INSUCON 2013 PROGRAMME

DAY 1

Opening address
Dr Jeremy Wheeler – Insucon Chairman 08.45 - 09.00

Session 1 – Rotating machines 09:00 – 10:35
Session Chairman: **Dr Greg Stone**

Investigations of ageing of a motorformer cable wound stator
E. Mårtensson, B. Ahlinder and K. Magnusson

A new technique for holistic monitoring of rotating high voltage (HV) machines, combining thermal, electrical, ambient and mechanical (TEAM) stress monitoring
L. Renforth, S. Goodfellow, W. Waugh, D. Clark and R. Shuttleworth

Comparison of 60 Hz and 0.1 Hz overvoltage levels on stator winding insulation
H.G. Sedding, A.J. Brown (Kinectrics Inc., Canada) & J. Stein (EPRI, USA)

Evaluation of rotating machine insulation using SFRA and FDS testing
A. Contin, J. Borghetto, G. Pirovano and A. Piccolo

Automatic repetitive PD inception voltage measurement of motorette sample simulating inverter-fed motor insulation by using repetitive impulse voltage generator
M. Hikita, T. Ueno, Y. Kudo, M. Kozako, H. Ogawa, T. Sakurai, K. Nakayama, T. Yoshimitsu, T. Hirose and S. Hiroshima

Session 2 – High voltage measurements 11:05 – 12:40
Session Chairman: **Prof. Simon Rowland**

Non-destructive insulation condition assessment using rapid spectral measurement methods
G.C. Stevens, H. Herman, P. Baird and W. Mortimore

RF detection of electrical tracking
R. Giussani, I. Cotton and R. Sloan

Condition assessment of cables in nuclear power plants
A. Anandkumaran & H.G. Sedding - Kinectrics Inc.

Withstand voltage of liquid nitrogen in the presence of gas bubbles
S. Fink, W-S. Kim, M. Noe and V. Zwecker

Laser ablation of cryogenic dielectrics
L.H. Truong and P.L. Lewin

Session 3 – Partial discharge measurements 13:40 – 15:45

Session Chairman: **Prof. Martin Judd**

Keynote Paper **by Prof. P Lewin, University of Southampton**
The state of the art of condition monitoring: where do we go from here?
P. Lewin, S. Rowland, V. Catterson, C. Johnston, C. Walton, J. Steele-Davies

De-noising approaches for partial discharge measurements – a comparison of methods and their practical application
A. Kraetge, S. Hoek, R. Hummel, M. Krüger, O. Kessler, C. Enk and D. Brazier

Normalizing partial discharge data from large high voltage motors
A. Vouk, R.W.Carlson and H.A.Balfagih

Motor coil design for electric aircraft
J. Moeneclaey, S. Duchesne, D. Roger and P.Y. Liegeois

Partial discharge measurements in magnet wires using impulsive voltages
L. Fornasari, W. Chen, G.C. Montanari, G. Gao

Electrical degradation of polymeric films for photovoltaic devices caused by partial discharge phenomenon
R. Tang; J.J. Liggat and W.H. Siew

Session 4 – Material processing & characterisation 16:15 – 17:50

Session Chairman: **Prof. Gary Stevens**

Life cycle assessment of a 72.5 kV SF_6-free live tank circuit breaker
Y. Kieffel, A. Spinosa and A. Girodet

Thermal conductivity of aramid and cellulose papers in liquid-immersed insulation systems
R. Szewczyk, J-C. Duart, R. Marek and E. Key

Nanocomposite electrical insulation material development for HVDC applications
J.G.C. Samuel, M. Fu, F. Perrot, G. Stevens, A. Pye, A. Vaughan, P. Baker, J. Cooper, G. Tzemis, D. Walker, A. Robertson

Traditional and new epoxy systems for vacuum pressure impregnation of electrical machines
C. Beisele, D. Bär and S. Colliard

Adhesion of enamel films on aluminium wires
K. Lienert

DAY 2

Session 5 – Transformer insulation 08:45 – 10:25

Session Chairman: **Dr Alan Wilson**

An updated review of paper ageing in power transformers
H. Ding, R. Heywood, J. Lapworth, S. Ryder and A. Wilson

Field experience and diagnostic assessment of power transformers by recovery voltage method
C. Viswanatha and T.R. Afzal Ahamed

Frequency response interpretation of a delta winding in transformer bulk in low- and mid-frequency ranges
T.M.T. Pham, D.A.K. Pham, A. Kazemi, H. Borsi, E. Gockenbach

Depolarization behaviour of oil and oil-impregnated paper
R. Wiengarten, F. Jenau, B. Bakija and D. Breitfelder

The voltage and current characteristics at the first instant of breakdown in transformer oil under A.C. voltage
S. Abdi, A. Boubakeur, N. Harid and A. Haddad

Session 6 – Rotating machines 10:55 – 12:35

Session Chairman: **Dr Howard Sedding**

25 years experience with on-line partial discharge testing of stator windings
G.C. Stone and M. Sasic

Interpretation of tan delta test results on complete VPI stator windings of electric motors 6.6kV-13.8kV.
D. Steenkamp

Qualification of a medium voltage flexible stator coil insulation system for on-site rewinding
S.Ul Haq, R. Omranipour and G. Hanna

New type of PD-resistant enamelled wire
G. Paulsson

Void content evaluation in insulation of rotating machines using X-ray tomography
A. Contin, G. Schena, G.L. Stanic and G. Peruzzi

Session 7 – Cables insulation 13:35 – 15:35

Session Chairman: **Dr Ross Mackinlay**

Method for on-site testing of high voltage cables using continuous AC voltages
M. Jochim

Calculating the thermal impact of cable crossings
Z. Huang, J. A. Pilgrim P. L. Lewin, F. Waite and D. Payne

Effect of thermal ageing on the properties of XLPE as an insulating material for HV cables
Y. Mecheri, S. Bouazabia, A. Boubakeur and M. Lallouani

New recyclable power cable insulation materials based upon polyolefin blends
A.S. Vaughan, G.C. Stevens, I. Hosier, A. Pye, C. Green, S. Sutton and J. Cooper

Influence of cross-linking process and by-products on space charge build-up in materials for HVDC cable insulation
T. Tran Anh, F. Roig, P. Notingher, J-P. Habas, V. Lapinte, S. Agnel, J. Castellon, A. Allais and L. Kebbabi

HVDC cables during a long-term ageing programme
C. Green, J. Fothergill, S. Dodd, M. Fu, F. Perrot, J. Castellon, P. Mirebeau, D. Dubois, L. Boyer, H. Tanaka and H. Niinobe.

Session 8 – High voltage measurements 16:05 – 17:45

Session Chairman: **Prof. Manu Haddad**

Potential distribution measurement on the stress grading system of high voltage rotating machines with high temporal resolution by Pockels sensor
A. Kumada, Y. Kiuchi, H. Ikeda, K. Hidaka, Y. Tsuboi, S. Yamada, and T. Yoshimitsu

A new insulation paper with high corona resistance for inverter driven motors
S.S.W. Lee, B. Sam Kang and J-C. Duart

On-line PD (Partial Discharge) testing of some of the worst performing circuits on a utility distribution system
D. Clark, R. Mackinlay, M. Seltzer-Grant, S. Goodfellow, L. Renforth, J. McWilliam and R. Shuttleworth

Improvement of VFTO measuring technique for disconnector bus transfer charging tests
S. Fifi, Th. Berteloot, A. Girodet and P. Vinson

Dielectric Behaviour of Different Vapour Shield in Vacuum
T. Psotta

DAY 3

Session 9 – Outdoor Insulation 08:45 – 10:25

Session Chairman: **Dr Jeremy Wheeler**

Partial discharge of water droplets on polymeric insulating surfaces
M.H. Nazemi and V. Hinrichsen

Enhanced solid-layer tests for polymeric outdoor insulators
RT Waters, M Albano, P Charalampidis, H Griffiths, A Haddad

Superior outdoor performance of indoor epoxy coated with RTV silicone coatings
S. Tzavalas, A. Michalik, H.D. Le and P. Mahonen

Design and testing of a 400 kV insulating cross-arm
C. Zachariades, V. Peesapati, I. Cotton, S.M. Rowland and D. Chambers

New paper-free insulation technology for a dry high voltage condenser bushing
U. Krüsi, A. Dais, Z. Zic and D. Egger

Session 10 – Ester dielectric fluids 10:55 – 12:40

Session Chairman: **Prof. Zhongdong Wang**

Transformer design and natural ester fluids
K.J. Rapp and J. Luksich

Application of ester liquids in power transformers
Z.D. Wang, Q. Liu, X. Yi, X. Wang, F. Perrot, C. Perrier , P. Dyer, P. Jarman, G. Wilson, D. Walker, R. Martin and J. Noakhes

Study on cellulosic insulation impregnated with mineral and ester oils: Creeping discharges (AC, DC, LI) and ageing stability
M-L. Coulibaly, C. Perrier and M. Marugan

Impact of sulphur in oil on the insulation system of large power transformers in service
C. Viswanatha, J. Sundara Rajan and G.R. Viswanath

Influence of cellulosic particles on lightning impulse breakdown voltages of ester transformer liquids in a uniform Field
W. Lu, Q. Liu and Z.D. Wang