

Juan C. Colmenares H.

Electronic Engineer

I am a PhD Candidate and my research focuses on the design, manufacturing, testing and development of power electronics systems using Silicon Carbide (SiC) for a wide variety of purposes. In particular, I have been focusing on high efficiency, high temperature design using SiC power modules for automotive and aerospace applications, respectively. I considered myself as a hard-working engineer with a strong motivation for R&D, innovation and entrepreneurship.

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Date of Birth: 4th of July, 1989
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EDUCATION

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| PhD Candidate, 4th year KTH Royal Institute of Technology, Silicon Carbide(SiC) Group, at the Department of Electrical Energy Conversion, Electrical Engineering School. Stockholm, Sweden. | 2012 - Present |
| Exchange Student KTH Royal Institute of Technology, 60 ECTS Credits in Master Courses and Master Thesis. Stockholm, Sweden. | 2010 - 2011 |
| Electrical Engineer Degree (5 years program) Universidad Simón Bolívar (USB), GPA 4.80/5. Sartenejas, Venezuela. | 2006 - 2012 |

TEACHING EXPERIENCE

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| KTH Royal Institute of Technology Electrical Machines and Drives (EJ2200 - EJ2201) - Laboratory and Project Assistant. Power Electronics (EJ2300 - EJ2301) - Laboratory and Teacher Assistant. | 2012 -2015 |
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WORK EXPERIENCE

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| SiCify AB Founder. KTH Royal Institute of Technology, Start - Up. Stockholm, Sweden. | 2014-Present |
| Industria Eléctrica Gallium C.A Intern. 6 weeks. Engineering Department. Manufacture, design and diagnose of voltage protectors. Caracas, Venezuela. | 2009 |
| PECA C.A Intern. 6 weeks. Warehouse Management of industrial electrical materials, luminaries assembly, installations of voltage diesel power plants. Maracaibo, Venezuela. | 2008 |

AWARDS

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| Graduated Honors “Summa Cum Laude” Universidad Simón Bolívar (USB). Sartenejas, Venezuela. | 2012 |
| Honorable Mention for Master Thesis Universidad Simón Bolívar (USB), “Analysis, Implementation and Experimental Evaluation of a Phase Shifted PWM Control System for a Modular Multilevel Converter “. Sartenejas, Venezuela. | 2011 |
| Student Unions Notable. Academic Performance Award. Universidad Simón Bolívar (USB). Sartenejas, Venezuela. | 2009 |
| Electronic Engineering Student Union's. Academic Performance Award. Universidad Simón Bolívar (USB). Sartenejas, Venezuela. | 2009 |
| Silver medalist in Junior National Mathematics Olympiad Maracaibo, Venezuela. | 2006 |

LANGUAGES

Spanish: Native language.

English: Professional level

Bodwells English Summer School. Vancouver, Canada.

2006

Salisbury English Summer School. Salisbury, United Kingdom.

2005

Berlitz English School. Maracaibo, Venezuela.

2000 - 2006

Swedish: Basic level

KTH Royal Institute of Technology. Stockholm, Sweden.

2010

French: Basic level

Alianza Francesa. Caracas, Venezuela.

2007

PUBLICATIONS

International Journals

[1] **Juan Colmenares**, Dimosthenis Peftitsis, Jacek Rabkowski, Diane-Perle Sadik, Georg Tolstoy, H-P. Nee, "High-Efficiency 312-kVA Three-Phase Inverter using Parallel Connection of Silicon Carbide MOSFET Power Modules," In *IEEE Transactions on Industry Applications*, 2015.

[2] **Juan Colmenares**, Dimosthenis Peftitsis, Jacek Rabkowski, Diane-Perle Sadik, and H-P. Nee. "Dual-function gate driver for a power module with SiC junction field-effect transistors." *IEEE Transactions on Power Electronics*, vol. 29, no. 5 (2014): 2367-2379.

International Conferences

[1] **Juan Colmenares**, Diane-Perle Sadik, Patrik Hilbert, H-P. Nee, "Reliability Analysis of a High-Efficiency SiC Three-Phase Inverter for Motor Drive Applications." In *31st Annual IEEE Applied Power Electronics Conference & Exposition (APEC 2016)*.

[2] Diane-Perle Sadik, Konstantine Kostov, **Juan Colmenares**, H-P. Nee, "Analysis of Parasitic Elements of Silicon Carbide Power Modules with Special Emphasis on Reliability Issues." In *31st Annual IEEE Applied Power Electronics Conference & Exposition (APEC 2016)*

[3] Georg Tolstoy, Per Ranstad, **Juan Colmenares**, Florian Giezendanner, and Hans-Peter Nee. "Experimental evaluation of SiC BJT and SiC MOSFET in a series resonant converter." In *2015 17th European Conference on Power Electronics and Applications (EPE'15-ECCE Europe)*, 2015.

[4] Georg Tolstoy, Per Ranstad, **Juan Colmenares**, Florian Giezendanner, and Hans-Peter Nee. "Dual control used in series-loaded resonant converter with SiC devices." In *2015 International Conference on Power Electronics (ICPE - Seoul 2015-ECCE-ASIA)*, 2015.

[5] Georg Tolstoy, Per Ranstad, **Juan Colmenares**, Dimosthenis Peftitsis, Florian Giezendanner, Jacek Rabkowski, and H-P. Nee. "An experimental analysis on how the dead-time of SiC BJT and SiC MOSFET impacts the losses in a high-frequency resonant converter." In *2014 16th European Conference on Power Electronics and Applications (EPE'14-ECCE Europe)*, pp. 1-10, 2014.

[6] **Juan Colmenares**, Dimosthenis Peftitsis, Georg Tolstoy, Diane Sadik, H-P. Nee, and Jacek Rabkowski. "High-efficiency three-phase inverter with SiC MOSFET power modules for motor-drive applications." In *2014 IEEE Energy Conversion Congress and Exposition (ECCE)*, pp. 468-474, 2014.

[7] Diane-Perle Sadik, **Juan Colmenares**, Dimosthenis Peftitsis, Georg Tolstoy, Jacek Rabkowski, and H-P. Nee. "Analysis of short-circuit conditions for silicon carbide power transistors and suggestions for protection." In *2014 16th European Conference on Power Electronics and Applications (EPE'14-ECCE Europe)*, pp. 1-10, 2014.

[8] **Juan Colmenares**, Dimosthenis Peftitsis, H-P. Nee, and Jacek Rabkowski. "Switching performance of parallel-connected power modules with SiC MOSFETs." In *2014 International Power Electronics Conference (IPEC - Hiroshima 2014-ECCE - ASIA)*, pp. 3712-3717, 2014.

[9] H-P. Nee, Jacek Rabkowski, Dimosthenis Peftitsis, Georg Tolstoy, **Juan Colmenares**, Diane-Perle Sadik, MietekBakowski et al. "High-Efficiency Power Conversion Using Silicon Carbide Power Electronics." In *Materials Science Forum*, vol. 778, pp. 1083-1088. 2014.

[10] Diane-Perle Sadik, **Juan Colmenares**, Dimosthenis Peftitsis, Jang-Kwon Lim, Jacek Rabkowski, and H-P. Nee. "Experimental investigations of static and transient current sharing of parallel-connected silicon carbide MOSFETs." In *2013 15th European Conference on Power Electronics and Applications (EPE'13 - ECCE Europe)*, pp. 1-10, 2013.

[11] **Juan Colmenares**, Dimosthenis Peftitsis, Jacek Rabkowski, and H-P. Nee. "Dual-function gate driver for a power module with SiC junction field transistors." In *2013 IEEE ECCE Asia Downunder (ECCE Asia)*, pp. 245-250, 2013.

SKILLS

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| C/C++ Programming and Visual Basic | Advanced |
| MatLab, Simulink and Lab VIEW | Advanced |
| P-Spice, LT - Spice and PLECS | Advanced |
| Altium, Target and EAGLE | Advanced |
| Autocad 2D | Basic |
| Microsoft Office and Latex | Advanced |

OTHER ACTIVITIES

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| Karate, Brown Belt (1st KYU) | 1994 - 2006 |
| Training Course for Youth to establish enterprises. Igez y UNIMET, Maracaraibo, Venezuela. | 2006 |
| Sales Course. Maracaibo. | 2006 |
| FSAE Team. Electronic Division Member. Universidad Simón Bolívar (USB). Sartenejas, Venezuela. | 2009 - 2010 |

REFERENCES

Hans-Peter Nee, Professor.

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Jose Restrepo, Professor.

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