

2012 IEEE Power Electronics and Machines in Wind Applications

(PEMWA 2012)

**Denver, Colorado, USA
16 – 18 July 2012**



**IEEE Catalog Number: CFP12PWA-PRT
ISBN: 978-1-4673-1128-1**



PEMWA 2012

Denver, Colorado

July 16-18, 2012

Sponsors:

IEEE

IEEE Power Electronics Society

IEEE Power & Energy Society

IEEE Industry Applications Society

Monday, July 16

8:30 AM – 9:30 AM

Plenary Session PS1 (Invited Speakers)

[PEMWA2012-049: Hybrid Damping of Grid-Tie Inverter Output Harmonics for Resonance Rejection & Wind Park Stability under High Penetration](#)

S. Njoya Motapon, Clipper Windpower, USA

L. Arnedo, United Technologies Research Center, USA

H. Mashal, Clipper Windpower, USA

A. Patke, Clipper Windpower, USA

10:00 AM – 12:00 PM

S1: Power Electronics and Control

[PEMWA2012-003: A Hybrid 2D-3D SVM Control Algorithm for Three Phase Voltage Source Inverters](#)

Saher Albatran, Mississippi State University, USA

Yong Fu, Mississippi State University, USA

Ahmad Albanna, Panasonic Automotive Systems, USA

[PEMWA2012-024: Wind Turbine Adaptive Controller Modeling](#)

E. Baygildina, Lappeenranta University of Technology, Finland

K. M. Hynynen, Lappeenranta University of Technology, Finland

O. Pyrhönen, Lappeenranta University of Technology, Finland

[PEMWA2012-033: A Variable Duty Cycle Maximum Power Point Tracking Algorithm for Wind Energy Conversion Systems](#)

George Joseph, University of Louisville, USA

J. Chris Foreman, University of Louisville, USA

Michael L. McIntyre, University of Louisville, USA

[PEMWA2012-039: Specialized Predictive SVPWM Current Control of Back-to-Back Converters for Wind Power Generation Systems](#)

Mohammad R. Abedi, Baylor University, USA

Byeong-Mun Song, Baylor University, USA

10:00 AM – 12:00 PM

S2: HVDC/FACTS for Wind Power

[PEMWA2012-011: HVDC Light for Large Offshore Wind Farm Integration](#) ""4;

Debrup Das, ABB Corporate Research, USA

Jiuping Pan, ABB Corporate Research, USA

Sandeep Bala, ABB Corporate Research, USA

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Ling Xu, University of South Florida, USA

Lingling Fan, University of South Florida, USA

Zhixin Miao, University of South Florida, USA

[PEMWA2012-042: Fault Ride-Through of PMSG-based Offshore Wind Farm Connected Through Cascaded Current Source Converter-based HVDC](#) ""64

Miteshkumar Popat, Ryerson University, Canada

Bin Wu, Ryerson University, Canada

Navid Zargari, Rockwell Automation, Canada

[PEMWA2012-065: SSR Mitigation in Wind Farm Connected to Series Compensated Transmission Line using STATCOM](#) ""6;

Akshaya Moharana, Western University, Canada

Rajiv K. Varma, Western University, Canada

Ravi Seethapathy, Hydro One Networks, Canada

1:00 PM – 3:00 PM

S3: Energy Storage and Wind Power Forecasting

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J. Dang, Georgia Institute of Technology, USA

J. Seuss, Georgia Institute of Technology, USA

L. Suneja, Georgia Institute of Technology, USA

Ronald G. Harley, Georgia Institute of Technology, USA

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Z. O. Olaofe, University of Cape Town, South Africa

K. A. Folly, University of Cape Town, South Africa

[PEMWA2012-056: An Hour Ahead Wind Speed Prediction by Kalman Filter](#) ""8;

Hamed Babazadehrokni, University of Denver, USA

Wen-zhong Gao, University of Denver, USA

Lin Cheng, Tsinghua University, USA

Jin Lin, Tsinghua University, USA

[PEMWA2012-057: Comparison of Individual and Combined Forecasting of Wind Power Output of Two Wind Farms in Western Australia](#) ""97

B. Banerjee, Curtin University of Technology, Australia

D. Jayaweera, Curtin University of Technology, Australia

S.M. Islam, Curtin University of Technology, Australia

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S4: Modeling and Simulation

[PEMWA2012-001: An Aggregation Method of Wind Farm Model for Electromagnetic Transient Simulation Analysis](#) """: 4

Daye Yang, China Electric Power Research Institute, China
Liangeng Ban, China Electric Power Research Institute, China
Zutao Xiang, China Electric Power Research Institute, China
Ning Du, China Electric Power Research Institute, China
Bin Zheng, China Electric Power Research Institute, China
Zipng Wu, Denver University, USA

[PEMWA2012-008: Test Cases for Wind Turbine and Wind Power Plant Dynamic Models in RTDS](#) """: 9

M. Singh, National Renewable Energy Laboratory, USA
E. Muljadi, National Renewable Energy Laboratory, USA
V. Gevorgian, National Renewable Energy Laboratory, USA

[PEMWA2012-028: Assessment of DFIG Simplified Model Parameters Using Field Test Data](#) """: 6

A. Honrubia-Escribano, Universidad de Castilla-La Mancha, Spain
E. Gomez-Lazaro, Universidad de Castilla-La Mancha, Spain
A. Viguera-Rodriguez, Universidad de Castilla-La Mancha, Spain
A. Molina-Garcia, Universidad Politecnica de Cartagena, Spain
J.A. Fuentes, Universidad Politecnica de Cartagena, Spain
E. Muljadi, National Renewable Energy Laboratory, USA

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Lakshan Piyasinghe, University of South Florida, USA
Zhixin Miao, University of South Florida,, USA
Lingling Fan, University of South Florida, USA

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R. S. Kunte, EnerNex LLC, USA
C. Pallem, EnerNex LLC, USA
D. Mueller, EnerNex LLC, USA

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Bu-Il Kang, University of Colorado Denver, USA
Jae-Do Park, University of Colorado Denver, USA

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Yongsu Han, Seoul National University, Korea
Wook-Jin Lee, Seoul National University, Korea
Jung-Ik Ha, Seoul National University, Korea

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Jiuping Pan, ABB Corporate Research, USA

Debrup Das, ABB Corporate Research, USA

Oscar Apeldoorn, ABB Power Electronics and Medium Voltage Drives, Switzerland

Stephan Ebner, ABB Power Electronics and Medium Voltage Drives, Switzerland

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Xiang Gong, University of Nebraska-Lincoln, USA

Wei Qiao, University of Nebraska-Lincoln, USA

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Lizhong Huang, TECO Group Science-Technology (Hangzhou) Co. Ltd., China

Yingming Zhang, TECO Group Science-Technology (Hangzhou) Co. Ltd., China

Xueqing Feng, TECO-Westinghouse Motor Company, USA

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Yuan-zhang Sun, Tsinghua University, China

Lin Cheng, Tsinghua University, China

Poul Sørensen, Technical University of Denmark, Denmark

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L. Popova, Lappeenranta University of Technology, Finland

T. Musikka, Lappeenranta University of Technology, Finland

R. Juntunen, Lappeenranta University of Technology, Finland

M. Lohtander, Lappeenranta University of Technology, Finland

P. Silventoinen, Lappeenranta University of Technology, Finland

O. Pyrhönen, Lappeenranta University of Technology, Finland

J. Pyrhönen, Lappeenranta University of Technology, Finland

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Guosheng Yang, China Electric Power Research Institute, China

Minghui Dong, China Electric Power Research Institute, China

Zexin zhou, China Electric Power Research Institute, China

Chunxia Zhou, China Electric Power Research Institute, China

Dingxiang Du, China Electric Power Research Institute, China

Zhihua Zhan, China Electric Power Research Institute, China

Daye Yang, China Electric Power Research Institute, China

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K. M. Hynynen, Lappeenranta University of Technology, Finland

E. Baygildina, Lappeenranta University of Technology, Finland

O. Pyrhönen, Lappeenranta University of Technology, Finland

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Mehdi Ebad, Baylor University, USA

Byeong-Mun Song, Baylor University, USA

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Yi-ying Zhu, China Electric Power Research Institute, China

Xu-dong Yao, China Electric Power Research Institute, China

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A. J. Allen, University of Texas at Austin, USA

Sang-Wook Sohn, University of Texas at Austin, USA

W. M. Grady, University of Texas at Austin, USA

S. Santoso, University of Texas at Austin, USA

[PEMWA2012-064: Event Detection Method for the PMUs Synchrophasor Data](#) ''''''''3: 3

Sang-Wook Sohn, University of Texas at Austin, USA

Alicia J. Allen, University of Texas at Austin, USA

Saurabh Kulkarni, University of Texas at Austin, USA

W. Mack Grady, University of Texas at Austin, USA

Surya Santoso, University of Texas at Austin, USA

[PEMWA2012-066: Increasing Wind Farm Connectivity in a Utility Distribution System](#) ''''''3: :

Rajiv K. Varma, Western University, Canada

Ravi Seethapathy, Hydro One Networks, Canada

Oren Ben-Shlomo, Hydro One Networks, Canada

[PEMWA2012-072: Modeling and Control of a Pitch-Controlled Variable-Speed Wind Turbine Driven by a DFIG with Frequency Control Support in PSS/E](#) ''''''3; 6

Mikel de Prada Gil, IREC Catalonia Institute for Energy Research, Spain

Andreas Sumper, IREC Catalonia Institute for Energy Research, Spain

Oriol Gomis-Bellmunt, IREC Catalonia Institute for Energy Research, Spain

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S7: Power Electronics, Generators, and Control

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Lijun He, Georgia Institute of Technology, USA

Yongdong Li, Tsinghua University, China

Ronald Harley, Georgia Institute of Technology, USA

[PEMWA2012-070: LFAC-Transmission Systems for Remote Wind Farms Using a Three-phase, Six-pulse Cycloconverter](#) """"432

Yongnam Cho, Georgia Institute of Technology, USA
George J. Cokkinides, Georgia Institute of Technology, USA
A. P. Meliopoulos, Georgia Institute of Technology, USA

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Poopak Roshanfekar, Chalmers University of Technology, Sweden
Torbjorn Thiringer, Chalmers University of Technology, Sweden
Sonja Lundmark, Chalmers University of Technology, Sweden
Mikael Alatalo, Chalmers University of Technology, Sweden

[PEMWA2012-005: Design and Control of a Single-Phase D-STATCOM Inverter for Wind Applications](#) """"445

Colin Tareila, Kansas State University, USA
Pedram Sotoodeh, Kansas State University, USA
Ruth Douglas Miller, Kansas State University, USA

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Xu Yang, University of Nebraska-Lincoln, USA
Dean Patterson, University of Nebraska-Lincoln, USA
Jerry Hudgins, University of Nebraska-Lincoln, USA

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Tayfun Gündoğdu, Istanbul Technical University, Turkey
Güven Kömürköz, Istanbul Technical University, Turkey

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Albert Hartman, High Tide Associates and Performance Magnetics, USA
Wendy Lorimer, High Tide Associates and Performance Magnetics, USA

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Güven Kömürköz, Istanbul Technical University, Turkey
Tayfun Gündoğdu, Istanbul Technical University, Turkey

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E. Muljadi, National Renewable Energy Laboratory, USA
V. Gevorgian, National Renewable Energy Laboratory, USA
M. Singh, National Renewable Energy Laboratory, USA
S. Santoso, University of Texas at Austin, USA

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J. Villena-Lapaz, Universidad de Castilla-La Mancha, Spain
A. Viguera-Rodriguez, Universidad de Castilla-La Mancha, Spain
E. Gomez-Lazaro, Universidad de Castilla-La Mancha, Spain
A. Molina-Garcia, Technical University of Cartagena, Spain
J.A. Fuentes-Moreno, Technical University of Cartagena, Spain

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Ziping Wu, University of Denver, USA
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Jianhui Wang, Northeastern University, China
Shusheng Gu, Northeastern University, China

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Thanh Hai Nguyen, Yeungnam University, Korea
Dong-Choon Lee, Yeungnam University, Korea

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A. Reznik, Colorado School of Mines, USA
M. Godoy Simões, Colorado School of Mines, USA
Ahmed Al-Durra, The Petroleum Institute, UAE
S. M. Mueeen, The Petroleum Institute, UAE

[PEMWA2012-051: Economic Viability of a 3kW Wind Conversion System for Home Energy Management](#) ''''''''4: 3

Z. O. Olaofe, University of Cape Town, South Africa
K. A. Folly, University of Cape Town, South Africa

3:30 PM – 5:00 PM

S11: Wind Plant Control

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Nicholas Miller, GE Energy, USA
Jason MacDowell, GE Energy, USA
Gary Chmiel, GE Energy, USA
Ryan Konopinski, GE Energy, USA
Durga Gautam, GE Energy, USA
Grant Laughter, PacifiCorp, USA
Dave Hagen, PacifiCorp, USA

[PEMWA2012-050: System Level Wind Turbine Controls with Seamless Transition between Standalone and Grid Connected Applications](#) ''''''''4: 7

Luis Arnedo, United Technologies Research Center, USA

Suman Dwari, United Technologies Research Center, USA
Souleman Motapon, Clipper Windpower, USA
Vladimir Blasko, United Technologies Research Center, USA

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Andrew Buckspan, University of Colorado, Boulder, USA
Jacob Aho, University of Colorado, Boulder, USA
Paul Fleming, National Wind Technology Center, USA
Yunho Jeong, Colorado School of Mines, USA
Lucy Pao, University of Colorado, Boulder, USA

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Bulent Sarlioglu, University of Wisconsin-Madison, USA
Di Pan, University of Wisconsin-Madison, USA
Gilsu Choi, University of Wisconsin-Madison, USA

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H.R. Chamorro, Universidad de los Andes, Colombia
C.A. Ordonez, Universidad de los Andes, Colombia
J. F. Jimenez, Universidad de los Andes, Colombia

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Santosh R. Pappu, Texas Tech University, USA
Sandeep Nimmagadda, Texas Tech University, USA
Stephen B. Bayne, Texas Tech University, USA