

Federico Milano

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CURRENT POSITIONS **Professor of Power Systems Control and Protections (tenure)**, University College Dublin.

Head of Electrical Engineering, University College Dublin (since December 2014).

EDUCATION **University of Genova**, Genova, Italy.
Ph.D. in Electrical Engineering, June 2003.
Homologated to the Spanish Ph.D. degree, October 2005.
Thesis title: *Pricing System Security in Electricity Market Models with Inclusion of Voltage Stability Constraints*.

- ◇ **University of Genova**, Genova, Italy.
Laurea [M.Sc.] in Electrical Engineering, March 1999.
Homologated to the Spanish Industrial Engineering degree, February 2007.
Thesis title: *La Stabilità di Tensione dei Sistemi Elettrici: Metodologie di Valutazione e Correlazioni tra Procedure Statiche e Dinamiche*.

LANGUAGES Italian, English, Spanish.

CURRENT INTERESTS Power systems modelling, control and stability analysis; distributed and renewable generation; numerical methods for power system analysis; bifurcation theory; parallel computing.

WORK EXPERIENCE ◇ **Associate Professor (tenure)**, University of Castilla-La Mancha, Spain, (November 2007 – May 2013).

- ◇ **Associate Professor**, University of Castilla-La Mancha, Spain, (February 2007 – November 2007).

- ◇ **Visiting Professor**, University of Castilla-La Mancha, Spain, (September 2003 – February 2007).

- ◇ **Teaching Assistant**, University of Genova, Italy, (March 2003 – June 2003)
Course: Power System Analysis.

- ◇ **Visiting Scholar**, University of Waterloo, Canada, (September 2001 – December 2002)
Research topic: Pricing System Security in Electricity Markets.

TEACHING EXPERIENCE ◇ **Renewable Energy Systems**, Stage 4, Module coordinator, University College Dublin, Ireland, 2019 –

- ◇ **Electrical Energy Systems**, Stage 2, Module coordinator, University College Dublin, Ireland, 2017 –

- ◇ **Stability Analysis of Nonlinear Systems**, PhD course, Module coordinator, University College Dublin, Ireland, 2016 –

- ◇ **High Voltage and Protection Systems**, Stage 4, Module coordinator, University College Dublin, Ireland, 2016 – 2017.

- ◇ **Power System Dynamics & Control**, Stage 4, Module coordinator, University College Dublin, Ireland, 2013 –
- ◇ **Power System Stability Analysis**, Stage 4, Module coordinator, University College Dublin, Ireland, 2014 – 2016.
- ◇ **Power System Control**, Stage 4, Module coordinator, University of Castilla-La Mancha, Spain, 2012 – 2013.
- ◇ **Power System Analysis**, Stage 4, Module coordinator, University of Castilla-La Mancha, Spain, 2012 – 2013.
- ◇ **Power System Stability**, Master, Module coordinator, University of Castilla-La Mancha, Spain, 2011 – 2012.
- ◇ **Circuit Theory**, Stage 2, Module coordinator, University of Castilla-La Mancha, Spain, 2005 – 2006.
- ◇ **Power System Stability**, PhD, Module coordinator, University of Castilla-La Mancha, Spain, 2004 – 2010.
- ◇ **Electrical Machines**, Stage 3, Module coordinator, University of Castilla-La Mancha, Spain, 2003 – 2012.
- ◇ **Distribution Systems**, Stage 4, Module coordinator, University of Castilla-La Mancha, Spain, 2003 – 2007.
- ◇ **Power System Analysis**, Stage 4, Teaching Assistant, University of Genoa, Italy, 2001.
- ◇ **Control of Electrical Machines**, Stage 4, Teaching Assistant, University of Genoa, Italy, 2000.

RESEARCH
PROJECTS
(AS
PRINCIPAL
INVESTIGA-
TOR)

- ◇ **Horizon 2020** – “Providing Flexibility to the Grid by Enabling VPPs to offer both Fast and Slow Dynamics Control Services” (EdgeFLEX). Topic: LC-SC3-RES-16-2019. Research and Innovation Action. Funded by European Commission, 2020-2022.
- ◇ **Horizon 2020** – “Renewables in a Stable Electric Grid” (RESERVE). Topic: LCE-07-2016-2017. Research and Innovation Action. Funded by European Commission, 2016-2019.
- ◇ **SFI Investigator Programme** – “Advanced Modelling for Power System Analysis and Simulation”. Funded by Science Foundation Ireland, 2016-2021.
- ◇ **FP7** – Marie Curie Actions 2012, Career Integration Grant, “Modelling and Stability of Electric Power Systems considering Stochastic Processes and Distributed Control”. Funded by European Commission, 2014-2017.
- ◇ **CICYT** – ENE2012-31326, “Stochastic and Functional Differential Equations for Smart Grid Modelling, Stability Analysis and Control”. Approved by Spanish Ministry of Education, 2012-2014.
- ◇ “Real-time power flow analysis”. Funded by Actility, France, 2011-2012.
- ◇ “Commercial License and on-line assistance for the software application PSAT”. Funded by Institute of Power Engineering, Gdańsk Division, Poland, 2011.
- ◇ **JCCLM** – POI11-0148-1022, “Power system analysis through stochastic and functional differential equations”. Approved by Junta de Comunidades de Castilla-La Mancha, 2011-2013.
- ◇ **CICYT** – ENE 2009-07685, “Impact of renewable energy sources on the stability of electric power systems”. Funded by Spanish Ministry of Science and Innovation, 2010-2012.
- ◇ “Network Equivalents”. Funded by ABB AB Corporate Research, Västerås, Sweden, 2006-2007.

RESEARCH
PROJECTS
(AS COLLAB-
ORATOR)

- ◇ “Energy Systems Integration Partnership Programme (ESIPP)”, 2015-2019. Financed by SFI, Ireland. Co-Applicant since November 2015.

- ◇ “Sustainable Electrical Energy Systems (SEES Cluster)”, 2009-2017. Financed by SFI, Ireland. Co-PI since June 2013 and deputy director since March 2014.
- ◇ “Switzerland 100% supplied from renewable energy sources till 2050”. Funded by AXPO, Switzerland, 2010-2011.
- ◇ JCCLM – PCI08-0102-1841, “Integration of renewable electric energy sources in a power system: Technical and economic impact”. Funded by Junta de Comunidades de Castilla-La Mancha, 2008-2010.
- ◇ CICYT – DPI 2006-08001, “Estrategias de producción, suministro y comercialización en mercados eléctricos mediante programación estocástica (EMEPE)”. Funded by Spanish Ministry of Science and Innovation, 2007-2009.
- ◇ “Análisis de la red de energía eléctrica de Castilla - La Mancha y estudio del impacto en la misma de la integración de centrales eólicas y/o solares”. Funded by Junta de Comunidades de Castilla-La Mancha, 2006-2007.
- ◇ JCCLM – PBI-05-053, “Análisis de riesgo y seguridad en el suministro de energía eléctrica”. Funded by Junta de Comunidades de Castilla-La Mancha, 2005-2007.
- ◇ CICYT – DPI 2003-01362, “Respuesta óptima al mercado eléctrico por parte de productores, comercializadores y consumidores”. Funded by Spanish Ministry of Science and Innovation, 2004-2006.
- ◇ “Sviluppo di modelli FACTS per l’analisi di sicurezza ed indicatori di stabilità per il controllo del sistem elettrico”, 2001. Funded by CESI, Italy.
- ◇ “Sviluppo di modelli per l’analisi di sicurezza e di flessibilità delle reti di trasmissione. Linea di attività A: Valutazione delle potenzialità applicative delle misure di fasori per il controllo in tempo reale del sistema elettrico”. Funded by CESI, Italy, 2000.
- ◇ “Il sistema elettrico in regime di libero mercato: potenzialità di dispositivi FACTS nella gestione del sistema di trasmissione e metodologie di sintesi di equivalenti dinamici per studi di sicurezza”. Funded by ENEL, Italy, 2000.

SHORT STAYS ◇ KTH, Sweden, June 2011.

- ◇ Los Alamos National Laboratory, New Mexico, USA, July 2010.
- ◇ Universidad Centroamericana “José Simeón Cañas”, El Salvador, July 2008.
- ◇ Universidade Estadual de Campinas - UNICAMP, Brazil, November 2007.
- ◇ ETH Zürich, Switzerland, November 2006.
- ◇ Universidad Centroamericana “José Simeón Cañas”, El Salvador, July 2005.

INVITED
SPEECHES

- ◇ “Frequency Variations in Power Systems: A Theoretical Framework for Low Inertia Systems,” IV SBSE Conference, Santo André, SP, Brazil, 25-28 August 2020.
- ◇ “Fast Frequency Control of Low-Inertia Systems – The Examples of the Irish and the Australian Transmission Systems,” Supersession on “Facing the Changing Resource Mix,” IEEE PES General Meeting, Montreal, QC, virtual session, 4 August 2020.
- ◇ “Virtual Inertia and Active Power Response,” Panel Session on “Grid-Forming Inverter for High Renewable Grid Applications,” IEEE PES General Meeting, Montreal, QC, virtual session, 3 August 2020.
- ◇ “Towards a New Theory of Local Frequency Variations,” (virtual conference) Universidad de Chile, Santiago, Chile, 12 June 2020.
- ◇ “The Future of Decentralized Power Systems: Need, Opportunities and Challenges of Converter-Interfaced Energy Storage Systems,” Central Bank of Ireland, Dublin, Ireland, 5 June 2019.
- ◇ “Stochastic Control of Grid-Connected Microgrids,” UCD Energy Institute, Dublin, 23 May 2019.

- ◇ “Frequency Makers vs Frequency Takers: A Theoretical Framework for Low Inertia Systems,” EES-UETP Course on Low Inertia Power Systems, Universidad Pontificia Comillas, Madrid, Spain, 25-26 April 2019.
- ◇ “Integración de energías renovables en la red. Sistemas de baja inercia,” Seminario de Investigación en el Marco del Doctorado en Ingeniería Industrial, Universidad de Cantabria, Santander, Spain, 21 March 2019.
- ◇ “Need, Opportunities and Challenges of Converter-Interfaced Energy Storage Systems,” Ciclo de Conferencias “Los Jueves de la Minería y Energía,” Universidad de Cantabria, Torrelavega, Spain, 21 March 2019.
- ◇ “Stochastic Algebraic-Differential Equations for Power System Modelling and Dynamic Analysis,” IEEE Public Lecture, National Technical University of Athens, Greece, 15 March 2019.
- ◇ “A Continuum-based Approach to Frequency Estimation,” IEEE Public Lecture, National Technical University of Athens, Greece, 14 March 2019.
- ◇ “Model-Agnostic Linear Estimation of Generator Rotor Speeds based on Phasor Measurement Units,” 2nd International Conference on Future Electric Power Systems and the Energy Transition, Champéry, Switzerland, 6 February 2019.
- ◇ “Frequency and Electromechanical Transients in Power Systems,” Politecnico di Milano, Piacenza, Italy, 14 December 2018.
- ◇ “Stochastic Algebraic-Differential Equations for Power System Modelling and Dynamic Analysis,” Politecnico di Milano, Piacenza, Italy, 14 December 2018.
- ◇ “*Frequency Divider*: How to Estimate Frequency during Electromechanical Transients in Power Systems,” Università di Pisa, Pisa, Italy, 9 February 2018.
- ◇ “Wind Speed Models based on Stochastic Algebraic-Differential Equations,” Università di Pisa, Pisa, Italy, 9 February 2018.
- ◇ “Smart Grid Simulation,” IEEE PES ISGT Latin America, Quito, Ecuador, 19 September 2017.
- ◇ “Modelling frequency variations in power system models for transient stability analysis,” 1st International Conference on Future Electric Power Systems and the Energy Transition, Champéry, Switzerland, 6 February 2017.
- ◇ “Power System Modelling with Inclusion of Stochastic Processes,” 1st PTI Workshop on Power System Modeling and Simulation, Itaipu Technological Park, Itaipu, Brazil, 2 December 2016.
- ◇ “Modelling Frequency Variations in Power System Models for Transient Stability Analysis,” IV International Workshop on the Use of Synchrophasors in Power System, COPPE, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil, 29 November 2016.
- ◇ “Modelling and Stability Analysis of Power Systems with inclusion of Delays,” Universidad de Sevilla, Sevilla, Spain, 16 May 2016.
- ◇ “Power System Modelling with Inclusion of Stochastic Processes,” Università del Sannio, Benevento, Italy, 4 May 2016.
- ◇ “Impact of Volatility, Uncertainty and Frequency Regulation on Power System Frequency Distribution,” Workshop on Mathematical Sciences Collaboration in Energy Systems Integration, DTU, Lyngby, Denmark, 24-25 September 2015.
- ◇ “Semi-implicit DAE Formulation for Transient Stability Analysis,” Queen’s University, Belfast, UK, 4 September 2015.
- ◇ “Semi-implicit DAE Formulation for Transient Stability Analysis,” Electricity Research Centre, University College Dublin, Ireland, 16 June 2015.

- ◇ “Power System Modelling with Inclusion of Stochastic Processes,” Abengoa, Sevilla, Spain, 30 April 2015.
- ◇ “Impact of Time Delays on Power System Small-Signal Stability,” ETH Zürich, Switzerland, 17 March 2015.
- ◇ “Challenges for Power System Modelling and Simulation,” KTH, Sweden, 18 December 2014.
- ◇ “Impact of Time Delays on Power System Stability,” University of Perpignan, France, 10 September 2014.
- ◇ “Impact of Time Delays on Power System Stability,” Durham University, UK, 11 March 2014.
- ◇ “Challenges for Power System Modelling and Simulation,” University College Dublin, Ireland, 26 February 2013.
- ◇ “Power System Modeling, Analysis and Synthesis,” Tennet, Wernberg, Germany, 23 January 2013.
- ◇ “Modeling Power Systems as Stochastic and Functional Differential Algebraic Equations,” KTH, Sweden, 6 December 2012.
- ◇ “Computer-based Power System Modeling for Restructured Power Systems and Smart Grids,” IV SBSE Conference, Goiânia, GO, Brazil, 15-18 May 2012.
- ◇ “Modeling Power Systems as Stochastic Algebraic Differential Equations,” University College Dublin, Ireland, 28 November 2012.
- ◇ “Modeling Power Systems as Stochastic and Functional Differential Algebraic Equations,” University of Toronto, Canada, 25 April 2012.
- ◇ “Computer-based Power System Modelling for Restructured Power Systems,” DTU, Technical University of Denmark, Denmark, 14-16 September 2011.
- ◇ “Modelling and Stability Issues of Systems with Wind Parks and/or Energy Storage Devices,” Politecnico di Bari, Italy, 29-30 September 2011.
- ◇ “Continuous Newton’s Method for Power Flow Analysis,” KTH, Sweden, 16 June 2011.
- ◇ “Continuous Newton’s Method for Power Flow Analysis,” Los Alamos National Laboratory, New Mexico, 29 June 2010.
- ◇ “Impacto de la Generación Eólica en la Red Eléctrica,” University of Castilla-La Mancha, Toledo, Spain, 27 November 2008.
- ◇ “Estabilidad de Tensión, Ángulo y Frecuencia en Sistemas de Energía Eléctrica,” Universidad Centroamericana “José Simeón Cañas”, El Salvador, 12-19 July 2008.
- ◇ “Power System Dynamics and Stability,” University of Sevilla, Spain, 27-29 November 2007.
- ◇ “OPF-based Security-driven Short-term Market Clearing Procedures,” University of Campinas, Brazil, 7 November 2007.
- ◇ “PSAT: A Free and Open Source Power System Analysis Toolbox,” University of Campinas, Brazil, 6 November 2007.
- ◇ “Recent & Current Research,” ETH Zürich, Switzerland, 7 November 2006.
- ◇ “Introduction to PSAT (Power System Analysis Toolbox),” ABB AB Corporate Research, Västerås, Sweden, 21 April 2006.
- ◇ “Análisis de Sistemas de Potencia en Ambiente de Mercados Eléctricos,” Universidad Centroamericana “José Simeón Cañas”, El Salvador, 25-28 July 2005.

DIRECTION OF PHD AND MASTER STUDENTS ◇ Rafael Zárate Miñano, *Optimal Power Flow with Stability Constraints*. Ph.D. Thesis defended at University of Castilla-La Mancha, 2010. Supervisors: A. J. Conejo and **F. Milano**.

- ◇ Manuel Marin, topic: *Parallel Computing for Power System Analysis*. Ph.D. Thesis defended at University of Perpignan, France, on the 11th of December 2015. Supervisors: D. Defour (University of Perpignan, France) and **F. Milano**.
- ◇ Álvaro Ortega Manjavacas, topic: *Control and Stability of Energy Storage Devices*. Ph.D. Thesis defended at Universtiy College Dublin on 24th of February 2017. Supervisor: **F. Milano**.
- ◇ Fabiano Pallonetto, topic: *Load Demand Management*. Ph.D. Thesis defended at Universtiy College Dublin on 28th of May 2018. Supervisors: D. Finn and **F. Milano**.
- ◇ Muyang Liu, topic: *Modelling and Stability Analysis of Power Systems with inclusion of Delays*. Ph.D. Thesis defended at Universtiy College Dublin on 28th of November 2019. Supervisor: **F. Milano**.
- ◇ Guðrún Margrét Jónsdóttir, topic: *Modelling and Stability Analysis of Power Systems with inclusion of Stochastic Processes*, Ph.D. candidate at UCD. Expected year of defence: 2020. Supervisor: **F. Milano**.
- ◇ Mohammed Ahsan Adib Murad, topic: *Modelling and Stability Analysis of Power Systems modelled as Hybrid Differential-Algebraic Equations*, Ph.D. candidate at UCD. Expected year of defence: 2020. Supervisor: **F. Milano**.
- ◇ Georgios Tzounas, topic: *Robust control of power systems with inclusion of time delays*, Ph.D. candidate at UCD. Expected year of defence: 2021. Supervisor: **F. Milano**.
- ◇ Taulant Kërçi, topic: *Dynamic Modelling and Stability Analysis of Energy Systems*, Ph.D. candidate at UCD. Expected year of defence: 2021. Supervisor: **F. Milano**.
- ◇ Weilin Zhong, topic: *Co-simulation of Power and Communication Systems*, Ph.D. candidate at UCD. Expected year of defence: 2021. Supervisor: **F. Milano**.
- ◇ Muhammad Adeen, topic: *Stochastic Control of Power Systems*, Ph.D. candidate at UCD. Expected year of defence: 2021. Supervisor: **F. Milano**.

SOFTWARE DEVELOPMENT

- ◇ **PSAT**: Matlab-based routines for power system analysis. The main features of PSAT are as follows: power flow, continuation power flow, optimal power flow, small signal stability analysis, time domain simulation, phasor measurement unit (PMU) placement, complete graphical user interface, CAD for network design (Simulink library), and conversion of data files from several formats.
Available at <http://faraday1.ucd.ie/psat.html>.
The intellectual property of PSAT is registered in Spain (Reg. CR-78-08).
- ◇ **Dome**: Python-based routines for power system analysis. The main features of Dome are as follows: power flow, continuation power flow, small signal stability analysis, time domain simulation (DAE, delayed DAE and stochastic DAE), parallel computing, user defined models, and conversion of data files from several formats.
Available at <http://faraday1.ucd.ie/dome.html>

PROFESSIONAL MEMBERSHIPS

- ◇ *IEEE PES Distinguished Lecturer*, since February 2020.
- ◇ *Cigre Member*, since January 2018.
- ◇ *IET Fellow*, since December 2017.
- ◇ *IEEE Fellow*, class 2016.

COMMISSION OF TRUST

- ◇ Editor of *Energies* (MDPI), since November 2019.
- ◇ Editor of the *CSEE Journal of Power and Energy Systems*, since June 2019.
- ◇ Member of the Programme Committee of the 2nd International Conference on Future Electric Power Systems and the Energy Transition, Champéry, Switzerland, 3-8th February 2019.
- ◇ Secretary of the IEEE PSDP Power System Stability and Control Subcommittee, since 2018.

- ◇ Member of the Basil Papadias Award Committee, since 2017.
- ◇ Member of the IEEE PSOPE Award Committee, since 2017.
- ◇ Member of the Programme Committee of the 1st International Conference on Future Electric Power Systems and the Energy Transition, Champéry, Switzerland, 5-9th February 2017.
- ◇ Editor of Technology and Economics of Smart Grids and Sustainable Energy, Springer, since 2017.
- ◇ Member of the IEEE Power System Dynamic Performance Committee, since 2016.
- ◇ Chair of the IEEE PSOPE Subcommittee on Technologies & Innovation, 2015–2017.
- ◇ Editor of IET Generation, Transmission & Distribution, 2015–2017.
- ◇ Member of that Technical Programme Committee of the Power System Computation Conference (PSCC), since 2015.
- ◇ Member of the International Advisory Committee Member of the PowerTech Conference, since 2014.
- ◇ Head of Subject of Electrical Engineering, UCD, since 2014.
- ◇ Editor of Journal on Intelligent Industrial Systems, Springer, 2014–2017.
- ◇ Editor of Journal of Control, Automation and Electrical Systems, Springer, since 2013–2018.
- ◇ Editor of IEEE Transactions on Power Systems, since 2012–2017, 2020– to date.
- ◇ Editor of Simulation Modelling Practice and Theory, Elsevier, 2009–2014.

Publications

BOOKS

- ◇ A. Monti, **F. Milano**, E. Bompard, X. Guillaud, *Converter-Based Dynamics and Control of Modern Power Systems*, Academic Press, Cambridge, MA, November 2020. ISBN: 978-0-12818-491-2
- ◇ **F. Milano**, Á. Ortega, *Frequency Variations in Power Systems*, Wiley IEEE Press, Hoboken, NJ, 353 pages, July 2020. ISBN: 978-1-11955-184-3
- ◇ **F. Milano**, Á. Ortega, *Converter-Interfaced Energy Storage Systems*, Cambridge University Press, Cambridge, UK, 396 pages, August 2019. ISBN: 978-1-10842-106-5
- ◇ **F. Milano** (editor), *Advances in Power System Modelling, Control and Stability Analysis*, IET, London, UK, 352 pages, September 2016. ISBN: 978-1-78561-001-1
- ◇ **F. Milano**, *Power System Modelling and Scripting*, Springer, London, UK, 556 pages, August 2010. ISBN: 978-3-642-13669-6
- ◇ A. J. Conejo, J. M. Arroyo, **F. Milano**, et al., *Instalaciones Eléctricas* (in Spanish), McGraw Hill, Madrid, Spain, 464 pages, May 2007. ISBN: 978-8-448-15639-8

BOOK CHAPTERS

- ◇ Á. Ortega, F. Milano, *Frequency Definition and Estimation* in “Modern Power Systems, in Converter-Based Dynamics and Control of Modern Power Systems,” editors A. Monti, F. Milano, E. Bompard and X. Guillaud, Academic Press, November 2020. ISBN: 978-0-12818-491-2
- ◇ Á. Ortega, M. A. A. Murad, J. Chen, M. Liu, T. O’Donnell, F. Milano, *Architectures for Frequency Control in Modern Power Systems*, in “Converter-Based Dynamics and Control of Modern Power Systems,” editors A. Monti, F. Milano, E. Bompard and X. Guillaud, Academic Press, November 2020. ISBN: 978-0-12818-491-2
- ◇ M. A. A. Murad, M. Chiandone, G. Sulligoi, F. Milano, *Long term Voltage Control*, in “Converter-Based Dynamics and Control of Modern Power Systems,” editors A. Monti, F. Milano, E. Bompard and X. Guillaud, Academic Press, November 2020. ISBN: 978-0-12818-491-2

- ◇ H. Chen, J. Liu, J. Giri, S. Tam, M. Bryson, P. Panciatici, **F. Milano**, J. Zhou, S. Bartlett, S. K. Soonee, S. R. Narasimham, S. C. Saxena, K. V. M. Pawan Kumar, *Power System Operations*, in “Standard Handbook for Electrical Engineers”, 17th edition, editors S. Santoso and H. Wayne Beaty, McGraw Hill, January 2018. ISBN: 978-1-259-64258-6
- ◇ R. Zárate-Miñano, **F. Milano**, *Modelling Power Systems with Stochastic Processes*, in “Advances in Power System Modelling, Control and Stability Analysis”, editor F. Milano, IET, London, September 2016. ISBN: 978-1-78561-001-1
- ◇ V. S. Bokharaie, R. Sipahi, **F. Milano**, *Small-Signal Stability and Time-Domain Analysis of Delayed Power Systems*, in “Advances in Power System Modelling, Control and Stability Analysis”, editor F. Milano, IET, London, September 2016. ISBN: 978-1-78561-001-1
- ◇ F. Bizzarri, A. Brambilla, **F. Milano**, *Shooting-based Stability Analysis of Power System Oscillations*, in “Advances in Power System Modelling, Control and Stability Analysis”, editor F. Milano, IET, London, September 2016. ISBN: 978-1-78561-001-1
- ◇ **F. Milano**, *Control and Stability of Future Transmission Networks*, in “The Handbook of Clean Energy Systems – Vol. 4”, Prof. Jinyue Yan editor in chief, John Wiley & Sons, June 2015. ISBN: 978-1-118-38858-7

JOURNAL PAPERS

- ◇ I. Dassios, G. Tzounas, **F. Milano**, *Robust Stability Criterion for Perturbed Singular Systems of Linearized Differential Equations*, Journal of Computational and Applied Mathematics, Elsevier, Vol. 381, 113032, January 2021.
- ◇ J. Chen, M. Liu, G. de Carne, R. Zhu, M. Liserre, **F. Milano**, T. O’Donnell, *Impact of Smart Transformer Voltage and Frequency Support in a High Renewable Penetration System*, Electric Power Systems Research, Vol. 190, 106836, January 2021.
- ◇ G. Tzounas, **F. Milano**, *Delay-based Decoupling of Power System Models for Transient Stability Analysis*, IEEE Transactions on Power Systems, accepted on July 2020, in press.
- ◇ **F. Milano**, Á. Ortega, *A Method for Evaluating Frequency Regulation in an Electrical Grid – Part I: Theory*, IEEE Transactions on Power Systems, accepted on July 2020, in press.
- ◇ Á. Ortega, **F. Milano**, *A Method for Evaluating Frequency Regulation in an Electrical Grid – Part II: Applications to Non-Synchronous Devices*, IEEE Transactions on Power Systems, accepted on July 2020, in press.
- ◇ J. Chen, M. Liu, **F. Milano**, T. O’Donnell, *Adaptive Virtual Synchronous Generator Considering Converter and Storage Capacity Limits*, CSEE Journal of Power and Energy Systems, accepted on June 2020, in press.
- ◇ N. Mithulananthan, Q. Raza, R. Shah, **F. Milano**, *RoCoF Restrictive Planning Framework and Wind Speed Forecast Informed Operation Strategy of Energy Storage System*, IEEE Transactions on Power Systems, accepted on June 2020, in press.
- ◇ G. Tzounas, I. Dassios, A. M. A. Murad, **F. Milano**, *Theory and Implementation of Fractional Order Controllers for Power System Applications*, IEEE Transactions on Power Systems, accepted on May 2020, in press.
- ◇ M. A. A. Murad, **F. Milano**, *Chattering-Free Modelling and Simulation of Power Systems with Inclusion of Filippov Theory*, Electric Power System Research, Elsevier, Vol. 189, 106727, December 2020.
- ◇ G. M. Jónsdóttir, **F. Milano**, *Stochastic Modeling of Tidal Generation for Transient Stability Analysis: A Case Study based on the All-Island Irish Transmission System*, Electric Power System Research, Elsevier, Vol. 189, 106673, December 2020.
- ◇ M. Liu, I. Dassios, **F. Milano**, *Delay Margin Comparisons for Power Systems with Constant and Time-varying Delays*, Electric Power System Research, Elsevier, Vol. 189, 106627, December 2020.

- ◇ W. Zhong, M. A. A. Murad, M. Liu, **F. Milano**, *Impact of Virtual Power Plants on Power System Short-Term Transient Response*, Electric Power System Research, Elsevier, Vol. 189, 106609, December 2020.
- ◇ M. Carrión, R. Zárate-Miñano, **F. Milano**, *Impact of Off-nominal Frequency Values on the Generation Scheduling of Small-size Power Systems*, International Journal of Electric Power & Energy Systems, Elsevier, Vol. 122, 106174, November 2020.
- ◇ I. Dassios, G. Tzounas, **F. Milano**, *Generalized Fractional Controller for Singular Systems of Differential Equations*, Journal of Computational and Applied Mathematics, Elsevier, Vol. 378, 112919, November 2020.
- ◇ J. Chen, M. Liu, **F. Milano**, T. O'Donnell, *100% Converter-Interfaced Generation using Virtual Synchronous Generator Control: A Case Study based on the Irish System*, Electric Power Systems Research, Elsevier, Vol. 187, 106475, October 2020.
- ◇ G. Coletta, A. Laso, G. M. Jónsdóttir, M. Mañana, D. Villacci, A. Vaccaro, **F. Milano**, *On-line Control of DERs to Enhance the Dynamic Thermal Rating of Transmission Lines*, IEEE Transactions on Sustainable Energy, Vol. 11, No. 4, pp. 2836-2844, October 2020.
- ◇ G. M. Jónsdóttir, **F. Milano**, *Modeling of Short-Term Tidal Power Fluctuations*, IEEE Transactions on Sustainable Energy, Vol. 11, No. 4, pp. 2337-2344, October 2020.
- ◇ J. Chen, M. Liu, T. O'Donnell, **F. Milano**, *Impact of Current Transients on the Synchronization Stability Assessment of Grid-Feeding Converters*, IEEE Transactions on Power Systems, Vol. 35, No. 5, pp. 4131-4134, September 2020.
- ◇ G. M. Jónsdóttir, M. A. A. Murad, **F. Milano**, *On the Initialization of Transient Stability Models of Power Systems with the Inclusion of Stochastic Processes*, IEEE Transactions on Power Systems, Vol. 35, No. 5, pp. 4112-4115, September 2020.
- ◇ T. Van Cutsem, M. Glavic, W. Rosehart, C. Cañizares, M. Kanatas, L. Lima, **F. Milano**, L. Papangelis, R. A. Ramos, J. A. dos Santos, B. Tamimi, G. Taranto, and C. Vournas, *Test Systems for Voltage Stability Studies*, IEEE Transactions on Power Systems, Vol. 35, No. 5, pp. 4078-4087, September 2020. This article was prepared by the *IEEE Task Force on Test Systems for Voltage Stability Analysis and Security Assessment*.
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