Curriculum Vitae

Luca Corradini

Associate Professor
Electrical, Computer & Energy Engineering Department
University of Colorado at Boulder, USA
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Education

- 2008: Ph.D. – Industrial Electronics, University of Padova, Italy
- 2004: M.S. – Electronic Engineering, University of Padova, Italy

Position

- *January 2022–present*: Associate Professor, Electrical, Computer & Energy Engineering Department, University of Colorado at Boulder, USA.
- *January–December 2021*: Visiting Associate Professor, Electrical, Computer & Energy Engineering Department, University of Colorado at Boulder, USA.
- *March 2017–present*: Associate Professor, Department of Information Engineering, University of Padova, Italy (on leave since August 2021).
- *March 2011–February 2017*: Assistant Professor, Department of Information Engineering, University of Padova, Italy.
- *July 2008-February 2011*: Professional Research Associate, Colorado Power Electronics Center, University of Colorado at Boulder, USA.
- *June-December 2004*: Research Collaborator, Department of Information Engineering, University of Padova, Italy.

Awards

- IEEE IAS Industrial Power Converters Committee 2008 Second Prize Paper Award for: L. Corradini, W. Stefanutti, P. Mattavelli, "Analysis of Multi-sampled current control for active filters," in *Proc. 42nd IEEE Industry Applications Society Annual Meeting*, New Orleans, LA, 2007, pp. 1608-1615.

Vita

Luca Corradini received the M.S. degree (Laurea) in Electronic Engineering in 2004 from the University of Padova, Italy, with a thesis addressing reliability aspects of Gallium Nitride (GaN) high-electron mobility transistors intended for RF applications. In December 2004 Dr. Corradini obtained a Ph.D. scholarship sponsored by Infineon Technologies AG on the topic "Analysis and Implementation of Digital Control Architectures for DC-DC Switching Converters". Enrolled in

2005 in the Ph.D School of Information Engineering of the University of Padova, he received the Ph.D. in Industrial Electronics in March 2008. His doctoral thesis focused on the study and development of digital control techniques for low-voltage, high-current DC-DC switching converters employed in Point-of-Load applications, addressing *i*) the investigation and experimental verification of non-conventional, high-sampling frequency digital controllers for improved converter dynamic performances, and *ii*) the development and experimental validation of a digital auto-tuning technique specifically designed for accurate and repeatable tuning results. As part of his Ph.D. education, in 2006 Dr. Corradini was hosted as visiting research scholar at the Colorado Power Electronics Center (CoPEC), University of Colorado at Boulder (USA), an industry-sponsored university research center for power electronics, under the supervision of Prof. Dragan Maksimović and Prof. Regan Zane.

From July 2008 to February 2011 Dr. Corradini worked at CoPEC as a professional Research Associate. His scientific activity further pursued the field of digital power management and control approaches for DC/DC converters, including the development of robust nonlinear controllers for fast transient response in point-of-load applications, digital auto-tuning techniques for automatic calibration of controller parameters, sigma-delta modulators for low-complexity, high resolution control, THD reduction approaches for filterless Class-D audio amplifiers based on digital predistortion, and integrated digital power management for efficiency improvement of RF power amplifiers employed in wireless handsets. Analysis, modeling and experimental verification of switched-mode power converters are integrating part of his background expertise. At CoPEC, Dr. Corradini was also actively involved in preparing research project proposals for potential future industrial partnerships, in the interaction with CoPEC industrial sponsors and in the coordination of M.S. and Ph.D. students.

From March 2011 to July 2021 Dr. Corradini was Assistant Professor and subsequently Associate Professor at the Department of Information Engineering of the University of Padova, Italy. From January to December 2021 Dr. Corradini was Visiting Associate Professor at the Electrical, Computer & Energy Engineering Department of the University of Colorado at Boulder, and since January 2022 he has been a tenured Associate Professor in the same department. Along with continuing research on digital control, his research interests also encompass advanced power management solutions for small-scale energy harvesting systems.

Luca Corradini was co-organizer of the twelfth edition of the IEEE Workshop on Control and Modeling for Power Electronics (COMPEL 2010), hosted at the University of Colorado at Boulder on June 28-30 2010, and General Chair of the nineteenth edition of the same workshop (COMPEL 2018) held in Padova, Italy, on June 25-28 2018.

Dr. Corradini is co-author of more than ninety articles published in international journals and conference proceedings, and of a book on digital control of high-frequency switched-mode power converters published by Wiley-IEEE Press. He regularly serves as a reviewer for several IEEE journals and conferences in the power electronics area. Since August 2015 he has been Associate Editor of the IEEE Transactions on Power Electronics.

Track Record

Projects devised and managed as Principal Investigator:

- *Development of high-performance converters for emerging automotive power distribution architectures*
  Sponsor: Infineon Technologies Italia S.r.l
  Period: October 2019-June 2021
  Funding: 50,000€+VAT

- *Development of models for dc-dc Buck converters with mixed pulse width modulation and pulse frequency modulation control*

Sponsor: Infineon Technologies Italia S.r.l.
Period: November 2017-February 2018
Funding: 20,000€+VAT

- *Innovative architectures of dc-dc converters for high-efficiency applications in harsh automotive environment*
  Sponsor: Infineon Technologies Italia S.r.l.
  Period: October 2015-present (3-year contract)
  Funding: 50,000€/year+VAT

- *Innovative digital dc-dc architectures for high efficiency, high frequency applications*
  Sponsor: Infineon Technologies Italia S.r.l.
  Period: October 2015-present (3-year contract)
  Funding: 50,000€/year+VAT

- *Analysis and development of a thermoelectric-based energy harvesting system for a temperature controller*
  Sponsor: SIT S.p.A.
  Period: May-October 2016
  Funding: 10,000€+VAT

- *Theoretical analysis, simulation and development of a DC/DC converter model based on switched capacitors and inductances*
  Sponsor: Infineon Technologies AG
  Period: December 2012-May 2013
  Funding: 15,000€+VAT

- *Design and implementation of an automotive LED driver based on a digitally controlled Ćuk converter*
  Sponsor: Infineon Technologies AG
  Period: March-November 2012
  Funding: 20,000€+VAT

- *Theoretical analysis, simulation and development of a digital controller for an automotive LED driver based on the Ćuk topology*
  Sponsor: Infineon Technologies AG
  Period: April-September 2011
  Funding: 15,000€+VAT

- *Energy-Autonomous Wireless Sensor Networks: from efficient sensor-level energy harvesting to intelligent network-level management.*
  University-funded project
  Grant code: CPDA112224
  Period: January 2012–June 2014
  Funding: 73,400€

Teaching

University of Colorado at Boulder:

- ECEN 2260 *Circuits as Systems*
  Period: Spring 2022

- ECEN 5007-003 *Digital Control for Power Electronics*
  Period: Fall 2021-present

University of Padova:

- *Digital Systems*, B.S. degree in Information Engineering
  Period: Spring 2021
- *Power Electronics*, M.S. degree in Electronic Engineering
  Period: Spring 2017-Spring 2021
- *Fundamentals of Electronics*, B.S. degree in Biomedical Engineering
  Period: Spring 2018-present
- *Power Electronics 2*, M.S. degree in Electronic Engineering
  Period: Spring 2012–Spring 2016
- *PSpice Laboratory* for the course *Fundamentals of Electronics*, B.S. degree in Information Engineering
  Period: May-June 2007
- *Electronic CAD OrCAD-PSpice*, post-graduate professional certification master
  Period: January-February 2007

Students Supervision

- Supervision of Ph.D. students
  - Stefano Cabizza, 2019-2021
    Topic: development of high-performance converters for emerging automotive power distribution architectures
  - Giovanni Bonanno, 2018-present
    Topic: current-mode control techniques for multilevel dc-dc converters
  - Eslam Abdelhamid, 2015-2018
    Thesis title: "Innovative Digital dc-dc Architectures for High-Frequency High-Efficiency Applications"
  - Francesco Bez, 2015-2018
    Thesis title: "Innovative Architecture of dc-dc Converters for High Efficiency Applications in Harsh Automotive Environment"
  - Luca Scandola, 2013-2015
    Thesis title: "Implementation and modeling of online efficiency optimization techniques for high-frequency dc-dc converters in automotive applications"
- Supervision of M.S. students
  - Stefano Cabizza, 2019
    Topic: Analysis and design of an adaptive dead-time optimization technique for switched-mode power converters
  - Mahnaz Behnamazad, 2019
    Topic: Digital current control of a dc-dc Boost converter
  - Giulio Peloso, 2018
    Topic: Study and comparison of high-gain dc-dc step-up converters
  - Filippo Rosetti, 2018
    Topic: Analysis of a switched-capacitor dc-dc converter for battery impedance estimation in automotive applications

  - Andrea Tollot, 2018
    Topic: Digital predictive current control for three-level flying capacitor Buck converters
  - Nicolò Zilio, 2018
    Topic: Digital control techniques for a Quasi-Resonant Synchronous Buck Converters
  - Giovanni Bonanno, 2017
    Topic: Modeling and Control of the Synchronous Series Capacitor Tapped Inductor Converter
  - Davide Bottamedi, 2017
    Topic: Modeling of a digital V2 controller for dc-dc converters
  - Andrea Borsati, 2016
    Topic: Study and implementation of energy harvesting solutions for magnetic wireless switches
  - Bernard Blaise Tchodjie Tchamabe, 2013
    Topic: Implementation of a dc-dc switched-capacitor converter for low-power photovoltaic energy harvesting
  - Marco Piovesan, 2013
    Topic: Study and implementation of a cold-start oscillator for ultra low-voltage energy harvesting from thermoelectric sources
  - Daniele Viel, 2013
    Topic: Analysis and control of a non-inverting buck-boost converter for high-brightness LED driving applications

- Supervision of B.S. students
  - Alessandro Blascovich, 2012 (as co-supervisor)
    Topic: Modeling of renewable energy generation for energy harvesting devices

Invited Talks

- "Advanced Ideas in Digital Control", ESA Workshop on Digital Control for Power Systems, ESA-ESTEC, Noordwijk, The Netherlands, June 22, 2017
- "Small-Signal Modeling and Controller Design of Digitally-Controlled Switched-Mode Power Converters", Universitat Rovira i Virgili, Tarragona, Spain, October 6, 2016
- "Research Lines in Digital Control of High-Frequency Power Converters", Infineon Technologies Design Center, Villach, Austria, May 11, 2016
- "Digital Control for Inductor Based DC-DC Converters", 41st European Solid-State Circuits Conference (ESSCIRC) – Workshop on Advanced DC-DC Converter Techniques, Graz, Austria, September 18, 2015
- "Research Activities in Power Electronics at the University of Padova", University of Toronto, Canada, July 17, 2015

IEEE Memberships and Services

- IEEE Senior Member (S'06, M'09, SM'14)
- IEEE Power Electronics Society Member (2006–present)

- Associate Editor of the IEEE Transactions on Power Electronics (August 2015–present)
- General Chair of the Nineteenth IEEE Workshop on Control and Modeling for Power Electronics (COMPEL 2018)
- Conferences Organization:
  - IEEE Workshop on Control and Modeling for Power Electronics (COMPEL):
    - 2020: Technical Committee Member
    - 2019: Technical Committee Member
    - 2018: General Chair
    - 2016: Technical Committee Vice-Chair
    - 2015: Technical Committee Member
    - 2014: Technical Program Chair for the "Control of Power Converters" session
    - 2010: Member of the organizing committee
  - IEEE Energy Conversion Conference and Exposition (ECCE):
    - 2020: topic chair for the *Control, Modelling and Optimization of Power Converters* session
    - 2013: member of the *Computer/Telecommunication Applications and Power Converter Topologies Committee* and Track Chair for the *Control of Power Electronics Converters* technical session.
    - 2012: member of the *Power Converters Topologies Committee*.
    - 2011: member of the *DC-DC Converters Committee*.
  - IEEE Conference of the Industrial Electronics Society (IECON):
    - 2016: Track Co-chair for the "High Efficiency DC-DC Power Converters" session
  - International Workshop on Power Supply on Chip (PwrSoC)
    - 2016: Track Co-chair for the "Topologies & Control II" session
- Journals / Transactions Reviewer:
  - IEEE Transactions on Power Electronics
  - IEEE Journal on Emerging and Selected Topics in Power Electronics
  - IEEE Transactions on Industry Applications
  - IEEE Transactions on Industrial Electronics
- Conferences Reviewer:
  - IEEE Applied Power Electronics Conference and Exposition (APEC)
  - IEEE Energy Conversion Conference and Exposition (ECCE)
  - IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)

Publication Record

Books

[1] L. Corradini, D. Maksimović, P. Mattavelli, and R. Zane, *Digital Control of High-Frequency Switched-Mode Power Converters*, First ed. Wiley-IEEE Press, Jul. 2015, ISBN: 978-1-118-93510-1.

Book Chapters

[2] L. Corradini, "Chapter 4 – Digital PWM Control of High-Frequency dc-dc Switched-Mode Power Converters," in *Control Circuits in Power Electronics: Practical Issues and Implementation*, First ed., IET, 2016, pp. 79–101, ISBN: 978-1-84919-822-6.

Journal Papers – Published

[3] G. Bonanno and L. Corradini, "Digital Predictive Current-Mode Control of Three-Level Flying Capacitor Buck Converters," *IEEE Trans. Power Electron.*, vol. 36, no. 4, pp. 4697–4710, Apr. 2021.

[4] E. Abdelhamid, L. Corradini, P. Mattavelli, G. Bonanno, and M. Agostinelli, "Sensorless Stabilization Technique for Peak Current Mode-Controlled Three-Level Flying Capacitor Converters," *IEEE Trans. Power Electron.*, vol. 35, no. 3, pp. 3208–3220, Mar. 2020.

[5] L. Corradini, "General Power-Equivalent Synthesis of Resistive dc Networks," *IEEE Access*, vol. 8, pp. 160 711–160 722, Aug. 2020.

[6] L. Corradini, G. Spiazzi, and Z. Zhang, "Special Issue on Topologies, Modeling Methodologies, and Control Techniques for High-Frequency Power Conversion," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 8, no. 3, pp. 1967–1970, Sep. 2020.

[7] E. Abdelhamid, G. Bonanno, L. Corradini, P. Mattavelli, and M. Agostinelli, "Stability Properties of the 3-Level Flying Capacitor Buck Converter Under Peak or Valley Current Programmed Control," *IEEE Trans. Power Electron.*, vol. 34, no. 8, pp. 8031–8044, Aug. 2019.

[8] F. Bez, G. Bonanno, L. Corradini, and C. Garbossa, "Control Technique for Reliable Operation of the Synchronous Series Capacitor Tapped Inductor Buck Converter," *IEEE Trans. Power Electron.*, vol. 34, no. 8, pp. 8150–8161, Aug. 2019.

[9] W. Han and L. Corradini, "General Closed-Form ZVS Analysis of Dual-bridge Series Resonant dc-dc Converters," *IEEE Trans. Power Electron.*, vol. 34, no. 9, pp. 9289–9302, Sep. 2019.

[10] W. Han and L. Corradini, "Wide-Range ZVS Control Technique for Bidirectional Dual-Bridge Series Resonant dc-dc Converters," *IEEE Trans. Power Electron.*, vol. 34, no. 10, pp. 10 256–10 269, Oct. 2019.

[11] F. López, V. L. López-Martín, F. J. Azcondo, L. Corradini, and A. Pigazo, "Current-Sensorless Power Factor Correction with Predictive Controllers," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 7, no. 2, pp. 891–900, Jun. 2019.

[12] G. Ripamonti, S. Saggini, L. Corradini, *et al.*, "A Dual-Edge Pulse Width Modulator for Fast Dynamic Response DC-DC Converters," *IEEE Trans. Power Electron.*, vol. 34, no. 1, pp. 28–32, Jan. 2019.

[13] F. Bez, W. Han, and L. Corradini, "A Low-Complexity Trajectory Controller for Reduced Conduction Losses in Series-Resonant Dual Half-Bridge Converters," *IEEE Trans. Power Electron.*, vol. 33, no. 11, pp. 9963–9974, Nov. 2018.

[14] W. W. Chen, R. Zane, and L. Corradini, "Isolated Bidirectional Grid-Tied Three-Phase AC-DC Power Conversion using Series Resonant Converter Modules and a Three-Phase Unfolder," *IEEE Trans. Power Electron.*, vol. 32, no. 12, pp. 9001–9012, Dec. 2017.

[15] A. Petucco, S. Saggini, L. Corradini, and P. Mattavelli, "Analysis of Power Processing Architectures for Thermoelectric Energy Harvesting," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 4, no. 3, pp. 1036–1049, Sep. 2016.

[16] S. Saggini, F. Ongaro, L. Corradini, and A. Affanni, "Low-Power Energy Harvesting Solutions for Wiegand Transducers," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 3, no. 3, pp. 766–779, Sep. 2015.

[17] L. Scandola, L. Corradini, and G. Spiazzi, "Small-signal Modeling of Uniformly Sampled Phase-Shift Modulators," *IEEE Trans. Power Electron.*, vol. 30, no. 10, pp. 5870–5880, Oct. 2015.

[18] L. Corradini, D. Seltzer, D. Bloomquist, R. Zane, D. Maksimović, and B. Jacobson, "Zero Voltage Switching Technique for Bidirectional DC/DC Converters," *IEEE Trans. Power Electron.*, vol. 29, no. 4, pp. 1585–1594, Apr. 2014.

[19] L. Corradini and G. Spiazzi, "A High-Frequency Digitally Controlled LED Driver for Automotive Applications with Fast Dimming Capabilities," *IEEE Trans. Power Electron.*, vol. 29, no. 12, pp. 6648–6659, Dec. 2014.

[20] N. Michelusi, L. Badia, R. Carli, L. Corradini, and M. Zorzi, "Energy Management Policies for Harvesting-based Wireless Sensor Devices with Battery Degradation," *IEEE Trans. Commun.*, vol. 61, no. 12, pp. 4934–4947, Dec. 2013.

[21] M. Rodriguez, G. Stahl, L. Corradini, and D. Maksimović, "Smart DC Power Management System Based on Software-Configurable Power Modules," *IEEE Trans. Power Electron.*, vol. 28, no. 4, pp. 1571–1586, Apr. 2013.

[22] L. Corradini, D. Seltzer, D. Bloomquist, R. Zane, D. Maksimović, and B. Jacobson, "Minimum Current Operation of Bidirectional Dual-Bridge Series Resonant DC/DC Converters," *IEEE Trans. Power Electron.*, vol. 27, no. 7, pp. 3266–3276, Jul. 2012.

[23] L. Corradini, A. Bjeletić, R. Zane, and D. Maksimović, "Fully digital hysteretic modulator for dc-dc switching converters," *IEEE Trans. Power Electron.*, vol. 26, no. 10, pp. 2969–2979, Oct. 2011.

[24] S. Moon, L. Corradini, and D. Maksimović, "Autotuning of Digitally Controlled Boost Power Factor Correction Rectifiers," *IEEE Trans. Power Electron.*, vol. 26, no. 10, pp. 3006–3018, Oct. 2011.

[25] L. Corradini, A. Babazadeh, A. Bjeletić, and D. Maksimović, "Current-limited time-optimal response in digitally controlled dc-dc converters," *IEEE Trans. Power Electron.*, vol. 25, no. 11, pp. 2869–2880, Nov. 2010.

[26] L. Corradini, P. Mattavelli, M. Corradin, and F. Polo, "Analysis of Parallel Operation of Uninterruptible Power Supplies Loaded through Long Wiring Cables," *IEEE Trans. Power Electron.*, vol. 25, no. 4, pp. 1046–1054, Apr. 2010.

[27] D. Maksimović, R. Zane, and L. Corradini, "Advances in digital control for high-frequency switched-mode power converters," *Power Electronics monthly*, vol. 44, no. 12, pp. 2–19, Dec. 2010, serial no. 217, sponsored by Xi'an Power Electronics Research Institute, China.

[28] R. Paul, L. Sankey, L. Corradini, Z. Popovic, and D. Maksimović, "Power Management of Wideband Code Division Multiple Access RF Power Amplifiers with Antenna Mismatch," *IEEE Trans. Power Electron.*, vol. 25, no. 4, pp. 981–991, Apr. 2010.

[29] L. Corradini, A. Costabeber, P. Mattavelli, and S. Saggini, "Parameter-Independent Time-Optimal Digital Control for Point-of-Load Converters," *IEEE Trans. Power Electron.*, vol. 24, no. 10, pp. 2235–2248, Oct. 2009.

[30] L. Corradini, P. Mattavelli, and S. Saggini, "Elimination of Sampling-Induced Dead Bands in Multiple-Sampled Pulse-Width Modulators for DC-DC Converters," *IEEE Trans. Power Electron.*, vol. 24, no. 11, pp. 2661–2665, Nov. 2009.

[31] L. Corradini, E. Orietti, P. Mattavelli, and S. Saggini, "Digital Hysteretic Voltage-Mode Control for DC-DC Converters Based on Asynchronous Sampling," *IEEE Trans. Power Electron.*, vol. 24, no. 1, pp. 201–211, Jan. 2009.

[32] J. Morroni, L. Corradini, R. Zane, and D. Maksimović, "Adaptive Tuning of Switched-Mode Power Supplies Operating in Discontinuous and Continuous Conduction Modes," *IEEE Trans. Power Electron.*, vol. 24, no. 11, pp. 2603–2611, Nov. 2009.

[33] L. Corradini and P. Mattavelli, "Modeling of Multisampled Pulse Width Modulators for Digitally Controlled DC-DC Converters," *IEEE Trans. Power Electron.*, vol. 23, no. 4, pp. 1839–1847, Jul. 2008.

[34] L. Corradini, P. Mattavelli, W. Stefanutti, and S. Saggini, "Simplified Model Reference-based Autotuning for Digitally Controlled SMPS," *IEEE Trans. Power Electron.*, vol. 23, no. 4, pp. 1956–1963, Jul. 2008.

[35] L. Corradini, P. Mattavelli, E. Tedeschi, and D. Trevisan, "High-Bandwidth Multisampled Digitally Controlled DC-DC Converters Using Ripple Compensation," *IEEE Trans. Ind. Electron.*, vol. 55, no. 4, pp. 1501–1508, Apr. 2008.

[36] L. Corradini, W. Stefanutti, and P. Mattavelli, "Analysis of Multisampled Current Control for Active Filters," *IEEE Trans. Ind. Appl.*, vol. 44, no. 6, pp. 1785–1794, Nov./Dec. 2008.

Conference Proceedings – Accepted for publication / in press

[37] S. Cabizza, L. Corradini, and G. Spiazzi, "Analysis and Design of a 2 MHz GaN-Based Active-Clamped Isolated Sepic Converter for Low-Power Automotive Subnets," in *Proc. 37th Applied Power Electronics Conference and Exposition (APEC)*, 2022.

Conference Proceedings – Published

[38] G. Bonanno and L. Corradini, "Stability Properties of Digital Predictive Current-Mode Controllers for Three-level Flying Capacitor Converters," in *Proc. 35th Applied Power Electronics Conference and Exposition (APEC)*, Mar. 2020, pp. 312–319.

[39] S. Cabizza, L. Corradini, G. Spiazzi, and C. Garbossa, "Comparative Study of 48V-based Low-Power Automotive Architectures," in *Proc. 21st IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2020.

[40] G. Bonanno and L. Corradini, "Digital Predictive Peak Current-Mode Control for Three-Level Buck Converters," in *Proc. 20th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2019, pp. 1–7.

[41] W. Han, R. Ma, and L. Corradini, "Analysis and Design Methodology for ZVS Phase Shift Modulated Bidirectional CLLLC Resonant dc-dc Converters," in *Proc. 21st European Conference on Power Electronics and Applications (EPE'19 ECCE Europe)*, Sep. 2019, P.1–P.10.

[42] G. Spiazzi and L. Corradini, "Reduced-Order Model for the Clamped-Resonant Interleaved Boost Converter," in *Proc. 20th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2019, pp. 1–7.

[43] E. Abdelhamid, G. Bonanno, L. Corradini, P. Mattavelli, and M. Agostinelli, "Stability Properties of the 3-Level Flying Capacitor Buck Converter Under Peak or Valley Current-Programmed-Control," in *Proc. 19th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2018, pp. 1–8.

[44] F. Bez, G. Bonanno, L. Corradini, and C. Garbossa, "Control Technique for Reliable Operation of the Synchronous Series Capacitor Tapped Inductor Converter," in *Proc. 33rd IEEE Applied Power Electronics Conference and Exposition (APEC)*, Mar. 2018, pp. 113–120.

[45] F. Bez and L. Corradini, "Synchronous series capacitor tapped-inductor (SCTI) converter with auxiliary snubber winding," in *Proc. 19th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2018, pp. 1–7.

[46] W. Han and L. Corradini, "Analytical Small-Signal Transfer Functions for Phase Shift Modulated Dual Active Bridge Converters Using Phasor Transformation," in *Proc. 10th IEEE Energy Conversion Congress and Exposition (ECCE)*, Sep. 2018, pp. 1442–1448.

[47] W. Han and L. Corradini, "Control Technique for Wide-Range ZVS of Bidirectional Dual-bridge Series Resonant dc-dc Converters," in *Proc. 19th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2018, pp. 1–8.

[48] F. Lopez, F. Azcondo, L. Corradini, P. Lamo, and A. Pigazo, "Third harmonic compensation of a Bridgeless Current Sensorless PFC," in *Proc. 33rd IEEE Applied Power Electronics Conference and Exposition (APEC)*, Mar. 2018, pp. 2084–2090.

[49] N. Zilio and L. Corradini, "Simple Digital Control Technique for a High-Frequency Quasi-Resonant Synchronous Buck DC-DC Converter," in *Proc. 19th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, 2018, pp. 1–8.

[50] E. Abdelhamid, L. Corradini, P. Mattavelli, and M. Agostinelli, "Digital controller for optimized efficiency and extended operating range in high-frequency quasi-resonant dc-dc buck converters," in *Proc. 18th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2017, pp. 1–8.

[51] L. Corradini, "Advanced Ideas in Digital Control," in *Proc. European Space Agency Workshop on Digital Control for Power Systems*, invited talk, Jun. 2017.

[52] L. Corradini, "Digital Techniques for Online Efficiency Optimization of DC DC Converters," in *Proc. ECPE Workshop on Power Supplies in Low Power Applications*, invited talk, Sep. 2017.

[53] W. Han and L. Corradini, "Accurate ZVS Boundary Analysis for Bidirectional Dual-Bridge Series Resonant dc-dc Converters," in *Proc. 18th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2017, pp. 1–8.

[54] F. Bez, L. Scandola, L. Corradini, S. Saggini, and G. Spiazzi, "Two-Dimensional Online Efficiency Optimization Technique for Dual Active Bridge Converters," in *Proc. 17th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2016, pp. 1–8.

[55] W. Han, R. Ma, Q. Liu, and L. Corradini, "A Conduction Losses Optimization Strategy for DAB Converters in Wide Voltage Range," in *Proc. 42nd Conference of the IEEE Industrial Electronics Society (IECON)*, Oct. 2016, pp. 2445–2451.

[56] L. Corradini, "Digital Control for Inductor Based DC-DC Converters," in *Proc. 41st European Solid-State Circuits Conference (ESSCIRC) – Workshop on Advanced DC-DC Converter Techniques*, invited talk, Sep. 2015, pp. 99–144.

[57] P. Mattavelli and L. Corradini, "Digital Control in Power Electronics," in *Proc. 13th IEEE Brazilian Power Electronics Conference (COBEP) and 1st Southern Power Electronics Conference (SPEC)*, invited tutorial, Nov. 2015.

[58] L. Scandola, L. Corradini, and G. Spiazzi, "Multi-Harmonic Small-Signal Modeling of Digitally Controlled dc-dc Series Resonant Converters," in *Proc. 16th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jul. 2015, pp. 1–8.

[59] L. Scandola, L. Corradini, and G. Spiazzi, "Small-signal modeling of combined phase shift and pulse width uniformly sampled modulators," in *Proc. 16th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jul. 2015, pp. 1–7.

[60] W. Chen, R. Zane, D. Seltzer, and L. Corradini, "Isolated Bidirectional DC/AC and AC/DC Three-Phase Power Conversion using Series Resonant Converter Modules and a Three-Phase Unfolder," in *Proc. 15th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2014, pp. 1–6.

[61] S. Saggini, O. Zambetti, M. Loghi, A. Zafarana, and L. Corradini, "Autotuning Technique for Digital Constant On-Time Controllers," in *Proc. 29th IEEE Applied Power Electronics Conference and Exposition (APEC)*, Mar. 2014, pp. 1059–1065.

[62] L. Scandola, L. Corradini, and G. Spiazzi, "Small-signal modeling of uniformly sampled phase shift modulators," in *Proc. 15th IEEE Workshop on Control and Modeling for Power Electronics (COMPEL)*, Jun. 2014, pp. 1–8.

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