

As Rusen CURRICULUM VITAE

- I. **Name** : Ruben Pena
- II. **Date of Birth** : 19th August 1960
- III. **Passport number/Nationality** : P03160582/Chilean
- IV. **Present Appointment** : Professor of Power Electronics and Drives, University of Concepcion, Chile, since 2008.
- V. **Previous appointment: University of Magallanes, Chile, 1986-2008.**
- VI. **Qualifications**
 - BSc Electrical Engineering, University of Concepcion, Chile, 1984
 - Master of Science in Electrical Engineering, University of Nottingham. England, 1992 (with Distinction)
 - Ph.D. in Electrical and Electronic Engineering. University of Nottingham. England, 1996.
- VII. **Publications related to Research**
 1. Peña R.S., Clare JC, Asher GM, "A doubly fed induction generator using back to back PWM converters and its application to variable speed wind energy generation", IEE-Proceeding part B (Electric Power and Applications), May 1996.
 2. Peña R.S., Asher G.M., Clare J.C., "A doubly fed induction generator using back to back PWM converters supplying an isolated load from a variable speed wind turbine", IEE-proceeding part B (Electric Power and Applications), Septiembre 1996.
 3. Peña R.S., Clare JC, Asher G.M., "Implementation of vector control strategies for avariable speed doubly fed induction machine for a wind generation system", European Power Electronic and Drives Journal, Vol. 6, No 3-4, December 1996.
 4. Cárdenas, R. Peña, J. Clare, "Control Strategy for Power Smoothing Using Vector Controlled Induction Machine and Flywheel", Electronics Letters, Vol 36, Nr. 8, pp 765-766, April 2000.
 5. R. Cardenas, R. Peña, G. Asher, J. Clare, "Control Strategies for Enhanced Power Smoothing in Wind Energy Systems Using a Flywheel Driven by a Vector Controlled Induction Machine", IEEE Transactions on Industrial Electronics, June 2001.
 6. R. Cárdenas, R. Peña, G. Asher, J. Clare, " Sensorless Control Strategy for Power Smoothing in Wind-Diesel Applications", IEE Electronics Letters, Vol. 38, Nr. 22, pp. 1402-1403, October 2002.
 7. R. Cárdenas, R. Peña. "Sensorless Vector Control of Induction Machines for Variable Speed Wind Energy Applications", IEEE Transactions on Energy Conversion, Vol. 19, Nr. 1, pp. 196-205, March 2004.
 8. R. Cárdenas, R. Peña, G. Asher, J. Clare. "Power Smoothing in Generation Systems Using a Sensorless Vector Controlled Induction Machine Driving a Flywheel ", IEEE Transactions on Energy Conversion, Vol. 19, Nr. 1, pp. 206-216, March 2004".
 9. R. Cardenas, R. Pena, G. Asher, J. Clare, J. Cartes. "MRAS Observer for Doubly-fed induction machines", IEEE Transactions on Energy Conversion, Vol 19, No.2, June 2004, pp. 467-468.
 10. R. Cardenas, R. Peña, G.M. Asher, J. Clare, R. Blasco-Giménez "Control Strategies for Power Smoothing using a Flywheel driven by a Sensorless Vector controlled Induction Motor operating in a wide speed range", IEEE Transactions on Industrial Electronics, Vol. 51, No.3, June 2004, pp. 603-614.
 11. R. Cárdenas, R. Peña, J. Proboste, G. Asher, J. Clare. "Rotor Current Based MRAS Observer for Doubly-Fed Induction Machines", IEE Electronics Letters, Vol. 40, No 12, June 2004.
 12. D. Soto. R. Peña. "Non-linear control strategies for cascaded multilevel STATCOMs". IEEE Transactions on Power Delivery, VOL. 19, NO. 4, OCTOBER 2004, pp. 1919-1927.
 13. R. Cárdenas, R. Peña, J. Proboste, G. Asher, J. Clare." MRAS Observer for Sensorless Control of Stand Alone Doubly-Fed Induction Generators" IEEE Transactions on Energy Conversion. Vol. 20. December 2005
 14. Roberto Cárdenas, Rubén Peña, Marcelo Pérez, Jon Clare, Greg Asher, Pat Wheeler, "Control of a Switched Reluctance Generator for Variable Speed Wind Energy Applications", IEEE Transactions on Energy Conversion. Vol 20. December 2005.
 15. Cardenas, R.; Pena, R.; Perez, M.; Clare, J.; Asher, G.; Vargas, F.; " Vector control of front-end converters for variable-speed wind-diesel systems". IEEE Transactions on Industrial Electronics: Vol. 53 No. 4, pp. 1127-1136. 2006 (21)

16. Cardenas, R.; Pena, R.; Perez, M.; Clare, J.; Asher, G.; Wheeler, P.; "Power smoothing using a switched reluctance machine driving a flywheel". IEEE Transactions on Energy Conversion: Vol.2 1, No. 1:pp. 294-295. 2006 (7)
17. Cardenas, R.; Pena, R.; Perez, M.; Clare, J.; Asher, G.; Wheeler, P.; "Power smoothing using a flywheel driven by a switched reluctance machine. IEEE Transactions on Industrial Electronics: Vol. 53, No. 4, pp. 1086-1093. (2006) (14) .
18. Pena, R.; Cardenas, R.; Escobar, E.; Clare, J.; Wheeler, P.; "Control system for unbalanced operation of stand-alone doubly fed induction generators". IEEE Transactions on Energy Conversion: Vol. 22, No. 2, pp.544-545. 2007. (22)
19. Pena R, Cardenas R, Proboste J, Asher G, Clare J, Sensorless Control of Doubly- Fed Induction Generators Using a Rotor Current Based MRAS Observer, IEEE Transactions on Industrial Electronics, Vol. 55, No. 1, pp. 330-339, 2008. (25)
20. Cardenas, R.; Pena, R.; Wheeler, P.; Clare, J.; Reactive power capability of WECS based on matrix converter, Electronics Letters, Vol. 4, No. 11, pp. 674-676. 2008. (4)
21. Pena R., Cárdenas R., Proboste J., Clare J., Asher G. Wind-Diesel Generation Using Doubly fed Induction Machines. IEEE Transactions on Energy Conversion, 2008, Vol. 23, No 1, pp: 202-2014, 2009 (18)
22. Cardenas, R.; Pena, R.; Clare, J.; Asher, G.; Proboste, J.; MRAS Observers for Sensorless Control of Doubly-Fed Induction Generators: IEEE Transactions on Power Electronics, Vol. 23, No. 3, pp. 1075-1084. 2008, (22)
23. Cardenas, R.; Pena, R.; Clare, J.; Wheeler, P; Asher, G. Control of the Reactive Power Supplied by a WECS Based on an Induction Generator Fed by a Matrix Converter. IEEE Transactions on Industrial Electronics, Vol. 56, No. 2, 429-438. 2009 (30)
24. Echeñique, E; Dixon, J; Cardenas, R; Pena, R. Sensorless Control for a Switched Reluctance Wind Generator, Based on Current Slopes and Neural Networks, IEEE Transactions on Industrial Electronics, Vol. 56, No. 3, pp. 817-825, 2009 (8)
25. Cardenas, R.; Pena, R.; Clare, J.; Wheeler, P. "Control of the Reactive Power Supplied by a Matrix Converter" . IEEE Transactions on Energy Conversion, Vol. 24, No 1, pp.301-303, 2009. (2)
26. R. Pena, Cardenas, R.; Escobar, E.; Clare, J.; Wheeler, P. Control strategy for a Doubly-Fed Induction Generator feeding an unbalanced grid or stand-alone load, Electric Power Systems Research, Vol . 79, No. 2, pp. 355-364. 2009.(6)
27. Cardenas, R.; Pena, R.; Tobar, G.; Clare, J.; Wheeler, P.; Asher, G.; , "Stability Analysis of a Wind Energy Conversion System Based on a Doubly Fed Induction Generator Fed by a Matrix Converter," Industrial Electronics, IEEE Transactions on , vol.56, no.10, pp.4194-4206, 2009 (26)
28. Pena, R.; Cardenas, R.; Reyes, E.; Clare, J.; Wheeler, P.; , "A Topology for Multiple Generation System With Doubly Fed Induction Machines and Indirect Matrix Converter," Industrial Electronics, IEEE Transactions on , vol.56, no.10, pp.4181-4193, 2009 (13)
29. R. Cardena, R. Pena, J. Clare, P. Wheeler, "Analytical and Experimental Evaluation of a WECS Based on a Cage Induction Generator Fed by a Matrix Converter", IEEE Transaction on Energy Conversion. Vol 26,no 1, pp. 204-215, 2011 (2)
30. R. Cardenas, R. Pena, P. Wheeler, J. Clare, "Experimental Validation of a Space Vector Modulation Algorithm for Four Leg Matrix Converters", IEEE Trans. on Industrial Electronics, Vol. 58, No 4, pp.1282-1293, 2011 (10)
31. R. Pena, R. Cardenas, E. Reyes, J. Clare, P. Wheeler , "Control of a Doubly Fed Induction Generator Via an Indirect Matrix Converter with Changing DC Voltage", IEEE Trans. on Industrial Electronics, Vol. 58, No 10, pp. 4664-4674. 2011.
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33. Cardenas, R; Juri, C; Pena, R; Wheeler, P; Clare, J., "The Application of Resonant Controllers to Four-Leg Matrix Converters Feeding Unbalanced or Nonlinear Loads". IEEE Transactions on Power Electronics, vol.27, no.3, pp.1120-1129, March 2012.
34. Glaria, T; Sbarbaro, D; Johansen, TA; Pena, R; "Observer design for linear processes model with implicit nonlinear output map". JOURNAL OF PROCESS CONTROL; Vol. 22, no. 9, pp: 1647-1654, Oct- 2012

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36. Cardenas, R; Pena, R; Alepuz, S; Asher, G; "Overview of Control Systems for the Operation of DFIGs in Wind Energy Applications". IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol. 60, no 7, pp: 2776-2798, JULY 2013.
37. Cardenas, R; Pena, R; Wheeler, P; Clare, J; Munoz, A; Sureda, A;" Control of a wind generation system based on a Brushless Doubly-Fed Induction Generator fed by a matrix converter", ELECTRIC POWER SYSTEMS RESEARCH, vol. 103, pp: 49-60, Oct. 2013
38. Cardenas, R; Pena, R; Clare, J; Wheeler, P; Zanchetta, P; "A repetitive control system for four-leg matrix converters feeding non-linear loads", ELECTRIC POWER SYSTEMS RESEARCH, vol. 104, pp. 18-27, Nov. 2013.
39. Riedemann, J; Pena, R; Cardenas, R; Blasco, R; Clare, J; "Indirect Matrix Converter Modulation Strategies for Open-end Winding Induction Machine", IEEE LATIN AMERICA TRANSACTIONS, vol.12, no. 3, pp: 395-401, May 2014.
40. Garcia, C; Rivera, M; Lopez, M; Rodriguez, J; Pena, R; Wheeler, PW; Espinoza, JR; "A Simple Current Control Strategy for a Four-Leg Indirect Matrix Converter", IEEE TRANSACTIONS ON POWER ELECTRONICS, vol. 30, no. 4, pp. 2275-2287, April 2015.
41. Carrasco, G; Silva, CA ; Pena, R ; Cardenas, R; "Control of a Four-Leg Converter for the Operation of a DFIG Feeding Stand-Alone Unbalanced Loads", IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS, vol. 62, no 7, pp: 4630-4640, JUL 2015.
42. Vidal-Albalate, R; Beltran, H; Rolan, A; Belenguer, E; Pena, R; Blasco-Gimenez, R; IEEE TRANSACTIONS ON POWER DELIVERY, vol. 31, no. 2, pp: 839-847, April 2016.
43. Javier Riedemann; Jon C. Clare; Pat W. Wheeler; Ramón Blasco-Gimenez; Marco Rivera; Rubén Peña, "Open-End Winding Induction Machine Fed by a Dual-Output Indirect Matrix Converter", IEEE Transactions on Industrial Electronics, Vol. 63, Issue: 7, July 2016.
44. Ricardo Vidal, Diego Soto, Iván Andrade, Javier Riedemann, Cristián Pesce, Enrique Belenguer, Ruben Pena, Ramon Blasco-Gimenez, "A multilevel modular DC-DC converter topology", Mathematics and Computers in Simulation, doi:10.1016/j.matcom.2015.12.004, In Press.

X. Book Chapters.

1. Sbarbaro, D. Peña, R. Cárdenas, " *A Robust Variable Structure PI Controller for Small Wind Energy Systems.*", Artículo en el libro *Advances in Variable Structure Systems. Analysis, Integration and Applications*", Printed in Singapore, Editado por Xinghuo Yu and Jian-Xin Xu. Publicado por World Scientific Publishing Co. Pte. Ltd. ISBN 981-02-4464-9. Año 2000, pp480-489.
2. Riedemann, J; Pena, R; Blasco-Giménez, R. Chapter 11. "Open-End Winding Induction Motor Drive Based on Indirect Matrix Converter". Book: *Induction Motors - Applications, Control and Fault Diagnostics*. INTECH, pp. 291-323. ISBN 978-953-51-2207-4, Published: November 18, 2015

VIII. **Research Grants.** PI of 6 and Co-I of 8 Research Grants Funded by Chilean Government.

IX. Training and tutorship of students. (Last 10 years)

- Final year project tutor of about 15 students graduated in Electrical Engineering
- Adviser of three graduated M. Sc. Students and one Ph.D student
- Currently supervising one M.Sc. Student and two Ph.D. students.
- Lecturer of regular courses on Electric Machines, Power Electronics, Electric drives for undergrad and post grad students.