

CONTENTS

VOLUME 1

PLENARY PAPER

Amalgamation of Adaptive Control and AI Techniques: Applications to Generator Excitation Control O.P. MALIK	1
--	---

PANEL PAPERS I

Concepts and Tools for Monitoring Electricity Markets L. JONES, R. SCHAAL	11
Optimal Bidding Strategies for a Supplier in an Electricity Market JUHWAN JUNG, JAE-CHUL KIM, HAILI SONG, CHEN-CHING LIU	15
Optimal Bidding Strategies: An Empirical Conjectural Approach TENGSHUN PENG, K. TOMSOVIC	19
Analysis of Electricity Market Bidding Characteristics and Clearing Price for Modeling Generation Capacity Growth S. IHARA, M. SANFORD, A. KOS, T. SASAKI, T. KADOYA	23

PANEL PAPERS II

Real-Time Voltage Stability Assessment of Transmission Corridors M. LARSSON, C. REHTANZ, J. BERTSCH	27
Strategies to Increase Transfer Limit in Terms of Voltage Stability BYONGJUN LEE, HWACHANG SONG, HAE-KON NAM	33
Voltage Stability and Preventive Control in China ZHAOXU LIU	39
Shunt Compensation for Voltage Stability C.W. TAYLOR	43
Voltage Stability and Reactive Power Issues in the National Grid System Y.H. SONG	49

PANEL PAPERS III

New Concept of Energy Delivery Network for Practical Use of Distributed Generations and Customer Services – Committee Report of IEE Japan R. YOKOYAMA, K. NARA	55
Development of Autonomous Demand Area Power System in CRIEPI H. KOBAYASHI, S. UEMURA	61
State of the Arts of FRIENDS on 2003 K. NARA, J. HASEGAWA, K. TSUJI, T. ISE, T. OYAMA, Y. MISHIMA	65
The Status of Power Quality and/or Distributed Generation Projects in Korea: Establishment of Grid Interconnection Standards JAE-EON KIM	71

Generation Dispatch of Deregulated Energy Resources Using Stochastic Modeling C.S. CHANG, LI WEI	75
---	----

TUTORIAL PAPER

Tutorial on Evolutionary Computation Techniques for Power System Optimization K.Y. LEE, M.A. EL-SHARKAWI	81
---	----

ORAL PAPERS

Power Plant Operation and Control I

Novel Optimal Neurocontrol for a Synchronous Generator Using Radial Basis Function Neural Network JUNG-WOOK PARK, R.G. HARLEY, G.K. VENAYAGAMOORTHY	85
Local Model Networks Applied to Nonlinear Generator Excitation Control D. FLYNN, M.D. BROWN	91
Load Control of Unit Steam-Boiler Using Neurofuzzy Modelling Technique XIANG-JIE LIU, F. LARA-ROSANO, M. SANCHEZ PARRA, R. GARDUÑO RAMIREZ	97

Power System Modeling I

A Hierarchical Multilevel Flow Modeling for Power Substation Control and Restoration G. LAMBERT-TORRES, A.R. AOKI, L.E. BORGES da SILVA	103
Sequential Decentralized Design of Robust Load Frequency Controllers in Multiarea Power Systems H. BEVRANI, Y. MITANI, K. TSUJI	109
Modelling of NO _x and CO Emissions of a Small Gas Turbine Unit Based on Operational Data and Neural Networks F. CASELLA, C. MAFFEZZONI	115

Power System Monitoring and Diagnosis

Analysis on the Statistical Diffusion of Electric Motors Based on the Customers' End-Use Energy Survey SEUNGCHAN CHANG, INSOO KIM, HAG-SIG SON, JUNG-HOON KIM	121
--	-----

Distribution System Operation

The Fluctuating Reduction Method for Generation Power of Wind-PV Hybrid System JIN-SEOK OH, SANG-TAE LEE, SENG-HWAN JUN, BYEONG-DUCK YE, JI-YEONG LEE	127
Fault Location and Diagnosis Algorithms for Radial Distribution Systems SEUNG-JAE LEE, MYEON-SONG CHOI, SANG-HEE KANG, BO-GUN JIN, DUCK-SU LEE, BOK-SHIN AHN	133
Evaluation of the Reliability of Distribution System Taking into Consideration Customer Interruption Cost SANG-BONG CHOI, KEE-YOUNG NAM, SEONG-HWAN JEONG, DAE-KYUNG KIM, KYUNG-BIN SONG	141

Electricity Pricing/Bidding Schemes

Optimal Bidding Strategy in the Uncertain Energy Market P. ATTAVIRIYANUPAP, K. OGATA, H. KITA, E. TANAKA, J. HASEGAWA	147
A Bidding Strategy Decision Support Application for Market Participants J.C. PASSELERGUE, B. MARIE, C. GALZIN	153

Power System Control I

Multi-Agent Based Stabilization Control Using Energy Capacitor System T. HIYAMA, Y. MATSUMOTO, Y. HARA	157
---	-----

Coordination of Electric Power System Emergency Control Using Artificial Neural Network N. VOROPAI, D. EFIMOV, P. ETINGOV	163
Multi-Machine Power Systems Stabilizing Control Using Output Feedback Excitation System T. NUMAJIRI, G. SHIRAI, R. YOKOYAMA, S. MACHI, G. FUJITA	169
Simulation of Isolated Operation in Fault Condition by Loop Power Flow Controller N. OKADA, H. KOBAYASHI, T. ISHIKAWA, K. TAKIGAWA, K. KUROKAWA	175
<i>Distributed Generation I</i>	
Dual Electric Power Supply with Increasing Wind Power Generation, Requirement for an Advanced Secondary Control Concept E. WELFONDER, M. KURTH, C. HODUREK, H. RADTKE	181
Voltage Regulation for Distributed Wind Generators E. PAALMAN, R. MORGAN	191
Voltage and Output Power Stabilization of Wind Power Generation System by SMES T. SENJYU, T. KINJYO, K. UEZATO, H. FUJITA	197
A Capacity Estimation Technique of Solar-Wind Hybrid Power System for an Urban Residential Load BYEONG-GOOK KWON, SEUNG-CHUL LEE, CHAN-EOM PARK	203
<i>Power Plant Operation and Control II</i>	
Robust Model Predictive Control to a Nonlinear Boiler Turbine System LI ZHIJUN, TAN WEN, LIU JIZHEN	207
Neuro-Fuzzy Generalized Predictive Control of Boiler Steam Temperature XIANG-JIE LIU, F. LARA-ROSANO, M. SANCHEZ PARRA, R. GARDUÑO RAMIREZ	213
Model Predictive Pressure Control in Steam Networks Y. MAJANNE	219
<i>Power Plant Operation and Control III</i>	
I&C System for Improved KSNP (KSNP+) in Korea BYONG-SOO CHO, HWAN-YONG JUNG, SANG-KOOK CHUNG	225
An Improved Human Machine Interface Modernization for a Combined Cycle Power Plant A. RIVAS-SUAREZ, V. ALVAREZ-CORTÉS, C. URIBE-BLANCO, M. SANCHEZ-PARRA	231
Adaptive and Intelligent Systems for Generator Monitoring and Protection Purposes W. REBIZANT, J. SZAFRAN, SEUNG-JAE LEE, SANG-HEE KANG	237
Partial Least Squares for Power Plant Performance Monitoring J. RITCHIE, D. FLYNN	243
I&C Commissioning Results of Taean #5, 6 JOON-HO YOON	249
<i>Power Plant Operation and Control IV</i>	
Strategy of Control of Extensive District Heating Systems J. BALÁTE, B. CHRAMCOV, M. PRINC	255
Start-Up Schedule Optimizing System of a Combined Cycle Power Plant M. SHIRAKAWA, M. NAKAMOTO	261
Control and Dynamic Simulation for a Combined Cycle Power Plant : The Process and Control Strategies M. SANCHEZ-PARRA, Y. RUDECINO-MENDOZA	267
Suggestions to Improve the Reliability of the Fan Actuator MAN-KWON HAN	273

Flexible Transmission Systems

- A Study on the Effects of New Facts Installations on Existing Distance Protection Relays 279
JONGYUN CHOI, YOUNGSEONG HAN, INYOUNG SUH, BYUNGHOON CHANG, JONGSU YOON
- LMI Approach to Decentralized H_{∞} Control of FACTS Devices in a Large Power System: Polytopic Representation of Operating Conditions 285
M.M. FARSANGI, YONG HUA SONG, K.Y. LEE
- Coordination Between Transient and Damping Controller for Series Facts Devices Using ANFIS Technology 293
LIJUN CAI, I. ERLICH
- A Dynamic Simulation Algorithm of UPFC for Studying Power System Oscillations 299
T.K. HAHN, K.M. SON, JONG-KEUN PARK

Information Management

- Interfacing an Existing Energy Management System to a Newly Established Market Operations System 305
HYO-SANG LEE, D.L. ROSA, P. KAMBALE, R. SCHAAL
- Protection, Control and Monitoring System with Web Interface for Small Distribution Substations 311
A. APOSTOLOV, R. SCHAAL
- Network Computing Terminal as an Intelligent Information Terminal for Power Systems 315
Y. KUROSAWA, K. SEKIGUCHI, A. TAKEUCHI, S. KATAYAMA, H. MAEHARA, M. SHIMADA
- Enhancement of Data Handling in Integrated Power System Analysis Package, *Named IMPACT*, Using Information Technologies 321
Y. TADA, T. YAMADA, T. TAKAZAWA, Y. TAKAHARA, T. SHISHIDO
- Next Generation National-Wide Hydropower Integrated SCADA System 327
YOUNG-GUE KIM, WOO-BOG SONG, NAM-BIN CHO

Power Plant Operation and Control V

- Feasibility Analysis of Control-Loop Interaction Compensation for a Fossil-Fuel Power Plant 331
R. GARDUNO-RAMIREZ, K.Y. LEE
- Condenser Maintenance Cost Optimisation Using Genetic Algorithms 337
M. CREGAN, D. FLYNN
- Design Approach of Control System for Advanced Nuclear Power Plant 343
JIN-KOO KIM, JIN-WOONG LEE, KI-SOO PARK, MOON-JAE CHOI, IL-NAM CHOE

Power System Control II

- Robust Digital Control for Multi-Machine Power Systems with Data Transmission Delays 351
A.S. SABZEVARY, S. IWAMOTO
- A Nash Solution to Predictive Control Problem for Power Systems 357
CHOON KI AHN, WOOK HYUN KWON
- A Nonconvex Quadratic SDP for Fixed Order H_{∞} Control and Its Application to Generator Excitation System Design 363
SEOGJOO KIM, JONG-MOON KIM, SOONMAN KWON, KOOK-HUN KIM, YOUNG-HYUN MOON

Distributed Generation II

- Network Requirements of Future Energy Conversion Technologies 369
H. WEBER, T. HAMACHER, T. HAASE
- Control Schemes of Utility Interactive Multifunctional Dispersed Generation 375
IL-YOP CHUNG, SUNG-WOO PARK, JOON-HO CHOI, SEUNG-IL MOON, JAE-EON KIM
- Analysis of System Impact of the Distributed Generation Using EMTP with Particular Reference to Protection Strategies 381
S.M. YEO, C.H. KIM

Power System Protection

Protection of a New 500 KVA Static VAR Generator XIANMING CHEN, HEPING XU, XIAOHONG WANG, TONG WANG	387
A Study for an Autonomous Optimal Protection System of a Power Distribution Network BYUNG-WOON MIN, KWANG-HO JUNG, SEUNG-JAE LEE, MYEON-SONG CHOI, SEUNG-HO HYUN	393
Analysis of Protective Relaying Operation and Related Power System Interaction M. KEZUNOVIC, S. VASILIC	399
A Directional Relay Algorithm Using Positive-Sequence Superimposed Quantity for Transmission Line Protection MYOUNG SOO LEE, SEOK KU YOU	405

VOLUME 2

ORAL PAPERS (continued)

Operation of Competitive Electricity Markets I

Oscillation Behaviour of the Enlarged European Power System Under Deregulated Energy Market Conditions M. KURTH, E. WELFONDER	409
Coloring Transmission Routes for Wheeling by a Modified Sensitivity Analysis H. HAMADA, RUI LI, Y. TADA, R. YOKOYAMA, LUONAN CHEN	417
Viability of Restructuring the Power Sector in Korea RIMTAIG LEE	423

Power Plant Modeling I

Synchronous Generator Model Identification Using On-Line Measurements M. KARRARI, O.P. MALIK	427
Integrated Interface for Power Plant Modelling D. FAILLE, A. HIRET, F. DAVELAAR	433
Derivation of Parameters of Their Models Used in Thermal Unit YONG-HAK KIM, TAE-KYUN KIM, NO-HONG KWAK, JIN-BOO CHOO, JOON-YOUNG JOO, SEOK-HA SONG	439

Transmission/Distribution Apparatus

A Study on Enhancing the Power Transfer Capability of a Large-Scale Power System Using STATCOM BYUNG HA LEE, JUNG-HOON KIM, YONG-HAK KIM, NO-HONG KWAK	443
A Study on Transmission System Expansion Planning on the Side of Highest Satisfaction Level of Decision Maker TRUNG TINH TRAN, SUNGROK KANG, JAESEOK CHOI, R. BILLINTON, A.A. EL-KEIB	449
A New Approach for Locating and Adjustment of Phase Shifters A. YAZDANI, G.B. GHAREHPETIAN, S.M. KOUHSARI	457
A Study on the Development of a Novel Coupler for GIS PD Detection JAEGU CHOI, KWANGHWA KIM, ILKSOO KIM	461

Power System Stability I

EMM-Based Voltage Stability Analysis in Consideration of Load Power Factor YOUNG-HYUN MOON, HYUN-SUNG KIM, KYUNG-IL MIN, DO-HYUNG KIM	465
Comparison of Generalized Neuron Based PSS and Adaptive PSS D.K. CHATURVEDI, O.P. MALIK	471

Unit Commitment

- A Fast Technique for Unit Commitment by Genetic Algorithm Based on Unit Integration 479
T. SENJYU, K. SHIMABUKURO, K. UEZATO, T. FUNABASHI

- Strategic Tabu Search for Unit Commitment in Power Systems 485
H. MORI, S. SUDO

Simulators/Simulation Methods

- Marine Power System Modeling and Simulator 491
WEIFENG SHI, TIANHAO TANG, HANGYING WEI

- Experience in Testing Turbine Governors by Using Digital Real-Time Simulator 497
R. KUTZNER

- Novel Hardware Interactive Real Time Digital Simulation Method for Active Filter System 503
NAK-GUEON SEONG, MINWON PARK, IN-KEUN YU

- A Criterion to Evaluate the Accuracy of Reduced Order Models of Induction Generators Based on Neglecting Stator Transients 509
S.B. RAFI, M.H. VARAHRAM

Power System Restoration

- Transient and Harmonic Overvoltages Related to Transformer and Transmission Line Interaction During Black Start Energization 513
S.D. CHO, B.A. MORK, K.K. MUSTAPHI

- Analysis of the Primary Restorative Transmission System 519
H.J. LEE, S.M. PARK, K.S. LEE, I.J. SONG, N.H. LEE, J.C. BAI, B.W. WHANG

- Practical Application of Tabu Search to Distribution System Service Restoration in Korea 523
KYEONG-JUN MUN, HYUNG-SU KIM, J.H. PARK, JEONG-IL SEO, G.H. HWANG

Voltage and Reactive Power Control

- Interaction and Coordination of Two Static VAR Compensators in Close Electrical Proximity 529
R.S.C. CHOKELAL, J. JIANG

- A Study on the Optimal Operation of Line Voltage Regulator (SVR) on Distribution Feeders 535
DAESEOK RHO, EUNMI LEE, JAESEOK CHOI, JAEON KIM, EUNGSANG KIM, CHANGHO PARK

- Fuzzy Application to Reactive Power Control of Power Systems 541
CHING-TZONG SU, CHIEN-TUNG LIN, CHI-JEN FAN

- Volt/Var Control in Distribution Networks with Distributed Generation 547
T. NIKNAM, A.M. RANJBAR, A.R. SHIRANI

- Loop Flow Based Method with Application to Capacitor Optimization in Distribution Systems 553
BOMING ZHANG, WENCHUAN WU

Power System Stabilizer

- Fuzzy Logic Based Identifier for Power System Stabilizer Application 559
T. ABDELAZIM, O.P. MALIK

- Allocation and Design of Power System Stabilizers for Mitigating Low-Frequency Oscillations in the Eastern Interconnected Power System in Japan 565
C. LIU, M. ISHIMARU, R. YOKOYAMA

- A Fast Adaptive Power System Stabilizer 571
N.F. DJAGAROV, K.V. MALIKOV

An Adaptive Power System Stabilizer for Control of Multi-Machine Power Systems N.F. DJAGAROV, K.V. MALIKOV	577
<i>Power Plant Operation and Control VI</i>	
Feedforward-Feedback Neurofuzzy Speed Control of a Turbogas Unit R. GARDUNO-RAMIREZ, S. DeLARA-JAYME	583
Fuzzy Control of a Non-Utility Power Generation Facility A. TOYAMA, E. TANAKA, H. KITA, J. HASEGAWA	589
A New Electrostatic Eliminator Using High Voltage Usable in Explosive Atmosphere T. SUZUKI, T. KODAMA, T. MOGAMI, K.S. CHOI, J.H. JOUNG, M. TAKEUCHI	595
<i>Power System Analysis I</i>	
Energy-Based Power System Analysis with the Equivalent Mechanical Model YOUNG-HYUN MOON, HWA-JONG KOO, JONG-GI LEE, YONG-JUN KWON, BYEONG-MO YANG	599
Double Circuit Simultaneous Contingency Analysis JI-UNG KIM, JONG-GI LEE, YOUNG-HYUN MOON	605
Power System Reliability Assessment Considering Non-Exponential Distributions and Restorative Actions GWANG WON KIM, K.Y. LEE	611
Fault Location Using Wavelet Transform in Combined Transmission Systems CHAE-KYUN JUNG, JONG-BEOM LEE	617
Indirect Adaptive Neurocontrol Scheme for a Static Compensator Connected to a Power System S. MOHAGHEGHI, G.K. VENAYAGAMOORTHY, R.G. HARLEY, J.-W. PARK, M.L. CROW	623
<i>Power System Modeling II</i>	
Modelling and Decomposition of the ACE of a Control Area for Control Performance Evaluation WONCHANG CHUNG, LE-REN CHANG-CHIEN, CHEE-MUN ONG	629
Development of Coherency Index for Power System Dynamic Reduction JIN-YI KIM, MYUNG-JANG KANG, SEUNG-IL MOON	635
A New Approach for Modeling of Multiterminal DC System in Load Flow Programs B. HASHEMI, S. MONTASSER-KOUHSARI, G.B. GHAREHPETIAN	641
PSCAD/EMTDC Based Modeling of a Wind Energy Conversion Scheme for Grid-Connection SEUL KI KIM, EUNG SANG KIM, JAE YOUNG YOON, HO YONG KIM	647
<i>Operation of Competitive Electricity Markets II</i>	
The Framework Design of an Electricity Market Simulator JIN HUR, DONG-JOO KANG, KYUNG-SOO KOOK, TAI-HYUN KIM, JEONG-HO LEE, YOUNG-HWAN MOON	653
An Optimization Model for Transmission Planning in a Competitive Market RISHENG FANG, D.J. HILL	659
The Electricity Contract and Contestable Spot Market BYUNG WOO KIM	665
<i>Power Plant Modeling II</i>	
A Design of Neural Network Decoupling and Inverse Dynamic Control for Boiler-Turbine XIN-FANG ZHANG, DA-PING XU, XI-YUN YANG	669
A Novel Approach to Modeling the Superconductive Shielded Core Reactor (SSCR) M.H. VARAHRAM, S.B. RAFI	675

Power System Analysis II

Quantification Method of TRM (Transmission Reliability Margin) Using Probabilistic Load Flow 679
DONG-JOON SHIN, HYO-SANG LEE, JIN-O KIM

Fuzzy DC Power Flow 685
YING-YI HONG, JUN-SHIN LIN

Adequacy Assessment of Small Isolated Power Systems Using a Well-Being Approach 691
M. FOTUHI-FIRUZABAD, M. RASHIDINEJAD, R. BILLINTON

Power System Stability

Small-Signal Stability Assessment of the European Power System Based on Advanced Neural Network Method 697
S.P. TEEUWSEN, I. ERLICH, U. BACHMANN

Comparison of Small Signal Stability Analysis Methods in Complex Systems with Switching Elements 703
DEOK YOUNG KIM, A.P. SAKIS MELIOPOULOS

Eigenvalue Analysis Program of Small-Signal Stability of Power System Including Network Dynamics for the Subsynchronous Resonance Study 709
D.J. KIM, H.K. NAM, Y.H. MOON

Wide Area Stability Monitoring Based on Real Time Eigenvalue Analysis 717
T. HIYAMA, D. KOJIMA, K. OHTSU, K. FURUKAWA

POSTER PAPERS

Advanced Spectral Analysis of Out-of-Step Operation of Synchronous Machines 723
Z. LEONOWICZ, T. LOBOS

Design of Advanced Power Reactor (APR1400) I&C System 729
HAK-YEONG CHUNG, DONG-WOOK KIM

Development of Wide Area Monitoring System Using GPS 735
J.B. CHOO, K.H. KIM, D.H. JEON, J.W. LEE, I.K. LEE, S.H. YOON

A Modified Voltage SAG Duration for Power Quality Diagnosis 739
DONG-JUN WON, IL-YOP CHUNG, JOONG-MOON KIM, SEON-JU AHN, SEUNG-IL MOON

Availability Evaluation for Architectures of the Reactor Protection System 745
DONG-YOUNG LEE, JOON LYOU

The Way of District Heating Output Control by Means of Hydrothermal Power Systems 751
J. BALÁTE

Determination of Synchronous Machine and Excitation Systems Parameters from Field Tests 757
YONG-HAK KIM, T-K. KIM, NO-HONG KWAK, JIN-BOO CHOO, JOON-YOUNG JOO, SEOK-HA SONG

Reliability Evaluation of Power Distribution Systems Considering the Momentary Interruptions 761
SANG-YUN. YUN, JAE-CHUL KIM, JOO-CHEON BAE, YOUNG-JAE JEON, SANG-MAN PARK, CHANG-HO PARK

A Novel Simulation Method for Wind Power Generation System Using PSCAD/EMTDC 767
SANG-GEUN HAN, MINWON PARK, IN-KEUN YU

Application of Ant Colony Algorithm for Network Reconfiguration in Distribution Systems 773
YOUNG-JAE JEON, JAE-CHUL KIM, SANG-YUN YUN, K.Y. LEE

Application of the "Unified Energy Solutions" Package in Samsung Fine Chemicals 779
V. HAVLENA, J. FINDEJS, J. JECH, HEUNG SHIK KIM, KYUNG-CHUL PARK, KEUN YONG KIM

Real Time Simulation Scheme for Stand-Alone Wind Power Generation Systems 785
SANG-GEUN HAN, MINWON PARK, IN-KEUN YU

VOLUME 3

POSTER PAPERS (continued)

Loss Minimization by DGs Installation and Operation in Unbalanced Distribution Systems K.H. KIM, Y.J. LEE, S.B. RHEE, S.K. LEE, S.K. YOU	797
Network Reconfiguration Using Chaos Search Method in Unbalanced Distribution Systems SANG-BONG RHEE, YU-JEONG LEE, KYU-HO KIM, SEOK-KU YOU	803
The Best Line Choice for Transmission System Expansion Planning on the Side of the Highest Reliability Level SUNGROK KANG, TRUNGTHINH TRAN, JAESEOK CHOI, JUNMIN CHA, DAESEOK RHO, R. BILLINTON	809
Bifurcation Control Application to Voltage Collapse in a Model Power System TAIHYUN KIM, TAE-KYOO OH, KYUNG-SOO KOOK, YOUNG-HWAN MOON	815
Analysis of System Impact of the Distributed Generation Using EMTTP with Particular Reference to Voltage Sag S.M. YEO, C.H. KIM, Y.K. KIM, M.C. SHIN, S.P. AHN, D.J. LEE	821
Application of 3D Visualization to Power System Troubleshooting Guide CHANG-HYUN PARK, YOUNG-BEOM JUNG, GILSOO JANG, BYOUNGJUN LEE, HONGRAE KIM	827
Neural Network Approach to Transformer Faults Diagnosis Using Dissolved Gas Composition J.H. SUN, K.H. KIM	831
An Optimal Measurement Placement for Harmonic State Estimation Using Genetic Algorithms YONG-P. WANG, HEE-C. PARK, HYENG-H. CHUNG	837
A Real Time Monitoring System of Power Quality Disturbances Using Digital Filtering Techniques KYO-SUNG LEE, YONG-JAE LEE, DO-HUN KIM, YANG-MO KIM	845
Sensitivity-Based Restorative Control for Power Systems S-R. OH, Y-S. BAEK, C-Y. OK, J-N. KIM	851
Petri-Net Approach to Fault Diagnosis in Power Systems Using the Time Sequence Information of Protection System MYONG-GYUN ROH, SANG-EUN HONG	857
A Restoration Aid Expert System for Distribution Networks HEUNG-JAE LEE, KYEONG-SOEB LEE, SUNG-MIN PARK	861
Transient Analysis and Reduction Method of Sheath Circulating Current in Underground Power Cable Systems CHAE-KYUN JUNG, JONG-BEOM LEE, JI-WON KANG	867
Properties of Porcelain Suspension Insulator for Ultra High Voltage Transmission Line IN-HYUK CHOI, JANG-HYUN CHOI, DONG-IL LEE, GIL-JO JUNG, YEON-GYE CHOI	873
Electromagnetic Radiation of Partial Discharges in Insulation of the HV Devices N.V. KINSHT, M.A. KATZ, N.N. PETRUN'KO	877
Comparison of Electrical-Environment Characteristics Between Two Different Types of EHV Transmission Lines TAE-IN JANG, SEONG-DOO LEE, KOO-YONG SHIN, DONG-IL LEE	881
Implementation of Fuzzy Logic Controller for HVDC Using Genetic Algorithm JONG-BO AHN, GI-HYUN HWANG, J.H. PARK	887
Estimating Factor for Improving ARC Extinction Capability of DC Magnetic Switch HYUN-KIL CHO, EUN-WOONG LEE	893
A Study on the Modeling of Superconducting Fault Current Limiters Using EMTDC JAEDEUK LEE, MINWON PARK, IN-KEUN YU	899

Expert System for Diagnosing Silicone Oil-Filled Transformers JONG-FIL MOON, JAE-CHUL KIM, TAE-HOON IM	905
Optimal Design of Resistive Type HTS-FCL Using Monte Carlo Method JAE-YOUNG YOON, JONG-YUL KIM, HEUNG-KWAN CHOI	911
Risk Management and Derivatives in Korea Electricity Markets KI WOOK PARK	915
Reserve Procurement and Pricing via Joint Dispatch in Restructured Electricity Industry M. RASHIDINEJAD, M. FOTUHI-FIRUZABAD, Y.H. SONG	921
Application of Bayesian-Cournot Nash Game Model in Establishing Bidding Strategy with Incomplete Information Among Non-Cooperative Generation Companies BYEONG-GOOK KWON, SEUNG-CHUL LEE, DONG-SOO CHOI, JONG-HWAN KIM	927
Study of Identification for the Inertia Constant in a Small Power System for LFC Y. GOTO, S. MATSUSHITA, K. YUKITA, K. MIZUNO, K. ICHIYANAGI, H. AOKI, Y. MIZUTANI	933
Fast Algorithms for Solving Load Flow Equations FENGHONG YANG, YUN TANG, PING LUO, MING RAO	939
A New Fault Detector for Three-Phase Half-Wave Converter Using Wavelet Transform JONG-MIN CHEON, CHOON-KYUNG KIM, JONG-MOO LEE, SEOG-JU KIM, SOONMAN KWON	945
Development of Remote Corrosion Monitoring and Control System for Oil Tanks by Using a High Efficiency CP Rectifier JEONG-HYO BAE, TAE-HYUN HA, HYUN-GOO LEE, DAE-KYEONG KIM, YOON-CHEOL HA	951
3-D Assessment of Human Hazard by Outdoor Electrical Facilities in Submerged Area TAE-HYUN HA, HYUN-GOO LEE, DAE-KYEONG KIM, JEONG-HYO BAE, JI-IN LEE, YOON-CHEOL HA	959
Harmonic Analysis and Its Countermeasure on Electric Railway in Korea YOUNG HOON AHN, CHANG MU LEE	963
Modeling and Control of a Fuel Cell System in Transport Applications J. LACHAIZE, M. FADEL, S. CAUX, P. SHOTT, L. NICOD	969
An Interface Construction of Fuel Cell and Battery Hybrid System SOO-BIN HAN, SUCK-IN PARK, HAK-GEUN JEOUNG, BONG-MAN JEOUNG, WON-YOUNG LEE	975
Development of Distance Relay Models for Real Time Digital Simulator JOO-HUN LEE, YONG-BEUM YOON, SEUNG-TAE CHA, JIN LEE, JONG-WOONG CHOE	979
Short-Term Reactive Power Load Forecasting Using Multiple Time-Series Model JONG-MAN CHO, JIN-HACK KIM, WOO-HYUN PARK, YUN-HO LEE, JIN-O KIM	985
Implementation of Intelligent Smart Module for Prediction of the Remained Battery Capacity BYUNG-WOO JUNG, SUNG-SIK KIM, JUNG-MO YANG, HYUN-CHAN CHO, YONG-TAEK OH	991
Power System Stability Prediction Using Line Power Flow YOON-SUNG CHO, GILSOO JANG, BYONGJUN LEE, SAE-HYUK KWON	997
A Study on the Algorithm and Its Practical Use for Improving the Reliability of Automatic Power Restoration System J.B. CHOO, I.J. SONG, N.H. LEE	1003
Application Effects of SFCL in Korean Power System JONG-YUL KIM, HEUNG-KWAN CHOI, JAE-YOUNG YOON, HAK-MAN KIM	1007
Reignition Surge Effect in a Vacuum Circuit Breaker on Induction Motor Using the PSCAD/EMTDC W.H. LEE, JIN LEE	1013
Security-Constrained Optimal Power Flow Using First-Order Contingency Sensitivity Matrix JONG-RYUL WON, KIL CHOI	1019

Control Analysis and Stability for Static VAR Generator HANXIANG CHENG, XIANGGEN YIN, ZHIHUA WANG, SHAOHUA CHEN	1025
Adaptive Fuzzy Control for Variable Speed Variable Pitch Wind Turbine XIN-FANG ZHANG, DA-PING XU	1031
Analysis on Determining the Allocation Ratio of Transmission Service Costs Using the Arbitration Game KOO-HYUNG CHUNG, CHONG-IL YOO, DONG-JOO KANG, BALHO H. KIM	1037
A Study on Reclosing Operation Considering Fault Current Limiter K. YUKITA, J. FUJITA, D. KOJIMA, Y. GOTO, K. ICHIYANAGI, Y. TABATA, S. OGAWA	1041
A Study of Novel Power System Stabilizer WEI WANG, LONG WU, HEPING XU, WEIQUN LIU, XIANMING CHEN	1047
Influence of HV Lines on Parallel Pipelines HYUN-GOO LEE, TAE-HYUN HA, JEONG-HYO BAE, YOON-CHEOL HA, DAE-KYEONG KIM	1051
Dynamic Simulation of Voltage Instability with Particular Reference to Protection Strategies Using EMTP J.Y. HEO, C.H. KIM, R. AGGARWAL, N.O. PARK	1055
DGR-Based Investment Decision Model of Generation Expansion Planning YU CHENG, LIZI ZHANG	1061
Decentralized Simulation of Large-Scale Electrical Networks S.M. KOUHSARI, A. KALANTARI	1067
A Study on Wind Power Generation Planning and Control K. WATANABE, A. NISHIYAUCHI, T. OHTAKA, S. IWAMOTO	1073
Study of UPFC Operation Strategies in KEPCO System(I)-Steady State Characteristics B.H. CHANG, Y.S. JEON, N.H. KWAK, J.B. CHOO, X.K. XU, B.P. LAM	1079
Study of UPFC Operation Strategies in KEPCO System(II)-Dynamic Characteristics B.H. CHANG, S.Y. KIM, J.S. YOON, J.B. CHOO, L.T.G. LIMA, J. W. FELTES	1087
Feeder Reconfiguration Using Cyclic Best-First Search SANG-YULE CHOI, CHANG-DEA YOON, MYONG-CHUL SHIN	1097
An Application of Gain Scheduling Theory to Multi-Machine Stabilization Control S. YAMAMOTO, H. OHSHTA, T. OHTAKA, S. IWAMOTO	1103
Voltage Stability Control Based on VIPI Including a NAS Battery System T. ESAKA, A. TAKEHARA, T. OHTAKA, S. IWAMOTO	1109
A Generator Power Tracing Method for Line Power Flows M. SUWA, E. MASAKI, T. OHTAKA, S. IWAMOTO	1115
Optimal Placement of Facts from Dynamic Performance Viewpoint M. YANAGITANI, R. SHIZAWA, T. OHTAKA, S. IWAMOTO	1121
Use of Critical Clearing Time for Transient Stability Preventive Control Y. KATO, K. YODA, T. OHTAKA, S. IWAMOTO	1127
Forecasting Short-Term System Marginal Price Using a Neural Networks JEONG-KYU LEE, MIN-SOO KIM, JONG-BAE PARK, JOONG-RIN SHIN	1133
A Study of Channel Modeling for Broadband Power Line Communication YOUNG-KWAN CHOI, JEONG-HOON LEE, JAE-SANG CHA, JONG-WAN SEO, MYUNG-CHUL SHIN	1139
The Influence of Conductor Sag on Spatial Distribution of Transmission Line Magnetic Field B.P. KUMLEH, M.H. VARAHRAM, S.P. KUMLEH	1145
Mitigation of AC Voltage Occurring in Pipeline Located Closed to Electric Transmission Lines with Design of Joint Right of Way B.P. KUMLEH, M.H. VARAHRAM, S.P. KUMLEH	1151

A Series Active Power Filter for Harmonics and Reactive Power Compensation JIN-SUN KIM, YOUNG-SEOK KIM	1155
Design of Web Based Monitoring and Control System for Photovoltaic System BYUNG-BOG KANG, JUNG-YEOL LIM, JEONG-PHIL YOON, SE-JUN PARK, IN-SU CHA	1161
Effect of Fault Current Limiter in AC/DC Hybrid Power System T. KAMIYA, H. YAMADA, K. YUKITA, Y. GOTO, K. ICHIYANAGI, T. MATSUMURA	1167
Renewable Energy in Deregulated Power Market R. NIEH, LOI LEI LAI, N. RAJKUMAR, YUPING LU, GUOQING TANG	1173
Author Index	1179