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2010 IEEE/PES Transmission and Distribution Conference and Exposition: Latin America (T&D-LA)

Title: Device to Limit Transient Recovery Voltage

Autors: Wilker Victor da Silva Azevedo, Washington Luiz Araujo Neves, Damasio Fernandes, Benemar Alencar de Souza, Ricardo Marques Soares

Keywords: Transient Recovery Voltage, ZnO Device, Mitigation, Electromagnetic Transients

Pages: 1 - 6

Title: Microgrid Systems: Current Status and Challenges

Autors: Tesoro Elena Del Carpio Huayllas

Keywords: Microgrid Systems, Electricity, Distributed Generation, Distribution System, Power Blackouts

Pages: 7 - 12

Title: Study on the Influence of TCSC Structure and Control on SSR Damping Using an Improved s-Domain Model

Autors: Fernando Cattán Jusan, Sergio Gomes, Glauco Nery Taranto

Keywords: Subsynchronous Resonance, Torsional Interaction, TCSC, Dynamic Phasors, Control System Design, Modal Analysis

Pages: 13 - 21

Title: Failure analysis of three 230kV XLPE cables

Autors: Qi (Charles) Su

Keywords: Power Cables, Insulation Failure, Condition Assessment

Pages: 22 - 25

Title: Experience in the Evaluation of Polymeric Insulators for Distribution Systems in Medium Voltage through a Natural Laboratory

Autors: Augusto Abreu

Keywords: Polymeric Insulators, Natural Laboratory, Material Failure, Natural Environment.

Pages: 26 - 31

Title: Ancillary Services definitions, markets and practices in the world

Autors: Ali Mehdipour Pirbazari

Keywords: Ancillary Services, Power Market Management, Power Quality, Wind Power

Pages: 32 - 36

Title: Optimal Phasor Measurement Units Placement for Fault Location on Overhead Electric Power Distribution Feeders

Autors: Andre Amaral Penteado Biscaro, Rodrigo Aparecido Fernandes Pereira, Jose Roberto Sanches Mantovani

Keywords: Optimal Allocation, Phasor Measurement Units (PMUs), Fault Location, Monte Carlo Methods, Optimization Methods

Pages: 37 - 43

Title: Automatic Reestablishment of Power Supply in Distribution Systems using Smart Grid Concepts

Autors: Daniel Bernardon, Mauricio Sperandio, Vinicius Garcia, Jumar Russi, Eric Daza, Lorenzo Comassetto

Keywords: Automatic Operation, Distribution Network, Energy Supply Reestablishment, Remote-controlled



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Switches, Smart Grids.

Pages: 44 - 49

Title: Representation of Transmission Lines in Modal Domain Using Analytical Transformation Matrices

Autors: Carolina Goulart de Carvalho, Newton Vieira Souza

Keywords: Modal Domain, Transmission Line, Two-phase Line, Transformation Matrix, Newton-Raphson.

Pages: 50 - 56

Title: Transmission Lines Using Aluminium Cable Steel Reinforced Ground Wires Nearby Power Substations

Autors: Sergio Toledo Sobral, Carlos Augusto Oliveira Peixoto, Jorge Amon, David S.Rezende, Amauri Alves Menezes

Keywords: ACSR Ground Wires, Shielding, Ladder Circuits, Characteristic Length, Ground Potencial Rise, Mat Design

Pages: 57 - 64

Title: Corrective Effects of Cable Shielding With Single or Double Grounding Points-Calculations and Measurements

Autors: Sergio Toledo Sobral, Carlos Augusto Oliveira Peixoto, Jorge Amon, Geraldo Martins Tavares, marcos jose Izychi, Sergio Cordeiro Sobral

Keywords: Circuit Theory, Maxwell Equations, Shielding, Selfneutralized Current, Noises

Pages: 65 - 71

Title: Basic Design Procedures to Control Electromagnetic Interferences at Power and Telecommunication Installations

Autors: Sergio Toledo Sobral, Jorge Amon, David S.Rezende, Jose Romeu Dellacqua, Sergio Cordeiro Sobral

Keywords: Cable Shielding, Cable Insulation, Electromagnetic Coupling, Grounding, Grounding Electrodes, Substations, Shielding, Bundling, Traveling Waves.

Pages: 72 - 78

Title: Location of Lightning Arresters at Digitalized Installations - A Critical Review

Autors: Sergio Toledo Sobral, David S.Rezende, Amauri Alves Menezes, Sergio Cordeiro Sobral

Keywords: Electrogeometric , Meshes, Franklin, Striking Distance, Grounding, Damper Ring, Shielding, Equipotentiality

Pages: 79 - 85

Title: Distribution System Restoration in a DG Environment using a Heuristic Constructive Multi-Start Algorithm

Autors: Waldemar Mathias, Fabio Bertequini, Jose R. S.

Keywords: Distribution Power Systems Restoration, Distributed Generation

Pages: 86 - 91

Title: Multi-Area Decentralized Optimal VAR Planning Using the Dantzig-Wolfe Decomposition Principle

Autors: Julio Cesar Lopez Quizhpi, Mauricio Granada Echeverri, Jose Roberto Sanches Mantovani

Keywords: Dantzig-Wolfe, Multi-area VAR Planning, Optimal Reactive Dispatch, Optimal Power Flow



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Successive Linear Programming.

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Title: Technical Solutions for Harmonic Resonance at MV: Relocatable Capacitor Bank Technique

Autors: Gislaine Midori Minamizaki, Se Un Ahn, Germano Lambert Torres, Luiz Eduardo Borges, Nelson Clodoaldo

Keywords: Distribution Troubleshooting, Harmonic Resonance, Induction Furnace, Natural Frequency, Power Factor, Relocatable Capacitor Bank, Voltage Harmonic Distortion.

Pages: 99 - 103

Title: Reactive Power Support Pricing of Distributed Generators with Primary Energy Source Uncertainty

Autors: Augusto Cesar Rueda Medina, Jose Antonio Dominguez Navarro, Antonio Padilha Feltrin

Keywords: Distributed Generation, Ancillary Services, Reactive Power Support, Primary Energy Source Uncertainty.

Pages: 104 - 109

Title: Effect of Distributed Generation Capacity on the Coordination of Protection System of Distribution Network

Autors: Javad Sadeh, Mohsen bashir, Ebadollah Kamyab

Keywords: Distributed Generator, Distribution Network, Protection Equipment Coordination, DG Capacity.

Pages: 110 - 115

Title: Tap-off Power from a Transmission Line Shield Wires to Feed Small Loads

Autors: Ricardo Leon Vasquez-Arnez, Mario Masuda

Keywords: Electromagnetic Induction, Line Current, Tapoff Power, Shield Wires, Transmission Lines.

Pages: 116 - 121

Title: Decentralized Robust Control for FACTS Using Hankel Reduced Order Models

Autors: Daniel Ceron, Mario Alberto Rios

Keywords: Decentralized Control, Electromechanical Oscillations, FACTS, Power System Stability.

Pages: 122 - 126

Title: Combining Voltage Stability Margin and Electromechanical Damping for FACTS

Autors: Daniel Ceron, Mario Alberto Rios

Keywords: Decentralized Control, Electromechanical Oscillations, LQG/LTR, Modal Analysis, Power System Stability, SVC, TCSC.

Pages: 127 - 132

Title: The Impact of Wind Power Variability and Curtailment on Ramping Requirements

Autors: Amir Kalantari, Francisco Galiana

Keywords: Day-ahead Market, Non-peaking Unit, Load Following, Peaking Unit, Ramping, Wind Curtailment, Wind Integration.

Pages: 133 - 138

Title: Mathematical decomposition technique applied to the probabilistic power flow problem

Autors: Mauricio Granada, M.J. Rider, J.R.S Mantovani



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Keywords: Decomposition Methods, Multi-area Power Systems, Probabilistic Power Flow, Decentralized Coordination, MA-PPF.

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Title: Optimal Placement of Protective Devices in Distribution Networks Based on Risk Analysis

Autors: Seyed Ali Mohammad Javadian, Mahmood Reza Haghifam

Keywords: Distributed Generation, Distribution Network, Protection, Risk Analysis

Pages: 147 - 154

Title: Multirate Network Equivalent Model for Electromagnetic Transient Calculation in Real Time

Autors: Guillermo David Guidi, Humberto Cassiano Zini, Giuseppe Ratta, Jimmy Cesar Gonzales

Keywords: EMTP, Electromagnetic Transients, Frequency Dependent Lines, Filter Banks, Multirate Model, Network Equivalent, Laplacian Pyramid

Pages: 155 - 162

Title: IMPROVED POWER CONDITIONING SYSTEM FOR GRID INTEGRATION OF PHOTOVOLTAIC SOLAR ENERGY CONVERSION SYSTEMS

Autors: Marcelo Gustavo Molina, Euzeli Cipriano dos Santos, Jose Mario Pacas

Keywords: Control Techniques, Detailed Modeling, Distributed Generation, Maximum Power Point Tracking (MPPT), Power Conditioning System (PCS), Three-level Z-source Cascaded Inverter, Photovoltaic Solar Energy Conversion Systems

Pages: 163 - 170

Title: Probabilistic Analysis of the Distributed Power Generation in Weakly Meshed Distribution Systems

Autors: Mauricio Granada, Cesar A. Penuela, J. R. S. Mantovani

Keywords: Probabilistic Three-phase Power Flow, Distributed Power Generation, Weakly Meshed Distribution Systems

Pages: 171 - 177

Title: Techniques for Network Simplification for Voltage Variation Analysis in Steady-state Caused by Wind Farm Integrated on Power System

Autors: Clovis Bosco Mendonca Oliveira, Manoel Firmino Medeiros, Jose Tavares de Oliveira, Bezaliel Albuquerque da Silva Pires

Keywords: Wind Power Generation, Power Systems, Load Flow, Wind Turbine, Equivalent Grid, Simplified Grid.

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Title: Study of Voltage Unbalance Conditions Based on the Behavior of the Complex Voltage Unbalance Factor (CVUF)

Autors: Anesio de Leles Ferreira, Diogo Caetano, Francisco Assis de Oliveira, Jorge Andres Cormane Angarita

Keywords: Electric Power Quality, Voltage Unbalance, Complex Voltage Unbalance Factor

Pages: 184 - 189

Title: Reactive Power and Harmonic Distortion Control in Electric Traction Systems

Autors: Juan David Martinez, Gustavo Andres Ramos



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Keywords: Direct Current Electric Traction Systems, Power Quality, Static Var Compensator (SVC)

Pages: 190 - 195

Title: Spatial load forecasting using a demand propagation approach

Autors: Joel David Melo Trujillo, Edgar Manuel Carreno Franco, Antonio Padilha Feltrin

Keywords: Spatial Electric Load Forecasting, Land Use, Knowledge Extraction, Distribution Planning, Agent, Multi-agent

Pages: 196 - 203

Title: Transient Overvoltages in a Railway System during Braking

Autors: Jorge Wilson Gonzalez, Mario Alberto Suarez, Israel Celis

Keywords: Braking Overvoltages, Switching Transients, Railway, Dc Catenary, Traction.

Pages: 204 - 211

Title: Maximum Lightning Overvoltage Location and Reliability Indices in Power System with Combined Transmission Line

Autors: javad sadeh, yaser damchi

Keywords: Combined Transmission Line, Overvoltage, Power System Reliability

Pages: 212 - 217

Title: Stability Study of a Mixed Islanded Power Network

Autors: Antonio Carlos Padoan, Christophe Nicolet, Basile Kawkabani, Jean-Jacques Simond, Alexander Schwery, Francois Avellan

Keywords: Wind Park, Hydroelectric Power Station, Power Network, Stability, Identification

Pages: 218 - 225

Title: Reliability and Sensitivity Analyzing of Motor Protection System Using Fault Trees Method

Autors: yaser damchi, javad sadeh

Keywords: Motor Protection System, Unavailability Index, Risk Reduction Worth Index

Pages: 226 - 230

Title: Large Scale Integration of Wind Energy in Colombia: Electrical Analysis-Part I

Autors: Idi Amin Isaac, Jorge Gonzalez, Helmuth Biechl, Mauricio Areiza, Hugo Cardona, Gabriel Lopez

Keywords: WIND ENERGY, NATIONAL INTERCONNECTED SYSTEM OF COLOMBIA-SIN-, POWER SYSTEMS PLANNING, ELECTRICAL STUDIES.

Pages: 231 - 238

Title: Power Compensators Based on Magnetically Controlled Shunt Reactors in Electric Networks with a Voltage between 110 kV and 500 kV

Autors: Alexander Bryantsev, Mikhail Bryantsev, Boris Bazylev, Svetlana Dyagileva, Aleksey Negryshev, Rinat Karymov, Elena Makletsova, Sergey Smolovik

Keywords: FACTS, Power Quality, Controllable Magnetic Reactors, Reactive Power

Pages: 239 - 244

Title: Harmonic and Power Flow Hybrid Controller Applied to VSC based HVDC Stations

Autors: Harold Rene Chamorro, Gustavo Ramos

Keywords: VSC, HVDC, Fuzzy Logic, Hybrid Control, Active Filter



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Title: OPTIMAL FEEDING OF TRACTION SYSTEMS FROM A DISTRIBUTION SYSTEM

Autors: IVAN CAMILO DURAN, MARIO ALBERTO RIOS

Keywords: Traction Substations, Graph Theory, Tramway, Reliability, HV/MV Substations

Pages: 251 - 256

Title: A Multi-Objective Programming Approach for the Optimal Operation of Distributed Generation Considering Uncertainty

Autors: Augusto Cesar Rueda Medina, Jesus Maria Lopez Lezama, Antonio Padilha Feltrin

Keywords: Evolutionary Multi-objective Programming, Distributed Generation, Power Losses.

Pages: 257 - 262

Title: A New Model of the Double-Feed Induction Generator Wind Turbine

Autors: Leonardo Javier Ontiveros, Pedro Enrique Mercado

Keywords: Wind Turbine, Double Feed Induction Generator, Dynamic Analysis, Detailed Model, Simplified Model, Wind Farm, Power System

Pages: 263 - 269

Title: DIAGNOSIS OF POWER TRANSFORMERS THROUGH FREQUENCY RESPONSE ANALYSIS APPLYING MULTIREOLUTION ANALYSIS AND PATTERN CLASSIFICATION

Autors: JIMMY CESAR GONZALES ARISPE, ENRIQUE E. MOMBELLO, GUILLERMO D. GUIDI VENERDINI

Keywords: Transformers, Diagnosis, Wavelet, Classification, Particle Swarm Optimization

Pages: 270 - 277

Title: THE REPAIR PROCESS OF FIVE COLOMBIAN POWER DISTRIBUTION SYSTEMS

Autors: Carlos J. Zapata, Yimmy Diaz, Miguel L. Ocampo, Jesus D. Marriaga, Jose U. Patino, Andres F. Gallego

Keywords: Maintenance, Poisson Processes, Power Distribution Reliability, Reliability Modeling

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Title: Integration of Control, Protection and Supervisory Systems in Hydro Power Plants - State of Art and Trends

Autors: Erick Fernando Alves, Masato Lucio Yano, Marcus Hofmann

Keywords: Hydroelectric Power Generation, Automation, Distributed Control, Communication Standards

Pages: 285 - 289

Title: (N-1) contingency planning in radial distribution networks using genetic algorithms

Autors: Alexandre Mendes, Natashia Boland, Patrick Guiney, Carlos Riveros

Keywords: Contingency Planning, Switching, Electricity Distribution, Optimisation, Genetic Algorithms

Pages: 290 - 297

Title: Analysis of overexcitation relaying set up in synchronous generators for hydro power plants

Autors: Erick Fernando Alves, Marco Aurelio Souza

Keywords: Hydroelectric Power Generation, Over-excitation Protection, Protective Relaying, AC Generator



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Title: Active and Reactive Power Flow Fuzzy Controller for VSC HVDC using DBR and DBR Type 2

Autors: Harold Chamorro, Nelson Diaz, Jairo Soriano, Helbert Espitia

Keywords: VSC-HVDC, Fuzzy Controller, Active And Reactive Power Control, DBR, Power Electronics

Pages: 304 - 309

Title: The Use of Tuned Filters as an Attenuator Device of Harmonics Generated by Multipulse Converters

Autors: Priscila da Silva Oliveira, Falcondes Jose Mendes de Seixas, Stefani Carolline Leal de Freitas, Luis Carlos Origa de Oliveira

Keywords: Harmonic Attenuator, Multipulse Converters, Tuned Filters.

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Title: Mechanically Switched Capacitor with Damping Network (MSCDN) ‑ Engineering Aspects of Application, Design and Protection

Autors: Ricardo Carvalho, Mario Fabiano, Daniel Oliveira

Keywords: Reactive Compensation, Harmonics, C-Type Filter, MSCDN, Transient, Protection, Air-core Reactors

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Title: Distributed Generation Modeling for Unbalanced Three-phase Power Flow Calculations in Smart Grids

Autors: Luis alfonso Gallego, Edgar Carreno, Antonio Padilha-Feltrin

Keywords: Power Flow, Distributed Generation, Generator Modeling, Mutual Impedances

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Title: Natural Ester Fluid: The Transformer Design Perspective

Autors: Tiago Bandeira Marchesan, Alexandre Joao Fanchin

Keywords: Design Perspective, High-Voltage, Impulse Test, Power Transformers, Natural Ester Fluid

Pages: 329 - 333

Title: Proposals for Improvement of Methodology and Process of Colleting and Analyzing Compatibility of Power Quality Indicators in Distribution Systems

Autors: Ricardo Torrezan, Se Un Ahn, Celio Escobar, Antonio Sergio Prata Gaona, Alexandre Vieira de Oliveira, Andre Nunes de Souza, Andre Christovao Pio Martins, Nelson Clodoaldo de Jesus

Keywords: Indicators, Measurement Campaign, Point Of Common Coupling, Power Quality, Voltage Total Harmonic Distortion.

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Title: Valuing Investments in Distribution Networks with DG under Uncertainty

Autors: Enrique Hazam Mohammed Buzarquis Rios, Gerardo Blanco, Fernando Olsina, Francisco Garces

Keywords: Distributed Generation, Uncertainties, Flexibility, Investments Evaluation, Real Options Valuation, Distribution Systems, Distribution Network.

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Title: An Advanced Real-Time Electro-Magnetic Simulator for Power Systems with a Simultaneous State-Space Nodal Solver

Autors: Christian Dufour, Jean Jean Mahseredjian, Jean Belanger, Luis Naredo

Keywords: Real-Time Simulation, HVDC, SVC, Relay Testing

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Title: Analysis of Impacts of PSS Controllers and TCSC FACTS Devices at Dynamic Stability of a Multimachine System Power

Autors: Ednei Miotto, Marico Covacic

Keywords: Electric Power Systems, Small Disturbance Stability, Electromechanical Oscillations, PSM, FACTS, TCSC, PSS, POD.

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Title: ARC SUPPRESSION COILS - The key component of modern earthfault protection systems

Autors: Ralf Koenig, Ismario Gonzalez, Cristian Weber

Keywords: Earthfault Protection, Arc Suppression Coils.

Pages: 366 - 371

Title: Smart Power Flow Control in DC Distribution Systems Involving Sustainable Energy Sources

Autors: Ahmed Mohamed, Osama Mohammed

Keywords: Buses At Different Voltage Levels, DC Distribution, Power Flow Control, Series Current Compensation

Pages: 372 - 379

Title: The Use of Roadmaps for Smart Grid deployment - The practice.

Autors: John Chowdhury, Rogerio Varasquim, Vanessa Oliveira

Keywords: Smart Grid, Smart Meters, Automation, Energy Storage, Grid, Grid Cyber Security, Sustainability, Costs & Benefits

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Title: Step Up Transformer Online Monitoring Experience in Tucuruí Power Plant

Autors: Jose Aliezio Severo, Klaxon Fantin, Marcos Alves, Daniel Carrijo

Keywords: Transformers, On-line Monitoring, Diagnostic, Prognostic, Asset Management

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Title: Multipoint Wireless Low-Cost Platform for Real Time Power Quality Analysis

Autors: Fernando Cardoso Castaldo, Ramon Maciel Menezes, Marcos Tsuyoshi Koizumi, Claudio Augusto Ferreira Lima

Keywords: Low Cost, Power Quality, Wireless, Zigbee,

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Title: Distribution Reliability Evaluation Affected by Superconducting Fault Current Limiter

Autors: Sung-Yul Kim, Jin-O Kim, Hyung-Chul Kim, Jun-Min Cha, Kyu-Ho Kim, In-Su Bae

Keywords: Distribution Reliability, Superconducting Fault Current Limiter, Failure Rate, Repair Rate, Distribution Equipments

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Title: Smart Optimal Control of DC-DC Boost Converter in PV Systems

Autors: Mohamed Elshaer, Ahmed Mohamed, Osama Mohammed

Keywords: DC-DC Boost Converter, Design, Fuzzy Logic, Genetic Algorithm, Smart Controller

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Title: Integração de Dados: Aspectos de Qualidade

Autors: Mario Roberto Bastos, Jose Sidnei Colombo Martini, Jose Rady de Almeida, Sidney Viana

Keywords: Data Quality, Data Repository, Information Management, Information Quality, Metadata, Quality Metrics

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Title: Visual, Real-time Monitoring System for Remote Operation of Electrical Substations

Autors: Mario Roberto Bastos, Mario Sergio Lauria Machado

Keywords: Corporate Security, Information Integration, Operational Safety, Real Time Visual Monitoring

Pages: 417 - 421

Title: Analysis of Substation Availability

Autors: Carlos Kleber Costa Arruda, Helio Paiva Amorim, Luis Adriano Melo Cabral Domingues, Ricardo Cunha Fonte, Pablo Abreu Lisboa, Sergio Luis Zaghetto, Lidio Francisco Albuquerque Nascimento, Lilian Ferreira Queiroz

Keywords: Substation, Reliability, Availability, Quality Of Service, Simulation, Reliability Centered Maintenance (RCM)

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Title: Market-Driven Security-Constrained Transmission Network Expansion Planning

Autors: Lina Paola Garces, Ruben Romero, Jesus Maria Lopez-Lezama

Keywords: Transmission Expansion Planning, Bilevel Programming, N-1 Criterion, Duality Theory, Electricity Markets

Pages: 427 - 433

Title: Reactive Power and Harmonic Distortion Control in Electric Traction Systems

Autors: Juan David Martinez, Gustavo Andres Ramos

Keywords: Direct Current Electric Traction Systems, Power Quality, Static Var Compensator (SVC)

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Title: Monitoring of the DFIG of a variable speed wind turbine

Autors: Nicolas HERAUD, Mohamed AINAN, Ibrahim SOULEIMAN

Keywords: Fault Detection, Fault Isolation, Wind Turbine, Nonlinear Observer, DFIG

Pages: 440 - 445

Title: Analyzing TRV of CBs on Mato Grosso Transmission System (Eletronorte) due to the Fixed Series Compensation installation

Autors: Andre Luiz Pereira de Oliveira, Andre L M Pereira

Keywords: Equipment, High Voltage (HV), Circuit Breakers, Transient Recovery Voltage (TRV), Fixed Series Compensation (FSC), Flexible AC Transmission System.

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Title: Evaluation of Mechanically Switched Capacitors application on Power Transmission Systems

Autors: Andre Luiz Pereira de Oliveira, Andre L M Pereira

Keywords: Equipments, Capacitors, Dimensioning, Simulation, ATP, Power System, Transmission.

Pages: 452 - 457

Title: Influence of Electrogeometric Model and Statistical Current Distribution in Distribution Lines Indirect Lightning Performance Estimation Considering the Ground Resistivity

Autors: Rosembergue Pereira de Souza, Ivan Jose da Silva Lopes, Jose Osvaldo Saldanha Paulino

Keywords: Lightning Performance, Distribution Lines, Electrogeometric Model, Monte Carlo

Pages: 458 - 464

Title: Comparison of FACTS STATCOM Models for Damping Oscillations in Power System due to Small Perturbations

Autors: Aline Petean Pina, Percival Bueno de Araujo

Keywords: FACTS STATCOM, Electrical Power System Stability, Power Sensitivity Model

Pages: 465 - 471

Title: Consumption and Demand for Low Voltage Consumers Business Activity Bar of Feira de Santana / Bahia

Autors: Ricardo Maciel Flor, Pedro Roberto Paiva Dantas, Monica Silveira, Andre Alcantara

Keywords: Consumption, Demand, Demand Factor, Estimated Monthly Consumption, Installed Load, Load Factor, Nontechnical Loss.

Pages: 472 - 479

Title: GENETIC ALGORITHM APPLIED TO STATE FEEDBACK CONTROL DESIGN

Autors: Phelipe Sena Oliveira, Luciano Sales Barros, Luiz Gonzaga Queiroz Silveira Junior

Keywords: Genetic Algorithm, States Feedback Control Design, States Transition Matrix Modification

Pages: 480 - 485

Title: Electrical requirements for half-wavelength power transmission line design

Autors: Milana Lima dos Santos, Jose Antonio, Mario Masuda, Geraldo Luiz Costa Nicola

Keywords: UHV Transmission, Very Long Transmission Systems, Half-wavelength Lines.

Pages: 486 - 490

Title: Prospects of Voltage-Sourced Converters (VSC)

Autors: Andre Luiz Pereira de Oliveira, Dietmar Retzmann, Mario Nelson Lemes, Carlos Eduardo Tiburcio

Keywords: VSC, HVDC, High Voltage, DC Transmission, Equipments, Power Electronics, System Planning.

Pages: 491 - 495

Title: Dynamic Performance of Compressed Air Energy Storage (CAES) Plant for Applications in Power Systems

Autors: Maximiliano Martinez, Marcelo Gustavo Molina, Pedro Enrique Mercado

Keywords: Energy Storage, Compressed Air Energy Storage (CAES), Power Conditioning System (PCS), Detailed Model, Control Design

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Title: Risk Management in the Energy Trading Activity - An Approach by Using Multi Objective



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Genetic Algorithm and Multi Criteria Theory

Autors: Chadia Sebba, Ritchie Guder, Raimundo Celeste Ghizoni Teive

Keywords: Energy Trading, Contracts Portfolio Optimization, Multi Objective Genetic Algorithm, Multi Criteria Decision Theory

Pages: 504 - 510

Title: An IEC 61850 Network Simulator

Autors: Benemar Alencar de Souza, Nubia Silva Dantas Brito, Edmar Candeia Gurjao, Jessiedna Araujo de Sa, Rodolpho Rathge, Matheus Telles Barreto, Ubiratan Alves do Carmo

Keywords: IEC 61850, Protocol, Simulator

Pages: 511 - 515

Title: Performance Analysis of Auto-Transformer ADZ Through the Software ATP

Autors: Andre Luiz Maduro Pereira, Fernando Nunes Belchior, Jose Policarpo G. de Abreu

Keywords: Power Quality, ATP, Harmonic Filters, Power Electronics, Computational Analysis.

Pages: 516 - 521

Title: Comparative Analysis of Energy Storage Technologies to Compensate Wind Power Short-Term Fluctuations

Autors: Gaston Orlando Suvire, Pedro Enrique Mercado

Keywords: Energy Storage Technologies, Comparative Analysis, Wind Power, Short-term Fluctuations, Compensation

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Title: A Combinatorial Approach for Transmission Expansion & Reactive Power Planning

Autors: Mohsen rahmani, Masoud Rashidinejad, Edgar manual careno, Ruben Romero

Keywords: L Indicator, Reactive Power Planning, Real Genetic Algorithm, Transmission Expansion Planning, VAR Sources, Weak Buses

Pages: 529 - 536

Title: Real-Time Detection of Voltage Sags Based on Wavelet Transform

Autors: Flavio Bezerra, Benemar Alencar, Nubia S. D.

Keywords: Voltage Sag, Real-time Detection, Wavelet Transform,

Pages: 537 - 542

Title: Bay Control Using Commercial Digital Relays Via IEC 61850

Autors: Juliano Coelho Miranda, Ulisses Chemin Netto, Denis Vinicius Coury, Mario Oleskovicz

Keywords: Bay Control, Data Communication, Digital Relay, GOOSE, IEC61850.

Pages: 543 - 549

Title: Automatic Building of a Simulated High Impedance Fault Database

Autors: Wellinsilvio Costa Santos, Flavio Bezerra Costa, Jose Antonio Candido Borges Silva, George Rossany Soares Lira, Benemar Alencar Souza, Nubia Silva Dantas Brito, Marcelo Renato Cerqueira Paes

Keywords: Database, High Impedance Fault, ATP, Staged Fault, Distribution System

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Title: Modelling of NAS Energy Storage System for Power System Applications

Autors: Antonio Ernesto Sarasua, Marcelo Gustavo Molina, Domingo Hector Pontoriero, Pedro Enrique Mercado

Keywords: Distributed Or Dispersed Generation (DG), FACTS Devices, Energy Storage, Sodium Sulphur Batteries, Dynamic Modeling

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Title: Multiattribute Value Function for the Assessment of Distributed Generation Projects: application to technical criteria

Autors: Everthon Taghori Sica, Gelson Antonio Andrea Brigatto, Cornelio Celso Brasil Camargo, Ana Silva Palma, Rafael Takasaki Carvalho, Bruno Shimabukuro Okuda

Keywords: Distributed Generation, Function Value, Multicriteria Optimization

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Title: Detection and Identification of Potentially Disturbing Loads and Consumers: Methodology and Case Study

Autors: Jorge Coelho, Edison Antonio Cardoso Aranha, Jones Cambuzzi Pereira, Samuel Thomae, Arlan Luiz Bettiol, Goncalo Mendes Coelho, Sergio Luiz Zimath, Rogerio Braz, Rafael Zimmerman Homma

Keywords: Expert Systems, Industrial Power System Harmonics, Industrial Power System Transients, Power Distribution, Power Quality

Pages: 568 - 574

Title: An AHP Multiple Criteria Model Applied to Transmission Expansion of a Brazilian Southeastern Utility

Autors: Edison Antonio Cardoso Aranha, Jorge Coelho, Cornelio Celso Brasil Camargo, Andre Rodigheri, Marcelo Menezes Reis, Leonardo Cimino, Renato Guimaraes Ribeiro, Alexandre Orrico Reing

Keywords: Decision Support Systems, Power System Reliability, Power Transmission Economics, Power Transmission Lines, Power Transmission Planning, Resource Management, Risk Analysis, Substations

Pages: 575 - 580

Title: Centralized Expansion Planning of the Transmission Network in Competitive Markets. A Solution based on a Hybrid Approach.

Autors: Wilson Hernan Guaman Guajala, Alberto Vargas

Keywords: Transmission Expansion Planning, Competitive Markets, Classic Dynamic Programming, Dynamic Model, Heuristic Procedure, Hybrid Solution, Metaheuristic Evolutionary Algorithm, Optimal Investment Sequence.

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Title: Experimental Analysis and Adherence Test of the Electromagnetic Zero-Sequence Blocking Model

Autors: Stefani Carolline Leal de Freitas, Luis Carlos Origa de Oliveira, Julio Borges de Souza, Rodrigo de Oliveira

Keywords: Electromagnetic Blocking, Harmonics, Power Quality.

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Title: Influence of Transmission Line Transverse Parameters in Reduction Secondary Arc Current during Single-pole Opening Procedure

Autors: Milton Elvis Zevallos, Maria Cristina Tavares

Keywords: Neutral Reactor, Secondary Arc Current, Single-Phase Opening Maneuver, Sustained Response, Three-Phase ABCD Elements, Unbalanced System.

Pages: 594 - 601

Title: Typical expected values of the fault resistance in power systems

Autors: Virgilio De, Elmer Sorrentino

Keywords: Arc Resistance, Grounding Resistance, Fault Resistance, Short Circuit Level.

Pages: 602 - 609

Title: Reactance Calculation of a Reactor with Non-Concentric Windings by Utilizing a Finite Element Method based 3-D Program

Autors: Edie de Paula, Jose Carlos Mendes, Wilerson Venceslau Calil

Keywords: Finite Element Methods, Nonlinear Magnetics, Reactors.

Pages: 610 - 615

Title: Evolution of Power to Smart Energy Systems

Autors: Renato Cespedes, Andres Aldana, Estrella Parra, Camilo Torres

Keywords: Energy, Power, System, Smart Grids, Efficiency.

Pages: 616 - 621

Title: Multi-objective Optimization of Distributed Generation Portfolio Insertion Strategies

Autors: Gelson Antonio Andrea Brigatto, Cornelio Celso Brasil Camargo, Everthon Taghori Sica

Keywords: Distributed Generation, Maximin Strategy, Multi-objective Analysis, Particle Swarm Algorithm, Portfolio Optimization

Pages: 622 - 628

Title: Analysis of the Operation of a D-STATCOM in Unbalanced Distribution Systems Under Voltage Disturbances

Autors: Gabriel Ricardo Ferreira Queiroga Mafra, Wadaed Uturbey, Braz Jesus Cardoso

Keywords: D-STATCOM, Power Quality, Unbalanced Distribution Systems

Pages: 629 - 634

Title: Records from DFRs vs. Records from Relays

Autors: HUGO DAVILA

Keywords: Generation, Transmission, Distribution, Record Quality, Record Length, Record Tools For Analysis, Data, Exchange, Waveforms Fundamentals.

Pages: 635 - 644

Title: Dissolved Gas Analysis of a Thermally Overloaded Oil-Immersed Current Transformer

Autors: Diego M. Robalino, Satish M. Mahajan

Keywords: Fault Diagnosis, Current Transformers, Oil Insulation, Insulation Life

Pages: 645 - 652

Title: Optimal Energy Generation with Biomass of Sugarcane Harvest



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Autors: Thiago Pedro Donadon Homem, Antonio Roberto Balbo, Helenice de Oliveira Florentino, Adriano Dawison Lima

Keywords: Interior Point, Optimization, Biomass

Pages: 653 - 658

Title: **Self-Organizing Maps applied to Monitoring and Diagnosis of ZnO Surge Arresters**

Autors: George R. S. Lira, Edson G. Costa, Carlos W. D. Almeida

Keywords: Metal Oxide Surge Arrester, Monitoring, Diagnosis, Self-organizing Feature Maps

Pages: 659 - 664

Title: **12.5 MVA Generator Islanding Protection**

Autors: MARCOS ANDRADE

Keywords: Distributed Generation, Islanding Protection, ATP Simulation, ROCOFF, Vector Jump, Power Meter, Transient Measurement, In Service Protection Test.

Pages: 665 - 669

Title: **Electric Diagram Conception of a New Substation BH Centro 2 - Belo Horizonte - Minas Gerais - Brazil**

Autors: Alecio de Melo Oliveira, Paulo Roberto F. C. Costa

Keywords: SUBSTATION, PLANNING, ELECTRIC DIAGRAM, UNDERGROUND NETWORK, SHORT CIRCUIT LIMITATION

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Title: **Analysis of the electrical frequency in Caracas during four major events of the year 2008**

Autors: Elmer Sorrentino, Walter Dartanay, Julie Desiree Zambrano, Emar Orea

Keywords: Under Frequency Load Shedding, Islanding Scheme, Load-generation Balance, Collapse

Pages: 675 - 680

Title: **A Decomposition Strategy to Solve the Short-Term Hydrothermal Scheduling Based on Lagrangian Relaxation**

Autors: Fabricio Yutaka Kuwabata Takigawa, Erlon Cristian Finardi, Edson Luiz da Silva

Keywords: Short-Term Hydrothermal Scheduling, Lagrangian Relaxation, Pseudo-Schedule

Pages: 681 - 688

Title: **Vectorial Control of a Voltage Source Converter**

Autors: Carlos Alberto Hidalgo Mora, Nelson Leonardo Diaz Aldana

Keywords: Vectorial Control, VSC-HVDC, Modern Control Techniques

Pages: 689 - 693

Title: **Multiplatform and Multi-technology System for Interpretation and Analysis of Protection Tripping in Distribution Substations**

Autors: Ferdinando Crispino, Luiz Carlos Magrini, Luciano Ogiboski, Sidinei Nicoli, Newton J. Salles, Reinaldo O. Milanese, Esloany D. C. Delvecchi

Keywords: Automation, Protection Relays, Communication Protocols, Expert Systems And CLIPS.

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Title: **Ground based robots for energized transmission line work-technology description, field projects**



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and technical-economical justification of their application

Autors: Hans Candia, David Elizondo, Thomas Gentile, Gregory Bell

Keywords: Energized Transmission Line Maintenance, Transmission Line Robotics, Energized Transmission Line Structure Replacement, Energized Transmission Line Re-conductoring.

Pages: 700 - 705

Title: Impact of static load models on the power distribution fault location problem

Autors: Ivan David Serna-Suarez, Carlos David Ferreira-Sequeda, Sergio Andres Martinez-Gutierrez, Gilberto Carrillo-Caicedo

Keywords: Fault Location, Static Load Model, Power Distribution Modelling, Power Distribution, Alternative Transient Program.

Pages: 706 - 711

Title: Evaluation of probability functions related to short circuit random variables using power quality meters

Autors: Valdomiro Vega-Garcia, Nelson Kagan, Juan Carlos Cebrian

Keywords: Distribution Networks, Power Quality, Faults, Cumulative Probability Function, RMS Value

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Title: INFLUENCE OF ACCURATE SOIL REPRESENTATION FOR TRANSMISSION-LINE PARAMETERS: ANALYSES BASED ON CARSON'S MODIFIED FORMULATIONS

Autors: Joao Bosco Gertrudes, Maria Cristina Dias Tavares, Carlos Manuel Portela

Keywords: Soil Model, Line Parameters, Electromagnetic Transients, Frequency Dependence

Pages: 719 - 726

Title: The Role of the Distribution Transformer in the Transference of Voltage Surges

Autors: Sergio Henrique Lopes Cabral, Thair Ibrahim Abdel Hamid Mustafa, Hugo Armando Dominguez Almaguer, Thiago Santos, Claudio Varela do Nascimento

Keywords: Transformer, Distribution, Voltage Transference, Frequency Response

Pages: 727 - 731

Title: Unbalanced Electrical Distribution Network Reconfiguration using Simulated Annealing

Autors: Flavio Arthur Leal Ferreira, Flavio Antonio Becon Lemos

Keywords: Reconfiguration Of Distribution System, restoration Of Distribution System, heuristic Optimization, simulated Annealing

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Title: Analysis and Application of Transformer Models in the ATP Program for the Study of Ferroresonance

Autors: Lissandro Brito Viena, Fernando Augusto Moreira, Nivaldo Roberto Ferreira, Nelson Clodoaldo de, Alexandre Cezar de

Keywords: Distribution Transformer, ATP, Modelling, Simulation, BCTRAN, Hybrid Model, Ferroresonance

Pages: 738 - 744

Title: Electrical Signals Parameter Estimation Using Adaptive Filtering: A Comparative Study

Autors: Maria Alejandra Mantilla, Johann Farith Petit, Idania S. Diaz, Hugo Ortiz

Keywords: Adaptive Algorithms, Electrical Signals Parameters Estimation, Kalman Filter, Least Mean Square



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Filter (LMS), Recursive Least Square Filter (RLS).

Pages: 745 - 750

Title: Dc Bus Voltage Control in Four-Wire Shunt Active Power Filters with Split Capacitor

Autors: Maria Alejandra Mantilla, Johann Farith Petit

Keywords: DC Voltage Control, Harmonic And Unbalance Compensation, Shunt Active Power Filters (SAPF), Voltage Source Inverter (VSI).

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Title: Study of Electric Field Enhancement Along Polymer Insulators Under Service Conditions

Autors: Ailton Lopes Souza, Ivan Jose Silva Lopes

Keywords: Electric Field, Corona, Polymer Insulator

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Title: Zero-Hopf Bifurcation Analysis on Power System Dynamic Stability

Autors: Sandra Milena Perez, Gerard Olivar, Juan Jose Mora

Keywords: Bifurcations, Power System Dynamics, Stability, Soft Limiter

Pages: 765 - 769

Title: The X Factor and its Economic and Technical Significance

Autors: Hector Arango, Jose Policarpo Goncalves de Abreu, Benedito Donizeti Bonatto, Tiago Rodrigues dos Santos Nogueira, Carlos Marcio Vieira Tahan

Keywords: Regulation In The Power Industry, Economic Market Model, Optimization Of Tariffs, X Factor, Economical Value Added,

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Title: Efficient adjust of a learning based fault locator for power distribution systems

Autors: Juan Mora-Florez, Sandra Perez-Londono

Keywords: Fault Location, Power Distribution Systems, Support Vector Machines, Genetic Algorithms And Classification

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Title: Economic Impacts of the Discontinuity of Power Services by Using an Electricity Market Model

Autors: Sergio Augusto dos Santos Lusvarghi, Hector Arango, Benedito Donizeti Bonatto, Jose Policarpo Goncalves de Abreu, Carlos Marcio Vieira Tahan

Keywords: Technical-Economical Regulation, Economic Market Model, Interruption Indexes, Economic Value Added, Tariffs, Optimization, Social Welfare

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Title: Criteria Development and Assessment Models for Technical, Economic and Commercial Distributed Generation aiming Virtual Power Generation

Autors: Gustavo Perez, Paulo Henrique

Keywords: Reliability, Dispatch Of Power, Distributed Generation, Virtual Power Generation, Operating Reserve

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Title: PROPOSAL FOR ONLINE VOLTAGE STABILITY ASSESSMENT USING PHASOR



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Autors: Jorge Wilson Gonzalez, Ramon Alberto Leon, Idi Amin Isaac, Gabriel Jaime Lopez, Hugo Alberto Cardona

Keywords: Online Stability Assessment, Voltage Stability, PMU.

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Title: **Setting strategy of a SVM regressor for locating single phase faults in power distribution systems**

Autors: Juan Mora-Florez, Ever Correa-Tapasco, Sandra Perez-Londono

Keywords: Fault Location, Genetic Algorithms, Power Distribution Systems, Regression

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Title: **Fault location method based on the determination of the minimum fault reactance for uncertainty loaded and unbalanced power distribution systems**

Autors: German Morales-Espana, Juan Mora-Florez, Hermann Vargas-Torres

Keywords: Fault Location, Fault Reactance, Power Distribution Systems, Power Quality, Service Continuity Indexes, Uncertain Load Distribution

Pages: 803 - 809

Title: **A complete fault location formulation for distribution systems using the k-nearest neighbors for regression and classification**

Autors: German Morales-Espana, Juan Mora-Florez, Gilberto Carrillo-Caicedo

Keywords: Classification, Fault Location, K-Nearest Neighbors, Learning Approaches, Multiple Estimation, Power Distribution Systems, Regression

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Title: **DYNAMIC MODELING OF WIND FARMS WITH VARIABLE-SPEED DIRECT-DRIVEN PMSG WIND TURBINES**

Autors: German Sanchez, Marcelo Gustavo Molina

Keywords: Control Techniques, MATLAB/Simulink, Equivalent Aggregated Model, Permanent Magnet Synchronous Generator (PMSG), Wind Turbine Generator, Power Conditioning System, State-space Averaging Modeling, Wind Farm

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Title: **A New Analytical Model for Evaluating Loads Supplied by Sinusoidal and Non-sinusoidal Voltage Sources**

Autors: Marcio Melquiades, Manuel Losada y Gonzalez, Selenio Rocha Silva

Keywords: Power Quality, Non-linear Loads, Harmonics

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Title: **Using Geoprocessing to Monitor Voltage Disturbance in Power Systems**

Autors: Hugo Feitosa de Figueiredo, Fabio Gomes de Andrade, Claudio de Souza Baptista, Anselmo Cardoso de Paiva, Rogerio Augusto Fernandes, Fernando Antonio Queiroz Vieira

Keywords: Power Quality, Geographic Information System

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Title: **Transient Response of Grounding Electrodes for the Frequency-Dependence of Soil Parameters**

Autors: Adriana Generoso Pedrosa, Marco Aurelio Oliveira Schroeder, Marcio Matias Afonso, Rafael Silva



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Keywords: Electromagnetic, Electrical Grounding, Conductivity, Permittivity, Frequency.

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***Title:* Voltage Regulation in Electric Energy Distribution Substations**

Autors: Luis Antonio Felber, Hector Arango, Benedito Donizeti Bonatto, Marcos Roberto Gouvea

Keywords: Distribution Of Electrical Energy, Electric Power Quality, Automatic Voltage Regulation, Substations, Distribution Procedures

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***Title:* Feasibility of using Wind Turbines to provide reactive compensation for voltage improvement on an Electric Utility Ring**

Autors: Chandrabhan Sharma, Alvin Ramsaran

Keywords: Wind Electric System, Transmission Systems, Reactive Compensation, Penetration Level

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***Title:* Dynamic Optimization for the Management of Stochastic Generation and Storage**

Autors: Alberto J. Lamadrid

Keywords: Energy Storage, Optimal Power Flow

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***Title:* Reliability Improvement on Underground Distribution Spot Network System**

Autors: Alexandre Taijun Ohara, Cleverson Shindi Takiguchi, Bruno Iwamoto, Clay Martins

Keywords: Underground Distribution System, Spot Network, Reliability

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***Title:* Optimization of Distribution Systems Continuity Indicators using Immunological Artificial Algorithms**

Autors: Renato J. P. Araujo, Mariana Strauch, Nelson Kagan

Keywords: Distribution Regulation, Optimization Methods, Power Distribution, Quality Indices.

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