

## Technical Sessions of the 50th North American Power Symposium

Monday, September 10, 2018

10:00am-12:00 pm	<b>Power Systems Dynamics, Stability, and Control</b> (paper session) Location: CONFERENCE Track Chairs: T. Overbye and Ben Idris
	<p><b>2018NAPS #24-Sub-Synchronous Resonance Damping using Battery Energy Storage System</b> <i>Javad Khazaei, Arash Asrari and Peter Idowu</i></p> <p><b>2018NAPS #50-Dynamic Phasor-based Stability Analysis of Multi-Terminal VSC-HVDC Links with Offshore AC Networks</b> <i>Asad Raza, Javad Khazaei, Arash Asrari and Peter Idowu</i></p> <p><b>2018NAPS #55-Detection of Sub-Synchronous Control Interaction (SSCI) Using Modal Identification Analysis and FFT</b> <i>Farshid Salehi, Igor Brandão Machado Matsuo and Wei-Jen Lee</i></p> <p><b>2018NAPS #57-Online Detection and Quantification of Transient Instability using Lyapunov Exponents from PMU Data</b> <i>Timothy Gubitza, Kat Sico and Aranya Chakraborty</i></p> <p><b>2018NAPS #89-Stability Criteria for Power Systems with Damping Control and Asymmetric Feedback Delays</b> <i>Felipe Wilches-Bernal, David Copp, David Schoenwald and Ian Gravagne</i></p> <p><b>2018NAPS #99-CX Sparse-Based Differential Algebraic Equation Framework for Power System Simulation</b> <i>Alec Yen, Hantao Cui and Kevin Tomsovic</i></p> <p><b>2018NAPS #119-Lyapunov Function Controlled Parallel Resonance Fault Current Limiter for Transient Stability Enhancement of Power System</b> <i>Dr. Mohammad Sadi and Dr. Mohd. Hasan Ali</i></p>

10:00am-12:00 pm	<p><b>Power Systems Operations, Planning, and Economics</b> (paper session)  Location: DIRECTOR's  Track Chairs: T. Hansen and B. Chowdhury</p>
	<p><b>2018NAPS #2-Short-Term Forecast for Locational Marginal Pricing (LMP) Data Sets</b>  Logan Peterson and Prakash Ranganathan</p> <p><b>2018NAPS #6-Transmission Constraint Relaxation and Pricing in the New York Electricity Market</b>  <i>Guangyuan Zhang, Xian Guo, Mike Swider and Muhammad Marwali</i></p> <p><b>2018NAPS #18-SDP Based Unit Commitment Via Moment Relaxation</b>  <i>Yikui Liu, Lei Wu and Jie Li</i></p> <p><b>2018NAPS #22-Remedial Action Scheme Utilization Practices for Operational Studies in West Interconnection</b>  <i>Xiaping Zhang and Jason Ausmus</i></p> <p><b>2018NAPS #28-Application of Optimization for Daily Scheduling of Renewable Distributed Generations Considering Market Profits in Distribution Networks</b>  <i>Paul Okunade, Meisam Ansari, Arash Asrari and Javad Khazaei</i></p> <p><b>2018NAPS #36-Sparse Tableau Analysis for Power System Analysis and Design</b>  <i>Byungkwon Park, Jayanth Netha, Michael Ferris and Christopher Demarco</i></p> <p><b>2018NAPS #38-Improving Resiliency of Power Grids during Extreme Events</b>  <i>Ali Abur and Ahmet Oner</i></p>
10:00am-12:00 pm	<p><b>Power Systems Communications and Cyber-security</b>(paper session)  Location: BOARD  Track Chairs: A. Srivastava and R. Tonkoski</p>

	<p><b>2018NAPS #11-Configuration of WAMS and Pilot Bus Selection for Secondary Voltage Control in the Egyptian Grid</b>  <i>Hady Fayek, Katherine Davis, A.M. Abdel Ghany and Omar Abdalla</i></p> <p><b>2018NAPS #12-A Novel Integer Linear Programming Based Optimal PMU Placement Model</b>  <i>Yikui Liu, Jie Li and Lei Wu</i></p> <p><b>2018NAPS #17-Least-Cost Joint Placement of PMUs and Flow Measurements for Ensuring Topological Observability under N-2 Contingencies While Improving State Estimation Accuracy</b>  <i>Songming Zhu, Lei Wu, Seyedamirabbas Mousavian and Yikui Liu</i></p> <p><b>2018NAPS #21-On-Line Current Instrumentation Channel Error Correction Within Merging Units Using Constraint WLS Dynamic State Estimation Method</b>  <i>Yuan Kong, Sakis Meliopoulos and George Cokkinides</i></p> <p><b>2018NAPS #29-Synchrophasor Applications as a Service for Power System Operation</b>  <i>Simon Mo, Heng Chen, Uday Kothapa and Lin Zhang</i></p> <p><b>2018NAPS #30-An Equivalent Circuit Formulation for Power System State Estimation including PMUs</b>  <i>Aleksandar Jovicic, Marko Jereminov, Larry Pileggi and Gabriela Hug</i></p> <p><b>2018NAPS #42-DC State Estimation Model-Based Mixed Integer Semidefinite Programming for Optimal PMU Placemen</b>  <i>Anas Almunif and Lingling Fan</i></p>
10:00am-12:00 pm	<p><b>Distribution Systems: Analysis, Operation, and Control (paper session)</b>  Location: EXECUTIVE  Track Chairs: J. Solanki and S. Kamalasan</p>

	<p><b>2018NAPS #10-Resilient Restoration for Distribution System Operators when Facing Extreme Events</b> <i>Zheming Liang, Abdollah Kavousifard and Wencong Su</i></p> <p><b>2018NAPS #44-A Solid State Transformer Model for Proper Integration to Distribution Networks</b> <i>Darshit Shah, Bhanu Baddipadiga, Mariesa Crow and Mehdi Ferdowsi</i></p> <p><b>2018NAPS #51-Electric Vehicles Contributions to Voltage Improvement and Loss Reduction in Microgrids</b> <i>Mohammad Saeed Misaghian, Mohammadali Saffari, Mohsen Kia, Alireza Heidari, Payman Dehghanian and Bo Wang</i></p> <p><b>2018NAPS #54-A Bilateral Transactive Energy Framework for Electric Power Distribution Systems</b> <i>Juan Bedoya, Chen-Ching Liu and Anamika Dubey</i></p> <p><b>2018NAPS #62-Multi-Microgrid Architecture: Optimal Operation and Control</b> <i>Styliani Ioanna Kampepidou, Orestis Vasios and Sakis Meliopoulos</i></p> <p><b>2018NAPS #168-A Cost Effective Energy Exchange Strategy to Improve Reliability of Microgrids</b> <i>Md Kamruzzaman, Mohammed Ben-Idris and Hanif Livani</i></p> <p><b>2018NAPS #63-Renewable Energy Planning for a Microgrid in a Pacific Northwest City</b> <i>Husam Samkari, Herbert Hess and Brian Johnson</i></p>
10:00am-12:00 pm	<p><b>Emerging Topics in Modern Power Systems</b> (paper session) Location: FRONTIER Track Chairs: V. Aravinthan and H. Salehfar</p>

	<p><b>2018NAPS #1-Large Scale Desalination as a Cost Effective, Controlled Electric Load Resource</b> <i>Gerald Thomas Heydt, Mohammad Al-Muhaini and Elias Kyriakides</i></p> <p><b>2018NAPS #9-Optimal Operation of Smart Home Appliances using Deep Learning</b> <i>Tareq Hossen, Arun Sukumaran Nair, Sima Noghanian and Prakash Ranganathan</i></p> <p><b>2018NAPS #25-Robustness of Electric Power Engineering Education: Enrollments and University Research Funding Levels 1969—2018</b> <i>Gerald Heydt, Vijay Vittal and Siddharth Suryanarayanan</i></p> <p><b>2018NAPS #27-Reactive Power Control for Multiple Batteries Connected in Parallel Using Modified Power Factor Method</b> <i>Oluwatosin Adeyemo, Peter Idowu, Arash Asrari and Javad Khazaei</i></p> <p><b>2018NAPS #32-Evaluation of High Temperature Operation of Natural Ester Filled Distribution Transformers</b> <i>Chinmay Vaidya, George Karady, Jeff Valmus, Alan Sbravati and Michael Dyer</i></p> <p><b>2018NAPS #67-Electronic Power Waves in Networks of Inverters</b> <i>Slobodan Vukosavic and Alex Stankovic</i></p> <p><b>2018NAPS #83-Optimal Operation and Forecasts of Residential Electric Vehicles using DNN and Clustering</b> <i>Arun Sukumaran Nair, Tareq Hossen, Mitch Campion and Prakash Ranganathan</i></p>
10:00am-12:00 pm	<p><b>Challenges and solutions to operation of transmission and distribution systems with utility-scale deployment of renewable generation (paper session)</b> Location: PRAIRIE Track Chairs: S. Brahma and M. Ilic</p>

	<p><b>2018NAPS #8-Optimal Allocation of Long-Time-Scale Ramp Requirement with High Wind Penetration</b>  <i>Wenlong Liu, Guangchao Geng, Siyuan Wang, Haifeng Fan, Jing Yu and Quanyuan Jiang</i></p> <p><b>2018NAPS #20-Effect of Solar PV Penetration on Residential Energy Consumption Pattern</b>  <i>Malhar Padhee and Anamitra Pal</i></p> <p><b>2018NAPS #37-Instability of PLL-Synchronized Converter-Based Generators in Low Short-Circuit Systems and the Limitations of Positive Sequence Modeling</b>  <i>Wenzong Wang, Garng Huang, Prashant Kansal, Larry Anderson, Robert O'Keefe, Deepak Ramasubramanian, Evangelos Farantatos and Parag Mitra</i></p> <p><b>2018NAPS #49-Two Lossy Multi-period Optimal Power Flow Formulations with Renewable Energy and Storage</b>  <i>Stephany Farfan-Ramirez, Guillermo Gutierrez Alcaraz and Gustavo Perez-Hernandez</i></p> <p><b>2018NAPS #66-Energy Storage for Frequency Control in High Photovoltaic Power Grids</b>  <i>Shutang You, Yong Liu, Yilu Liu, Abigail Till, Jin Tan, Yingchen Zhang and Maozhong Gong</i></p> <p><b>2018NAPS #70-A Stochastic Siting/Sizing Optimization Framework for Intermittent Renewable Energy DG Units</b>  <i>Mahmoud Ghofrani, Amirsaman Arabali, Anthony Suherli and Andrew Steeble</i></p> <p><b>2018NAPS #156-Analysis of the operation and power quality of a microgrid with photovoltaic sources</b>  <i>Juan Lazarte, Orestis Vasios and Ap Meliopoulos</i></p>
1:00pm-3:00 pm	<p><b>Power Systems Dynamics, Stability, and Control (paper session)</b>  Location: CONFERENCE  Track Chairs: GT Heydt and S. Suryanarayanan</p>

	<p><b>2018NAPS #127-Power Grid Partitioning: Static and Dynamic Approaches</b>  <i>Miao Zhang, Zhixin Miao and Lingling Fan</i></p> <p><b>2018NAPS #135-Locational Dependence of Inertia's Impacts on Critical Clearing Time</b>  <i>Yijing Liu, Ti Xu and Thomas Overbye</i></p> <p><b>2018NAPS #137-Visualization of Large-Scale Electric Grid Oscillation Modes</b>  <i>Ikponmwoza Idehen, Bin Wang, Komal Shetye, Thomas Overbye and James Weber</i></p> <p><b>2018NAPS #140-Dynamic Simulation of the Arizona-Southern California Blackout to Develop a Wide Area Testbed</b>  <i>Munim Bin Gani and Sukumar Brahma</i></p> <p><b>2018NAPS #181-Assessment and Design of Frequency Containment Reserves with HVDC Interconnections</b>  <i>Danilo Obradovic, Mehrdad Ghandhari and Robert Eriksson</i></p> <p><b>2018NAPS #184-Impact of Geomagnetic Disturbances on Power System Transient Stability</b>  <i>Yiqiu Zhang, Komal Shetye, Raymund Lee and Thomas Overbye</i></p> <p><b>2018NAPS #187-A Network-cognizant Aggregate-frequency Reduced-order Power System Dynamical Model</b>  <i>Bo Chen, Abdullah Al-Digs and Christine Chen</i></p>
1:00pm-3:00 pm	<p><b>Power Systems Operations, Planning, and Economics (paper session)</b>  Location: DIRECTOR's  Track Chairs: T. Hansen and J. Khazaei</p>

	<p><b>2018NAPS #43-A Search Space Reduction Strategy within the MILP Branch Flow Model for Concurrent AC Multistage Transmission Expansion and Reactive Power Planning</b>  <i>Miguel Alberto Torres Rodriguez, Carlos Castro and Marcos Rider</i></p> <p><b>2018NAPS #46-A Data-Driven Model for Simulating the Evolution of Transmission Line Failure in Power Grids</b>  <i>Pankaz Das, Rezoan Ahmed Shuvro, Zhuoyao Wang, Majeed M. Hayat and Francesco Sorrentino</i></p> <p><b>2018NAPS #47-Appropriate Tolerance Value Selection of Least Measurement Rejected Algorithm for Robust Power System State Estimation</b>  <i>Mohammad Shoaib Shahriar, Ibrahim Omar Habiballah and Farhan Ammar Ahmad</i></p> <p><b>2018NAPS #48-A comparative analysis of two lossy DC Optimal Power Flow</b>  <i>J. Mariano Paniagua-Contreras, Guillermo Gutierrez Alcaraz and Victor Hinojosa</i></p> <p><b>2018NAPS #52-Distributed Quasi-Dynamic State Estimation Incorporating Distributed Energy Resources</b>  <i>Boqi Xie, A. P. Sakis Meliopoulos, Chiyang Zhong, Yu Liu, Liangyi Sun and Jiahao Xie</i></p> <p><b>2018NAPS #56-Distribution Locational Marginal Pricing (DLMP) for Multiphase Systems</b>  <i>Ibrahim Alsaleh and Lingling Fan</i></p> <p><b>2018NAPS #58-Graphical Determination of Transient Cable Fault Location with Captured Time-Domain Data</b>  <i>Derrick Anang and Charles Kim</i></p>
1:00pm-3:00 pm	<p><b>Power Systems Communications and Cyber-security(paper session)</b>  Location: BOARD  Track Chairs: B Johnson and K. Hatipoglu</p>

	<p><b>2018NAPS #59-Optimal PMU Allocation for Enhanced Gross Error Detection</b> <i>Cody Ruben, Surya Chandan Dhulipala, Arturo Suman Bretas and Newton Bretas</i></p> <p><b>2018NAPS #79-MIP-Based Fault Location Identification Using MicroPMUs</b> <i>Mohammed Alqahtani, Zhixin Miao and Lingling Fan</i></p> <p><b>2018NAPS #103-ANDES: A Python-Based Cyber-Physical Power System Simulation Tool</b> <i>Hantao Cui and Fangxing Li</i></p> <p><b>2018NAPS #108-Synchrophasor-Based State Estimation for Voltage Stability Monitoring in Power Systems</b> <i>Xinyun Lu, Xiaozhe Wang, Dmitry Rimorov, Hao Sheng and Geza Joos</i></p> <p><b>2018NAPS #109-Impact of Real-Time Pricing Attack on Demand Dynamics in Smart Distribution Systems</b> <i>Hazhar Sufi Karimi, Kumarsinh Jhala and Balasubramaniam Natarajan</i></p> <p><b>2018NAPS #113-Synchrophasor Estimation Through An Eigensystem Realization Approach</b> <i>Francisco Alexander Zelaya Arrazabal, Alejandro Zamora Mendez, Mario Arrieta Paternina and Saul Sarabia</i></p> <p><b>2018NAPS #116-Exploiting Network-induced Correlation for Efficient Compression of PMU Data</b> <i>Sowmya Acharya and Christopher L. Demarco</i></p>
1:00pm-3:00 pm	<p><b>Distribution Systems: Analysis, Operation, and Control (paper session)</b> Location: EXECUTIVE Track Chairs: S. Solanki and S. Kamalasan</p>

	<p><b>2018NAPS #71-A Distributed Strategy for Volt/VAR Control in Distribution Networks: A Smart Buildings Approach</b>  <i>Surya Chandan Dhulipala, Raul V. A. Monteiro, Cody Ruben, Arturo Bretas and Geraldo C. Guimaraes</i></p> <p><b>2018NAPS #74-Community Microgrid Controller Evaluation using Hardware-in-the-Loop Testbed</b>  <i>Qian Long, Yuhua Du, Jian Lu, David Lubkeman, Srdjan Lukic, Ning Lu and John Camilleri</i></p> <p><b>2018NAPS #78-Performance of Branch-Current Based Distribution System State Estimation</b>  <i>Sulaiman Almutairi, Zhixin Miao and Lingling Fan</i></p> <p><b>2018NAPS #80-A Convex Optimization Approach for Distributed Energy Trading of Interconnected Microgrids</b>  <i>Tamal Roy, Zhen Ni and Marco Ciarcia</i></p> <p><b>2018NAPS #90-Probabilistic Evaluation of Line Loading and Line Active Power in an Active Distribution Network Using Numerical and Analytical Approaches</b>  <i>Umair Shahzad and Sohrab Asgarpoor</i></p> <p><b>2018NAPS #98-Stochastic Distribution System Market Clearing and Settlement via Sample Average Approximation</b>  <i>Josue Campos Do Prado, Hamid Vakilzadian, Wei Qiao and Dietmar Möller</i></p> <p><b>2018NAPS #104-A Systematic Method for Reliability Index Evaluation of Distribution Networks in the Presence of Distributed Generators</b>  <i>Maziar Isapour Chehardeh and Constantine Hatziadoniu</i></p>
1:00pm-3:00 pm	<p><b>Emerging Topics in Modern Power Systems</b> (paper session)  Location: FRONTIER  Track Chairs: P. Ranganathan and R. Tonkoski</p>

	<p><b>2018NAPS #87-Impact of Time-Coupled Generator Formulation on Energy Storage Sizing Problem</b> <i>Siyuan Wang, Guangchao Geng, Wenlong Liu and Quanyuan Jiang</i></p> <p><b>2018NAPS #102-To Overconsume or Underconsume: Baseline Manipulation in Demand Response Programs</b> <i>Xiaochu Wang and Wenyuan Tang</i></p> <p><b>2018NAPS #111-Labs for EGN 3375 Electromechanical Energy Systems at University of South Florida</b> <i>Zhixin Miao, Lingling Fan, Minyue Ma, Yin Li and Zhengyu Wang</i></p> <p><b>2018NAPS #115-Optimal Positioning of Mobile Emergency Resources for Resilient Restoration</b> <i>Shiva Poudel, Monish Mukherjee and Anamika Dubey</i></p> <p><b>2018NAPS #117-A New Traveling Wave Representation for Propagation of Energy Transients in Power Lines from a Quantum Perspective</b> <i>Wanghao Fei, Guomin Ji, Dhruv Sharma and John Jiang</i></p> <p><b>2018NAPS #167-Advanced Rail Energy and Storage - Analysis of Potential Implementations for the State of West Virginia</b> <i>Gregory Bottenfield, Kenan Hatipoglu and Yogendra Panta</i></p> <p><b>2018NAPS #172-Establishing the Stacked Value of Battery Energy Storage in Electric Power Systems</b> <i>Sujit Kumar Tripathy, Qian Deng, Daniel Tylavsky, Travis Stowers, Robert Hess and Jeff Loehr</i></p>
1:00pm-3:00 pm	<p><b>Challenges and solutions to operation of transmission and distribution systems with utility-scale deployment of renewable generation (paper session)</b> Location: PRAIRIE Track Chairs: B. Bhattarai and A. Pal</p>

	<p><b>2018NAPS #92-Volt/Var Optimization with Minimum Equipment Operation under High PV Penetration</b> <i>Ibrahim Alsaleh, Lingling Fan and Hossein Ghassempour Aghamolki</i></p> <p><b>2018NAPS #95-Impact Analysis of Power Network Structure on Grid Strength</b> <i>Almir Ekic, Andrew Fischer, Ashley Eisenbeisz, Grant Lind, Al Motasem Aldaoudeyeh and Di Wu</i></p> <p><b>2018NAPS #100-Sliding Mode Control for a Distributed Generation Unit Based on Photovoltaic Sources</b> <i>Carlos Andres Ruiz Zea, Esteban Jimenez Rodriguez, Jose Manuel Cañedo and Alexander Loukianov</i></p> <p><b>2018NAPS #101-Hedging Wind Risk through a Power-to-Gas Enabled Integrated Energy System</b> <i>Junkai Liang and Wenyuan Tang</i></p> <p><b>2018NAPS #112-Wireless and Real-Time Photovoltaic Power Monitoring System</b> <i>Saul Sarabia, Carlos Figueroa, Francisco Alexander Zelaya Arrazabal, Alejandro Zamora Mendez and Mario Arrieta Paternina</i></p> <p><b>2018NAPS #118-Application of Machine Learning Algorithm to Forecast Load and Development of a Battery Control Algorithm to Optimize PV System Performance in Phoenix, Arizona</b> <i>Aashiek Hariharan, Dr George Karady and Joel Dickinson</i></p> <p><b>2018NAPS #120-Battery Swapping Station as an Energy Storage for Capturing Distribution-Integrated Solar Variability</b> <i>Zohreh S. Hosseini, Mohsen Mahoor and Amin Khodaei</i></p>
3:30pm-5:30pm	<p><b>Power Systems Dynamics, Stability, and Control (paper session)</b> Location: CONFERENCE Track Chairs: F. Bernal and H. Salehfar</p>

	<p><b>2018NAPS #188-Fault Mapping in Multi-machine Power Systems by Principal Component Sensitivity- An Energy Function Perspective</b>  <i>Abhishek Banerjee, Manisha Maharjan and Rajesh G. Kavasseri</i></p> <p><b>2018NAPS #197-Anomaly Detection for Power System Generation Control based on Hierarchical DBSCAN</b>  <i>Pengyuan Wang and Manimaran Govindarasu</i></p> <p><b>2018NAPS #203-Hexverter-Based Optimal Low Frequency AC Transmission System</b>  <i>Carlos Soriano Rangel and Fernando Mancilla-David</i></p> <p><b>2018NAPS #213-Using Large Scale Synthetic Systems for Undergraduate Research in Electric Grid Islanding</b>  <i>D Bodenmiller, A Birchfield and T Overbye</i></p> <p><b>2018NAPS #214-Prediction and Enhancement of Power System Transient Stability Using Taylor Series</b>  <i>A Sahami and S Kamalasan</i></p> <p><b>2018NAPS #215-Investigation On Evaluating The Unmodeled Dynamics of Power System And Its Effects on Characterizing Power System Oscillations</b>  <i>S Hossain and S Kamalasan</i></p> <p><b>2018NAPS #208-Fast Generator Placement Algorithm using High Performance Computing</b>  <i>Pavan Sajja and Dagmar Niebur</i></p>
3:30pm-5:30pm	<p><b>Power Systems Operations, Planning, and Economics (paper session)</b>  Location: DIRECTOR's  Track Chairs: T. Hansen and V. Aravinthan</p>

	<p><b>2018NAPS #64-Bilevel Programming-Based Unit Commitment for Locational Marginal Price Computation</b> <i>Abdullah Alassaf and Lingling Fan</i></p> <p><b>2018NAPS #65-Transmission Line Fault Classification Based on Dynamic State Estimation and Support Vector Machine</b> <i>Jiahao Xie, A. P. Sakis Meliopoulos and Boqi Xie</i></p> <p><b>2018NAPS #76-Unscented Transformations for Probabilistic Load Flow</b> <i>Juan Franco and Saeed Jafarzadeh</i></p> <p><b>2018NAPS #86-Analysis of Automatic Defence Options for Nigeria: June 27th 2017 Blackout</b> <i>Mohamed Osman, Barry Rawn and Tochi Nwachukwu</i></p> <p><b>2018NAPS #88-Risk Management for Optimal Wind Power Bidding in an Electricity Market: A Comparative Study</b> <i>Mohamed Alashery and Wei Qiao</i></p> <p><b>2018NAPS #94-A Fundamental Economic Model of Interacting Electricity Prosumers</b> <i>Evgeniya Tsybina, Santiago Grijalva and Juan Moreno-Cruz</i></p> <p><b>2018NAPS #96-Geometrically Motivated Reparameterization for Identifiability Analysis in Power Systems Models</b> <i>Mark Transtrum, Benjamin Francis, Clifford Youn, Andrija Saric and Aleksandar Stankovic</i></p>
3:30pm-5:30pm	<p><b>Power Systems Communications and Cyber-security(paper session)</b> Location: BOARD Track Chairs: S. Solanki and B. Johnson</p>

	<p><b>2018NAPS #128-Estimation of Transmission Line Sequence Impedances using Real PMU Data</b> <i>Prashanth Kumar Mansani, Anamitra Pal, Matthew Rhodes and Brian Keel</i></p> <p><b>2018NAPS #134-Cyber Attack-Defense Analysis for Automatic Generation Control with Renewable Energy Sources</b> <i>Srikrishna Sarangan, Vivek Kumar Singh and Manimaran Govindarasu</i></p> <p><b>2018NAPS #160-A Survey of Voltage Stability Indicators Based on Local Synchronized Phasor Measurements</b> <i>Hannes Hagmar, Tuan Le Anh, Robert Eriksson and Ola Carlson</i></p> <p><b>2018NAPS #161-A data driven event detection cum denoising framework for error corrupted synchrophasor data</b> <i>Tabia Ahmad and Nilanjan Senroy</i></p> <p><b>2018NAPS #166-IEEE C37.118.1a-2014 Compliance Testing of EPLL and DFAC-PLL for Synchrophasors</b> <i>Puneet Kumar and Gurunath Gurrala</i></p> <p><b>2018NAPS #182-Multi-stage Optimal PMU Placement to Benefit System Voltage Stability</b> <i>Saleh Almasabi, Nga Nguyen, Fares T. Alharbi and Joydeep Mitra</i></p> <p><b>2018NAPS #194-Cyber Physical Security Analytics For Transactive Energy Systems Using Ensemble Machine Learning</b> <i>Arman Ahmed, Vignesh V G Krishnan, Anurag K Srivastava, Yinghui Wu and Sindhu Suresh</i></p>
3:30pm-5:30pm	<p><b>Distribution Systems: Analysis, Operation, and Control (paper session)</b> Location: EXECUTIVE Track Chairs: T. Hansen and V. Aravinthan</p>

	<p><b>2018NAPS #114-Distribution Test System for Nontechnical Loss Detection</b> <i>Rodrigo Trevizan, Aquiles Rossoni and Arturo Bretas</i></p> <p><b>2018NAPS #124-Increasing Distribution Grid Hosting Capacity through Optimal Network Reconfiguration</b> <i>Mansoor Alturki and Amin Khodaei</i></p> <p><b>2018NAPS #125-Energy Management System for Interconnected Microgrids using Alternating Direction Method of Multipliers (ADMM)</b> <i>Shravan Akula and Hossein Salehfar</i></p> <p><b>2018NAPS #133-Stability-oriented Optimization and Consensus Control for Inverter-based Microgrid</b> <i>Weihang Yan, Wei Gao, David Gao and James Momoh</i></p> <p><b>2018NAPS #136-Optimal Scheduling of Integrated Microgrids in Holonic Distribution Grids</b> <i>Abdullah Albaker and Amin Khodaei</i></p> <p><b>2018NAPS #142-Optimal Energy Storage Sizing and Siting in Hybrid AC/DC Microgrids</b> <i>Abdulaziz Alanazi, Hossein Lotfi and Amin Khodaei</i></p> <p><b>2018NAPS #145-Centralized Microgrid Energy Management System Based on Successive Linearization</b> <i>Maad Alowaiifeer and A.P. Sakis Meliopoulos</i></p>
3:30pm-5:30pm	<p><b>Emerging Topics in Modern Power Systems</b> (paper session) Location: EXECUTIVE Track Chairs: A. Pahwa and D. Tylavsky</p>

	<p><b>2018NAPS #121-Residential Load Forecasting Using Deep Neural Networks (DNN)</b>  <i>Tareq Hossen, Arun Sukumaran Nair, Radha Krishnan Angamuthu Chinnathambi and Prakash Ranganathan</i></p> <p><b>2018NAPS #123-A Switched Reluctance Motor Drive System for Future Applications in the Emerged IMPS</b>  Salem Elsaiah and Christian Alvarez</p> <p><b>2018NAPS #129-Investigating Switching Surges on EHV Lines and Substations: A Practical Utility Case</b>  Mohammed Mubashir Shaikh, George Karady and Snehal Dalal</p> <p><b>2018NAPS #158-Real-Time Simulation of Electric Vehicle Battery Charging Systems</b>  <i>Li Bao, Lingling Fan and Zhixin Miao</i></p> <p><b>2018NAPS #162-The Potential for a GIC-inclusive State Estimator</b>  <i>Cecilia Klauber, Gandhali Juvekar, Katherine Davis, Thomas Overbye and Komal Shetye</i></p> <p><b>2018NAPS #164-A Robust Energy Storage System Siting Strategy Considering Physical Attacks to Transmission Lines</b>  <i>Kexing Lai, Di Shi, Hui Li, Mahesh Illindala, Dong Peng, Lixia Liu and Zhiwei Wang</i></p> <p><b>2018NAPS #174-Making smart thermostats cost-effective by predicting the future</b>  <i>Orestis Vasios, Juan Lazarte, Mohit Srinivasan and Ap Meliopoulos</i></p>
3:30pm-5:30pm	<p><b>Challenges and solutions to operation of transmission and distribution systems with utility-scale deployment of renewable generation (paper session)</b>  Location: FRONTIER  Track Chairs: P. Mandal and R. Tonkoski</p>

**2018NAPS #130-Solar Photovoltaic output prediction using Jackknife Regression**

*Bilal Ahmad Bhatti and Robert Broadwater*

**2018NAPS #132-A Novel Double-Loop Control Structure Based on Fuzzy-PI and Fuzzy-PR Strategies for Single-Phase Inverter in Photovoltaic Application**

*Parham Mohammadi, Behrouz Azimian and Amir Shahirinia*

**2018NAPS #138-Optimal Smart Inverters Volt-VAR Curve Selection with a Multi-Objective Volt-VAR Optimization using Evolutionary Algorithm Approach**

*Mohammadsaleh Jafaritalarposhti, Temitayo Olowu and Arif Sarwat*

**2018NAPS #139-A Multi-Objective Optimization Technique for Volt-Var Control with High PV Penetration using Genetic Algorithm**

*Temitayo Olowu, Mohammadsaleh Jafaritalarposhti and Arif Sarwat*

**2018NAPS #141-Small Signal Analysis of a VSC-Based Battery Energy Storage System with V/f Control**

*Susham Doddabasappa, Oluwatosin Adeyemo, Javad Khazaei, Peter Idowu and Arash Asrari*

**2018NAPS #170-Transmission-Distribution Co-Simulation: Model Validation with Standalone Simulation**

*Yaswanth Nag Velaga, Gayathri Krishnamoorthy, Anamika Dubey, Aoxia Chen and Pankaj Kumar Sen*

**2018NAPS #183-An Investigation into the Role of Gas Turbines in Supporting Renewable Energy Integration**

*Nga Nguyen and Joydeep Mitra*

Tuesday, September 11, 2018

Time	<b>Power Systems Operations, Planning, and Economics #1</b> (paper session) Location: CONFERENCE Track Chairs: T. Hansen and S. Kamalasadán	Location
9:45 - 11.45 AM	<p><b>2018NAPS #106-Robust Padé Approximation Applied to the Holomorphic Embedded Power Flow Algorithm</b>  <i>Songyan Li, Qirui Li, Daniel Tylavsky and Di Shi</i></p> <p><b>2018NAPS #107-The Holomorphic Embedding Applied to a Newton Raphson Power Flow Formulation</b>  <i>Shruti Rao, Songyan Li, Daniel Tylavsky and Di Shi</i></p> <p><b>2018NAPS #131-Minimization of Ohmic Losses in Power Networks by Utilization of Interphase Power Controllers</b>  <i>Behrouz Azimian, Amin Helmzadeh and Amir Shahirinia</i></p> <p><b>2018NAPS #151-Enhanced Assessment of Power System Behavior during Multiple Contingencies</b>  <i>Paroma Chatterjee, Mojdeh Khorsand and Kory Hedman</i></p> <p><b>2018NAPS #176-Impact of Initial Stressor(s) on Cascading Failures in Power Grid</b>  <i>Rezoan Ahmed Shuvro, Pankaz Das, Zhuoyao Wang, Mahshid Rahnamay-Naeini and Majeed M. Hayat</i></p>	
9:45 - 11.45 AM	<b>Power Systems Operations, Planning, and Economics #2</b> (paper session) Location: DIRECTOR's Track Chairs: B. Idris and S. Suryanarayanan	

	<p><b>2018NAPS #175-Real-Time Phasor Estimation via the Taylor-Fourier's Subspace</b>  <i>Gerardo Avalos Almazan, Gabriela Castillo Garcia, Mario Arrieta Paternina, Alejandro Zamora Mendez, Jose Guadalupe Fuentes Velazquez, Juan Ramon Rodriguez Rodriguez and Daniel Guillen</i></p> <p><b>2018NAPS #190-D-FACTS for Improved Reliability of the Transmission System During Contingencies</b>  <i>Alex Corredor, Hussain Beleed, Brian Johnson and Herbert Hess</i></p> <p><b>2018NAPS #191-Parallel Power Flow based on OpenMP</b>  <i>Afshin Ahmadi, Shaungshuang Jin, Melissa Smith and Randolph Collins</i></p> <p><b>2018NAPS #210-Practical Implementation of Synchrophasor Based Real-Time Contingency Analysis</b>  <i>Neeraj Nayak, Lin Zhang, Kenneth Martin, Ian Dobson, Anjan Bose and Dejan Sobajic</i></p> <p><b>2018NAPS #219-A Probabilistic Perspective for Power Flow and Its Implication to Power Network Analysis</b>  <i>Alexander M. Malyscheff, Di Wu, Feng K. Ma and John N. Jiang</i></p>	
9:45 - 11.45 AM	<p><b>Distribution Systems: Analysis, Operation, and Control # 1</b>(paper session)  Location: BOARD  Track Chairs: K. Hatipoglu and P. Mandal</p>	

	<p><b>2018NAPS #146-MILP Model for Reliability Optimization In Active Distribution Networks</b> <i>Nader Aljohani, Cody Ruben, Surya Chandan Dhulipala, Arturo Bretas and Rochele Silva</i></p> <p><b>2018NAPS #149-Overhead Power Line Sag Monitoring through Augmented Reality</b> <i>M. Yusuf Sermet, Ibrahim Demir and Sadik Kucuksari</i></p> <p><b>2018NAPS #152-Mathematical Morphological Filter Based Protection Scheme for DC Ring Microgrid System</b> <i>H M Mesbah Maruf, Faria Kamal and Badrul Chowdhury</i></p> <p><b>2018NAPS #153-Game Theoretic Contribution of Demand Response in Real Time Power Procurement of Distribution System Operator</b> <i>Ehsan Reihani, Alireza Eshraghi and Mahdi Motalleb</i></p> <p><b>2018NAPS #180-An Artificial Neural Network based Approach to Electric Demand Response Implementation</b> <i>Md Kamruzzaman, Mohammed Ben-Idris and Sesh Commuri</i></p>	
9:45 - 11.45 AM	<p><b>Distribution Systems: Analysis, Operation, and Control # 2</b>(paper session) Location: EXECUTIVE Track Chairs: H. Salehfar and B. Johnson</p>	

	<p><b>2018NAPS #189-A dynamic state estimation based centralized scheme for microgrid protection</b>  <i>Orestis Vasios, Styliani Ioanna Kampezidou and Ap Meliopoulos</i></p> <p><b>2018NAPS #198-Efficient Transactive Control for Energy Storage Management System in Prosumer-Centric Networked Microgrids</b>  <i>Eric Galvan, Paras Mandal, Shantanu Chakraborty and Ahmed Y. Saber</i></p> <p><b>2018NAPS #202-Security Evaluation of Two Intrusion Detection Systems in Smart Grid SCADA Environment</b>  <i>Vivek Kumar Singh, Haythem Ebrahim and Manimaran Govindarasu</i></p> <p><b>2018NAPS #209-An Improved DBSCAN Method for Self-sufficient Microgrid Design</b>  <i>Hongda Ren and Noel Schulz</i></p> <p><b>2018NAPS #218-Forecasting Data Center Load Using Hidden Markov Model</b>  <i>Abhilasha Bajracharya, Md Riaz Ahmed Khan, Semhar Michael and Reinaldo Tonkoski</i></p>	
9:45 - 11.45 AM	<p><b>Emerging Topics in Modern Power Systems</b> (paper session)  Location: FRONTIER  Track Chairs: J. Solanki and D. Tylavsky</p>	

	<p><b>2018NAPS #185-Probabilistic Impact Analysis of Residential Electric Vehicle Charging on Distribution Transformers</b> <i>Alejandro Palomino and Masood Parvania</i></p> <p><b>2018NAPS #186-Application of a Simplified model of Solid State Transformer in Hybrid Residential Energy System - A Benchmark model</b> <i>Manisha Maharjan, Abhishek Banerjee and Rajesh G. Kavasseri</i></p> <p><b>2018NAPS #193-Optimal Trading Strategies for Energy Hubs Equipped with Power-to-Gas Technology</b> <i>Junkai Liang and Wenyuan Tang</i></p> <p><b>2018NAPS #195-Electric Circuit Theory Based Minimal Cut-Set Realization for Reliability Evaluation of Non-Directional Networks</b> <i>Shayan Behzadirafi, Arun-Karthick Manoharan, Sandhya Rani Nadipalli, Hossein Salehfar and Visvakumar Aravinthan</i></p> <p><b>2018NAPS #199-Comparing the Impact of HEMP Electric Field Waveforms on a Synthetic Grid</b> <i>Raymund Lee and Thomas Overbye</i></p>	
9:45 - 11.45 AM	<p>Challenges and solutions to operation of transmission and distribution systems with utility-scale deployment of renewable generation (paper session) Location: PRAIRIE Track Chairs: V. Aravinthan and P. Rangathan</p>	

**2018NAPS #177-Small-Signal Stability of Islanded-Microgrids With DC side Dynamics of Inverters**

*Victor Paduani, Mahmoud Kabalan and Pritpal Singh*

**2018NAPS #196-Haiti RELAY: A Cost-Effective and Portable Solar Home System for Rural Haitian Regions**

*Jake Smith, Adam Kinsel, Bria Matthews, Jingfan Sun, Maryam Saeedifard and Frank Lambert*

**2018NAPS #205-Power Consumption Cost Optimization Using Solar Photovoltaic Systems for Data Centers**

*Alireza Eshraghi, Ashkan Sadeghi-Mobarakeh, Ehsan Reihani, Mahdi Motalleb and S.M.Ali Mousavi*

**2018NAPS #207-Distributed Generator Sizing for Joint Optimization of Resilience and Voltage Regulation**

*Monish Mukherjee, Shiva Poudel, Anamika Dubey and Anjan Bose*

**2018NAPS #216-Frequency Response in Grids with High Penetration of Renewable Energy Sources**

*Andre Luna, Ujjwol Tamrakar, Timothy M. Hansen and Reinaldo Tonkoski*