
CARLOS E. SAAVEDRA

Curriculum Vitae

Postal address: Walter Light Hall, Room 406
Queen's University
19 Union Street
Kingston, Ontario K7L 3N6
Canada

Telephone: +1 (613) 533-2807

e-mail: saavedra@queensu.ca

Website: <http://post.queensu.ca/~saavedra/>

EDUCATION

- Ph.D. **Cornell University**, United States
Electrical Engineering
- M.Sc. **Cornell University**, United States
Electrical Engineering
- B.Sc. **University of Virginia**, United States
Electrical Engineering

EXPERIENCE

- **Coordinator of Graduate Studies (Graduate Chair)** 07–2007 to 07–2010
Department of Electrical and Computer Engineering
Queen's University, Canada
- **Associate Professor** Since 07–2006
Department of Electrical and Computer Engineering
Queen's University, Canada
- **Assistant Professor** 08–2000 to 06–2006
Department of Electrical and Computer Engineering
Queen's University, Canada
- **Senior Millimeter-Wave Engineer** 07–1998 to 07–2000
Advanced Technology Group
Millitech Corporation, South Deerfield, MA, United States
- **Research Assistant** 09–1993 to 07–1998
School of Electrical Engineering
Cornell University, Ithaca, NY, United States
- **Kodak Scholar and Intern** 06–1992 to 08–1992
Color Science Group
Eastman Kodak Company, Billerica, MA, United States
- **Summer Intern** 05–1991 to 07–1991
Astro Space Division
General Electric Corporation, Valley Forge, PA, United States

PROFESSIONAL ACTIVITIES

Executive Positions, Memberships

1. NSERC Evaluation Group 1510 – Electrical and Computer Engineering (until 2014).
2. Chair, IEEE MTT-S Technical Committee on Signal Generation and Frequency Conversion (MTT-22).
3. Director, Professional Engineers Ontario (PEO) Kingston Chapter.
4. Vice-Chair, IEEE Kingston Section (2002–2004).
5. Steering Committee Member, 2012 IEEE International Microwave Symposium.
6. Technical Program Committee Member, IEEE RFIC Symposium (since 2008).
7. IEEE Microwave Theory and Techniques Society (MTT–S) Member.
8. IEEE Solid-State Circuits Society Member.
9. IEEE Circuits and Systems Society Member.
10. Senior Member of the Institute of Electrical and Electronics Engineers (IEEE).
11. Registered Professional Engineer (P.Eng.) in the province of Ontario, Canada.

Research Journal Review Boards

1. IEEE Transactions on Microwave Theory and Techniques.
2. IEEE Journal of Solid-State Circuits.
3. IEEE Transactions on Circuits and Systems I: Regular Papers.
4. IEEE Transactions on Circuits and Systems II: Express Briefs.
5. IEEE Microwave and Wireless Components Letters.
6. Electronics Letters.
7. Analog Integrated Circuits and Signal Processing (Springer).

International Conference Activities

1. Session Chair:
 - IEEE Radio-Frequency Integrated Circuits Symposium, 2008.
 - URSI International Symposium on Signals, Systems and Electronics, 2007.
 - IEEE Canadian Conference on Electrical and Computer Engineering, 2004.
 - International Symposium Antenna Tech. and Applied Electromagnetics (ANTEM), 2002.
2. Reviewer:
 - IEEE International Microwave Symposium (IMS) Workshops, 2009.
 - Asia-Pacific Microwave Conference (APMC), 2009.
 - IEEE International Symposium on Circuits and Systems (ISCAS), 2005, 2008 and 2012.
 - Microsystems and Nanoelectronics Research Conference, 2008.
 - IEEE Canadian Conference on Electrical and Computer Engineering, 2008.
 - Queen’s Biennial Symposium on Communications, 2006–2008.
 - IEEE International Andean Region Conference (ANDESCON), 2006.
 - IEEE Int. Caribbean Conference on Devices, Circuits and Systems (ICDCS), 2004.

AWARDS AND FELLOWSHIPS

1. NSERC Discovery Accelerator Supplement Award, 2011–2014.
2. Voted Best Third-Year Professor by the Electrical Engineering Class of 2002 at Queen's University.
3. National Science Foundation Fellowship, 1994–1997.
4. General Electric Foundation Graduate Fellowship, 1993–1994.
5. Eastman Kodak Company Scholar, 1991–1993.
6. National Science Foundation Incentive for Excellence Award, 1991.
7. Eta Kappa Nu Electrical Engineering Honor Society Member since 1991.
8. Tau Beta Pi Engineering Honor Society Member since 1991.
9. Golden Key National Honor Society Member since 1991.

PUBLICATIONS

Peer-Reviewed Journal Papers

1. Shan He and C. E. Saavedra, "An Ultra-Low-Voltage and Low-Power x2 Subharmonic Downconverter Mixer," *IEEE Transactions on Microwave Theory and Techniques*, vol. 60, no.2, pp. 311-317, February 2012.
2. J. Xu, C. E. Saavedra, G. Chen, "A Multi-Mode QAM Direct-Digital Modulator Based on Current Vector Sum", *Chinese Journal of Electronics*, vol. 40, no. 1, pp. 40-46, January 2012.
3. A. M. El-Gabaly and C. E. Saavedra, "Broadband Low Noise Amplifier with Fast Power Switching for 3.1-10.6 GHz Ultra-Wideband Applications," *IEEE Transactions on Microwave Theory and Techniques*, vol. 59, no. 12, pp. 3146-3153, December 2011.
4. A. M. El-Gabaly and C. E. Saavedra, "A Quadrature Pulse Generator for Short-Range UWB Vehicular Radar Applications Using a Pulsed Oscillator and a Variable Attenuator" *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 58, no. 10, pp. 2285-2295, 2011.
5. Stanley S. K. Ho and C. E. Saavedra, "A Low-Noise Self-Oscillating Mixer using a Balanced VCO Load" *IEEE Transactions on Circuits and Systems I: Regular Papers*, vol. 58, no. 8, pp. 1705-1712, 2011.
6. J. Xu, C. E. Saavedra and G. Chen, "An Active Inductor-Based VCO with Wide Tuning Range and High DC-to-RF Power Efficiency," *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 58, no. 8, pp. 462-466, 2011.
7. J. Xu, C. E. Saavedra and G. Chen, "A 12-GHz Bandwidth CMOS Mixer with Variable Conversion Gain Capability", *IEEE Microwave and Wireless Component Letters*, vol. 21, no. 10, pp. 565-567, 2011.
8. A. M. El-Gabaly and C. E. Saavedra, "An Energy-Efficient Tunable Pulse Generator for 3.110.6 GHz UWB Applications Using a Variable Attenuator for Pulse Shaping" accepted in the *International Journal of Circuit Theory and Applications (Wiley InterScience)*.
9. Stanley S. K. Ho and C. E. Saavedra, "A 5.4 GHz Fully Integrated Low-Noise Mixer," *Journal of Integrated Circuits and Systems*, **Invited Paper**, vol. 6, no. 1, pp. 18-24, 2011.
10. A. M. El-Gabaly and C. E. Saavedra, "Wideband Variable Gain Amplifier with Noise Cancellation," *Electronics Letters*, Vol. 47, No. 2, pp. 116-117, 2011.
11. J. Xu, C. E. Saavedra and G. Chen, "A CMOS wideband front-end chip using direct RF sampling mixer with embedded discrete-time filtering," *Journal of Semiconductors*, vol. 32, no. 8, pp. 1-8, Aug. 2011.
12. M. Wang and C. E. Saavedra, "Very Low Frequency Tunable Signal Generator for Neural and Cardiac Cell Stimulation" *International Journal of Electronics (Taylor & Francis)*, vol. 98, no. 9, pp. 1215-1227, 2011.

13. Stanley S. K. Ho and C. E. Saavedra, "A CMOS Broadband Low-Noise Mixer with Noise Cancellation" *IEEE Transactions on Microwave Theory and Techniques*, Vol. 58, No. 5, pp. 1126-1132, May 2010.
–The above paper was one of the Top 100 Documents accessed in the IEEE Xplore Digital Library in May 2010 (# 41) and was the # 1 downloaded paper in the IEEE MTT Transactions in May 2010.
14. Z. Ru, E. A. M. Klumperink, C. E. Saavedra and B. Nauta, "A Tunable 300-800 MHz RF-Sampling Receiver Achieving 60 dB Harmonic Rejection and 0.8 dB Minimum NF in 65 nm CMOS," *IEEE Journal of Solid-State Circuits*, Vol. 45, No. 5, pp. 967-978, May 2010.
–The above paper was one of the Top 100 Documents accessed in the IEEE Xplore Digital Library in May 2010 (# 15).
15. B. R. Jackson and C. E. Saavedra, "A Dual-Band Self-Oscillating Mixer for C-Band and X-Band Applications," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 58, No. 2, pp. 318-323, February 2010.
16. You Zheng and C. E. Saavedra, "Full 360° Vector-Sum Phase Shifter for Microwave System Applications," *IEEE Transactions on Circuits and Systems I: Regular Papers*, Vol. 57, No. 4, pp. 752-758, April 2010.
17. C. E. Saavedra and Stanley S. K. Ho, "Optical Quasi-Circulator using Power Splitters and Optical Amplifiers," *IEEE Photonics Technology Letters*, Vol. 22, No. 9, pp. 604-606, May 2010.
18. You Zheng and C. E. Saavedra, "A Variable Gain Amplifier using a Very High-Speed OTA," *Microwave and Optical Technology Letters*, Vol. 52, No. 5, pp. 1112-1116, 2010.
19. You Zheng and C. E. Saavedra, "Frequency Response Comparison of Two Active Inductors," *Progress in Electromagnetics Research Letters*, Vol. 13, pp. 113-119, 2010.
20. Gideon Yong and C. E. Saavedra, "A Wideband Quadrature Generator IC using a Varactor-Compensated Feedback Network," *Analog Integrated Circuits and Signal Processing*, Vol. 63, No. 2, pp. 161-167, 2010.
21. B. R. Jackson, F. Mazzilli and C. E. Saavedra, "A Frequency Tripler using a Subharmonic Mixer and Fundamental Cancellation," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 57, No. 5, pp. 1083-1090, May 2009.
22. You Zheng and C. E. Saavedra, "Active Quasi-Circulator MMIC using OTA's," *IEEE Microwave and Wireless Components Letters*, Vol. 19, No. 4, pp. 218-220, April 2009.
23. A. M. El-Gabaly and C. E. Saavedra, "Compact Low-Power 2.4 GHz QPSK Modulator in CMOS," *Microwave and Optical Technology Letters*, Vol. 51, No. 5, pp. 1344-1348, March 2009.
24. You Zheng and C. E. Saavedra, "Feedforward-Regulated Cascode OTA for Microwave Applications," *IEEE Transactions on Circuits and Systems I: Regular Papers*, Vol. 55, No. 12, December 2008.
25. B. R. Jackson and C. E. Saavedra, "A CMOS Ku-Band 4× Subharmonic Mixer," *IEEE Journal of Solid-State Circuits*, Vol. 43, No. 6, pp. 1351-1359, June 2008.
26. You Zheng and C. E. Saavedra, "An Ultra-Compact CMOS Variable Phase-Shifter for 2.4 GHz ISM Applications," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 56, No. 6, pp. 1349-1354, June 2008.
27. You Zheng and C. E. Saavedra, "Ultra-Compact Active MMIC Bandpass Filter with a Wide Tuning Range," *Electronics Letters*, Vol. 44, No. 6, pp. 424-425, March 2008.
28. You Zheng and C. E. Saavedra, "A Broadband CMOS Frequency Tripler using a Third-Harmonic Enhanced Technique," *IEEE Journal of Solid-State Circuits*, Vol. 42, No. 10, pp. 2197-2203, 2007.
29. C. E. Saavedra and You Zheng, "Active Quasi-Circulator Realization with Gain Elements and Slow-Wave Couplers," *IET Microwaves, Antennas & Propagation*, Vol. 1, No. 5, pp. 1020-1023, 2007.
30. C. E. Saavedra, "Microstrip Multiplexer with Compact In-Line Feed Structure," *Microwave and Optical Technology Letters*, Vol. 49, No. 12, pp. 3128-3130, Dec. 2007.

31. B. R. Jackson and C. E. Saavedra, "A CMOS Subharmonic Mixer with Input and Output Active Baluns," *Microwave and Optical Technology Letters*, Vol. 48, No. 12, pp. 2472-2478, Dec. 2006.
32. C. E. Saavedra and B. R. Jackson, "Voltage-Variable Attenuator MMIC using Phase Cancellation," *IEEE Proceedings Circuits, Devices, and Systems*, Vol. 153, No. 5, pp. 442-446, October 2006.
33. C. E. Saavedra and Y. Zheng, "Ring-Hybrid Microwave Voltage-Variable Attenuator using HFET Transistors," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 53, No. 7, pp. 2430-2434, July 2005.
34. C. E. Saavedra, "A Microwave Frequency Divider using an Inverter Ring and Transmission Gates," *IEEE Microwave and Wireless Components Letters*, Vol. 15, No. 5, pp. 330-332, May 2005.
35. B. R. Jackson and C. E. Saavedra, "2.4 GHz Direct-Digital Binary Phase Shift Keying Modulator using a MEMS Switch," *Electronics Letters*, Vol. 40, No. 24, pp. 1539-1540, Nov. 2004.
36. J. Fraresso and C. E. Saavedra, "Narrowband Bandpass Filter Exhibiting Harmonic Suppression," *Electronics Letters*, Vol. 39, No. 16, pp. 1189-1190, August 2003.
37. C. E. Saavedra, "A Microstrip Ring Resonator using Quarter Wave Couplers," *Electronics Letters*, Vol. 37, No. 11, pp.694-695, May 2001.
38. C. E. Saavedra, W. Wright, and R. C. Compton, "A Circuit, Waveguide, and Spatial Power Combiner for Millimeter-Wave Amplification," *IEEE Transactions on Microwave Theory and Techniques*, Vol. 47, pp. 605-613, May 1999.
39. C. E. Saavedra, W. Wright, K. Y. Hur, and R. C. Compton, "A Millimeter-Wave Quasi-Optical Amplifier Array using Inclined-Plane Horn Antennas," *IEEE Microwave and Guided Wave Letters*, Vol. 8, pp. 81-83, February 1998.

Book Chapters

40. C. E. Saavedra, "Frequency Multiplier Design Techniques and Applications" in *Nanometer CMOS and GaAs: RF, High-Speed and High-Precision Circuits*, edited by K. Iniewski, McGraw-Hill, pp. 163-184, 2011.

Papers in Refereed Conference Proceedings

41. A. M. El-Gabaly and C. E. Saavedra, "2-Watt Broadband GaN Power Amplifier RFIC using the ft Doubling Technique", accepted in the *2012 IEEE International Microwave Symposium*, Montreal, QC, Canada.
42. B. R. Jackson and C. E. Saavedra, "A Divide-by-Three Regenerative Frequency Divider using a Subharmonic Mixer" *NORCHIP Conference*, Lund, Sweden, November 2011.
43. J. Xu, C. E. Saavedra and G. Chen, "Noise Analysis of the CG-CS Low Noise Transconductance Amplifier" *IEEE International Conference on Electron Devices and Solid-State Circuits*, Hong Kong, China, September 2011.
44. J. Xu, C. E. Saavedra and G. Chen, "5.4 GHz Reconfigurable Quadrature Amplitude Modulator using Very High-Speed OTA's", *IEEE International Microwave Symposium*, Baltimore, USA, June 2011.
45. M. Wang and C. E. Saavedra, "Reconfigurable Broadband Mixer with Variable Conversion Gain," *IEEE International Microwave Symposium*, Baltimore, USA, June 2011.
46. M. Wang and C. E. Saavedra, "Fully Monolithic Single-Sideband Mixer with Sideband Selection" *IEEE International Microwave Symposium*, Baltimore, USA, June 2011.
47. A. M. El-Gabaly and C. E. Saavedra, "A 24 GHz Quadrature Pulsed Oscillator for Short-Range UWB Vehicular Radar Applications" *IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 1283-1286, Rio de Janeiro, Brazil, May 2011.
48. Shan He and C. E. Saavedra, "A 19 - 26 GHz Balanced Amplifier in 130 nm CMOS Technology" *IEEE Sarnoff Symposium*, Princeton, New Jersey, May 2011.

49. S. S. K. Ho and C. E. Saavedra, "A 5.4 GHz Fully Integrated Low-Noise Mixer" *23rd Symposium on Integrated Circuits and Systems Design (SBCCI)*, pp. 14-17, São Paulo, Brazil, Sept. 2010.
50. Jiangtao Xu, C. E. Saavedra, and G. Chen, "Wideband Microwave OTA with Tunable Transconductance using Feedforward Regulation and an Active Inductor Load," *IEEE NEWCAS Conference*, pp. 93-96, Montreal, Canada, June 2010.
51. B. R. Jackson and C. E. Saavedra, "A CMOS Amplifier with Third-Order Intermodulation Distortion Cancellation," *IEEE Topical Meeting on Silicon Monolithic Integrated Circuits in RF Systems (SiRF)*, pp. 217-220, San Diego, USA, 2009. –**Best Student Paper Award recipient.**
52. G. S. K. Yong and C. E. Saavedra, "A Fully Integrated S-Band Vector Phase Shifter in CMOS Technology," *IEEE Topical Meeting on Silicon Monolithic Integrated Circuits*, pp. 45-48, San Diego, USA, 2009.
53. Z. Ru, E. Klumperink, C. E. Saavedra and B. Nauta, "A Tunable 300-800 MHz RF-Sampling Receiver Achieving 60 dB Harmonic Rejection and 0.8 dB Minimum NF in 65 nm CMOS," *IEEE Radio Frequency Integrated Circuits Symposium*, pp. 21-24, Boston, USA, 2009.
54. S. S. K. Ho and C. E. Saavedra, "Frequency Doubler Employing Active Fundamental Cancellation," *IEEE Sarnoff Symposium*, Princeton, New Jersey, April 2009.
55. G. S. K. Yong and C. E. Saavedra, "A Wideband Feedback Compensated Quadrature Generator," *IEEE Sarnoff Symposium*, Princeton, New Jersey, April 2009.
56. B. R. Jackson and C. E. Saavedra, "Variable MEMS Capacitors for Millimeter-Wave Filtering Applications," *XV IBERCHIP Workshop*, pp. 467-470, Buenos Aires, Argentina, March 2009.
57. C. E. Saavedra and Wei Yang, "2.0 GHz Integrated Circuit Bandstop Filter using Operational Transconductance Amplifiers," *XV IBERCHIP Workshop*, pp. 477-480, Buenos Aires, Argentina, March 2009.
58. A. M. El-Gabaly and C. E. Saavedra, "A Compact Tunable 5 GHz-Band Quadrature Downconverter with an Integrated 90° Phase Shifter and Balun," *URSI General Assembly*, Paper Number: DP2.3, Chicago, USA, August 2008.
59. A. M. El-Gabaly and C. E. Saavedra, "A Low-Voltage Fully Integrated 5 GHz Low Noise Amplifier in 0.18- μ m CMOS," *URSI General Assembly*, Paper Number: DP1.8, Chicago, USA, August 2008.
60. G. S. K. Yong and C. E. Saavedra, "A Compact Capacitor Compensated Wideband Balun in CMOS Technology," *24th Biennial Symposium on Communications*, pp. 306 - 309, Kingston, Ontario, Canada, June 2008.
61. C. E. Saavedra, "Diplexer using a Circulator and Interchangeable Filters," *IEEE ICCDCS*, Cancún, México, April 2008.
62. You Zheng and C. E. Saavedra, "A Bipolar MMIC Frequency Tripler," *IEEE ICCDCS*, Cancún, México, April 2008.
63. B. R. Jackson and C. E. Saavedra, "A 3 GHz CMOS Quadrature Oscillator Using Active Superharmonic Coupling," *European Microwave Conference and European Microwave Integrated Circuits Conference*, pp. 1109-1112, Munich, Germany, October 2007.
64. G. F. Pérez Sánchez, A. Morales-Acevedo, B. R. Jackson and C. E. Saavedra, "Thin Film Bulk Acoustic Wave Resonators for their Application in Microwave Filters," *IEEE Int. Conf. on Electrical and Electronics Eng.*, pp. 353-356, Mexico City, Mexico, Sept. 2007.
65. A. M. El-Gabaly, B. R. Jackson, and C. E. Saavedra, "An L-Band Direct-Digital QPSK Modulator in CMOS," *URSI International Symposium on Signals, Systems, and Electronics (ISSSE)*, pp. 563-566, Montréal, Canada, July 2007.
66. You Zheng and C. E. Saavedra, "Coherent BPSK Demodulator MMIC using an Anti-Parallel Synchronization Loop," *IEEE Radio-Frequency Integrated Circuits Symposium*, pp. 657-660, Honolulu, Hawaii, USA, June 2007.

67. You Zheng and C. E. Saavedra, "A Microwave OTA using a Feedforward-Regulated Cascade Topology," *IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 1887-1890, New Orleans, USA, May 2007.
68. B. R. Jackson, You Zheng, and C. E. Saavedra, "A CMOS Direct-Digital BPSK Modulator using an Active Balun and Common-Gate Switches," *IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 2534-2537, New Orleans, USA, May 2007.
69. C. E. Saavedra and Y. Zheng, "A BPSK Modulator using a Ring-Hybrid and HFET Switches," *Asia-Pacific Microwave Conference*, pp. 1665-1668, Yokohama, Japan, Dec. 2006.
70. You Zheng and C. E. Saavedra, "Compact CMOS VCO using a Transistor for Frequency Control," *ANTEM/URSI International Symposium on Antenna Technology and Applied Electromagnetics*, pp. 115-118, Montréal, Canada, July 2006.
71. B. R. Jackson and C. E. Saavedra, "Frequency Shift Keying Modulator using a MEMS Device," *XII IBERCHIP Workshop*, pp. 234-237, San José, Costa Rica, March 2006.
72. B. R. Jackson and C. E. Saavedra, "An L-Band CMOS Frequency Doubler using a Time-Delay Technique," *IEEE Topical Meeting on Silicon Monolithic Integrated Circuits*, pp. 131-134, San Diego, USA, January 2006.
73. C. E. Saavedra, "Reconfigurable Bandpass Filter Structure using an SPDT MEMS Switch," *European Microwave Conference*, pp. 557-560, Paris, France, Oct. 2005.
74. Y. Zheng and C. E. Saavedra, "A Pulse-Width Modulator using a Phase-Locked Loop Variable Phase Shifter," *IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 3639-3642, Kobe, Japan, May 2005.
75. Y. Zheng and C. E. Saavedra, "A BPSK Demodulator Circuit using an Anti-Parallel Synchronization Loop," *IEEE International Symposium on Circuits and Systems (ISCAS)*, pp. 5433-5436, Kobe, Japan, May 2005.
76. Y. Zhang and C. E. Saavedra, "A Voltage-Variable Time Delay Element for Random Bit Waveforms," *IEEE ICCDCS*, pp. 183-187, Punta Cana, Dominican Republic November 2004.
77. Y. Zhang and C. E. Saavedra, "A Nonoverlapping Clock Generator Circuit using Bipolar Differential Pairs," *IEEE ICCDCS*, pp. 330-333, Punta Cana, Dominican Republic, November 2004.
78. A. Tan and C. E. Saavedra, "A Binary Phase Shift Keying Demodulator using Pulse Detection," *IEEE International Conference on Electrical and Electronics Engineering*, pp. 49-52, Acapulco, México, Sept. 2004.
79. Y. Zheng and C. E. Saavedra, "A 0° to 180° Variable Phase Shifter using Frequency Multiplication," *IEEE International Conference on Electrical and Electronics Engineering*, pp. 601-604, Acapulco, México, Sept. 2004.
80. C. E. Saavedra, "A Frequency Divider with Variable Division Ratio," *IEEE Int. Conference on Electrical and Electronics Engineering*, pp. 605-609, Acapulco, México, 2004.
81. C. E. Saavedra, "A Microwave Divide-by-Four Frequency Divider using an Inverter Ring," *22nd Biennial Symposium on Communications*, pp. 418-420, Kingston, Canada, June 2004.
82. C. E. Saavedra and Y. Zhang, "A Clock Frequency Doubler using a Passive Integrator and Emitter-Coupled Comparator Circuit," *IEEE Canadian Conference on Electrical and Computer Engineering*, pp. 137-140, Niagara Falls, Canada, May 2004.
83. Y. Zhang and C. E. Saavedra, "A Voltage-Variable Time Delay Element for Clock Waveforms," *IEEE Canadian Conference on Electrical and Computer Eng.*, pp. 551-554, Niagara Falls, Canada, May 2004.
84. Y. Zheng and C. E. Saavedra, "A Bipolar Voltage Variable Attenuator for Radio Frequency Applications," *IEEE Canadian Conference on Electrical and Computer Engineering*, pp. 95-98, Niagara Falls, Canada, May 2004.
85. C. E. Saavedra, "Compact Low-Pass Filter using a Slow-Wave Structure," *IEEE Midwest Symposium on Circuits and Systems, Vol. 3*, pp. 161-163, Tulsa, Oklahoma, USA, August 2002.

86. J. Sewter and C. E. Saavedra, "Microstrip Ring Resonator using Slow Wave Structure Exhibiting Harmonic Suppression," *International Symposium on Antenna Technology and Applied Electromagnetics (ANTEM)*, pp. 153-155, Montréal, Canada, July 2002.
87. C. E. Saavedra, W. Wright, and R. C. Compton, "A passive horn structure with transitions to microstrip for quasi-optical amplifier arrays," *SPIE Proceedings*, vol. 3465, pp. 373-382, San Diego, California, July 1998.
88. C. E. Saavedra, M. J. Vaughan, and R. C. Compton, "An M-PSK Modulator for Quasi-Optical Wireless Array Applications," *IEEE International Microwave Symposium*, San Francisco, California, pp. 1243-1246, 1996.
89. M. Shur, B. Gelmont, C. Saavedra-Muñoz, and G. Kelner, "Potential of wide bandgap semiconductor devices for high-temperature applications," *Institute of Physics Conference*, Ser. No. 137, pp. 465-470, 1993.

Lectures and Invited Talks

1. "On taking a more unified design approach for Mixer RFIC's"
IEEE North Jersey Section MTT/AP/AES Chapter, Newark, New Jersey, USA, April 18, 2012.
2. "Wideband Operational Transconductance Amplifiers for Gigahertz Applications"
IEEE Southern Alberta Section SSCS/CAS Chapter, Calgary, AB, Canada, April 1, 2011.
3. "Layout Techniques for IC Design,"
Three-day short-course delivered at CINVESTAV, Guadalajara, México, December 7 to 9, 2010.
4. "CMOS RF Integrated Circuits for Broadband Wireless Communications"
IBM Microelectronics, Hopewell Junction, New York, USA, October 11, 2010.
5. "Front-End RF Integrated Circuits for Communications Applications"
University of São Paulo, Brasil, September, 2010.
6. "Advances in Mixer Design: Subharmonic Mixers and Applications"
Plenary Talk, Joint IEEE Col. Workshop on Electron Devices and Workshop on Circuits and Systems. Bogotá, Colombia, October 2009.
7. "Frequency Multipliers: Design Techniques and Applications"
CMOS-ET Workshop, Vancouver, Canada, September 24, 2009.
8. "Advances in CMOS Subharmonic Mixers"
University of British Columbia, Vancouver, Canada, September 24, 2009.
9. "CMOS Subharmonic Mixers and Applications"
International Microwave Symposium, WME Workshop, Boston, USA, June 8, 2009.
10. "Gigahertz Band Integrated Circuits for Microwave System Applications"
SiGe Semiconductor, Ottawa, Canada, April 21, 2009.
11. "Oscillation and Mixing Circuits using Harmonic Signals"
Communications Research Centre (CRC), Ottawa, Canada, February 20, 2008.
12. "Front-End Microwave Circuits and Systems"
Universiteit Twente, Enschede, The Netherlands, December 15, 2006.
13. "Microelectronic Circuits for Microwave Communications using CMOS Technology"
Universidad del Valle, Santiago de Cali, Colombia, July 14, 2006.
14. "Microelectronic Circuits for Microwave Communications using CMOS Technology"
Universidad de Los Andes, Bogotá, Colombia, July 6, 2006.
15. "Microwave MEMS and CMOS Integrated Circuits for Communications and Telemetry"
Gennum Corporation, Burlington, Ontario, Canada, May 26, 2006.

16. "Negative Refractive Index Metamaterials and their Microwave Applications"
Universidad Autonoma del Estado de Hidalgo, México, August 26, 2005.
17. "3 GHz to 9 GHz Silicon Germanium Frequency Tripler"
IBM Microelectronics, Hopewell Junction, NY, USA, December 14, 2004.
18. "Active and Passive Millimeter-Wave Circuits for Wireless Technology"
Rensselaer Polytechnic Institute, Troy, New York, USA, March 2000.
19. "Active and Passive Millimeter-Wave Circuits for Wireless Technology"
Syracuse University, Syracuse, New York, USA, March 2000.
20. "Millimeter-Wave Gratings and Horns for Amplifier Array Applications"
Cornell Nanofabrication Facility Annual Meeting, Ithaca, NY, USA, October 1997.
21. "InGaP/GaAs Hole Barrier Bipolar Transistors"
Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany, May 1995.