

# **2016 Conference on Diagnostics in Electrical Engineering (Dagnostika 2016)**

**Pilsen, Czech Republic  
6 – 8 September 2016**



**IEEE Catalog Number: CFP16G84-POD  
ISBN: 978-1-5090-6180-8**

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\*This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP16G84-POD
ISBN (Print-On-Demand):	978-1-5090-6180-8
ISBN (Online):	978-1-5090-6179-2

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

## List of Contents

<b><i>Diagnostic of Asynchronous motor using SFRA method.....</i></b>	<b>7</b>
M. Brandt, M. Gutten, S. Kaščák University of Žilina, Slovak Republic	
<b><i>The evaluation of the condition of high-voltage system with using accelerated voltage time tests and design of main wall insulation thickness for stator bar of generator stator winding.....</i></b>	<b>11</b>
J. Bezděkovský, P. Krupauer, B. Páslavský BRUSH SEM s.r.o., Czech Republic	
<b><i>Laboratory measurement results of a spatially-resolved diagnostic method for power cables using travelling waves.....</i></b>	<b>15</b>
E. Fischer, Ch. Weindl Coburg University of Applied Sciences and Arts, Germany	
<b><i>Continuous condition monitoring of high voltage transformers by direct sensor monitoring of oil aging for a stable power network.....</i></b>	<b>19</b>
M. Mauntz, J. Peuser cmc Instruments GmbH, Germany	
<b><i>Developments in UHF PD Monitoring system for switchgear and transformer.....</i></b>	<b>23</b>
J. Lee, H. Kwon, J. Choi, S. W. Park, Y. Kim LSIS Co., Ltd., Republic of Korea	
<b><i>Detection of Faults in Rotor-Windings of Turbogenerators.....</i></b>	<b>27</b>
Ch. Staubach, S. Krane Siemens AG, Germany	
<b><i>Monitoring and diagnosis of electrical equipment using a web software. Health index and remaining lifetime estimation.....</i></b>	<b>31</b>
G. Tanasescu <sup>1</sup> , B. Gorgan <sup>1</sup> , S. Busoi <sup>1</sup> , A. Badita <sup>1</sup> , P. V. Notingher <sup>2</sup> <sup>1</sup> SC SIMTECH INTERNATIONAL Ltd., Romania, <sup>2</sup> University Polytechnica of Bucharest, Romania	
<b><i>Monitoring and Diagnostic System of Power Plant Electrical Equipment.....</i></b>	<b>35</b>
O. Mareček TES s.r.o., Czech Republic	
<b><i>A new method of measuring capacitance current in non-effective grounding power system.....</i></b>	<b>N/A</b>
J. Nan, L. Sui-chao, W. Lu, S. Yue, Z. Hai-long, W. Ling Xi'an High Voltage Apparatus Research Institute Co., Ltd., China	
<b><i>Modelling of dielectric processes in oil-paper insulation for replacement of Return Voltage Measurement.....</i></b>	<b>43</b>
Á. Szirmai, Z. Á. Tamus Budapest University of Technology and Economics, Hungary	
<b><i>Effect of dioctyl phthalate (DOP) plasticizing agent on the dielectric properties of PVC insulation.....</i></b>	<b>47</b>
A. Nagy, Z. Á. Tamus Budapest University of Technology and Economics, Hungary	
<b><i>Natural Ester – Moisture and Acidity Issue.....</i></b>	<b>51</b>
A. Čejková, P. Trnka, V. Mentlík University of West Bohemia, Czech Republic	

<b><i>Complex dielectric constant of various insulating fluids.....</i></b>	<b>55</b>
Z. Tóth, R. Cselkó Budapest University of Technology and Economics, Hungary	
<b><i>Testing of high voltage cable lines by damped ac technique – a case study.....</i></b>	<b>59</b>
R. Egyed <sup>1</sup> , Z. Á. Tamus <sup>2</sup> , G. M. Csányi <sup>2</sup> , T. Iváncsy <sup>2</sup> <sup>1</sup> Omexom Magyarország Kft. Hungary, <sup>2</sup> Budapest University of Technology and Economics, Hungary	
<b><i>Fractal Simulation of Breakdown in Oil Impregnated Paper at Pulsating DC Voltage.....</i></b>	<b>63</b>
L. Bao <sup>1,2</sup> , J. Li <sup>1</sup> , J. Zhang <sup>1</sup> , F. Wang <sup>1</sup> , Z. Huang <sup>1</sup> <sup>1</sup> Chongqing University, China, <sup>2</sup> Electric Power Research Institute, China	
<b><i>Temperature dependence of electrical parameters of coaxial cables.....</i></b>	<b>67</b>
Z. Konečná Czech Technical University in Prague, Czech Republic	
<b><i>Medium Voltage Equipment Diagnostics.....</i></b>	<b>71</b>
T. Bokor, B. Németh, G. Göcsei Budapest University of Technology and Economics, Hungary	
<b><i>Investigation of dielectric properties of cable insulation by the extended voltage response method.....</i></b>	<b>75</b>
G. M. Csányi, Z. Á. Tamus, T. Iváncsy Budapest University of Technology and Economics, Hungary	
<b><i>High frequency high voltage probe embedded into an extremely low inductivity high voltage supply connection.....</i></b>	<b>79</b>
D. Kettel, M. Hirsch, M. Malek University of Duisburg-Essen, Germany	
<b><i>A special risk during live-line maintenance.....</i></b>	<b>83</b>
B. G. Halász, B. Németh, G. Göcsei Budapest University of Technology and Economics, Hungary	
<b><i>Determining the influence of air gap during inspection of the rotor insulation of a synchronous machine in operation.....</i></b>	<b>87</b>
J. Lábadi I. SERVIS-ENERGO, s.r.o., Czech Republic	
<b><i>Study of Die Attachment on DBC substrates.....</i></b>	<b>91</b>
A. Pietrikova, T. Girasek, J. Durisin, K. Saksl, M. Durisin, L. Livovsky Technical University of Kosice, Slovak Republic	
<b><i>Possibilities of Modification of Polymer/SiO<sub>2</sub> Composite by Various Types of Carrier.....</i></b>	<b>95</b>
J. Hornak, L. Harvanek, P. Trnka, V. Mentlik University of West Bohemia, Czech Republic	
<b><i>Photovoltaic power plants contribution to the flicker level in the medium voltage energy network. Case study.....</i></b>	<b>99</b>
G. Tanasescu <sup>1</sup> , S. Busoi <sup>1</sup> , B. Gorgan <sup>1</sup> , P. V. Notingher <sup>2</sup> <sup>1</sup> SC SIMTECH INTERNATIONAL Ltd., Romania, <sup>2</sup> University Polytechnica of Bucharest, Romania	

<b><i>Usage of Sampling Inspection as a Tool for Quality Assurance.....</i></b>	<b>103</b>
P. Netolický, L. Kupka, O. Tůmová University of West Bohemia, Czech Republic	
<b><i>Noise measurement of power transformer.....</i></b>	<b>107</b>
M. Sýkora, M. Schlosser University of West Bohemia, Czech Republic	
<b><i>Simulation Model of Flashover Process on Insulator String Exposed to the Impulse Voltages.....</i></b>	<b>111</b>
R. Prochazka Czech Technical University in Prague, Czech Republic	
<b><i>Diagnostic System for Off-Line Diagnosis of MV Cables.....</i></b>	<b>115</b>
T. Scharrer, F. Epplein, Ch. Weindl Coburg University of Applied Sciences and Arts, Germany	
<b><i>Insulation Evaluation of Capacitive Equipment by Power Loss Density.....</i></b>	<b>119</b>
L. Du <sup>1</sup> , L. Ran <sup>1</sup> , J. Li <sup>1</sup> , F. Wang <sup>1</sup> , H. Jiang <sup>2</sup> , F. Yang <sup>1</sup> , D. Wang <sup>1</sup> <sup>1</sup> Chongqing University, <sup>2</sup> Guizhou Electrical Company Duyun Power Supply Branch Company, China	
<b><i>Reaction Mechanism of Transformer Oil Pyrolysis Based on TG-DSC and Molecular Simulation.....</i></b>	<b>123</b>
L. Du <sup>1</sup> , W. Wang <sup>1</sup> , Ch. Wei <sup>2</sup> , W. Chen <sup>1</sup> , Z. Huang <sup>1</sup> <sup>1</sup> Chongqing University, <sup>2</sup> Jiangsu Electric Power Research Institute, China	
<b><i>Analysis of Short-Circuit Effects on Transformer state by Frequency Method.....</i></b>	<b>127</b>
M. Gutten, R. Janura, M. Brandt University of Žilina, Slovak Republik	
<b><i>Ageing of Used Composite Insulation Systems under Different Voltage Stress.....</i></b>	<b>131</b>
P. Totzauer, J. Hornak, P. Trnka University of West Bohemia, Czech Republic	
<b><i>On the need for development of the highly stable source of digitally synthesized AC voltage with increased bandwidth for metrology and diagnostic applications.....</i></b>	<b>134</b>
M. Kampik <sup>1</sup> , M. Kurczalski <sup>1</sup> , M. Grzenik <sup>1</sup> , T. Lippert <sup>2</sup> , A. Christensen <sup>2</sup> <sup>1</sup> Silesian University of Technology, Poland, <sup>2</sup> Trescal A/S, Denmark	
<b><i>Porous Tapes for VPI Insulation Systems of High Voltage Stator Windings of Large Rotating Electrical Machines Based on the Mica Paper with a Large Surface Weight.....</i></b>	<b>138</b>
Z. Bezděk Cogebi a.s. Tábor, Czech Republic	
<b><i>Nonlinear distortion of C/V characteristic –useful tool for diagnostics of electrically conductive adhesives: theoretical background, measuring equipment, selected applications</i></b>	<b>142</b>
S. Barto, P. Mach Czech Technical University in Prague, Czech Republic	
<b><i>Analysis on Quality of Diagnostic Processes in Power Electrical Engineering using Combined Methods of Lead Six Sigma and Fuzzy Approaches.....</i></b>	<b>146</b>
L. Tarba, P. Mach Czech Technical University in Prague, Czech Republic	

<b><i>Dielectric Properties of Fluid Systems with Dispersed Nanoparticles.....</i></b>	<b>150</b>
J. Ulrych, V. Mentlík University of West Bohemia, Czech Republic	
<b><i>New Complex Nanocomposite DGEBA.....</i></b>	<b>154</b>
L. Harvánek, V. Mentlík University of West Bohemia, Czech Republic	
<b><i>Permittivity Determination of Composite Materials Based on a 3D Electric Field Model.....</i></b>	<b>158</b>
R. Hamar, P. Trnka University of West Bohemia, Czech Republic	