

# International Conference on Power Systems Transients



Hosted by

Entergy Corporation  
New Orleans, Louisiana  
USA

September 28 – October 2  
2003

## Technical Program

### IPST Organizing Committee

Co-Chairpersons

M.T. Correia de Barros (Portugal)

H.W. Dommel (Canada)

Secretary

T. Grebe (USA)

Committee Members

A. Ametani (Japan)

S. Carneiro Junior (Brazil)

R. Iravani (Canada)

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A. Morched (Canada)

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L. Prikler (Hungary)

D. Woodford (Canada)

A. Xemard (France)

### IPST 2003 Local Organizing Committee

Chairperson

Douglas Mader, Entergy Corporation, USA

Committee Members

Ani Chitambar

Dion Couvillon

Honorary Chairperson\*

Laurence Snider, Hong Kong Polytechnic University

### IPST 2003 Sponsor

Entergy Corporation

\* IPST 2003 was originally planned to take place in Hong Kong and Prof. L. Snider of Hong Kong Polytechnic University was the Chairperson. However, due to the epidemic of SARS (Severe Acute Respiratory Syndrome) in the Hong Kong area the conference was postponed and moved to New Orleans.

## IPST 2003 Technical Committee

### Co-Chairpersons

A. Ametani (Japan)

T. Noda (Japan)

### Committee Members

S. Carneiro Jr. (Brazil)

L. Zanetta (Brazil)

L. Dubé (Canada)

G. Irwin (Canada)

R. Iravani (Canada)

J. Mahseredjian (Canada)

H. Knudsen (Denmark)

A. Xemard (France)

B.R. Oswald (Germany)

N. Hatziargyriou (Greece)

L. Prikler (Hungary)

D.J. Wilcox (Ireland)

C.A. Nucci (Italy)

T. Funabashi (Japan)

T. Funaki (Japan)

W. Jung-Wook (Korea)

N.R. Watson (New Zealand)

B. Gustavsen (Norway)

H.Kr. Hoidalen (Norway)

J.A. Martinez (Spain)

M.M. Saha (Sweden)

Y.-J. Wang (Taiwan)

A. Chaudhary (USA)

L.T.G. Lima (USA)

B.A. Mork (USA)

## Conference Program

### Sunday, September 28th, 2003

Hotel Monteleone, New Orleans

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5:00 – 8:00 PM

Bienville

#### Registration

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6:00 – 8:00 PM

Riverview

#### Welcome Reception

### Monday, September 29th, 2003

Hotel Monteleone, New Orleans

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8:30 – 10:10 AM

Queen Anne Ballroom

#### Opening Ceremony

##### *Welcoming Comments*

- Local Organizing Committee Chairperson  
*D. Mader (Entergy Corporation)*
- Organizing Committee Co-Chairpersons  
*M.T. Correia de Barros (Technical Univ. of Lisbon) and H.W. Dommel (Univ. of British Columbia)*
- *Dr. Parviz Rastgoufard, P.E.*, Professor and Entergy Chair, Electrical Engineering and Computer Science, Tulane University.
- *Mr. Rowland James, P.E.*, Chairman, IEEE New Orleans Section.

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10:30 AM – 12:10 PM

Queen Anne Ballroom

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### Session 1: New Tools and New Techniques

- 1-1 Implementation of New Features in ATPDraw Version 3  
*H.K. Høidalen, B.A. Mork, L. Prikler, and J.L. Hall*
- 1-2 Electromagnetic Transients Simulation as an Objective Function Evaluator for Optimization of Power System Performance  
*A.M. Gole, S. Filizadeh, R.W. Menzies, and P.L. Wilson*
- 1-3 Development of Data-Editor for Electro-Magnetic Transients Program  
*N. Nagaoka, D. Tatsuda, and A. Ametani*
- 1-4 E-TRAN: Translation of Loadflow/Stability Data into Electro-magnetic Transients Programs  
*G. Irwin and D. Woodford*

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10:30 AM – 12:10 PM

Iberville

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### Session 5d: Protection Techniques (4)

- 5d-1 Realization of Distance Relay Algorithm using EMTP MODELS  
*J.Y. Heo, C.H. Kim, K.H. So, and N.O. Park*
- 5d-2 Detection of Fault Induced Transients in EHV Transmission Lines for the Development of a Fault Locator System  
*F. Salgado Carvalho and S. Carneiro Jr.*
- 5d-3 CT Modeling Techniques for Relay Protection System Transient Studies  
*L.A. Kojovic*

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10:30 AM – 12:10 PM

Bonnet Carre Room

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### Session 9d: Transformers, Inrush Transients, and Ferroresonance (4)

- 9d-1 Reduction of Harmonic Distortions and Subsynchronous Resonances in the Pulsed Power Supply of a Nuclear Fusion Experiment  
*A.M. Miri and C. Sihler*
- 9d-2 Application of Vector Fitting to High Frequency Transformer Modeling  
*B. Gustavsen*
- 9d-3 On the Implementation of a Hysteretic Reactor model in EMTP  
*J. Mahseredjian, S. Denetière, M. Martinez, M. Rioual, A. Xemard, and P. Bastard*
- 9d-4 Reducing the Magnetizing Inrush Current by Means of Con-

trolled Energization and De-Energization of Large Power Transformers

*L. Prikler, G. Banfai, G. Ban, and P. Becker*

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13:30 – 15:10 PM

Queen Anne Ballroom

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### Session 2: Transmission Lines and Cables

- 2-1 Approximations Introduced by Lumped Resistances in a Transmission Line Model  
*T. Henriksen*
- 2-2 Robust Phase-Domain Transmission Line Representation Based on Time-Domain Fitting  
*D.M. Nobre, W.C. Boaventura, and W.L.A. Neves*
- 2-3 State-Space Transient Analysis of Single-Phase Transmission Lines with Corona  
*M.S. Mamis*
- 2-4 Slant Wire Models Using Accurate Correction Techniques in FDTD Method  
*K. Yamamoto and H. Iki*

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13:30 – 15:10 PM

Iberville

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### Session 6a: Generators and Machines (1)

- 6a-1 Transient Behavior Analysis of Induction Generator at Three-Phase Fault Condition  
*T. Senjyu, N. Sueyoshi, K. Uezato, H. Fujita, and T. Funabashi*
- 6a-2 Modeling for Interior Faults of Induction Motors and its Simulation on EMTDC  
*A. Gao, Z. Cai, and J. Jiang*
- 6a-3 Induction Motor Response to Voltage Dips  
*A. Leiria, P. Nunes, A. Morched, and M.T. Correia de Barros*

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13:30 – 15:10 PM

Bonnet Carre Room

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### Session 10: Arc Models

- 10-1 Transmission System Parameters Optimization - Analyzing Secondary Arc Current and Recovery Voltage  
*M.C. Tavares and C.M. Portela*
- 10-2 Comparison of Universal Circuit Breaker Arc Representation with EMTP Built-in Model  
*H.A. Darwish and N.I. Elkalashy*

- 10-3 Numerical Arc Model Parameter Extraction for SF6 Circuit Breaker Simulations  
*L. Orama-Exclusa and B. Rodríguez-Medina*
- 10-4 Arc Characteristics and a Single-Pole Auto-Reclosure Scheme for Alexandria HV Transmission System  
*A.I. Megahed, H.M. Jabr, F.M. Abouelenin, and M.A. Elbakrey*

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15:30 – 17:10 PM Queen Anne Ballroom

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### Session 3a: Solution Methods (1)

- 3a-1 A New Approach for Integration of Two Distinct Types of Numerical Simulator  
*H.T. Su, L.A. Snider, K.W. Chan, and B.R. Zhou*
- 3a-2 Algorithms for Distributed Computation of Electromagnetic Transients towards PC Cluster Based Real-Time Simulations  
*T. Noda and S. Sasaki*
- 3a-3 Electromagnetic Transients Simulation with Different Time Steps – The Latency Approach  
*F.A. Moreira, J.R. Marti, and L. Linares*
- 3a-4 Latency Suitability for the Time-Domain Simulation of Electromagnetic Transients through Network Eigenanalysis  
*F.A. Moreira and J.R. Marti*
- 3a-5 Accuracy of Discretization Methods for Electromagnetic Transient Simulation  
*N.R. Watson*

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15:30 – 17:10 PM Iberville

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### Session 6b: Generators and Machines (2)

- 6b-1 ATP Modelling and Field Tests of the AC Voltage Regulator in the Palmar Hydroelectric Power Plant  
*C. Saldaña, G. Calzolari, and G. Cerecetto*
- 6b-2 Transient Performance in the Electromechanical System Network-Generator-Shaft During Asynchronous Acceleration  
*A. Gruening and S. Kulig*
- 6b-3 Damping of Torsional Resonances in Generator Shafts Using a Feedback Controlled Buffer Storage of Magnetic Energy  
*C. Sihler, A.M. Miri, A. Harada, and ASDEX Upgrade Team*
- 6b-4 Coherency Approach for Dynamic Equivalents of Large Power Systems  
*M.L. Ourari, L.A. Dessaint, and V.O. Do*

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15:30 – 17:10 PM Bonnet Carre Room

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### Session 11a: Power Electronics, FACTS, and HVDC (1)

- 11a-1 EMTDC Assessment of a New Type of VSC for Back to Back HVdc Interconnections  
*N.R. Watson, L. Yonghe, and J. Arrillaga*
- 11a-2 The GTO-Controlled Series Capacitor Applied to Half-Wave Length Transmission Lines  
*M. Aredes, E.M. Sasso, E.L. van Emmerik, and C. Portela*
- 11a-3 Dynamic Analysis of Three Voltage Source Power Converters Supplying Squirrel Cage Induction Machines  
*F.D. Kanellos and N.D. Hatziargyriou*
- 11a-4 An Intelligent Rule Base Adaptive Controller for PWM Based SSSC to Enhance Dynamic Performance of Power Systems  
*K.M. Sze, L.A. Snider, T.S. Chung, and K.W. Chan*

## Tuesday, September 30th, 2003

Hotel Monteleone, New Orleans

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8:30 – 10:10 AM

Queen Anne Ballroom

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### Session 3b: Solution Methods (2)

- 3b-1 A Study of the Usage of CDA in EMTP Simulations  
*T. Funaki, T. Hikihara, T. Takazawa, Y. Tada, A. Kurita, and X. Cao*
- 3b-2 Comparative Analysis of Shunt Active Filter Models in the EMTP/ATP and SABER Programs  
*M. Aredes, E.H. Watanabe, B. Bonatto, E.A. Mertens Jr., L.F.S. Dias, and S. Nosaki*
- 3b-3 Comparative Study Between Power System Blockset and PSCAD/EMTDC for Transient Analysis of Custom Power Devices Based on Voltage Source Converter  
*W. Freitas and A. Morelato*
- 3b-4 Interpolation and Reinitialization for the Simulation of Power Electronic Circuits  
*M. Zou, J. Mahseredjian, G. Joos, B. Delourme, and L. Gerin-Lajoie*

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8:30 – 10:10 AM

Iberville

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### Session 9a: Transformers, Inrush Transients, and Ferroresonance (1)

- 9a-1 Transformer Modeling for Low Frequency Transients - The State of the Art  
*J.A. Martinez-Velasco and B.A. Mork*
- 9a-2 An Algorithm for Calculations of Low Frequency Transformer Transients  
*A. Tokic, I. Uglesic, and F. Jakl*
- 9a-3 Simulation of Hysteresis and Eddy Current Effects in a Power Transformer  
*W. Chandrasena, P.G. McLaren, U.D. Annakkage, R.P. Jayasinghe, D. Muthumuni, and E. Dirks*
- 9a-4 Negative Impedances as Power System and Control Elements in EMTP-Type Programs  
*B.D. Bonatto and H.W. Dommel*

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8:30 – 10:10 AM

Bonnet Carre Room

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### Session 12: Power Quality and Harmonics

- 12-1 Power Quality Impacts of Series and Shunt Compensated Lines on Digital Protective Relays  
*M. Khederzadeh*
- 12-2 Power Quality Analysis Using An Adaptive Decomposition Structure  
*D.G. Ece and O.N. Gerek*
- 12-3 Voltage Sag Index Calculation Using an Electromagnetic Transients Program  
*J.A. Martinez-Velasco and J. Martin-Arnedo*
- 12-4 Sag Performance of some Brazilian Network Busbars  
*Delmo de Macedo Correia, Dalton de Oliveira Canponês do Brasil*

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10:30 AM – 12:10 PM

Queen Anne Ballroom

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### Session 4a: Switching Transients (1)

- 4a-1 Transient Performance of 500-kV Equipment for the Chilean Series-Compensated Transmission System  
*Q. Bui-Van, E. Portales, D. McNabb, and V. Gajardo*
- 4a-2 Transient Design Studies for Automatic Switching of Shunt Reactors on the Transelec System  
*D. McNabb, S. Bernard, S. Paquette, and G. Fromm*
- 4a-3 Potential Risk of Failures in Switching EHV Shunt Reactors in Some One-and-a-Half Breaker Scheme Substations  
*B. Khodabakhchian, J. Mahseredjian, M.-R. Sehati, and M. Mir-Hosseini*
- 4a-4 Control of Shunt Capacitors and Shunt Reactors Energization Transients  
*C.D. Tsireki and N.D. Hatziaargyriou*

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10:30 AM – 12:10 PM

Iberville

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### Session 9b: Transformers, Inrush Transients, and Ferroresonance (2)

- 9b-1 Analysis of Generator Tripping Incidents on Energizing Nearby Transformers  
*P. Nunes, A. Morched, and M.T. Correia de Barros*
- 9b-2 Loading Effects on the Attenuation of the Transferred Transients Through Cable Winding Transformer (Dryformer)

- M.J. Manyahi, R. Thottappillil, and M. Leijon*
- 9b-3 New Control Strategy of Inrush Transient during Transformer Energization at Touloustouc Hydropower Plant using a Double-Break 330-kV Circuit Breaker  
*E. Portales and Q. Bui-Van*
- 9b-4 Influence of Voltage Sourced Converter Waveforms on the Dielectric Strength of Transformer Insulation  
*K. Raja, F. Devaux, and S. Lelaidier*

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10:30 AM – 12:10 PM

Bonnet Carre Room

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**Session 11b: Power Electronics, FACTS, and HVDC (2)**

- 11b-1 Modelling of the Back-to-Back Converter between Uruguay and Brazil in ATP  
*G. Calzolari, M. Artenstein, A. Segade and F. Rabin*
- 11b-2 Treatment of Measured and Calculated Harmonic Currents in Filters of the Itaipu HVDC System  
*S. Carneiro Jr. and A.C. de Freitas Marotti*
- 11b-3 Modeling and Analysis of a Flywheel Energy Storage System with a Power Converter Interface  
*S. Samineni, B.K. Johnson, H.L. Hess, and J.D. Law*

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13:30 – 15:10 PM

Queen Anne Ballroom

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**Session 4b: Switching Transients (2)**

- 4b-1 Energisation of an Unloaded Transmission Grid as Part of Restoration Process  
*H. Kuisti*
- 4b-2 Simulation of Resonance Over-voltage during Energization of High Voltage Power Network  
*C.P. Cheng and S. Chen*
- 4b-3 Transient Recovery Voltages During the Switching Under Out-of-Phase Conditions  
*D. Braun and G. Koeppl*
- 4b-4 The Influence of Short Circuit Level in the Energization Process of Electric Power System's Transmission Lines  
*W. Charone Jr., M. A. Goncalves de Oliveira, and J. Matos de Araujo*

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13:30 – 15:10 PM

Iberville

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**Session 9c: Transformers, Inrush Transients, and Ferroresonance (3)**

- 9c-1 Indices for Ferroresonance Performance Assessment in Power Distribution Network  
*R.N. Mukerjee, B. Tanggawelu, A.E. Ariffin, and M. Balakrishnan*
- 9c-2 Capacitive Voltage Substations Ferroresonance Prevention Using Power Electronic Devices  
*M. Sanaye-Pasand and R. Aghazadeh*
- 9c-3 A Laboratory Investigation into the use of MV Current Transformers for Transient Based Protection  
*M.A. Redfern, S.C. Terry, F.V.P. Robinson, and Z.Q. Bo*
- 9c-4 A Coupling Capacitor Voltage Transformer Representation for Electromagnetic Transient Studies  
*D. Fernandes Jr., W.L.A. Neves, and J.C.A. Vasconcelos*

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13:30 – 15:10 PM

Bonnet Carre Room

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**Session 14a: Arresters, Circuit Breakers, and Current Limiters (1)**

- 14a-1 Synchronous Closing Breakers for Controlling 43.34 MVARs Back-to-Back 115 kV Capacitor Banks  
*L. Marini-Vázquez and L. Francis-Rosario*
- 14a-2 Electromagnetic Disturbances of the Secondary Circuits in Gas Insulated Substation Due to Disconnect Switching  
*I. Uglesic, S. Hutter, V. Milardic, I. Ivankovic, and B. F.-Grcic*
- 14a-3 Overvoltages and Reignition Behavior of Vacuum Circuit Breaker  
*S.M. Wong, L.A. Snider, and E.W.C. Lo*

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15:30 – 17:10 PM

Queen Anne Ballroom

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**Session 5a: Protection Techniques (1)**

- 5a-1 Transmission Line Fault Detection & Phase Selection using ANN  
*M. Sanaye-Pasand and H. Khorashadi-Zadeh*
- 5a-2 Simulation of Fault Location Algorithms in ATP Program using "C" Link  
*C. Eduardo de Moraes Pereira and L.C. Zanetta Jr*
- 5a-3 Wavelet Transform Based Relay Algorithm for the Detection of Stochastic High Impedance Faults

- T.M. Lai, L.A. Snider, and E. Lo*  
5a-4 Fault Location on Transmission Line Using High Frequency Travelling Waves  
*S. Jamali and A. Ghezeljeh*

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15:30 – 17:10 PM Iberville

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### Session 8a: Lightning Surges (1)

- 8a-1 Presentation of an Approach based on EMTP for the Calculation of Lightning Induced Overvoltages  
*A. Xemard, P. Baraton, B. Bressac, N. Qako, J. Mahseredjian, G. Simard, J. Ribeiro, R. Tarafi, and A. Zeddani*
- 8a-2 Finite Difference Method for Lightning Return Stroke Simulation Using the EMTP  
*E.J. Ribeiro and G.C. Miranda*
- 8a-3 A Comparison of Lightning Induced Voltages on Single and Double Circuit Power Distribution Lines  
*P.D. Kannu and M.J. Thomas*
- 8a-4 Calculation of Lightning-induced Voltages in MODELS Including Lossy Ground Effects  
*H.K. Hoidalen*

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15:30 – 17:10 PM Bonnet Carre Room

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### Session 15: New Topics

- 15-1 The Modeling and Simulation of a Shipboard Power System in ATP  
*A. Adediran, H. Xiao, and K.L. Butler-Purry*
- 15-2 Configuration Validation Using ATP Simulation for an Automatic Shipboard Power System Restoration Method  
*S.K. Srivastava and K.L. Butler-Purry*
- 15-3 Spectrum Estimation of Non-Stationary Signals in Power Systems  
*T. Lobos, Z. Leonowicz, and J. Rezmer*
- 15-4 Real Time Online Evaluation of Small Signal System Damping Applied to Power System Stabilizer Commissioning and Testing  
*I. Fernando, L. Chung, L. Midford, A. Silk, R. Coish, A. Golder, K. Hay, and D. Wilson*

**Wednesday, October 1st, 2003**

Hotel Monteleone, New Orleans

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8:30 – 10:10 AM Queen Anne Ballroom

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### Session 5b: Protection Techniques (2)

- 5b-1 ATP-EMTP Investigation of a New Distance Protection Principle for Series Compensated Lines  
*M.M. Saha, E. Rosolowski, and J. Izykowski*
- 5b-2 The Application of the Wavelet Transform of Travelling Wave Phenomena for Transient Based Protection  
*X.Z. Dong, M.A. Redfern, Z.Bo, and F. Jiang*
- 5b-3 Generic Protection Analyzer for Post-Processing of EMTP Simulations  
*K. El-Arroudi, G. Jóos, D. McGillis, and R. Brearley*
- 5b-4 A New Novel of Transverse Differential Protection Scheme  
*L. Xiaohua, Y. Xianggen, Z. Zhe, and C. Deshu*

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8:30 – 10:10 AM Iberville

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### Session 8b: Lightning Surges (2)

- 8b-1 Parametric Analysis of the Lightning Performance of Overhead Transmission Lines Using an Electromagnetic Transients Program  
*J.A. Martinez-Velasco and F. Castro-Aranda*
- 8b-2 s-Domain Analysis of Lightning Surge Response of a Transmission Tower with Phase Conductors  
*A. Kaygusuz, M.S. Mamis, and E. Akin*
- 8b-3 Evaluation of an Impulse Current Test Generator using Numerical Simulation Tools  
*S. Pack and S. Jaufer*
- 8b-4 The Inspection Results Regarding Lightning Location Error of KEPCO-LPATS and the Calculated Results on the Lightning Surge in the KEPCO Power System  
*J.W. Woo, J.S. Kwak, D.J. Kweon, E.B. Shim, J.D. Moon, and S.O. Han*
- 8b-5 Lightning Performance of Transmission Line Las Claritas – Santa Elena up 230 KV  
*G. Carrasco H. and A. Villa R.*

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10:30 AM – 12:10 PM

Queen Anne Ballroom

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### Session 5c: Protection Techniques (3)

- 5c-1 Transient Testing of Protection Relays: Results, Methodology and Tools  
*M. Kezunovic, T. Popovic, D. Sevcik, and H. DoCarmo*
- 5c-2 Analysis of an Adaptive Overcurrent Relay for Transmission and Distribution Lines  
*C. Yanxia, Y. Xianggen, C. Deshu, and Z. Zhe*
- 5c-3 Simulation of Protective Schemes of High Voltage Utility Motors  
*A. Soni, G. Agnihotri, and A. Ganga*

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10:30 AM – 12:10 PM

Iberville

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### Session 14b: Arresters, Circuit Breakers, and Current Limiters (2)

- 14b-1 Simulation of Metal Oxide Surge Arrester Dynamic Behavior under Fast Transients  
*A. Bayadi, N. Harid, K. Zehar, and S. Belkhiat*
- 14b-2 Lumped Network Model of a Resistive Type High Tc Current Limiter for Transient Investigations  
*R. Petranovic and A.M. Miri*

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13:30 PM –

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### Excursion

The Local Organizing Committee invites all conference registrants and accompanying persons to a City Tour followed by a dinner cruise on the Mississippi River aboard the Riverboat "Cajun Queen" : [http://www.neworleanspaddlewheels.com/about\\_cajunqueen.html](http://www.neworleanspaddlewheels.com/about_cajunqueen.html). Busses will depart the hotel from the Iberville Street side at 3:00 pm. Upon completion of the river cruise, the riverboat dock is a short walk from the hotel or you may return via taxi which can be hired at the Hilton Hotel a few steps away. You and your accompanying persons must have your conference registration credentials to board the bus and the riverboat.

Thursday, October 2nd, 2003

Hotel Monteleone, New Orleans

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8:30 – 10:10 AM

Queen Anne Ballroom

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### Session 7: Grounding and Shielding

- 7-1 Overview of Grounding Electrode Models and Their Representation in Digital Simulations  
*M.I. Lorentzou and N.D. Hatziargyriou*
- 7-2 A Simplified Formula of Surge Characteristics of a Long Grounding Conductor  
*S. Sekioka, M.I. Lorentzou, and N.D. Hatziargyriou*
- 7-3 Experimental Investigation of Transient Voltage and Current Characteristics on a Grounding Mesh  
*A. Ametani, N. Nagaoka, T. Sonoda, and S. Sekioka*
- 7-4 Influence of Earth Conductivity and Permittivity Frequency Dependence in Electromagnetic Transient Phenomena  
*M.C. Tavares, C.M. Portela, and J.P. Filho*
- 7-5 Factors Affecting Soil Characteristics Under Fast Transients  
*N.M. Nor, A. Haddad, and H. Griffiths*
- 7-6 Numerical Analysis of Grounding Resistance of Buried Thin Wires by the FDTD method  
*Y. Baba, N. Nagaoka, and A. Ametani*

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8:30 – 10:10 AM

Iberville

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### Session 13: Real-Time Simulators

- 13-1 Development of an Instantaneous and Phasor Analyses Combined Type Real-Time Digital Power System Simulator  
*H. Inabe, T. Futada, H. Horii, and K. Inomae*
- 13-2 The Real Time Digital Simulation of a Single Phase Voltage Source Converter and its Application  
*M. Yu and H. Konishi*
- 13-3 Real-Time, PC-Based Simulator of Electric Systems and Drives  
*S. Abourida, C. Dufour, J. Belanger and V. Lapointe*
- 13-4 Synthesis of Transient Equivalents Using Digital Filters for Real Time Simulation of Electromagnetic Transients in Large Electric Power Systems  
*C. Pereira, S. Carneiro Jr., and J. Szczupak*
- 13-5 Validation Tests of The Hypersim Digital Real Time Simulator with a Large AC-DC Network  
*D. Pare, G. Turmel, J.-C. Soumagne, V.Q. Do, S. Casoria, M. Bissonnette, B. Marcoux, and D. McNabb*
- 13-6 Real-time simulation of induction motor IGBT drive on a



PC-cluster

*C. Dufour, S. Abourida, and J. Bélanger*

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10:30 AM – 12:10 PM

Queen Anne Ballroom

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**Closing Session**

- Technical Committee Co-Chairpersons  
*A. Ametani (Doshisha Univ.) and T. Noda (CRIEPI)*
- Local Organizing Committee Chairperson  
*D. Mader (Entergy Corporation)*
- Organizing Committee Co-Chairpersons  
*M.T. Correia de Barros (Technical Univ. of Lisbon) and H.W. Dommel (Univ. of British Columbia)*

### Conference Schedule at a Glance

	Mon. Sep. 29th	Tue. Sep. 30th	Wed. Oct. 1st	Thu. Oct. 2nd					
8:30	<b>Opening Ceremony</b> Queen Anne	<b>3b</b> Queen Anne  Solution Methods 2	<b>9a</b> Iberville  Trans-formers 1	<b>12</b> Bonnet Carre  PO & Har-monics	<b>5b</b> Queen Anne  Protection 2	<b>8b</b> Iberville  Lightning Surges 2	<b>7</b> Queen Anne  Grounding & Shielding	<b>13</b> Iberville  Real-Time Simulators	10:40
10:10									
10:30	<b>1</b> Queen Anne  New Tools & Tech-niques	<b>5d</b> Iberville  Protection 4	<b>9d</b> Bonnet Carre  Trans-formers 4	<b>4a</b> Queen Anne  Switching Transients 1	<b>9b</b> Iberville  Trans-formers 2	<b>11b</b> Bonnet Carre  Power Electronics 2			
12:10	Lunch			Lunch			<b>Closing Session</b> Queen Anne		
13:30	<b>2</b> Queen Anne  Lines & Cables	<b>6a</b> Iberville  Generators 1	<b>10</b> Bonnet Carre  Arc	<b>4b</b> Queen Anne  Switching Transients 2	<b>9c</b> Iberville  Trans-formers 3	<b>14a</b> Bonnet Carre  ARRs., CBs, & Limiters 1	<b>Excursion</b>  City Tour of New Orleans followed by a dinner cruise on the Mississippi River aboard the Riverboat "Cajun Queen".		
15:10	Coffee Break			Coffee Break					
15:30	<b>3a</b> Queen Anne  Solution Methods 1	<b>6b</b> Iberville  Generators 2	<b>11a</b> Bonnet Carre  Power Electronics 1	<b>5a</b> Queen Anne  Protection 1	<b>8a</b> Iberville  Lightning Surges 1	<b>15</b> Bonnet Carre  New Topics			
17:10									