

JOURNAL OF POWER ELECTRONICS

A PUBLICATION OF THE KOREAN INSTITUTE OF POWER ELECTRONICS

November 2017

Vol. 17, No. 6

pISSN 1598-2092

eISSN 2093-4718

Low Power Converters

- A Secondary Resonance Soft Switching Half Bridge DC-DC Converter with an Inductive Output Filter Zhang-yong Chen and Yong Chen 1391
- A Novel Switched-Capacitor Based High Step-Up DC/DC Converter for Renewable Energy System Applications Fereshteh Radmand and Aref Jalili 1402
- An Efficiency-Optimized Modulation Strategy for Dual-Active-Bridge DC-DC Converters Using Dual-Pulse-Width-Modulation in the Low Power Region Byeng-Joo Byen, Chung-Hwan Ban, Young-Bae Lim, and Gyu-Ha Choe 1413
- A Buck-Boost Converter-Based Bipolar Pulse Generator Ahmed A. Elserougi, Ahmed M. Massoud, and Shehab Ahmed 1422
- Three-Port Converters with a Flexible Power Flow for Integrating PV and Energy Storage into a DC Bus Tian Cheng and Dylan Dah-Chuan Lu 1433
- Zero-Voltage-Transition Buck Converter for High Step-Down DC-DC Conversion with Low EMI Ali Ariyan and Mohammad Rouhollah Yazdani 1445
- A New Dual-Active Soft-Switching Converter for an MTEM Electromagnetic Transmitter Xuhong Wang, Yiming Zhang, and Wei Liu 1454
- Novel Adaptive Blanking Regulation Scheme for Constant Current and Constant Voltage Primary-side Controlled Flyback Converter Yongjiang Bai, Wenjie Chen, Xiaoyu Yang, and Xu Yang 1469

High Power Converters

- A Simplified Carrier-Based Pulse-Width Modulation Strategy for Two-level Voltage Source Inverters in the Over-modulation Region Feng Jing and Feng-You He 1480
- Discontinuous PWM Scheme for Switching Losses Reduction in Modular Multilevel Converters Min-Gyo Jeong, Seok-Min Kim, June-Seok Lee, and Kyo-Beum Lee 1490

Adjustable Speed Drives

- Analysis and Control of NPC-3L Inverter Fed Dual Three-Phase PMSM Drives Considering their Asymmetric Factors Jian Chen, Zheng Wang, Yibo Wang, and Ming Cheng 1500
- Adaptive Variable Angle Control in Switched Reluctance Motor Drives for Electric Vehicle Applications He Cheng, Hao Chen, Shaohui Xu, and Shun Yao Yang 1512
- Bus Clamping PWM Based Hysteresis Current Controlled VSI Fed Induction Motor Drive with Nearly Constant Switching Frequency Joseph Peter, Mohammed Shafi K P, and Rijil Ramchand 1523

Analysis, Modeling and Control

- Real-Time HIL Simulation of the Discontinuous Conduction Mode in Voltage Source PWM Power Converters András Futó, Tamás Kökényesi, István Varjasi, Zoltán Sütő, István Vajk, Attila Balogh, and Gergely György Balázs 1535
- Load and Mutual Inductance Identification Method for Series-Parallel Compensated IPT Systems Long Chen, Yu-Gang Su, Yu-Ming Zhao, Chun-Sen Tang, and Xin Dai 1545
- A Novel Control Scheme Based on the Synchronous Frame for APF Yifan Wang, Hong Zheng, Ruoyin Wang, and Wen Zhu 1553
- Study on a Novel Switching Pattern Current Control Scheme Applied to Three-Phase Voltage-Source Converters Hongyan Zhao, Yan Li, and Trillion Q. Zheng 1563
- A Fuzzy Self-Tuning PID Controller with a Derivative Filter for Power Control in Induction Heating Systems Arijit Chakrabarti, Avijit Chakraborty, and Pradip Kumar Sadhu 1577

(Contents Continued on Next Page)



THE KOREAN INSTITUTE OF POWER ELECTRONICS

Renewable Energy

-
- Type-2 Fuzzy Logic Predictive Control of a Grid Connected Wind Power Systems with Integrated Active Power Filter Capabilities Nouredine Hamouda, Hocine Benalla, Kameleddine Hemsas, Badreddine Babes, Jürgen Petzoldt, Thomas Ellinger, and Cherif Hamouda 1587
 - Implementation of a Switched PV Technique for Rooftop 2 kW Solar PV to Enhance Power during Unavoidable Partial Shading Conditions B. Praveen Kumar, D. Prince Winston, S. Cynthia Christabel, and S. Venkatanarayanan 1600

Power Quality and Utility Applications

-
- Research and Stability Analysis of Active-Disturbance-Rejection-Control-Based Microgrid Controllers Xiaoning Xu, Xuesong Zhou, Youjie Ma, and Yiqi Liu 1611
 - A Coordinative Control Strategy for Power Electronic Transformer Based Battery Energy Storage Systems Yuwei Sun, Jiaomin Liu, Yonggang Li, Chao Fu, and Yi Wang 1625
 - A Novel Harmonic Identification Algorithm for the Active Power Filters in Non-Ideal Voltage Source Systems Phonsit Santiprapan, Kongpol Areerak, and Kongpan Areerak 1637
 - Distributed Secondary Voltage Control of Islanded Microgrids with Event-Triggered Scheme Qian Guo, Hui Cai, Ying Wang, and Weimin Chen 1650
 - An Enhanced Instantaneous Circulating Current Control for Reactive Power and Harmonic Load Sharing in Islanded Microgrids Iman Lorzadeh, Hossein Askarian Abyaneh, Mehdi Savaghebi, Omid Lorzadeh, Alireza Bakhshai, and Josep M. Guerrero 1658
 - Current Harmonics Rejection and Improvement of Inverter-Side Current Control for the LCL Filters in Grid-Connected Applications Jinming Xu, Shaojun Xie, and Binfeng Zhang 1672

Other Applications

-
- Improved Trigger System for the Suppression of Harmonics and EMI Derived from the Reverse-Recovery Characteristics of a Thyristor Tianliu Wei, Qiuyuan Wang, Chengxiong Mao, Jiming Lu, and Dan Wang 1683
 - Models and Experiments for the Main Topologies of MRC-WPT Systems Mingbo Yang, Peng Wang, Yanzhi Guan, and Zhenfeng Yang 1694

Journal of Power Electronics (JPE)

Editor-in-Chief

Dong-Choon Lee
Yeungnam University, Korea
E-mail : dclee@yu.ac.kr

Publication Editors

Jun-Keun Ji
Soonchunhyang University, Korea
E-mail : jkji@sch.ac.kr

Woo-Jin Choi
Soongsil University, Korea
E-mail : cwj777@ssu.ac.kr

Editor Board

Subhashish Bhattacharya
North Carolina State University

Frede Blaabjerg
Aalborg University

Dushan Boroyevich
Virginia Polytechnic Inst. and State Univ.

Liuchen Chang
University of New Brunswick

Po-Tai Cheng
National Tsing Hua University

Bo-Hyung Cho
Seoul National University

Jae-ho Choi
Chungbuk National University

Ilhami Colak
Nisantasi University

Braham Ferreira
Delft University of Technology

Dong-Seok Hyun
Hanyang University

Atsuo Kawamura
Yokohama National University

Marian P. Kazmierkowski
Warsaw University of Tech.

Ralph Kennel
Technical University of Munchen

Johan W. Kolar
Swiss Federal Institute of Tech.

Fujio Kurokawa
Nagasaki Institute of Applied Science

Tsornng-Juu Liang
National Cheng-Kung University

Jinjun Liu
Xi'an Jiaotong University

Sanjib Kumar Panda
National University of Singapore

Fang Z. Peng
Michigan State University

John Shen
Illinois Institute of Technology

Toshihisa Shimizu
Tokyo Metropolitan University

Seung-Ki Sul
Seoul National University

Jian Sun
Rensselaer Polytechnic Institute

Pat Wheeler
University of Nottingham

Dehong Xu
Zhejiang University

Associate Editors

Jong-Bok Baek
Korea Inst. of Energy Research

Honnyong Cha
Kyungpook National University

Chun-An Cheng
I-Shou University

Younghoon Cho
Konkuk University

Sung-Jin Choi
University of Ulsan

Se-Kyo Chung
Gyeongsang National University

Tomislav Dragicevic
Aalborg University

Jung-Ik Ha
Seoul National University

Yihua Hu
University of Liverpool

Kyeon Hur
Yonsei University

Seon-Hwan Hwang
Kyungnam University

Yong Kang
Huazhong Univ. of Sci. & Tech.

Jaehong Kim
Chosun University

Jonghoon Kim
Chungnam National University

Sangshin Kwak
Chung-Ang University

Dong-Hee Lee
Kyungsoo University

Dong-Myung Lee
Hongik University

Il-Oun Lee
Myongji University

Kwang-Woon Lee
Mokpo Nat'l Maritime University

Kyo-Beum Lee
Ajou University

Hao Ma
Zhejiang University

Saad Mekhilef
University of Malaya

Joung-Hu Park
Soongsil University

Kai Sun
Tsinghua University

Mahinda Vilathgamuwa
Queensland University of Technology

Gaolin Wang
Harbin Institute of Technology

Yijie Wang
Harbin Institute of Technology

Zheng Wang
Southeast University

Yan Xing
Nanjing Univ. of Aeron. and Astron.

Sang-Won Yoon
Hanyang University

Young-Doo Yoon
Myongji University

Liqiang Yuan
Tsinghua University

Yun Zhang
Tianjin University

Trillion Q. Zheng
Beijing Jiaotong University

Manuscript Editor – Sejin Jung / Secretary

The Korean Institute of Power Electronics (KIPE) Executive Board Officers (2017)

Dong-Wook Yoo, President
Korea Electrotechnology Research Inst.

Chan-Ho Kang, Vice President
Egtronics Inc.

Hyung-Soo Mok, Treasurer
Konkuk University

Woo-Jin Choi, Editor
Soongsil University

Eun-Soo Kim, Researching Activities
Jeonju University

Sung-Jun Park, Industrial Activities
Chonnam National University

Eui-Cheol Nho, Vice President
Pukyong National University

In-Dong Kim, Auditor
Pukyong National University

Seung-Ho Song, Treasurer
Kwangwoon University

Jin Hur, Technical Activities
Incheon National University

Hack-Seong Kim, Planning Activities
Dongyang Mirae University

Ju-Won Baek, Industrial Activities
Korea Electrotechnology Research Inst.

Se-Wan Choi, Vice President
Seoul Nat'l Univ. of Science & Tech.

Kwang-Duk Seo, Auditor
Powersoft Inc.

Hag-Wone Kim, Editor
Korea Nat'l Univ. of Transportation

Cheewoo Lee, Technical Activities
Pusan National University

Kwang-Woon Lee, Planning Activities
Mokpo Nat'l Maritime University

Taeck-Kie Lee, Vice President
Hankyong National University

Byoung Kuk Lee, Secretary
Sungkyunkwan University

Jung-Ik Ha, Editor
Seoul National University

Feel-Soon Kang, Technical Activities
Hanbat National University

Yong-Sug Suh, International Activities
Chonbuk National University

Bong-Hyun Kwon, Vice President
LSIS Co., Ltd.

Dong-Hee Lee, Secretary
Kyungsoo University

Jun-Keun Ji, Editor
Soonchunhyang University

Jang-Mok Kim, Researching Activities
Pusan National University

Kyo-Beum Lee, International Activities
Ajou University

About the journal: The official title of the journal is *Journal of Power Electronics* (pISSN 1598-2092; eISSN 2093-4718), and the ISO abbreviation of the journal title is 'J. Power Electron.' The first issue of *JPE* was in April 2001. *JPE* is published bimonthly, appearing on the 20th day of January, March, May, July, September, November each year. Hard copies of *JPE* are distributed to 51 associations related with the field of power electronics.

Aims and Scope: Its scope includes all topics in the field of Power Electronics. Included are techniques for high power converters, power quality and utility applications, renewable energy, low power converters, control in power electronics, motor drives, electric machines, analysis, simulation and control, power devices and components, sensors, integration and packaging, education, and other applications.

Full Text Availability: Full text is freely available at the following URL – <http://www.jpels.org>. Search articles by year, category, title, author, abstract, and keyword.

Index/Abstracted in: Science Citation Index Expanded (SCI E), Journal Citation Reports/Science Edition, Korea Citation Index, Scopus

Fund Support: This journal was supported by the Korean Federation of Science and Technology Societies Grant funded by the Korean Government (Ministry of Education).

Hard Copy Subscription: The subscription period and rate are renewed on a yearly basis. If you are in the middle of a year, you can choose the starting point either from this year or from next year. Annual Hard Copy Subscription Rates (USD) – Individual: \$ 100.00; Business/Library: \$ 300.00. For more information on subscriptions, please visit the *JPE* website: <http://www.jpels.org>

Publisher: The Korean Institute of Power Electronics (KIPE)

Editor-in-Chief: Dong-Choon Lee, Ph.D., Professor, Yeungnam University

Printed and bound by: Neuro Design Co., LTD

Contact Information

The Korean Institute of Power Electronics

Bon-gwan, Rm. #408, The Korean Science & Technology Bldg., 22, Teheran-ro 7gil, Gangnam-gu, Seoul 06130, Republic of Korea
Tel: +82-2-554-0184, 0185; Fax: +82-2-554-0186; E-mail: editor@kipe.or.kr; Website: <http://www.jpels.org>

© 2017. The Korean Institute of Power Electronics. All rights reserved. Responsibility for the contents rests upon the authors and not upon the KIPE.

INSTRUCTIONS TO AUTHORS

Manuscripts submitted for the consideration should report the results of an original work. Also, survey papers from the field experts will be considered for the review. Manuscripts for submission should be original results from author's research in the field of power electronics. Papers that have been previously published or submitted to other journals, conferences, or books in any language will not be considered for the *JPE* publication. However, the extended version of the paper presented at the conference, workshop, or symposium can be submitted to *JPE* for the consideration no later than 18 months from the closure of the event. After the due date, the submission will be invalid. In order to qualify for the review, the revised or extended version of the paper presented in the conference, workshop, or symposium should include significant improvements. The title and abstract of the paper should be different and at least 30% of the contents (introduction, body, conclusion and references) should be modified with new ideas and improvements. If a significant overlap (e.g. higher than 30% in terms of text) between the original conference paper and the submitted manuscript is found through the plagiarism detection software, the manuscript will be returned or rejected immediately. Authors should clearly indicate at which conference, workshop or symposium the manuscript has been presented for the initial submission. Also, the original conference paper should be uploaded at the time of initial submission. The conference paper should be cited in the manuscript and be added in the reference list. Please mention as to which contents in the manuscript has been improved from the original conference paper. Any violation of the rules mentioned above may cause an infringement of the copyright as well as plagiarism issues including a self-plagiarism. Every author bears the full responsibility for any legal issues.

Submission Guidelines for the *JPE*

These guidelines are specified by the *JPE* Editor-in-Chief. All authors are responsible for understanding these guidelines before submitting manuscripts to the *JPE*.

Guidelines for Submitting a Manuscript for Review

Authors must submit manuscripts electronically to the *JPE* on-line review system at <http://manuscript.jpels.org>. All manuscripts must be in an electronic format (only '.pdf' files) and less than 10Mb. Please note that first-time users of the *JPE* system have to create an account and follow the submission instructions. Names of the authors and their affiliations must remain anonymous in the submitted manuscripts to make the evaluation process as fair as possible. However, when submitting a manuscript, the corresponding author's information must be entered into the submission form on the *JPE* author's page at the *JPE* website. It is the author's responsibility to ensure that the submitted files are fully viewable and in the intended format. Before making a submission, please confirm the style and format of your manuscript accordingly.

Style of a Manuscript for Review

- Size of manuscript: 21cm x 27.8cm
- Formatted double columns with a single spaced 9.5pt fonts.
- Include all figures, tables and captions in the text and confirm their size and legibility.
- If a table or figure is too large for a single column, make it span the width of the entire page.
- Include the manuscript title, keywords and an abstract of not more than 200 words on the first page.
- Please do not include authors' names, footnotes, photos, acknowledgements, biographies or any other information which could identify authors in the manuscript.
- 8 pages is the preferred length for *JPE* manuscripts.
- Indicate reference numbers in square brackets (e.g. [1], [2], and [3]) and give the reference details at the end of the paper.

For a more detailed formatting guideline, you can download a template

file for review at http://jpels.org/submission/info_authors.asp.

Forms of Publication

JPE accepts original papers of research articles, invited papers.

- Original Paper: Original research articles on the wide areas of power electronics and its applications.
- Invited Paper: Articles which are invited to submit from the Editorial Committee of *JPE*.

SI Unit

Please refer to the 'SI Unit' list in *JPE* website: <http://www.jpels.org>

Peer Review

The KIEPE employs a web-based manuscript submission portal for the peer-review. All manuscripts are treated as confidential. Each manuscript is peer-reviewed by at least two anonymous reviewers who are specialized in the field of power electronics. *JPE* reviewers are selected by the *JPE* Editorial Board depending on their career and contributions in the field of power electronics.

Code of Ethics for Research

Prior to submitting your manuscript, please ensure that you carefully read the Code of Ethics for Research of the Korean Institute of Power Electronics. The Code of Ethics for Research is available from - http://jpels.org/submission/info_authors.asp

Membership Status

It is not compulsory, but strongly recommended for authors to become members of the KIEPE before submitting manuscripts to the *JPE*. Further information on the KIEPE is available at <http://www.kipe.or.kr>.

Guidelines for Submitting a Final Manuscript for Publication

Once a manuscript has been accepted for the publication, the authors will be notified by the *JPE* Editorial board. At that point, a special format will be required for the publication. Your final manuscript for the publication must contain author biographies and photos and be saved in MS-Word ('.doc' file) which is less than 10Mb. Before submitting your final manuscript, please check the template file at http://jpels.org/submission/info_authors.asp and format your manuscript accordingly. Submit your final manuscript to the *JPE* on-line review system with your author's ID and also send it to the *JPE* Editor by e-mail at editor@kipe.or.kr. A signed copyright agreement form is also required before publication.

Copyright Policy

It is KIEPE policy to obtain the copyright for all KIEPE published technical contributions. To comply with this policy, authors are required to sign a KIEPE copyright agreement form before publication. This form is provided upon approval of a manuscript. Authors should submit a signed copy of the copyright form along with their final manuscript. The KIEPE copyright agreement form can be downloaded at http://jpels.org/submission/copyright%20agreement/Copyright_Agreement.doc and submitted to the *JPE* on-line review system at <http://manuscript.jpels.org>.

Page Charges

After the final manuscript has been submitted, the *JPE* editor will estimate the length of the paper. The authors will be notified in advance of page charges. Page charges will be billed at \$30 per page. Authors must commit to paying page charges before the publication.

Contact Information

Journal of Power Electronics

The Korean Institute of Power Electronics

The Korea Science & Technology Bldg., Bon-gwan, Rm. #408
22, Teheran-ro 7gil, Gangnam-gu, Seoul 06130, Republic of Korea
Tel: +82-2-554-0184, 0185; Fax: +82-2-554-0186

E-mail: editor@kipe.or.kr; Website: <http://www.jpels.org>

INDEXED/ABSTRACTED IN

.....
Science Citation Index Expanded (SCIE)
Journal Citation Reports/Science Edition
Korea Citation Index
Scopus



THE KOREAN INSTITUTE OF POWER ELECTRONICS

<http://www.jpels.org>

Journal of Power Electronics

A Publication of the Korean Institute of Power Electronics
The Korea Science & Technology Bldg., Bon-gwan, Rm. #408
22, Teheran-ro 7gil, Gangnam-gu, Seoul 06130, Republic of Korea
Phone : +82-2-554-0184, 0185; Fax : +82-2-554-0186
E-mail : editor@kipe.or.kr

Table of Contents

Journal of Power Electronics Vol. 17, No. 6 November 2017

Low Power Converters

A Secondary Resonance Soft Switching Half Bridge DC-DC Converter with an Inductive Output Filter	Zhang-yong Chen and Yong Chen	1391
A Novel Switched-Capacitor Based High Step-Up DC/DC Converter for Renewable Energy System Applications	Fereshteh Radmand and Aref Jalili	1402
An Efficiency-Optimized Modulation Strategy for Dual-Active-Bridge DC-DC Converters Using Dual-Pulse-Width-Modulation in the Low Power Region	Byeng-Joo Byen, Chung-Hwan Ban, Young-Bae Lim, and Gyu-Ha Choe	1413
A Buck-Boost Converter-Based Bipolar Pulse Generator	Ahmed A. Elserougi, Ahmed M. Massoud, and Shehab Ahmed	1422
Three-Port Converters with a Flexible Power Flow for Integrating PV and Energy Storage into a DC Bus	Tian Cheng and Dylan Dah-Chuan Lu	1433
Zero-Voltage-Transition Buck Converter for High Step-Down DC–DC Conversion with Low EMI	Ali Ariyan and Mohammad Rouhollah Yazdani	1445
A New Dual-Active Soft-Switching Converter for an MTEM Electromagnetic Transmitter	Xuhong Wang, Yiming Zhang, and Wei Liu	1454
Novel Adaptive Blanking Regulation Scheme for Constant Current and Constant Voltage Primary-side Controlled Flyback Converter	Yongjiang Bai, Wenjie Chen, Xiaoyu Yang, and Xu Yang	1469

High Power Converters

A Simplified Carrier-Based Pulse-Width Modulation Strategy for Two-level Voltage Source Inverters in the Over-modulation Region	Feng Jing and Feng-You He	1480
Discontinuous PWM Scheme for Switching Losses Reduction in Modular Multilevel Converters	Min-Gyo Jeong, Seok-Min Kim, June-Seok Lee, and Kyo-Beum Lee	1490

Adjustable Speed Drives

Analysis and Control of NPC-3L Inverter Fed Dual Three-Phase PMSM Drives Considering their Asymmetric Factors	Jian Chen, Zheng Wang, Yibo Wang, and Ming Cheng	1500
Adaptive Variable Angle Control in Switched Reluctance Motor Drives for Electric Vehicle Applications	He Cheng, Hao Chen, Shaohui Xu, and Shunyao Yang	1512
Bus Clamping PWM Based Hysteresis Current Controlled VSI Fed Induction Motor Drive with Nearly Constant Switching Frequency	Joseph Peter, Mohammed Shafi K P, and Rijil Ramchand	1523

Analysis, Modeling and Control

Real-Time HIL Simulation of the Discontinuous Conduction Mode in Voltage Source PWM Power Converters	András Futó, Tamás Kökényesi, István Varjasi, Zoltán Sütő, István Vajk, Attila Balogh, and Gergely György Balázs	1535
--	--	------

Load and Mutual Inductance Identification Method for Series-Parallel Compensated IPT Systems	
..... Long Chen, Yu-Gang Su, Yu-Ming Zhao, Chun-Sen Tang, and Xin Dai	1545
A Novel Control Scheme Based on the Synchronous Frame for APF	
..... Yifan Wang, Hong Zheng, Ruoyin Wang, and Wen Zhu	1553
Study on a Novel Switching Pattern Current Control Scheme Applied to Three-Phase Voltage-Source Converters	
..... Hongyan Zhao, Yan Li, and Trillion Q. Zheng	1563
A Fuzzy Self-Tuning PID Controller with a Derivative Filter for Power Control in Induction Heating Systems	
..... Arijit Chakrabarti, Avijit Chakraborty, and Pradip Kumar Sadhu	1577

Renewable Energy

Type-2 Fuzzy Logic Predictive Control of a Grid Connected Wind Power Systems with Integrated Active Power Filter Capabilities	
..... Nouredine Hamouda, Hocine Benalla, Kameleddine Hemsas, Badreddine Babes, Jürgen Petzoldt, Thomas Ellinger, and Cherif Hamouda	1587
Implementation of a Switched PV Technique for Rooftop 2 kW Solar PV to Enhance Power during Unavoidable Partial Shading Conditions	
..... B. Praveen Kumar, D. Prince Winston, S. Cynthia Christabel, and S. Venkatanarayanan	1600

Power Quality and Utility Applications

Research and Stability Analysis of Active-Disturbance-Rejection-Control-Based Microgrid Controllers	
..... Xiaoning Xu, Xuesong Zhou, Youjie Ma, and Yiqi Liu	1611
A Coordinative Control Strategy for Power Electronic Transformer Based Battery Energy Storage Systems	
..... Yuwei Sun, Jiaomin Liu, Yonggang Li, Chao Fu, and Yi Wang	1625
A Novel Harmonic Identification Algorithm for the Active Power Filters in Non-Ideal Voltage Source Systems	
..... Phonsit Santiprapan, Kongpol Areerak, and Kongpan Areerak	1637
Distributed Secondary Voltage Control of Islanded Microgrids with Event-Triggered Scheme	
..... Qian Guo, Hui Cai, Ying Wang, and Weimin Chen	1650
An Enhanced Instantaneous Circulating Current Control for Reactive Power and Harmonic Load Sharing in Islanded Microgrids	
..... Iman Lorzadeh, Hossein Askarian Abyaneh, Mehdi Savaghebi, Omid Lorzadeh, Alireza Bakhshai, and Josep M. Guerrero	1658
Current Harmonics Rejection and Improvement of Inverter-Side Current Control for the LCL Filters in Grid-Connected Applications	
..... Jinming Xu, Shaojun Xie, and Bin Feng Zhang	1672

Other Applications

Improved Trigger System for the Suppression of Harmonics and EMI Derived from the Reverse-Recovery Characteristics of a Thyristor	
..... Tianliu Wei, Qiuyuan Wang, Chengxiong Mao, Jiming Lu, and Dan Wang	1683
Models and Experiments for the Main Topologies of MRC-WPT Systems	
..... Mingbo Yang, Peng Wang, Yanzhi Guan, and Zhenfeng Yang	1694