

2009 Power Systems Conference

(PSC 2009)

Clemson, South Carolina, USA
10 – 13 March 2009



IEEE Catalog Number: CFP0919A-PRT
ISBN: 978-1-4244-5248-4

TABLE OF CONTENTS

SESSION 1: SYNCHROPHASORS FUNCTIONALITY AND APPLICATIONS

Synchro-Phasor Based Voltage and Var Management.....	1
<i>Anthony Johnson</i>	
Testing Phasor Measurement Units	8
<i>Alexander Apostolov, F. Steinhauser, T. Schosssig</i>	
Design and Implementation of an Industrial Facility Islanding & Load Shed System.....	13
<i>Mark Adamiak, Bernard Cable, Michael Schiefen, Gary Schauerman</i>	
Phasor Measurement Units: Functionality and Applications	24
<i>Damien Tholomier, H. Kang, B. Cvorovic</i>	
Meeting NERC Requirements for Oscillography and Disturbance Monitoring by Collecting Data from Relays	36
<i>Charles Jones, Declan Smith, Jim Schnegg</i>	

SESSION 2: IEC 61850 ARCHITECTURE AND APPLICATIONS

An Optimized Architecture for IEC 61850 Process Bus.....	45
<i>Mark Adamiak, Bogdan Kasztenny, David McGinn</i>	
IEC 61850 Process Bus Solution Addressing Business Needs of Today's Utilities	56
<i>Rich Hunt, Bogdan Kasztenny, Steve Hodder, David McGinn</i>	
Modeling Systems with Distributed Generators in IEC 61850	77
<i>Alexander Apostolov</i>	
Relay Parameterization Made Easy with a Universal XML Interface	83
<i>Brent Duncan</i>	

SESSION 3: LINE PROTECTION

Detection of Incipient Faults in Underground Medium Voltage Cables	90
<i>Bogdan Kasztenny, Ilia Voloh, Christopher Jones</i>	
Secure Data Communication for Line Differential Relays.....	102
<i>Norbert Schsuter, Arnd Stroecker, Juergen Holbach</i>	
Tests of Distance Relay Performance on Stable and Unstable Power Swings Reported Using Simulated Data of the August 14, 2003 System Disturbance.....	108
<i>Laurie Martuscello, Edward Krizauskas, Juergen Holbach, Yuchen Lu</i>	
Adaptive Protecting of Transmission Lines.....	129
<i>D. Paraiso, Damien Tholomier, Alexander Apostolov</i>	
Updated Transmission Line Protection Communications.....	143
<i>Roy Moxley, Ken Fodero, Hector Altuve</i>	

SESSION 4: GENERATOR AND BUS PROTECTION

Report on Design, Testing and Commissioning of 100% Stator Ground Fault Protection at Dominion Energy Bath County Pumped-Storage Station.....	151
<i>John Kandrac, Richard Preston</i>	
Comparison Between High Impedance and Low Impedance Bus Differential Protection.....	164
<i>Juergen Holbach</i>	
Protection Requirements for a Large Scale Wind Park.....	180
<i>Shyam Musunuri</i>	
Protection of Distributed Generators Interconnection.....	199
<i>Damien Tholomier, T. Yip, G. Lloyd</i>	
Analysis of Capacitive Voltage Transformer Transients with Wind Farm Integration	214
<i>Viraj Pradeep Mahadanaarachchi, Rama Ramakumar</i>	

SESSION 5: DISTRIBUTION SYSTEMS PROTECTION AND POWER QUALITY

Effects of Wide-Area Control on the Protection and Operation of Distribution Networks.....	222
<i>Will Allen</i>	
Distribution Automation Help Revitalize Community	232
<i>Ernie Gorrell, James Niemira, Eli Nelson</i>	
Distribution Single-Phase Tripping and Reclosing: Overcoming Obstacles with Programmable Recloser Controls.....	238
<i>Robert Cheney, John Thorne, Greg Hataway</i>	
Dispersed Generation Impact on Distribution Network Expansion Planning.....	248
<i>Mohammed El-Sayed, Ahmed A. Arram</i>	

SESSION 6: THE SMART GRID

Innovation and Trends for Future Electric Power Systems	253
<i>Thomas Garrity</i>	
A Smarter Greener Power Grid	261
<i>Kenneth Geisler</i>	
Add Trip Security to Arc Flash Detection for Safety and Reliability.....	264
<i>Mark Zeller, Gary Scheer</i>	
Review of Available Transmission Capability (ATC) Calculation Methods.....	272
<i>Manish Patel, Adly A. Girgis</i>	
Fast Prediction of the Power-Swing Curve Across Transmission Lines During Wide Area Disturbance	281
<i>Tom Baldwin, M. A. Danku</i>	
Author Index	