

# Studienkomitee D1

## Materials and Emerging Test Techniques

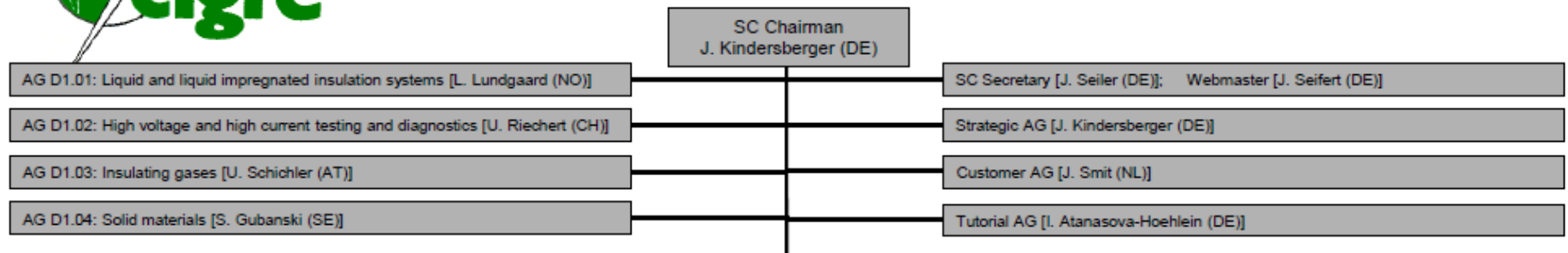
Christof Sumereder

Institut für Hochspannungstechnik und  
Systemmanagement

Technische Universität Graz



# SC D1 – Organisation chart



Liquid & impregnated systems	Testing & Diagnostics	Testing & Diagnostics	Gases	Solids
WG D1.29 [J. Fuhr (CH)/2009-12] Partial discharges in transformers	WG D1.36 [U. Riechert (CH)/2010-08] Special requirements for dielectric testing of UHV equipment	WG D1.50 [J. Rickmann (US)/2012-04] Atmospheric and altitude correction factors for air gaps and clean insulators	WG D1.25 [Schichler (DE)/2008-09] Application guide for pd detection in GIS using UHF or acoustic methods	WG D1.43 [A. Cavallini (IT)/2010-12] Rotating machine insulation voltage endurance under fast repetitive voltage transients
WG D1.31 [Lundgaard (NO)/2009-12] Dielectric performance of insulating liquids for transformers	WG D1.37 [E. Gulski (NL)/2010-05] Maintenance and evaluation of measuring procedures for conventional and unconventional PD testing	WG D1.54 [B. Dardel (CH)/2013-01] Principles and methods to measure the AC and DC resistance of conductors of cables and overhead lines	WG D1.51 [Hama (JP)/2012-10] Dielectric performance of eco-friendly gas insulated systems	WG D1.48 [E. Ildstad (NO)/2012-01] Properties of insulating materials under VLF voltages
JWG D1/A2.47 [Duval (CA)/2011-08] New frontiers of DGA interpretation for power transformers and their accessories	WG D1.38 [M. Noe (DE)/2010-05] Emerging test techniques common to High Temperature Superconducting power applications	WG D1.55 [M. Muhr (AT)/2013-02] Partial discharge detection under DC stress	JWG D1/B3.57 [C. Neumann (DE)/2013-12] Dielectric Testing of Gas-insulated HVDC Systems	JWG D1/B1.49 [Mattmann (CH)/2012-04] Harmonized test for the measurement of residual inflammable gases in insulating materials by gas chromat.
WG D1.52 [I. Hoehlein (DE)/2012-10] Moisture measurement in insulating fluids and transformer insulation – An evaluation of solid state sensors ...	WG D1.39 [P. Morshuis (NL)/2010-05] Methods for diagnostic/failure data collection and analysis	WG D1.60 [Y. Li (AU)/2014-xx] <i>Traceable measurement techniques for very fast transients in foundation</i>	Solids	WG D1.56 [Hinrichsen (DE)/2013-03] Field grading in electrical Insulation systems
WG D1.53 [Lundgaard (DE)/2012-10] Ageing of upgraded cellulose and cellulose impregnated in ester liquids and other liquids (Revision of TB 323)	WG D1.44 [I. Gutman (SE)/2011-10] Testing of naturally polluted insulators		WG D1.40 [Fréchette (CA)/2010-11] Functional nanomaterials for electric power industry	WG D1.58 [J. Seifert (DE)/2014-01] Evaluation of dynamic hydrophobicity of polymeric insulating materials under AC and DC voltage stress
JWG A2/D1.41 [Küchler (DE)/10-03] HVDC transformer polarity reversal: Role of oil conductivity	WG D1.45 [A. Pigni (IT)/2011-10] Testing of insulator performance under heavy rain		WG D1.42 [Okamoto (JP)/2010-08] Radiation ageing of polymeric insulating material	WG D1.59 [J. Seifert (DE)/2014-01] Methods for dielectric characterisation of polymeric insulating materials for outdoor applications
JWG A2/D1.46 [Mertens (BE)/11-08] Field experience with transformer solid insulating ageing markers				
JWG A2/D1.51 [Coenen (DE)/14-02] Improvement to PD Measurements for Factory and Site Acceptance Tests of Power Transformers				

WG under D1 resp. JWG under D1 resp. JWG not under D1

SC D1 Meeting, Paris (FR), August 26, 2014

# D1 Session 2014

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- Special Reporters: S. Gubanski and U. Schichler
- PS 1: Electrical Insulation Systems under DC Voltage
  - ◆ Papers: 4 Prepared contributions: 8 Spontaneous contributions and questions: 10
- PS 2: Emerging Test Techniques and Diagnostic Tools
  - ◆ Papers: 17 Prepared contributions: 19 Spontaneous contributions and questions: 34
- PS 3: Properties and Potential Applications of New Materials
  - ◆ Papers: 9 Prepared contributions: 9 Spontaneous contributions and questions: 21

# Cigre TC Award 2014

- The Technical Committee Award is granted by the TC Chairman in recognition for outstanding participation in the activities of the technical work of the Study committees

A1 Rotating Electrical Machines	William G. MOORE	US
A2 Transformers	Angelica ROCHA	BR
A3 High Voltage Equipment	Anne BOSMA	SE
B1 Insulated Cables	Johan KARLSTRAND	SE
B2 Overhead lines	Herbert LUGSCHITZ	AT
B3 Substations	Toly MESSINGER	CA
B4 HVDC and Power Electronic	Nigel SHORE	GB
B5 Protection and Automation	Zoran GAJIC	SE
C1 System Development and Economics	David ALVIRA	ES
C2 System Operation and Control	Thales PAPAZOGLU	GR
C3 System Environmental Performance	Hector PEARSON	GB
C4 System Technical Performance	Wah Hoon SIEW	GB
C5 Electricity Markets and Regulation	Francois REGAIRAZ	FR
C6 Distribution Systems and Dispersed Generation	Tsutomu OYAMA	JP
D1 Materials and Emerging Test Techniques	Uwe SCHICHLER	AT
D2 Information Systems and Telecommunications	Jens ZERBST	SE

# Technical Brochures, published

No.	Title	Published
593	Past, present and future of IEC and IEEE high-voltage and high current testing standards	08-2014
571	Optimized gas-insulated systems by advanced insulation techniques	04-2014
526	Oxidation stability of insulating fluids	02-2013
525	Risk assessment on defects in GIS based on PD diagnostics	02-2013
520	Material properties of solid HVDC insulation systems	12-2012
519	Very Fast Transient Overvoltages (VFTO) in gas-insulated substations	12-2012
506	Gas insulated systems for HVDC: DC stress at DC and AC systems	08-2012
502	High-voltage on-site testing with partial discharge measurement	06-2012
501	Basic principles to determine methane content in cross-linked in solid extruded insulation of MV and HV cables	06-2012

# Technical Brochures

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	<b>Title</b>	<b>Status</b>
	Condition assessment for self-contained oil-impregnated insulation used in AC cables	Final processing by SC
	Fingerprinting of polymeric insulating materials for outdoor use	Final processing by SC
	Feasibility study for a DC Tracking & Erosion test	Final processing by SC
	Diagnostics and accelerated life endurance testing of polymeric materials for HVDC application	Final processing by SC

# D1 Tutorials 2014

- **B1/D1, December 10th, Vienna**
  - Testing, Diagnosis and Monitoring on Electric Transmission Systems

Time	Topic / prov. title	Proposed Speaker
9:00	Welcome	G. Christiner (Austrian Power Grid, Vienna, AT)
9:15	Trends in HV, UHV and EHV Cables and Resulting Requirements for Testing and Diagnosis	R. Plath (Technical University Berlin, DE)
10:00	Tutorial On site Partial Discharges Detection (former WG B1.28)	M. Fenger (Prysmian, Toronto, CA)
10:45	Coffee Break	
11:00	Overhead Line Insulators	J. Seifert (Lapp Insulators, Wunsiedel, DE)
11:45	Analysis of Failure Data	P. Morshuis (Technical University, Delft, NL)
12:30	Lunch	
14:00	Technical Visit APG Control Center	

asil  
UHV)



# SC D1 Colloquium 2015

## Rio de Janeiro, September 13th-18th

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### Trends in Technology, Materials, Testing and Diagnostics Applied to Electric Power Equipment

- **PS1: Materials and electrical insulation systems (AC and DC)**
  - Compact insulation systems
  - Ageing and long-term performance
- **PS2: Emerging test and diagnostic techniques**
  - UHV testing and measuring techniques
  - Offshore and subsea application (high pressure, corrosion)
  - Online and offline data monitoring and interpretation
- **PS3: New insulating materials and testing methods for cables (AC and DC)**
  - Progress in insulating materials for HV and EHV cables
  - Experience with new testing methods for HV and EHV cables
  - New materials for improving fire resistance of cables



# Session 2016

## Preferential Subjects

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- PS1 / Compact Insulation Systems (AC and DC)
  - High field strength phenomena.
  - Field grading.
  - Ageing and long-term performance.
- PS2 / New materials
  - Nanocomposites.
  - Eco-friendly materials.
- PS3 / Non-standardised stresses and emerging test techniques
  - Offshore and subsea application (high pressure, corrosion, etc.).
  - Advanced diagnostic techniques.
  - Impact of non-standardised stresses on materials.