

# Luigi Vanfretti, Ph.D. – List of Publications

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Copies of papers under review or in press are available by request. Each section is arranged in reverse chronological order.  
Available pre-prints of some, but not all of the publications below, can be found in KTH's DIVA Database: follow this [link](#).

## Under Revision (after First and Second Submission)

- (UR01) H. Hooshyar, F. Mahmood, and **L. Vanfretti**, "Specification, Implementation and Hardware-in-the-Loop Real-Time Simulation of a Reference Active Distribution Grid," submitted, *Sustainable Energy, Grids and Networks (SEGAN)*, Elsevier, July 2014. Third Revision, March 2015.
- (UR02) W. Li and **L. Vanfretti**, "An Algorithm for Real-Time PMU-Based State Estimation Considering Classic HVDC Links under Different Control Modes," submitted, *Sustainable Energy, Grids and Networks (SEGAN)*, Elsevier, September 2014. Third Revision, March 2015.
- (UR03) V.S. Peric, Xavier Bombois, and **L. Vanfretti**, "Optimal Signal Selection for Power System Ambient Mode Estimation using a Prediction Error Criterion," submitted, *IEEE Transactions on Power Systems*, October 2014. Second Revision, March 2014.

## Submitted for Review

### Journal Papers Submitted for Review

- (R01) Y. Chompoobutrgool, and L. Vanfretti, "Using PMU Signals from Dominant Paths in Wide-Area Damping Control," submitted, *Sustainable Energy, Grids and Networks (SEGAN)*, Elsevier, March 2015.
- (R02) **L. Vanfretti**, E. Rebello and M.S. Almas, "Real-Time Implementation of a Flexible Synchrophasor-Based Wide-Area Damping Control System," *IEEE Transactions on Power Systems*, Nov. 2014.
- (R03) V.S. Peric, X. Bombois, and **L. Vanfretti**, "Least Costly Probing Signal Design for Power System Mode Estimation," to be submitted.

## Conference Papers under Review

### Papers submitted to IEEE PowerTech 2015:

- (CR01) W. Li and **L. Vanfretti**, "A PMU-Based State Estimator for Networks Containing FACTS Devices," IEEE PES PowerTech 2015.
- (CR02) R.S. Singh, H. Hooshyar and **L. Vanfretti**, "Laboratory Test Set-Up for the Assessment of PMU Time Synchronization Requirements," IEEE PowerTech 2015.
- (CR03) R.S. Singh, H. Hooshyar and **L. Vanfretti**, "Assessment of Time Synchronization Requirements for Phasor Measurement Units," IEEE PowerTech 2015.
- (CR04) M. Sabate, G. Leon, M. Halat, J.B. Heyberger, F.J. Gomez and **L. Vanfretti**, "Aspects of Power System Modeling, Initialization and Simulation using the Modelica Language," IEEE PowerTech 2015.
- (CR05) M.A. Adib Murad, F.J. Gomez, and **L. Vanfretti**, "Equation-Based Modeling of FACTS using Modelica," IEEE PowerTech 2015.
- (CR06) M.A. Adib Murad, F.J. Gomez, and **L. Vanfretti**, "Equation-Based Modeling and Simulation of Three-Winding,

and Regulating Transformers using Modelica,” IEEE PowerTech 2015.

(CR07) E. Rebello, **L. Vanfretti** and M.S. Almas, “Software Architecture Development and Implementation of a Synchrophasor-Based Real-Time Oscillation Damping Control System,” IEEE PowerTech 2015.

**Papers submitted to the 2015 IEEE 15<sup>th</sup> International Conference on Environment and Electrical Engineering:**

(CR08) **L. Vanfretti**, M. Baudette, J.L. Dominguez, A. White, I. Al-Khatib, M.S. Almas, and J.O. Gjerde, “A PMU-Based Fast Real-Time Oscillation Detection Application for Monitoring of Wind Farm Dynamics,”

(CR09) F. Mahmood, H. Hoosyar and **L. Vanfretti**, “A Method for Extracting Steady State Components from Synchrophasor Data in Real-Time using Kalman Filters,” 2015 IEEE 15<sup>th</sup> International Conference on Environment and Electrical Engineering, June 10-13, 2015, Rome.

(CR10) N. ur Rehman Malik, M.S. Almas, and **L. Vanfretti**, “Challenges of Real-Time Parameter Estimation of DFIG using Synchrophasors,” 2015 IEEE 15<sup>th</sup> International Conference on Environment and Electrical Engineering, June 10-13, 2015, Rome.

(CR11) E. Rebello, **L. Vanfretti**, and M.S. Almas, “Experimental Framework for Testing Synchrophasor-Based Damping Control Systems,” 2015 IEEE 15<sup>th</sup> International Conference on Environment and Electrical Engineering, June 10-13, 2015, Rome.

(CR12) M. Baudette, V.S. Peric, **L. Vanfretti**, and S. Løvlund, “Testing a Combined Approach for Mode Estimation implemented in a Synchrophasor-based Real-Time Tool,” 2015 IEEE 15<sup>th</sup> International Conference on Environment and Electrical Engineering, June 10-13, 2015, Rome.

## In Preparation

### In Current Preparation - Conferences

(CP01) J.L. Dominguez-Garcia, M. Baudette, G. Del-Rosario, A. Ruiz, M. Shoaib Almas, I. Cairo, and **L. Vanfretti**, “Experimental Validation of a PMU-Based Application for Fast Detection of Wind-Farm Sub-Synchronous Oscillations” to be submitted.

(CP02) V.S. Peric and **L. Vanfretti**, “Optimal PMU Placement for Power System Ambient data-based Mode Estimation Applications,” to be submitted.

(CP03) V. Peric and **L. Vanfretti**, “Optimal Multisine Probing Signal Design for Power System Mode Estimation,” to be submitted.

### Stale

(CPS01) M. Farrokhbabadi and **L. Vanfretti**, “Extracting Relevant Student Feedback from Disparate Course Evaluations Considering the Students’ Learning Approach”.

(CPS02) F. Milano and **L. Vanfretti**, “Free and Open Source Software for Power System Analysis” *Note*: prepared on behalf of the CAMS Task Force on Open Source Software.

(CPS03) D.M. Laverty, P. Brogan, **L. Vanfretti**, and D. J. Morrow, “Technique for Pre-Compliance Testing of Phasor Measurement Units”.

## Published Works

### 1 Books

(B01) **Luigi Vanfretti**, *Notions for PMU-Based Power System Model Reduction of Large Power Systems*. Saarbrücken, Germany: LAP LAMBERT Academic Publishing, October 2010. ISBN-13: 978-3-8433-6011-1. ISBN-10: 3843360111.  
<https://www.lap-publishing.com/catalog/details/store/hu/book/978-3-8433-6011-1/notions-for-pmu-based-power-system-model-reduction?locale=gb>

### 2 Book Chapters

(BC04) **L. Vanfretti**, M. Baudette, and A. White, "Monitoring and control of renewable energy sources using synchronized phasor measurements," Book Chapter, in *Renewable Energy Integration: Practical Management of Variability, Uncertainty and Flexibility in Power Grids*, Editor: Lawrence E. Jones, Elsevier, 2014.  
<http://store.elsevier.com/Renewable-Energy-Integration/Lawrence-Jones/isbn-9780124079106/>

(BC03) **L. Vanfretti**, D. Van Hertem and J. O. Gjerde, "Smart Transmission Grids vision for Europe: Towards a Realistic Research Agenda", Book Chapter, in *Smart Grids and Sustainable Energy Transformation*, Editors: P. Hills, Daphne Mah, Victor O.K. Li, Richard Balme, Springer, 2014.  
<http://www.springer.com/energy/policy,+economics,+management+%26+transport/book/978-1-4471-6280-3>

(BC02) **L. Vanfretti**, Y. Chompoobutrgool, and J.H. Chow, "Chapter 10: Inter-Area Mode Analysis for Large Power Systems using Synchrophasor Data", Book Chapter, in *Coherency and Model Reduction of Large Power Systems*, Joe H. Chow (Ed.), Springer, 2013. <http://www.springer.com/energy/systems%2C+storage+and+harvesting/book/978-1-4614-1802-3>

(BC01) Rujiro J Leelaruij and **Luigi Vanfretti**, Power System Protective Relaying: Basic Concepts, Industrial-Grade Devices, and Communication Mechanisms, to appear, Chapter 16: Power-System Operations, Section 16.2, in W. Beaty (Editor), Standard Handbook for Electrical Engineers, 16th Edition, 2012.  
<http://www.mcgrawhill.ca/professional/products/9780071762328/standard+handbook+for+electrical+engineers+sixteenth+edition/>

### 3 Journal Papers

**Paper (J07) has been published in a Special Issue on Power System Phasor Measurement Data and Their Applications, and paper (J02) appears in a Special Issue on Virtual Laboratories.**

(J22) N.T. Anh, **L. Vanfretti**, J. Driesen, and D. Van Hertem, "A Quantitative Method to Determine ICT Delay Requirements for Wide-Area Power System Damping Controllers," *IEEE Transactions on Power Systems*.  
<https://dx.doi.org/10.1109/TPWRS.2014.2356480>

(J21) **L. Vanfretti** and M. Farrokhbabadi, "Consensus-Based Course Design and Implementation of Constructive Alignment Theory in a Power System Analysis Course", *European Journal of Engineering Education*, 2014.  
<https://dx.doi.org/10.1080/03043797.2014.944101>

(J20) C. Sturk, **L. Vanfretti**, Y. Chompoobutrgool, and H. Sandberg, "Non-coherency based structure model reduction of power systems," *IEEE Transactions on Power Systems*, vol. 29, no. 5, pp. 2418 – 2426, Sept. 2014.  
<https://dx.doi.org/10.1109/TPWRS.2014.2302871>

(J19) V. Peric and **L. Vanfretti**, "Power System Ambient Mode Estimation Considering Spectral Load Properties," *IEEE Transactions on Power Systems*, vol. 29, no. 3, pp. 1133 – 1143, May 2014.  
<https://dx.doi.org/10.1109/TPWRS.2013.2292331>

(J18) R. Leelaruij, **L. Vanfretti**, K. Uhlen, and J. O. Gjerde, "Computing sensitivities from synchrophasor data for voltage stability monitoring and visualization," *International Transactions on Electrical Energy Systems*, Feb. 2014.  
<https://dx.doi.org/10.1002/etep.1869>

- (J17) M. Farrokhabadi and **L. Vanfretti**, “An Efficient Automated Topology Processor for State Estimation of Power Transmission Networks”, *Electric Power Systems Research* (Elsevier), Vol. 106, pp. 188-202, Jan. 2014. DOI: <http://dx.doi.org/10.1016/j.epsr.2013.08.014>
- (J16) **L. Vanfretti**, S. Bengtsson, and Jan O. Gjerde, “Preprocessing Synchronized Phasor Measurement Data for Spectral Analysis of Electromechanical Oscillations in the Nordic Grid,” *International Transactions on Electrical Energy Systems*, Dec. 2013. DOI: <http://dx.doi.org/10.1002/etep.1847>
- (J15) **L. Vanfretti** and M. Farrokhabadi, “Evaluating Constructive Alignment Theory Implementation in a Power System Analysis Course through Repertory Grids”, *IEEE Transactions on Education*, vol. 56, no. 4, pp. 443–452, Nov. 2013. DOI: <http://dx.doi.org/10.1109/TE.2013.2255876>
- (J14) Yuwa Chompoobutrgool and **L. Vanfretti**, “Identification of Power System Dominant Inter-Area Oscillation Paths,” *IEEE Transactions on Power Systems*, vol. 28, no. 3, pp. 2798 – 2807, Aug. 2013. DOI: <http://dx.doi.org/10.1109/TPWRS.2012.2227840>
- (J13) D.M. Laverty, R.J. Best, P. Brogan, I. Al Khatib, **L. Vanfretti**, and D.J. Morrow, “OpenPMU Platform for Open Source Phasor Measurements”, *IEEE Transactions on Instrumentation and Measurements*, vol. 62, no. 4, April 2013, pp. 701 – 709. DOI: <http://dx.doi.org/10.1109/TIM.2013.2240920>
- (J12) R. Leelarужи and **L. Vanfretti**, “State-of-the-Art in the Industrial Implementation of Protective Relay Functions, Communication Mechanisms and Synchronized Phasor Capabilities for Electric Power Systems Protection,” *Renewable and Sustainable Energy Reviews*, Elsevier, Vol. 16, no.7, Sept. 2012, pp. 4385-4395. DOI: <http://dx.doi.org/10.1016/j.rser.2012.04.043>
- (J11) W. Li, **L. Vanfretti** and Y. Chompoobutrgool, “Development and Implementation of Hydro Turbine and Governor Models in a Free and Open Source Software Package,” *Simulation Modelling Practice and Theory*, Elsevier, vol. 24, pp. 84-102, May 2012. DOI: <http://dx.doi.org/10.1016/j.simpat.2012.02.005>
- (J10) R. Leelarужи and **L. Vanfretti**, “Detailed Modelling, Implementation and Simulation of an “All-in-one” Stability Test System including Power System Protective Devices,” *Simulation Modelling Practice and Theory*, Elsevier, vol. 23, pp. 36-59, April 2012. DOI: <http://dx.doi.org/10.1016/j.simpat.2012.01.002>
- (J09) **L. Vanfretti** and Federico Milano, “Facilitating Constructive Alignment in Power System Engineering Education using Free and Open Source Software,” *IEEE Transactions on Education*, vol. 55, no.3, August 2012, pp. 309-318. DOI: <http://dx.doi.org/10.1109/TE.2011.2172211>
- (J08) Y. Chompoobutrgool and **L. Vanfretti**, “Survey on Power System Stabilizers Control and their Prospective Applications for Power System Damping using Synchrophasor-Based Wide-Area Systems”, *European Transactions on Electrical Power*, Feb. 2011. DOI: <http://dx.doi.org/10.1002/etep.545>.
- (J07) **L. Vanfretti**, L. Dosiek, J. W. Pierre, D. Trudnowski, J. H. Chow, R. García-Valle, and U. Aliyu, “Application of Ambient Analysis Techniques for the Estimation of Electromechanical Oscillations from Measured PMU Data in Four Different Power Systems”, *European Transactions on Electrical Power*, Special Issue: Power System Measurement Data and their Applications, vol. 21, no. 4, pp. 1640-1656, May 2011. DOI: <http://dx.doi.org/10.1002/etep.507>.
- (J06) **L. Vanfretti**, J. H. Chow, S. Sarawgi, and B. Fardanesh, “A Phasor-Data Based State Estimator Incorporating Phase Bias Correction”, *IEEE Transactions on Power Systems*. vol. 26, no. 1, Feb 2011. DOI: <http://dx.doi.org/10.1109/TPWRS.2010.2047031>.

(J05) C.E. Ugalde-Loo, E. Acha, E. Liceaga-Castro, **L. Vanfretti**, "Individual Channel Analysis of the Thyristor- Controlled Series Compensator Performance," *International Journal of Emerging Electric Power Systems*, Vol. 27, No. 1, Jan. 2010. DOI: <http://dx.doi.org/10.2202/1553-779X.2190>.

(J04) **L. Vanfretti** and F. Milano, "The Experience of PSAT (Power System Analysis Toolbox) as a Free and Open Source Software for Power System Education and Research," *International Journal of Electrical Engineering Education*, vol. 27, no. 1, Jan. 2010.

Publisher's Link: <http://www.ingentaconnect.com/content/manup/ijeee/2010/00000047/00000001/art00005>.

(J03) J. H. Chow, A. Chakraborty, **L. Vanfretti**, and M. Arcak, "Estimation of Radial Power System Transfer Path Dynamic Parameters using Synchronized Phasor Data", *IEEE Transactions on Power Systems*, Vol. 23, No.2, pp. 564-571, May 2008.

DOI: <http://dx.doi.org/10.1109/TPWRS.2008.919315>.

(J02) F. Milano, **L. Vanfretti**, and J.C. Morataya, "An Open Source Power System Virtual Laboratory: The PSAT Case and Experience," *IEEE Transactions on Education*, Special Issue on Virtual Laboratories, Vol. 51, No. 1, pp. 17-23, Feb. 2008.

DOI: <http://dx.doi.org/10.1109/TE.2007.893354>.

(J01) C.E. Ugalde-Loo, **L. Vanfretti**, E. Acha and E. Liceaga-Castro, "Synchronous Generators Modeling Using the Framework of Individual Channel Analysis and Design. Part 1," *International Journal of Emerging Electric Power Systems*, Vol. 8, Iss. 5. Article 4. November 21, 2007.

DOI: <http://dx.doi.org/10.2202/1553-779X.1638>.

## 4 Conference Papers

### 4.1 Peer Reviewed Papers which have been invited to Panel Sessions and Special Sessions in Conferences

*The papers enumerated in the table below were invited and presented in Panel and Special Paper Sessions in different international conferences. A complete citation for each paper is given below:*

No.	Panel/Paper Session	Conference
C56	Technical Session, Track 5: Communication and Control in Smart Grids	BlackSeaCom 2013
C49, 54	Identification of Electromechanical Modes in Power Systems	IEEE PES GM 2013
C52	New Synchrophasor Standards and Guides: Measurements, Data Transfer, Concentration and Implementation Requirements	IEEE PES GM 2013
C41	Real Time Simulation of Smart Grids	IEEE PES ISGT Europe 2012
C37	Real-time simulation and validation methods for power and energy systems	IECON 2012
C33, C34	RT and HIL Simulation for Approaching Complexity in Future Power & Energy Systems	IEEE COMPENG 2012
C32	Stability and control in Smart Power Grid	IFAC PP&PSC 2012
C28	Distributed Control – Bringing together the power and control communities	IEEE PES GM 2012
C27	Synchrophasor Measurement Applications in Power Industry to Enhance Power System Reliability	IEEE PES GM 2012
C26	Wide-Area Early Warning Systems	IEEE PES GM 2012
C23	Development of System ID Methods for Power System Dynamics	IFAC SysID 2012
C18, C19	PMU/WAMS Invited Paper Session	PSCC 2011
C17	International Implementation Experience and Prospective Applications of Synchrophasors and their Supporting Infrastructures	IEEE PES GM 2011
C16	Bringing Smart Grids to the Next Level (Working Group on European Electricity Infrastructure)	IEEE PES GM 2011
C15	Best Practices in Electrical Power Engineering Education	IEEE PES GM 2011
C10	New Techniques for Synchronized Phasor Data Analysis Panel Session	IEEE PES GM 2009
C09	Recent Applications of Linear Analysis Techniques Panel Session	IEEE PES GM 2009
C08	NSF-Sponsored US-African Collaborative Research and Education Panel Session	IEEE PES GM 2009
C07	Panel Session on Open Source Software for Power Systems	IEEE PES GM 2009
C06	Deployment and Applications of Synchronized Phasor Measurements	IEEE PSCE 2009

### 4.2 List of Peer Reviewed Conference Papers

#### 2015

##### Papers in the IEEE PES General Meeting 2015 (9):

(CR103) **L. Vanfretti**, W. Li, A. Egea-Alvarez and O. Gomiz-Bellmunt, “Generic VSC-based DC Grid EMT Modeling, Simulation and Validation on a Scaled Hardware Platform,” IEEE PES GM 2015.

(CR102) W. Li and **L. Vanfretti**, “A PMU-Based State Estimator for Networks Containing VSC-HVDC links,” IEEE PES GM 2015.

(CR101) R. Rogersten, **L. Vanfretti**, and W. Li, “Towards Consistent Model Exchange and Simulation of VSC-HVdc Controls for EMT Studies,” submitted, IEEE ISGT 2015 Feb. 17-20, 2015, Washington DC, USA.

(CR99) M.S. Almas, and **L. Vanfretti**, “RT-HIL Testing of an Excitation Control System for Oscillation Damping using External Stabilizing Signals,” IEEE PES GM 2015.

(CR98) G.M. Jonsdottir, M.S. Almas, M. Baudette, **L. Vanfretti**, and M.P. Palssoni, "RT-SIL Performance Analysis of Synchrophasor-and-Active Load-Based Power System Damping Controllers," IEEE PES GM 2015.

(CR97) F.J. Gomez, **L. Vanfretti** and S.H. Olsen, "Binding CIM and Modelica for Consistent Power System Dynamic Model Exchange and Simulation," IEEE PES GM 2015.

(CR96) C. Sturk, **L. Vanfretti**, Y. Chompoobutrgool, and H. Sandberg, “Coherency-Independent Structured Model Reduction of Power Systems,” Abstract of a Published IEEE Transactions on Power Systems for presentation in the IEEE PES GM 2015.

(CP95) N.T. Anh, **L. Vanfretti**, J. Driesen, and D. Van Hertem, "A Quantitative Method to Determine ICT Delay Requirements for Wide-Area Power System Damping Controllers," Abstract of a Published IEEE Transactions on Power Systems for presentation in the IEEE PES GM 2015.

(CP94) E. Rebello, **L. Vanfretti**, and M.S. Almas, "PMU-based Real-Time Damping Control System Software and Hardware Architecture Synthesis and Evaluation," IEEE PES GM 2015.

**IEEE Power and Energy Conference at Illinois 2015:**

(CP93) V. Peric, T. Bogodorova, A.N. Mete, and **L. Vanfretti**, "Model order selection for probing-based power system mode estimation," IEEE Power and Energy Conference at Illinois 2015.

**Papers in the IEEE ISGT 2015 Conference (4):**

(CP92) **L. Vanfretti**, I. Al Khatib, and M. S. Almas, "Real-Time Data Mediation for Synchrophasor Application Development Compliant with IEEE C37.118.2," IEEE ISGT 2015, Feb. 17-20, 2015, Washington DC, USA.

(CP91) J. Kilter, M.S. Almas, I. Palu, and **L. Vanfretti**, "Experiences with Dynamic PMU Compliance Testing using Standard Relay Testing Equipment," IEEE ISGT 2015, Feb. 17-20, 2015, Washington DC, USA.

(CP90) F.R. Segundo and **L. Vanfretti**, "Static Stability Indexes for the Classification of Power System Time-domain Simulations," IEEE ISGT 2015, Feb. 17-20, 2015, Washington DC, USA.

(CP89) C. Sturk, **L. Vanfretti**, Y. Chompoobutrgool, and H. Sandberg, "Coherency-Independent Structured Model Reduction of Power Systems," Abstract of a Published Transactions Paper for presentation in the IEEE ISGT 2015, Feb. 17-20, 2015, Washington DC, USA.



## 2014

- (CP88) M. Shoaib Almas and **L. Vanfretti**, "Implementation of Conventional PSS and Phasor Based POD for Power Stabilizing Controls for Real-Time Simulation," IEEE IES IECON14, 29 Oct – 1 Nov, 2014, Dallas, USA.
- (CP87) M. Shoaib Almas and **L. Vanfretti**, "Experimental Performance Assessment of Generator Excitation Control System using Real-Time Hardware-in-the-Loop Simulation," IEEE IES IECON14, 29 Oct – 1 Nov, 2014, Dallas, USA.
- (CP86) **L. Vanfretti** and F.R. Segundo Sevilla, "A three-layer severity index for power system voltage stability assessment using time-series from dynamic simulations," IEEE ISGT Europe 2014, Oct. 12 – 15, 2014, Istanbul, Turkey.
- (CP85) R. Rogersten, **L. Vanfretti**, W. Li, L. Zhang, and P. Mitra "A Quantitative Method for the Assessment of VSC-HVdc Controller Simulations in EMT Tools," IEEE ISGT Europe 2014, Oct. 12 – 15, 2014, Istanbul, Turkey.
- (CP84) F. Gomez Lopez, **L. Vanfretti**, and S.H. Olssen, "A Modelica-Based Execution and Simulation Engine for Automated Power System Model Validation," IEEE ISGT Europe 2014, Oct. 12 – 15, 2014, Istanbul, Turkey.
- (CP83) H. Hooshyar, F. Mahmood, and **L. Vanfretti**, "HIL Simulation of a Distribution System Reference Model," NORDAC 2014.
- (CP82) N.A. Khan, **L. Vanfretti**, W. Li, and A. Haider, "Hybrid Nearest Level and Open Loop Control of Modular Multilevel Converters," 16<sup>th</sup> European Conference on Power Electronics and Applications, EPE'14 ECCE Europe, 2014.
- (CP81) **L. Vanfretti**, N.A. Khan, W. Li, Md. Rokibul Hasan, and A. Haider, "Generic VSC and Low Level Switching Control Models for Simulation of VSC-HVDC Systems," PQ2014 Conference, Estonia, June 11 – 13, 2014.
- (CP80) Md. Rokibul Hasan, **L. Vanfretti**, W. Li and N.A. Kahn, "Generic High Level VSC-HVDC Grid Controls and Test Systems for Offline and Real Time Simulation," PQ2014 Conference, Estonia, June 11 – 13, 2014.
- (CP79) M. Shoaib Almas, J. Kilter, and **L. Vanfretti**, "Experiences with Steady-State PMU Compliance Testing using Standard Relay Testing Equipment," PQ2014 Conference, Estonia, June 11 – 13, 2014.
- (CP78) **L. Vanfretti**, T. Bogodorova, and M. Baudette, "Power System Model Identification Exploiting the Modelica Language and FMI Technologies," 2014 IEEE International Conference on Intelligent Energy and Power Systems, June 2-6, 2014, Kyiv, Ukraine.
- (CP77) F. Mahmood and **L. Vanfretti**, "Modeling of a Detailed Photovoltaic Generation System for EMT-Type Simulation," IEEE International Energy Conference 2014, Dubrovnik, Croatia, 13-16 May 2014.
- (CP76) M.S. Almas, M. Baudette, **L. Vanfretti**, S. Løvlund and J.O. Gjerde, "Synchrophasor Network, Laboratory and Software Applications developed in the STRONG<sup>2</sup>rid project", IEEE PES General Meeting, 2014.
- (CP75) F.R. Segundo Sevilla, and **L. Vanfretti**, "A Small-Signal Stability Index for Power System Dynamic Impact Assessment using Time-Domain Simulations," submitted, IEEE PES General Meeting, 2014.
- (CP74) V.S. Peric and **L. Vanfretti**, "Power System Ambient Mode Estimation Considering Spectral Load Properties," Published Transactions Paper Abstract for presentation, IEEE PES General Meeting, 2014.
- (CP73) W. Li and **L. Vanfretti**, "Inclusion of Classic HVDC Links in a PMU-Based State Estimator," IEEE PES General Meeting, 2014.



(CP72) H. Hooshyar and **L. Vanfretti**, “Specification and Implementation of a Reference Grid for Distribution Network Dynamics Studies,” IEEE PES General Meeting, 2014, National Harbor, MD (Washington, DC Metro Area).

(CP71) Y. Chompoobutrgool and **L. Vanfretti**, “Analysis of Time Delay Effects for Wide-Area Damping Control Design using Dominant Path Signals,” IEEE PES General Meeting, 2014, National Harbor, MD (Washington, DC Metro Area).

(CP70) M.S. Almas, **L. Vanfretti**, and J.O. Gjerde, “Open Source SCADA Implementation and PMU Application Integration for Power System Monitoring and Control Applications,” IEEE PES General Meeting, 2014, National Harbor, MD (Washington, DC Metro Area).

(CP69) W. Kuehn, **L. Vanfretti**, and W. Fischer, “HVDC System Stability – Analysis, Monitoring and Control in Wide Area Power Systems,” submitted, CIGRE Belgium Conference “Innovation for Secure and Efficient Transmission Grids”, Brussels, Belgium, March 12-14, 2014.

(C68) **L. Vanfretti**, T. Bogodorova, and M. Baudette, “A Modelica Power System Component Library for Model Validation and Parameter Identification,” 10<sup>th</sup> International Modelica Conference 2014, Lund, Sweden, Mar. 10 – 12, 2014.

(C67) V.S. Peric, **L. Vanfretti**, M. Baudette, J.O. Gjerde and S. Lovlund, “Implementation of a Real-Time Mode Estimation Algorithm using Ambient Synchrophasor Data,” Power Systems Conference, Clemson University, Clemson SC, 2014.

(C66) M. Baudette, **L. Vanfretti**, G. Del-Rosario, A. Ruiz-Alvarez, J.L. Dominguez-Garcia, I. Al-Khatib, M. Shoaib Almas, I. Cairo, and J.O. Gjerde, “Validating a Real-Time PMU-Based Application for Monitoring Sub-Synchronous Wind Farm Oscillations,” IEEE ISGT 2014, Washington, DC, Feb. 19-22, 2014.

## 2013

(C65) R. Leelaruij, **L. Vanfretti**, J.O. Gjerde, S. Løvlund, “A linear regression method using synchrophasor measurements for voltage stability monitoring,” submitted, 5<sup>th</sup> IEEE PES Asia-Pacific Power and Energy Engineering Conference, Hong Kong, December 2013.

(C64) H. Hooshyar and **L. Vanfretti**, “Power Flow Solution for Multiphase Unbalanced Distribution Networks with High Penetration of Photovoltaics,” 8<sup>th</sup> International Conference on Electrical and Electronics Engineering, November 2013, Bursa, Turkey.

(C63) E. Martinez, N. Juarez, **L. Vanfretti**, N. Scott, L. Romero, R. Mendez, “Synchrophasor-Based Remedial Actions Schemes for Automatic Tripping of the Interconnection between Mexico and Central America,” 2013 DistribuTECH Brasil Conference & Exposition, Sept. 24 – 26, 2013, Sao Paulo, Brasil.

(C62) M. Farrokhabadi and **L. Vanfretti**, “Phasor-Assisted Automated Topology Processing for State Estimators,” 2013 IEEE Canada Electric Power and Energy Conference, 2013.

(C61) E. Martinez, **L. Vanfretti**, and F.R. Segundo Sevilla, “Applying Synchrophasors for Automatic Tripping of the Interconnection Between Mexico and Central America during Power Oscillations,” IEEE ISGT Europe 2013, Oct. 6 – 9, 2013, Lyngby, Denmark.

(C60) T. Bogodorova, M. Sabate, G. León, **L. Vanfretti**, M. Halat, J.B. Heyberger, and P. Panciatici, “A Modelica Power System Library for Phasor Time-Domain Simulation,” IEEE ISGT Europe 2013, Oct. 6 – 9, 2013, Lyngby, Denmark.

(C59) M. Perninge, J. Lavenius, and **L. Vanfretti**, “Approximating a Post-Contingency Stable Operation Region in Parameter Space through Time-Domain Simulations,” 2013 IREP Symposium – Bulk Power System Dynamics and Control – IX (IREP), August 25-30, 2013, Rethymnon, Crete, Greece.

(C58) C.F. Magnus Danielson, **L. Vanfretti**, Y. Choompoobutrgool, and M. Shoaib Almas, “Analysis of Communication Network Challenges for Real-Time Synchrophasor-Based Wide-Area Control Applications,” 2013 IREP Symposium – Bulk Power System Dynamics and Control – IX (IREP), August 25-30, 2013, Rethymnon, Crete, Greece.

(C57) **L. Vanfretti**, M. Baudette, I. Al-Khatib, M. S. Almas, and J. O. Gjerde, “Testing and Validation of a Fast Real-Time Oscillation Detection PMU-Based Application for Wind-Farm Monitoring,” **Invited Paper**, Technical Session, Track 5: Communication and Control in Smart Grids, in Proceedings of the First International Black Sea Conference on Communications and Networking 2013 (BlackSeaCom 2013), Batumi, Georgia.

(C56) **L. Vanfretti**, W. Li, T. Bogodorova, and P. Panciatici “Unambiguous Power System Modeling and Simulation using Modelica Tools”, IEEE PES General Meeting 2013.

(C55) **L. Vanfretti**, V. Peric, and J. O. Gjerde, “Estimation of Electromechanical Oscillations in the Nordic Grid using Ambient Data Analysis”, **Invited Paper**, Panel Session on Identification of Electromechanical Modes in Power Systems, IEEE PES General Meeting 2013.

(C54) Yuwa Chompoobutrgool and **L. Vanfretti**, “Identification of Power System Dominant Inter-Area Oscillation Paths,” submitted, IEEE PES General Meeting 2013 – Abstract for presentation of paper accepted in *IEEE Transactions on Power Systems*, November 2012.

(C53) I. Al-Khatib and **L. Vanfretti**, “Real-Time Data Mediation for Synchrophasor Application Development compliant with IEEE C37.118.2,” **Invited Presentation**, Panel Session on New Synchrophasor Standards and Guides: Measurements, Data Transfer, Concentration and Implementation Requirements, IEEE PES General Meeting 2013.

(C52) D. Laverty, **L. Vanfretti**, I. Al-Khatib, V.K. Appelgren, R. Best, D.J. Morrow, “The OpenPMU Project: Challenges and Perspectives,” IEEE PES General Meeting 2013.

(C51) D. Dotta, J. H. Chow, **L. Vanfretti**, M. S. Almas, and M. N. Agostini, "A MATLAB-based PMU Simulator," IEEE PES General Meeting 2013.

(C50) M. Crow, J. Sanchez-Gasca, J. Chow, J. Hauer, H. Huang, J. Pierre, D. Trudnowski, **L. Vanfretti**, and N. Zhou, "Linear Ringdown Analysis Methods," **Invited Paper**, Panel Session on Identification of Electromechanical Modes in Power Systems, IEEE PES General Meeting 2013.

(C49) H. Hooshyar and **L. Vanfretti**, "Coordination assessment of overcurrent relays in distribution feeders with high penetration of PV systems," 2013 IEEE Grenoble Conference PowerTech, POWERTECH 2013; Grenoble, France, 16-20 June 2013.

(C48) **L. Vanfretti**, S. Bengtsson, Vedran Perić, and Jan O. Gjerde, "Spectral Estimation of Low-Frequency Oscillations in the Nordic Grid using Ambient Synchrophasor Data under the Presence of Forced Oscillations," 2013 IEEE Grenoble Conference PowerTech, POWERTECH 2013; Grenoble, France, 16-20 June 2013.

(C47) **L. Vanfretti**, V. H. Aarstrand, M. Shoaib Almas, V. Peric, and J. O. Gjerde, "A software development toolkit for real-time synchrophasor applications", 2013 IEEE Grenoble Conference PowerTech, POWERTECH 2013; Grenoble, France, 16-20 June 2013.

(C46) **L. Vanfretti**, "Unambiguous Power System Modeling and Simulation using Modelica Tools," 7<sup>th</sup> MODPROD Workshop on Model-Based Product Development, Feb. 5-6, 2013, Linköping, Sweden.

(C45) M. Shoaib Almas and **L. Vanfretti**, "Performance Evaluation of Protection Functions through IEC 61850-9-2 Process Bus using a Real-Time Hardware-in-the-Loop (HIL) Simulation Approach," CIREN 2013.

(C44) M.S. Almas and **L. Vanfretti**, "Methodologies for Power Protection Relay Testing: From Conventional to Real-Time Hardware-in-the-Loop (HIL) Approaches," International Conference on Power System Transients (IPST), 2013.

## 2012

- (C43) **L. Vanfretti** and M. Farrokhhabadi, "Implementing Constructive Alignment Theory in a Power System Analysis Course using a Consensus Model," *IEEE ICELIE '2012*, 6<sup>th</sup> IEEE International Conference on E-Learning in Industrial Electronics.
- (C42) Rujiro j Leelaruji and **L. Vanfretti**, "Utilizing Synchrophasor-Based Protection Systems with VSC-HVDC Controls to Mitigate Voltage Instability," *IEEE PES International Conference on Power Systems Technology (POWERCON)*, Auckland, New Zealand, Oct. 30 - Nov. 2, 2012.
- (C41) M. Shoaib Almas and **L. Vanfretti**, "Real-Time Hardware-in-the-Loop Validation for Power System Protection and Communication," **Invited Presentation**, Panel Session on Real Time Simulation of Smart Grids, *IEEE PES ISGT Europe*, Berlin, October 2012.
- (C40) K. Weyrich, R. Leelaruji, W. Kuehn and **L. Vanfretti**, "Real-Time Implementation of an Automatic Voltage Stabilizer for HVDC Control," *IEEE PES ISGT Europe*, Berlin, October 2012.
- (C39) **L. Vanfretti**, S. Bengtsson, Vedran Perić, and Jan O. Gjerde, "Effects of Forced Oscillations on Power System Damping Estimation," *International Workshop on Applied Measurements for Power Systems (AMPS)*, September 22-24, 2012, Aachen, Germany.
- (C38) Yuwa Chompoobutrigoool and **L. Vanfretti**, "A fundamental Study on Damping Control Design using PMU signals from Dominant Inter-Area Oscillation Paths," *North American Power Symposium 2012*, September 9-11, 2012, Illinois, USA.
- (C37) M.S. Almas, R. Leelaruji, and **L. Vanfretti**, "Over-Current Relay Model Implementation for Real-Time Simulation and Hardware-in-the-Loop Validation," **Invited Paper**, Real-Time Simulation and Validation Methods for Power and Energy Systems - Panel Session, *IEEE IECON '2012*, 25-28 October, Montréal, Canada.
- (C36) M. Farrokhhabadi and **L. Vanfretti**, "State-of-the-Art of Topology Processors for EMS and PMU Applications and Their Limitations," *IEEE IECON '2012*, 25-28 October, Montréal, Canada.
- (C35) Bayram Tounsi, Alexandre Henry and **L. Vanfretti**, "Modelling and Dynamic Analysis of Offshore Wind Farms According to the French TSO Grid Code," *IEEE IECON '2012*, 25-28 October, Montréal, Canada.
- (C34) Wei Li, **L. Vanfretti**, and M. Farrokhhabadi, "Modeling of Custom Hydro Turbine and Governor Models for Real-Time Simulation," **Invited Paper**, Special Session: "RT and HIL Simulation for Approaching Complexity in Future Power & Energy Systems," *IEEE Workshop on Complexity in Engineering*, June 11-13, 2012. Aachen, Germany.
- (C33) Kim Weyrich, R. Leelaruji, W. Kuehn, and **L. Vanfretti**, "Mitigating System's Voltage Instability through Wide-Area Early Warning Signals and Real-Time HVDC Control," **Invited Paper**, Special Session: "RT and HIL Simulation for Approaching Complexity in Future Power & Energy Systems," *IEEE Workshop on Complexity in Engineering*, June 11-13, 2012. Aachen, Germany.
- (C32) Y. Chompoobutrigoool and **L. Vanfretti**, "Persistence of Multiple Interaction Paths for Individual Inter-Area Modes," **Invited Paper**, Panel Session: "Stability and Control in Smart Power Grid," *IFAC 8<sup>th</sup> Power Plant and Power Systems Controls Symposium*, 2012.
- (C31) Y. Chompoobutrigoool and **L. Vanfretti**, "On the Persistence of Dominant Inter-Area Paths in Power Systems," *IFAC 8<sup>th</sup> Power Plant and Power Systems Controls Symposium*, 2012.
- (C30) **L. Vanfretti**, et al, "SmarTSLab: A Laboratory for Developing Applications for WAMPAC Systems," *IEEE PES General Meeting 2012*, San Diego, CA, USA.
- (C29) Y. Chompoobutrigoool, W. Li, and **L. Vanfretti**, "Development and Implementation of the Nordic Grid Model for Power System Small-Signal and Transient Stability Studies in a Free and Open Source Software," *IEEE PES General Meeting 2012*, San Diego, CA, USA.
- (C28) C. Sturk, **L. Vanfretti**, Y. Chompoobutrigoool, H. Sandberg, "Structured Power System Model Reduction of Non-Coherent Areas," **Invited Paper**, Panel Session: "Distributed Control — Bringing together the power and control

communities”, *IEEE PES General Meeting 2012*, San Diego, CA, USA.

(C27) K. Uhlen, **L. Vanfretti**, M.M. de Oliveira, A. B. Leirbukt, V. H. Aarstrand, and J.O. Gjerde, “Wide-Area Power Oscillation Damper Implementation and Testing in the Norwegian Transmission Network,” **Invited Paper**, Panel Session: “Synchrophasor Measurement Applications in Power Industry to Enhance Power System Reliability”, *IEEE PES General Meeting 2012*, San Diego, CA, USA.

(C26) R. Leelarui, **L. Vanfretti**, and M.S. Almas, “Voltage Stability Monitoring using Sensitivities Computed from Synchronized Phasor Measurement Data,” **Invited Paper**, Panel Session: “Wide-Area Early Warning Systems”, *IEEE PES General Meeting 2012*, San Diego, CA, USA.

(C25) D.M. Lavery, **L. Vanfretti**, R.J. Best, D.J. Morrow, L. Nordström, and M. Chenine, “OpenPMU Technology Platform for Synchrophasor Research Applications,” *IEEE PES General Meeting 2012*, San Diego, CA, USA.

(C24) A.T. Al-Hammouri, L. Nordström, M. Chenine, **L. Vanfretti**, N. Honeth, and R. Leelarui, “Virtualization of Synchronized Phasor Measurement Units within Real-Time Simulators for Smart Grid Applications,” *IEEE PES General Meeting 2012*, San Diego, CA, USA.

(C23) **L. Vanfretti**, S. Bengtsson, V.H. Aarstrand, and J.O. Gjerde, “Applications of Spectral Analysis Techniques for Estimating the Nordic Grid’s Low Frequency Electromechanical Oscillations,” **Invited Paper**, Special Session: “Development of System ID Methods for Power System Dynamics”, *IFAC Symposium on System Identification Brussels*, 2012.

(C22) C. Sturk, **L. Vanfretti**, F. Milano, and H. Sandberg, “Structured Model Reduction of Power Systems,” American Control Conference (ACC), June 27-29, 2012, Montréal, Canada.

(C21) U. O. Aliyu, **L. Vanfretti**, and J. H. Chow, “Modelling of a System Collapse in the Nigerian National Power System using Frequency Disturbance Recorder Data,” 9<sup>th</sup> International Conference on Power System Operations and Planning (ICPSOP), Nairobi, Kenya, January 2012.

## 2011

(C20) N. Honeth, A. Saleem, K. Zhu, **L. Vanfretti** and L. Nordström, “Decentralized Topology Inference of Electrical Distribution Networks,” IEEE PES ISGT Europe, Manchester, UK. Dec. 5-7, 2011.

(C19) **L. Vanfretti** and J.H. Chow, “Synchrophasor Data Applications for Wide-Area Systems,” **Invited Paper**, Power System Computation Conference 2011, Stockholm, Sweden.

(C18) L. Nordström, M. Chenine, Z. Kun, and **L. Vanfretti**, “Information and Communication System Architectures for Wide-Area Monitoring and Control Applications,” **Invited Paper**, Power System Computation Conference 2011, Stockholm, Sweden.

(C17) M. Chenine, **L. Vanfretti**, S. Bengtsson, and L. Nordström, “Implementation of an Experimental Wide-Area Monitoring System for Synchronized Phasor Measurement Application Development,” **Invited Paper**, International Implementation Experience and Prospective Applications of Synchrophasors and their Supporting Infrastructures Panel Session, IEEE PES General Meeting 2011, Detroit, MI.

(C16) **L. Vanfretti**, D. Van Hertem, L. Nordström, and J. O. Gjerde, “A Smart Transmission Grid for Europe: Research Challenges in Developing Grid Enabling Technologies,” **Invited Paper**, Bringing Smart Grids to the Next Level Panel Session, Working Group on European Electricity Infrastructure, IEEE PES General Meeting 2011, Detroit, MI.

(C15) **L. Vanfretti** and F. Milano, “Triggering the Deep Learning Approach in Power System Courses using Free and Open Source Software,” **Invited Paper**, Best Practices in Electrical Power Engineering Education Panel Session, IEEE PES General Meeting 2011, Detroit, MI.

## 2010

(C14) R. Leelarужи, **L. Vanfretti**, M. Ghandhari, and L. Söder, “Coordination of Protection and VSC-HVDC Systems for Mitigating Cascading Failures,” in Proceedings of POWERCON 2010, Hangzhou, China, Oct. 24-28, 2010.

(C13) **L. Vanfretti**, and J. H. Chow, “Analysis of Power System Oscillations for Developing Synchrophasor Data Applications”, In Proceedings 2010 Symposium Bulk Power System Dynamics and Control VIII, Buzios, Brazil, 2010.

(C12) **L. Vanfretti**, R. García-Valle, K. Uhlen, E. Johansson, D. Trudnowski, J. W. Pierre, J. H. Chow, O. Samuelsson, J. Østergaard, K. E. Martin, “Estimation of Eastern Denmark’s Electromechanical Modes from Ambient Phasor Measurement Data”, IEEE PES General Meeting, 2010, Minneapolis, MN.

(C11) **L. Vanfretti**, J. H. Chow, U. Aliyu, L. Dosiek, J. Pierre, D. Trudnowski, and R. Garcia-Valle “Estimation of the Nigerian Power System Electromechanical Modes using FDR Measurements,” In Proceedings of the 9<sup>th</sup> International Conference on Power System Operations and Planning (ICPSOP) 2010.

## 2009

(C10) **L. Vanfretti**, J. H. Chow, S. Sarawgi, and D. Ellis, “A Framework for Estimation of Power Systems Based on Synchronized Phasor Data,” **Invited Paper**, New Techniques for Synchronized Phasor Data Analysis Panel Session, IEEE PES General Meeting 2009, Calgary, Alberta, Canada.

(C09) **L. Vanfretti**, and J. H. Chow, “Computation and Analysis of Power System Voltage Oscillations from Interarea Modes,” **Invited Paper**, Recent Applications of Linear Analysis Techniques Panel Session, IEEE PES General Meeting 2009, Calgary, Alberta, Canada.

(C08) **L. Vanfretti**, U. Aliyu, J. H. Chow, and James Momoh, “System Frequency Monitoring in the Nigerian Power System,” **Invited Paper**, NSF-Sponsored US-African Collaborative Research and Education Panel Session, IEEE PES General Meeting 2009, IEEE PES General Meeting 2009, Calgary, Alberta, Canada.

(C07) F. Milano and **L. Vanfretti**, “State of the Art and Future of OSS for Power Systems,” **Invited Paper**, Panel Session on Open Source Software, IEEE PES General Meeting 2009, IEEE PES General Meeting 2009, Calgary, Alberta, Canada.

(C06) J. H. Chow, **L. Vanfretti**, *et al*, “Preliminary Synchronized Phasor Data Analysis of Disturbance Events in the US Eastern Interconnection,” **Invited Paper**, Deployment and Application of Synchronized Phasor Measurements, Panel Session, IEEE PES Power System Conference and Exposition (PSCE) 2009, Seattle, WA.

## 2008 - 2006

(C05) C.E. Ugalde-Loo, E. Acha, E. Liceaga-Castro, and **L. Vanfretti**, "Fundamental Analysis of the Synchronous Generator TCSC System using the ICAD Framework," In Proceeding of the 16<sup>th</sup> Power Systems Computation Conference 2008 (PSCC 2008), Liege, Belgium.

(C04) **L. Vanfretti** and F. Milano, "Application of the PSAT, an Open Source Software, for Educational and Research Purposes," IEEE PES General Meeting 2007, Tampa, FL.

(C03) **L. Vanfretti**, Joe H. Chow and Usman Aliyu, "Building a Frequency Monitoring Network to Study Dynamics of Rapidly Growing Power Systems," In Proceedings of the 7<sup>th</sup> International Conference on Power System Operations and Planning (ICPSOP) 2007.

(C02) M. Parniani, J. H. Chow, **L. Vanfretti**, B. Bhargava and A. Salazar, "Voltage Stability Analysis of a Multiple-Infeed Load Center Using Phasor Measurement Data," IEEE PES Power Systems Conference and Exposition (PSCE) 2006, Atlanta, GA.

(C01) C.E. Ugalde-Loo, **L. Vanfretti**, E. Liceaga-Castro and E. Acha, "Synchronous Generators Control: from the traditional perspective to the ICAD framework," In Proceedings of the International Control Conference (ICC2006), Glasgow, Scotland.



## 5 Papers in Magazines and Conferences in Spanish

(SP3) I. Cairó, G. Del Rosario, A. Ruiz, J.L. Dominguez, **L. Vanfretti**, I. Al-Khatib, M. Baudette, M. Shoaib Almas, "Equipos para medidas precisas de fase en tension corriente para redes inteligentes," *Automatica e Instrumentación*, no. 451, pp.87 - 90 Mayo 2013.

(SP2) o **L. Vanfretti**, "Mathematical Models and Software Tools for Simulation of Transmission Lines Transients," *XXIII Congreso de Estudiantes de Centroamérica y Panamá (CONESCAPAN XXIII)*, IEEE Section 9, September 2004, Guatemala. (In Spanish).

(SP1) o **L. Vanfretti**, "State Space and Simulation of Simple Physical Systems with MATLAB," Magazine of the Mathematics Department, *Universidad de San Carlos de Guatemala*. October 2004, Year 12. Pages 21-30. (In Spanish).

## 6 Special Publications

**L. Vanfretti**, "Phasor-Only State Estimation" in "Synchronized Phasor Measurements: Fundamentals and Applications," *Tutorial*, IEEE PES General Meeting 2010, Minneapolis, MN. July 29, 2010.

## 7 White Papers and Contributions to Reports in International Societies

### 7.1 White Papers - Single Authored

**L. Vanfretti**, "SmarTS-LAB: a Smart Transmission Grids Laboratory at KTH," White Paper, EPS Division, School of Electrical Engineering, Royal Institute of Technology (KTH), Stockholm, Sweden. November, 2010.

### 7.2 Contributions to Task Force, Working Groups and Other Reports

(TF6) L. Vanfretti, "Estimation of Electromechanical Modes in Power Systems using Synchrophasor Measurements and Applications for Control of Inter-Area Oscillations," A contribution to CIGRE WG B5-14 "Wide Area Protection and Control Technologies". August 2013.

DIVA: <http://kth.diva-portal.org/smash/record.jsf?searchId=2&pid=diva2:638863>

(TF5) L. Vanfretti and R. Leelaruij, "A synopsis on synchrophasor standards and guides: measurements, data transfer, concentration, testing and implementation requirements," A contribution to CIGRE WG B5-14 "Wide Area Protection and Control Technologies". March 2013.

DIVA: <http://kth.diva-portal.org/smash/record.jsf?searchId=1&pid=diva2:653871>

(TF4) L. Vanfretti and R. Leelaruij, "Exploiting Synchrophasor Measurements for Voltage Stability Detection and Control in Support of Defense Plans," A contribution to CIGRE WG B5-14 "Wide Area Protection and Control Technologies". March 2013.

DIVA: <http://kth.diva-portal.org/smash/record.jsf?searchId=1&pid=diva2:653870>

(TF3) IEEE Task Force Report:

"Identification of Electromechanical Modes in Power Systems". Task Force on Identification of Electromechanical Modes, PSDP Committee, IEEE PES Society, June 2012.

DIVA: <http://www.pes-store.org/p-13616.htm>

(TF2) **L. Vanfretti** and E. Johansson, "Application of Ambient Analysis Techniques for Electromechanical Mode Estimation from Measured PMU Data in the Nordic Power System," White Paper, submitted by invitation for a Special Publication of the Task Force on Modal Identification of Electromechanical Modes, IEEE PES Society, November, 2010.

DIVA: <http://kth.diva-portal.org/smash/record.jsf?searchId=1&pid=diva2:482085>

(TF1) **L. Vanfretti** and J. H. Chow, "Identification of Dominant Inter-Area Modes in the Eastern Interconnection from PMU data of the FRCC 2008 Disturbance: an Eigensystem Realization Algorithm Illustration," White Paper, submitted by invitation for a Special Publication of the Task Force on Modal Identification of Electromechanical Modes, IEEE PES Society, July, 2010.

DIVA: <http://kth.diva-portal.org/smash/record.jsf?searchId=1&pid=diva2:482079>

### 7.3 White Papers with Working Groups

Joe H. Chow, **Luigi Vanfretti**, Patrick Quinn, Lisa Beard, Dejan Sobajic, and Alison Silverstein, “White Paper on Guidelines for Siting of Dynamic Measurement and Recording Units”, Research Initiatives Task Team Report, North American Synchrophasor Initiative (NASPI), Dec. 2009.

## 8 Thesis

(3) **L. Vanfretti**, “*Phasor Measurement-Based State Estimation of Electric Power Systems and Linearized Analysis of Power System Network Oscillations*”, PhD Thesis, Rensselaer Polytechnic Institute, December 2009.

<http://tinyurl.com/vanfretti-phd-thesis>

(2) **L. Vanfretti**, “*Notions of Phasor Measurement-Based Power System Model Reduction of Large Power Systems*”, MSc Thesis, Rensselaer Polytechnic Institute, July 2007. <http://tinyurl.com/vanfretti-msc-thesis>

(1) **L. Vanfretti**, “*Modeling and simulation of the synchronous machine and its operation in power systems*”, Electrical Engineering Degree - *Licenciatura* Thesis, *Universidad de San Carlos de Guatemala*, May 2005. In Spanish.

[http://biblioteca.usac.edu.gt/tesis/08/08\\_6193.pdf](http://biblioteca.usac.edu.gt/tesis/08/08_6193.pdf)

## Invited Talks

**Note: I have stopped documenting invited presentations and talks since Nov. 2012.**

## Invited Tutorial Presentation

**L. Vanfretti**, "Phasor-Only State Estimation" in *"Synchronized Phasor Measurements: Fundamentals and Applications," Tutorial*, IEEE PES General Meeting 2010, Minneapolis, MN. July 29, 2010.

<http://ewh.ieee.org/conf/pesgm10/Tutorials.htm#Tutorial#5>

## Special Invited Talks

(P4) o "PMU Data-Based Real-Time Monitoring and Control Tools for Smart Transmission Grids," Invited Lecture, InnoEnergy MSc Programme in Smart Electrical Networks and Systems, Nov. 8, 2012, Stockholm, Sweden.

(P3) o "Foundations Towards a Smart Transmission Grid," Invited Lecture, EIT ICT Labs Smart Energy Systems Summer School, October 21st, 2011, Stockholm, Sweden.

(P2) o "From Vision to Implementation: The SmartTS Lab Concept," Invited Presentation Inaugural Grid Protection Alliance User's Forum, September 7, 2011, Atlanta, GE, USA.

<http://tinyurl.com/gpaforum>

(P1) "Building a Smart Transmission Grids R&D Test Bench for Developing Wide-Area Systems," Real-Time 2011 — 4th Annual Opal-RT International Users Conference, June 20-22, 2011. Shanghai, China.

[http://www.realtime2011.com/userfiles/RT2011-PresentationSchedule\(6\).pdf](http://www.realtime2011.com/userfiles/RT2011-PresentationSchedule(6).pdf)

## Invited Seminars and Lectures

(S34) "Nordic PMU/WAMPAC Projects and Initiatives", WAMPAC Workshop, Brunel University, Nov. 16, 2012.

(S33) "PMU Data-Based Real-Time Monitoring and Control Tools for Smart Transmission Grids," Invited Seminar, École Polytechnic de Montréal, October 23, 2012.

(S32) "Over-current relay model implementation for real-time simulation and hardware-in-the-loop validation," Presentation, Opal-RT Real-Time 2012 – 5<sup>th</sup> International User Conference, Las Vegas, Nevada, USA, July 17-19, 2012.

(S31) "SmartTS Lab – A Real-Time Hardware-in-the-loop laboratory for developing WAMPAC applications," Presentation, Opal-RT Real-Time 2012 – 5<sup>th</sup> International User Conference, Las Vegas, Nevada, USA, July 17-19, 2012.

(S30) "Enabling Smart Transmission Grids - Coupling theory with experimentation for building WAMPAC Applications," Invited Seminar, European Commission Joint Research Center, Institute for Energy and Transport, Smart Electricity Networks (SES), Petten, The Netherlands, June 18, 2012.

(S29) "Effects of Forced Oscillations on Power System Damping Estimation," NASPI Workgroup Meeting Invited Presentation, Research Initiatives Task Team Breakout Session, Denver, Colorado, June 5, 2012.

(S28) "SmartTS Lab: A real-time hardware-in-the-loop laboratory for developing WAMPAC Applications," NASPI Workgroup Meeting Invited Presentation, Denver, Colorado, June 5, 2012.

(S27) "Building Smart Grid Apps.: Concepts, Methods and Tools for Monitoring and Controlling Linear Dynamics of Large Power Grids," Invited Seminar, University of Colorado, Boulder, June 4, 2012.

[http://ecee.colorado.edu/news/flyer\\_pdfs/2012S\\_Vanfretti.pdf](http://ecee.colorado.edu/news/flyer_pdfs/2012S_Vanfretti.pdf)

(S26) "A Laboratory for Power System Protection from Conventional Testing to RT HIL Applications," Invited Talk, Megger Training Day, Stockholm, Sweden, May 24, 2012.

(S25) "Building Flexible Smart Grid Monitoring Tools," Invited Talk NFA Smart Grid 2012, Rosenholm Campus Conference Center, Oslo, Norway, May 10, 2012.

<http://nfaplassen.sitegen.no/customers/nfa/files/Smartgrid%2012f.pdf>

(S24) "SmarTS Lab - Laboratory and Research Group," Invited Presentation, STandUP Akademin, Arons borg Konferenshotell, Bålsta, Sweden. May 9, 2010.

(S23) "Realizing the Smart Grid: Building new technologies in a Real-Time Lab." Presentation, Energiutblick 2012, Göteborg, Sweden, March 14, 2012.

(S22) "Exploiting Flexibility: using Real-Time Simulation for Developing Smart Grid Technologies," Invited Talk, Seminar: Physical Models and Real-Time Simulators for the Conception of Electrical Systems, Aarhus, Denmark, March 13, 2012.

(S21) "Statnett's Smart Operation R&D Program : a Flexible Wide-Area Application Development Platform," Presentation, Statnett's ICT Division, Oslo, April 4<sup>th</sup>, 2012.

(S20) "On small-signal observability and control of power systems through wide-area signals," Presentation, STRONgrid 1<sup>st</sup> Joint Industry-Academia Workshop "State of the Art and Future Challenges for Wide-Area Monitoring, Control and Protection Systems", Statnett SF, Oslo, March 20, 2012.

(S19) "On the existence of dominant inter-area oscillation paths in large interconnected power networks," NASPI Workgroup Meeting Invited Presentation, Orlando, Florida, March 1, 2012.

(S18) "Linear Dynamic Observability of Power Networks," Invited Seminar, KCSE Seminar, KTH Computational Science and Engineering Center, Stockholm, Feb. 22nd, 2012.

(S17) "Flexible Smart Grid Monitoring: Concepts and Tools," Invited Seminar, PowerEvent: Synchrophasor Technology and its Applications for Early Warning Detection, Centre for Electric Technology, DTU, Feb. 3rd, 2012.  
<http://tinyurl.com/dtu-powervent>

(S16) "Smart Transmission Grid Analysis Tools: Voltage Instability Monitoring Applications," Invited Presentation, Real-Smart Project Meeting, Alta, Norway, January 31<sup>st</sup>, 2012.

(S15) "Smart Transmission Grid Analysis Tools with Emphasis on Estimating Low-Frequency Oscillations," Seminar on Wide-Area Measurements in Transmission Grids, Aalto University, Helsinki, Finland, Oct. 13th, 2011.

(S14) "A Smart Transmission Grid for Europe: Research Challenges and Tools for Developing Future Power and Energy Systems," CFES Energy Seminar Center for Future Energy Systems, Rensselaer Polytechnic Institute, Aug. 5th, 2011. Troy, NY.

(S13) "Smart Transmission Grids R&D Test Bench for Developing Wide-Area Systems," Presentation KTH Real-Time Simulator Demonstration Day for ABB Grid Systems, June 23, 2011. Stockholm, Sweden.

(S12) "Developing Experimental Research Platforms and PMU Data Applications for Wide-Area Systems," Invited Seminar, LCCC Focus Period on Dynamics, Control and Pricing in Power Systems, Lund University. Lund, Sweden, May 16, 2011. <http://tinyurl.com/lund-seminar>

(S11) "Wide-Area Measurement and Control Systems and their Potential to Enable Smart Transmission Grids through Synchrophasor-Based Data Applications," Invited Seminar, IEEE Benelux Symposium, Delft University of Technology. Delft, The Netherlands, March 24, 2011. <http://homepage.tudelft.nl/g74r2/March24.html>

(S10) "WAMS Today, Smart Transmission Grids Tomorrow," Invited Lecture, Seventh IEEE Student Branch Power Engineering Symposium, Katholieke Universiteit Leuven. Leuven, Belgium, March 23, 2011.  
[http://homes.esat.kuleuven.be/~iee\\_sb/en/20102011/activities\\_symposium\\_pe.php](http://homes.esat.kuleuven.be/~iee_sb/en/20102011/activities_symposium_pe.php)

(S9) "Introduction to KTH's SmarTS-Lab, openWAMS and PowerIT for Smart Transmission Operation and Control," Invited Presentation, Real-Time Simulation for Smart Grids Seminar, Stockholm, Sweden, April 28, 2011.  
<http://www.opal-rt.com/seminar/real-time-digital-simulation-smart-grids?view=about>

(S8) "Smart Transmission Grids," Invited Presentation, STandUP Akademin, Kristina Konferens & Hotell AB, Sigtuna,

Sweden. November 17, 2010. <http://www.standupforenergy.se/standupacademy1718november2010/>

(S7) "Smart Transmission Grids: A Breeding Ground for Automatic Control Theory Applications," Invited Seminar, Automatic Control Lab., KTH Royal Institute of Technology. Stockholm, Sweden, Jan 28, 2011. <http://tinyurl.com/kth-ac-seminar>

(S6) "Applications of Synchronized Phasor Measurements — Enablers of Smart Transmission Grids," Invited Talk, VIKING Project <http://www.vikingproject.eu/>, KTH Royal Institute of Technology. Stockholm, Sweden, June 10, 2010.

(S5) "Research on Synchronized Phasor Measurement Data Applications Enabling Smart Transmission Grids," Invited Seminar, School of Electrical Eng. and Computer Science, Washington State University. Pullman, WA, May 21, 2010. <http://tinyurl.com/wsu-seminar>

(S4) "Smart Transmission Grids: Benefits and Risks," Invited Lecture, KTH Royal Institute of Technology. Stockholm, Sweden, May 17, 2010.

(S3) "Research on Synchronized Phasor Measurement Data Applications," CSF & ECE Special Invited Seminar, School of Electrical Eng. and Computer Eng., Cornell University. Ithaca, NY, April 29, 2010.

(S2) "Data Analysis of the 2/26/2008 Florida Disturbance," NASPI Workgroup Meeting Invited Presentation, Sacramento, CA, June 3, 2009.

(S1) "Phasor State Estimation," NASPI Workgroup Meeting Invited Presentation, Charlotte, NC, Oct. 16, 2009.