

75th Annual Georgia Tech Protective Relaying Conference

May 4-6, 2022 - Georgia Tech Hotel and Conference Center, Atlanta, GA

Tuesday May 3, 2022	
4:30 - 6:30 PM EST	Registration - Salon 1-2-3-4-5-6
5:00 - 9:00 PM EST	Vendor Exhibits Open

Wednesday May 4, 2022	
Session WA-0 Salon 1-2-3-4-5-6	Session Moderator: Steven Kunsman , Hitachi ABB Power Grids Backup: Stephen Ladd , Duke Energy
7:00 AM EST	Registration
7:50 - 8:00 AM EST	<i>Conference Opening - Welcoming Remarks</i> Sakis Meliopoulos Professor, School of Electrical and Computer Engineering
8:00 - 8:35 AM EST WA-0-P1	<i>Specification and Modeling of Fault Current Injection from Inverter Based Resources</i> Manish Patel , Southern Company Services
8:35 - 9:10 AM EST WA-0-P2	<i>Analysis of a Transformer Fault and Misoperation of an Adjacent Line Relay</i> Joshua Hughes , Patterson Power Engineers Seth Barnes, Matt Schebler, Tim Condra , Tennessee Valley Authority
9:10 - 9:25 AM EST	Break

Wednesday May 4, 2022			
Session WA-1 Salon 4-5-6	Session Moderator: Chris Jones , Southern Company Backup: Russ Evans , Dominion Energy	Session WA-2 Salon 1-2-3	Session Moderator: Murty Yalla , Beckwith Electric Company Backup: Bridget Coffman , Santee Cooper
9:25 - 10:00 AM EST WA-1-P1	<i>Coordination of Resistive Reach of Phase and Ground Distance Elements</i> Charles Henville , Henville Consulting Inc. Ritwik Chowdhury , Schweitzer Engineering Laboratories, Inc.	9:25 - 10:00 AM EST WA-2-P1	<i>Reviewing the New IEEE C37.250 Guide for Engineering, Implementation, and Management of SIPS</i> Gene Henneberg , IEEE Power System Relaying and Control Committee
10:05 - 10:40 AM EST WA-1-P2	<i>Transmission Line Falling Conductor Protection System Development at SDG&E</i> Tariq Rahman , San Diego Gas & Electric Company Eric Udren , Bahman Koosha, Quanta Technology LLC	10:05 - 10:40 AM EST WA-2-P2	<i>Analysis of Fundamental Differences in Transformer 87T Differential Protection</i> Mike Kockott, Zoran Gajić, Sergiu Paduraru, Galina Antonova Hitachi ABB Power Grids
10:45 - 11:20 AM EST WA-1-P3	<i>Line Length and Fault Distance Considerations in Traveling-Wave Protection and Fault-Locating Applications</i> Bogdan Kasztenny, Venkat Mynam Schweitzer Engineering Laboratories, Inc.	10:45 - 11:20 AM EST WA-2-P3	<i>Bus Differential Protection Upgrade for a 1,500 MVA Nuclear Power Plant With Atypical Connections</i> Ritwik Chowdhury, Carolyn Sun, Ahmed Abd-Elkader, Bernard Matta, Tim George Paul Schweitzer Engineering Laboratories, Inc. Ronald Cole, Richard Tuck , Dominion Energy Thomas Solinsky, Zachry Nuclear
11:25 - 12:00 PM EST WA-1-P4	<i>Compensation of Impedance Measurement Error Due to Arcing</i> Joerg Blumschein, Cezary Dzienis , Siemens Industry	11:25 - 12:00 PM EST WA-2-P4	<i>Transformer Overload Protection using Wireless Communications</i> Michael Jensen , Pacific Gas & Electric Company Galina Antonova, Fionan Burke , Hitachi ABB Power Grids
12:00 - 1:15 PM EST	Lunch - On Your Own	12:00 - 1:15 PM EST	Lunch - On Your Own

Session WP-1 Salon 4-5-6	Session Moderator: Bruce Mackie , Nashville Electric Service Backup: Mike Collum , Schweitzer Engineering Laboratories	Session WP-2 Salon 1-2-3	Session Moderator: Philip VanSant , Dominion Energy Backup: Craig Wester , GE Grid Solutions
1:15 - 1:50 PM EST WP-1-P1	<i>Modeling and Investigating Short-Circuit Strength with Increased Renewables</i> Zejia Jing , Virginia Tech Jiecheng Zhao, Michael Thomas , Dominion Energy	1:15 - 1:50 PM EST WP-2-P1	<i>Sustainable Design of Protection and Control Systems</i> Rich Hunt, Eric Udren , Quanta Technology LLC
1:55 - 2:30 PM EST WP-1-P2	<i>Accelerated Protection Schemes for Systems with High Penetration of Distributed Energy Resources</i> Alexander Apostolov , OMICRON electronics Stuart Borlase , ESTA International	1:55 - 2:30 PM EST WP-2-P2	<i>The Copper Diet - Recipes to Promote Standardization, Centralization and Redundancy in a Digital Substation World</i> Wayne Hartmann , GE Grid Solutions
2:35 - 3:10 PM EST WP-1-P3	<i>Protection System Design for Practical Microgrids - A Case Study</i> Yujie Yin, Dorin Patroiu, Hasan Bayat, Nathan Dunn GE Grid Solutions	2:35 - 3:10 PM EST WP-2-P3	<i>Review of Digital Substation Communication Technologies</i> Galina Antonova, Shashi Sastry, Bharadwaj Vasudevan Hitachi ABB Power Grids
3:10 - 3:40 PM EST	Break	3:10 - 3:40 PM EST	Break
3:40 - 4:15 PM EST WP-1-P4	<i>Distance Elements for Line Protection Applications Near Unconventional Sources</i> Bogdan Kasztenny , Schweitzer Engineering Laboratories, Inc.	3:40 - 4:15 PM EST WP-2-P4	<i>Centralized Protection Scheme, Bringing Customization, Simplicity, and Cost-Effectiveness</i> Evandro de Oliveira , Siemens Industry
4:20 - 4:55 PM EST WP-1-P5	<i>An Incremental Negative Sequence Impedance Method of Fault Detection in Inverter-Interfaced Microgrids</i> Kwasi Opoku, Subash Pokharel, Aleksandar Dimitrovski University of Central Florida	4:20 - 4:55 PM EST WP-2-P5	<i>A Systematic Approach to Meet NERC PRC-027-1 Requirements - Beyond Compliance</i> Swati Agarwal, Xiao Geng, Ceeman Vellaithurai Schweitzer Engineering Laboratories, Inc. Suhag Patel, Daniel Paraiso The Metropolitan Water District of Southern California
4:55 PM EST	Adjourn	4:55 PM EST	Adjourn
5:00 - 9:00 PM EST	Vendor Exhibits Open	5:00 - 9:00 PM EST	Vendor Exhibits Open

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Thursday May 5, 2022

Session TA-1 Salon 4-5-6	Session Moderator: Craig Black , Duke Energy Backup: Robert Frye , Tennessee Valley Authority	Session TA-2 Salon 1-2-3	Session Moderator: Joe Schaefer , Florida Power & Light Backup: Russell Patterson , Patterson Power Engineers
8:00 - 8:35 AM EST TA-1-P1	<i>The Missing Link - How CT and VT Connection Errors Affect Protection</i> Marcel Taberer, Praveen Iyer, Karl Zimmerman Schweitzer Engineering Laboratories, Inc.	8:00 - 8:35 AM EST TA-2-P1	<i>Traveling-Wave Overcurrent - A New Way to Protect Lines Terminated on Transformers</i> Bogdan Kasztenny, Venkat Mynam Schweitzer Engineering Laboratories, Inc. Stephen Marx , Bonneville Power Administration Ralph Barone , Shaw
8:40 - 9:15 AM EST TA-1-P2	<i>Practical Application and Commissioning of Sustainable Multi Application IEC61850 Process Bus Protection Scheme</i> Mike Ramlachan , GE Grid Solutions Glenn Wilson, Jim Campbell , Southern Company	8:40 - 9:15 AM EST TA-2-P2	<i>Revisiting Six-Phase Line Transmission</i> Alexander Apostolov , OMICRON electronics
9:20 - 9:55 AM EST TA-1-P3	<i>Clocks Trust - An Investigation of Recent 500KV Line Operations</i> Galina Antonova, Tommy Jansson , Hitachi ABB Power Grids Thomas Roseburg , Bonneville Power Administration	9:20 - 9:55 AM EST TA-2-P3	<i>Impedance-Based Directional Elements - Why Have a Threshold Setting?</i> Ryan McDaniel, Michael Thompson Schweitzer Engineering Laboratories, Inc.
9:55 - 10:10 AM EST	Break	9:55 - 10:10 AM EST	Break
10:10 - 10:45 AM EST TA-1-P4	<i>Pilot Implementation of Centralized Protection and Control - SRP Experience</i> Anthony Sivesind , Salt River Project Joemoan Xavier, Chinmay Modak , ABB	10:10 - 10:45 AM EST TA-2-P4	<i>DCB Hardening - A Two-Pronged Approach to Securing Directional Comparison Blocking Schemes</i> Rick Gamble , Tennessee Valley Authority Brandon Armstrong , Patterson Power Engineers, LLC
10:50 - 11:25 AM EST TA-1-P5	<i>autoPRC027 - Automated NERC PRC027 Compliance Tool</i> Jim Homan, Rasheed Jones , Dominion Energy	10:50 - 11:25 AM EST TA-2-P5	<i>An Unlikely Pair - Combining Traveling Waves and Phasors for Reclosing on Hybrid Lines</i> Swagata Das, Derrick Haas, Praveen Iyer Schweitzer Engineering Laboratories, Inc. Glenn Callaghan, Jared Brayton, Sindhu Srinivasan CenterPoint Energy
11:40 - 12:30 PM EST Salon 1-2-3-4-5-6	Conference Awards and Keynote Speaker Keynote Speech: Title TBD Presenter Name TBD , U.S. Department of Energy (DOE)	11:40 - 12:30 PM EST Salon 1-2-3-4-5-6	Conference Awards and Keynote Speaker Keynote Speech: Title TBD Presenter Name TBD , U.S. Department of Energy (DOE)
12:30 - 1:30 PM EST	Lunch - Main Dining Room - 1st Floor	12:30 - 1:30 PM EST	Lunch - Main Dining Room - 1st Floor

Session TP-1 Salon 4-5-6	Session Moderator: Ed Chen , Con Edison Backup: Marion Cooper , POWER Engineers, Inc.
1:30 - 2:05 PM EST TP-1-P1	<i>21C Cap Bank Protection</i> Amir Hossein Soroush , Siemens Industry
2:10 - 2:45 PM EST TP-1-P2	<i>Line Current Measurement at Dual-Breaker Terminals - Challenges and Solutions</i> Swagata Das, Ariana Hargrave , Schweitzer Engineering Laboratories, Inc. Michael Lampe, Genardo Corpuz , Lower Colorado River Authority
2:45 - 3:15 PM EST	Break
3:15 - 3:50 PM EST TP-1-P3	<i>Application of Standard Three Phase Power Transformer Protection Relays to Special Railway Transformers - an Overview and Insight</i> Mike Kockott, Alex Piatniczka, Zoran Gajić, Galina Antonova Hitachi ABB Power Grids
3:55 - 4:30 PM EST TP-1-P4	<i>Broken Conductor Detection in Distribution Systems using Synchrophasor Data</i> Yujie Yin, Nathan Dunn, Hannes Kruger, Hasan Bayat GE Grid Solutions Alfredo Marquez, Art Torres, Ignacio Sanchez, Kiet Tran, Matthew Webster Southern California Edison
4:35 - 5:10 PM EST TP-1-P5	<i>Use of Resistive Voltage Dividers for Transformer Tertiary Ground Detection</i> Aaron Martin, Chis Martin, Jeff Hildreth , Bonneville Power Administration Galina Antonova , Hitachi ABB Power Grids
5:10 PM EST	Adjourn
5:00 - 9:00 PM EST	Vendor Exhibits Open

Session TP-2 Salon 1-2-3	Session Moderator: Manish Patel , Southern Company Backup: David Busot , Tampa Electric Company
1:30 - 2:05 PM EST TP-2-P1	<i>Investigating Inverter-Based Resources Impacts on the Transmission Line Protection via Hardware-in-the-loop Simulation</i> Zheyuan Cheng, Srinidhi Narayanan, Juergen Holbach, Jeremiah Stevens Quanta Technology LLC Michael Cummings, Randall Rohde , Dashiell Chenyuan Guo, Noe Encarnacion , Lone Star Transmission, LLC
2:10 - 2:45 PM EST TP-2-P2	<i>Impact of Renewable Generation Resources on the Distance Protection and Solutions</i> Venkatesh Chakrapani, Ilia Voloh , GE Grid Solutions
2:45 - 3:15 PM EST	Break
3:15 - 3:50 PM EST TP-2-P3	<i>Case Study - Implementing a Microgrid Protection and Control System for Avista's Shared Energy Economy Project</i> Tyler McCoy, Niraj Shah, Ashish Upreti Schweitzer Engineering Laboratories, Inc. John Gibson, Michael Diedesch , Avista Utilities
3:55 - 4:30 PM EST TP-2-P4	<i>SPOV Mechanism with Inverter Based Resource</i> Michael Ruppert , JEM Engineering Michael Ropp , Northern Plains Technology Luigi Vanfretti, Prottay Adhikari , Rensselaer Polytechnic Institute
4:35 - 5:10 PM EST TP-2-P5	<i>Selective Tripping at Point of Common Coupling (PCC) Using Inverse-Time Voltage Characteristics</i> Jai Subbarayan, Brett Cockerham, Jeremy Blair Schweitzer Engineering Laboratories, Inc.
5:10 PM EST	Adjourn
5:00 - 9:00 PM EST	Vendor Exhibits Open

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Friday May 6, 2022	
Session FA Salon 1-2-3-4-5-6	Session Moderator: Alexander Apostolov , OMICRON electronics Backup: Andre Smit , Siemens Industry Inc.
8:00 - 8:35 AM EST FA-P1	<i>Field Experience With Open-Phase Testing in Sites With Inverter-Based Resources</i> Brett Cockerham, Ritwik Chowdhury, John Town , Schweitzer Engineering Laboratories, Inc. Ariel Valdez , Dominion Energy James Gahan , Cypress Creek Renewables
8:35 - 9:10 AM EST FA-P2	<i>Student Paper</i> Student Author , Student University
9:10 - 9:45 AM EST FA-P3	<i>Study of False Tripping of Generator Protection Relay Caused by Sympathetic Inrush at A Hydro Power Plant</i> Bouna Mohamed Cisse, Terrence Smith , GE Grid Solutions Christophe Ghafari , RTE France
9:45 - 10:00 AM EST	Break
10:00 - 10:35 AM EST FA-P4	<i>Analysis of SOTF Scheme Operations for Adjacent Line Faults at National Grid</i> Yujie-Irene Lu, Song Ji , National Grid
10:35 - 11:10 AM EST FA-P5	<i>Stop the Epidemic! Transformer Protection Misoperations</i> Ariana Hargrave, Michael Thompson, John Hostetler, Sumit Sawai , Schweitzer Engineering Laboratories, Inc.
11:10 - 12:40 PM EST FA-RWE	<i>Real World Experiences</i> Moderator: Robert Frye , Tennessee Valley Authority / Backup: Russ Evans , Dominion Energy This session provides a forum for short presentations on "real life" experiences. Presenters will share protection related events in areas of operations, lessons learned, best practices and/or information on unique events.
12:40 PM EST	Conference Ends