2017 International Electrical Engineering Congress (iEECON 2017)

Pattaya, Thailand 8 – 10 March 2017



IEEE Catalog Number: ISBN:

CFP1702X-POD 978-1-5090-4667-6

Copyright © 2017 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP1702X-POD
ISBN (Print-On-Demand):	978-1-5090-4667-6
ISBN (Online):	978-1-5090-4666-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400 Fax: (845) 758-2633 E-mail: curran@proceedings.com Web: www.proceedings.com



SS1001	Single-Phase Grid-Connected Voltage Source Converter for LCL Filter with Grid-Current Feedback1
	Ahmad Ali, Prabhuraj Shanmugham, Sakda Somkun Narsuan University Phitsanulok, Thailand
SS1002	Discontinuous Gate-Drive Signals for a Three-Phase Three-Switch Unidirectional Delta-Type Rectifier Based on 2L-SVM Analysis of a Vienna Rectifier7
	Ong-art Tubburee, Yuttana Kumsuwan Valaya Alongkorn Rajabhat University, Thailand
SS1004	Approximate 2-Degree-of-Freedom Digital Control of an Interleaved Low Voltage DC-DC Buck Converter11
	Kento Ogiwara, Kohji Higuchi, Tomoaki Sato, Suttichai Premrudeepreechacharn, Kamon Jirasereeamornkul The University of Electro-Communications Tokyo, Japan
SS1005	Robust Digital Control of a Class-D Amplifier with Low Switching Frequency for Vibration Generator15
	Kazuki Hanabusa, Kohji Higuchi, Tatsuyoshi Kajikawa, Suttichai Premrudeepreechacharn, Kamon Jirasereeamornkul
SS1006	The University of Electro-Communications Tokyo, Japan Large-Signal Model of DC Micro-grid Systems Feeding a Constant Power Load19
551000	Jakkrit Pakdeeto, Kongpan Areerak, Kongpol Areerak Suranaree University of Technology, Thailand
SS1007	Detection Mechanical Fault of Induction Motor Using Harmonic Current and Sound Acoustic23
	Supachai Prainetr, Santi Wangnippanto, Satean Tunyasirut Pathumwan Institute of Technology, Thailand
SS1008	Optimization PI Controller of Grid Connected for Wind Turbine Based on PMSG27
	W.Jaikhang, S.Tunyasrirut, W.Permpoonsinsup Pathumwan Institute of Technology, Thailand
SS1009	Artificial Neural Network Model for Wind Energy on Urban Building in Bangkok31
	B.Chainok, S.Tunyasrirut, S.Wangnipparnto, W.Permpoonsinsup Pathumwan Institute of Technology, Thailand
SS1010	Embedded Control System with PID Controller for Comfortable Room35
	K. Janprom, S. Wangnippanto, W. Permpoonsinsup Pathumwan Institute of Technology, Thailand
SS1011	Hourly Load Forecasting of Power System over Northeastern Thailand Using Artificial Neural Network39
	H.Butwiengpun, S. Tunyasrirut, S. Wangnippanto, W. Permpoonsinsup Pathumwan Institute of Technology, Thailand
SS1012	Mathematical Modelling and Simulation of Phase Advance Angle for Brushless DC Motor43
	M. Boonpramuk, S. Tunyasrirut, W.Permpoonsinsup, D. Puangdownreong Pathumwan Institute of Technology, Thailand
SS2001	Toward Quantum State Manipulation in Twin InSb/GaAs Quantum Dots47
	Suwit Kiravittaya, Supachok Thainoi, Zon, Somchai Ratanathammaphan, Songphol Kanjanachuchai, and Somsak Panyakeow
	Naresuan University, THAILAND

PE010	Optimal Placement Model of TCSC in Power System Network Considering the Budget available51
	Esrom Mahlatsi Malatji, Bhekisipho Twala, Nhlanhla Mbuli University of JohannesburgJohannesburg, South Africa
PE011	Proportional plus Resonant Control for Active Power Filter in Unbalanced System56 Phonsit Santiprapan, Kongpol Areerak and Kongpan Areerak <i>Suranaree University of Technology, Thailand</i>
PE012	The Dynamic Model of Electrical Aircraft System Feeding a Buck-Boost Converter60 Wiphusana Chayinthu, Kongpan Areerak, Kongpol Areerak <i>Electrical EngineeringPathumthani University, Thailand</i>
PE013	Fuzzy Based Random Pulse Width Modulation Technique for Performance Improvement of Induction64
	Sadanandam Perumandla, P.Poonam Upadhyay, A.Jaya Laxmi EEEJNTUH, Hyderabad Telangana State, India
PE014	Improvement of Flux-weakening Control of Surface Mounted Permanent Magnet Synchronous Machine Considering Inverter Nonlinearity68
	N. Pothi University of Phayao, Thailand
PE015	Adaptive Power Flow Control for Reducing Peak Demand and Maximizing Renewable Energy Usage72
	Seksak Pholboon, Mark Sumner, Petros Kounnos University of Nottingham, UK
PE016	Analysis and Modeling of Wind Turbine Generators Considering Frequency Controls76
	Papob Lertapanon, Wijarn Wangdee King Mongkut's University of Technology North Bangkok, Thailand
PE017	Low-Voltage Distribution System Planning under Load Demand Uncertainty: Growth Rate with Connection of New Loads80
	V.Vai, E. Gladkikh, B. Raison, M.C. Alvarez-Herault Grenoble Institute of Technology, France
PE020	A Discussion on the Optimal Selection of Parameters for Determination of Engine Dimensions in a Diesel Electric (DE) Power Station84
	Fahd Ali Shifa COMSATS Institute of Information Technology, Pakistan
PE023	SRF and Real Power Theory based Control of a Nine Switch Converter based UPQC88
	Sudheer Vinnakoti, Venkata Reddy Kota Jawaharlal Nehru Technological University Kakinada, India
PE025	The Hybrid Photovoltaic Energy System for Electric Vehicle Battery Charger92
	Jatuporn Changsrisuk, Sakorn Po-Ngam King's Mongkut University of Technology Thonburi, Thailand
PE026	PFC based SEPIC Converter Fed BLDC Motor with Torque Ripple Minimization Approach96
	Bapayya Naidu Kommula, Venkata Reddy Kota Jawaharlal Nehru Technological University Kakinada, India
PE028	A Controller Design of More Electric Aircraft Power Systems Using an Adaptive Tabu Search Algorithm100
	Apichai Suyapan, Kongpan Areerak and Kongpol Areerak Suranaree University of Technology, Thailand
PE029	The Maximum Power Point Tracking for Stand-Alone Photovoltaic System using Current Based Approach104
	Chavaree Thueanpangthaim Suranaree University of Technology, Thailand

PE030	Design of Zero Energy Consumption Home System in Bangkok for Energy Efficient Plan 2015108
	Nidchabendha Chandanachulaka, Patumporn Wongyai, Kongpan Areerak, Kongpol Areerak King Mongkut's Institute of Technology Ladkrabang, Thailand
PE034	Simulation of Ultrasonic Cleaning and Ways to Improve the Efficiency112
	Worapol Tangsopha, Jatuporn Thongsri, Wutthikrai Busayaporn King Mongkut's Institute of Technology Ladkrabang, Thailand
PE037	Wide-Area Visualization Tool Development for Displaying Thailand Power Grid Dynamics116
	Bo Sriraphanth, Phanuwat Phunkasem, Bundit Tanboonjit, Sompol Chumnanvanichkul KMUTNB, Thailand
PE038	Study of Low-Voltage Distribution System with Decentralized PV-BES and Centralized BES for Rural Village in Developing Country120
	V.Vai, B. Raison, M.C. Alvarez-Herault, L. Bun Grenoble Institute of Technology, France
PE040	Modeling and Control of Dual Parallel BLDC Motor Drive System with Single Inverter124
	Mohsen Ebadpour, Mohammad-Bagher Bannae-Sharifian, Ebrahim Babaei University of Tabriz, Iran
PE043	The Micro-Grid Connected Single-Phase Photovoltaic Inverter with Simple MPPT Controller128
	Supattra Sukatjasakul, Sakorn Po-Ngam King Mongkut's University of Technology Thonburi, Thailand
PE045	Optimal Scheduling of Variable Speed Pumps in Mahasawat Water Distribution Pumping Station132
	Tomorn Soonthornnapha Siam University, Thailand
PE046	Simplify and Automate the Boost Converter Design regarding Mode of Controller and Feedforward Technique136
	Tad Chotiwattanatrakul, Pisit Liutanakul, Nophadon Wiwatcharagoses , King Mongkut's University of Technology North Bangkok, Thailand
PE047	Polarity Effect of Pulsed Corona Discharge Plasma on Seed Surface Modification140
	Natthaporn Khamsen, PawitaBunme, Varakorn Kasemsuwan, Kulsawasd Jitkajornwanich, Achara Pichetjamroen, Nithiphat Teerakawanich and Siwapon Srisonphan Kasetsart University, Thailand
PE048	Characteristic Analysis of Electrical Generator Using Nonlinear Resonance Phenomena144
	Tatsuhito Aihara Hosei University Koganei-shi, Japan
PE049	Analysis of a direct PV application for LED bulbs in daytime without DC to AC Converter and Battery148
	Anuchit aurairat, Boonyang Plangklang Rajamangala University of Technology Thanyaburi, Thailand
PE050	A Simple Dead-Time Compensation Technique for Single-Phase Full-Bridge PWM Rectifier152
	Anuchit aurairat, Pisit Liutanakul and Nophadon Wiwatcharagoses King Mongkut's University of Technology North Bangkok, Thailand
PE052	Coordinate Operation of Fuzzy Logic Voltage Regulator and Bi-2212 SFCL for Enhancing Fault Ride Through Capability of DFIG Wind Turbines156
	Sillawat Romphochai, Achara Pichetjamroen, Nithiphat Teerakawanich and Komsan Hongesombut Kasetsart University, Thailand
PE053	Electricity Bill Forecasting Application by Home Energy Monitoring System160
	Charnon Chupong, Boonyang Plangklang RMUTT, Thailand

PE054 Analysis of Temperature in Solar Thermal By 3-D Finite Element Method.....164 Issaraporn Amornsawatwattana, Padej Pao-la-or Suranaree University of Technology, Thailand **PE055** Grounding System Design of Substation Using Matlab Program.....168 Prateep Kapijan, Siriwat Potivejkul and Peerawut Yutthagowith King Mongkut's Institute of Technology Ladkrabang, Thailand **PE058** Electrical Characteristics of Natural Ester Based Nanofluid.....172 S. Potivejkul, K. Jariyanurat, N. Pattanadech and W. Wattakapaiboon King Mongkut's Institute of Technology Ladkrabang, Thailand **PE059** Electrical Characteristic Comparison of Mineral Oil and Natural Ester for Transformer applications.....175 N. Pattanadech, K. Jariyanurat, S. Maneerot, P. Nimsanong King Mongkut's Institute of Technology Ladkrabang, Thailand **PE060** Partial Discharge Characteristics of Mineral Oil Compared with Natural Ester.....179 N. Pattanadech, K. Jariyanurat, S. Maneerot, P. Nimsanong King Mongkut's Institute of Technology Ladkrabang, Thailand **PE061** Comparison of vector control of Two-Phase Induction motor using continuous and discontinuous SVPWM in terms of switching losses investigations.....183 Rungwicha Chaiyot, Vijit Kinnares and Supat Kittiratsatcha King Mongkut's Institute of Technology Ladkrabang, Thailand **PE062** The Improvement of LVRT Criteria for Wind Generation in PEA Transmission Grid.....187 Watchara Yodkaew, Weerawoot Kanokbannakorn, Siriroj Sirisukprasert Kasetsart University, Thailand **PE063** Automate of Capacitor Placement in Microgrid System under EVs Load Penetration.....191 Yuttana Kongjeen, Krischonme Bhumkittipich and Krittidet Buayai Rajamangala University of Technology Thunyaburi, Thailand **PE064** A Novel Power Output Model for Photovoltaic System.....195 Songkiate Kittisontirak, Phasapon Manosukritkul, Promphak Dawan, Perawut Chinnavornrungsee, Aswin Hongsingthong, Narin Atiwongsangthong, Kobsak Sriprapha and Wisut Titiroongruang King Mongkut's Institute of Technology Ladkrabang, Thailand **Comparison of PV Estimation Model with Measured PV Power Output.....198 PE065** Songkiate Kittisontirak, Phasapon Manosukritkul, Amornrat Limmanee, Nopphadol Sitthiphol, Surasak Niemcharoen, Kobsak Sriprapha and Wisut Titiroongruang King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand. **PE066** Verification of new model by comparison with actual data.....201 Phasapon Manosukritkul, Songkiate Kittisontirak, Kobsak Sriprapha, Wisan Tangwongcharoen and Wisut Titiroongruang King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand. **PE067** The New Simulation Model for Estimating PV Power Output.....204 Phasapon Manosukritkul, Songkiate Kittisontirak, Sasiwimon Songtrai, Kobsak Sriprapha, Wisut Titiroongruang King Mongkut's Institute of Technology Ladkrabang, Thailand **PE070** A Low-Cost Flyback Converter with Primary Side Regulation for a TV Set Top Box.....207 Bundit Khemmanee, Nontawat Chuladaycha, and Chanin Bunlaksananusorn King Mongkut's Institute of Technology Ladkrabang, Thailand PE071 Feasibility of Reduced Order Modelling of Z-Source Impedance Network: Applications for Switching Power Converter Designs.....211 Theeranon Chaiyakun, Pisit Liutanakul, and Nophadon Wiwatcharagoses King Mongkut's University of Technology North Bangkok, Thailand **PE072** Efficiency of thermal energy with Evacuated vacuum tubes.....215 W.JAMRATNAW Loei Rajabhat University, Thailand

PE075	Modeling of Rate of Change of Under Frequency Relay for Microgrid Protection219
	Naowarat Tephiruk, Komsan Hongesombut, Yuthasak Urathamakul, Sirivat Poonvasin, Sanee Tangsatit Kasetsart University, Bangkok, Thailand
PE076	Load Shedding Scheme Based on Voltage Instability Index Using Synchrophasor Data223
	Chaowanan Jamroen, Busara Piriyanont, Sanchai Dechanupaprittha Kasetsart University, Bangkok, Thailand
PE078	Single Phase AC Electronic Load with Energy Recovery227
	Kamolnut Benjanarasut, Jirawut Benjanarasut, Bunlung Neammanee King Mongkut's University of Technology North Bangkok Bangkok, Thailand
PE079	Battery and Accelerating-Catenary Hybrid System for Light Rail Vehicles and Trams231
	Joachim J. Mwambeleko, Thanatchai Kulworawanichpong Suranaree University of Technology Nakhon Ratchasima, Thailand.
PE083	Direct Fuzzy Logic Controller for Voltage Control of Standalone Three Phase Inverter235
	Xiancheng Zheng, Haider Zaman, Xiaohua Wu, Husan Ali, Shahbaz Khan Northwestern Polytechnical University Xi'an, China
PE084	Efficiency Improvement of Energy Management for LED Street Lightings239
	Somchai Biansoongnern, Boonyang Plangklang Rajamangala University of Technology Thanyaburi Pathumtani, Thailand
PE086	Stochastic Unit Commitment Model for Power System with Renewable Energy243
	Sukita Kaewpasuk,Boonyarit Intiyot,Chawalit Jeenanunta Chulalongkorn University Bangkok, Thailand
PE087	The Control of A Multi-Input Boost Converter for Renewable Energy System Applications247
	Sudarat Khwan-on, Kaugoon Kongkanjana Suranaree University of Technolog Nakhon Ratchasima, Thailand
PE088	Model Predictive Control of LLC Resonant Inverter for Induction Furnace251
	Piyasak Kranprakon, Anawach Sangswang, Sumate Naetiladdanon KMUTT Bangkok, Thailand
PE089	Potential of Hybrid Thermoelectric and Solar Power energy to decrease temperature inside passenger car cabin255
	Aris Sunawar, Iwa Garniwa, MK Universitas Indonesia Depok, Indonesia
PE090	A simplified model for the estimation of energy production of PV Module259
	Aekkawat Bupi,Songkiate Kittisontirak,Kobsak Sriprapha, WilailakSiriwongrungsan,Wisut Titiroongruang and Surasak Niemcharoen King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand.
PE091	Analysis of energy performance improvements and economic impacts for Discovery Learning
1 2071	Libraries of Bangkok Metropolitan Administration
	Komsan Wisawato, Aumnad Phdungsilp Dhurakij Pundit University, Bangkok, Thailand
PE092	Comparison of PV Module Power Output Measurements266
	Aekkawat Bupi, Songkiate Kittisontirak, Kobsak Sriprapha, Chabar Suriyaammaranon, Wisut Titiroongruang and Surasak Niemcharoen King Mongkut's Institute of Technology Ladkrabang, Thailand
PE093	The Classification of Regular and Defected Low Voltage XLPE Cable by Using Polarization and Depolarization Current Method269
	J. Singhasivanon, C. Manop, N. Pattanadech, N.Jirasuwankul King Mongkut's Institute of Technology Ladkrabang, Thailand
PE095	Analysis of Energy Consumption and Behavior of Elevator in a Residential Building273
	Supapradit marsong, Boonyang Plangklang Rajamangala University of Technology Thanyaburi, Thailand

PE098	Synchrophasor-Based Adaptive Controller Design Considering Individual Charging for Interconnected Smart Grids Stabilization278
	Jatupat Chartpram, Achara Pichetjamroen, Sanchai Dechanupaprittha Kasetsart University, Bangkok, Thailand
PE099	An Evaluation of Voltage Variation and Flicker Severity in Micro Grid282
	Nuruddin Hama, Weerawoot Kanokbannakorn, Siriroj Sirisukprasert Kasetsart University Bangkok, Thailand
PE102	Optimal PMU Placement for Complete System Observability and Fault Observability Using Graph Theory286
	Pronob K. Ghosh, Anik Tahabilder National Institute of Technology, Agartala West-Tripura
PE104	Implementation of WiFi-Based Single Phase Smart Meter for Internet of Things (IoT)290
	Win Hlaing, Somchai Thepphaeng, Varunyou Nontaboot, NatthananTangsunantham, Tanayoot Sangsuwan,Chaiyod Pirak King Mongkut's University of Technology North Bangkok,Bangkok, Thailand
PE105	Overcurrent Relay Modeling Using Artificial Neural Network
1 1105	Muy Thoeurn, Ardyono Priyadi, Mauridhi Hery Purnomo
	Institut Teknologi Sepuluh Nopember Surabaya, Indonesia
PE107	Enhancing the Stability of Vietnamese Power System - From Theory to Practical298
	Edwin Lerch, Dirk Audring, Cuong Nguyen Mau, Nguyen Duc Ninh, Nguyen The Cuong, Nguyen The Van Siemens Power Technologies International Erlangen, Germany
PE109	Performance Comparison between HERIC and Z-Source Single-Phase Transformerless Inverters304
	Chumpol Siriwattanasit, Anawach Sangswang, Sumate Naetiladdanon KMUTT Bangkok, Thailand
PE110	Understanding Energy Crisis in Nepal Assessment of the Country's Energy Demand and Supply in 2016308
	Ramhari Poudyal, Shree Krishna Khadka, Pavel Loskot Swansea University Swansea, UK
PE111	Gross Ton-Kilometer Forecasting models for Freight Trains of Northern-Central Indian Railways312
	Sanjeev Sehgal, Surbhi Suman, Jaydeep Patel, Deepak S. Chauhan, Navneet K. Singh, Ravindra K. Singh Indian Railways, India
PE112	Optimal Energy Management of Hybrid Power System with Two Different Battery Models316
	Abhishek Kumar, Navin K Paliwal, Asheesh K Singh, Pradeep Kumar, Sanjeev Sehgal, Navneet K. Singh, and Ravindra K. Singh MNNIT Allahabad, India
PE113	Silicon-Carbide MOSFET Based Synchronous DC/DC Boost Converter321
	Xiancheng Zheng, Haider Zaman, Xiaohua Wu, Husan Ali, Shahbaz Khan Northwestern Polytechnical University Xi'an, China
PE115	The Study of Reactive Power Control Strategies of PV Plant in PEA Distribution System325
	Thanayus Laosawatdigun, Weerawoot Kanokbannakorn, Siriroj Sirisukprasert and Nithiphat Teerakawanic Kasetsart University, Bangkok, Thailand
PE116	Study of Wireless Power Transfer Using Series-Parallel Topology329
	Siriruch Cheapanich, Chan Anyapo and Pattana Intani Pathumwan Institute of Technology Bangkok, Thailand
PE117	Condition Evaluation of Power Transformers Using Dissolved Gas Analysis and Dielectric Breakdown Voltage Test333

Suphon Kumapalavalee, Thanapong Suwanasri, Cattareeya Suwanasri ,Sarawut Wattanawongpitak King's Mongkut university Technology North Bangkok, Bangkok, Thailand

СТ002	Power Loss Identification of Three-phase Induction Motor Using Adaptive Tabu Search337
	Sasiya Udomsuk, Kongpol Areerak, Tidarat Areera and Kongpan Areerak Suranaree University of Technology, Thailand
СТ005	Continuous Integration Processes for Modern Client-Side Web Applications341
	Ratha Tim, Sansiri Tanachutiwat, Marko Vukadinovic, Heinz-Josef Schlebusch, Horst Lichter King Mongkut's University of Technology North Bangkok Thailand
СТ006	A Modified Multi-Swarm Optimization with Interchange GBEST and Particle Redistribution345
	Kanokporn Chengkhuntod, Boontee Kruatrachue, and Kritawan Siriboon King Mongkut's Institute of Technology Ladkrabang, Thailand
СТ007	Identification and Queuing Vehicles using Wireless Network Communication349
	Naras Kwanthong, Kriddikorn Kaewwongsri Rajamangala University of Technology Srivijaya, Thailand
СТ009	Design and Configuration of VoIP based PBX using Asterisk server and OPNET platform353
	Sarwar Khan, Nouman Sadiq Kasetsart University, Thailand
CT010	Automated Evaluation of Online Mapping Platforms357
	Phagasinee Boottho, Sally E. Goldin
CT011	King Mongkut's University of Technology Thonburi, Thailand
CT011	Wireless Activity Reminder System for Pressure Ulcer Prevention in IPD patients361
	Pornchai Chanyagorn and Worrawan Chanyagorn Mahidol University, Thailand
CT012	The Implementation of Edge Detection on HSA Environment365
	Sethakarn Prongnuch and Theerayod Wiangtong Mahanakorn University of Technology, Thailand
СТ013	Social-aware Relay Selection for Device to Device Communications in Cooperative Cellular Networks369
	Ushik Shrestha Khwakhali, Steven Gordon and Prapun Suksompong SIIT, Thammasat University, Thailand
СТ014	A Comparative Study of Relational Database and Key-Value Database for Big Data Applications373
	Wittawat Puangsaijai and Sutheera Puntheeranurak King Mongkut's Institute of Technology Ladkrabang, Thailand
CT016	Prediction Model of Short-term Electrical Load in an Air Conditioning Environment377
	Kriangsak Palapanyakul and Peerapon Siripongwutikorn King Mongkut's University of Technology Thonburi, Thailand
CT018	Proving Completeness of OpenGIS SQL Spatial Relationships and Operations381
	Kulsawasd Jitkajornwanich and Ramez Elmasri King Mongkut's Institute of Technology Ladkrabang, Thailand
CT019	Thai Person Name Recognition (PNR) Using Likelihood Probability of Tokenized Words385
	Nareerat Saetiew, Tiranee Achalakul and Santitham Prom-on King Mongkut's University of Technology Thonburi, Thailand
CT021	A Robust and Efficient Algorithm for Numerical Optimization Problem: DEPSO-Scout A New Hybrid Algorithm Based on DEPSO and ABC389
	Prasitchai Boonserm and Suchada Sitjongsataporn Mahanakorn University of Technology, Thailand
CT022	A High Performance Network Virtualization Architecture with Bandwidth Guarantees393
	Kritwara Rattanaopas and Kesinee Boonchuay Songkhla Rajabhat University, Thailand

СТ023	Throughput of a Firewall Unit on FPGAs Developed by the RTL Design Methodology397 Tomoaki Sato, Sorawat Chivapreecha, Phichet Moungnoul and Kohji Higuchi <i>Hirosaki University, Japan</i>
СТ025	A healthy food recommendation system by combining clustering technology with the Weighted slope one Predictor401
	Supaporn Bundasak Kasetsart University Sriracha Campus, Thailand
СТ026	Portable Clouds for Provisioning of Computing Services in Networks with Very Limited Connectivity406
	Murooj Nadhom, Pavel Loskot, Marcos Katz and Frank Fitzek Swansea University, UK
CT027	Impact of Sensor Mobility on UAV-based Smart Farm Communications410
	Prusayon Nintanavongsa and Itarun Pitimon Rajamangala University of Technology Thanyaburi, Thailand
CM001	Reduction of Sidelobes of the power pattern of Antenna Array414
	Gopi Ram, Sankalita Biswas, Durbadal Mandal, Rajib Kar, Sakti Prasad Ghoshal Department of ECE, MITS Madanpalle, India.
CM002	Polarimetric RCS Signature of Canonical Target in Dense Grass Area Using GB-SAR Environment418
	Narathep Phruksahiran Chulachomklao Royal Military Academy, Thailand
CM009	Curved Double-layer Strip Folded Dipole Antenna for WBAN Applications422
	Charinsak Saetiaw, Saksit Summart and Chanchai Thongsopa Rajamangala University of Technology Isan, Thailand
CM011	The Comparison of Optical Beam Tracking Algorithm for Free Space Optics426
	Nutapon Nakarach, Panarat Cherntanomwong King Mongkut's Institute of Technology Ladkrabang, Thailand
CM012	Real Time Vital Sign Transmission Using IEEE 802.15.7 VLC PHY-I Transceiver430
	Pornchanok Namonta, Panarat Cherntanomwong King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
CM013	Multitrack Reading Scheme with Single Reader in BPMR Systems434
	Chaiwat Buajong, Chanon Warisarn King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
CM017	Performance Comparison of Multipath TCP Data Transferring in Bottleneck and Disjoint- Path wired networks connected with Wi-Fi438
	Khemmapath Phejrsuksai, Suwat Pattaramalai
	King Mongkut's University of Technology Thonburi, Bangkok, Thailand
CM019	Routing Algorithm in Warehouse with Congestion Consideration using an ACO with VLC Support442
	Krit Srivilas, Panarat Cherntanomwong King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
CM021	An Efficient New ARQ Strategy for Vector Symbol Decoding with Performance in Power Line Communications446
	Narathep Sakunnithimetha and Usana Tuntoolavest Kasetsart University, Bangkok, Thailand
CM022	Detection of Data Symbol in a Massive MIMO Systems for 5G Wireless Communication450
	Sarun Duangsuwa and Punyawi Jamjareegulgarn King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
CM023	Bit Loading for Wavelet Packet Modulation Using Time-Domain Equalization454
	Sarbagya Buddhacharya, Poompat Saengudomlert Bangkok University, Thailand

CM026	The Development of High Gain Waveguide Antennas for Wi-Fi Communication System458
	Pinit Nuangpirom, Eakkathas Pruksawan, Somsak Akatimagool Rajamangala University of Technology Lanna, Chiang Mai, Thailand
CM027	Performance Measurement of Voice Call Services in UMTS/LTE Mobile Network462
	Prued suksawat, Suwat Pattaramalai King Mongkut's University of Technology Thonburi, Bangkok, Thailand
CM028	Simplified Clusters Region Factor Graph to Graph-Based Detection in 2-D Interference Channel466
	Thanomsak Sopon, Wannaree Wongtrairat Rajamangala University of Technology Isan Nakhonratchasima, Thailand
CM029	Study Performance of Near-Field HF Antenna using Undercover Ferrite Sheet470
	Kittipon Kankhunthod, Chatrpol Pakasiri King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand
CM031	Performance of Different Power Control Schemes for a Hybrid LTE System with Channel Impairment474
	Sreetama Sarkar, Saptarshi Mitra, Tamoghno Nath and Dr. Sanjay Dhar Roy National Institute of Technology, Durgapur West Bengal, India
CM033	Simulation Model of Beacon Enabled 802.15.4 Networks with OPNET Modeler478
	Sankalita Biswas
CM036	National Institute of Technology, Durgapur 713209, Burdwan, WB, India. A compact microstrip-fed slot antenna with flower-shaped stub for ultra-wideband Applications482
CINUSU	Patchadaporn Sangpet, Wanwisa Thaiwirot and Prayoot Akkaraekthalin King Mongkut's University of Technology North Bangkok, Thailand
CM037	Flip Wavelet Packet Modulation for Visible Light Communications with Intensity Modulation and Direct Detection486
	Poompat Saengudomlert Bangkok University- Thailand
CM038	Channel Assignment with Energy Optimization in Cognitive Wireless Sensor Networks490
	Soamsiri Chantaraskul, Chayaphon Tanwongvarl King Mongkut's University of Technology North Bangkok, Thailand
CM039	Multi-Wavelength Optical Network Security generated by Modified add-drop filter494
	Surachai Tunsiri, Saysamone Soysouvanh, Somsak Mitatha, Prapas Phongsanam and Ittisak Muangsong
CN 10 10	King Mongkut's Institute of Technology Ladkrabang, Bangkok
CM040	Q-factor Control in Asymmetry Single CircularSplit Ring Resonatorvia Positon of Gap498 Chaiyong Soemphol, Phatsagul Thitimahatthanagusol, Ekajit Khoomwong and Mongkol Kupimai <i>Rajamangala University of Technology Isan, Thailand</i>
CM041	Security of Connecting SIP Trunk via SBC on IMS Network501
	Soraya Pantunn, Suwat Pattaramalai King Mongkut's University of Technology Thonburi, Bangkok, Thailand
CM044	Side Lobe Level Control In Mutually Coupled Linear Dipole AntennaArray Synthesis With Craziness Based Particle Swarm Optimization505
	Ekata Mitra, Poonam Kumari, D. Mandal, <i>NIT Durgapur, India</i>
CM046	Wide Null Control of Compact Multiple Antenna Terminals using PSO509
	Poonam Kumari, Ekata Mitra, D. Mandal NIT Durgapur, India
CM047	A Triple-Band Printed Microwave Absorber for WLAN/WiMAX Applications514
	E. Khoomwong C. Soemphol, C. Phongcharoenpanich Rajamangala University of Technology Isan, Thailand

CM050 Lavered Generalized Belief Propagation Detection on BPMR System with Multi-Track Processing.....518 Ittiporn Nokyotin, Santi Koonkarnkhai, Wannaree Wongtrairat, and Thanomsak Sopon Rajamangala University of Technology Isan, Thailand CM051 Estimation on Protection Distance between Analog TV and Digital TV in Adjacent Channel at **Terrestrial Television.....522** Kinupong Chomsuk, Siraphop Tooprakai King Mongkut's Institute of Technology Ladkrabang Bangkok CM054 Heat Spot Effects on Media for Perpendicular Heat-Assisted Magnetic Recording.....526 Somkit Sophan, Thanomsok Sopon, Sasiphan Wongsuthavas and Wannaree Wongtrairat Rajamangala University of Technology Isan, Thailand Blocking Rate Based Call Admission Control for Call Dropping Mitigation and QoS Based CM055 Prioritization.....530 Sahawat Namwanta, Nararat Ruangchaijatupon Khonkaen University, Thailand CM057 Polyphase P4 Code Usage for Target Detection of Pulse Radar Using Matlab and GNU Radio.....534 Achmad Munir, Muhammad Ridha, Hendryadi Daniil Kurniawan, Fikri Hardian Putra, Andriyan Bayu Suksmono Institut Teknologi Bandung, Indonesia CM058 A Correction factor of Bottomside Thickness Parameter for Computing TEC in Global Navigation Satellite Systems.....538 Punyawi Jamjareegulgarn, Pornchai Supnithi, Kornyanat Hozumi, Takuya Tsugawa King Mongkut's Institute of Technology Ladkrabang, Thailand. CM059 A New Expression for Computing Topside Scale Height for Satellite-Based Communications.....542 Punyawi Jamjareegulgarn, Pornchai Supnithi, Kornyanat Hozumi, Takuya Tsugawa King Mongkut's Institute of Technology Ladkrabang, Thailand. CM060 Monopole MIMO Antenna using Decagon Fractal Patch Resonator and Defected Ground Plane for WLAN application.....546 Chatchai Chokchai, Nattapong Duangrit, and Prayoot Akkaraekthalin Rajamangala University of Technology Thanyaburi, Thailand CM061 The Bandwidth Expansion of Double-Horn Antenna with a Squared Probe for Wireless **Communication Applications.....550** Wannop Lakvaengmon, Watcharaphon Naktong, Virote Pirajnanchai and Amnoiy Ruengwaree Rajamangala University of Technology Thanyaburi, Thailand CM062 Regional Map of The F2-Layer Critical Frequency Over Southeast Asia.....554 Noraset Wichaipanich, Kornyanat Hozumi Rajamangala University of Technology Thanyaburi, Thailand CM063 Nominal ionospheric delay gradient estimation at Suvarnabhumi airport, Thailand.....558 Jirapoom Budth, Pornchai Supnithi, Susumu Saito and Apitep Saekow King Mongkut's Institute of Technology Ladkrabang, Bangkok CM064 Search Algorithm of Write Voltage Optimization in NAND Flash Memory.....563 Chatuporn Duangthong, Watid Phakphisut, and Pornchai Supnithi King Mongkut's Institute of Technology Ladkrabang, Bangkok CM065 Statistical Analysis of High Frequency Radio Parameters on St. Patrick's day in Thailand.....567 Phimmasone Thammavongsy, Pornchai Supnithi, Somjai Klinngam, Watid Phakphisut, Kornyanat Hozumi, and Takuya Tsugawa King Mongkut's Institute of Technology Ladkrabang, Bangkok CM066 Experimental Demonstration of 1024-IFFT FPGA Implementation with 3.98 Gbps Throughput for CO-OFDMA-PON Transmitters.....571 Kidsanapong Puntsri, Ekkaphol Khansalee, Wannaree Wongtrairat Rajamangala University of Technology Isan, Thailand

CM067	All-Optical Decoder using Modified Add-Drop Filter575
	P. Phongsanam, C. Tumrongwittyapak, S. Wongkumsin, O. Saejiw I. Muangsong, Bh. Wattanacheep Kasem Bundit University, Bangkok
DS003	Optimal design of fractional order digital differentiator using Gravitational Search Algorithm579
	S. Mahata, Shruti Dhibar, R. Kar, D. Mandal and S. K. Saha National Institute of Technology, India
DS006	Weighted Least Square based Frequency Estimation Algorithm583
	Rachu Punchalard Mahanakorn University of Technology, Thailand
DS007	Correlation of Emotion to Film Rating Classification Using EEG Signal Analysis586
	Dimalanta, Vincent Salvador M., Hubilla, Brian Carlo R., Marquez, John Carl Joel S., Quiambao, Vincent Paolo T., Tungala, Kerwin L and Prado, Seigfred V. <i>University of Santo Tomas, Philippines</i>
DS008	In Vivo Estimation of the Head Tissue Conductivities by Electrical Impedance Tomography Technique and Positivity Constraint590
	Taweechai Ouypornkochagorn Srinakharinwirot University, Thailand
DS009	A Simplex SISR Utilizing Upper-Band Spectrum Prognosis with An Alternative Regularized Andrew's Sine Influence Function594
	Vorapoj Patanavijit Assumption University of Thailand, Thailand
DS010	Scoliosis Screening Using Depth Camera598
	Siraprapa Tanee and Dusit Thanapatay Kasetsart University, Thailand
DS012	A Modified Adaptive Step-size Affine Projection Algorithm based on QR-decomposition602
	Suchada Sitjongsataporn and Piyaporn Nurarak Mahanakorn University of Technology, Thailand
DS014	Measurement Study of Human Blood pH based on Optical Technique by Back Propagation Artificial Neural Network606
	Nattakoon Meengoen and Booncharoen Wongkittisuksa Prince of Songkla University, Thailand
DS015	Characterization of lower limb activity during gait using wearable, multi-channel surface EMG and IMU sensors610
	Roozbeh Atri, Juan S. Marquez, Douglas Murphy, John Fox, William Lovegreen, Ding-Yu Fei and Ou Bai Florida International University, USA
DS016	A Novel Strategy to Guarantee Convergence by Avoiding Divergence in Estimation Process for Evaluating Head Tissue Conductivities614
	Taweechai Ouypornkochagorn Srinakharinwirot University, Thailand
DS017	Accuracy Improvement of Thai Food Image Recognition Using Deep Convolutional Neural Networks618
	Chakkrit Termritthikun and Surachet Kanprachar Naresuan University, Thailand
DS018	Accelerometer-based Smartphone Step Detection Using Machine Learning Technique622
	So Young Park, Se Jong Heo and Chan Gook Park Seoul National University, Korea
DS019	The Variable Forgetting Factor-based Local Average Model Algorithm for Prediction of Financial Time Series626
	Prakit Intachai and Peerapol Yuvapoositanon Mahanakorn University of Technology, Thailand
DS020	Combining Features For RGB-D object Recognition630
	Wasif Khan, Ekachai Phaisangittisagul, Luqman Ali and Duangrat Gansawat Kasetsart University, Thailand

DS021	Chicken embryo development detection using Self-Organizing Maps and K-mean Clustering635
	Wisit Lumchanow and Sakol Udomsiri Pathumwan Institute of Technology, Thailand
DS022	Empirical Experiment on Origin Destination Estimation Using Automatic Licence Plate Matching on a Rural Road of Thailand639
	Pakorn Watanachaturaporn, Karn Chalermwongphan, Achaya Huntajidkul, Charoen Vongchumyen, Jettarin Watthanakul, Jatupon Benjaprakairat, Nattha Chuerboonchai and Kritsada Lohaumnuay King Mongkut's Institute of Technology Ladkrabang, Thailand
DS023	Improving the quality of the speech signal using a FIR band pass filter with Fast Fourier Transform643
	Aekkarat Suksukont and Jakkree Srinonchat <i>RMUTT, Thailand</i>
DS025	Image Analysis Algorithms for Vehicle Color Recognition647
	Damitha S.B. Tilakaratna, Ukrit Watchareeruetai, Supakorn Siddhichai and Nattachai Natcharapinchai King Mongkut's Institute of Technology Ladkrabang, Thailand
DS026	Image authentication based on salient regions of image651
	Utkarsh Arya, Ghanapriya Singh, Rishabh Singhal, Saroj Kumar and Huzaifa Usmaan <i>NIT Uttarakhand</i>
DS028	Sub-Window Inverse Distance Weighting Method for Removing Salt-and-Pepper Noise655
	Chaipichit Cumpim and Rachu Punchalard Mahanakorn University of Technology, Thailand
DS029	Sliding Block Shepard Interpolation Method for Removing High-Density Impulse Noise659
	Chaipichit Cumpim and Rachu Punchalard Mahanakorn University of Technology, Thailand
DS031	Robust Face Recognition based on Weighted DeepFace663
	Sanun Srisuk and Surachai Ongkittikul NPU, Thailand
DS032	Application of Adaptive Network-Based Fuzzy Inference System with Fast Fourier Transform for Waveform Analysis and Classification667
	Adisorn Kamlungpetch, Prajuab Inrawong and Wutthichai Sa-nga-ngam RMUTi, Thailand
DS033	Facial Space detection and Eyes Surrounded Object detective Technique on Color Image YCbCr and HSV671
	Suppakitti Sopasoap and Jakkree Srinonchat RMUTT, Thailand
DS035	A Table Tennis Performance Analyzer via A Single-View Low-Quality Camera675 Sirichai Triamlumlerd, Manoch Pracha, Pauline Kongsuwan and Pongtorn Angsuchotmetee RMUTT, Thailand
EC002	Application of Flower Pollination Algorithm to Parameter Identification of DC Motor Model679 D. Puangdownreong, S. Hlungnamtip, C. Thammarat and A. Nawikavatan Southeast Asia University, Thailand
EC003	Optimal design of 5.5 GHz CMOS LNA using hybrid Fitness based Adaptive DE with PSO683 S. Mallick, J. R. Akhil, A. Dasgupta, R. Kar, D. Mandal and S. P. Ghoshal <i>National Institute of Technology, India</i>
EC005	Sizing of Two Stage Op-Amp Using OHS algorithm687
- • • •	S. Mallick, J. R. Akhil, A. Dasgupta, Rajib Kar, Durbadal Mandal and Sakti Prasad Ghoshal National Institute of Technology, India

EC006	Optimal PID parametric auto-adjustment for BLDC motor control systems based on artificial intelligence691
	Jirapun Pongfai and Wudhichai Assawinchaichote King Mongkut's University of Technology Thonburi, Thailand
EC008	The Simplified Regenerative Boost Converter for Electric Vehicle Applications695
	Kasan Hemasuk and Sakorn Po-Ngam King Mongkut's University of Technology Thonburi, Thailand
EC009	DC Electronics Load for AH Battery Testing699
	Kornkamon Lawsri and Sakorn Po-Ngam
EGAIA	King's Mongkut University of Technology Thonburi, Thailand
EC010	Determination of glucose concentration with resonant coplanar microwave sensor703
	Supakorn Harnsoongnoen, Urit Charoen-In and Anuwat Wanthong Mahasarakham University, Thailand
EC017	Programmable bandwidth operational amplifier with negative Miller compensation706
	Muhaned Zaidi, Ian Grout and Abu Khari A'ain University of Limerick, Ireland
EC018	RFID Enabled Sensor System Design710
	Ian Grout and Alexandre César Rodrigues da Silva University of Limerick, Ireland
EC026	Design of surface plasmon resonance biosensors by using Powell lens714
	Jordan H. Hossea and Joewono Widjaja Suranaree University of Technology, Thailand
EC028	The study of arm joint angle movement using one-channel and multi-frequency bio-impedance measurement718
	Liu RenHe Prince of Songkla University, Thailand
EC029	Multipath tall Building Elevator Module for flexible Transport System with PLC based on Cloud Control722
	Songkran Kantawong and Ronnahrit Kanchanawiboon Bangkok University, Thailand
EC030	A simple and low cost square-rooting circuit employing commercial devices726
	Ittipong Chaisayun South-East Asia University, Thailand
EC031	Development of Gait Training System with Real-time Auditory Biofeedback for Telerehabilitation730
	Arparwan Wisitwekin, Chatkaew Pongmala, Areerat Suputtitada Chulalongkorn University, Thailand
EC032	A 1.1-V Low Power True Single-phase Clock 2/3 Prescaler734
	Siraphop Tooprakai, Apirak Tudsorn King Mongkut's Institute of Technology Ladkrabang, Thailand
EC033	Automatic Direction System for Outdoor WLAN Antenna Array Driven by AT89S51 Microcontroller738
	Galih Mustiko, Achmad Munir State Polytechnic of Cilacap, Indonesia
EC034	Embedded Device and Computer Co-operative System Design and Implementation for Industrial Real-time Measurement and Control Applications742
	Santi Nuratch King Mongkut's Institute of Technology Thonburi, Thailand
EC035	A Universal Microcontroller Circuit and Firmware Design and Implementation for IoT-based Real-time Measurement and Control Applications746
	Santi Nuratch King Mongkut's Institute of Technology Thonburi, Thailand

EC036 Test chip Desing and Parameter Extraction of Parasitic Capacitance of MOSFET of VLSI.....750 A. Ruangphanit, R. Peolub, R. Muanghlua National Science and Technology Development Agency Patumthani, Thailand EC038 A Temperature-insensitive Instrumentation Amplifier Using CCTA-based Voltage to Current Converter.....754 Montree Siripruchyanun, Kangwal Payakkakul King Mongkut's University of Technology North Bangkok, Thailand Door Lock System via Web Application.....758 EC039 Charoen Vongchumyen, Pakorn Watanachaturaporn, Chompoonuch Jinjakam King Mongkut's Institute of Technology Ladkrabang, Thailand EC040 Inverting Amplifier Based Ultra Low Power Low Offset Current Comparator.....762 Pusit Suriyavejwongs, Ekachai Leelarasmee, Wanchalerm Pora Chulalongkorn University, Thailand EC042 Half Bridge Voltage Source Inverter using Frequency and Temperature Control for Induction **Distilling Applications.....766** Vichian Hathairatsiri, Jirapong Jittakort Rajamangala University of Technology Krungthep, Thailand EC044 Design and Implementation of Class E Power Amplifier with Parallel Circuit for Wireless Power Transfer Systems.....770 Ekkaphol Khansalee, Kittipong Nuanyai, Yan Zhao Rajamangala University of Technology Isan Khon Kaen Campus, Thailand EC047 Phase-Shift Phase-Lock Loop (PLL) Control for Wireless Power Transmission System using Primary-Side Information.....774 Chan Anyapo, Nithiphat Teerakawanich, Chowarit Mitsantisuk Engineering, Kasetsart University, Thailand EC050 A design of colorimeter for chemical quantitative analysis based on a web-camera.....778 Komsun Phongern, Noppadol Maneerat, Arjnarong Mathaweesansurn King Mongkut's Institute of Technology Ladkrabang, Thailand EC052 Monitoring of Real-Time Behavior of Industrial Ethernet for Industry 4.0.....782 Alexander Gercikow, Hans-Peter Schmidt OTH East Bavarian Technical University of App. Sciences, Germany EC054 Implementation of Chaos Control in Chua's Circuit via Sliding Mode Control.....786 Suphaphorn Panikhom Rajamangala University of Technology Isan, Khonkaen Campus, Thailand