France

**E10.1** Green Installation and Method for Manufacturing Hyper Clean XLPE AC/DC Compounds
LABBE Denis; P&M Cable Consulting, Geneva, Switzerland
LOVIAT François, NISING Philip; BUSS AG, Pratteln, Switzerland

**E10.2** Prequalification test of the complete 1200 m HTS DC cable system
SYTNIKOV Victor, KASHCHEEV Andrey, DUBININ Mikhail, KARPOV Victor, RYABIN Timofey; R&D Center of FGC UES, Moscow, Russian Federation

**E10.3** Listening to your cable with Artificial Intelligence for Asset Monitoring
HUNT Ryan, ROGERS Rosalie, LEES Gareth; AP Sensing UK Ltd, Basingstoke, United Kingdom
OLSEN Rasmus; Energinet Transmission, Erritsø, Denmark

**E10.4** Time-Frequency Based Analysis of Wave Propagation Characteristics in Cooling Process of AC 154 kV HTS Cable System
LEE Geon Seok, LEE Yeong Ho, BANG Su Sik, SHIN Yong-June; Yonsei University, Seoul, Korea, Republic of
HWANG Si-Dole, YANG Hyung Suk; Korea Electric Power Research Institute, Daedeon, Korea, Republic of

**E10.6** Demonstration of a HVDC 3.2 GVA MgB2 superconducting cable system within the Best Paths Project
LESUR Frédéric; Nexans, Calais, France
BRUZEK Christian-Eric; Nexans, Lens, France
MARIAN Adela; IASS, Potsdam, Germany
A11  Closing Session
Poster session: Materials
Wednesday June 26th, 2019 - 16:30 - 18:00 - Room: A (Richelieu)
Chairman: ORTON Harry E.; Orton Consulting Engineers International, Canada

A11.1  Round Table: Cables behaviour under large disturbances and events
VARIOUS VARIOUS; (The list of presentations of this round table will be reported prior to the session),