

Daniel Costinett
1520 Middle Drive, Suite 502
Knoxville, TN 37996-2250
Phone: (865) 974-3572, e-mail: Daniel.Costinett@utk.edu

EDUCATION

University of Colorado at Boulder

PhD, Electrical and Computer Engineering	June 2013
Dissertation title: "Analysis and Design of High Efficiency, High Conversion Ratio, DC-DC Power Converters"	
MS, Electrical and Computer Engineering	May 2011
BS, Electrical and Computer Engineering	May 2011
Biomedical Engineering Option	

SELECT EMPLOYMENT

2013-Present	Assistant Professor <i>Department of Electrical Engineering and Computer Science</i>	Univ. of Tenn. Knoxville
2014-Present	Joint Faculty <i>Power Electronics and Electric Machinery Group</i>	Oak Ridge National Laboratory
2012-2013	Instructor <i>Department of Electrical and Computer Engineering</i>	Utah State University
2008-2013	Research Assistant <i>Department of Electrical, Computer, and Energy Engineering</i>	University of Colorado
2011	Graduate Part Time Instructor <i>Department of Electrical, Computer, and Energy Engineering</i>	University of Colorado
2008-2009	Assistant Director of Technology <i>Presidents Leadership Class</i>	University of Colorado
2009	Biomedical Engineering Intern <i>Center for Gait and Movement Analysis</i>	The Children's Hospital
2009	Undergraduate Intern <i>Orthopedic Surgery</i>	Colorado Knee and Shoulder
2008	Scholastic Honors Intern <i>Rocky Mountain Regional Computer Forensics Lab</i>	Fed. Bureau of Investigation
2007	English Teacher <i>Luoyang No. 1 High School, China</i>	Orbis Institute
2006-2009	Undergraduate Research Assistant <i>Department of Applied Mathematics</i>	University of Colorado

TEACHING EXPERIENCE

High Frequency Power Electronics (ECE 581)

UTK Department of Electrical Engineering and Computer Science Fall 2014/16 Knoxville, TN

- Developed new course in the analysis and design of high efficiency, high frequency power converters
- Established hands-on design competition for students to construct hardware prototypes

Ultra-Wide-Area Resilient Electrical Energy Transmission Networks (ECE 620)

UTK Department of Electrical Engineering and Computer Science Fall 2014/15 Knoxville, TN

- Coordinated shared seminar course between UTK, RPI, NEU, and Tuskegee Universities

Power Electronic Circuits (ECE 482/599)

UTK Department of Electrical Engineering and Computer Science Spring 2014-17 Knoxville, TN

- Developed a new lab-based power electronics course focusing on practical design of electric drive vehicles

Power Electronics (ECE 481/599) <i>UTK Department of Electrical Engineering and Computer Science</i> · Developed new laboratory sequence for undergraduate course	Fall 2013/15/17	Knoxville, TN
Electric Vehicle Design Laboratory (ECE 5930/6930) <i>USU Department of Electrical and Computer Engineering</i> · Developed and taught new laboratory course	Spring 2013	Logan, UT
Power Electronics for Electric Drive Vehicles (ECE 5930) <i>USU Department of Electrical and Computer Engineering</i> · Co-developed and co-instructed	Fall 2012	Logan, UT
Analog Integrated Circuit Design (ECEN 4827/5827) <i>CU Department of Electrical, Computer, and Energy Engineering</i> · Taught course to graduate, undergraduate, and remote continuing education (online)	Fall 2011	Boulder, CO

INVITED PRESENTATIONS AND PROFESSIONAL SEMINARS

University of Pittsburgh

October 2016 “Electric Drive Technologies for Future Electric Vehicles”

University of Colorado

October 2015 “Results of the Google Little Box Challenge,”

National Renewable Energy Laboratory

October 2015 “University of Tennessee Little Box Design”

UTK Transportation Seminar series

March 2014 “Designing Power Electronics to Meet the Demands of Future Electric Vehicles,”

Tsinghua University, North China Electric Power University, Southeast University

Dec 2013 “Analysis and Design of High Efficiency, High Conversion Ratio, DC-DC Power Converters,”

STUDENTS SUPERVISED

GRADUATED PH.D. STUDENTS, SERVING AS MAJOR ADVISOR

1. Weimin Zhang, *WBG Converters in Data Centers and EV Applications* (co-advisor Fred Wang)
 - Graduated Aug 2015, now working at Tesla Motor Company
2. Chongwen Zhao, *Multi-Frequency Modulation and Control for DC/AC and AC/DC Resonant Converters*
 - Graduated Aug 2018, now working at Apple

CONTINUING PH.D. STUDENTS, SERVING AS MAJOR ADVISOR

1. Saeed Anwar, Integrated WBG EV Power Electronics
 - (Ongoing) Expected Graduation Dec 2018
2. Ling Jiang, Single-Stage Wireless Power Transmitter
 - (Ongoing) Expected Graduation Dec 2018
3. Tim Burress, Non-rare-earth Flux-Coupled Motor Design
 - (Ongoing) Expected Graduation May 2019
4. Kamal Sabi, High Density Inverter Design for Residential Solar Power
 - (Ongoing) Expected Graduation May 2020
5. Ruiyang Qin, High Frequency Wireless Power Transfer for Electric Vehicles
 - (Ongoing) Expected Graduation May 2021
6. Jared Baxter, Computational Optimization of Power Electronics
 - (Ongoing) Expected Graduation May 2021
7. Andrew Foote, Deployment of Dynamic Wireless Charging to US Roadways
 - (Ongoing) Expected Graduation May 2021
8. Spencer Cochran, Low-THD Impedance-Controlled Wireless Power Receivers
 - (Ongoing) Expected Graduation May 2020
9. Jie Li, Optimization of Wireless Power Transfer Systems
 - (Ongoing) Expected Graduation May 2021

GRADUATED M.S. STUDENTS, SERVING AS MAJOR ADVISOR

1. Tianxiang Chen, *Faster R-CNN: Deep learning for Advanced Driver Assistance System*, Project option
 - Graduated Dec 2016, now working at ORNL
2. Gabriel Gabian, *High-current integrated battery chargers for mobile applications*, Thesis option
 - Graduated Aug 2017, now working at Allegro MicroSystems
3. Spencer Cochran, *A GaN-Based Synchronous Rectifier with Reduced THD for 6.78 MHz WPT Applications*, Thesis option
 - Graduated Nov 2017, continuing as PhD student
4. Jie Li, *Wireless Power System Design for Maximum Efficiency*, Thesis option
 - Graduated May 2018, continuing as PhD student
5. Doug Boulter, *High Density POL Converter for Data Centers*, Thesis option
 - Graduated Aug 2018, now working at Texas Instruments
6. Maeve Lawniczak, *Analysis and Design of Hybrid Dickson Switched Capacitor for Intermediate Bus Converter Applications*, Thesis option
 - Graduated Aug 2018, now working at Siemens
7. Jordan Gamble, *Design Space Evaluation for Resonant and Hard-charged Switched Capacitor Converters*, Thesis option (co-advisor Ben Blalock)
 - Graduated May 2018, now working at LTK Engineering Services

CONTINUING M.S. STUDENTS, SERVING AS MAJOR ADVISOR

1. Quillen Blalock, 3D Printed Inductor Design, Thesis option
 - (Ongoing) Expected Graduation May 2020

UNDERGRADUATES PARTICIPATING IN RESEARCH

1. Spencer Cochran, Thermal Surgical Power Supply
 - Graduated Dec 2015, continuing as MS student
2. Doug Bouler, Wireless Power Transfer to Implantable Devices
 - Graduated May 2016, continuing as MS student
3. Maeve Lawniczak, Electropermanent Magnet Applications in Power Electronics
 - Graduated May 2016, continuing as MS student
4. Joey Mann, Intelligent E-bike Motor Drives
 - Graduated Dec 2016, now working at nLogic
5. Jared Baxter, Energy Harvesting Wearable Device Platform
 - Graduated May 2017, continuing as PhD student
6. Kyle Goodrick, Automated Design of Switching Converters
 - Graduated May 2017, now working at PhD, University of Colorado Boulder
7. Rafael Camarillo, Wireless Power Transfer Coil Coupling Analysis
 - Graduated May 2018, now working at Booz Allen Hamilton
8. Quillen Blalock, 3D Printed Inductor Design
 - Graduated May 2018, continuing as MS student
9. Dylan Carlson, Monitoring of E-bike Power Consumption
 - Graduated May 2018
10. Alex Bolinsky, Solar Power Conversion
 - (Ongoing) Expected Graduation May 2019

SERVICE AND PROFESSIONAL ACTIVITIES

EECS DEPARTMENT

CURRENT Co-Director of Education and Diversity	Fall 2014 - present
Senior Design Customer	AY 2014 - present (4 teams)
Graduate Committee Member	2014 - present
Graduate Committee Interim Chair	2015

Department Seminars

Junior Seminar	Fall 2014 - present (4 presentations)
*Introduction to Power Electronics	Summer 2014 - present (5 presentations)
*Giving Effective Technical Presentations	Summer 2014 - present (3 presentations)
*Overview of CURRENT	Summer 2014 - present (5 presentations)

* Part of CURRENT summer program (REU, RET, YSP)

COLLEGE

EcoCAR 3 Electrical Team Advisor	Spring 2014 - present
CoE building programming committee	2013
HITES11 Faculty Participant	Summer 2015, 2016 (10 students)

College Seminars

*Power Electronics in EVs	Fall 2014 - present (3 presentations)
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* Guest lecture in ME588

DISCIPLINARY SERVICE

Associate Editor	<i>IEEE Transactions on Power Electronics</i> , 2017 - present
—	<i>IEEE Journal of Emerging and Select Topics in Power Electronics</i> , 2016 - present
—	<i>IEEE Transactions on Industry Applications</i> , 2014 - 2018
Awards Committee	<i>IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)</i> , 2018
Organizing Committee	<i>IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)</i> , 2018
Finance Chair	<i>IEEE PELS Workshop on Emerging Technologies: Wireless Power (WoW)</i> , 2016
Local Chair	<i>IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA)</i> , 2014
Tutorials Chair	<i>IEEE Workshop on Wide Bandgap Power Devices and Applications (WiPDA)</i> , 2015
Technical Committee	<i>IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)</i> , 2014
Session Chair	<i>IEEE Energy Conversion Conference and Exposition (ECCE)</i> , 2014-2017
—	<i>IEEE Applied Power Electronics Conference (APEC)</i> , 2015-2016
—	<i>IEEE Workshop on Control and Modeling of Power Electronics (COMPEL)</i> , 2014, 2017
—	CURRENT Industry Conference, 2014
Reviewer	<i>IEEE Transactions on Power Electronics</i>
—	<i>IEEE Journal of Emerging and Selected Topics in Power Electronics</i>
—	<i>IEEE Transactions on Vehicular Technology</i>
—	<i>IEEE Transactions on Industrial Electronics</i>
—	<i>IEEE Applied Power Electronics Conference (APEC)</i>
—	<i>IEEE Energy Conversion Conference and Exposition (ECCE)</i>
—	<i>Energies</i> , Open Access Energy Research, Engineering and Policy Journal
—	Cambridge University Press

PROFESSIONAL SERVICE

Panelist	2018 NSF EPCN, Power Electronic converters, components and systems panel
—	2016 NSF Power Electronics and Energy Harvesting Review
—	2015 NSF Power Management & Systems - SBIR/STTR Phase I
Session Co-Chair	2016 Workshop on Directions in Power Electronics Research

HONORS AND AWARDS

2017	UTRF Innovation Driver Award
2017	UTK CoE Professional Promise in Research Award
2016	Google Little Box Challenge Finalist
2016	<i>IEEE Transactions on Power Electronics</i> Outstanding Reviewer Award
2016	Second Place Prize Paper Award in <i>IEEE Transactions on Power Electronics</i>
2016	UTK CoE Teaching Fellow
2016	UTK CoE Summer Pre-College Service Award
2015	ECE Faculty of the Year
2015	IEEE William M. Portnoy Award
2015	EPRI Outstanding Achievement Award
2015	UTK CoE Summer Pre-College Service Award
2013	Best Presentation Award, APEC 2013 Session T1 2012
2013	Best Paper Award, COMPEL 2012
2013	Best Presentation Award, APEC 2012 Session T28

AWARDS GIVEN TO STUDENT ADVISEES

2018	IEEE WoW Best Paper Award - 2nd place	Chongwen Zhao
2018	EcoCAR 3 NSF Innovation Award - 3rd Place	Saeed Anwar
2018	IEEE APEC Best Presentation Award	Kamal Sabi
2017	Outstanding Graduate Research Assistant	Chongwen Zhao
2017	IEEE APEC Best Presentation Award	Chongwen Zhao
2017	Tech CarniVol Elevator Pitch Competition Winner	Quillen Blalock
2016	Chancellor's Honor for Outstanding Professional Promise	Chongwen Zhao
2016	IEEE APEC Best Presentation Award	Saeed Anwar
2016	IEEE APEC Best Presentation Award	Chongwen Zhao
2016	Chancellor's Honor for Extraordinary Professional Promise	Chongwen Zhao
2016	Chancellor's Honor for Extraordinary Academic Achievement	Maeve Lawnczak

FUNDED RESEARCH PROJECTS - ONGOING

CAREER: Unified Design Framework for Advanced Power Electronics

National Science Foundation (NSF)
Principal Investigator (100.0%)

Jan 2018 - Dec 2022

Design-Oriented Education and Hands-on Training with WBG Power Electronics for the Next Generation Power Engineering Workforce

US Department of Energy (DOE)
co-Principal Investigator (25.0%)

Aug 2016 - Jul 2021

PI: Leon Tolbert, co-PIs: Daniel Costinett, Fred Wang, Ben Blalock

GOALI: Collaborative Proposal: Novel approaches to model travel behavior and sustainability impacts of e-bike use

NSF - National Science Foundation
co-Principal Investigator (10.0%)

May 2017 - Apr 2020

PI: Chris Cherry, co-PIs: Wei Gao, Paul Frymier, Daniel Costinett

Low-EMI, High Efficiency WPT Receiver

Futurwei Technologies Co., Ltd
Principal Investigator (100.0%)

Sep 2017 - Aug 2019

Integrated High Efficiency All-GaN Wireless Power Supply

DOE - Power America
Principal Investigator (50.0%)

Jul 2018 - Jun 2019
co-PIs: Leon Tolbert

Comprehensive Design Leveraging Wide Bandgap Devices to Enable High Power, High Efficiency Wireless Charging of Electric Vehicles

II-VI Foundation
Principal Investigator (25.0%)

Jul 2018 - Jun 2019
co-PIs: Leon Tolbert, Fred Wang, Ben Blalock

Efficiency improvement and interference reduction of wireless charging system through system integration

Intel Corporation
Principal Investigator (50.0%)

Nov 2015 - Oct 2018
co-PIs: Aly Fathy

High Power and Dynamic Wireless Power Transfer

ORNL - UT-Battelle
Principal Investigator (100.0%)

Jan 2018 - Oct 2018

An Ultra-light Highly Efficient MW Class Cryogenically Cooled Inverter for Future All Electric Aircraft Applications

Boeing
co-Principal Investigator (25.0%)

Oct 2015 - Sep 2018
PI: Fred Wang, co-PIs: Leon Tolbert, Daniel Costinett, Ben Blalock

FUNDED RESEARCH PROJECTS - COMPLETED

WBG Device Characterization and Application for Converter Design

ORNL - UT-Battelle
Principal Investigator (100.0%)

Jan 2018 - Aug 2018

EcoCAR 3 ECE GRA Year 4

American Society for Engineering Education
Principal Investigator (100.0%)

Sep 2017 - Jun 2018

High Power Fully Integrated DC-DC Converter

Texas Instruments
Principal Investigator (50.0%)

May 2017 - Apr 2018
co-PIs: Ben Blalock

Series Self-Resonant Wireless Power Transfer Coil with Reduced Electromagnetic Interference

University of Tennessee Research Foundation (UTRF)
Principal Investigator (100.0%)

Jan 2017 - Oct 2017

Development of a SiC based high temperature three-phase voltage source converter with maximum switching speed and adaptive operation capability for high efficiency

II-VI Foundation

Jul 2016 - Jun 2017

co-Principal Investigator (25.0%)

PI: Ben Blalock, co-PIs: Leon Tolbert, Daniel Costinett, Fred Wang

Magnetic Amplifier for Power Flow Control - Installation

ORNL - UT-Battelle

Oct 2016 - Dec 2016

co-Principal Investigator (20.0%)

PI: Fred Wang, co-PIs: Kevin Tomsovic, Leon Tolbert, Daniel Costinett

WBG Device Assessment and Characterization

ORNL - UT-Battelle

Jul 2016 - Sep 2016

Principal Investigator (50.0%)

PI: Leon Tolbert, co-PIs: Daniel Costinett

Exploring Lean Margin EV Power Electronics Design Utilizing Wide Bandgap Semiconductors for Drastic Improvement of Efficiency, Power Density, and Cost

Volkswagen

Sep 2015 - Aug 2016

co-Principal Investigator (33.0%)

PI: Fred Wang, co-PIs: Daniel Costinett, Leon Tolbert

Optimized Coil Design for Wireless Power Transfer in Electric Vehicles

Volkswagen

Sep 2014 - Aug 2016

co-Principal Investigator (50.0%)

PI: Dave Irick, co-PIs: Daniel Costinett

Senior Design Projects 2016

Electric Power Research Institute (EPRI)

Sep 2015 - Aug 2016

co-Principal Investigator (10.0%)

PI: Bill Dunne, co-PIs: Daniel Costinett, et al

Targeted Drive Train DC-DC Design for Electric Vehicles Using Additive Manufacturing and Wide Bandgap Semiconductors

Oak Ridge National Laboratory (ORNL)

May 2014 - May 2016

Principal Investigator (100.0%)

Development of High-Density and High-Efficiency Universal Charger Based on Gallium Nitride Devices

Boeing

Jan 2016 - Apr 2016

co-Principal Investigator (50.0%)

PI: Fred Wang, co-PIs: Daniel Costinett

Designing Beyond the Limits of Modern Power Inverters

Electric Power Research Institute (EPRI)

Dec 2014 - Oct 2015

Principal Investigator (34.0%)

co-PIs: Leon Tolbert, Fred Wang

Development of a Rolling Hybrid Vehicle Teaching and Research Laboratory

Volkswagen

Sep 2014 - Sep 2015

co-Principal Investigator (50.0%)

PI: Dave Irick, co-PIs: Daniel Costinett

Wide-BandGap (WBG) Device and System Assessment for Future Automotive Electric Drivetrains

Oak Ridge National Laboratory (ORNL)

Jan 2015 - Sep 2015

co-Principal Investigator (25.0%)

PI: Leon Tolbert, co-PIs: Ben Blalock, Fred Wang, Daniel Costinett

Exploratory Research on a New Paradigm for Design and Operation of Electric or Hybrid Electric Vehicle Traction Drives for Improved Efficiency, Power Density, and Lifetime

Volkswagen

co-Principal Investigator (33.0%)

Sep 2014 - Aug 2015

PI: Fred Wang, co-PIs: Daniel Costinett, Leon Tolbert

Combined Ultrasonic and Radio Frequency Bipolar Electrosurgical Power Supply

Covidien

Principal Investigator (100.0%)

Sep 2014 - Aug 2015

Development of an Energy Storage System for the EcoCAR 3 Vehicle

Electric Power Research Institute

co-Principal Investigator (50.0%)

Aug 2014 - May 2015

PI: Dave Irick, co-PIs: Daniel Costinett

Survey of High Voltage SiC Devices and Applications

US Department of Energy (DOE)

co-Principal Investigator (25.0%)

Jun 2014 - Jul 2014

PI: Fred Wang, co-PIs: Leon Tolbert, Daniel Costinett

PUBLICATIONS

PEER-REVIEWED JOURNAL PUBLICATIONS

- [1] C. Zhao and D. Costinett, "GaN-Based Dual-Mode Wireless Power Transfer Using Multifrequency Programmed Pulse Width Modulation," *IEEE Transactions on Industrial Electronics*, vol. 64, no. 11, pp. 9165–9176, Nov 2017.
- [2] B. Liu, R. Ren, E. A. Jones, F. Wang, D. Costinett, and Z. Zhang, "A Modulation Compensation Scheme to Reduce Input Current Distortion in GaN-Based High Switching Frequency Three-Phase Three-Level Vienna-Type Rectifiers," *IEEE Transactions on Power Electronics*, vol. 33, no. 1, pp. 283–298, Jan 2018.
- [3] Z. Zhang, J. Dix, F. F. Wang, B. J. Blalock, D. Costinett, and L. M. Tolbert, "Intelligent Gate Drive for Fast Switching and Crosstalk Suppression of SiC Devices," *IEEE Transactions on Power Electronics*, vol. 32, no. 12, pp. 9319–9332, Dec 2017.
- [4] Z. Zhang, H. Lu, D. J. Costinett, F. Wang, L. M. Tolbert, and B. J. Blalock, "Model-Based Dead Time Optimization for Voltage-Source Converters Utilizing Silicon Carbide Semiconductors," *IEEE Transactions on Power Electronics*, vol. 32, no. 11, pp. 8833–8844, Nov 2017.
- [5] R. Ren, B. Liu, E. A. Jones, F. F. Wang, Z. Zhang, and D. Costinett, "Capacitor-Clamped, Three-level GaN-Based DC-DC Converter With Dual Voltage Outputs for Battery Charger Applications," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 4, no. 3, pp. 841–853, Sept 2016.
- [6] E. A. Jones, F. F. Wang, and D. Costinett, "Review of Commercial GaN Power Devices and GaN-Based Converter Design Challenges," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 4, no. 3, pp. 707–719, Sept 2016.
- [7] Y. Cui, F. Yang, L. M. Tolbert, D. J. Costinett, F. Wang, and B. J. Blalock, "Load-Dependent Soft-Switching Method of Half-Bridge Current Doubler for High-Voltage Point-of-Load Converter in Data Center Power Supplies," *IEEE Transactions on Power Electronics*, vol. 32, no. 4, pp. 2925–2938, April 2017.
- [8] C. Zhao, B. Trento, L. Jiang, E. A. Jones, B. Liu, Z. Zhang, D. Costinett, F. F. Wang, L. M. Tolbert, J. F. Jansen, R. Kress, and R. Langley, "Design and Implementation of a GaN-Based, 100-kHz, 102-W/in³ Single-Phase Inverter," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 4, no. 3, pp. 824–840, Sept 2016.
- [9] W. Zhang, F. Wang, D. J. Costinett, L. M. Tolbert, and B. J. Blalock, "Investigation of Gallium Nitride Devices in High-Frequency LLC Resonant Converters," *IEEE Transactions on Power Electronics*, vol. 32, no. 1, pp. 571–583, Jan 2017.
- [10] M. Evzelman, M. M. U. Rehman, K. Hathaway, R. Zane, D. Costinett, and D. Maksimovic, "Active Balancing System for Electric Vehicles With Incorporated Low-Voltage Bus," *IEEE Transactions on Power Electronics*, vol. 31, no. 11, pp. 7887–7895, Nov 2016.
- [11] Z. Wang, X. Shi, L. M. Tolbert, F. Wang, Z. Liang, D. Costinett, and B. J. Blalock, "Temperature-Dependent Short-Circuit Capability of Silicon Carbide Power MOSFETs," *IEEE Transactions on Power Electronics*, vol. 31, no. 2, pp. 1555–1566, Feb 2016.

- [12] Z. Zhang, F. Wang, L. M. Tolbert, B. J. Blalock, and D. J. Costinett, "Evaluation of Switching Performance of SiC Devices in PWM Inverter-Fed Induction Motor Drives," *IEEE Transactions on Power Electronics*, vol. 30, no. 10, pp. 5701–5711, Oct 2015.
- [13] Z. Wang, X. Shi, L. M. Tolbert, F. Wang, Z. Liang, D. Costinett, and B. J. Blalock, "A High Temperature Silicon Carbide mosfet Power Module With Integrated Silicon-On-Insulator-Based Gate Drive," *IEEE Transactions on Power Electronics*, vol. 30, no. 3, pp. 1432–1445, March 2015.
- [14] D. Costinett, D. Maksimovic, and R. Zane, "Circuit-Oriented Treatment of Nonlinear Capacitances in Switched-Mode Power Supplies," *IEEE Transactions on Power Electronics*, vol. 30, no. 2, pp. 985–995, Feb 2015.
- [15] Z. Popovic, E. A. Falkenstein, D. Costinett, and R. Zane, "Low-Power Far-Field Wireless Powering for Wireless Sensors," *Proceedings of the IEEE*, vol. 101, no. 6, pp. 1397–1409, June 2013.
- [16] D. Costinett, M. Rodriguez, and D. Maksimovic, "Simple Digital Pulse Width Modulator Under 100 ps Resolution Using General-Purpose FPGAs," *IEEE Transactions on Power Electronics*, vol. 28, no. 10, pp. 4466–4472, Oct 2013.
- [17] D. Costinett, D. Maksimovic, and R. Zane, "Design and Control for High Efficiency in High Step-Down Dual Active Bridge Converters Operating at High Switching Frequency," *IEEE Transactions on Power Electronics*, vol. 28, no. 8, pp. 3931–3940, Aug 2013.
- [18] E. Falkenstein, D. Costinett, R. Zane, and Z. Popovic, "Far-Field RF-Powered Variable Duty Cycle Wireless Sensor Platform," *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 58, no. 12, pp. 822–826, Dec 2011.
- [19] D. Costinett and T. Horikis, "High-order Eigenstate Calculation of Arbitrary Quantum Structures," *J. Phys. A: Math. Theor.*, vol. 42, no. 23, 2009.

PEER-REVIEWED CONFERENCE PUBLICATIONS

- [1] K. Sabi and D. Costinett, "Noise mitigation and delay compensation in high frequency dual current programmed mode control," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 3095–3101.
- [2] B. Liu, R. Ren, Z. Zhang, F. Wang, and D. Costinett, "A sampling scheme for three-phase high switching frequency and speed converter," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 3031–3035.
- [3] L. Jiang and D. Costinett, "A single-stage 6.78 MHz transmitter with the improved light load efficiency for wireless power transfer applications," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 3160–3166.
- [4] J. Li and D. Costinett, "Analysis and design of a series self-resonant coil for wireless power transfer," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 1052–1059.
- [5] R. Chen, Z. Zhang, R. Ren, J. Niu, H. Gui, F. Wang, L. M. Tolbert, D. J. Costinett, and B. J. Blalock, "Common-mode noise reduction with impedance balancing in DC-fed motor drives," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 2515–2520.
- [6] R. Chen, Z. Zhang, R. Ren, J. Niu, H. Gui, F. Wang, L. M. Tolbert, D. J. Costinett, and B. J. Blalock, "Common-mode inductor saturation analysis and design optimization based on spectrum concept," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 2583–2588.
- [7] J. Dyer, Z. Zhang, F. Wang, D. Costinett, L. M. Tolbert, and B. J. Blalock, "Online condition monitoring based dead-time compensation for high frequency SiC voltage source inverter," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 1854–1860.
- [8] Y. Cui, L. M. Tolbert, D. J. Costinett, F. Wang, and B. J. Blalock, "Direct 400 Vdc to 1 Vdc power conversion with input series output parallel connection for data center power supplies," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 1554–1560.
- [9] Z. Zhang, H. Gui, J. Niu, R. Chen, F. Wang, L. M. Tolbert, D. J. Costinett, and B. J. Blalock, "High precision gate signal timing control based active voltage balancing scheme for series-connected fast switching field-effect transistors," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 925–930.
- [10] G. Gabian, J. Gamble, B. Blalock, and D. Costinett, "Hybrid buck converter optimization and comparison for smart phone integrated battery chargers," in *2018 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2018, pp. 2148–2154.
- [11] J. Dyer, Z. Zhang, F. Wang, D. Costinett, L. M. Tolbert, and B. J. Blalock, "Dead-time optimization for SiC based voltage source converters using online condition monitoring," in *2017 IEEE 5th Workshop on Wide Bandgap Power Devices and Applications (WiPDA)*, Oct 2017, pp. 15–19.
- [12] S. Cochran and D. Costinett, "Modeling a 6.78 MHz synchronous WPT rectifier with reduced THD," in *2017 IEEE 18th Workshop on Control and Modeling for Power Electronics (COMPEL)*, July 2017, pp. 1–8.

- [13] G. Gabian, J. Gamble, B. Blalock, and D. Costinett, "Modeling high current integrated power converters," in *2017 IEEE 18th Workshop on Control and Modeling for Power Electronics (COMPEL)*, July 2017, pp. 1–7.
- [14] S. Anwar and D. J. Costinett, "Operating mode transition control of a SiC integrated DC DC powertrain charger for electric vehicles," in *2017 IEEE Transportation Electrification Conference and Expo (ITEC)*, June 2017, pp. 152–157.
- [15] G. Gabian, B. Blalock, and D. Costinett, "5V-to-4V integrated buck converter for battery charging applications with an on-chip decoupling capacitor," in *2017 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2017, pp. 178–183.
- [16] W. Zhang, Z. Zhang, F. Wang, D. Costinett, L. Tolbert, and B. Blalock, "Common source inductance introduced self-turn-on in MOSFET turn-off transient," in *2017 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2017, pp. 837–842.
- [17] C. Zhao and D. Costinett, "A phase-shift dual-frequency selective harmonic elimination for multiple AC loads in a full bridge inverter configuration," in *2017 IEEE Applied Power Electronics Conference and Exposition (APEC)*, March 2017, pp. 2880–2887.
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