My lab is the Stanford University Power Electronics Research Laboratory (SUPER-Lab), and we work in high frequency power electronics. My research interests are broadly in circuits, power electronics, resonant converters, gate drives, high-frequency passive components, Wide Bandgap devices, and finding new applications for converters.

### Academic History

**Massachusetts Institute of Technology**  
**Doctor of Science**  
- Advisor: Prof. David J. Perreault  

**Massachusetts Institute of Technology**  
**Master of Science**  
- Advisor: Prof. David J. Perreault

**Monterrey Institute of Technology**  
**Bachelor of Arts**  
- Graduated with honors

### Employment History

**Stanford University**  
**Associate Professor**  
- Electrical Engineering Department  
  - Stanford, CA  
  - September 2020–Present

**Stanford University**  
**Assistant Professor**  
- Electrical Engineering Department  
  - Stanford, CA  
  - January 2014–August 2020

**University of Michigan**  
**Assistant Professor**  
- Electrical Engineering and Computer Science Department  
  - Ann Arbor, MI  
  - September 2011–December 2013

**General Electric, Global Research Center**  
**Lead Power Electronics Engineer**  
  - Niskayuna, NY  
  - September 2007–June 2011

**Thompson Consulting Inc.**  
**Engineering Consultant**  
  - October 2006–August 2007

**Massachusetts Institute of Technology**  
**Postdoctoral Associate**  
  - Cambridge, MA  
  - May 2006–August 2007

**Comunicacion en Radio y Luz e Emergencia**  
**Chief Design Engineer**  
  - Mexico City, Mexico  
  - January 1999–August 2000

### Professional Activities

**IEEE Power Electronics Society**  
**Associate Editor**  
- Transactions on Power Electronics  
  - January 2015 --> June 2021
IEEE Power Electronics Society

ASSOCIATE EDITOR 2018 –> June 2021
- Journal of Emerging and Selected Topics in Power Electronics

IEEE Power Electronics Society

REVIEWER
- Applied Power Electronics Conference and exhibit
- Energy Conversion Congress and Exhibit
- Control and modeling in power Electronics

IEEE Power Electronics Society

VICE CHAIR OF THE TECHNICAL COMMITTEE 1 2019 –> Present
- Power & Control Core Technologies

IEEE Power Electronics Society

VICE CHAIR OF THE TECHNICAL PROGRAM COMMITTEE
- 12th Annual Energy Conversion Congress and Exposition (ECCE)

IEEE Power Electronics Society

GENERAL CHAIR –> 2017
- IEEE Control and Modeling of Power Electronics Workshop

Awards and Honors

NXP Homebrew RF design Challenge

THIRD PLACE AWARD 2019
- submission "A High Efficiency Switchmode RF Amplifier using a MRF101AN LDMOS Device for a CubeSat Plasma Thruster" by W. Braun, D. Tsifakis, C. Charles, R. Boswell, J. Rivas-Davila

IEEE Applied Power Electronics Conference and Exposition (APEC).

BEST PRESENTATION AWARD Anaheim, CA 2019
- "Empirical Circuit Model for Output Capacitance Losses in Silicon Carbide Power Devices" by Z. Tong, S. Park and J. Rivas-Davila

International Power Electronics Conference

BEST PAPER AWARD Niigata, Japan 2018
- "Design of a GaN-Based Wireless Power Transfer System at 13.56 MHz to Replace Conventional Wired Connection in a Vehicle" K. Surakitbovorn and J. Rivas-Davila.

Workshop on Control and Modeling for Power Electronics

BEST PAPER AWARD Padova, Italy 2018
- "High-Frequency Bidirectional Resonant Converter for High Conversion Ratio and Variable Load Operation" by Lei Gu, Kawin Surakitbovorn, Grayson Zulauf, Sombuddha Chakraborty and Juan Rivas-Davila.

IEEE Industry Applications Society

SECOND PRICE WILL PORTNOY Tampa, FL 2017
- "Inductance Cancellation in RF resonant power converters"

Workshop on Control and Modeling for Power Electronics

BEST PAPER AWARD Vancouver, Ca 2015
- "13.56 MHz high voltage multi-level resonant DC-DC converter," by L. Raymond, W. Liang, L. Gu and J. R. Davila.

CAREER Award

SF FACULTY EARLY CAREER DEVELOPMENT (CAREER) PROGRAM 2013
- Project: "Power Converters with embedded passive components" by Rivas J.

IEEE Transactions on Power Electronics

SECOND PRIZE PAPER AWARD Rhodes, Greece 2012
- High- Frequency Resonant SEPIC Converter With Wide Input and Output Voltage Ranges" by Hu, J.; Sagneri, A.D.; Rivas, J. M.; Han, Y.; Davis, S. M.; Monticelli, D. J. Perreault; IEEE Transactions on Power Electronics, vol.27, no.1, pp.189-200, Jan. 2012

Power Electronics Specialists Conference

CONFERENCE PAPER AWARD 2008
- "A Very High Frequency dc-dc Converter Based on a Class Φ2 Resonant Inverter" by Juan M. Rivas, Olivia Leitermann, Yehui Han and David J. Perreault.
IEEE Transactions on Power Electronics

Best Paper Award

“Resistance Compression Networks for Radio-Frequency Power conversion” by Han Y, Leitermann O, Jackson D, Rivas J, Perreault D. IEEE Transactions on Power Electronics, Page(s): 41-53, Jan 2007.

Publications

Refereed Journal Publications

Optimized Resonators for Piezoelectric Power Conversion
WD Braun, EA Stolt, L Gu, J Segovia-Fernandez, S Chakraborty, R Lu, ...
IEEE Open Journal of Power Electronics

Small-and Large-Signal Dynamic Output Capacitance and Energy Loss in GaN-on-Si Power HEMTs
J Zhuang, G Zulauf, J Roig-Guitart, J Plummer, J Rivas
IEEE Transactions on Electron Devices

Wideband PPT Class Φ2 Inverter using Phase-Switched Impedance Modulation and Reactance Compensation
Z Tong, L Gu, J Rivas-Davila
IEEE Transactions on Industrial Electronics

Push–Pull Class RF Power Amplifier
L Gu, G Zulauf, Z Zhang, S Chakraborty, J Rivas-Davila
IEEE Transactions on Power Electronics

Optimized design of multi-mhz frequency isolated auxiliary power supply for gate drivers in medium-voltage converters
OC Spro, P Lefranc, S Park, JM Rivas-Davila, D Peftitsis, OM Midtgård, ...
IEEE Transactions on Power Electronics

6.78-MHz wireless power transfer with self-resonant coils at 95% DC–DC efficiency
L Gu, G Zulauf, A Stein, PA Kyaw, T Chen, JMR Davila
IEEE Transactions on Power Electronics

Design and fabrication of three-dimensional printed air-core transformers for high-frequency power applications
Z Tong, WD Braun, JM Rivas-Davila
IEEE Transactions on Power Electronics

Lightweight High Voltage Generator for Untethered Electroadhesive Perching of Micro Air Vehicles
S Park, DS Drew, S Follmer, J Rivas-Davila
IEEE Robotics and Automation Letters

The impact of multi-MHz switching frequencies on dynamic on-resistance in GaN-on-Si HEMTs
G Zulauf, M Guacci, JM Rivas-Davila, JW Kolar
IEEE Open Journal of Power Electronics

Decentralized carrier phase shifting for optimal harmonic minimization in asymmetric parallel-connected inverters
J Poon, B Johnson, SV Dhople, J Rivas-Davila
IEEE Transactions on Power Electronics

A simple method to combine the output power from multiple class-E power amplifiers
K Surakitbovorn, JM Rivas-Davila
IEEE Journal of Emerging and Selected Topics in Power Electronics
Origins of Soft-switching Coss Losses in SiC Power MOSFETs and Diodes for Resonant Converter Applications
Z Tong, J Roig-Guitart, T Neyer, JD Plummer, JM Rivas-Davila
IEEE Journal of Emerging and Selected Topics in Power Electronics

Modular ON/OFF and Phase-Shifting for High-Speed Radio Frequency Power Modulation
K Surakitbovorn, JM Rivas-Davila
IEEE Open Journal of Power Electronics

Output capacitance loss characterization of silicon carbide schottky diodes
Z Tong, G Zulauf, JL Xu, JD Plummer, J Rivas-Davila
IEEE Journal of Emerging and Selected Topics in Power Electronics

On the techniques to utilize SiC power devices in high-and very high-frequency power converters
Z Tong, L Gu, Z Ye, K Surakitbovorn, J Rivas-Davila
IEEE Transactions on Power Electronics

A hybrid cockcroft-walton/dickson multiplier for high voltage generation
S Park, J Yang, J Rivas-Davila
IEEE Transactions on Power Electronics

Cascade GaN/SiC: A wide-bandgap heterogenous power device for high-frequency applications
J Xu, L Gu, Z Ye, S Kargarrazi, JM Rivas-Davila
IEEE Transactions on Power Electronics

A multiresonant gate driver for high-frequency resonant converters
L Gu, Z Tong, W Liang, J Rivas-Davila
IEEE Transactions on Industrial Electronics

On the optimization of a class-E power amplifier with GaN HEMTs at megahertz operation
KN Surakitbovorn, JM Rivas-Davila
IEEE Transactions on Power Electronics

High-frequency bidirectional resonant converter for high conversion ratio and variable load operation
L Gu, K Surakitbovorn, G Zulauf, S Chakraborty, J Rivas-Davila
IEEE Journal of Emerging and Selected Topics in Power Electronics

Single-turn air-core coils for high-frequency inductive wireless power transfer
G Zulauf, JM Rivas-Davila
IEEE Transactions on Power Electronics

Effect of Class 2 Ceramic Capacitor Variations on Switched-Capacitor and Resonant Switched-Capacitor Converters
J Xu, L Gu, J Rivas-Davila
IEEE Journal of Emerging and Selected Topics in Power Electronics

A method to eliminate discrete inductors in a class-E inverter used in wireless power transfer applications
K Surakitbovorn, JM Rivas-Davila
IEEE Journal of Emerging and Selected Topics in Power Electronics

COSS Losses in 600 V GaN Power Semiconductors in Soft-Switched, High- and Very-High-Frequency Power Converters
G Zulauf, S Park, W Liang, KN Surakitbovorn, J Rivas-Davila
IEEE Transactions on Power Electronics

Active power device selection in high-and very-high-frequency power converters
G Zulauf, Z Tong, JD Plummer, JM Rivas-Davila
IEEE Transactions on Power Electronics
Duty cycle and frequency modulations in class-e dc–dc converters for a wide range of input and output voltages
S Park, J Rivas-Davila
• IEEE Transactions on Power Electronics

Measurements for Superjunction MOSFETs: Limitations and Opportunities
GD Zulauf, J Roig-Guitart, JD Plummer, JM Rivas-Davila
• IEEE Transactions on Electron Devices

Implementing an impedance compression network to compensate for misalignments in a wireless power transfer system
J Choi, J Xu, RMakhoul, JMR Divala
• IEEE Transactions on Power Electronics

A wide-input-range high-efficiency step-down power factor correction converter using a variable frequency multiplier technique
L Gu, W Liang, M Praglin, S Chakraborty, J Rivas-Davila
• IEEE Transactions on Power Electronics

An integrated RF power delivery and plasma micro-thruster system for nano-satellites
W Liang, C Charles, L Raymond, A Studchbery, K Surakitbovorn, L Gu, ...
• Frontiers in Physics

High-frequency, high-power resonant inverter with eGaN FET for wireless power transfer
J Choi, D Tsukiyama, Y Tsuruda, JMR Davila
• IEEE Transactions on Power Electronics

Vacuum Testing of a Miniaturized Switch Mode Amplifier Powering an Electrothermal Plasma Micro-Thruster
C Charles, W Liang, L Raymond, J Rivas-Davila, RW Boswell
• Frontiers in Physics

Design of a class-DE rectifier with shunt inductance and nonlinear capacitance for high-voltage conversion
S Park, JM Rivas
• IEEE Transactions on Power Electronics

Low-mass RF power inverter for cubesat applications using 3-D printed inductors
W Liang, L Raymond, M Praglin, D Biggs, F Righetti, M Cappelli, ...
• IEEE Journal of Emerging and Selected Topics in Power Electronics

3-D-printed air-core inductors for high-frequency power converters
W Liang, L Raymond, J Rivas
• IEEE Transactions on Power Electronics

13.56 MHz high density DC–DC converter with PCB inductors
W Liang, J Glaser, J Rivas
• IEEE Transactions on Power Electronics

High-frequency resonant SEPIC converter with wide input and output voltage ranges
J Hu, AD Sagneri, JM Rivas, Y Han, SM Davis, DJ Perreault
• IEEE Transactions on Power Electronics

A Very High Frequency DC–DC Converter Based on a Class $\Phi_2$ Resonant Inverter
JM Rivas, O Leitermann, Y Han, DJ Perreault
• IEEE Transactions on Power Electronics

Very-high-frequency resonant boost converters
RCN Pilawa-Podgurski, AD Sagneri, JM Rivas, DI Anderson, DJ Perreault
• IEEE Transactions on Power Electronics
Resistance compression networks for radio-frequency power conversion
Y Han, O Leitermann, DA Jackson, JM Rivas, DJ Perreault
IEEE Transactions on Power Electronics 22 (1), 41-53, 2007

New architectures for radio-frequency DC-DC power conversion
JM Rivas, RS Wahby, JS Shafran, DJ Perreault
IEEE Transactions on Power Electronics 21 (2), 380-393, 2006

Performance improvement of alternators with switched-mode rectifiers
J Rivas, D Perreault, T Keim
IEEE Transactions on Energy Conversion 19 (3), 561-568, 2004

REFEREED CONFERENCE/SYMPOSIA PROCEEDINGS

Real-time Selective Harmonic Minimization using Hybrid Analog/Digital Computing
J Poon, M Sinha, SV Dhople, J Rivas-Davila
2021 IEEE Applied Power Electronics Conference and Exposition (APEC), 1041-1046

1.7 kW 6.78 MHz Wireless Power Transfer with Air-Core Coils at 95.7% DC-DC Efficiency
L Gu, J Rivas-Davila
2021 IEEE Wireless Power Transfer Conference (WPTC), 1-4

Inductorless soft switching dc-dc converter with an optimized piezoelectric resonator
WD Braun, Z Tong, J Rivas-Davila
2020 IEEE Applied Power Electronics Conference and Exposition (APEC), 2272-2278

A physical investigation of large-signal dynamic output capacitance and energy loss in GaN-on-Si power HEMTs at high-frequency applications
J Zhuang, G ZuLauf, J Roig, JD Plummer, J Rivas-Davila
2020 IEEE Energy Conversion Congress and Exposition (ECCE), 189-194

Design and Optimization of 6.78 MHz Wireless Power Transfer with Self-Resonant Coils
L Gu, G ZuLauf, A Stein, PA Kyaw, T Chen, J M Rivas-Davila
2020 IEEE 21st Workshop on Control and Modeling for Power Electronics …

1 kW, Multi-MHz Wireless Charging for Electric Transportation
T Phan, G ZuLauf, JA Fan, J M Rivas-Davila
2020 IEEE 21st Workshop on Control and Modeling for Power Electronics …

Low-Ripple High-Voltage DC Generation Using a Serially Segmented Multiphase Voltage Multiplier
S Park, J Rivas-Davila
2020 IEEE Energy Conversion Congress and Exposition (ECCE), 962-968

Demonstration of GaN Impact Ionization Avalanche Transit-Time (IMPATT) Diode
D Ji, B Ercan, J Zhuang, L Gu, J Rivas-Davila, S Chowdhury
2020 Device Research Conference (DRC), 1-2

An Investigation into the Causes of COSS Losses in GaN-on-Si HEMTs
J Zhuang, G ZuLauf, J Roig, JD Plummer, J Rivas-Davila
2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-7

Cascade GaN/SiC power device for MHz switching
J Xu, L Gu, Z Ye, S Kargarrazi, J Rivas-Davila
2019 IEEE Applied Power Electronics Conference and Exposition (APEC), 2780-2785

A compact 45 V-to-54 kV modular DC-DC converter
S Park, L Gu, J Rivas-Davila
2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-7

3-D printed air-core toroidal transformer for high-frequency power conversion
Z Tong, WD Braun, JM Rivas-Davila
2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-7
Miniature high-voltage dc-dc power converters for space and micro-robotic applications
S Park, A Goldin, J Rivas-Davila
• 2019 IEEE Energy Conversion Congress and Exposition (ECCE), 2007-2014

Low-Loss Gate Driving Techniques of the Cascode GaN/SiC Power Device at High Frequencies
J Xu, L Gu, J Rivas-Davila
• 2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-6

On the optimal input voltage of a class-E power amplifier with GaN HEMTs at MHz frequency operation
K Surakitbovorn, L Gu, J Rivas-Davila
• 2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-8

Multiphase gan class-d resonant amplifier for high-intensity focused ultrasound
L Gu, Q Steedman, M Rasmussen, CN Pai, K Brenner, B Ma, AS Ergun, ...
• 2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-6

MRI compatible dc modulator for an envelope tracking transmitter
WD Braun, L Gu, G Scott, J Rivas-Davila
• 2019 20th Workshop on Control and Modeling for Power Electronics (COMPEL), 1-4

Empirical Circuit Model for Output Capacitance Losses in Silicon Carbide Power Devices
Z Tong, S Park, J Rivas-Davila
• 2019 IEEE Applied Power Electronics Conference and Exposition (APEC), 998-1003

A wide input range isolated stacked resonant switched-capacitor dc-dc converter for high conversion ratios
Y Li, L Gu, A Haraia, Y Ishizuka, J Rivas-Davila, S Sanders
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …

A study on off-state losses in silicon-carbide schottky diodes
Z Tong, G Zulauf, J Rivas-Davila
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …

Designing a 40.68 MHz power-combining resonant inverter with eGaN FETs for plasma generation
J Choi, Y Ooue, N Furukawa, J Rivas
• 2018 IEEE Energy Conversion Congress and Exposition (ECCE), 1322-1327

60 V-to-35 kV input-parallel output-series DC-DC converter using multi-level class-DE rectifiers
S Park, L Gu, J Rivas-Davila
• 2018 IEEE Applied Power Electronics Conference and Exposition (APEC), 2235-2241

Considerations for active power device selection in high and very high frequency power converters
G Zulauf, Z Tong, J Rivas-Davila
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …

Effect of class 2 ceramic capacitance variations on switched capacitor and resonant switched capacitor converters
J Xu, L Gu, E Hernandez, J Rivas-Davila
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …

Substrate Bias Effect on E-Mode GaN-on-Si HEMT Coss Losses
J Zhuang, G Zulauf, J Rivas-Davila
• 2018 IEEE 6th Workshop on Wide Bandgap Power Devices and Applications (WiPDA …

Design of a GaN-based, inductor-less, wireless power transfer system at 40.68 MHz
K Surakitbovorn, J Rivas-Davila
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …
Design of a 13.56 MHz dc-to-dc resonant converter using an impedance compression network to mitigate misalignments in a wireless power transfer system
J Choi, J Xu, R Makhouli, J Rivas
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …

Estimating the reliability of series-connected schottky diodes for high-frequency rectification
S Park, G Zulauf, J Rivas-DaviLA
• 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics …

FPGA-based Dynamic Duty Cycle and Frequency Controller for a Class-E2DC-DC Converter
S Park, J Rivas-DaviLA
• 2018 International Power Electronics Conference (IPEC-Niigata 2018-ECCE Asia …

High-frequency resonant converter with synchronous rectification for high conversion ratio and variable load operation
L Gu, K Surakitbovorn, J Rivas-DaviLA
• 2018 International Power Electronics Conference (IPEC-Niigata 2018-ECCE ASIA …

Evaluation of GaN transistor losses at MH frequencies in soft switching converters
K Surakitbovorn, JR Davila
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

Power loss of GaN transistor reverse diodes in a high frequency high voltage resonant rectifier
S Park, J Rivas-DaviLA
• 2017 IEEE Applied Power Electronics Conference and Exposition (APEC), 1942-1945

Design of very-high-frequency synchronous resonant DC-DC converter for variable load operation
L Gu, W Liang, JR Davila
• 2017 IEEE Energy Conversion Congress and Exposition (ECCE), 3447-3454

Output capacitance losses in 600 V GaN power semiconductors with large voltage swings at high-and very-high-frequencies
G Zulauf, W Liang, K Surakitbovorn, J Rivas-DaviLA
• 2017 IEEE 5th Workshop on Wide Bandgap Power Devices and Applications (WiPDA …

A unified model for high-power, air-core toroidal PCB inductors
G Zulauf, W Liang, J Rivas-DaviLA
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

A multi-resonant gate driver for Very-High-Frequency (VHF) resonant converters
L Gu, W Liang, J Rivas-DaviLA
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

Isolated resonant dc-dc converters with a loosely coupled transformer
S Park, J Rivas-DaviLA
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

Structurally supportive RF power inverter for a CubeSat electrothermal plasma micro-thruster with PCB inductors
W Liang, L Raymond, JR Davila, C Charles, R Boswell
• 2017 IEEE Applied Power Electronics Conference and Exposition (APEC), 2141-2145

Implementing an impedance compression network to correct misalignment in a wireless power transfer system
J Choi, J Rivas
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

A portable electrostatic precipitator to reduce respiratory death in rural environments
S Talukder, S Park, J Rivas-DaviLA
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …
Universal line input power factor preregulator using VFX technique
L Gu, W Liang, M Praglin, S Chakraborty, J Rivas-Davila
• 2017 IEEE Applied Power Electronics Conference and Exposition (APEC), 1810-1815

The “Smart Dim Fuse”: A new approach to load control as a distributed energy resource
A Goldin, R Rajagopal, C Rivetta, JMR Davila
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

A compact RF power inverter with reduced EMI for a CubeSat electrothermal micro-thruster
W Liang, X Cui, L Raymond, L Gu, C Charles, R Boswell, J Rivas-Davila
• 2017 IEEE 18th Workshop on Control and Modeling for Power Electronics …

Comparison of SiC and eGaN devices in a 6.78 MHz 2.2 kW resonant inverter for wireless power transfer
J Choi, D Tsukiyama, J Rivas
• 2016 IEEE Energy Conversion Congress and Exposition (ECCE), 1-6

Evaluation of a 900 V SiC MOSFET in a 13.56 MHz 2 kW resonant inverter for wireless power transfer
J Choi, D Tsukiyama, J Rivas
• 2016 IEEE 17th Workshop on Control and Modeling for Power Electronics …

Low mass RF power inverter for cubesat plasma thruster using 3D printed inductors
W Liang, L Raymond, M Praglin, D Biggs, F Righetti, M Cappelli, …
• 2016 IEEE 17th Workshop on Control and Modeling for Power Electronics …

Inductance cancellation in RF resonant power converters
M Praglin, L Raymond, JR Davila
• 2016 IEEE Energy Conversion Congress and Exposition (ECCE), 1-7

Resonant bi-polar dc pulse power supply for electroporation applications
L Raymond, W Liang, K Surakitbovourn, JR Davila
• 2016 IEEE 17th Workshop on Control and Modeling for Power Electronics …

A design methodology for class-D resonant rectifier with parallel LC tank
S Park, J Rivas-Davila
• 2016 IEEE 17th Workshop on Control and Modeling for Power Electronics …

13.56 MHz 1.3 kW resonant converter with GaN FET for wireless power transfer
J Choi, D Tsukiyama, Y Tsuruda, J Rivas
• 2015 IEEE Wireless Power Transfer Conference (WPTC), 1-4

27.12 mhz isolated high voltage gain multi-level resonant dc-dc converter
L Raymond, W Liang, K Surakitbovourn, JR Davila
• 2015 IEEE Energy Conversion Congress and Exposition (ECCE), 5074-5080

13.56 MHz high voltage multi-level resonant DC-DC converter
L Raymond, W Liang, L Gu, JR Davila
• 2015 IEEE 16th Workshop on Control and Modeling for Power Electronics …

27.12 MHz GaN resonant power converter with PCB embedded resonant air core inductors and capacitors
W Liang, L Raymond, L Gu, J Rivas
• 2015 IEEE Energy Conversion Congress and Exposition (ECCE), 4251-4256

27.12 MHz GaN Bi-directional resonant power converter
L Gu, W Liang, LC Raymond, J Rivas-Davila
• 2015 IEEE 16th Workshop on Control and Modeling for Power Electronics …

Performance evaluation of diodes in 27.12 MHz Class-D resonant rectifiers under high voltage and high slew rate conditions
LC Raymond, W Liang, JM Rivas
• 2014 IEEE 15th workshop on control and modeling for power electronics …
A high-frequency resonant converter based on the class phi2 inverter for wireless power transfer
J Choi, W Liang, L Raymond, J Rivas
- 2014 IEEE 79th Vehicular Technology Conference (VTC Spring), 1-5

27.12 MHz large voltage gain resonant converter with low voltage stress
L Raymond, W Liang, J Choi, J Rivas
- 2013 IEEE Energy Conversion Congress and Exposition, 1814-1821

A 500 W push-pull dc-dc power converter with a 30 MHz switching frequency
JS Glaser, JM Rivas
- 2010 Twenty-Fifth Annual IEEE Applied Power Electronics Conference and …

Opportunities and challenges in very high frequency power conversion
DJ Perreault, J Hu, JM Rivas, Y Han, O Leitermann, ...
- 2009 Twenty-Fourth Annual IEEE Applied Power Electronics Conference and …

A high-bandwidth high-power inverter
J Sabate, JM Rivas, P Szczesny, L Stevanovic
- 2009 13th European Conference on Power Electronics and Applications, 1-9

A high-frequency resonant inverter topology with low voltage stress
JM Rivas, Y Han, O Leitermann, A Sagneri, DJ Perreault
- 2007 IEEE Power Electronics Specialists Conference, 2705-2717

Design considerations for very high frequency dc-dc converters
JM Rivas, D Jackson, O Leitermann, AD Sagneri, Y Han, DJ Perreault
- 2006 37th IEEE Power Electronics Specialists Conference, 1-11

Resistance compression networks for resonant power conversion
Y Han, O Leitermann, DA Jackson, JM Rivas, DJ Perreault
- 2005 IEEE 36th Power Electronics Specialists Conference, 1282-1292

Gate Drive for Very Fast Resonant Conversion using SiC Switch
Z Tong, L Gu, K Surakitbovorn, JM Rivas-Davila
- 2019 IEEE Energy Conversion Congress and Exposition (ECCE), 6647-665

PATENTS

Passive components for electronic circuits using conformal deposition on a scaffold
JMR Davila, W Liang, LC Raymond
- US Patent 11,031,179 2021

Bipolar DC-DC converter topology using passive voltage reversal
LC Raymond, W Liang, K Surakitbovorn, JMR Davila
- US Patent 10,998,823 2021

Isolated multi-level resonant topologies for wide-range power conversion and impedance matching
LC Raymond, W Liang, JMR Davila
- US Patent 10,855,186 2020

Isolated multi-level resonant topologies for wide-range power conversion and impedance matching
LC Raymond, W Liang, JMR Davila
- US Patent 10,218,276 2019

High frequency induction lighting
JR Goscha, VD Roberts, JM Rivas-Davila, LC Raymond
- US Patent 9,305,765 2016

Magnetic resonance imaging compatible switched mode power supply
JMR Davila, RH Buchwald
- US Patent 8,829,905 2014

Magnetic resonant imaging gradient driver architecture
JMR Davila, LD Stevanovic, JA Sabate
- US Patent 8,760,164 2014

Heat sinks with distributed and integrated jet cooling
M Arik, T Icoz, JMR Davila, CE Seeley, YV Utturkar, SE Weaver Jr
- US Patent 8,496,049 2013
Gradient amplifier system
R LAi, LJ GARCES, JA SABATE, JMR DAViLA, S CHi, WM SKEFFiNGTON
US Patent 8,502,539
2013

Methods for making magnetic components
S Prabhakaran, JS GLASER, LD Stevanovic, JMR Davila
US Patent 8,567,046
2013

Methods and apparatus for a resonant converter
DJ Perreault, JM Rivas, AD Sagneri, O Leiterman, Y Han, ...
US Patent 7,889,519
2011

Switching inverters and converters for power conversion
JS GLASER, JMR Davila
US Patent 7,924,580
2011

Methods and apparatus for resistance compression networks
DJ Perreault, JM Rivas, Y Han, O Leitermann
US Patent 7,535,133
2009

Presentations

DEPARTMENT SEMINARS

Universidad Autonoma de San Luis Potosi
“High-Frequency Power Conversion with Wide Bandgap Semiconductors”
Remote seminar November 13, 2020

University of Pennsylvania
“High-Frequency Power Conversion with Wide Bandgap Semiconductors”
Remote seminar October 27, 2020

Chinese University of Hong Kong
“Very high frequency research directions and wireless power transfer”
Shenzhen, PRC September 12, 2018

ETH, Zurich, Switzerland
“Very high frequency power electronics: Research directions and new applications”
Zurich, Switzerland October 23, 2017

International Workshop on Power Electronics
“High-Frequency Power Converters”
Kyoto, Japan October 27, 2016

Massachusetts Institute of Technology
“Power Electronics at the SUPER-Lab”
Cambridge, MA June 16, 2016

UCLA
“Power Electronics at the SUPER-Lab”
Los Angeles, CA March 28, 2016

PELS chapter at UC Berkeley
“Power Electronics at the SUPER-Lab”
Berkeley, CA November 4, 2015

Stanford University’s Energy and Environment Affiliates Program
“Revolutionizing Power Electronics with Very High Frequency Power Conversion”
Stanford, CA January 14, 2014

Center for Integrated Circuits and Systems at MIT
“Circuit Design for VHF Power Conversion”
Cambridge, MA November 9, 2006

INVITED PLENARY TALKS AND DISTINGUISHED LECTURES

China Power Supply Society Conference
“Design Considerations of Radio Frequency Power Converters”
Shenzhen, China November 1, 2019

International Conference on Silicon Carbide and Related Materials
“Driving Methods for SiC Devices at High-Frequencies”
Kyoto, Japan September 29, 2019

High VOLT Interactive by Texas Instruments
“High-Voltage Low-Current Portable DC-DC Converters”
San Jose, Ca October 10, 2018

Panasonic Corporation
“High-Frequency Power Converters”
Kyoto, Japan October 28, 2016

SFBAC PELS Chapter
“The Trials & Tribulations of Evaluating GaN and SiC Switching Devices”
Santa Clara, Ca September 29, 2016
