Samir Kouro

Electronic Engineer, PhD, MSc

Info & Contact

Born March 14, 1978, Valdivia, Chile

Citizenship Chilean/Belgian

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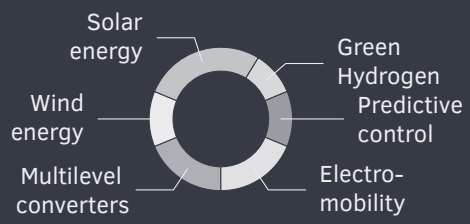
Personal web site

Online profiles

Research areas



Academic output

76 WoS Journals | 148 Conferences

2 Books | 14 Book Chapters

5 patents

R&D Projects: 44

Postdoc: 8 | PhD: 8 | MSc: 22 | Eng:42

Citations: 14,644[1] | 19,232[2] | 25,765[3]

H-index: 44[1] | 49[2] | 52[3]

[1]WoS (Publons) | [2]Scopus | [3]Google Scholar

Languages

ES Native speaker

EN Advanced oral and written

NL Casual speaker

Hobbies

About me

Samir Kouro received the M.Sc. and Ph.D. degrees in electronics engineering from the Universidad Tecnica Federico Santa Maria (UTFSM), Valparaíso, Chile, in 2004 and 2008, respectively. In 2007, he joined the Electronics Engineering Department, UTFSM, where he currently is Associate Professor. From 2019 to 2021 he served as Director of Innovation, and from 2021 to 2022 as General Director of Research, Innovation and Entrepreneurship at UTFSM. Since 2022 he is a Maria Zambrano Research Fellow at Universidad de Sevilla, Seville, Spain. From 2009 to 2011 he was a Postdoctoral Fellow in the Department of Electrical and Computer Engineering, Ryerson University, Toronto, Canada. His research interests include power electronics, renewable energy systems (photovoltaic and wind), green hydrogen, and electro-mobility applications.

Dr. Kouro has directed 44 R& D projects and is founding member and Principal Investigator of the Solar Energy Research Center (SERC-Chile), one of the national priority areas centers of excellence of Chile, and founding member and Deputy Director of the Advanced Center of Electrical and Electronics Engineering (AC3E), one of the technology transfers centers of excellence in Chile. He has coauthored two books, 14 book chapters and over 200 refereed journal and conference papers. He has served as Special Session organizer and Chair of 20 special sessions in conferences and has been Guest Editor for 5 Special Sections in IEEE Journals and one for IET. Dr. Kouro has been Associate Editor of the IEEE Industrial Electronics Magazine since 2022, and for the International Journal of Electrical Power and Energy Systems of Elsevier in 2016-2017.

Dr. Kouro has been included in the 2018 Clarivate Highly Cited Researchers list, received the 2018 IEEE-AIE Outstanding Engineer Award, the 2016 IEEE Industrial Electronics Bimal K. Bose Award for Industrial Electronics Applications in Energy Systems, the 2015 IEEE Industrial Electronics Society J. David Irwin Early Career Award, the 2012 IEEE Power Electronics Society Richard M. Bass Outstanding Young Power Electronics Engineer Award, the 2022 Best paper award of the IEEE Industrial Electronics Magazine, the 2019 Premium Award for the Best Paper inn IET Power Applications journal, the 2015 2nd Prize Paper Award of the IEEE Transactions on Power Electronics, the 2012 IEEE Industry Applications Magazine 1st prize Paper Award, the 2012 IEEE Transactions on Industrial Electronics Best Paper Award, the 2008 IEEE Industrial Electronics Magazine Best Paper Award.

Education

2004–2008	**Ph.D. in Electronic Engineering** *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
2003-2004	**M.Sc. in Electronics Engineering** *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
1997-2002	**Electronics Engineering (*Ingeniería Civil Electrónica*)** *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
1991-1996	**Secondary education** *Windsor School*	Valdivia, Chile
1985-1990	**Primary education** *Sint-Jan Berchmanscollege (now Groenendaalcollege)*	Merksem, Belgium

Experience

Since 2022	**María Zambrano Research Fellow** *Electronic Engineering Department* *Universidad de Sevilla*	Seville, Spain
Since 2018	**Deputy Director** *Advanced Center for Electrical and Electronic Engineering* *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
Since 2014	**Associate Professor** *Department of Electronics Engineering* *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
2021 – 2022	**General Director of Research, Innovation and Entrepreneurship** *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
2019 – 2021	**Director of Innovation and Technology Transfer** *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
2011 – 2014	**Research Academic** *Department of Electronic Engineering* *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile
2009 – 2011	**Postdoctoral Fellow** *Department of Electrical and Computer Engineering,* *Ryerson University*	Toronto, Canada
2004 – 2011	**Associate Researcher** *Department of Electronic Engineering* *Universidad Tecnica Federico Santa Maria*	Valparaiso, Chile

Awards and Honors

Career Awards

[5] 2018 IEEE-AIE Outstanding Engineer Award (IEEE-AIE Ingeniero Sobresaliente 2018), awarded by the Institute of Electrical and Electronics Engineers Region 9 and the Electrical and Electronics Industry Association of Chile (AIE), Santiago, Chile, December 5, 2018.

[4] Highly Cited Researchers 2018, Clarivate Analytics, this list recognizes world-class researchers selected for their exceptional research performance, demonstrated by production of multiple highly cited papers that rank in the top 1% by citations for field and year in Web of Science. November 27, 2018.

[3] 2016 IEEE Industrial Electronics Society Bimal K. Bose Award for Industrial Electronics Applications in Energy Systems, award for "Contributions to power conversion and control of photovoltaic and wind energy systems", received in Florence, Italy, 26 October 2016.

[2] 2015 IEEE Industrial Electronics Society J. David Irwin Early Career Award, "For contributions to research and development of multilevel converter technology and their application to renewable energy conversion systems", received in Yokohama, Japan, 11 November 2015.

[1] "2012 IEEE Power Electronics Society Richard M. Bass Outstanding Young Power Electronics Engineer Award", received in Raleigh, NC, USA, September 20, 2012.

Paper Awards

[6] 2022 IEEE Industrial Electronics Magazine Best Paper Award, to be received in Brussels, Belgium, October 19, 2022.

[5] 2019 Premium Award for Best Paper in IET Electric Power Applications.

[4] 2015 2nd place Prize Paper Award, IEEE Transactions on Power Electronics, received in Milwaukee, USA, September 21, 2016.

[3] 1st prize IEEE Industry Applications Magazine Best Paper Award 2012, received in Orlando, 2013.

[2] 2011 IEEE Transactions on Industrial Electronics Best Paper Award', received in Montreal, Canada, October 27, 2012.

[1] 2008 IEEE Industrial Electronics Magazine Best Paper Award, received in Porto, Portugal, November 4, 2009.

Other Honors

[11] IEEE Distinguished Lecturer Industrial Electronics Society, invited by Universidad Técnica del Norte, Ibarra, Ecuador; and by Universidad San Francisco de Quito, Quito, Ecuador, 29 May - 2 June, 2019.

[10] Elevated to IEEE Senior Member in 2017.

[9] Distinguished Lecturer UTFSM, in merit to the recognition given by the students to the teaching performance during 2015, Valparaiso, 23 August 2016.

[8] "Student Travel Grant", IEEE 38th Annual Power Electronics Specialists Conference (PESC'07), Orlando, Florida, USA, June, 2007.

[7] The "Ismael Valdés Valdés" award from the Chilean Institute of Engineers in recognition of skills for organizing and directing, moral conditions, and good technical preparation, Santiago, Chile, 11 November 2005.

[6] Distinguished as one of "The 100 leaders of the country" by El Mercurio, Santiago, Chile, 2 October 2004.

[5] Distinguished as "The youngest researcher granted a Fondecyt project", award received from The President of the Republic (Ricardo Lagos), Santiago, Chile, 18 May 2004.

[4] Doctoral scholarship, Universidad Técnica Federico Santa María, 2004–2008.

[3] Master in Science scholarship, Universidad Técnica Federico Santa María, 2002–2003.

[2] Awarded with "The academic merit scholarship", Universidad Técnica Federico Santa María, 1997-2002 (throughout the complete engineering program.

[1] Member of "The List of Honor of Students of Universidad Técnica Federico Santa María", from its creation in 2000 until graduation in 2002.

Projects

Research and Development Projects

[31] Principal Investigator, FONDECYT project no. 1221741, "Efficient wide output voltage range power converters for universal electric vehicle fast charging stations," period: April 2022 – April 2025.

[30] Coinvestigator, FONDECYT project no. 1220346, "Improvement of Energy Efficiency and Availability of Low-Voltage DC Distribution Systems", period: April 2022 – April 2025.

[29] Principal Investigator, FONDECYT project no. 1191532, "Interleaved and Bidirectional Partial Power DC-DC Converters for Photovoltaic and Energy Storage Applications". Period: April 2019 – March 2022.

[28] Associate Researcher, ANID REDES no. 190134, "Power electronics and drives for automotive applications", with RICE research center at University of West Bohemia, Pilsen, Czech Republic. Period: 2020–2021.

[27] Coinvestigator, FONDECYT project no. 1191680, "Fuel Cell Lifespan extension in Hybrid Systems: Energy Management Strategies for Electromobility'. Period: April 2019 – March 2023.

[26] Coinvestigator, FONDECYT project no. 1191376, "DC-DC converters for direct integration of photovoltaic systems into the copper electro-refining process". Period: April 2019 – March 2022.

[25] Associate Researcher, FONDEF project no. IT18I0090, "High power modular lighting LED power driver based on partial power converter", período 2019–2021.

[24] Principal Researcher, Fondequip no. EQM180215, "Battery Emulator for application in electromobility, renewable energies and micro-grids". Period: December 2018 – July 2020.

[23] Executive Director, "Science-based Innovation (Innovación basada en ciencia)", PMI–InES FSM1402, Ministery of Education. Period: Jan. 2018 - Feb. 2019.

[22] Associate researcher, "AtamoS-TEC: Programa de investigación y desarrollo de tecnologías fotovoltaicas de alta radiación y clima desértico". Period: Jan. 2018 - 2022.

[21] Principal researcher, CONICYT REDES no. 170213, "DC-DC converter topologies and control for DC distributed electric vehicle fast charging stations", with the Havelaar Electric Vehicle Research Centre of the University of Toronto, Period Jan. 2018 - Jan. 2020.

[20] Associate researcher, CONICYT REDES no. 170217, "Control Strategies and hardware topologies for the operation of Energy Storage system in microgrids", with the LAPLACE laboratory of the University of Toulouse, Period Jan. 2018 - Jan. 2020.

[19] Principal Investigator, FONDECYT project no. 1171823, "High Efficiency Partial Power DC-DC Converters for String and Multi-string Photovoltaic Systems". Period: March 2017 – March 2019.

[18] International Associated Researcher, Project TEC2016-78430-R "Sistemas Hibridos de Almacenamiento de Energía para la Mejora en la Gestión de Redes Eléctricas del Futuro", Plan Estatal 2013-2016 Retos - Proyectos I+D+i, España, December 2016 – December 2020.

[17] Principal Investigator, FONDECYT project no. 1151426, "Power converters and control for DC photovoltaic energy conversion systems". Period: March 2015 – March 2017.

[16] Co-researcher, FONDECYT regular no. 1150829, "Predictive control of High Power Inverters". Period: March 2015 – March 2017.

[15] Titular Researcher, 3rd National Program For Basal Funding of Science and Technology Centers of Excellence (CONICYT), project FB0008 "Advanced Center for Electrical and Electronic Engineering (AC3E)". Period: October 2014 – October 2019.

[14] Principal Investigator, FONDECYT project no. 1131041, "Multilevel converter configurations for multiphase and open-end winding PMSG Wind Energy Conversion Systems". Period: March 2013 – March 2015.

[13] Principal Investigator, FONDAP Center of Excellence project no. 15110019: "Solar Energy Research Center, SERC Chile", January 2013 – to date.

[12] Associated Researcher, AKA-CONICYT project: "Environmental impact analysis, and sustainability - efficiency based criteria for solar energy projects in Northern Chile". Period: 2013–2015.

[11] Principal researcher, CONICYT - MEC (Attraction of Advanced Human Capital Short Stay Modality) n°: 80130057: "Analysis and development of low-voltage multilevel converter topologies for photovoltaic systems" with Prof. Thierry Meynard as visiting acholar. Period 2014-2015.

[10] Principal researcher, CONICYT REDES no. 130112, "Renewable energy conversion systems and smart grid research network", Period 2014.

[9] International Associated Researcher, Project P11-TIC-7070 "Tecnologías Avanzadas de Conversión Electrónica de Potencia y Estrategias de Operación para la Integración de Energías Renovables (ARES)", Proyectos de Excelencia de la Junta de Andalucía, España, March 2013 – September 2017.

[8] International Associated Researcher, Project ENE2012-36897 "Sistemas Híbridos Distribuidos de Conversión y Almacenamiento de Energía Fotovoltaica", Proyecto Plan Nacional I+D del 2012, España, January 2013 – December 2015.

[7] Principal Investigator, FONDECYT project no. 1110783, "Multilevel Multi-string Topologies for Large Scale Grid Connected Photovoltaic Energy Conversion Systems". Period: March 2011 – March 2013.

[6] Associated Researcher, 2nd National Program For Basal Funding of Science and Technology Centers of Excellence (CONICYT), project no. FB0821, "Valparaiso Center For Science And Technology (CCTVal)". Period: March 2009 – October 2014.

[5] Principal Investigator, FONDECYT project no. 1080582, "Multilevel Converter Interfaces for Photovoltaic and Wind Power Conversion Systems". Period: March 2008 – March 1010.

[4] Principal Investigator, FONDECYT project no. 1060423, "Advanced Control Techniques for Performance Improvements of Multilevel Converters for High Power Applications". Period: March 2006 – March 2008.

[3] Young Researcher, Scientific Millennium Nucleus on Industrial Electronics and Mechatronics (NEIM), project no. P04-048-F, of the Millennium Science Initiative (ICM-Mideplan). Period: October 2005 – October 2008.

[2] Principal Investigator, FONDECYT project no. 1040183, "Direct Torque Control of Multilevel Converter Fed Induction Motors". Period: March 2004 – March 2006.

[1] Principal Investigator, UTFSM project no. 23.12.15, "Wind Energy Conversion Systems based on Open-End Winding Permanent Magnet Synchronous Generators". Period 2012.

Industry and Public Sector

[13] Role/Activity: Senior R&D scientist. Company: HIF (Highly Innovative Fuels), Project title: under embargo due to NDA. Period: May-August 2022.

[12] Role/Activity: Senior R&D scientist. Company: Sociedad Alemana para la Cooperación Internacional GIZ Chile. Project title: "Estudio para la incorporación de mejoras técnicas en la regulación de los sistemas fotovoltaicos de autogeneración mayores a 100 kW". Period: May-June 2019.

[11] Role/Activity: Senior R&D scientist. Company: TMEIC Japan. Project title: "Dynamic Evaluation of Photovoltaic-ESS Impact in Mining Power System". Period: Feb. 2018–May. 2018.

[10] Role/activity: National Expert. Organization: Ministry of Energy. Project title: "Technological prospecting in the energy sector - Electromobility". Period: Nov. 2017–Jan. 2018.

[9] Role/Activity: Senior R&D scientist. Company: TMEIC Japan. Project title: "Estudios Asociados a Comportamiento Harmónico del Convertidor Samurai". Period: Jun. 2016–Mar. 2017.

[8] Role/Activity: Consultant. Company: Ministerio de Energia. Project title: "Estudio de protecciones asociadas a la instalación de sistemas fotovoltaicos para instalaciones industrial/residencia asociadas a la ley net billing 20571". Period: Jun.–Dec. 2016.

[7] Role/Activity: Senior R&D scientist. Company: Phineal. Project title: "Desarrollo de inversor y sistema almacenamiento para auto eléctrico". Period: Jul. 2015–Dec. 2017.

[6] Role/Activity: Consultant. Company: ADROX. Project title: "Mejora significativa del producto Adrox como nanorecubrimiento industrial de protección para materiales y equipamiento eléctrico/electrónico en segmento de distribución electrica". Period: Sep. 2015–Mar. 2016.

[5] Role/Activity: Senior R&D scientist. Company: Axys Technologies. Project name: "Empaquetamiento inversor fotovoltaico". Period: Mar.–Nov. 2016.

[4] Role/Activity: Consultant. Company: Nanodepot. Project name: "Evaluación preliminar de producto hidrofóbico nanotecnologico para recubrimiento de paneles fotovoltaicos". Period: Sep. 2015–Mar. 2016.

[3] Role/Activity: Consultant. Company: ADROX. Project name: "Protocolo de pruebas en laboratorio para verificar el desempeño del producto adrox". Period: May–Nov. 2015.

[2] Role/Activiy: Senior R&D scientist. Company: Phineal. Project name: "Desarrollo de inversor para auto eléctrico". Period: May 2015–Dec. 2016.

[1] Role/Activity: R&D Engineer. Company: Rockwell Automation. Project Name: "Development of a new medium voltage multilevel inverter". Period: Jan.–Apr. 2011.

Books & Book Chapters

Books

[2] D. Vinnikov, S. Kouro, and Y. Yang (Eds.), "Emerging Converter Topologies and Control for Grid Connected Photovoltaic Systems", MDPI Books, ISBN 978-3-03943-909-6, Feb. 2021.

[1] B. Wu, Y. Lang, N. Zargari and S. Kouro. "Power Conversion and Control of Wind Energy Systems". Wiley-IEEE Press, First Edition, ISBN 978-0-470-59365-3, July 5, 2011. (Also available in Chinese and Persian)

Book Chapters

[14] N. Hassanpour, A. Chub, A. Blinov, S. Kouro, "Power Electronics for Next-Generation Drives and Energy Systems – Volume 1: Converters and Control for Drives, Chapter 8: Partial Power Conversion and its Emerging Applications", IET, accepted, 2023.

[13] C. González-Castaño, C. Restrepo, S. Kouro, E. Vidal-Idiarte and J. Calvente, "Advances in Intelligent Vehicle Control – Chapter: A Bidirectional Versatile Buck–Boost Converter Driver for Electric Vehicle Applications", Edited by Juan A. Cabrera, MDPI, Switzerland, ISBN 978-3-0365-6009-0, pp. 199–219, Nov. 2022. doi

[12] V. Yaramasu, A. Dekka, M. Rivera, S. Kouro, J. Rodriguez, "Multilevel Inverters Control Methods and Advanced Power Electronic Applications – Chapter 4: Model predictive control of multilevel diode-clamped converters", Academic Press, 2021. doi

[11] C. Verdugo, S. Kouro, C. Rojas, M. Perez, T. Meynard, M. Malinowski, "Chapter 2: Five-Level T-type Cascade Converter for Rooftop Grid-Connected Photovoltaic Systems", MDPI Books, ISBN 978-3-03943-909-6, pp. 17–36, Feb. 2021.

[10] N. Muller, S. Kouro, P. Zanchetta, P. Wheeler, G. Bittner, F. Girardi, "Chapter 4: Energy Storage Sizing Strategy for Grid-Tied PV Plants under Power Clipping Limitations", MDPI Books, ISBN 978-3-03943-909-6, pp. 49–65, Feb. 2021.

[9] D. Lopez, F. Flores, S. Kouro, V. Santana, N. Muller, and A. Chub, "Sliding Mode Control of Power Converters in Energy Systems – Chapter: Sliding Mode Based Control of Dual Boost Inverter for Grid Connection", MDPI, ISBN 978-3-03928-099-5, pp. 199-213, June 2020.

[8] R. Barraza, R. Palma, S. Kouro, A. M. Ruz, "El Sol al Servicio de la Humanidad, Historia de la Energía Solar en Chile – Capítulo 7: Desafíos y Oportunidades para la Energía Solar en el Chile Actual", RIL Editores, Oct. 2019.

[7] V. Yaramasu, S. Kouro, A. Dekka, S. Alepuz, J. Rodriguez and M. Duran, "Advanced Control and Optimization Paradigms for Wind Energy Systems – Chapter 5: Power Conversion and Predictive Control of Wind Energy Conversion Systems", Springer, Singapore, pp. 113-139, ISBN 978-981-13-5994-1, Feb, 8, 2019.

[6] S. Rivera, R. Lizana, S. Kouro, and B. Wu, "DC distribution Systems and Microgrids – Chapter 10: Bipolar-type DC microgrids for high-quality power distribution", First Edition, IET, ISBN 978-178-56-1382-1, pp. 245-266, October, 2018.

[5] S. Rivera, S. Kouro, B. Wu, "Technologies and Applications for Smart Charging of Electric and Plug-in Hybrid Vehicles – Chapter 4: Charging architectures for electric and plug-in hybrid vehicles", Springer, ISBN 978-3-319-43649-4, pp. 111-149, 2017.

[4] S. Kouro, B. Wu, H. Abu-Rub and F. Blaabjerg. "Power Electronics for Renewable Energy Systems, Transportation, and Industrial Applications – Chapter 7: Photovoltaic energy conversion systems". First Edition, John Wiley & Sons, ISBN: 9781118634035, pp. 160-198, 30 May, 2014

[3] J. Rodriguez, H. Abu-Rub, M. Perez and S. Kouro."Advanced and Intelligent Control in Power Electronics and Drives – Chapter 6: Application of Predictive Control in Power Electronics: An AC-DC-AC Converter System". First edition, Springer, ISBN 978-3-319-03400-3 pp. 227-248, 2014.

[2] S. Kouro, J. I. León, L. G. Franquelo, J. Rodríguez and B. Wu. "The Industrial Electronics Handbook – Vol. 3: Power Electronics and Motor Drives, Chapter 14: DC–AC Converters". CRC press, Second Edition, ISBN 978-1-4398-0285-4, February 28, 2011.

[1] J. Rodríguez, P. Lezana, S. Kouro, and A. Weinstein. "Power Electronics Handbook, Chapter 11: Single-Phase Controlled Rectifiers". Butterworth-Heinemann, 4th Edition, ISBN 9780128114070, pp. 183-204, Nov. 2, 2017.

Spin-off companies

Since 2017 **Sun and Play** Valparaiso, Chile
Co-founder

Patents

[3] J. Zapata, M. Perez, y S. Kouro, "A partial power converter (PPC) in an electric power system", Chilean Patent 2155-2018, PCT/CL2017/050044, 2018 (Granted).

[2] S. Kouro and H. Renaudineau, "Microinversor submodular en cascada operado con unfolding", Chilean Patent, under evaluation, May 2017.

[1] M. Norambuena, J. Rodriguez, and S. Kouro, "Convertidor Multinivel para el Control y Transmisión de la Eergía Eléctrica," Chilean Patent Req. 201 602 365, Sep. 20, 2016.

Publications in Journals

[79] A. Alcaide, S. Guenter, J. Leon, G. Buticchi, S. Kouro and L. G. Franquelo, "Common DC-link Capacitor Lifetime Extension in Modular dc/dc Converters for Electric Vehicle Fast Chargers via Variable-Angle Interleaved Operation," IEEE Transactions on Industrial Electronics, in press, 2022.

[78] S. Rivera, S. M. Goetz, S. Kouro, P. W. Lehn, M. Pathmanathan, P. Bauer and R. A. Mastromauro, "Charging Infrastructure and Grid Integration for Electromobility", Proceedings of the IEEE, accepted, early access, 2022.

[77] F. Flores-Bahamonde, H. Renaudineau, A. M. Llor, A. Chub and S. Kouro, "The DC Transformer Power Electronic Building Block: Powering Next-Generation Converter Design," IEEE Industrial Electronics Magazine, accepted, in press, Feb. 2022.

[76] C. Rojas, S. Kouro, R. Inzunza, Y. Mitsugi, and A. Alcaide, "Harmonic Impedance Model of Multiple Utility-Interactive Multilevel Photovoltaic Inverters", Energies, Vol. 15, No. 24, Dec. 2022.

[75] S. Rivera, J. Rojas, S. Kouro, P. Lehn, R. Lizana, H. Renaudineau, and T. Dragicevic, "Partial-Power Converter Topology of Type II for Efficient Electric-Vehicle Fast Charging", IEEE Journal of Emerging and Selected Topics in Power Electronics, Vol. 10, No. 6, pp. 7839–7848, Dec. 2022.

[74] D. Lopez-Caiza, H. Renaudineau, N. Muller, F. Flores-Bahamonde, S. Kouro, and J. Rodriguez, "Dual-Boost Inverter for PV Microinverter Application–An Assessment of Control Strategies", Applied Sciences, Vol. 12, No. 12, 5952, June 2022.

[73] O. Husev, C. Roncero-Clemente, O. Matiushkin, D. Vinnikov and S. Kouro, "Novel Concept of Solar Converter with Universal Applicability for DC and AC Microgrids", IEEE Transactions on Industrial Electronics, Vol. 69, No. 5, pp. 4329–4341, May 2022.

[72] H. Renaudineau, A. M. Llor, R. A. Cortes Diaz, C. Rojas, C. Restrepo and S. Kouro, "Photovoltaic Green Hydrogen Challenges and Opportunities: A Power Electronics Perspective," IEEE Industrial Electronics Magazine, Vol. 16, No. 1, pp.31–41, March 2022.

[71] S. Alepuz, S. Busquets-Monge, J. Nicolás-Apruzzese, A. Filbà-Martínez, J. Bordonau, X. Yuan, S. Kouro, "A Survey on Capacitor Voltage Control in Neutral-Point-Clamped Multilevel Converters", Electronics, Vol. 11, No. 4, Feb. 2022.

[70] C. Restrepo, N. Yañez-Monsalvez, C. González-Castaño, S. Kouro, and J. Rodriguez, "A fast converging hybrid MPPT algorithm based on ABC and P& O techniques for PV system under partial shading condition", Mathematics, Vol.9, No. 18, 2021.

[69] O. Behar, R. Peña, S. Kouro, W. Kracht, E. Fuentealba, L. Moran, D. Sbarbaro. "The use of solar energy in the copper mining processes: A comprehensive review", Cleaner Engineering and Technology, Vol. 4, Oct. 2021.

[68] C. González-Castaño, C. Restrepo, S. Kouro, E. Vidal-Idiarte, J. Calvente. "A Bidirectional Versatile Buck–Boost Converter Driver for Electric Vehicle Applications", Sensors, No. 17: 5712, August 2021.

[67] A. Chub, D. Vinnikov, O. Korkh, M. Malinowski and S. Kouro, "Ultra-Wide Voltage Gain Range Microconverter for Integration of Silicon and Thin-Film Photovoltaic Modules in DC Microgrids," IEEE Transactions on Power Electronics, Vol. 36, No. 12, pp. 13763–13778, May 2021.

[66] C. Fuentes, M. Muller, S. Bernet and S. Kouro, "SiC-MOSFET or Si-IGBT: Comparison of Design and Key Characteristics of a 690V Grid-Tied Industrial Two-Level Voltage Source Converter", Energies, Vol. 14, Issue 11, 2021.

[65] D. Concha, H. Renaudineau, M. Hernández, A. Llor, and S. Kouro, "Evaluation of DCX converters for off-grid photovoltaic-based Green Hydrogen production", International Journal of Hydrogen Energy, Vol. 46, Issue 38, pp. 19861-19870, 3 June 2021.

[64] C. González-Castaño, C. Restrepo, S. Kouro, and J. Rodriguez, "MPPT algorithm based on artificial bee colony for PV system", IEEE Access, vol. 9, pp. 43121-43133, 2021.

[63] C. González-Castaño, J. Marulanda, C. Restrepo, S. Kouro, A. Alzate and J. Rodriguez, "Hardware-in-the-Loop to Test an MPPT Technique of Solar Photovoltaic System: A Support Vector Machine Approach", Sustainability (ISSN 2071-1050), Vol. 13, No. 6, March 2021.

[62] S. Rivera, S. Kouro, S. Vazquez, S. Goetz, R. Lizana, E. Romero-Cadaval, "Electric Vehicle Charging Infrastructure – From Grid to Battery", IEEE Industrial Electronics Magazine, vol. 15, no. 2, pp. 37–51, June, 2021.

[61] A. Marquez, J. Leon, R. Portillo, J. Yin, W. Luo, S. Vazquez, S. Kouro, L. Franquelo, "Variable-Angle PS-PWM Technique for Multilevel Cascaded H-Bridge Converters with Large Number of Power Cells", IEEE Transactions on Industrial Electronics, vol. 68, no. 8, pp. 6773-6783, Aug. 2021.

[60] R. Gomez-Merchan, S. Vazquez, A. Marquez, H. Dehghani, J. Leon, J. Pou, C. Rojas, S. Kouro and L. G. Franquelo, "Binary Search-Based Flexible Power Point Tracking Algorithm for Photovoltaic Systems", IEEE Transactions on Industrial Electronics, vol. 68, no. 7, pp. 5909-5920, July 2021.

[59] S. Rivera, R. Lizana, S. Kouro, T. Dragicevic, B. Wu, "Bipolar DC Power Conversion: State-of-the-Art and Emerging Technologies", Journal of Emerging and Selected Topics in Power Electronics, vol. 9, no. 2, pp. 1192-1204, April 2021.

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[17] P. Cortes, S. Kouro, B. La Rocca, R. Vargas, J. Rodriguez, J. I. Leon, S. Vazquez, L. G. Franquelo. "Guidelines for Weighting Factors Design in Model Predictive Control of Power Converters and Drives".IEEE International Conference on Industrial Technology, IEEE-ICIT09, Gippsland, Australia, 10–13 February 2009.

[16] S. Vazquez, J. I. Leon, L. G. Franquelo, J. Rodriguez, P. Cortes, S. Kouro, J. M. Carrasco, O. Martinez. "Model Predictive Control with Constant Switching Frequency Using a Discrete Space Vector Modulation with Virtual State Vectors".IEEE International Conference on Industrial Technology, IEEE-ICIT09, Gippsland, Australia, 10–13 February 2009.

[15] J. I. Leon, S. Kouro, S. Vazquez, L. G. Franquelo, J. M. Carrasco, J. Rodriguez, R. Portillo. "Two-dimensional Modulation Technique for Multilevel Cascaded H-bridge Converters".IEEE International Conference on Industrial Technology, IEEE-ICIT09, Gippsland, Australia, 10–13 February 2009.

[14] S. Kouro, M. Pérez, H. Robles and J. Rodríguez. "Switching Loss Analysis of Modulation Methods Used in Cascade H Bridge Multilevel Converters". 39th IEEE Power Electronics Specialists Conference (PESC08), Rhodes, Greece, pp. 4662–4668, 15–19 June, 2007.

[13] M. Pérez, S. Kouro, J. Rodríguez and B. Wu. "Modified Staircase Modulation with Low Input Current Distortion for Multicell Converters". 39th IEEE Power Electronics Specialists Conference (PESC08), Rhodes, Greece, pp. 1989–1994, 15-19 June, 2008.

[12] C. Silva, S. Kouro, P. Lezana and J. Soto. "Control of an Hybrid Multilevel Inverter for Current Waveform Improvement". 2008 IEEE International Symposium on Industrial Electronics (ISIE 08), Cambridge, UK, pp. 2329–2335, June 30-July 2, 2008.

[11] M. Angulo, P. Lezana, S. Kouro, J. Rodríguez and B. Wu. "Level-shifted PWM for Cascaded Multilevel Inverters with Even Power Distribution". IEEE 38th Annual Power Electronics Specialists Conference (PESC'07), Orlando, Florida, USA, pp. 2373–2378, 17–21 June, 2007.

[10] M. Perez, J. Rodriguez, J. Pontt and S. Kouro. "Power Distribution in Hybrid Multi-cell Converter with Nearest Level Modulation". IEEE International Symposium on Industrial Electronics (ISIE 2007), Vigo, Spain, pp. 736–741, 4–7 June, 2007.

[9] S. Kouro, R. Bernal, C. Silva, J. Rodríguez and J. Pontt. "High performance torque and Flux control for multilevel inverter fed induction motors". The 32nd Annual Conference of the IEEE Industrial Electronics Society (IECON 2006), pp. 805–810, Paris, France, 7–10 November, 2006.

[8] S. Kouro, R. Bernal, H. Miranda, J. Rodríguez and J. Pontt. "Direct Torque Control With Reduced Switching Losses for Asymmetric Multilevel Inverter Fed Induction Motor Drives". IEEE 41st Industry Applications Society Annual Meeting (IAS 2006), vol. 5, pp. 2441–2446, Tampa, Florida, USA, 8–12 October, 2006.

[7] S. Kouro, M. Angulo, J. Rodríguez and J. Pontt. "Multicarrier PWM With DC-Link Ripple Feedforward for Multilevel Inverters". 12th International Power Electronics and Motion Control Conference, (EPE-PEMC06), pp. 234–239, Portoroz, Slovenia, August 30–September 1, 2006.

[6] S. Kouro, J. Rodríguez, J. Pontt and M. Angulo. "Multilevel Inverter Modulation Method With DC-Link Disturbance Compensation". The 31st Annual Conference of IEEE Industrial Electronics Society (IECON 2005), pp. 709–714, Raleigh, North Carolina, USA, 6–10 November, 2005.

[5] J.Pontt, J.Rodriguez, S. Kouro, C. Silva, H. Farías and M. Rotella. "Output Sinus Filter for Medium Voltage Drive with Direct Torque Control". IEEE 40th Industry Applications Society Annual Meeting (IAS 2005), vol. 1, pp. 204–209, Hong Kong, China, 2–6 October, 2005.

[4] J. Rodríguez, S. Kouro, J. Rebolledo and J. Pontt. "A reduced switching frequency modulation algorithm for high power multilevel inverters". IEEE 36th Annual Power Electronics Specialists Conference (PESC'05), pp. 867–872, Recife, Brazil, 12–16 June, 2005.

[3] J. Rodríguez, J. Pontt, C. Silva, S. Kouro and H. Miranda. "A Novel Direct Torque Control Scheme for Induction Machines With Space Vector Modulation". IEEE 35th Annual Power Electronics Specialists Conference (PESC'04), pp. 1392–1397, Aachen, Germany, 20–25 June, 2004.

[2] J. Rodríguez, J. S. Lai, F. Z. Peng and S. Kouro. "Multilevel Inverters: A Survey of Topologies, Controls and applications". *Invited paper*, The 7th Brazilian Power Electronics Conference (COBEP'2003), pp. 33–48, Fortaleza, Brazil, 21–24 September, 2003.

[1] J. Rodríguez, J. Pontt, S. Kouro and P. Correa. "Direct Torque Control with Imposed Switching Frequency and Torque Ripple Minimization in an 11-Level Cascaded Inverter". IEEE 34th Annual Power Electronics Specialists Conference (PESC'03), vol. 2, pp. 501–506, Acapulco, Mexico, 15–19 June, 2003.

Postdoc, PhD, MSc and Undergraduate Supervision

Postdoctoral Fellow Supervision

[7] Postdoctoral fellow supervisor of Dr. Mokhtar Aly 2019 – 2021.

[6] Postdoctoral fellow supervisor of Dr. Freddy Flores, 2018 – 2020.

[5] Postdoctoral fellow supervisor of Dr. Andrii Chub, 2018 – 2019.

[4] Postdoctoral fellow supervisor of Dr. Sebastian Rivera, 2017 – 2018.

[3] Postdoctoral fellow supervisor of Dr. Hugues Renaudineau, 2015 – 2017.

[2] Postdoctoral fellow co-supervisor of Dr. Freddy Flores. Since June 2015 – 2017.

[1] Postdoctoral fellow supervisor of Dr. Christian Rojas, 2013 – 2016.

PhD Thesis Supervision

[8] Daniel Pesántez, "Wide operation range DC-DC converter for electric vehicle charger", entered in 2020.

[7] Carlos Fuentes, "Design and Assessment of a Grid Connected Industrial Full-SiC Converter for 690V Grids", Co-guided with Prof. Steffen Bernet, Double Degree Program with T. U. Dresden and UTFSM, August 2021.

[6] Diana Lopez, "High Voltage Ratio Step-up Converters for Photovoltaic Microinverters", January 2021.

[5] Carlos Reusser, "Converter topologies for Multiphase - Multilevel Wind Energy Conversion Applications", July 2020.

[4] Nicolás Müller, "Energy-Storage for Complementary Services in Grid-Tied PV Systems", Co-guided with Prof. Pat Wheeler and Prof. Pericle Zanchetta, Double Degree Program with University of Nottingham, April 2020.

[3] Matías Aguirre, "Finite Control Set Model Predictive Control for Renewable Energy Conversion Systems", August 2018.

[2] Jaime Zapata, "Partial power dc-dc converters for two stage photovoltaic energy conversion systems", March 2018.

[1] Margarita Norambuena, "Design, Control and Analysis of a Novel Multilevel Converter with Reduced Switch Count", Co-guided with Prof. Jose Rodriguez and Prof. Sibylle Dieckerhoff, Double Degree Program with T.U. Berlin, October 2017.

Master Thesis Supervision

[26] MSc Thesis supervisor. Diego Concha, "Diseño y Simulación de Convertidor DC-DC Reductor Para Integración Directa de Sistemas Fotovoltaicos en Proceso de Electrorefinación de Cobre", April 2020.

[25] MSc Thesis supervisor. Arnau Ibarz "Optimizadores de potencia para sistemas fotovoltaicos basados en convertidores de potencia parcial", International visiting student, Universidad Politécnica de Cataluña (UPC), December 2019.

[24] MSc Thesis supervisor. Charlotte Arnould, "Modelling Heat Dissipation and Optimising the Cooling System in Partial Power DC-DC Converters for Battery Chargers for Electrical Vehicles", co-guided with Dr. Pierre-Olivier Chapuis, Institut National des Sciences Appliquées Lyon (INSA), August, 2019.

[23] MSc Thesis supervisor. Sonia Perez, "Convertidor bidireccional de potencia parcial con operación Vehicle-to-Grid para estaciones de carga semi-rápida", International visiting student, Universidad Politécnica de Cataluña (UPC), July 2019.

[22] MSc Thesis supervisor. Julian Rojas, "Partial power converters for electric vehicle fast-charging stations", June 2019.

[21] MSc Thesis supervisor. Daniel Pesántez,"Convertidores de potencia parcial sin transformador para estaciones de carga rápida de vehículos eléctricos", May 2019.

[20] MSc Thesis supervisor. Ricardo Hernández,"Microinversores Fotovoltaicos Submodulares con Convertidores DC-DC en Cascada y Enlace Senoidal Rectificado para Conexión a Red", Nov. 2018.

[19] MSc Thesis supervisor. Williams Flores, "Micro-inversor fotovoltaico submodular con conexión en cascada a red", April 2018.

[18] MSc Thesis supervisor (co-guided with Béatrice Cabon). Quentin Surirey, "Comparison of DC-DC converters for photovoltaic submodule microinverter", Ecole nationale supérieure de physique, électronique, matériaux, Grenoble INP-Minatec, Grenoble, France, September 2017.

[17] MSc Thesis supervisor. Alexander Morrison, "Convertidor DC-DC de potencia parcial para sistemas fotovoltaicos en configuración string", July 2017.

[16] MSc Thesis supervisor. Guillermo Gimpel, "Evaluation of dc-dc converter stages used in multistring photovoltaic systems", Jan. 2016.

[15] MSc Thesis supervisor. Paz Castillo, "Convertidor fotovoltaico DC-DC para la interfaz directa de energía con el proceso de electrorefinación de cobre", Dec. 2015.

[14] MSc Thesis supervisor. Eduardo Gutiérrez, "Control Predictivo de Convertidor Puente H-NPC para sistemas fotovoltaicos monofasicos conectados a red", Nov. 2015.

[13] MSc Thesis supervisor. Matias Carandell, "Convertidor Puente H-NPC con Devanados Abiertos Como Inversor Central en Aplicaciones Fotovoltaicas Trifasicas de Gran Escala", Jun. 2015.

[12] MSc Thesis supervisor. Nicolás Müller, "Configuración multinivel de media tensión para sistemas de conversión de energía marina", April 2015.

[11] MSc Thesis supervisor. Carlos Fuentes, "Convertidor puente H en cascada para sistemas fotovoltaicos multistring con conexión directa a red de medida tensión y barra colectora DC única", Nov. 2014.

[10] MSc Thesis supervisor. Cristian Verdugo, “Convertidores multinivel tipo T para sistemas de conversión de energía para sistemas de conversión de energía fotovoltaica monofásica multi-sting de baja potencia”, Oct. 2014.

[9] MSc Thesis supervisor. Javier Echeverría, “Convertidor multi-modular dc-dc en cascada para sistemas de conversión de energía fotovoltaica de gran escala con conexión a una red de alta tensión en corriente continua”, Sept. 2014.

[8] MSc Thesis supervisor. Gabriel Estay, thesis title: “Convertidor Híbrido Multinivel para Sistema de Conversión de Energía Eólica con un Generador de Imanes Permanentes Dual Trifásico”. Jan. 2014.

[7] MSc Thesis co-supervisor. Sebastian Rivera, thesis title: “Control Directo de Potencia para Conexión a Red de Convertidores Multinivel”, 2011.

[6] MSc Thesis co-supervisor. Alvaro Moya, thesis title: “Conexión a Red de Sistemas Fotovoltaicos mediante Convertidores Multinivel”, 2010.

[5] MSc Thesis co-supervisor. Bruno La Rocca, thesis title: “Control predictivo de voltaje con eliminación selectiva de armónicas y baja frecuencia de conmutación”, 2009.

[4] MSc Thesis co-supervisor. Daniel Andler, thesis title: “Análisis de Eficiencia de los principales Métodos de Modulación aplicados al Convertidor NPC”, 2009.

[3] MSc Thesis co-supervisor. Hernán Robles, thesis title: “Evaluación de eficiencia de métodos de modulación en inversores multinivel puente H en cascada”, 2009.

[2] MSc Thesis co-supervisor. Rafael Bernal, thesis title: “Adaptación de Control Directo de Torque para Aplicaciones en Accionamientos con Inversores Multinivel”, 2006.

[1] MSc Thesis co-supervisor. Jaime Rebolledo, thesis title: “Modulaciones para Inversores Multinivel Asimétricos”, 2006.

Undergraduate Thesis Supervision

[44] Undergraduate final project supervisor. Nicolás Gonzalez, “Simulación de sistema de tracción para transporte Hyperloop”, en desarrollo.

[43] Undergraduate final project supervisor. Felipe Vargas, “Convertidor dc-dc de potencia parcial para LED ”, en desarrollo.

[42] Undergraduate final project supervisor. Felipe Gil, “Convertidor dc-dc de potencia parcial para poducción de hidrógeno a partir de energía fotovoltaica”, en desarrollo.

[41] Undergraduate final project co-supervisor. Diego Concha, “Diseño y Simulación de Convertidor DC-DC Reductor Para Integración Directa de Sistemas Fotovoltaicos en Proceso de Electrorefinación de Cobre”, April 2020.

[40] Undergraduate final project supervisor. Julian Rojas, “Partial power converters for electric vehicle fast-charging stations”, June 2019.

[39] Undergraduate final project supervisor. Javier Escobar, “Convertidor dc-dc para sistema híbrido de batería ion-litio y supercapacitores para aplicación de electro movilidad”, February 2019.

[38] Undergraduate final project supervisor. Ricardo Hernández,“Microinversor flyback en cascada submodular con inversor puente H Unfolder para conexión a red”, Nov. 2018.

[37] Undergraduate final project supervisor. Williams Flores, “Micro-inversor fotovoltaico submodular con conexión en cascada a red”, April. 2018.

[36] Undergraduate final project supervisor. Freddy Toledo, “Control predictivo de un quasi-z-source inverter para sistemas fotovoltaicos”, Nov. 2017.

[35] Undergraduate final project supervisor. Javier Urrutia, “Generación de potencia controlada orientada a servicios auxiliares en convertidores fotovoltaicos conectados a la red”, October 2017.

[34] Undergraduate final project supervisor. Alexander Morrison, “Convertidor de potencia parcial para inversores fotovoltaicos de dos etapas en configuración string”, July 2017.

[33] Undergraduate final project co-supervisor. Fernando Ruiz, “Modelado de un Sistema de Almacenamiento basado en un banco de SuperCondensadores”, January 2017.

[32] Undergraduate final project supervisor. Andrés Dávila, “Microinversor Fotovoltaico con Dos Etapas Elevadoras”, Nov. 2016.

[31] Undergraduate final project supervisor. Álvaro Collao, “Análisis y evaluación de métodos utilizados para la detección de isla en sistemas de generación fotovoltáica”, April 2016.

[30] Undergraduate final project supervisor. Adrián Vásquez, “Diseño de un puntero laser con celda fotovoltaico y almacenamiento en supercapacitores”, Nov. 2016.

[29] Undergraduate final project supervisor. Guillermo Gimpel, “Evaluation of dc-dc converter stages used in multistring photovoltaic systems”, Jan. 2016.

[28] Undergraduate final project supervisor. Paz Castillo, “Convertidor fotovoltaico DC-DC para la interfaz directa de energía con el proceso de electrorefinación de cobre”, Dec. 2015.

[27] Undergraduate final project supervisor. Bernardo Farías, “Convertidor dc-dc submodular para microinversores fotovoltaicos”, December 2015.

[26] Undergraduate final project supervisor. Eduardo Gutiérrez, “Control Predictivo de Convertidor Puente H-NPC para sistemas fotovoltaicos monofasicos conectados a red”, Nov. 2015.

[25] Undergraduate final project supervisor. Nicolás Müller, “Configuración multinivel de media tensión para sistemas de conversión de energía marina”, April 2015.

[24] Undergraduate final project supervisor. Israel Estay, “Análisis de corrientes de fuga en sistemas fotovoltaicos monofásicos”, March 2015.

[23] Undergraduate final project supervisor. Darwin Cardemil, “Modelado de celdas y módulos fotovoltaicos monofaciales y bifaciales”, July 2015.

[22] Undergraduate final project supervisor. Claudio Sotomayor, “Comparación de sistema solar térmico con solar fotovoltaico para regular temperatura de electrolito en sistema de electrorrefinación de metales”, October 2015.

[21] Undergraduate final project supervisor. Magdalena Iturriaga, “Monitoreo de condiciones y técnicas de análisis predictivo de variadores de frecuencia”, Co-guía César Silva, Nov. 2014.

[20] Undergraduate final project supervisor. Carlos Fuentes, “Convertidor puente h en cascada para sistemas fotovoltaicos multistring con conexión directa a red de medida tensión y barra colectora dc de única”, Nov. 2014.

[19] Undergraduate final project supervisor. Daniel Edwards, “Convertidos puente H-NPC trifásico con devanados abiertos como inversor central en sistemas fotovoltaicos”, Nov. 2014.

[18] Undergraduate final project supervisor. Cristian Verdugo, “Convertidores multinivel tipo T para sistemas de conversión de energía para sistemas de conversión de energía fotovoltaica monofásica multi-sting de baja potencia”, Sept. 2014.

[17] Undergraduate final project supervisor. Alex Medina, “Comparación de métodos de control de búsqueda del punto de máxima potencia en sistemas fotovoltaicos”, Sept. 2014.

[16] Undergraduate final project supervisor. Javier Echeverría, “Convertidor multi-modular dc-dc en cascada para sistemas de conversión de energía fotovoltaica de gran escala con conexión a una red de alta tensión en corriente continua”, Aug. 2014.

[15] Undergraduate final project co-supervisor. Francisco Guentelican, “Análisis de sensibilidad económica para generadores fotovoltaicos particulares”, March 2015.

[14] Undergraduate final project co-supervisor. Gabriel Estay, “Convertidor Híbrido Multinivel para Sistema de Conversión de Energía Eólica con un Generador de Imanes Permanentes Dual Trifásico”. Jan. 2014.

[13] Undergraduate final project supervisor. Roberto Ruiz, project title: Control predictivo de sistemas de conversión de energía fotovoltaica con puente H en cascada trifásico. May 2014.

[12] Undergraduate final project supervisor. Nelson Elorza, project title: ”Estudio De Factibilidad Técnica Y Económica De Un Sistema Fotovoltaico Para Generación Particular Conectado A Red”. May 2013.

[11] Undergraduate final project supervisor. Raul Novoa, project title: ”Diseño y control de un convertidor Dc/Dc con aislación de alta frecuencia para sistemas fotovoltaicos”. Oct. 2013.

[10] Undergraduate final project supervisor. Sebastian Rivera, thesis title: “Control Directo de Potencia para Conexión a Red de Convertidores Multinivel”, 2011.

[9] Undergraduate final project co-supervisor. Francisco Barrios, project title: “Control Predictivo de un convertidor puente H en cascada para aplicaciones fotovoltaicas”. Finished 2011.

[8] Undergraduate final project co-supervisor. Raul Vargas, project title: “Diseño de un emulador de panel fotovoltaico utilizando una topología puente-H”. 2010.

[7] Undergraduate final project supervisor. Alvaro Moya, thesis title: “Conexión a Red de Sistemas Fotovoltaicos mediante Convertidores Multinivel”, 2010.

[6] Undergraduate final project supervisor. Ronald Becker, project title: “Simulación de un convertidor multicelda en cascada regenerativo asimétrico”, 2009.

[5] Undergraduate final project supervisor. Bruno La Rocca, thesis title: “Control predictivo de voltaje con eliminación selectiva de armónicas y baja frecuencia de conmutación”, 2009.

[4] Undergraduate final project supervisor. Daniel Andler, thesis title: “Análisis de Eficiencia de los principales Métodos de Modulación aplicados al Convertidor NPC”, 2009.

[3] Undergraduate final project supervisor. Hernán Robles, thesis title: “Evaluación de eficiencia de métodos de modulación en inversores multinivel puente H en cascada”, 2009.

[2] Undergraduate final project supervisor. Rafael Bernal, thesis title: "Adaptación de Control Directo de Torque para Aplicaciones en Accionamientos con Inversores Multinivel", 2006.

[1] Undergraduate final project supervisor. Jaime Rebolledo, thesis title: "Modulaciones para Inversores Multinivel Asimétricos", 2006.

Keynotes, Tutorials, Workshops, Seminars and Courses

Keynote & Plenary

[26] Plenary Speaker, "The Role of Electronics and Electrical Engineering in Sustainable Energy Transition", International Conference on Electronics and Electrical Engineering (EEEMEET 2022), Dubai, 21 March, 2022.

[25] Keynote speaker, "Cambio climático: porque es urgente actuar y porqué es una oportunidad para Chile", HUAWEI Digital Power Chile Summmit, Santiago, Dec. 3, 2021.

[24] Keynote speaker, "Photovoltaic energy based green hydrogen production - an introduction", Online Meetings of the Worldwide Energy Network (W-ENER 2021), online, November 16, 2021.

[23] Participant, "Science Diplomacy Chile – United States", by MIT Sloan Latin America + US Embassy in Chile and Chile Embassy in US, online, 12-16 July, 2021.

[22] Keynote speaker, "Where will talent go in the era of impact?", Times Higher Education (THE) Innovation and Impact Summit, online April 19-22, 2021.

[21] Keynote speaker, "Electromovilidad e infraestructura de carga de vehículos eléctricos", LVIII Semana de Ciencias, Facultad de Ciencias de la Universidad Autónoma de San Luis Potosí (UASLP), 25 de Marzo de 2021.

[20] Keynote speaker, IEEE IES Student and Young Professional Keynotes Session, "Energy transition: a necessity and opportunity", 46th Annual Conference of the IEEE Industrial Electronics Society (IECON 2020), Singapore, Oct. 19, 2020.

[19] Keynote speaker, "Charging Infrastructure for Electric Vehicles - The Great Challenge of Electromobility", XXIX Congreso Electrónica - Electricidad (INGELECTRA 2020), Oct. 14, 2020.

[18] Keynote speaker, "Innovation and Entrepreneurship for PESC (Participation of Emerging Space Countries)", The Moon Village - Real Opportunities for Industry and Academia, online webinar, Sept. 29, 2020.

[17] Keynote speaker, "Photovoltaic Energy Conversion Systems: Fundamentals and Trends", Online Meetings of the Worldwide Energy Network (W-ENER 2020), Talca, Chile, June 16, 2020.

[16] Keynote speaker, "Partial power converters: Operating principle, benefits and challenges seen through potential applications", 19th International Symposium "TOPICAL PROBLEMS IN THE FIELD OF ELECTRICAL AND POWER ENGINEERING" and "DOCTORAL SCHOOL OF ENERGY AND GEOTECHNOLOGY III",Tartu, Estonia, 14 January, 2020.

[15] Keynote speaker, "Challenges, Opportunities and trends in photovoltaic energy conversion systems", Chilecon 2019 (Webinar version), Valparaiso, Chile, 22 November, 2019.

[14] S. Kouro, plenary presentation, "Transición Energética, ¿Cómo será el transporte del futuro?", Protagonistas 2030 – Ideas que transforman, El Mercurio, Santiago, Chile, 30 de Sept., 2019.

[13] S. Kouro, plenary presentation, "Transición energética, una oportunidad para Chile", EXPO Energía 2019, Santiago, Chile, August 6, 2019.

[12] S. Kouro, plenary presentation, "Trends, challenges and opportunities in photovoltaic energy conversion systems" 1st Seminar series on Next generation power electronics for PV energy systems, Viña del Mar, Chile, 12-13 Dec. 2018.

[11] S. Kouro, plenary presentation, "Transición energética: Desafíos y oportunidades para Chile", III USM TECH INNOVATION SUMMIT, Santiago, Chile, 20 Nov. 2018.

[10] S. Kouro, plenary presentation, "6 Seminario Ayllu - Energía solar, desafíos y oportunidades para Chile", Arica, Chile, 10 August, 2018.

[9] S. Kouro, plenary presentation, "Energías renovables y electro-movilidad desafíos y oportunidades para Chile", Seminario Mercado Energético: Su impacto en el sector empresarial, organizado por Asociación de Empresas de la V Región (ASIVA), Viña del Mar, 21 de Junio, 2018.

[8] S. Kouro, plenary presentation, "Renewable energy in Chile: the potential, reality check and the opportunity", Seminario Chile-China: Energías Alternativas y Sociedad – Proyecciones al Futuro, Sede Sofofa, Santiago, Chile, May 4, 2018.

[7] S. Kouro, plenary presentation, "The Role of Academia to Foster Electromobility in the Country - Initiatives and Experiences", International Seminar on Technology Prospecting in Electromobility, Ministry of Energy, Santiago, Chile, Jan. 9, 2018.

[6] S. Kouro, Plenary Presentation, "Opportunities challenges and trends in photovoltaic energy conversion systems", 13th International Conference on Power Electronics (CIEP 2016), Guanajuato, Mexico, June 20, 2016.

[5] Keynote speaker, "Solar industry technology – Made in Chile", kick-off seminar of the Solar Strategic Program by CORFO, Santiago, Chile, 29 January, 2016.

[4] Keynote speaker, "Research on Photovoltaic Energy Conversion Systems at UTFSM ", IEEE Toronto Section, Seminar on Advanced Technologies in Power System and Power Electronics, September 19, 2015, Toronto, Canada.

[3] Keynote speaker, "Energía solar en plantas mineras: Integración con el proceso y análisis de las pérdidas producidas por la contaminación", Exponor 2015, Antofagasta, Chile, 15 de Mayo de 2015.

[2] J. Rodriguez, F. Blaabjerg, S. Kouro, "Invited plenary: Hints for successful research publication – An Industrial Electronics Perspective", 38th Annual Conference of the IEEE Industrial Electronics Society (IECON 2012), Montreal, Canada, 27 October 2012.

[1] Keynote speaker, "Multilevel Converters: Topologies, Controls and applications". IEEE National Students Conference (Ingelectra 2007), Temuco, Chile, 24 August, 2007.

Tutorials

[13] S. Kouro, D. Vinnikov, Y. Yang, and A. Chub, "Photovoltaic Power Generation Systems: Topologies, Control, Industrial Trends, and Future Challenges", 2020 IEEE 11th International Symposium on Power Electronics for Distributed Generation Systems (PEDG 2020), Dubrovnik, Croatia, 28 September 2020.

[12] S. Kouro, S. Rivera and T. Dragicevic, "Electric Vehicle Charging Infrastructure: distribution, topologies and control", 2020 IEEE 11th International Symposium on Power Electronics for Distributed Generation Systems (PEDG 2020), Dubrovnik, Croatia, 28 September 2020.

[11] S. Kouro, D. Vinnikov, Y. Yang, and A. Chub, "Photovoltaic Power Generation Systems: Topologies, Control, Industrial Trends, and Future Challenges", 45th Annual Conference of the IEEE Industrial Electronics Society (IECON 2019), Lisbon, Portugal, 14 October 2019.

[10] L. Franquelo, J. Leon, S. Kouro, M. Perez, "Tutorial on Multilevel Converters: Present and Future", 38th Annual Conference of the IEEE Industrial Electronics Society (IECON 2012), Montreal, Canada, 26 October 2012.

[9] B. Wu and S. Kouro, "Tutorial: Wind Energy Conversion Systems: fundamentals, topologies and control", 21st IEEE International Symposium on Industrial Electronics (ISIE 2012), Hangzhou, China, 28 May, 2012.

[8] S. Kouro, "Tutorial on Configurations and Control of Wind Energy Conversion Systems", 37th Annual Conference of the IEEE Industrial Electronics Society (IECON 2011), Melbourne, Australia, 7 November, 2011.

[7] S. Kouro, "Tutorial on Configurations and Control of Wind Energy Conversion Systems", 14th European Conference on Power Electronics and Applications (EPE 2011), Birmingham, UK, August 29, 2011.

[6] L. Franquelo, J. I. León, S. Kouro. "Tutorial on Multilevel Converters: Current Developments and Future Trends". IEEE International Conference on Industrial Technology (IEEE-ICIT 2010), Viña del Mar, Chile, 14 March 2010.

[5] L. Franquelo, J. Rodríguez, J. I. León, S. Kouro , M. Pérez and P. Lezana. "Tutorial on Multilevel Converters: Current Developments and Future Trends". IEEE International Conference on Industrial Technology, IEEE-ICIT09, Gippsland, Australia, 12 February 2009.

[4] L. Franquelo, J. Rodríguez, J. I. León, S. Kouro and P. Lezana."Tutorial on Recent Advances on Multilevel Converters". 33rd Annual Conference of the IEEE Industrial Electronics Society (IECON 2007), Taipei, Taiwan, 5–8 November, 2007.

[3] J. Rodríguez, J. I. León, S. Kouro and P. Lezana. "Tutorial on Multilevel Converters". IEEE International Symposium on Industrial Electronics (ISIE 2007), Vigo, Spain, 6 June, 2007.

[2] L. G. Franquelo, J. I. León, J. Rodríguez, S. Kouro and P. Lezana. "Tutorial on Multilevel Converters". 12th International Power Electronics and Motion Control Conference (EPE-PEMC 2006), Portoroz, Slovenia, 29 August, 2006.

[1] J. Rodríguez, S. Kouro and P. Lezana. "Tutorial on Multilevel Converters". International Conference on Power Electronics and Intelligent Control for Energy Conservation (PELINCEC 2005), Warsaw, Poland, 16 October, 2005.

Workshops & Seminars

[48] Moderator, "IEEE PELS DAY: Conversatorio sobre la electrónica de potencia en Chile", IEEE PELS Chile Section Chapter, June 23, 2022.

[47] Invited speaker, "Consejos para una carrera de investigación aplicada en ingeniería", Seminario de Investigación Aplicada en la Industria, Universidad de Talca, April 21, 2022.

[46] Invited speaker, "Rol de instituciones público-privadas en el ecosistema de emprendimiento e innovación", Tercer Ciclo de Charlas – Ruta del Emprendimiento desde la Investigación e Innovación, Hub APTA, Nov. 25, 2021.

[45] Moderator, "Medioambiente y cambio climático", Webinar G9, online, Nov. 23, 2021.

[44] Invited speaker (Webinar), "Energía solar para la transición energética, una oportunidad para Chile", PUCV Online Webinar, Nov. 12, 2021.

[43] Invited speaker (Seminar), "Innovación basada en ciencia y tecnología: la experiencia en el Centro Avanzado de Ingeniería Eléctrica y Electrónica", Jornadas de Conocimiento e Innovación ISA 2021, Bogota, Colombia, Sep. 29, 2021.

[42] Invited speaker (Seminar),"¿Cómo avanzamos con estudios y datos para la toma de decisiones a nivel subnacional?" Webinar Internacional BID Observa, online, Sept. 1, 2021.

[41] Invited speaker (Seminar), "Cambio climático y transición energética – Desafíos y oportunidades de una nueva industria para Chile", Aniversario 29 de la Facultad de Ingeniería, Universidad Católica de la Santísima Concepción, online, Aug. 30, 2021.

[40] Invited panelist, "Desarrollo y Perspectivas de la Energía Solar Fotovoltaica en Magallanes", Online Meetings of the Worldwide Energy Network (W-ENER 2021), online, April 6, 2021.

[39] Key Opinion Leader (Technology Forum), "Seminario HUAWEI Solar: AI Boost LCOE y Soporte a la Red", organizado por HUAWEI, Dec. 9, 2020.

[38] Invited Speaker (Seminar), " Tendencias tecnológicas y oportunidades para la región de Valparaíso" 2a Versión Foro Desafíos Tecnoloógicos Región de Valparaíso, organizado por AIE, online, Dec. 3, 2020.

[37] Invited speaker (Seminar), "Tendencias de la industria de inversores fotovoltaicos y su integración a las redes", organizado por ACESOL, 26 de Nov., 2020.

[36] Moderator (Innovation and Entrepeneurship Forum), "Ciencia, Tecnología, Innovación y Emprendimiento", Jornadas Técnicas del AC3E, Nov. 25, 2020.

[35] Invited speaker (workshop), "Como planificar una línea de investigación y su divulgación efectiva", online workshop for Academics and Researchers from UTFSM, organized by DGIIE - UTFSM, June 23, 2020.

[34] Invited speaker (workshop), "Como planificar una línea de investigación y su divulgación efectiva", online workshop for Academics and Researchers from UTFSM, organized by DGIIE - UTFSM, June 11, 2020.

[33] Invited speaker (workshop), "Técnicas para incrementar la cantidad y calidad de la investigación, y como planificar una carrera de investigación", Jornadas de Investigación, Universidad Católica de la Santísima Concpeción, Concepción, Chile, December 13, 2019.

[32] Invited speaker (workshop), "Como escribir mejores artículos técnicos", Jornadas de Investigación, Universidad Católica de la Santísima Concpeción, Concepción, Chile, December 13, 2019.

[31] Invited speaker, "Transición energética, una oportunidad para Chile", Ciclo de charlas de la Semana Eléctrica UTFSM, Valparaiso, Chile, 7 Oct. 2019.

[30] Invited speaker, "Transición energética, una oportunidad para Chile & líneas de investigación en energía y electromovilidad en el AC3E", Universidad Austral de Chile, Valdivia, Chile, 13 Septiembre, 2019.

[29] Seminar speaker, "Partial power converters: case study and potential applications", TU Dresden, Dresden, Germany, 5 Sept., 2019.

[28] Seminar speaker, "Power converter topologies for photovoltaic energy conversion systems: fundamentals and trends", TU Dresden, Dresden, Germany, 3 Sept., 2019.

[27] Invited speaker, "Integración de energía renovable al sistema eléctrico: nuevas tecnologías fotovoltaicas", Universidad San Francisco de Quito, Quito, Ecuador, June 1, 2019.

[26] Invited speaker, "Investigación asociativa de excelencia en Chile: La experiencia del Centro Avanzado en Ingeniería Eléctrica y Electrónica (AC3E)",Universidad Técnica del Norte, Ibarra, Ecuador, May 30, 2019.

[25] Invited speaker, "Tendencias, desafíos y oportunidades en sistemas de conversión de energía fotovoltaica", Universidad Técnica del Norte, Ibarra, Ecuador, May 30, 2019.

[24] Invited speaker, "Cambio climático, energía y desarrollo humano", Taller +3.0 grados Celcius 2070, Departamento de Arquitectura, UTFSM, Valparaiso, Chile, March 26, 2019.

[23] Invited speaker, "DC-DC Partial power converters and their potential applications", University of Toronto, Canada, Feb. 5, 2019.

[22] Invited speaker, "Trends, challenges and opportunities in photovoltaic energy conversion systems", University of Toronto, Canada, Feb. 1, 2019.

[21] Invited speaker, "Fomentando la Innovación basada en ciencia: experiencia en la USM", Workshop Materiales, nanotecnología e industria: nuevas rutas para la innovación en Chile, Valparaiso, Chile, Jan 9, 2019.

[20] Invited speaker, "Technology for Photovoltaic Energy Systems: Latest Drivers", International Seminar on Key Technologies for Future Energy Systems, Universidad de Santiago de Chile, Santiago, 1 December, 2017.

[19] Invited speaker, "Renewable Energy and Electromobility: a Technology Opportunity for Chile and the Region", The Future of Energy in the Valparaiso Region, Seremi de Energía, UTFSM, Valparaiso, Chile, 23 Nov. 2017.

[18] Invited speaker, "Solar Energy: challenges and opportunities for Chile", Monthly meeting of the Energy Commission of the Colegio de Ingenieros de Chile, Santiago, 16 Nov. 2017.

[17] Invited speaker, "Opportunities, challenges and trends in photovoltaic energy conversion systems", visiting researcher seminar, Institute of Control and Industrial Electronics, Warsaw University of Technology, Warsaw, Poland, 19 September, 2017.

[16] Invited speaker, "Opportunities, challenges and trends in photovoltaic energy conversion systems", visiting researcher seminar, LAPLACE, INP Toulouse, Toulouse, France, January 27, 2017.

[15] Public Policy Workshop: "Guidelines for a national policy for research centers", organized by National Council for Innovation and Development (CNID), Santiago, 14 October 2015 and 28 April 2016.

[14] Invited speaker, "Photovoltaic Energy, a technological opportunity in Chile – A power electronics example", Chile - Europuean Union Solar Energy Workshop, Seville, Spain, November 11, 2014.

[13] Invited speaker, "Energía fotovoltaica, su presente y futuro", Seminario: La ciencia aplicada a la energía y el agua, Copiapo, Chile, 20 August, 2014.

[12] Invited speaker, "Conversión y Control de Sistemas Fotovoltaicos Conectados a la Red", Curso Unidades de Generación y Almacenamiento de Energía para Micro-redes y Tracción Eléctrica, Universidad de Chile, Santiago, Chile, 4-6 August, 2014.

[11] Invited speaker, "Conversion and control of grid-connected photovoltaic systems", Graduate student seminar, Ryerson University, Toronto, Canada, July 30, 2014.

[10] Invited speaker, "Energía solar fotovoltaica ¿Cómo se llega del sol a la red?", Ciclo de Charlas departamento de Electrónica, UTFSM, Valparaiso, Chile, September 2013.

[9] S. Kouro, "Línea 1 SERC Chile: Energía solar en la industria/minería", workshop Propuestas para la Elaboración de la Estrategia Nacional de Energía Solar, Santiago, Chile, 28 November, 2013.

[8] Invited speaker, "Medium voltage converters for renewable energy conversion systems", workshop for IDT, Santiago, Chile, 3 May, 2013.

[7] Invited speaker, "Multilevel Power Converters–An Introduction", Seminar on Energy Conversion Systems, Universidad de Chile, Santiago, April 11, 2013.

[6] Invited speaker, "Sistemas de conversión de energía fotovoltaica", 1er Encuentro Nacional de Energías Renovables No Convencionales (ERNC): Presente y Futuro, Viña del Mar, Chile, September 3, 2012.

[5] Invited speaker, "Power Electronics and Its Applications in Renewable Energy Conversion Systems", Department of Electrical and Computer Engineering Fall 2010 Research Seminar Series, Ryerson University, Toronto, Canada, October 7, 2010.

[4] Invited speaker, "Recent Advances in High Power Converters and their application to renewable energy conversion systems", invited speaker, University of Seville, Seville, Spain, 14 de Julio, 2010.

[3] Invited speaker, "Workshop on Predictive Control: Predictive Control of Grid Connected High Power Converters". IEEE International Conference on Industrial Technology (IEEE-ICIT 2010), Viña del Mar, Chile, 14 March, 2010.

[2] Invited speaker, "Multilevel Converters Technology Overview: Topologies, Modulations and Applications", Internal workshop on multilevel converters, Rockwell Automation, Cambridge, ON, Canada, January 5, 2010.

[1] Invited speaker, "Use of Matlab for Electronics Engineering", *National Matlab Day*, UTFSM, 15 April 2004.

Courses

[11] Invited Professor, "Sistemas de Conversión de Energía Eólica", Universidad de Talca, Online Seminar for Doctorado en Sistemas de Ingeniería y Magister en Conversión de Energpia, through Zoom and Youtube, Sep. 14, 2022

[10] S. Kouro, Co-organizer, "International Course on Solar Photovoltaic Energy (ICPV 2021)", `https://serc-pvcourse.cl/`, 15 session course on power electronics in PV systems, 375 attendants, online, 26-30 July, 2021.

[9] S. Kouro, "Introduction to Photovoltaic Energy Conversion Systems", International Course on Solar Photovoltaic Energy (ICPV 2021), online, 26 July, 2021.

[8] S. Kouro, "Integración de sistemas fotovoltaicos a redes eléctricas - ejemplos de I + D ", II Curso Internacional de Transfererencia de Conocimiento de Energía Solar - Región Centro Sur Andina (Sesión 2), online course, Nov. 6, 2020.

[7] S. Kouro, C. Iturriaga, "Diploma en Estrategias Formativas para la Innovación y el Emprendimiento (DEFIE) - Módulo: Innovación Tecnologica USM", Valparaiso, Chile, August 13, October 22, 2020.

[6] S. Kouro, Course on Physics for Architects, "Energía solar - desde el sol a la red eléctrica", Valparaiso, 29 Nov. 2018.

[5] S. Kouro, "Short Course on Inverters in photovoltaic systems", Chilean Ministry of Energy, Santiago, Chile, 26 August, 2016.

[4] Intensive executive program "Singularity University Chile Summit", Santiago Chile, 26 and 27 April, 2016.

[3] S. Kouro, "Photovoltaic Energy Conversion Systems – Fundamentals, Topologies, and Control", Cursos de Apoyo a la Formación Doctoral en los Programas de Doctorado Universidad de Sevilla, Seville, Spain, 14 November 2014.

[2] S. Kouro, "Sistemas de conversión de energía eólica – configuraciones y control", Cursos de Apoyo a la Formación Doctoral en los Programas de Doctorado Universidad de Sevilla, Seville, Spain, 10 November, 2014.

[1] S. Kouro, "Matlab Course" for academics of the Department of Chemical Processes, UTFSM, 13-14 January, 2004.

Editor

[8] Guest Editor, "Advances in Multilevel Converter/Inverter Topologies and Applications", Energies, Nov. 2020–2022.

[7] Guest Editor, "Special Issue on Emerging Converter Topologies and Control for Grid Connected Photovoltaic Systems", Energies, Nov. 2018–2020.

[6] Guest Editor, "Special Section on Photovoltaic Module and Sub-Module Level Power Electronics and Control". IEEE Transactions on Industrial Electronics, June 2017–May 2019.

[5] Associate Editor of the International Journal of Electrical Power and Energy Systems (JEPE), by Elsevier, 2016–2017.

[4] Guest Editor, "Special Section on Energy Conversion in Next-generation Electric Ships", IEEE Transactions on Energy Conversion, since March 2016 to March 2017.

[3] Guest Editor, Special Issue: "Advances in Multi-MW Wind Energy Conversion Systems", IET Electric Power Applications, since January 2016 to March 2017.

[2] Guest Editor, "Special Issue on Modular Multilevel Converters", IEEE Transactions on Power Electronics, March 2013 to January 2015.

[1] Guest Editor, "Special Section on Modulation Techniques for DC to AC Power Converters". IEEE Transactions on Industrial Electronics, from February 2011 to May 2013.

Chair

[46] Special Session Chair, "Smart control and diagnostics of industrial electronic systems", 49th Annual Conference of the IEEE Industrial Electronics Society (IECON 2023), Singapore, 16-19 October, 2023.

[45] International Steering Committee member, 3rd International Conference on Smart Grid and Renewable Energy (SGRE-2022), Doha, Qatar, 20-22 March 2022.

[44] Special Session Chair, "Advanced Topologies and Control Methods for Multiport Power Converters", 47th Annual Conference of the IEEE Industrial Electronics Society (IECON 2021), Toronto, Canada, 13-16 Oct., 2021.

[43] International Steering Committee, 6th Inernational Conference on Predictive Control of Electrical Drives and Power Electronics (PRECEDE 2021), Jinan, China, 18-20 September 2021.

[42] Technical Track Chair, "Power Electronics and Energy Conversion", IEEE International Conference on Industrial Technology (ICIT 2020), Buenos Aires, Argentina, Feb. 26-28, 2020.

[41] Special Session Chair, "Latest developments in electric vehicle charging infrastructure", IEEE International Conference on Industrial Technology (ICIT 2020), Buenos Aires, Argentina, Feb. 26-28, 2020.

[40] Special Session Chair, "Emerging Converter Topologies and Control for High-Performance PV Systems", 45th Annual Conference of the IEEE Industrial Electronics Society (IECON 2019), Lisbon, Portugal, Oct. 14-17, 2019.

[39] Special Session Chair, "Medium-Voltage High Power Converters", 45th Annual Conference of the IEEE Industrial Electronics Society (IECON 2019), Lisbon, Portugal, Oct. 14-17, 2019.

[38] Special Session Chair, "Battery and Super-capacitor Energy Storage Systems for Renewable Energy Applications", 28th International Symposium on Industrial Electronics (ISIE 2019), Vancouver, BC, Canada, June 12–14 , 2019.

[37] Special Session Chair, "Emerging Converter Topologies and Control Methods for High-Performance small-scale PV Systems", 44th Annual Conference of the IEEE Industrial Electronics Society (IECON 2018), Washington, D.C., USA, October 21 – 23, 2018.

[36] Co-organizer, III USM TECH INNOVATION SUMMIT, in Charge of Energy Transition Program, Santiago, Chile, 20 Nov. 2018.

[35] Co-organizer, "Seminar on Next Generation power electronics for PV energy systems", Viña del Mar, Chile, 12-13 Dec. 2018.

[34] Special Session Chair, "Stability in Power Converters 2", Tenth Annual IEEE Energy Conversion Congress and Exposition (ECCE 2018), Portland, Oregon, USA, Sept. 23–27, 2018.

[33] Chair of the IEEE Power Electronics Society Chile Section Chapter (PEL35), since 2017 to date.

[32] Member of the Program Committee, 4th Symposium on Predictive Control of Electrical Drives and Power Electronics (PRECEDE 2017), Pilsen, Czech Republic, 4-6 September, 2017.

[31] Technical Program Chair, 3rd IEEE Annual Southern Power Electronics Conference, IEEE SPEC 2017, Pto. Varas, Chile, 4-7 December, 2017.

[30] Technical Track Chair, "Power Electronics for Energy Storage Systems", 8th International Symposium on Power Electronics for Distributed Generation Systems (PEDG 2017), Florianópolis, Brazil, 17-20 April, 2017.

[29] Technical Track Chair, “Renewable energy sources and technology”, IEEE 11th International Conference on Compatibility, Power Electronics and Power Engineering (IEEE CPE-POWERENG 2017), Cadiz, Spain, April 4–6, 2017.

[28] Technical Track Chair, “DC-AC Converters”, 2nd IEEE Annual Southern Power Electronics Conference, IEEE SPEC 2016, Auckland, New Zealand, 5-8 December, 2016.

[27] Special Session Chair, “Recent Development on Photovoltaic Energy Systems”,IEEE International Symposium on Industrial Electronics (ISIE 2016), Santa Clara, CA, USA, 8-10 June, 2016.

[26] Special Session Chair, “Recent Advances on Photovoltaic Energy Conversion Systems”, 42nd Annual Conference of the IEEE Industrial Electronics Society (IECON 2016), Florence, Italy, October 23-27, 2016.

[25] Technical Track Chair, “Power converter topologies and control”, 42nd Annual Conference of the IEEE Industrial Electronics Society (IECON 2016), Florence, Italy, October 23-27, 2016.

[24] Special Session Chair on “Energy Storage Systems in Renewable Energy applications” for the IEEE International Conference on Industrial Technology (ICIT 2016), Taipei, Taiwan, 14-17 March, 2016.

[23] Special Session Chair.“Conversion and Control of Photovoltaic Energy Systems”, 41st Annual Conference of the IEEE Industrial Electronics Society (IECON 2015), Yokohama, Japan, November 9–12, 2015.

[22] Special Session Chair. “Multilevel Converters”. IEEE International Symposium on Industrial Electronics (ISIE 2015), Buzios - Rio de Janeiro, Brazil, 3-5 June, 2015.

[21] Special Session Chair. “Grid-Connected Photovoltaic Energy Conversion Systems”. IEEE International Symposium on Industrial Electronics (ISIE 2015), Buzios - Rio de Janeiro, Brazil, 3-5 June, 2015.

[20] Track Chair on “Power Electronics and Renewable Energy Conversion” for the IEEE International Conference on Industrial Technology (ICIT 2015), Seville, Spain, 17-19 March, 2015.

[19] Special Session Chair. “Grid-connected Photovoltaic Systems”. IEEE International Conference on Industrial Technology (ICIT 2015), Seville, Spain, 17-19 March, 2015.

[18] Special Session Chair. “Photovoltaic Converter Topologies and Control”. IEEE International Symposium on Industrial Electronics (ISIE 2014), Istanbul, Turkey, 1-4 June, 2014.

[17] Special Session Chair. “Photovoltaic Converter Topologies and Control’. IEEE International Conference on Industrial Technology (ICIT 2014), Busan, Korea, Feb 26 - March 1, 2014.

[16] International Steering Committee member, 2nd Symposium on Predictive Control of Electrical Drives and Power Electronics (PRECEDE 2013), Munich, Germany, 17-19 October 2013.

[15] Special Session Chair, “Special Session on Modular Multilevel Converters and other Multilevel Converter Topologies and Applications”, 39th Annual Conference of the IEEE Industrial Electronics Society (IECON 2013), Vienna, Austria, Nov. 10-13, 2013.

[14] Special Session Chair, “Special Session on Photovoltaic Energy Conversion Systems”, 39th Annual Conference of the IEEE Industrial Electronics Society (IECON 2013), Vienna, Austria, Nov. 10-13, 2013.

[13] Special Session Chair. “Multilevel Converters I”, IEEE Energy Conversion Congress and Exposition Asia Down Under (ECCE Asia 2013), Melbourne, Australia, 4 June, 2013.

[12] Special Session Chair.“Multilevel Converters Applications, Topologies, Control and Modulation Techniques”. 38th Annual Conference of the IEEE Industrial Electronics Society (IECON 2012), Montreal, Canada, 25-28 October, 2012.

[11] Special Session Chair. “Advanced Topologies and Control for Wind Energy Conversion Systems’.’ 37th Annual Conference of the IEEE Industrial Electronics Society (IECON 2012), Montréal, Canada, 25-28 October, 2012.

[10] Special Session Chair. “Wind Energy Conversion Systems: Advances in Configurations and Control”. 21th IEEE International Symposium on Industrial Electronics (ISIE 2012), Hangzhou, China, 28-31 May, 2012.

[9] Special Session Chair. “Special Session on Multilevel Converters”. 37th Annual Conference of the IEEE Industrial Electronics Society (IECON 2011), Melbourne, Australia, 7–10 November, 2011.

[8] Track Chair for International Electric Machines and Drives Conference (IEEE-IEMDC 2011), Niagara Falls, ON, Canada, 15-18 May, 2011.

[7] Special Session Chair. “Special Session on Multilevel Converters”. 20th IEEE International Symposium on Industrial Electronics (ISIE 2011), Gdansk, Poland, 27–30 June, 2011.

[6] Special Session Chair. “Advances in topologies, control and application of grid-connected converters for wind and photovoltaic energy conversion systems”. The 36th Annual Conference of the IEEE Industrial Electronics Society (IECON 2010), Glendale, Arizona, USA, 7-10 November, 2010.

[5] Special Session Co-Chair. “Multilevel Converters”. 21th IEEE International Symposium on Industrial Electronics (ISIE 2012), Hangzhou, China, 28-31 May, 2012.

[4] Special Session Chair. “Advanced Topologies, Modulation, Synchronization, And Control Techniques For Grid-Connected Power Converters”. The IEEE 2010 International Symposium on Industrial Electronics (ISIE 2010), Bari, Italy, 4–7 July, 2010.

[3] Special Session Co-Chair. "Grid connected renewable energy power conversion systems". The 2010 IEEE International Conference on Industrial Technology (ICIT 2010), Viña del Mar, Chile, 14–17 March, 2010.

[2] Special Session Co-Chair. "Special Session on Multilevel Converters for High Power Applications". 34th Annual Conference of the IEEE Industrial Electronics Society, IECON08, Orlando, Florida, USA, 10–13 November, 2008.

[1] General Chair, 3rd Conference of Young Researchers of the Millennium Science Initiative (ICM, Mideplan, Chilean Government), Punta de Tralca, 27–29 September 2006.

Scientific and Expert Committees

[22] Member of the Expert Evaluation Committee for "The Global Energy Prize 2021", from The Global Energy Association, 2020–2021.

[21] International Advisory Board member, 14th International Conference on Compatibility, Power Electronics and Power Engineering (IEEE CPE-POWERENG 2020), Setúbal, Portugal, 1-3 April, 2020.

[20] International Steering Committee member,5th Southern Power Electronics Conference (COBEP/SPEC 2019), Santos - Sao Paulo, Brazil, December 1-4, 2019.

[19] International Steering Committee member,5th Symposium on Predictive Control of Electrical Drives and Power Electronics (PRECEDE 2019), Quanzhou, China, May 31 - June 2, 2019.

[18] Member of the International Scientific Committee, ELECTRIMACS 2019 Salerno, Italy, 21st-23rd May 2019.

[17] Member of work group, "International Energy Agency IEA – Photovoltaic Power Systems Programme (PVPS)", since 2017 to present.

[16] Invited expert, "Taller de Actualización de la hoja de ruta del Programa de Energía Solar", by CORFO, Santiago, 16 and 31 August, 2017.

[15] Member of the Experts Committee for the definition of the "Long Term Energy Scenarios 2050", Chilean Ministry of Energy, March-April, 2017

[14] Member of the International Advisory Board of the "12th IEEE International Conference on Compatibility, Power Electronics, and Power Engineering (IEEE CPE-Powereng 2018)", Doha, Qatar, 10–12 April, 2018.

[13] Member of the Board of Directors of the "Smart Industry Strategic Program" of CORFO, since January 2016 to date.

[12] Member of the IEEE Industrial Electronics Society Technical Committee on Power Electronics, since October 2014 to date.

[11] Member of the IEEE Industrial Electronics Society Technical Committee on Renewable Energy Systems, since October 2013 to date.

[10] Member of the IEEE Industrial Electronics Society "Student and Young Professionals Activity Committee", served as Student Forum General Chairman, since November 2013 to November 2017.

[9] Organizing Committee member, II Foro Solar2016 (EnerSol 2016), Antofagasta, Chile, 5 October, 2016.

[8] Technical Committee member of 3rd International Seminar on Energy Management in Mining, ENERMIN 2016, Santiago, Chile, 24–26 de Agosto, 2016.

[7] Scientific Committee member of the 12th triennial Electrimacs Conference (Electrimacs 2017), Toulouse, France, 4-6 July, 2017.

[6] Evaluation committee member of the program "Innova Chile" from Corfo, 2016.

[5] Evaluation committee member of the program "Energías – Concurso de Pasantías en el Extranjero para Investigadores Y Profesionales del Sector Público Y Privado, Convocatoria 2016", organized by the Ministry of Energy and Conicyt, for the 2016 call.

[4] Member of the "Cultural and Professional Merits Committee" to assess the Physics Department of UTFSM in the hiring of an Academic for the Area of High Energy Physics, June 2015.

[3] Member of the Conicyt-Fondecyt project evaluation board for Engineering Group 2, from March 2012 to March 2015 (Postdoc, Initiation to research and Regular projects grants).

[2] Member of the Conicyt-Fondequip project evaluation committee for Engineering, 2012.

[1] Organizing committee member. The 2010 IEEE International Conference on Industrial Technology (ICIT 2010), Viña del Mar, Chile, 14–17 March, 2010.

PhD Examination Committees

[7] International PhD Thesis Examination Committee member. Defense by Alba Rodriguez, Universidad Carlos III de Madrid, Sep. 30, 2021.

[6] International PhD Thesis Examination Committee member. Defense by Kepa Odriozola, University of Toulouse, July 23, 2021.

[5] International PhD Thesis Examination Committee member. Defense by Jiapeng Yin, University of Seville, July 9, 2021.

[4] International PhD Thesis Examination Committee member. Defense by Pablo Montero, University of Seville, July 8, 2021.

[3] International PhD Thesis Examination Committee member. Thesis by Jackson Lago, Uiversidade Federal de Santa Catarina, Brasil, June 2015.

[2] International PhD Thesis Examination Committee member. Thesis by Carlos Teixeira, RMIT University, Melbourne, Australia. December 2013.

[1] External PhD Thesis Examination Committee member. Thesis by Claudio Burgos, Universidad de Chile, Santago, Chile. September 2013.

Outreach and Support to Public Policy

Outreach

[28] Keynote speaker, "Charging Infrastructure and Grid Integration for Electromobility", Industrial Seminar at RHONA, Viña del Mar,Sep. 22, 2022.

[27] Keynote speaker, "Como una carrera en STEM puede ayudar a combatir el cambio climático", Ceremonia de Cierre - Campamento STEM USM, Valparaíso, Sept. 9, 2022.

[26] Keynote speaker, "Photovoltaic Energy Based Green Hydrogen Production: An Introduction", Industrial Seminar at RHONA, Viña del Mar,Aug. 18, 2022.

[25] Keynote speaker, "HUAWEI Digital Power Chile Summit - Cumbre de la Descarbonización", Santiago, Chile, December 2, 2021.

[24] Invited speaker, "Rol de instituciones público-privadas en el ecosistema de emprendimiento e innovación", 3er Ciclo de Charlas de la Ruta de Emprendimiento de lla USM - Desde la Investigación e Innovación, online, Nov. 25, 2021.

[23] Invited speaker, "Desafíos y Oportunidades de la Electromovilidad en Chile", Protagonistas 2030 El Mercurio - Construyendo Futuro, online Emol.tv, Oct. 21, 2021.

[22] Radio interview, "Desafios en investigación, desarrollo e innovación en tiempos de pandemia", Radio Universo, April 15, 2021.

[21] Radio interview, Chile Renace (with Nicolás Larraín) - Converzación en tornto a Innovación, Empendimiento y Educación, Radio El Conquistador, March 31, 2021.

[20] Keynote speaker and moderator, Programa Panorama Científico – Energía Asequible no Contaminante, Ministry of Science, Knowledge, Technology and Innovation of Chile, online via Zoom, Mar. 30, 2021.

[19] TV interview, "El camino hacia el desarrollo del hidrógeno verde", TVS Televisión del Senado, Senado Noticias Informa, Jan. 12, 2021

[18] Radio interview, "Innovadores Ciencia & Tech", La Quinta Emprende, 14 Dec., 2020.

[17] Youtube interview, "Lanzamiento de miniserie animada: Con ustedes... El Sol", Youtube streaming, Dec. 28, 2020.

[16] Invited speaker, Conicyt-Explora seminar series: 1000 Scientists 1000 Classrooms, "Cambio climático ¿Cómo nos puede ayudar el Sol?", Escuela Marta Brunet de Macul, Santiago, 19 Nov., 2020.

[15] Radio interview, #MadeINNChile, TXS Radio, Oct. 2, 2020.

[14] Keynote speaker, Mes de la Ciencia, la Tecnología, del Conocimiento y la Innovación, "El rol de los Centros de investigación para enfrentar los desafíos del futuro", online seminar and discussion forum, 22 Oct. 2020.

[13] Keynote speaker, "Transición Energética Una necesidad y Oportunidad para el sector minero", e-ENEXPRO Proveedores Mineros Encuentro Exportador 2020, 27 August, 2020.

[12] Keynote speaker, "Transición Energética Una Necesidad y Oportunidad", Online Meetings of the Worldwide Energy Network (W-ENER 2020), Talca, Chile, July 27, 2020.

[11] Invited speaker and panelist (seminar-discussion forum), "Desafíos y Oportunidades Tecnológicas de la Electromovilidad en Chile", online webinar, June 30, 2020.

[10] Panelist discussion forum, "Rol de las Universidades en el contexto actual de pandemia", Celebración del Día Mundial de la Propiedad Intelectual Cati Valparaíso, June 25, 2020.

[9] Conversatorio: Investigación y tecnología porteña en el ataque al COVID-19. Ciclo de conversaciones en línea: organizado por el Movimiento Valparaíso Ciudadano y transmitido por Facebook Live, 20 mayo 2020.

[8] Invited speaker, Conversatorios Ciudadanos, Ciclo 2 - Educación Cívica en USM, "Ciencia y Tecnología en Tiempos de Cambio – Una miradas desde la Sostenibilidad", Valparaíso, Chile, 5 Diciembre, 2019.

[7] Invited speaker, Conicyt-Explora seminar series: 1000 Scientists 1000 Classrooms, "Energías renovables y electro-movilidad desafíos y oportunidades para Chile", Escuela Ilusion, Viña del Mar, 4 de Octubre, 2018.

[6] Educational video, Experimenta - Ciencia de Niños, episodio: "Energía solar, cuidando el planeta" CNTV Infantil, 25 Jul., 2018.

[5] Educational video, Exploradores: del átomo al cosmos, episodio "Energías renovables, factor clave para el desarrollo", 4 August, 2017.

[4] Invited speaker, Campamento STEM USM 2017: Taller Robótica y energías renovables, "Energía solar y su impacto en Chile", Universidad Técnica Federico Santa María, Valparaíso, 17 de Enero, 2017.

[3] Invited speaker, Conicyt-Explora seminar series: 1000 Scientists 1000 Classrooms, "Solar Energy - From the sun to the electric grid", Colegio Guardiamarina Riquelme, Valparaíso, 13 Octubre, 2016.

[2] S. Kouro, TEDx talk on "¿Nuclear Energy from Chile for the World?", TEDx UTFSM, Valparaiso, Chile, 12 August, 2016.

[1] Invited speaker, Conicyt-Explora seminar series: Fridays of culture + Science, "Solar Energy - Opportunities for Chile", Museo Fonck, Viña del Mar, 18 March, 2016.

Public Policy

[8] Workshop invited participant, "Consejo de Innovación en Ciberseguridad (CIC)", organizada por OEA y Subsecretaría del Interior, Santiago, Chile, Sep. 21, 2022.

[7] Member of the expert committee "Mesa técnica para impulsar el hidrógeno (H2) verde en el futuro energético de Chile", Future Challenges Commission, Chilean Senate, since July 2020 - 2021.

[6] Invited expert:"Talleres Participativos Elaboración Estrategia de Transición Justa en Energía", del Ministerio de Energía, Gobierno de Chile, Noviembre 2020.

[5] Member of the expert committee: "Actualización Política Energética Nacional - Mesa 5: Energía como motor de desarrollo económico", del Ministerio de Energía, Gobierno de Chile, 2020.

[4] Member of the Advisory Committee: "Comité Asesor Seremi Ciencia Macrozona Centro", Ministerio de Ciencias, Tecnología, Conocimiento e Innovación, 2020.

[3] Member of the board of Directors of the "Consejo Directivo del Comité Solar e Innovación Energética" of the Ministry of Energy and CORFO, since December 2018 to 2020.

[2] Member of the expert committee: "Comité de Expertos para Escenarios Energéticos", Ministerio de Energía, 2017.

[1] S. Kouro, "Energía fotovoltaica y Actividades de investigación en la UTFSM", Serie de Cursos para el Fortalecimiento de capacidades institucionales en formulación y evaluación de proyectos ERNC, Subsecretaría del Ministerio de Energía y CER de CORFO, Valparaíso, Chile, 10 de Octubre de 2014.

Memberships

[5] IEEE Senior Member, The Institute of Electrical and Electronics Engineers (IEEE), Senior Member since 2017, Member (2008-2016) and Student Member (2004-2008).

[4] Member of the IEEE Industry Applications Society, from 2006 to date.

[3] Member of the IEEE Power Electronics Society, from 2006 to date.

[2] Member of the IEEE Industrial Electronics Society, from 2005 to date.

[1] Member of the IEEE Power & Energy Society, from 2011 to date.