

TECHNICAL PROGRAMME

SC A1 ROTATING ELECTRICAL MACHINES

PS1: Developments in electrical machines and experience in service

- A1-101** *The new reactive power compensators with the two-axial excitation for the electric machines*
P. V. SOKUR, Y.G. SHAKARYAN, T. V. PLOTNIKOVA, I.Y. DOVGANJUK, R.D. MNEV, N.D. PINCHUK, O.V. ANTONUK, A.V. SIDELNIKOV, D.V. ZHUKOV, Y.A. DEMENTYEV, V.M. SEDUNOV
- A1-102** *Inertia of hydro generators. Influence on the dimensioning, costs, efficiency and performance of the units*
H.D. PIRIZ, A.R. CANNATELLA, E. GUERRA, D.A. PORCARI
- A1-103** *Nanotechnology in high voltage insulation systems for large electrical machinery - First results*
T. HILDINGER, J.R. WEIDNER, F. POHLMANN, P. GROEPEL
- A1-104** *Calculation of electromagnetic force on damper windings for 1000MW - Hydro-generator using time-stepping FEM*
Y-P. LIANG, J. CHEN, J-P. LIU
- A1-105** *Type test and torsional vibration measurement of a gigatop 4-pole generator for an EPR power plant*
M. LICHTENBERGER, C. PONCOT, V. LETELLIER, N. PICHOT, L. DAVID
- A1-106** *Diagnostic method of electrical rotors by applying the sweep frequency response*
A.J. ARANDA CARMONA
- A1-107** *Stator water system monitoring for large turbo-generator- A user's perspective*
A.K. GUPTA, D. DEVATE, D.K. CHATURVEDI
- A1-108** *Dynamic temperature monitoring and life assessment techniques for electrical machines*
A.K. GUPTA, D.K. CHATURVEDI
- A1-109** *Direct measurement of strand temperature of turbo-generator with FBG sensors*
T. TANAKA, H. MURAYAMA, K. HATTORI, K. TAKAHASHI
- A1-110** *Online PD monitoring system with microstrip antenna for synchronous generators*
H. SAKO, Y. KANEDA, S. TOMITA, K. MIO, K. SUZUKI

PS2: Asset management of electrical machines

- A1-201** *Upgrade of eraring power station turbo generators from 660MW to 750MW*
M.J. MORTISS
- A1-202** *Clustering analysis of partial discharge in electrical machines*
O. AGAMALOV
- A1-203** *Energy efficiency evaluation research of high voltage inverter retrofit for fans and pumps in power plants*
S. WANG
- A1-204** *Generators asset management tool using Bayesian network*
O. VACHERON, K.L. ZAPPELLINI, S. STELLA, P.J. FERRASSE
- A1-205** *Application of frequency response analysis (FRA) for detection of insulation failures in medium-voltage coils manufacturing*
C.A. PLATERO, F. BLAZQUEZ, B. BATLLE E. FERNANDEZ-SANCHEZ
- A1-206** *Improvement of generators reliability of a hydroelectric power plant based on simultaneous recording and analysis of critical variables*
E. ROBLES, A. PASCACIO, E. HERNANDEZ
- A1-207** *Program for reform and modernization of cemig GT hydro power plants*
S.A. PACHECO, C.A. PEREIRA, E.M. PEREIRA
- A1-208** *Development of diagnostic rules for hydrogenerator*
J. SANZ, R. LIMA, R. DA SILVA, A. SENA

PS3: Electrical machines for dispersed generation

- A1-301** *Tidal power plant bulb unit management through air gap monitoring*
J-L. DROMMI, A. TÉTREAU

- A1-302** *Features of gas turbine and gas-piston generator units and special requirements for them.*
P.V. ILYUSHIN, Y.E. GUREVICH
- A1-303** *Voltage control for wind power plants - Real experience and results in Vallejera cluster in Spain*
J.C. PÉREZ CAMPION, M.I. ROS CEBRIAN, A. MCMANUS, C. COMBARROS HERNANDEZ
- A1-304** *Trends in monitoring and diagnostics of wind generators*
S. SALON, S. SALEM, K. SIVASUBRAMANIAM
- A1-305** *Current state of on-line partial discharge diagnosis methods in hydro-generator using a novel noise reduction method*
D.S. KANG, Y.W. YOUN, B.K. OH
- A1-306** *Turbogas power units retrofit: a technique to ensure improved efficiency, reliability and sustainability for smart energy grids*
M. SANCHEZ PARRA, S. DE LARA JAYME, L. CASTELO CUEVAS, J. CHAVEZ ESTRADA, V. RE LOPEZ, R. GUZMAN FLORES

SC A2 TRANSFORMERS

PS1: Transformers in the network of the future

- A2-101** *New technologies for monitoring transformer tap-changers and bushings and their integration into a modern IT infrastructure*
P. PICHER, S. RIENDEAU, M. GAUVIN, F. LÉONARD, L. DUPONT, J. GOULET, C. RAJOTTE
- A2-102** *The implementation and operational experience of transformers control, monitoring and diagnostic systems at the united national electric power system of Russia*
L. DARIAN, A. VALUYSKIKH, A. MORDCOVICH, V. TURKOT, G. TSFASMAN
- A2-103** *Evolution, reliability, safety and modelling of interconnecting transformers and shunt reactors in the Italian transmission grid*
L. COLLA, A. DI GIULIO, V. IULIANI, F. PALONE, M. REBOLINI, S. ZUNINO
- A2-104** *EHV/HV autotransformers with in-phase and in-quadrature voltage regulation. Applications in Western Africa*
F. ILICETO, F. MARTON, C. DARKU
- A2-105** *Dealing with the lack of loading and overloading data to determine the loss of life of the power transformer insulating paper*
A. ROMERO, F. HARDER, E. MOMBELLO, R. DIB, G. RATTA
- A2-106** *Modern machine learning techniques for power transformer condition assessment*
H. MA, T. K. SAHA, C. EKANAYAKE, D. ALLAN
- A2-107** *Identification of early-stage paper degradation by methanol*
A. SCHAUT, S. EECKHOUDT
- A2-108** *Enhanced modelling and early detection of power transformers - Internal incipient faults*
E.A. EL-ZAHAB, D. HELMI, M. SALAH, A. ALOKABI
- A2-109** *A computer program for life-time management of power transformers*
B. BOCHENSKI, G.J. ANDERS, F. MOSINSKI, T. PIOTROWSKI
- A2-110** *On-line monitoring of power transformer status by fundamental frequency signals*
T. BENGTTSSON, N. ABEYWICKRAMA
- A2-111** *Life time prediction of power transformers with condition monitoring*
E. GOCKENBACH, X. ZHANG, H. CHEN, C. FU
- A2-112** *Critical technical aspects during design, manufacturing and testing of India's first 1200 kV UHVAC transformer*
R.K. TIWARI, S.K. GUPTA, R.K. SINGH, G. LALWANI, J.S. KUNTIA
- A2-113** *Salient design features of 188MVA, 220/96/28kV biggest rating regulating transformer*
S. KUMAR DEWANGAN, T. SRIVASTAVA, V. MOORKATH
- A2-114** *Bushing problems with fast and very fast evolution times detected by on-line monitoring systems*
M.E.G. ALVES, M.C. MEDINA PENA, C. SEVERINO
- A2-115** *Ultra high frequency (UHF) partial discharge detection for power transformers: sensitivity check on 800 MVA power transformers and field experience with online monitoring*
D. GAUTSCHI, S. WYSS

PS2: Transformer eco design/eco use

- A2-201** *Power transformers with environmentally friendly and hardly inflammable ester liquids*
G.J. PUKEL, R. SCHWARZ, F. BAUMANN, H.M. MUHR, R. EBERHARDT, B. WIESER, D. CHU
- A2-202** *Amorphous metal-based distribution transformers: evaluation of the current technology situation and a proposed design for short-circuit withstand*
G. LOIZOS, T. SOUFLARIS, P. LAGACHE, I. GOKCEN, M. SACOTTE

- A2-203** *Considerations for the design, manufacturing and retrofilling of power transformers with high fire point, biodegradable ester fluids*
J. HAJEK, J. KRANENBORG, P. SUNDQVIST, R. JONSSON, T. SKYTT, R. ASANO, JR, G.K. FRIMONG, R. GIRGIS
- A2-204** *High efficient transformers and reactors - Some incentive models and case studies to show the long term profitability with such designs*
T. FOGELBERG, T. OLSSON, P. DARGIEL, E. MORTENSEN, J. REHME
- A2-205** *Quo vadis: Aged transformer fleets?*
I. ATANASOVA-HOEHLIN, M. SCHAEFER
- A2-206** *On-site vacuum kerosene vapor drying on large power transformer*
J-Y. GUO, J-X. MA, S-Y. LIU, K-H. LONG, S-W. GUO
- A2-207** *Optimization of power transformers based on operative service conditions for improved performance*
A. PRIETO, M. CUESTO, M. OLIVA, L. PRIETO, A. FERNANDEZ, L. NAVARRO, H. GAGO
- A2-208** *Electromagnetic simulations supporting the development of dry-type transformers for subtransmission voltage levels*
R. MURILLO, J. SMAJIC, J. TEPPER, A. NOGUÉS, T. STEINMETZ
- A2-209** *Ester insulating liquids for power transformers*
P. JARMAN, G. WILSON, P. DYER, F. PERROT, D. WALKER, M. LASHBROOK, J. NOAKHES, Q. LIU, X. WANG, X. YI, Z.D. WANG
- A2-210** *The use of ester transformer fluids for increased fire safety and reduced costs*
M. LASHBROOK, R. MARTIN
- A2-211** *New paper-free insulation technology for dry high voltage condenser bushing*
U. KRÜSI, A. DAIS, Z. ZIC, D. EGGER

PS3: Transformer magnetic circuit

- A2-301** *Direct current in transformers: effects and compensation*
P. HAMBERGER, F. BACHINGER, A. LEIKERMOSER, G. LEBER, M. STOESSL
- A2-302** *The dynamic characteristics research of Extra/Ultra high voltage magnetic controlled shunt reactor*
W. ZHENG
- A2-303** *Behaviour of transformers under DC/GIC excitation: phenomenon, impact on design, design evaluation process and modeling aspects in support of design*
T. NGNEGUEU, F. DEVAUX, F. MARKETOS, S. BARKER, R. BARDSLEY, T. XU, J. BALDAUF
- A2-304** *Effects of geomagnetically induced currents on power transformers and power systems*
R. GIRGIS, K. VEDANTE, K. GRAMM
- A2-305** *On-site measuring, suppressing and assessment of inrush current with considering of core saturation for 1000 kV UHV transformer*
K. YOKOTSU, Y. SHIRASAKA, Y. EBISAWA, H. MURAKAMI
- A2-306** *Benefits of transformers based on triangular wound core configurations*
T. STEINMETZ, J. SMAJIC, T. HARTMANN, S. OUTTEN, M. CARLEN

SC A3 HIGH VOLTAGE EQUIPMENT

PS1: Equipment design to facilitate network developments

- A3-101** *3AV1FG – 72.5 kV prototype vacuum circuit-breaker (case study with pilot customers)*
J. BRUCHER, S. GIÈRE, C. WATIER, A. HESSENMÜLLER, P.E. NIELSEN
- A3-102** *Arcless tests of the high voltage oil-filled electrical equipment on explosion safety*
L.A. DARIAN, V.E. FORTOV, V.P. POLISTCHOOK, A.V. SHURUPOV, E.E. SON
- A3-103** *Prospective single and multi-phase short-circuit current levels in the Dutch transmission, sub-transmission and distribution grids*
A.L.J. JANSSEN, M.V. RIET, R.P.P. SMEETS, J. KANTERS, W.V.D. AKKER, G.L.P. AANHAANEN
- A3-104** *Switching impulse voltage flashover characteristics of air gaps in ± 800 kV UHV DC - Transmission Tower and altitude correction*
Y-J. DING, W-M. LIAO, Z-Y. SHU, Q-F. LI, C. GU, Z-Y. SUN
- A3-105** *Testing methods and circuits for HVDC switchgear*
M. COLLET, J-P. DUPRAZ, W. GRIESHABER
- A3-106** *Critical design aspects for reliability of 1200 kV UHV AC capacitor - Voltage transformer under severe system conditions*
R.K. TIWARI, M. KURRE, S. MAHENDRA, K.M. NAIK, A. DHAMIJA
- A3-107** *Assessment of transformer modelling impact on circuit breaker transient - Recovery voltage in transformer feed faults*
A.C.O. ROCHA, A. LIMA, G.H. OLIVEIRA

A3-108 *Considerations on transformer limited fault (TLF) duty for GCB in UHV and EHV networks with compact and large capacity power transformers*

Y. YAMAGATA, H. KAGAWA, M. KOSAKADA, M. TOYODA

A3-109 *A new method for investigating of the arc behaviour in HVDC circuit breakers based on a novel current source*

M.M. WALTER, C.M. FRANCK, C. CARSTENSEN, J. BIELA

A3-110 *Mitigation of very fast transient overvoltages in gas insulated UHV substations*

R. UWE, B. MICHAEL, S. JASMIN, S. MARCIN, P. WOJCIECH, B. SIMON, T. STEFAN

A3-111 *A new generation of composite support insulators for UHV DC and AC systems*

M. NORBERT, P. STAHL, M. HURNICKI, B. RAETH, T. HUMMERSTON

PS2: reliability and lifetime of HV equipment

A3-201 *The impact of switching capacitor banks with very high inrush current on switchgear*

R.P.P. SMEETS, R. WIGGERS, S. KUIVENHOVEN, S. CHAKRABORTY, G. SANDOLACHE

A3-202 *End of life estimation and optimisation of maintenance of HV switchgear and GIS substations*

C. NEUMANN, B. RUSEK, G. BALZER, I. JEROMIN, C. HILLE, S. FEDERLEIN, A. SCHNETTLER, U. ZICKLER

A3-203 *Computer simulation tool for the design and optimization for UHV SF6 gas circuit breakers*

J.W. MOU, J. GUO, X.W. LI, B. CHEN, Z.Z. XIN, Y.M. YOU

A3-204 *Practical circuit breaker condition monitoring with protective relays*

B. DESAI, Y. LU, M. WESTRICH, E. UDREN

A3-205 *Condition assessment of EHV class circuit breakers using dynamic contact resistance measurement technique*

N.S. SODHA, S. SINGH, S. VICTOR, R.K. TYAGI

A3-206 *Reliability analysis of generator circuit-breakers*

M. PALAZZO, D. BRAUN, G. CAVALIERE, K. DAHINDEN, R. EBERLE, W. KIECHL, M. LAKNER

PS3: Environmental suitability of HV equipment

A3-301 *Egyptian experience of live line washing system for 500 kV outdoor equipment*

N. HEGGI, D. EL AROSI

A3-302 *Suitability evaluation of improved high voltage circuit breaker design with drastically reduced environmental impact*

P. SODERSTROM, J. LIDHOLM

A3-303 *Design and application of composite insulators in AC and DC systems with special attention to severe environment*

E. MOAL, G. ROCCHETTI, A. PIGINI

A3-304 *Study of the interest of thermo-chemical non equilibrium in the case of high-voltage circuit breaker simulations*

S. NICHELE, K. BOUSOLTANE, G. GAUDART

A3-305 *Salinity effect on the corona onset for a 765 KV AC substation connector*

J. HERNANDEZ, J. RIBA, J. SANLLEHI

A3-306 *Recommendation on seismic specification for EHV gas insulated switchgear*

I. OHNO, K. TAKETA, M. KOSAKADA, D. YOSHIDA

A3-307 *High voltage capacitors for very low temperature application*

E. SAVARY, M.VO, P. GRIMM

SC B1 INSULATED CABLES

PS1: Newly installed or upgraded cable systems

B1-101 *The realization and commissioning of the ± 500 kV 1000 MW HVDC link Sardinia Island – Italian Peninsula (SAPEI)*

R. RENDINA, M.R. GUARNIERE, R. NICCOLAI, G. PAZIENZA, S. MALGAROTTI, A. DANELLI, B. JANSSON, F. ALVAREZ, W. LOVISON, A. PERSICO, A. ORINI, F. BOCCHI, S. ALEO, M. MARELLI

B1-102 *Reduction of magnetic field levels on joint graves*

I. RUIZ, N. PALLERO, A. VILLAFANE, A. MEDAGLIA

B1-103 *The cork harbour 220 kV submarine cable project*

R. DONAGHY, B. KNUTSEN, B. MULLINS, A.N. OTHER

B1-104 *Availability and risk assessment of 380 kV cable systems in transmission grids*

S. MEIJER, J.P.W. DE JONG, J.J. SMIT, X. CHEN, H. LUGSCHITZ, G. SVEJDA, W. FISCHER, L. COLLA

B1-105 *Guide to sheath bonding design, in distribution and transmission lines with HV underground cables*

F. GARNACHO, A. KHAMLICH, P. SIMON, A. GONZALEZ

- B1-106** *Renovation of "Manzanillo I" - The Mexican largest power transmission network of 400 kV with XLPE cable systems: design and construction*
F.G. IBARRA, C.F. FUENTES, J.T. ARRIAGA, M. MAMMERI
- B1-107** *"Overhead to underground transmission line couplings" - Technical recommendations to Brazilian utilities*
N.H.G.R. LOUREDO, E.F. KARABOLAD, J.C.R. LOPES, P.A.M. VALE, R.O.C. MOREIRA, M. COELHO, C.D. PEIXOTO, J.M. CAMARGO
- B1-108** *Design and installation of one section of Anhanguera - Casa Verde underground transmission line - 138 kV, using special "T" joints*
E.F. KARABOLAD, R.D. THOMAZ JR, I.P. SOUZA, N.H.G.R. LOUREDO, G.C. SILVESTRE
- B1-109** *EHV cable installation technology for tunnel and duct in Japan*
S. TSUCHIYA, T. MATSUI, T. IIDA, T. NAKAJIMA, Y. AKIYA, T. KURATA
- PS2: State-of-the-art and trends for cable system rating, testing and monitoring**
- B1-201** *Experiences with commissioning and maintenance testing of solid dielectric HV and EHV cable circuits*
M. FENGER, M. CREDLAND, H. SEDDING
- B1-202** *A new testing method of LV cable insulation by air injection*
J. TARNOWSKI, J. CÔTÉ, A. GAUDREAU, P. GINGRAS
- B1-203** *Parametric sensitivity analysis of the innovative enlargement law for extruded HVDC cables*
M. MARZINOTTO, G. MAZZANTI
- B1-204** *Extension and optimization of the load range of DRT test systems for testing extra long HV and UHV cables*
P. MOHAUPT, T. MEHL, A. BERGMAN, S. BERGMAN, A. BERGMAN, W. KEMMETMÜLLER, S. EBERHARTER, A. KUGI
- B1-205** *Operational experience of dynamic cable rating*
E. JACOBSEN, J.F. NIELSEN, S.T. SALWIN, A. MOHRS, K.H. COHNEN
- B1-206** *Application of diagnostics based on partial discharge measurements to assess the technical condition of PILC insulated MV cables*
A. RAKOWSKA, S. NOSKE
- B1-207** *Condition assessment of XLPE cables and accessories operated more than 20 years in the field*
P. HONDA, P. MIREBEAU, D. MEURICE, L. BENARD, M. MAMMERI
- B1-208** *Diagnostic techniques for assessing water treeing degradation of high voltage XLPE cables*
M.I. QURESHI, A.A. AL-ARAINY, N.H. MALIK
- B1-209** *Dynamic thermal modeling of isolated cables*
F.M. ECHAVARREN, L. ROUCO, A. GONZALEZ
- B1-210** *Condition and remaining life of taped transmission cables through non-invasive and invasive testing based on in-service cables and cable samples removed from service*
N. SINGH, S.K. SINGH, R. REYES, T. ZHAO, R. GHAFURIAN
- B1-211** *400 kV 2500SQMM XLPE cable systems type test and prequalification test with their accessories*
Y.B. KIM, J.H. RYU, K.J. PARK, B.S. HAN
- B1-212** *Asset management for power cable systems - Total cost optimization based on the application of diagnostics -*
T. NISHIKAWA, Y. SUDOU, S. TSUCHIYA, D. SHIMOHRO, T. IIDA, K. WATANABE
- B1-213** *Accelerated ageing evaluation of extruded HVDC cables for VSC technology*
C. GREEN, M. FU, F. PERROT, D. ROBINSON, R. CRITCHLEY, S. DODD, J. FOTHERGILL
- B1-214** *Correlation between calculated transmission capacity and the actual one*
D. WALD, V. SVADA, D. RUZEK, M. GELDON, U. KEPPLER
- B1-215** *Integrated development and assessment of new thermoplastic high voltage power cable systems*
M. FAIRHURST, A. GOWADIA, G. STEVENS, B. PHILPOT, J. THOMAS, J. PILGRIM, P. LEVIN
- PS3: Cables in the network of the future**
- B1-301** *Superconducting medium-voltage cables for urban power supply as an alternative scenario to 110 kV installations*
A. BREUER, M. NOE, P. ANDERS, J. BOCK, L. HOFMANN, F. MERSCHEL, C. PRAUSE, B.R. OSWALD, F. SCHMIDT, B. SLOMKA
- B1-302** *Superconducting HVDC power cables for voltage source converter systems*
M. STEMMLER, E. MARZAHN, B. WEST, F. SCHMIDT, K. SCHIPPL
- B1-303** *Research on the technical program for conversion of 500kV submarine SCLF AC cable circuit to DC operation in Hainan gird-connection project*
Y. LIU, X. CAO, J. LI, J. CHEN

B1-304 **Development of the HVDC ±80KV XLPE cable system and construction of test-bed in Korea**
T.H. LEE, J.W. CHOI, E.H. JUNG, J.H. NAM, I.H. LEE, S.I. JEON, J.N. KIM, D.H. KIM, J.W. KANG

SC B2 OVERHEAD LINES

PS1: Improved utilisation of OHL

- B2-101** **Design of the ±500 kV HVDC Bipole III line in Manitoba, Canada**
E. GHANNOUM, Z. KIELOCH
- B2-102** **Voltage uprating of statnett's 300 kV transmission lines to 420 kV**
S. BERLIJN, K. HALSAN, R.I. JÓNSDÓTTIR, J. LUNDQUIST, I. GUTMAN, K. KUPISZ
- B2-103** **Use of high thermal limit conductors at the replacement of 220 kV overhead lines within the Alps in Tyrol**
J. BODNER, M. HÖFER, M. LAUSSEGGER, G. STAMPFER, H. STROBL, H. WÖRLE
- B2-104** **Introduction of high temperature low sag conductors to the Irish transmission grid**
R. GEARY, T. CONDON, T. KAVANAGH, O. ARMSTRONG, J. DOYLE
- B2-105** **Weather forecasted thermal line rating model for the Netherlands**
H.E. HOEKSTRA, J.W. VAN SCHUYLENBURG, J. HAGEN, C.P. JANSEN, J.S.P. WISSE, W.J. ZITTERSTEIJN
- B2-106** **Area-wide dynamic line ratings based on weather measurements**
R. PUFFER, M. SCHMALE, B. RUSEK, C. NEUMANN, M. SCHEUFEN
- B2-107** **Prospective AC to DC conversion of two parallel 287 kV transmission lines in the Western US**
M. BESHIR, L.O. BARTHOLD, D.A. WOODFORD
- B2-108** **Radial and longitudinal temperature gradients in bare stranded conductors with high current densities**
D. DOUGLASS, B. CLAIRMONT, J. IGLESIAS, Z. PETER
- B2-109** **A study on the electrical characteristics of AC 154kV / DC 80 kV - Hybrid transmission line**
D.I. LEE, K.Y. SHIN

PS2: Conditions and assessment of OHL

- B2-201** **Modelling of aeolian vibrations of conductors using finite elements methods**
P. VAN DYKE, C. PEYRARD, P. BOUSSEAU
- B2-202** **Extreme weather studies by using modern meteorology**
S.M. FIKKE, B.E. KRINGLEBOTN NYGAARD
- B2-203** **Experience of Russia on preventing ice - wind failures in electric systems**
O. FROLOV, Y. SHERSHNEV, M. GUREVICH
- B2-204** **Wet-snow accretion on conductors: the Italian approach to reduce risks on existing OHL**
A. FREDDO, G. OTTINO, A. POSATI, M. REBOLINI, P. BONELLI, E. GOLINELLI, M. LACAVALLA, U. PERINI, G. PIROVANO
- B2-205** **On-line wireless PD monitoring system for contamination detection on high voltage overhead transmission lines insulators**
A. LEVINZON, D. KOTEC, R. KNIJNIK, L. FRENKEL
- B2-206** **Full scale tower & foundation tests help to identify reliability of existing lines & give guidance of likely dynamic tower/foundation interaction behaviour**
R. LAKE
- B2-207** **Effects from downbursts on overhead lines; Meteorological thunderstorm study - climatological, meteorological and CFD analysis**
C. KARNER, H. LUGSCHITZ, S. TSCHANNETT, M. RATHEISER, W. GEPP, H. KAUFMANN, A. BECK
- B2-208** **Overhead lines asset management in the Belgian network**
S. GERMAIN
- B2-209** **Problems of determining ice-wind loads in the seaside zones to prevent accidents on OHLs**
Y.V. GOROKHOV, Y.V. NAZIM
- B2-210** **The classification principle of galloping probability distribution map in north china power system**
L. LIU, H. LIU, C. DENG, Y. YUAN, J. GUO
- B2-211** **Reliability of transmission towers under extreme wind and ice loading**
J. EIDINGER, L. KEMPNER JR.
- B2-212** **On modeling the dynamic response of the 160M-high TL tower for the crossing of trombetas river in the amazon region**
R.C. RAMOS DE MENEZES, J.D. RIERA, L. FLECK FADEL MIGUEL, J. KAMINSKI JUNIOR, L. FLECK FADEL MIGUEL, J.B. GUIMARAES FERREIRA DA SILVA
- B2-213** **Corrosion characteristics based on an investigation of Sampled OHTL conductors and a probabilistic lifetime estimation method**
I. ITO, H. CHIBA, M. ONODERA, K. FUJII, K. MIYAZAKI
- B2-214** **Assessment of the condition of overhead line composite insulators**
F. SCHMUCK, J. SEIFERT, I. GUTMAN, A. PIGINI

PS3: Maintenance and refurbishment of OHL

- B2-301** **Upgrading the performance of the cahora bassa 533 kV HVDC links**
V. NAIDOO, S. NARAIN
- B2-302** **Example of refurbishment of overhead lines 400 kV at Western Cape after major pollution event in february 2006**
I. GUTMAN, W.L. VOSLOO, L. APPOLLIS
- B2-303** **Lattice tower inspection with UAV**
F. RENIER
- B2-304** **Refurbishment of transmission lines resulting in improvement in pollution performance in Northern region in India**
P. KUMAR, R. KUMAR

SC B3 SUBSTATIONS

PS1: Advances in substations technologies

- B3-101** **Real-time monitoring and capture of power system transients**
D.F. PEELO, F. RAHMATIAN, M. NAGPAL, D. SYDOR
- B3-102** **Compact substations for quick installation SCRI (Stazioni Compacte a Rapida Installazione)**
D.A. PIERO, D. FALORNI, V. IULIANI, M. REBOLINI, R. CAMERONI, P. GATTI, C. GRANATA, C. PIAZZA
- B3-103** **Service experience of IEC 61850 process bus using no-conventional instrument transformers and implications in the evolution of high voltage switching plant**
A. HENRION, D. PITA, P. SCHAUB
- B3-104** **Electrical and non-electrical environment of wind turbine main components**
J. HOLBOELL, M. HENRIKSEN, A. JENSEN
- B3-105** **Developing roadmap for introduction of IEC61850 based solution for HV substations in the Republic of Ireland**
K. COONEY, K. LYNCH
- B3-106** **A new solution for space saving of conventional AIS substations in Tehran regional electric company**
M. VADIATI, P. KHAZAEI, M. KABIRI, E. HAJIZADEH, K. KHOSHNASIB, M. KALBASI, M. HASHEMI
- B3-107** **The challenge for busbar disconnectors of gas insulated switchgear (GIS) in a 420kV mixed technology (Hybrid) substation**
C. WALLNER, P. GLAUBITZ, W. FRÄBEL, H. PEIN
- B3-108** **Digital substation - Tests and uses of process bus with, GIS non conventional instruments transformers and, in outdoor substations using SAMU**
D.C. CHATREFOU, J.L. RAYON, C.L. LINDNER, P. TANTIN
- B3-109** **Traction power substations built in the tunnel of the Sierra de Guadarrama (SPAIN)**
D. ALONSO GALDO, J. LOPEZ CABELLO
- B3-110** **Plan Valencia, model project to integrate facilities into the environment and reduce spaces**
R. ADOBES
- B3-111** **First multivendor 400 kV transmission line protection scheme using optical CT's and IEC 61850-9-2 protection relays**
V.R. GARCIA COLON, H. LARA-COVARRUBIAS, C. MELENDEZ, J.P. RASGADO, H. GODINEZ, J. ARIZA, M. MONTERO, L. BALDERAS, A. ROMERO, J. LEON, D. STEWARD, A. GALLASTEGUI, N. JUAREZ, I. OSUNA
- B3-112** **Optimal robot navigation for inspection and surveillance in electric substations**
A. REYES, A. FÉLIX, C. GONZALEZ, E. ISLAS
- B3-113** **Design challenges in the 765kV air insulated substation**
I.S. JHA, O. CHANDY, R.K. SARKAR, A.B. SINGH

PS2: Substation management experience

- B3-201** **On-line monitoring of substation condition- A Romanian experience**
C. MOLDOVEANU, V. BREZOIANU, S. GAL, V. METIU, A. VASILE, V. URSIANU, I. IONITA, C. DIACONU, I.D. HATEGAN, F. GONI, C. RADU,
V. ZAHARESCU, T. FAGARASAN, G. MORARU
- B3-202** **The on-line monitoring systems combined with decision support system for the maintenance HV and UHV Terna's substations**
D. FALORNI, V. IULIANI, M. REBOLINI, U. BATTOCLETTI
- B3-203** **Recycling, uprating and upgrading of a high voltage substation located at downtown of a big city**
H. GRINSCHPUN, O. INGERTO
- B3-204** **Applying IEC 60865 on low tension inter-plant spans in EHV switchyards**
D. VAUGHAN, B. ROONEY, G. ADAMCZEWSKI

- B3-205** *Condition assessment of instrument transformers using dielectric response analysis*
S. RAETZKE, M. KOCH, M. KRUEGER, A. TALIB
- B3-206** *Enhancement of transmission system reliability by retrofitting existing - Substation configuration applying hybrid switchgear*
S. CHAREONSRIKASEM, K. ANANTAVANICH, S. PRUNGKHWUNMUANG, T. SUWANASRI
- B3-207** *Safety analysis for grounding potential rise of two neighbouring substations: case study of Metropolitan electricity authority's system*
A. PHAYOMHOM, S. SIRISUMRANNUKUL, N. CHIRATAWEEWOOT, S. INTHARAHA, T. ASIRAWAT, A. PUTTARACH
- B3-208** *Monitoring and condition assessment for GIS substations and GIL*
J.L. RAYON, A. GIRODET, J.F. PENNING, D. GAUTSCHI, F. AIT-ABDELMALEK, W. WEIDMAN, P. JUGE, G. GRANELLI
- B3-209** *Short circuit uprating, methodology throughout the diversity of required skills on behalf of B3-23*
G. TREMOUILLE, A. PARISOT, H. IMAGAWA
- B3-210** *Design experience of 230/115/69/KV substation refurbishment/extension - Project in Philippine grid network*
M. LEE, J. KIM, J. JUNG, S. YEO, C. LEE, J. KIM, R. VEGA
- B3-211** *Substation upgrade of existing facilities - A succeed experience*
L. CRISOSTENES, E.P. MORAES, S.L.S. CABRAL, G.F. VASCONCELOS, W. PINHEIRO, J.C.R. LOPES
- B3-212** *Change in requirements for substation design and examples of the newly applied technologies in existing facilities*
H. IMURA, T. KOBAYASHI, Y. MAMETANI, K. SASAMORI, T. YOKOTA, A. OKADA
- B3-213** *On-site test at UHV substation*
K. UEHARA, T. KOBAYASHI, G. LI, J. FAN, S.K. AGRAWAL
- B3-214** *Quality analysis of connectors used in the uprating of San Carlos and chivor substations*
J.G. MAYA MONTOYA, D.E. GOMEZ TORRES

SC B4 HVDC AND POWER ELECTRONICS

PS1: HVDC and FACTS schemes

- B4-101** *Life extension of Nelson River HVDC system*
N.S. DHALIWAL, J.R. MCNICHOL, R.A. VALIQUETTE
- B4-102** *Commutation failure propagation in multi-infeed HVDC systems*
S. ZOROOFI, D. KELL, H. ABILDGAARD, J. KIAFRGAARD, T. LUND
- B4-103** *Planning the next Nelson River HVDC development phase considering LCC vs. VSC technology*
D.A.N. JACOBSON, P. WANG, R. OSTASH, M. MOHADDES, B. JACOBSON
- B4-104** *New Zealand HVDC pole 3 project implementation in a market environment*
M. ZAVAHIR, P. GRIFFITHS, C. BARTZSCH, U. KINDLER, A. LUDEBUEHL
- B4-105** *New Fenno-Skan 2 HVDC pole with an upgrade of existing Fenno-Skan 1 pole*
D. INGEMANSSON, T. KIIVERI, H. NURMINEN, B.L. PÄÄJÄRVI, K-G. DANIELSSON
- B4-106** *A new control scheme for an HVDC transmission link with capacitor commutated converter having the inverter converter operating with constant AC voltage*
P. FISCHER DE TOLEDO, L. ÄNGQUIST, H-P. NEE
- B4-107** *Caprivi link HVDC interconnector: operational experience from the first VSC power transmission with overhead lines*
T.G. MAGG, M. MANCHEN, E. KRIGE, J. WASBORG
- B4-108** *Upgrading the intermountain HVDC project to handle 480 MW additional wind power*
M. BESHIR, H. BJORKLUND
- B4-109** *The reliability of HVDC projects of SGCC and the operation experience*
X. JI
- B4-110** *New French-Spanish VSC link*
P. LABRA FRANCOS, S. SANZ VERDUGO, S. GUYOMARCH
- B4-111** *The Rio madeira HVDC system - Design aspects of bipole 1 and the connector to Acre-Rondônia*
J. GRAHAM, T. HOLMGREN, P. FISCHER
- B4-112** *The Rio madeira ± 600 kV HVDC system design*
G. DOYLE, R. LIMP, M. JOSÉ XIMENEZ, M. NUNES ACCIOLY, A. DE PADUA GUARINI, S.L.A. SARDINHA, D.O.C. BRASIL, P. GOMES, D.M. ZARONI, D. CARVALHO, P.C. VAZ ESMERALDO, J.R. MEDEIROS, M. SZECHTMAN, A.R. SAAVEDRA
- B4-113** *Survey of the reliability of HVDC systems throughout world during 2009 - 2010*
M.G. BENNET, N.S. DHALIWAL, A. LEIRBUKT

PS2: HVDC and FACTS technology developments

- B4-201** **R&D progress of $\pm 1100\text{kV}$ UHVDC**
Y. SHU, Z. LIU, L. GAO, J. YU, W. MA, J. ZHANG, L. LU, X. GUO, Y. HUANG, J. ZHAO
- B4-202** **Computationally efficient module selection scheme for voltage balancing controller of modular multilevel HVDC converter**
G.T. SON, K. HUR, J.W. PARK, S.T. BAEK, U.H. LEE, Y.H. CHUNG
- B4-203** **Development of high efficiency D-STATCOM using SiC switching devices**
M. TAKASAKI, A. KUZUMAKI, S. IROKAWA
- B4-204** **Requirements of DC-DC converters to facilitate large DC grids**
C.D. BARKER, R.S. WHITEHOUSE, D.R. TRAINER, C.C. DAVIDSON
- B4-205** **A 25 MW multi level voltage source converter demonstrator to evaluate different converter topologies**
C.C. DAVIDSON, A.C. LANCASTER, A.J. TOTTERDELL, C.D.M. OATES

PS3: Applications of HVDC and FACTS

- B4-301** **MTDC grid with power flow controllability**
E. VEILLEUX, B-T. OOI
- B4-302** **Development and testing of the voltage converter such as Statcom on the DC link Russia - Finland**
V.I. KOCHIN, D.B. GVOZDEV, F.V. DROZDOV, K.S. KOSHELEV, G.G. PROCHAN, S.E. ENKOV, S.V. KRAYNOV
- B4-303** **Application of HVDC to the emergency control of the DC and hybrid DC-AC interconnected ENTSO-e – IPS/UPS networks**
A. ARESTOVA, A. GROBOVOY, L. BIZUMIC, R. CHERKAOUI, F. VILLELLA, U. HÄGER
- B4-304** **An integrated AC-DC multiterminal grid in the western Mediterranean Basin – development, planning and design challenges**
L. COLLA, M. REBOLINI, M. CELOZZI, M.R. GUARNIERE, E. ELIA, R. TOUILEB, R. BOUAROUJ
- B4-305** **Grid code compliance support for connecting renewable energy into transmission line using D-STATCOM system**
J. AHO, E. CATZ, R. JESSLER, A. SYOMUSHKIN
- B4-306** **Projects BorWin2 and HelWin1 - Large scale multilevel voltage-sourced converter technology for bundling of offshore windpower**
V. HUSSENNETHER, R. GRENZOW, A. BARTH, D. WORTHINGTON, G. DELL'ANNA, M. RAPETTI, B. HÜHNERBEIN, M. SIEBERT
- B4-307** **Technical guidelines for first HVDC grids - A European study group based on an initiative of the German commission for electrical, electronic & information technologies**
F. SCHETTLER, G. BALZER, M. HYTTINEN, S.E. RYE, T. WESTERWELLER
- B4-308** **Control and protection of HVDC meshed grid**
P. RAULT, X. GUILLAUD, J. DESCLOUX, B. RAISON, S. NGUEFEU, JB. CURIS
- B4-309** **Tres amigas: a flexible gateway for renewable energy exchange between the three asynchronous AC networks in the USA**
N.M. KIRBY, N.M. MACLEOD, D. STIDHAM, M. REYNOLDS

SC B5 PROTECTION AND AUTOMATION

PS1: Impact of future network components on protection and automation systems

- B5-101** **The using differential protection based wide area protection (WAP) to prevent large contingencies in the power grids**
A. MIRON, S.A. GAL, I. NEDELCO, D. COMANESCU
- B5-102** **Automated protection coordination and verification - An important task for continuing the service reliability in future networks**
J. JÄGER, R. KREBS, F. BALASIU, F.LAZAR
- B5-103** **A new substation level dispatching approach to increase the network control and performances in presence of dispersed generation**
M. PETRINI, C. SABELLI, A. MIOTTI, F. ZANELLINI
- B5-104** **Foundations for the design of future WAPS and WACS in Argentina**
F. GONZÁLEZ, P. GILL ESTÉVEZ, E. DUFOUR, E. NIZOVOY
- B5-105** **Zero sequence compensation factor effect on distance protection ground reach - A practical study**
M.A. EL-HADIDY, H. FAROUK, B. SOUDY
- B5-106** **Over-current supervised zone 1 settings on eskom series compensated transmission lines**
N. MQHAYI, A. PERERA, A. BARTYLAK

- B5-107** *Enabling future meshed operation for distribution networks*
N.-K.C. NAIR, N. BOWE
- B5-108** *Control and protection strategies for multi-terminal HVDC - Transmission systems based on voltage source converters*
C. ZHAO, J. HU, X. YANG
- B5-109** *Redundancy challenges on IEC 61850 systems and migration paths for IEC 61850 substation communication networks*
C. RODRIGUEZ DEL CASTILLO, J. FIGUERA POZUELO
- B5-110** *The next generation of smartsubstations - Challenges and possibilities*
J. CARDENAS, A. LOPEZ DE VINASPRE, R. ARGANDONA, C. DE ARRIBA, H. FAROOQUI
- B5-111** *In-Field synchrophasor system calibration, testing, and application validation using high-voltage optical sensors*
E. UDREN, F. RAHMATIAN, Y. HU, D. NOVOSEL
- B5-112** *Integration of protection, control and metering functions*
L.A. KOJOVIC
- B5-113** *Application considerations for protection and control functions available in multiple intelligent electronic devices*
S.R. CHANO, D. MILLER, B. KASZTENNY
- B5-114** *Data and information structure to cope with sharing and allocation of PAC functions*
J.M. ORDACGI F, F.A. VIOTTI, R.M. DE MORAES, I.P. SIQUEIRA, U.A. DO CARMO, J.C.M. LIMA, J.F. OLIVEIRA, R.B. SOLLERO
- B5-115** *Substation automatic restoration systems for the future advanced networks*
H. ITO, T. MAEDA, W. TAKI, K. SEKIGUCHI, T. KAMEDA, S. OKUBO
- B5-116** *Smart algorithms to accommodate distributed generation in the grid*
T. YIP, C. AN, G. LLOYD, G. MILLAR
- B5-117** *Performance verification and scheme validation of adaptive protection schemes*
I. ABDULHADI, F. COFFELE, A. DYSKO, C. BOOTH, G. BURT
- B5-118** *Performance assessment of IEC 61850-9-2 based protection scheme for a 400 kV transmission system mesh corner*
W. AN, T. BRENNAN, D. BROGDEN, R. CHATFIELD, C. MC TAGGART, J. WRIGHT, P. CROSSLEY, H. LI, U. ANOMBEM, L. YANG, M. REDFERN, X. SUN
- B5-119** *Monitoring and control of power system oscillations using FACTS/HVDC and wide-area phasor measurements*
M. LARSSON, P. KORBA, P. OWEN
- PS2: Utilisation and application of remote access for protection and automation systems**
- B5-201** *Real recorded cases supporting stand alone disturbance recording systems*
M. A. EL-HADIDY, D. HELMI, B. SOUDY
- B5-202** *Advantages of solutions for remote access in protection and control applications via communication networks*
N. SCHUSTER, H-J. HERRMANN, J. HAUSSCHILD, P. RÜMENAPP
- B5-203** *Substation to control centre communication based on IEC 61850: Requirements, concepts and practical experiences*
H. ENGLERT, A. OSTERMEIER, O. CARRÉ, P. LHUILLIER, J. LANGE
- B5-204** *Research and practice for relay protection information system's technical - Architecture on the basis of IEC61850*
J. MA, Y. TANG, A. WANG, D. HUANG, Q. ZHU
- B5-205** *Remote access for substation automation systems: needs, technologies and applications*
J-M. BOISSET, L. HOSSENLOPP
- B5-206** *Automated data retrieval, analysis and operational response using substation intelligent electronic devices*
M. KEZUNOVIC, B. CLOWE, D. MCCARTNEY, B. FARDANESH, T. POPOVIC
- B5-207** *Development of secure standards based approach to automated retrieval of power system field data including subsequent analysis and response*
P. MYRDA, B. DESAI, S. STERNFELD, Y. LU, G. RASCHE
- B5-208** *Present and future for remote access solutions to IEDs*
D. ESPINOSA, C. MELENDEZ, M. MANRIQUEZ
- B5-209** *Digital fault recordings: practices and perspectives for automated data retrieval, information management and analysis in a large Brazilian utility*
M.A.M. RODRIGUES, D.A.M. VILLELA, R.B. SOLLERO, M.A.F. RAMOS, R. FARIZELE

B5-210 *Applications and developments for the remote access to the protection relays*

G. USHIO, H. OSHIDA, C. KOMATSU, Y. KAWASAKI, M. TOI, H. NAKATANI

B5-211 *Remote access to substations: state, possibilities, challenges*

K-P. BRAND, W. WIMMER, M. HERZIG

SC C1 SYSTEM DEVELOPMENT AND ECONOMICS

PS1: Planning options to ensure reliability, sustainability and flexibility as the power system changes across all voltage levels

C1-101 *Planning of interconnections in Central America and East Africa, considering uncertainties*

M. TINOCO, F. MONTOYA, M. MADRIGAL, E. CALDERON, J. ODOUR

C1-102 *Integrated approach for reliability of electricity supply analysis – studies of demonstration network*

O. GJERDE, L. WARLAND, L. ALEIXO, I. H. DØSKELAND

C1-103 *Onshore and offshore transmission expansion in the European grid for large scale wind integration in the North Sea*

S. VÖLLER, I. FUCHS, M. KORPÅS, D. HUERTAS HERNANDO

C1-104 *The problems of the UPS power balances forming for the extreme climate conditions period*

A.V. ILIENKO, D.V. PILENIEKS

C1-105 *Grid connection of offshore wind power plants and transmission system constraints*

V. AKHMATOV, S.E. RYE, M.L. LUNDO, P. JORGENSEN, B.C. GELLERT

C1-106 *A novel practical approach to transmission planning under severe uncertainties*

J. KABOURIS, E. CONTAXI, A. NERIS, V. NOMIKOS

C1-107 *Parallelling offshore windfarm HVDC ties on offshore side*

V.F. LESCALE, P. HOLMBERG, R. OTTERSTEN, Y.J. HÄFNER

C1-108 *Te uku wind farm - Planning and operation of a deeply embedded power plant with advanced ancillary services*

R.W. BROWN, H. SCOTT-DYE

C1-109 *Combining market simulations and loadflow calculations for planning of interconnected systems with high RES penetration - Practical experience*

P.G.H. JACOBS, C.P.J. JANSEN, R. VAN HOUTERT, E. PELGRUM, A.R. CIUPULIGA, M. GIBESCU, W.L. KLING

C1-110 *Coordinated development mechanism of new energy and smart grid*

W. WANG

C1-111 *Generation adequacy with large scale integration of renewable energy sources - The Spanish case*

J. REVUELTA, C. LONGAS

C1-112 *Treatment of renewable generation and generation retirement uncertainties in transmission planning as applied to the American electric power system*

M. AHMED, K. ALI, P.J. PALERMO

C1-113 *Overview of offshore wind power development in South Korea and the economic analysis of large scale offshore wind farm interconnection plan*

J.W. CHANG, T.K. KIM, J.G. LEE, B.J. LEE

C1-114 *Transmission system planning under uncertainty of supply and demand in Indian context*

Y.K. SEHGAL, I.S. JHA, S. SEN

C1-115 *Long distance transmission interconnections expansion in Brazil impacted by Belo Monte power plant*

P.C.V. ESMERALDO, E. ARAUJO, D.S. CARVALHO JR, M. ALZIRA NOLI SILVEIRA

C1-116 *Demonstration tests of microgrid systems using renewable energy for small remote islands*

K. ISHIDA, Y. SHIMOGAWA, Y. SATOU, K. TAKANO, T. IMAYOSHI, T. KOJIMA

C1-117 *The economic case for developing HVDC-based networks to maximise renewable energy utilisation across Europe: an advanced stochastic approach to determining the costs and benefits*

T. HOUGHTON, K. BELL, M. DOQUET

C1-118 *Testing constraints and opportunities for offshore renewable energy: strategic development of offshore networks for interconnection and market access*

G. BATHURST, S. ELLIOT, J. GANNON, K. BELL, B. HANNA

C1-119 *Generation adequacy assessment with high wind penetrations: data requirements and insights from meteorology*

C.J. DENT, D.J. BRAYSHAW, S. ZACHARY, M.B. ROBERTS

PS2: Investment challenges in delivering future power systems

C1-201 *Planning future transmission grid expansion investments for a sustainable pan-European energy system: the REALISEGRID approach*

G. MIGLIAVACCA, A. L'ABBATE, I. LOSA, R. CALISTI, K. JANSEN, K. REICH, O. WADOSCH, F. LEUTHOLD, G. LAYR, O. AZADEGAN, R. HAGER, H. WEIGT, E.M. CARLINI, C. VERGINE, A. SALLATI, P. ADAM, G. DE-SAINT-MARTIN, X. GALLET, J-Y. LEOST

- C1-202** *Planning for connection of new generation projects in the Australian electricity market*
N. PUSHPARAJ, K. FREARSON
- C1-203** *Tools for developing optimum transmission development plans*
CIGRE WORKING GROUP C1.24
- C1-204** *National and company interests in electricity transmission investments*
M. LEHTONEN, M. SUPPONEN
- C1-205** *Business models for allocation of costs, benefits and risks for new cross-border interconnection lines*
Z. VUJASINOVIC, A. ILICETO
- C1-206** *European transmission network investments planning with a view on long-term environmental goals*
J. VERSEILLE, S. LEPY, M. PAUN
- C1-207** *Co-development of the mediterranean transmission grids*
L.I. MONFORTE, M. CELOZZI, A. BARDACH
- C1-208** *Sustainable development of hydropower in Brazil - Technical and institutional aspects*
A.C.G. MELO, M.E.P. MACEIRA, M.P. ZIMMERMANN, F.R. WOJCICKI
- C1-209** *Application of system dynamics on long term financial - Planning of power transmission utilities*
Y. RENDON VARGAS, C.J. BUITRAGO QUINTERO

PS3: Asset management challenges in future power systems

- C1-301** *Modelling of decision making support tools for the asset management optimization in the Italian transmission system*
T. BAFFA SCIROCCO, M. CAPRABIANCA, F. GIORDANO, G. GUIDA, C. SABELLI
- C1-302** *Basis of asset management program implementation in transmission owner in Chile*
J. VARGAS, A. GUERRERO, C. GERALDO
- C1-303** *Dynamic compensation of reactive power by variable shunt reactors; - Control strategies and algorithms*
Z. GAJIC, C. BENGTSSON
- C1-304** *Implementing A PAS55 approach to asset management within transco*
A.A. FALASI
- C1-305** *Development of support tool for overhead transmission line replacement planning considering EENS and cost effectiveness*
K. HIDAKA, J. KODA, T. SEKI
- C1-306** *Challenges for forming rational power systems facing with replacement work of aged facilities*
J. NAGAHARA, K. NISHIDA
- C1-307** *Whole life costing and risk assessment for transmission asset investment, planning and policy support*
D. CULLEY, J. FITCH, A. MITCHELL, P. SCOBIE, G. STEVENS

SC C2 SYSTEM OPERATION AND CONTROL

PS1: Methods to overcome operation challenges caused by the combination of intermittent generation and changes in electrical loads behaviour from a TSO perspective

- C2-101** *Wind turbine generator controls: meeting present and future grid code requirements*
S. EL ITANI, G. JOOS
- C2-102** *Influences of wind power production on thermal generation unit commitment in the European system*
T. AIGNER, H. FARAHMAND, T. GJENGEDAL
- C2-103** *Estimation of efficiency of modern excitation controllers of synchronous machines in the conditions of physical model of a complex power system and suggestion of estimation technique and criteria as an addition to the IEC standard*
A. BURMISTROV, E. POPOV, A. URGANOV, A. GERASIMOV, A. ESIPOVITCH
- C2-104** *Very short-term optimal dispatching: an integrated solution for the advance dispatching*
G. GIANNUZZI, C. MARTARELLI, C. SABELLI, M. SIDONI, C. BRUNO, D. DRESCO, D. DI BERNARDO, M. POZZI
- C2-105** *Overcoming operational challenges to maximise the levels of wind integration - a system operator perspective*
Y. COUGHLAN, J. O' SULLIVAN, S. ROURKE, A. KENNEDY
- C2-106** *Congestion management implemented in the Dutch system by using market principles: a practical example from the TSO perspective*
F. SPAAN, P. VAN DEN HEUVEL, J. DE GEUS, K. HOMMES, S.A.B. DE ALMEIDA DE GRAAFF, D. KLAAR
- C2-107** *Grid control cooperation - A framework for technical and economical cross-border optimization of load-frequency control*
P. ZOLOTAREV, M. GÖKELER
- C2-108** *Wide-area coordinated and adaptive damping control of multiple HVDC links in China southern power grid*
C. LU, Y. HAN, X. WU, L. LI, J. WU

- C2-109** *Voltage control by multiple wind power plants: field test results*
T. ARLABAN, J. PEIRO, O. ALONSO, R. RIVAS, D. ORTIZ, G. QUINONEZ-VARELA, P. LORENZO
- C2-110** *Robust optimization and its application to power system operation*
T. ZHENG, J. ZHAO, E. LITVINOV, G. VAN WELIE, F. ZHAO
- C2-111** *An establishment of operating instruction and information gathering - Hierarchy considering smart grid and micro grid environment in the Korean SO's perspective*
E.S. JUNG, J.Y. KIM, H.S. CHOI, J.M. CHO, B.S. CHO
- C2-112** *Development of output control technologies for a large-scale PV system with battery storage - Wakkanai mega-solar project -*
M. NIYAMA, A. KUWAYAMA, S. SAITO, H. KITA, Y. UEDA, K. YAMAGUSHI
- C2-113** *Improved frequency bias factor sizing for non-interactive control*
M. SCHERER, E. IGGLAND, A. RITTER, G. ANDERSSON
- PS2: Methods to improve the awareness of the overall status of the interconnected systems and the coordination of TSO actions**
- C2-201** *System integrity protection schemes – Increasing operational security and system capacity*
E. JOHANSSON, K. UHLEN, G. KJØLLE, S. LØVLUND, J.O. GJERDE, F. TRENGEREID
- C2-202** *Dispatching training simulator – Adviser of the electric grid company's upper management level*
M.A. RABINOVCH, J.I. MORJIN, S.K. KAKOVSKIY, I.A. GOLOVINSKY
- C2-203** *PEGASE R&D project: advanced algorithms for state estimation and simulation of the Pan-European power system*
S. RAPOPORT, P. PANCIATICI, J.-J. LOPEZ, C. MERCKX, B. HAUT, I. ERLICH, S. LECLERC, J. MILANOVIC
- C2-204** *Improved TSO coordination in the Central West European region*
O. ARRIVÉ, C. LEVILLAIN, F. BOULET, C. COLES, R. GENGLER, J. VAN ROOST, N. SCHUSTER, J. WOLPERT, O. ZIEMANN, H.-D. ZIESEMANN, D. KLAAR
- C2-205** *Visualization of the system state and situation awareness in wide area transmission systems for electricity*
C. SCHNEIDERS, J. VANZETTA, J.F. VERSTEGE
- C2-206** *Development and setup of the first European-wide real-time awareness system (EAS) for the transmission system operators of ENTSO-E*
J. ALBRECHT, L. LAMY, C. NORLANDER, J. FIJALKOVSKI, A. GUTIERREZ PEDRAZA, R. CHRAPEK, T. SMIEJA
- C2-207** *Development of an european-wide incidents classification scale for ENTSO-E transmission system operators*
J-F. GAHUNGU
- C2-208** *Technical and cultural interest of a centralised coordination service centre experience of Coreso after 3 years of operation*
F. BOULET, L. LAMY, J. VAN ROOST, M. COUSINS, C. COLUZZI, O. ZIEMANN
- C2-209** *GCC interconnection grid: operational studies for the interconnection with United Arab Emirates and Oman*
A. AL-EBRAHIM, N. AL-SHAHRANI, M. AL-SHAIKH, K. KAROUI, D. ZENNER, P. MICHAL
- C2-210** *Voltage control schemes to improve short and long-term voltage stability in KEPCO system*
S. NAM, J. SHIN, S. BAEK, J. SONG, J. LEE, T. KIM, B. LEE
- C2-211** *Institutional capacity building of the load despatch centres in India*
S.K. SOONEE, S.R. NARASIMHAN, V. PANDEY, L. CHANDRA
- C2-212** *Phasor measurement applications in smart grid*
N.S. SODHA, R.K. TYAGI, N. MISHRA, S. SHUKLA
- C2-213** *The conception of a new system protection scheme involving long distance coordinated remedial actions*
P. GOMES, S. SARDINHA, S. MARTINS, R. PERRET DE MAGALHAES
- C2-214** *Lessons learnt in restoration from recent blackout incidents in Brazilian power system*
A.C.B. MARTINS, P. GOMES, F. ALVES, D. FALCAO, C. RIBEIRO, A. GUARINI, N. MARTINS, G. TARANTO
- C2-215** *Improvement in coordinated restoration operation skills covering more than one area (Developing a power system operation training simulator that precisely reproduces electrical phenomena)*
T. KATAOKA, M. SHITSUKAWA, A. TAJIMI

SC C3 SYSTEM ENVIRONMENTAL PERFORMANCE

PS1: Public acceptance of electric power system infrastructures

- C3-101** *Impact of a fire in electrical equipment containing insulating oil contaminated with polychlorinated biphenyls*
M-C. LESSARD, J. CASTONGUAY, B. LAROSE, J. BOYD, S. FORTIN, M. PLANTE

- C3-102** *Public Involvement in power line siting process – a case study of Slovenia*
S. JAMSEK, D. BRECEVIC, M. MARINSEK, A. KREGAR
- C3-103** *Experience in information management and control of electric and magnetic fields of electrical companies*
C. WALL, P. ARNERA, B. BARBIERI, G. MAYER, O. POSTIGLIONI, J. TURCO
- C3-104** *Evolution of regulatory frameworks for transmission corridors - Lessons from New Zeland*
A. RIRINUI, C. HORROX
- C3-105** *A model for assessing community driven environmental projects*
M. PALMER, S. MARTIN
- C3-106** *The impact of public consultation and participation on the authorisation of a new 380 kV line in Belgium*
V. DU FOUR
- C3-107** *Public acceptance of electric power system infrastructure*
A. CORCORAN
- C3-108** *Engaging with stakeholders: adding value to the energy system*
P. FERNANDES, J. PERALTA, M. RITA SILVA
- C3-109** *Methods and experiences of integrated substations in order to improve social acceptance of power system infrastructure*
H.R.M. SANDERS, J.B.M. VAN WAES, P.J.N.M. VAN DE RIJT, H.N.E. SIBBEL, M. WASSENS, E.L. MEGENS
- C3-110** *Measuring human exposure to magnetic fields at substations and power lines located in Doha city*
K. ELLITHY, A. AL-JOMALI, Y. AL-JAIDAH, A. ALSHAFAI, A. ALMAHMOUD
- C3-111** *Increasing public acceptance of power developments*
R.C. FURTADO, F. FURTADO, S. BUARQUE
- C3-112** *Development of corporate environmental indicators to improve stakeholder communication and engagement*
K.C. GARCIA, L.R.L. PAZ, S.H.M. PIRES, D.F. MATOS, J.M. DAMAZIO, P.C.P. MENEZES, A.M. MEDEIROS
- C3-113** *The role of the third party in EMF risk communication*
H. YOMORI, C. OHKUBO
- C3-114** *Relative comparison of the public's evaluation and social acceptability to low carbon power technologies in Japan*
H. KUBOTA, K. BABA, H. HONDO
- PS2: How "green" are the future power systems?**
- C3-201** *External cost evaluation and multi criteria analysis to support transmission line planning and design.*
P. GIRARDI
- C3-202** *New network structures considering criteria for cabling or overhead line performances*
A. KREGAR, R. TOMAŽIČ
- C3-203** *Environmental and social impact assessment for the transmission project assigned to wind power development; the main findings*
F.M. SHALABY, M.A. BEDROUS, F. NADA, B.A. MOUSTAFA, D. HELMI
- C3-204** *Making a common framework assisted with software agents for V2G concept in a smarter grid*
A. GHODS, M.R. AGHAMOHAMMADI, M. PAZHOUHESH
- C3-205** *Life cycle assessment of electric vehicles focussing on local impacts within a city region*
A. SCHNETTLER, E. SZCZECZOWICZ, T. HELMSCHROTT, T. SMOLKA, A. SHAKOOR
- C3-206** *Comparative study of the GIC amplitudes and characteristics in different power grids in china*
K. ZHENG, L.G. LIU, H.Y. GE, W.X. LI
- C3-207** *Research on comprehensive energy conservation management and evaluation for urban and rural distribution grid*
Y. FU, Z. WEI
- C3-208** *Life cycle assessment on a UHV power system*
W. WANG, A. BEROUAL, T. MEHIRI, G. TREMOUILLE
- C3-209** *Limiting SF6 gas emissions by optimization of design and testing of gaskets in high voltage gas-insulated substations*
A. FICHEUX, D. DEPRES, E. LARUELLE, Y. KIEFFEL, P. PRIEUR
- C3-210** *Assessing the rising needs for on-going submarine cable electromagnetic field studies*
J.K. SNYDER, M.A. SLATER, Y.F. CHAO
- C3-211** *The impact of improved transmission system efficiency and utilization on reducing electricity industry carbon footprint*
A. DEL ROSSO, R. LORDAN

C3-212 *A multi criteria decision analysis of future power systems infrastructure*
S. BERRIE, I. KOCKAR, V. BELTON

SC C4 SYSTEM TECHNICAL PERFORMANCE

PS1: Modelling and practical experience of the interaction of new generation/transmission technologies and related power electronics with the transmission and distribution systems

- C4-101** *The Romanian TSO's power quality monitoring system as smart grids component*
C. STANESCU, S. GAL, C. LISMAN, F. VATRA, A. POIDA, P. POSTOLACHE, J. WIDMER
- C4-102** *Dynamics and control of multi-terminal high voltage direct current networks for integration of large off-shore wind parks into AC grids*
E. CIAPESSONI, D. CIRIO, A. GATTI, A. PITTO, A.M. DENIS, O. DESPOUYS, L. HE, C.C. LIU
- C4-103** *An active angle stability circuit reference for power line resistance-induced voltage singularities*
F.M. EL-SADIK
- C4-104** *Measurements of disturbances produced by power electronic devices on EHV overhead lines using electric field sensors*
P.E. ISSOURIBEHERE, D.A. ESTEBAN, F. ISSOURIBEHERE, G.A. BARBERA
- C4-105** *Overvoltages during line dropping of compensated lines*
M. OWEN
- C4-106** *Damping measurement, analysis and performance of a 1000 MW generator on the Belgian grid*
F. DEPIERREUX, K. KAROUI, J. WARICHET, E. BURNIAT
- C4-107** *GCC interconnection grid: operational studies for the interconnection with phase III grids (UAE and Oman)*
A. AL-EBRAHIM, N. SHAHRANI, M. AL-SHAIKH, K. KAROUI, D. ZENNER, P. MICHAL
- C4-108** *Study of harmonics in cable-based transmission networks*
F. FARIA DA SILVA, C.L. BAK, P.B. HOLST
- C4-109** *On management of impact of wind power on dynamic performance of stability restricted and meshed series compensated transmission network in system planning*
T. RAUHALA, A-J. NIKKILÄ
- C4-110** *Power quality and flicker performance of the tidal energy converter, SeaGen*
J. MACENRI, T. THIRINGER, M. REED
- C4-111** *On the electromagnetic interference associated with the PLC system of the cahora bassa HVDC line*
P.H. PRETORIOUS, A.C. BRITTEN, A.A. BURGER, N. MAHATHO
- C4-112** *A methodology for harmonic impedance in large power systems - Application to the filters of a VSC*
G. ALVAREZ-CORDERO, A. BACHILLER SOLER, J.A. ROSENDO MACIAS, A. GOMEZ EXPOSITO
- C4-113** *Impact of frequency response wind plant controls on grid performance*
N.W. MILLER, M. SHAO, K. CLARK
- C4-114** *Measurement-based load modelling of systems with dispersed generation*
I.F. VISCONTI, L.F.W. DE SOUZA, J.M.S.C. COSTA, N.R.B. SOBRINHO
- C4-115** *Studies on the impact of dispersed generation - Development of wind power generator model and impacts of power system faults with high penetration of photovoltaics -*
Y. KITAUCHI, K. YAMASHITA, F. YAMADA, S.C. VERMA, S. FUJIWARA, M. KITAYAMA
- PS2: Advanced tools and techniques for power system performance analysis with particular reference to stochastic methods**
- C4-201** *Experience in pinpoint fault location and reliability improvement from a double transformer failures case*
C.C. SUN, D.G. CHENG, S.F. WU, Y.S. JOU, C.H. HSIEH, C. LEE
- C4-202** *Probabilistic methodology for assessing the impact of spinning reserve - Requirements and demand response programs in power systems with increased penetration of renewable energy sources*
E.N. DIALYNAS, L.G. DAOUTIS, D. IAKOVAKIS
- C4-203** *Probabilistic reliability assessment in distribution network master plan development and in distribution automation implementation*
M. SCHWAN, A. ETTINGER, S. GUNALTAY
- C4-204** *Parameter uncertainty assessment in the calculation of the overvoltages due to transformer energization in resonant networks*
M. MARTINEZ DURO, R. DENIS
- C4-205** *Fault location in SCE interconnected network based on synchronized phasor measurements*
A.H. AL-MOHAMMED, M.M. MANSOUR
- C4-206** *Power monitoring applications for smart network operations*
B.A. ALLAF, M. AL-WAFI

- C4-207** *Risk assessment applications in the operation of the Mexican electric transmission system*
H. SARMIENTO, G. PAMPIN, R. CASTELLANOS, M. RAMIREZ, G. VILLA, M. MIRABAL
- C4-208** *Proposal of a modified algebraic approach to evaluate required capacity for load frequency control (LFC) under a large penetration of solar photovoltaic generations*
M. KURAMOTO, M. NAGATA, T. INOUE

PS3: Lightning protection and insulation coordination as it relates to new generation and transmission technology

- C4-301** *Lightning transient analysis of a 69kV transmission line with externally gapped line surge arrester under normal open circuit breaker system*
S.J. HSIAO, J-F. CHEN, M-T. CHEN
- C4-302** *Estimation of lightning incidence for offshore wind farm*
G.W. CHANG, Y.T. LIN
- C4-303** *Summary of commissioning test on the 1 000 kV UHV AC demonstration - Project and operation monitoring of the main equipments*
Y. SHU, Y. YIN, X. HAN, S. WANG, X. WANG, B. LI, H. ZHAO, G. SUN
- C4-304** *Lightning invasion overvoltage study for UHVAC substation*
S. SUN, G. TREMOUILLE
- C4-305** *A review on EHVAC transmission lines lightning performance*
D.M. CORREIA, C.B. CAMPINHO, A.C. CAVALCANTI, D.O.C. BRASIL
- C4-306** *Studies of lightning protection design for wind power generation systems in Japan*
T. SHINDO, H. SHIRAISHI, S. SEKIOKA, M. ISHII, D. NATSUNO

SC C5 ELECTRICITY MARKETS AND REGULATION

PS1: Integrating renewable energy sources into electricity market- lessons learnt

- C5-101** *Market integration in Europe: a market simulator taking into account different market zones and the increasing penetration of RES generation*
P. CAPURSO, B. COVA, E. ELIA, P. PORTOGHESE, M. STABILE, F. VEDOVELLI, A. VENTURINI
- C5-102** *How the Australian market manages the winds of change*
D. BOWKER, T. BAKER, D. SWIFT
- C5-103** *Integrating renewable energy into the Chilean grid*
J.C. ARANEDA, R. VALPUESTA
- C5-104** *The impact of uncoordinated development of photovoltaic power plants on electricity market in Czech Republic*
R. KABELE, B. NEMECEK, J. PROCHAZKA
- C5-105** *An assessment for mediterranean solar plan on electricity market in Arab countries*
M.M. EL-KHAYAT, K. YASSO, M. ABDL-RAHMAN
- C5-106** *The alleviation of prices impact on electricity tariff caused by renewable energy adders in Thailand*
S. WORADEJ
- C5-107** *Risk evaluation and management considering wind integration: Chinese experience and future trends*
S. ZHAO, Y. YIN, D. ZHANG, H. SHEN, H. ZHANG
- C5-108** *Renewable energy sources integration difficulties in the spanish electric system*
J. REVUELTA, J. CARLOS FERNANDEZ
- C5-109** *Integration of wind resources in the New York electricity market*
R. MUKERJI
- C5-110** *Integrating variable energy resources into the California electricity market*
S. VENKATARAMAN, M. ROTHLEDER, U. HELMAN, T. GUO
- C5-111** *Economic assessment of energy storage systems for renewable integration*
J. ZHU, H. LI, S. WANG, G. BRINKMAN
- C5-112** *Promoting the cross-border renewable energy market in the California's*
M.A. AVILA
- C5-113** *Implementation of renewable energy certificate (REC) mechanism in India*
S.K. SOONEE, M. GARG, S.C. SAXENA, S. PRAKASH
- PS2: Electricity market operating experiences and market performance analyses**
- C5-201** *The technology improvements and the emergence of non regulated activities in the Argentine electrical market*
A.P. BRAGULAT
- C5-202** *Plans, timeline, and challenges for achieving an Egyptian fully competitive electricity market*
F. ABOUNEIMA, S. BASTA, W. EL-KHATTAM

- C5-203** *The strategic evolution of the single electricity market across Ireland and Northern Ireland*
D. STEVENS, A. DOWNEY
- C5-204** *Flow-based market coupling in the Central Western European region - on the eve of implementation -*
P.H. SCHAVEMAKER, M. AGUADO, R. BOURGEOIS, J.Y. BOURMAUD, M.A. CERATTO, M. JÄKEL, C. MESTDAG, M. POOL, M. ROHLER, S. SCOLARI, W. VAN DEN REEK, J. VAN CASTEREN, O. WEISS, J. WOLPERT
- C5-205** *Locational signals and generation investments*
J.P. GÉRARD, A. TACCOEN, G. BARBIERI, S. HADUSH, P. BUIJS, R. BELMANS
- C5-206** *Fundamental electricity data transparency, the role of TSOs*
A. RAFELIS DE BROVES, G. BARBIERI
- C5-207** *A new coordination scheme for efficient dispatch of interconnected electricity markets*
F. ZHAO, T. ZHENG, E. LITVINOV, G. VAN WELIE
- C5-208** *The brazilian market structure: strengths and improvements still needed*
X. VIEIRA, J.L. ALQUERES, M. VEIGA, A. OLIVEIRA, M. VIEIRA
- C5-209** *Auction analysis for energy trade in Brazilian market*
T. DE HOLANDA CAVALCANTI, E.H. DINIZ FITTIPALDI

PS3: How is the development of advanced technologies likely to impact development of market designs

- C5-301** *Market solutions for the integration of active demand-based services in the ADDRESS project*
C. EVENS, D. SIX
- C5-302** *Impact of demand-side technology readiness on market designs*
A.S. CHUANG, C.W. GELLINGS
- C5-303** *Japanese market designs toward realizing low-carbon society with the development of advanced technologies*
H. OKAMOTO, A. YOKOYAMA
- C5-304** *The practical application of advanced energy storage technologies within existing and planned market structures*
A. PRICE, B. WOJSZCZYK, Z. STYCZYNSKI, N. HATZIARGYRIOU

SC C6 DISTRIBUTION SYSTEMS AND DISPERSED GENERATION

PS1: Planning and operation of active distribution networks including dispersed generation (DG), storage and demand side integration (DSI)

- C6-101** *Planning and operating experience of the Hydro-Québec smart zone and its role in supporting the evolution of the distribution system*
C. ABBEY, C. PERREAULT
- C6-102** *Reliable active distribution systems planning*
G. CELLI, E. GHIANI, F. PILO, G.G. SOMA
- C6-103** *Performance analysis of distribution networks under high penetration of solar PV*
M.J.E. ALAM, K.M. MUTTAQI, D. SUTANTO, L. ELDER, A. BAITCH
- C6-104** *Improving the portability and exchangeability of model data for smart grids - Real-time simulations - Definition of a common reference model*
T. STRASSER, M. STIFTER, W. HRIBERNIK, E. LAMBERT, P. KOTSAMPOPOULOS, P. CROLLA, C. TORNELLI
- C6-105** *Impact study of electric vehicle (EV) grid integration on low voltage (LV) grids*
Q. WU, A. HEJDE NIELSEN, J. OSTERGAARD, S. TAE CHA, Y. DING
- C6-106** *Wind generation management in the distribution network*
M. BAJOR, R. JANKOWSKI, K. MADAJEWSKI
- C6-107** *Generic model for a smart distribution grid, its evolutionary technical implementation and the energy marketplace of the future*
M. LASKOWSKI, P. BIRKNER, C. REHTANZ
- C6-108** *Advanced technologies of demand side integration by VPPs and through smart metering in households - Experiences from a lighthouse project*
B. FENN, O. HOPP, M. AHNER, B.M. BUCHHOLZ, V. BUEHNER, A. DOSS, N. HESS, M. MARSCHOLLEK, W. WAGNER, Z.A. STYCZYNSKI
- C6-109** *Implementation of a centralised voltage control experiment in presence of distributed generation in ERDF's MV network*
S. GREARD, C. BROLLY, O. DEVAUX, O. CARRÉ
- C6-110** *Smart meters enable synchrophasor applications in distribution grids*
S. SANTOS, A. LLANO, A. ARZUAGA, T. ARZUAGA, L. MARRON, M. ZAMALLOA
- C6-111** *Universal distribution automation management*
Z. JIANG

- C6-112** *Operation system of smart power grid for T&D networks with dispersed generations*
B.N. HA, W. NAMGUNG, S.W. LEE, M.J. JANG, I.Y. SEO
- C6-113** *Experimental verification of advanced voltage control for penetration of PV in distribution system with IT sectionalizing switches*
Y. HAYASHI, N. TAKAHASHI, Y. HANAI, E. KAMIYA, T. WATANABE, H. ISHII
- C6-114** *Control of electricity networks using smart meter data*
L. THOMAS, A. BURCHILL, K. SAMARAKOON, Y. HE, J. WU, J. EKANAYAKE, N. JENKINS
- C6-115** *Combination of energy storage and demand response in the residential sector*
F. ADAMEK
- C6-116** *Communication infrastructure and data management for operating smart distribution systems*
C. BRUNNER, B.M. BUCHHOLZ, I. KAMPHUIS, A. GELFAND, A. NAUMANN, M. NICKEL
- C6-117** *Smart Grid - Demand management as key resource for improvement and social contribution to 2020 strategy*
R. MORA, M. RAMIREZ, E. GARCIA, S. BANARES, P. MARTIN, I. NAVALON

PS2: Integration of electric vehicles (EV) in power systems

- C6-201** *Impact of electric and plug-in hybrid vehicles on grid infrastructure - Results from the merge project*
N. HATZIARGYRIOU, J.A. PEÇAS LOPES, E.T. BOWER, K. STRUNZ, T. GOMEZ, V. LIOLIOU, J. WU, S. PAPANASSIOU, A. GONZALEZ BORDAGARAY, P. CABRAL, C. LLANOS LECUM, A. WALSH, K. KANELLOPOULOS, C. JOYCE, N. HARTMANN, J. O. WILLUMS
- C6-202** *Electric vehicle business models & interoperability platforms*
E. KHOO, J. GALLAGHER
- C6-203** *Challenges and barriers of integrating e-cars into a grid with high amount of renewable generation*
Z. STYCZYNSKI, M. STÖTZER, G. MÜLLER, P. KOMARNICKI, R. BELMANS, J. DRIESEN, A. BOVNHOF HANSEN, J. PECAS LOPES, S.C. VERMA, P.J. MITCHELL
- C6-204** *Polyphase recharge point - Optimized integration of high power EV recharge into the distribution grid*
A. ARZUAGA, T. ARZUAGA, D. GARCIA-PARDO, A. GONZALEZ, E. KELLER, M. ZAMALLOA
- C6-205** *Electric vehicles: The barriers to power system integration*
D. HARDMAN, A. ROTHERAM
- C6-206** *Impact of fully electric vehicle battery charging loads on the load demand of distribution systems*
K. QIAN, C. ZHOU, M. ALLAN, Y. YUAN
- C6-207** *Towards ultrafast charging solutions of electric vehicles*
H. HOIMOJA, S. GRIONI, M. CAPEZZALI, A. RUFER, H.B. PÜTTGEN

PS3: Electricity supply of rural and remote areas including islands

- C6-301** *A road towards autonomous renewable energy supply, RAPS case*
S. GAMBLE, M. PIEKUTOWSKI, R. WILLEMS, M. DAVIES
- C6-302** *Operation of a large scale autonomous hybrid power supply system with renewables*
M. WOLLNY, F. THIM, S. TAPANLIS
- C6-303** *Energy management in the Greek islands*
N. HATZIARGYRIOU, A. DIMEAS, I. VITELLAS, T. PATSAKA, K. KAOUSIAS, A. GIGANTIDOY, S. MAKRINIKAS, N. KORRES, E. HATZOPLAKI
- C6-304** *Use of battery energy storage systems in Islanded grids with wind power - Penetration and Diesel Power plants*
J-P. HASLER, R.A. RIVAS
- C6-305** *Stand alone power systems for remote rural areas*
M. WHALEY, K. PATTIE
- C6-306** *Optimal planning of microgrid applied in remote rural area*
H. LIANG, M. FAN
- C6-307** *Economic assessment of providing primary reserve service with energy storage systems in isolated systems*
E. LOBATO, L. ROUCO, L. SIGRIST

SC D1 MATERIALS AND EMERGING TEST TECHNIQUES

PS1: Dielectric performance and aging of insulation materials

- D1-101** *Prediction of the impulse breakdown voltage of the mineral transformer oil from predischage phenomena*
YU. TORSHIN
- D1-102** *Effects of Irgamet30® in transformer oils*
A. SCHAUT, S. EECKHOUDT
- D1-103** *Production of methanol by insulating paper aging laboratory study*
Y. BERTRAND, C. TRAN-DUY, V. MURIN, A. SCHAUT, S. AUTRU, S. EECKHOUDT

- D1-104** *Effect of severe sandstorms on the performance of polymeric insulators*
B.A. ARAFA, A. NOSSEIR
- D1-105** *Behaviour of Ester liquids under dielectric and thermal stress - From laboratory testing to practical use*
R. FROTSCHER, D. VUKOVIC, M. JOVALEKIC, S. TENBOHLEN, J. HARTHUN, C. PERRIER, Z. WANG, M. SCHÄFER
- D1-106** *Nanoparticle effect on electrical properties of mineral oil based nanofluids*
Y. Z. LV, Y. F. DU, J. Q. ZHOU, X. X. LI, M. T. CHEN, C.R. LI
- D1-107** *M/DBT, new alternative dielectric fluids for transformers*
J. WALKER, N. BERGER, Z.D. WANG, Q. LIU
- D1-108** *Influence of low molecular acids from oxidative and thermal degradation cellulose and insulating oil on total oil acidity*
P. WIKLUND, A. BIVERSTAL, B. PAHLAVANPOUR, J. NUNES
- D1-109** *Improvement of inspection and maintenance procedures of polymeric cable insulation used in nuclear power plants in Japan*
Y. OHKI, N. HIRAI, T. YAMAMOTO, T. MINAKAWA, T. OKAMOTO
- D1-110** *Aging evaluation of insulation materials for environmentally-friendly compact gas-insulated equipment*
H. HAMA, S. OKABE, M. MIYASHITA
- D1-111** *Thermal aging study of cellulosic materials in natural ester liquid for hybrid insulation systems*
J-C. DUART, L.C. BATES, E.W. KEY, R. ASANO JR, L. CHEIM, D.B. CHERRY, C.C. CLAIBORNE

PS2: Test techniques for UHV including HVDC

- D1-201** *Choice of the form of the test switching pulse and amendments on atmospheric conditions for UHV external insulation*
A. LOKHANIN, A. KORYAVIN, O. VOLKOVA
- D1-202** *A procedure for space charge measurements in full-size HVDC extruded cables in order to access the electric field in the insulation wall*
M. MARZINOTTO, G. MAZZANTI
- D1-203** *Investigations on lightning impulses with well-defined overshoots at the ultra high voltage range*
M. HINOW, R. PIETSCH, T. STEINER, W. HAUSCHILD, H. SCHWARZ
- D1-204** *Study of lightning impulse test waveforms for UHV equipment*
S. OKABE, T. TSUBOI, G. UETA, Y. YAMAGATA, E. ZAIMA
- D1-205** *Voltage linearities of scale factor and waveshape parameters of UHV impulse voltage dividers*
Y. LI

PS3: Diagnostic tools

- D1-301** *Ageing management of cables in nuclear power plants*
A. ANANDKURAMAN, H.G. SEDDING
- D1-302** *Practicable expert system for the improved interpretation of dielectric response diagnostic methods of power transformers*
G. CSÉPES, B. NÉMETH, C. VÖRÖS
- D1-303** *Statistical evaluation of dissolved gas analysis (DGA) : normative accepted technique versus photo acoustic spectroscopy (PAS) technique*
M. GRISARU, F. SCATIGGIO, S. DAVID, A. EFRATI
- D1-304** *New tuned medium band UHF PD measurement system for GIS*
S. HOEK, S. NEUHOLD
- D1-305** *Screening of 400 kV and 220 kV power transformers through of DGA*
J. NEJEDLY, H. HALBWIRTH
- D1-306** *Suitability of hamon approximation for dielectric condition assessment on electric power assets with high capacitance*
F. PETZOLD, D. GÖTZ, H. SCHLAPP, H.T. PUTTER, H. OETJEN, N. HAMPTON, J. PERKEL
- D1-307** *Research and application of ultra-wide-band radio frequency methods used for PD location in transformers*
S.S. ZHENG, C.R. LI, Z.G. TANG, W.Z. CHANG, B. ZHOU
- D1-308** *Improvement of defect detection by measurement of the UHF signal transmission inside single phase and three phase encapsulated GIS and transformers*
D. GAUTSCHI, A. GIRODET, G. LUNA
- D1-309** *New procedure to determine insulation condition of high voltage equipment by means of PD measurements in service*
F. GARNACHO, M.A. SANCHEZ-URAN, J. ORTEGO LA MONEDA, E. PUELLES, R. MORENO. D. PRIETO, D. RAMOS
- D1-310** *Identification of insulation defects based on chaotic analysis of partial discharge under DC stress*
I.J. SEO, J.Y. KOO, Y.J. LEE, J.T. KIM, J.H. LEE

- D1-311** *Damage assessment for transformer windings subjected to corrosive oil CuSO₂ exposure using dielectric spectroscopy*
R. MONTES, V.R. GARCIA-COLON
- D1-312** *Near-infrared direct optical techniques for the measurement of water content in oil-paper insulation to avoid oommen's moisture equilibrium curves*
J.H. RODRIGUEZ, F. MARTINEZ-PINON, J.A. ALVAREZ-CHAVEZ
- D1-313** *A case study on FRA capability in the detection of winding defects within a 400MVA transformer*
M. BAGHERI, M. SALAY NADERI, T. BLACKBURN, T. PHUNG
- D1-314** *Statistical approaches for analysis of condition monitoring and failure data in power cables*
C. ZHOU, B. ALKALI, X. PENG, W. ZHOU, J. YU

SC D2 INFORMATION SYSTEMS AND TELECOMMUNICATION

PS1: Distributed information platforms for the power systems of the future

- D2-101** *Development of the information platform of the measurement organization, accumulation, processing and transmission of the data among the power units and control centers*
A.V. DANILIN
- D2-102** *Cyber security: system services for the safeguard of digital substation automation systems*
M. PETRINI, E. CASALE
- D2-103** *Network security for the automated substation*
A. HEMMING, P. DAGGER, C. SLATER
- D2-104** *Cyber threats and solutions to reduce their impact in case of attacks to international interconnections in the European power grid*
A. BABS, J. SWIDERSKI
- D2-105** *Back-up substation control system with multi-communication media support for handling emergency switching during SCADA failure*
P. JINTAGOSONWIT
- D2-106** *ICT Architecture impact on wide area monitoring and control system*
K. ZHU, M. CHENINE, L. NORDSTRÖM
- D2-107** *Cyber attack modelling and security graded approach: key elements when designing security architecture for electric power utilities (EPUs)*
J. ZERBST, L. PIETRE-CAMBACEDES, G. DONDOSSOLA, J. MCDONALD, M. EKSTEDT
- D2-108** *Examples of distributed information platforms constructed by power utilities*
S. KAWASOE, K. TSUGE, Y. IGARASIH, Y. NAGASHIMA, S. NAGASHIMA
- D2-109** *Study and application of smart transmission grid analysis-control system*
X. WANG, Y. LIU, C. DENG, Y. ZHANG, J. GUO
- D2-110** *Application of dispersion technology in distributed information platforms for Japanese electric power systems (EPS)*
F. FUJIKAWA, Y. YAMAZAKI, W. ISHIMORI, S. HAMADA, H. SUGIURA, H. TOYAMA
- D2-111** *An IP based, highly reliable telecommunications framework for advanced smart grid applications*
F. ALVAREZ-CUEVAS FIGUEROLA, L. CORBEIRA GRAELL, J. OVIEDO ENCISO
- D2-112** *Optical network monitoring system of "red eléctrica de Espana"*
I. DIAZ DE TORRES, J.A. GARCIA LOPEZ, R. UBEDA CERVERA
- D2-113** *New architecture for operational information systems*
T. GURELA, J. TAFT
- D2-114** *Innovative architecture for operation information systems of Mexican electricity utility*
I. PARRA, A. ESPINOSA, G. ARROYO, S. GONZALEZ
- D2-115** *Future grid control centres for Indian power system*
N.S. SODHA, A.S. KUSHWAHA, A.K. MISHRA, N. MOHAN
- D2-116** *Information security on chesf's telecommunications platform*
A. TEMPORAL
- D2-117** *Transformation of the telecommunications network - Case chesf*
R. LEAL, F. COELHO, R. LESSA, A. LIRA

PS2: Interconnected information systems to support competitive markets

- D2-201** *Distributed IT architecture for deploying a secure advanced metering infrastructure*
A. TXETXU, A. AITOR
- D2-202** *Applying information systems and telecommunication to develop the services provided by the electricity sector*
M.S. MAHMOUD, S. ALYAMANY

- D2-203** ***Development of ICT (Information and Communication Technology) systems for power system operation and deregulated markets in a smart grid arena***
G.N. ERICSSON
- D2-204** ***Privacy and security issues related to smart meter***
K. GAO, J. LIU, H. LEI
- D2-205** ***From sensor to i-phone: a multi-layer IT architecture for publishing wind generation data***
J-Y. ASTIC, F. DIDIER, V. MARTINOT