

# RÉSUMÉ

**ROBERTO STACK MURPHY ARTEAGA**

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March 21, 2024



## RÉSUMÉ

### GENERAL DATA

**NAME:** Roberto Stack Murphy Arteaga  
**DATE OF BIRTH:** January 3<sup>rd</sup> 1960  
**PLACE OF BIRTH:** México City, México

**PROFESSIONAL ADDRESS:** Instituto Nacional de Astrofísica, Óptica y Electrónica  
(INAOE) (National Institute for Research in  
Astrophysics, Optics and Electronics)  
Luis Enrique Erro # 1  
Tonantzintla, Puebla  
72840, México  
(+52) (222) 266 3100, X 1407.

**PERSONAL ADDRESS:** 15 Sur 512, Manzana 3 Lote 7  
Fraccionamiento Plazuelas de Zerezotla  
72764, San Pedro Cholula, Puebla  
México  
(+52) (222) 736 9044

**ELECTRONIC MAIL:** [rmurphy@ieee.org](mailto:rmurphy@ieee.org)

## **1.- ACADEMIC FORMATION**

**Undergraduate:** **Sep. 1978-May. 1982**  
St. John's University. Collegeville, Minnesota, USA.

**Master's:** **Sep. 1986-Nov. 1988**  
National Institute for Research in Astrophysics, Optics and Electronics,  
Tonantzintla, Puebla, México.

**Doctorate:** **Aug. 1993- Jul. 1997**  
National Institute for Research in Astrophysics, Optics and Electronics,  
Tonantzintla, Puebla, México.

## **2.- ACADEMIC DEGREES**

### **Bachelor of Science:**

In Physics, May 23 1982, St. John's University, Collegeville, Minnesota, USA.

### **Master of Science:**

In Microelectronics, November 30 1988, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla, México.

### **Doctor of Science:**

In Electronics, July 4, 1997, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla, México.

### **3.- WORK EXPERIENCE**

**Apr. 1983-Jun. 1987:**

Teacher of English as a Second Language, at División del Norte, San Ángel and Puebla branches of "Interlingua", property of "Idiomas S.A.". Génova # 33-105. Colonia Juárez. México City

**Aug. 1987-Dec. 2007:**

Part time teacher at the School of Electronic Engineering and Communications, Universidad de las Américas, Sta. Catarina Mártir, Cholula, Puebla, México.

**Dec. 1988-Dec. 1991:**

Associate Researcher "B", National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. December 1 1988 to December 15 1991.

**Dec. 1991 to Oct. 1999:**

Associate Researcher "C", National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. December 16 1991 to date.

**Aug. 1994-Aug. 1995:**

Visiting Researcher at the "Interuniversitair Micro-Elektronica Centrum" (IMEC) in Heverlee, Belgium. August 23 1994 to August 15 1995.

**Nov. 1999 to May 2005:**

Full Researcher "A", National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. November 1 1999 to May 31 2005.

**Feb. 2001 to March 2006:**

Chairman of Graduate Studies, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. February 16 2001 to March 15 2006.

**June 2005 to July 2017:**

Full Researcher “B”, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. June 1<sup>st</sup>, 2005 to July 31, 2017. Tenured.

**March 2006 to December 2013:**

Academic Dean, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. March 16, 2006 to December 31, 2013.

**January 2014 to February 2016:**

Director of Research, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. January 1<sup>st</sup>, 2014 to February 29, 2016.

**August 2017 to date:**

Full Researcher “C”, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. August 1<sup>st</sup>, 2017 to date. Tenured.

**August 2020 to June 7, 2023:**

Head of the Electronics Department, National Institute for Research in Astrophysics, Optics and Electronics, Tonantzintla, Puebla. August 12, 2020 to June 7, 2023.

#### **4.- SUMMARY OF ACADEMIC ACTIVITIES**

Articles in periodic journals	49
Articles in conference proceedings	91
Summaries in conference proceedings	31
Technical reports	5
General interest articles	27
Theses and chapters in books	6
Citations	401
Directed theses:	37
Doctoral	13
Master's	21
Bachelor's	3
Taught undergraduate courses	37
Taught graduate courses	103
Presentations in conferences	150



## **MOST RECENT PUBLICATIONS:**

“An Improved Method to Measure, Characterize, and Model Microstrip Antennas in the W Band”, R. Murphy-Arteaga, E. Colín-Beltrán, M.T. Serrano-Serrano, C. Nwachukwu, S.C. Sejas-García, R. Torres-Torres, *Instrumentation & Measurement Magazine*, Vol. 27, No. 2, April 2024, pp. 53-58. DOI:10.1109/MIM.2024.10472981

“Identifying and Modeling Resonance-Related Fluctuations on the Experimental Characteristic Impedance for PCB and On-Chip Transmission Lines”, Y. Rodríguez, R. Torres, R. Murphy, *Electronics*, Vol. 12, 2994, July 2023, pp. 1-10. DOI: 10.3390/electronics12132994

“Dual-Band Antenna on 3D-Printed Substrate for 2.4/5.8 GHz ISM-Band Applications”, K. Olan, R. Murphy, *Electronics*, Vol. 12, 2368, May 2023, pp. 1-13. DOI: 10.3390/electronics12112368

“Enhanced Monopole Antenna for On-Chip E-Band Application”, K. Olan, R. Murphy, *URSI Radio Science Letters*, Vol. 4, December 2022, pp. 1-5. DOI: 10.46620/22-0018

“Modeling Microwave Connectors Used as Signal Launchers for Microstrip Lines of Different Widths”, Y. Rodríguez, R. Murphy, R. Torres, *IEEE Microwave and Wireless Components Letters*, Vol. 32, No. 7, July 2022, pp. 1-9. DOI: 10.1109/LMWC.2022.3179927

“A Novel and Compact Slotted-Decahedral Antenna for Millimeter-Wave 5G Devices”, K. Olan, R. Murphy, *Electronics*, Vol. 11, 1813, June 2022, pp. 1-9. DOI: 10.3390/electronics11121813

“A novel metamaterial-based antenna for on-chip applications for the 72.5-81 GHz frequency range”, K. Olan, R. Murphy, *Scientific Reports*, Vol. 12, February 2022, pp. 1-9. DOI: 10.1038/s41598-022-05829-0

“Assessment of through-silicon-vias with different configurations of ground vias and accounting for substrate losses”, Y. Rodríguez, R. Murphy, R. Torres, *International Journal of RF and Microwave Computer-Aided Engineering*, July 2021, pp. 1-9. DOI: 10.1002/mmce.22811

“Modeling Passive Devices for CMOS RF Circuits” (Invited Paper), J. Valdés, R. Torres, R. Murphy, *Proceedings of the 28<sup>th</sup> International Conference “Mixed Design of Integrated Circuits and Systems (MIXDES 2021), Łódź, Poland, June 24-26, 2021, pp. 20-24. DOI: 10.23919/MIXDES52406.2021.9497635*

## **5.-ARTICLES IN PERIODIC JOURNALS**

- 1991**      **5.01**      “Die-Punch Test Study and Relationship to Delta  $V_{BE}$ ”, M. Aceves, L. Paredes, R. Murphy. IEEE Transactions on Components, Hybrids and Manufacturing Technology, Vol. 14, No. 4, December 1991, pp. 900-903.
- 5.02**      “Caracterización de un Proceso de Fabricación de Circuitos Integrados CMOS” (*Characterization of a CMOS Integrated Circuit Fabrication Process*), M. Linares, R. Murphy, W. Calleja. Ingeniería Electrónica Automática y Comunicaciones, Havana, Cuba, Vol. XII, No. 3, 1991, pp. 3-16.
- 1992**      **5.03**      “Applying Statistics to Find the Causes of Variability in Aluminum Evaporation: A case Study”, M. Aceves, L.A. Hernández, R. Murphy, IEEE Transactions on Semiconductor Manufacturing, Vol. 5, No. 2, May 1992, pp. 165-167.
- 5.04**      “Fabricación de Circuitos Integrados en México” (*Fabrication of Integrated Circuits in México*), S. Fuentes, M. Aceves, R. Murphy, W. Calleja, M. Linares, Revista Ciencia, Vol. 43, No. 2, June 1992, pp. 127-156.
- 1993**      **5.05**      “Cuantificación del Gammagrama de Vaciamiento Gástrico en Voluntarios Sanos y Pacientes de la Ciudad de México” (*Quantification of the Gastric Emptying Gammagram in Healthy Volunteers and Patients in México City*), C. Manzano, C. Arteaga, R. Murphy, L. Uscanga, L. Morales, F. Mayén, Acta Médica, Vol. XXIX, No. 115-116, July-December 1993, pp. 47-58.
- 1995**      **5.06**      “Quality Assurance in Polysilicon Deposition Using Statistics”, M. Aceves, R. Murphy, A. Torres, W. Calleja, Quality Engineering, Vol. 8, No. 2, December 1995, pp. 255-262.
- 1999**      **5.07**      “RF Low-Noise Amplifier in BICMOS Technologies”, F. Carreto, J. Silva, R. Murphy, IEEE Transactions on Circuits and Systems, July 1999, pp. 974-977.
- 2001**      **5.08**      “A 77K MOS Magnetic Field Detector (Split-Drain MAGFET)”, R. Murphy, P. García, E. Gutiérrez, A. Torres, Revista Mexicana de Física, Vol. 47, No. 6, December 2001, pp. 558-561.
- 5.09**      “Fabricación y Caracterización de Inductores sobre Silicio” (*Fabrication and Characterization of Inductors on Silicon*), J. Huerta, R. Murphy, A. Díaz, A. Torres, W. Calleja, M. Landa, Superficies y Vacío, Vol. 13, December 2001, pp. 44-49.

- 2003**      **5.10**      “MOSFET Gate Resistance Determination”, R. Torres, R. Murphy, S. Decoutere, Electronics Letters, Vol. 39, No. 2, January 2003, pp. 248-250.
- 5.11**      “Fabrication, Characterisation and Modelling of Integrated On-Silicon Inductors”, R. Murphy, J. Huerta, A. Díaz, A. Torres, W. Calleja, M. Landa, Microelectronics Reliability, Vol. 43, No. 2, February 2003, pp. 195-201.
- 5.12**      “MOSFET Bias Dependent Series Resistance Extraction from RF Measurements”, R. Torres, R. Murphy, S. Decoutere, Electronics Letters, Vol. 39, No. 20, October 2003, pp. 1476-1478.
- 2004**      **5.13**      “Electrical Characterization of n-type a-SiGe:H/p-type Crystalline-Silicon Heterojunctions”, P. Rosales, A. Torres, R. Murphy, M. Landa, Semiconductor Science and Technology, Vol. 19, No. 3, March 2004, pp. 366-372.
- 5.14**      “An Improved Substrate-Loss Model to Determine MOSFET Drain, Source and Substrate Elements”, R. Torres, R. Murphy, A. Torres, Microwave and Optical Technology Letters, Vol. 43, No. 2, October 20 2004, pp. 126-130. DOI: 10.1002/mop.20397
- 2005**      **5.15**      “Influence of the a-SiGe:H Thickness on the Conduction Mechanisms of n-amorphous-SiGe:H/p-Crystalline Heterojunction Diodes”, P. Rosales, A. Torres, R. Murphy, J. De la Hidalga, L. Marsal, R. Cabré, J. Pallarés, Journal of Applied Physics, Vol. 97, No. 8, April 2005, pp. 083710-1-083710-8.
- 5.16**      “Enabling a Compact Model to Simulate the RF Behavior of MOSFETs in SPICE”, R. Torres, R. Murphy, International Journal of RF and Microwave Computer-Aided Engineering, Vol. 15, No. 3, May 2005, pp. 255-263.
- 5.17**      “Analytical Model and Parameter Extraction to Account for the Pad Parasitics in RF-CMOS”, R. Torres, R. Murphy, A. Reynoso, IEEE Transactions on Electron Devices, Vol. 52, No. 7, July 2005, pp. 1335-1342. DOI: 10.1109/TED.2005.850644
- 5.18**      “Two MOS Transimpedance Amplifier On-Chip Structures for High-Frequency Applications”, J. Martínez, A. Díaz, A. Torres, R. Murphy, J. Finol, Ingeniería Electrónica Automática y Comunicaciones, Havana, Cuba, Vol. XXVI, No. 2, December 2005, pp. 3-8.
- 2008**      **5.19**      “Analytical Characterization and Modeling of Shielded Test Structures for RF-CMOS”, E. Torres, R. Torres, R. Murphy, E. Gutiérrez, International Journal of High Speed Electronics and Systems, Vol. 18, No. 4, December 2008, pp.793-803.

- 2010**      **5.20**      “Exploiting magnetic sensing capabilities of Short Split-Drain MAGFETs”, G. Santillán, V. Champac, R. Murphy, *Solid State Electronics*, Vol. 54, No. 11, November 2010, pp.1239-1245. DOI: 10.1016/j.sse.2010.06.016
- 2011**      **5.21**      “Using S-parameter measurements to determine the threshold voltage, gain factor, and mobility degradation factor for microwave bulk-MOSFETs”, G. Álvarez, R. Torres, R. Murphy, *Microelectronics Reliability*, Vol. 51, No. 2, February 2011, pp. 342-349. DOI: 10.1016/j.microrel.2010.09.001
- 2012**      **5.22**      “Modeling Transmission Lines on Silicon in the Frequency- and Time-Domains from S-parameters”, S. Sejas, R. Torres, R. Murphy, *IEEE Transactions on Electron Devices*, Vol. 59, No. 6, June 2012, pp. 1803-1806. DOI: 10.1109/TED.2012.2189774
- 5.23**      “On the Origin of Light Emission in Silicon Rich Oxide Obtained by Low-Pressure Chemical Vapor Deposition”, M. Aceves, A. González, R. López, A. Luna, D. Berman, A. Morales, C. Falcony, C. Domínguez, R. Murphy, *Journal of Nanomaterials*, Vol. 2012, July 2012, pp. 1-11. DOI: 10.1155/2012/890701
- 5.24**      “A New Analytical Method for Calculating the Characteristic Impedance  $Z_c$  of Uniform Transmission Lines”, J. Zúniga, A. Reynoso, C. Maya, R. Murphy, *Computación y Sistemas*, Vol. 16, No. 3, July-September 2012, pp. 277-285.
- 2013**      **5.25**      “Small Antenna Based on MEMS and Metamaterial Properties for Reconfigurable Applications”, G. Rosas, R. Murphy, W. Moreno, *International Journal of Antennas and Propagation*, Vol. 2013, January 2013, pp. 1-10. DOI: 10.1155/2013/498176
- 5.26**      “Characterization of RF-MOSFETs in Common-Source Configuration at Different Source-to-Bulk Voltages from S-Parameters”, F. Zárate, G. Álvarez, R. Torres, R. Murphy, S. Decoutere, *IEEE Transactions on Electron Devices*, Vol. 60, No. 8, August 2013, pp. 2450-2456. DOI: 10.1109/TED.2013.2264724
- 5.27**      “Modeling and Parameter Extraction of Test Fixtures for MOSFET On-Wafer Measurements up to 60 GHz”, G. Álvarez, R. Torres, R. Murphy, *International Journal of RF and Microwave Computer-Aided Engineering*, Vol. 36, No. 6, November 2013, pp. 655-661. DOI: 10.1002/mmce.20701
- 2014**      **5.28**      “Modeling the Impact of Multi-Fingering Microwave MOSFETs on the Source and Drain Resistances”, F. Zárate, R. Murphy, R. Torres, A. Ortiz, F. García, *IEEE Transactions on Microwave Theory and Techniques*, Vol. 62, No. 12, December 2014, pp. 3255-3261. DOI 10.1109/TMTT.2014.2366105

- 2015**      **5.29**      “Flipped Voltage Follower based Low-Noise Amplifier with 640 MHz BW at 2.26 GHz, 1.3 dB NF, 1.2 V  $V_{dd}$ , and up to 10 dBm IIP3”, F. Trejo-Macotela, L. Sánchez-Gaspariano, C. Muñiz-Montero, A. Díaz-Sánchez, R. Murphy-Arteaga, A. García-Barrientos, J. Rocha-Pérez, *Indian Journal of Pure & Applied Physics*, Vol. 53, No. 8, August 2015, pp. 546-552.
- 5.30**      “Consistent Modeling and Power Gain Analysis of Microwave SiGe HBTs in CE and CB Configurations”, G. Álvarez, R. Torres, R. Murphy, *IEEE Transactions on Microwave Theory and Techniques*, Vol. 63, No. 12, December 2015, pp. 3888-3895. DOI: 10.1109/TMTT.2015.2496375
- 5.31**      “Consistent DC and RF MOSFET Modeling Using an S-Parameter Measurement-Based Parameter Extraction Method in the Linear Region”, F. Zárate, R. Torres, R. Murphy, *IEEE Transactions on Microwave Theory and Techniques*, Vol. 63, No. 12, December 2015, pp. 4255-4262. DOI: 10.1109/TMTT.2015.2495363
- 2016**      **5.32**      “Characterization of Hot-Carrier-Induced RF-MOSFET Degradation at Different Bulk Biasing Conditions From S-Parameters”, F. Zárate, D. García, V. Vega, R. Torres, R. Murphy, *IEEE Transactions on Microwave Theory and Techniques*, Vol. 64, No. 1, January 2016, pp. 125-132. DOI: 10.1109/TMTT.2015.2504090
- 5.33**      “A DC Method to Extract Mobility Degradation and Series Resistance of Multifinger Microwave MOSFETs”, A. Sucre, F. Zárate, A. Ortiz, R. Torres, F. García, J. Muci, R. Murphy, *IEEE Transactions on Electron Devices*, Vol. 63, No. 5, May 2016, pp. 1821-1826. DOI: 10.1109/TED.2016.2538778
- 5.34**      “Tunable Matching Network for Accurate Impedance Measurement of On-Chip and PCB Millimeter-Wave Antennas”, L.K. Sandoval, R. Murphy, *Microwave and Optical Technology Letters*, Vol. 58, No. 10, October 2016, pp. 2516-2518. DOI: 10.1002/mop.30083
- 5.35**      “Conductance-to-Current-Ratio-Based Parameter Extraction in MOS Leakage Current Models”, A. Ortiz, A. Sucre, R. Torres, J. Molina, R. Murphy, F. García, *IEEE Transactions on Electron Devices*, Vol. 63, No. 10, October 2016, pp. 3844-3850. DOI: 10.1109/TED.2016.2597964
- 2017**      **5.36**      “A review of DC extraction methods for MOSFET series resistance and mobility degradation model parameters”, A. Ortiz, A. Sucre, F. Zárate, R. Torres, R. Murphy, J.J. Liou, F. García, *Microelectronics Reliability*, Vol. 69, February 2017, pp. 1-16. DOI: 10.1016/j.microrel.2016.12.016

- 5.37** “Development of Thick Film, CMOS Compatible Planar Millimetre-Wave Antenna for Antennas in Package Applications”, L.K. Sandoval, R. Murphy, *Microsystem Technologies*, Vol. 23, No. 7, July 2017, pp. 2927-2930. DOI: 10.1007/s00542-016-3084-z
- 2019**      **5.38** “Modeling Ground-Shielded Integrated Inductors Incorporating Frequency-Dependent Effects and Considering Multiple Resonances”, J. Valdés, R. Torres, R. Murphy, G. Álvarez, *IEEE Transactions on Microwave Theory and Techniques*, Vol. 67, No. 4, April 2019, pp. 1370-1378. DOI: 10.1109/TMTT.2019.2895579
- 2020**      **5.39** “Wideband Dual-Mode Microstrip Resonators as IF Filters in a K-Band Wireless Transceiver”, L. Rodríguez, C. Gutiérrez, R. Murphy, J. Meza, J. Torres, *Microwave and Optical Technology Letters*, Vol. 62, No. 2, February 2020, pp. 606-614. DOI: 10.1002/mop.32066
- 5.40** “Miniature Patch and Slot Microstrip Arrays for IoT and ISM Band Applications”, K. Olan, R. Murphy, E. Colín, *IEEE Access* Vol. 8, May 2020, pp. 102846-102854. DOI: 10.1109/ACCESS.2020.2998739
- 2021**      **5.41** “Determination of the Contribution of the Ground-Shield Losses to the Microwave Performance of On-Chip Coplanar Waveguides”, J. Valdés, R. Murphy, R. Torres, *IEEE Transactions on Microwave Theory and Techniques*, Vol. 69, No. 3, March 2021, pp. 1594-1601. DOI: 10.1109/TMTT.2021.3053548
- 5.42** “Assessment of through-silicon-vias with different configurations of ground vias and accounting for substrate losses”, Y. Rodríguez, R. Murphy, R. Torres, *International Journal of RF and Microwave Computer-Aided Engineering*, July 2021, pp. 1-9. DOI: 10.1002/mmce.22811
- 2022**      **5.43** “A novel metamaterial-based antenna for on-chip applications for the 72.5-81 GHz frequency range”, K. Olan, R. Murphy, *Scientific Reports*, Vol. 12, February 2022, pp. 1-9. DOI: 10.1038/s41598-022-05829-0
- 5.44** “A Novel and Compact Slotted-Decahedral Antenna for Millimeter-Wave 5G Devices”, K. Olan, R. Murphy, *Electronics*, Vol. 11, No. 12, 1813, June 2022, pp. 1-13. DOI: 10.3390/electronics11121813
- 5.45** “Modeling Microwave Connectors Used as Signal Launchers for Microstrip Lines of Different Widths”, Y. Rodríguez, R. Murphy, R. Torres, *IEEE Microwave and Wireless Components Letters*, Vol. 32, No. 7, July 2022, pp. 1-9. DOI: 10.1109/LMWC.2022.3179927

- 5.46** “Enhanced Monopole Antenna for On-Chip E-Band Application”, K. Olan, R. Murphy, URSI Radio Science Letters, Vol. 4, December 2022, pp. 1-5. DOI: 10.46620/22-0018
- 2023**      **5.47** “Dual-Band Antenna on 3D-Printed Substrate for 2.4/5.8 GHz ISM-Band Applications”, K. Olan, R. Murphy, Electronics, Vol. 12, 2368, May 2023, pp. 1-13. DOI: 10.3390/electronics12112368
- 5.48** “Identifying and Modeling Resonance-Related Fluctuations on the Experimental Characteristic Impedance for PCB and On-Chip Transmission Lines”, Y. Rodríguez, R. Torres, R. Murphy, Electronics, Vol. 12, 2994, July 2023, pp. 1-10. DOI: 10.3390/electronics12132994
- 2024**      **5.49** “An Improved Method to Measure, Characterize, and Model Microstrip Antennas in the W Band”, R. Murphy, E. Colín-Beltrán, M.T. Serrano-Serrano, C. Nwachukwu, S.C. Sejas-García, R. Torres-Torres, Instrumentation & Measurement Magazine, Vol. 27, No. 2, April 2024, pp. 53-58. DOI:10.1109/MIM.2024.10472981

## **6.- ARTICLES IN CONFERENCE PROCEEDINGS**

- 1989**      **6.001**      “Estructuras de Prueba y Técnicas de Medición de Parámetros en la Fabricación de Circuitos Integrados CMOS en el INAOE” (*Test Structures and Measurement Techniques in the Fabrication of CMOS Integrated Circuits at the INAOE*), M. Linares, R. Murphy, M. Aceves, Proceedings of the V Seminar on Physical Electronics, México, D.F., August 1989, pp. 81-85, 1989.
- 6.002**      “Caracterización del Proceso de Fabricación de Circuitos Integrados del INAOE” (*Characterization of the Integrated Circuit Fabrication Process at the INAOE*), R. Murphy, M. Linares, M. Aceves, Proceedings of the V Seminar on Physical Electronics, México City, México, August 1989, pp. 86-88.
- 1990**      **6.003**      “Un Proceso CMOS de Nueve Niveles” (*A Nine Level CMOS Process*), R. Murphy, Proceedings of the Electronics and Communications Conference UDLA-P-90. Universidad de las Américas, Puebla, February 1990, pp. 5.5-5.8, 1990.
- 6.004**      “Oscilador de Anillo Integrado CMOS” (*Integrated CMOS Ring Oscillator*), M. Linares, R. Murphy, W. Calleja, S. Fuentes, M. Aceves, Proceedings of ELECTRO-90, Chihuahua, México, October 1990, pp. 473-485.
- 6.005**      “Generación de Mascarillas para Circuitos Integrados” (*Integrated Circuit Mask Generation*), R. Murphy, M. Linares, T. León, T. Flores, Proceedings of ELECTRO-90, Chihuahua, México, October 1990, pp. 487-492.
- 1991**      **6.006**      “Control de Calidad en el Proceso ECMOS-1” (*Quality Control in the ECMOS-1 Process*), M. Aceves, M. Linares, R. Murphy, W. Calleja, I. Zaldívar, Proceedings of ELECTRO-91, Chihuahua, México, October 1991, pp. 807-820.
- 6.007**      “Fabricación de Celdas Digitales Estándard CMOS y su Aplicación en Circuitos Integrados” (*Fabrication of CMOS Standard Cells and their Application in Integrated Circuits*), M. Linares, S. Fuentes, I. Zaldívar, R. Murphy, W. Calleja, J. Remolina, M. Landa, Proceedings of ELECTRO-91, Chihuahua, México, October 1991, pp. 857-872
- 6.008**      “Métodos Estadísticos para la Optimización de Procesos: Un Ejemplo” (*Statistical Methods to Optimize Processes: An Example*), M. Aceves, R. Murphy, I. Fuentes, I. Zaldívar, Proceedings of ELECTRO-91, Chihuahua, México, October 1991, pp. 879-893.



- 1992**      **6.009**      “Diseño de Celdas Básicas Digitales y Analógicas MOS para la Construcción de Filtros a Capacitores Conmutados” (*The Design of Basic Analog and Digital Cells for the Construction of Switched-Capacitor Filters*), F. Sandoval, R. Murphy, S. Fuentes, Proceedings of the III International Conference on Electronics, Communications and Computers (CONIELECOM UDLA'92). Universidad de las Américas, Puebla, February 1992, pp. 6.9-6.18.
- 6.010**      “Diseño de un Dispositivo para Compensación de Pérdida Auditiva” (*Design of a Device to Compensate for Hearing Loss*), F. Sandoval, R. Murphy, M. Landa, I. Zaldívar, Proceedings of ELECTRO-92, Chihuahua, México, October 1992, pp. 527-541.
- 6.011**      “Polisilicio LPCVD para Aplicaciones en Microelectrónica: Una Revisión” (*LPCVD Polysilicon for Applications in Microelectronics: A Review*), R. Murphy, A. Torres, M. Aceves, Proceedings of ELECTRO-92, Chihuahua, México, October 1992, pp. 559-566.
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- 7.12** “Estudio Comparativo de los Métodos  $\Delta V_{BE}$  y Punzonado para Medir la Adherencia de Transistores de Potencia” (*A Comparative Study of the  $\Delta V_{BE}$  and Die-Punch Methods to Measure the Adherence of Power Transistors*), M. Aceves, R. Murphy, XXXIV National Conference on Physics, México City, México, October 1991, p. 42.
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- 1993**      **7.14** “Análisis por Computación del Gammagrama de Vaciamiento Gástrico” (*Computer Analysis of the Gastric Emptying Gammagram*), C. Arteaga, R. Murphy, C. Manzano, L. Uscanga, L. Morales, Proceedings of the XXVII Annual Conference of the Mexican Society of Nuclear Medicine, Ajijic, Jalisco, México, May 1993, pp. 112.

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- 7.16** “The Use of Statistical Methods to Insure the Quality and Optimization of Polysilicon Deposition”, M. Aceves, R. Murphy, A. Torres, W. Calleja, 1993 International Integrated Reliability Workshop, Lake Tahoe, California, USA, October 1993, pp. 113-122.
- 1997** **7.17** “Modelado de Circuitos Integrados CMOS” (*Modeling of CMOS Integrated Circuits*), R. Murphy, Proceedings of the VII Conference on Electronics, Electricity and Computational Systems, Tuxtla Gutiérrez, Chis., México, October 1997, pp. 24-27.
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- 7.21** “Fabricación de Transistores de Heterounión de Silicio” (*Fabrication of Heterojunction Transistors in Silicon*), P. Rosales, A. Torres, R. Murphy, Proceedings of the First Research Encounter, INAOE, Tonantzintla, Puebla, México, November 2000, pp. 9.
- 2001** **7.22** “Fabricación y Caracterización de Inductores Sobre Silicio” (*Fabrication and Characterization of Inductors on Silicon*), J. Huerta, A. Díaz, A. Torres, R. Murphy, W. Calleja, M. Landa, Proceedings of the XXI National Conference of Vacuum and Surface Sciences, October 2001, p. 54.
- 2002** **7.23** “Estado Actual y Perspectivas de los Postgrados en Ingeniería y Tecnología en México” (*Current State and Future of Graduate Studies in Engineering and Technology in México*), R. Murphy, Proceedings of the XVI National Conference on Graduate Studies, October 2002, p. 48-49.

- 2005**      **7.24**      “La Entrevista como Auxiliar en el Proceso de Admisión a la Maestría” (*The Interview as an Aid in the Admisión Process to a Master’s Program*), S. Zueck, A. Sarmiento, R. Murphy, Proceedings of the XIX National Conference on Graduate Studies, September 2005, p. 66.
- 7.25**      “La Entrevista como Herramienta de Evaluación Cualitativa en el Proceso de Selección a la Maestría en Electrónica del INAOE” (*The Interview as a Tool in the Qualitative Evaluation in the Selection Process for the Master’s in Electronics Program at INAOE*), S. Zueck, A. Sarmiento, R. Murphy, Proceedings of the XIX National Conference on Graduate Studies, September 2005, p. 106.
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- 7.27**      “Analytical characterization and modeling of shielded test structures for RFCMOS”, E. Torres, R. Torres, R. Murphy, E. Gutiérrez, Workshop on Frontiers in Electronics, Cozumel, México, December 2007.
- 2013**      **7.28**      “Integrated Antennas”, R. Murphy, International Engineering Seminar, Colombia, September 17-20, 2013.
- 7.29**      “Relevance of Engineering Education for Latin American Development”, R. Murphy, International Engineering Seminar, Colombia, September 17-20, 2013.
- 2015**      **7.30**      “Modelo escalable para la inductancia intrínseca de inductores espirales en RFCMOS” (*Scalable model for the intrinsic inductance of spiral RFCMOS inductors*), J. Valdés-Rayón, R. Murphy-Arteaga, R. Torres-Torres, Proceedings of the LVIII National Conference on Physics, Mérida, Yucatán, México, October 2015, pp. 122-123.
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- 1990**      **8.1**      “Micro-INAOE: Programa de Demostración del Diseño, Fabricación y Caracterización de Circuitos Integrados CMOS en el INAOE” (*Micro-INAOE: A Program to Show the Design, Fabrication and Characterization of CMOS Integrated Circuits in the INAOE*), S. Fuentes, J. Palomino, R. Murphy, M. Linares, M. Landa, C. Zúñiga, W. Calleja, M. Aceves, I. Fuentes, Technical Report # 87, INAOE, Tonantzintla, Puebla, 1990.
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- 1993**      **8.3**      “Fortalecimiento del Postgrado en Microelectrónica en el INAOE” (*The Strengthening of Graduate Studies in Microelectronics in the INAOE*), R. Murphy, M. Linares, T. León, T. Flores, Final Technical Report, COSNET Project Number 183.89, 1993.
- 1994**      **8.4**      “Apuntes de Teoría Electromagnética” (*Electromagnetic Theory Notes*), R. Murphy, Technical Report # 175, INAOE, Tonantzintla, Puebla, 1994.
- 1996**      **8.5**      “Celdas Digitales Estándar CMOS” (*Standard Digital CMOS Cells*), M. Linares, R. Murphy, W. Calleja, Technical Report # 204, INAOE, Tonantzintla, Puebla, 1996.



## **9.- GENERAL INTEREST ARTICLES**

- 1989**      **9.1**      “Laboratorio de Microelectrónica del Instituto Nacional de Astrofísica, Óptica y Electrónica” (*The Microelectronics Laboratory of the National Institute for Research in Astrophysics, Optics and Electronics*), R. Murphy, “Kinesis”, Journal of the Universidad Veracruzana, December 1989, pp. 29-31, 1989.
- 1992**      **9.2**      “Métodos Estadísticos Para Mejorar la Calidad de Procesos Industriales” (*Statistical Methods to Improve the Quality of Industrial Processes*), M. Aceves, R. Murphy, L.A. Hernández, Technical Report Section of “Contacto” (in three parts), Vol. 3, No. 26, June 1992; Vol. 3, No. 27, July 1992; Vol. 3, No. 28, August 1992.
- 1998**      **9.3**      “Determinación de Valores de Parámetros de Modelos Matemáticos por Optimización” (*Determination of the Value of the Parameters used in Mathematical Models by Optimization*), R. Murphy, Imaquinación, Journal published by the Electronics Department, INAOE, Vol. 1, No. 1, April 1998, pp. 12-16.
- 9.4**      “El Vertiginoso Desarrollo hacia la Microelectrónica”, (*The Amazing Development of Microelectronics*), R. Murphy, Daily Síntesis, University Section, May 19, 1998, pp. 6-7.
- 1999**      **9.5**      “¡Desarrollemos la microelectrónica en México!” (*Lets Develop Microelectronics in México!*), R. Murphy, Bulletin of the Mexican Society of Physics, Vol. 13, No. 3, July-September 1999, pp. 123-124. Also published in “Electrónica Universitaria”, Universidad de las Américas, Second Year, No. 5, November 1999, pp. 10-11.
- 9.6**      “Hagamos microelectrónica en México” (*Lets Do Microelectronics in México*), R. Murphy, Revista Perfiles de la UDLA, Year XIV, No. 17, December 1999, pp. 14.
- 2000**      **9.7**      “La Fabricación de Circuitos Integrados en México: Propuesta para Crear Centro Nacional de Microelectrónica” (*Fabrication of Integrated Circuits in México: A Proposal to Create a National Center for Microelectronics*), R. Murphy, Daily Síntesis, University Section, Monday 11 December 2000, pp. 2.
- 9.8**      “Caracterización del Transistor MOS en Altas Frecuencias” (*High Frequency Characterization of the MOS Transistor*), R. Murphy, Proceedings of the First Research Encounter, INAOE, Tonantzintla, Puebla, México, November 2000, pp. 117-120.

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- 2001**
- 9.10** “Importancia de apoyar la nanoelectrónica” (*The importance of Fomenting Nanoelectronics*), R. Murphy, Daily La Jornada, Monday with the Sciences Section, Monday 22 January 2001, pp. II-III.
- 9.11** “Caracterización del Transistor MOS en Altas Frecuencias” (*High Frequency Characterization of the MOS Transistor*), R. Murphy, Proceedings of the Second Research Encounter, INAOE, Tonantzintla, Puebla, México, November 2001, pp. 157-160.
- 9.12** “Fabricación y Caracterización de Inductores Coplanares Integrados” (*Fabrication and Characterization of Coplanar Integrated Inductors*), J. Huerta, A. Díaz, A. Torres, R. Murphy, W. Calleja, M. Landa, Proceedings of the Second Research Encounter, INAOE, Tonantzintla, Puebla, México, November, pp. 189-192.
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- 9.13** “Problemas que Enfrentan los Postgrados en Ingeniería y Tecnología en México” (*Problems Affecting Graduate Programs in Engineering and Technology in México*), R. Murphy, Proceedings of the Third International Conference on Higher Education, Havana, Cuba, February 2002, pp. 136-147.
- 9.14** “Difusión de Boro en  $\text{Si}_{0.848}\text{Ge}_{0.15}\text{C}_{0.002}$  Usando Recocidos Térmicos Rápidos a Altas Temperaturas” (*Diffusion of Boron in  $\text{Si}_{0.848}\text{Ge}_{0.15}\text{C}_{0.002}$  using High-Temperature Rapid Thermal Annealing*), P. Rosales, A. Torres, R. Murphy, C. Zúñiga, Proceedings of the Third Research Encounter, INAOE, November 2002, pp. 267-270.
- 9.15** “Modelado de la Capacitancia Parásita de Compuerta de un TMOS LDD” (*Modeling the Parasitic Gate Capacitance of an LDD MOST*), L. Ortega, R. Murphy, Proceedings of the Third Research Encounter, INAOE, INAOE, November 2002, pp. 303-306.
- 9.16** “Modelado del Transistor MOS para Aplicaciones de RF Utilizando BSIM3v3” (*Modeling the MOS Transistor for RF Applications using BSMI 3V3*), R. Torres, R. Murphy, Proceedings of the Third Research Encounter, INAOE, November 2002, pp. 307-310.

- 2003**      **9.17**      “On the State of Electronic Engineering Education in México”, R. Murphy, Proceedings of the Ibero American Summit on Engineering Education, São José dos Campos, Brazil, March 2003, pp. 1-4.
- 9.18**      “Efecto de la Corriente de Fuga a Altas Frecuencias en Transistores MOS con Óxido de Compuerta Ultra-Delgado” (*Effects of Leakage Currents in MOS Transistors with Ultra-Thin Gate Oxides*), R. Torres, R. Murphy, Proceedings of the Fourth Research Encounter, INAOE, November 2003, pp. 141-144.
- 9.19**      “n-Type a-SiGe:H/p-Type Crystalline-Silicon Heterojunctions”, P. Rosales, A. Torres, R. Murphy, M. Landa, C. Zúñiga, Proceedings of the Fourth Research Encounter, INAOE, November 2003, pp. 153-156.
- 2004**      **9.20**      “Low Temperature Annealing on n-type a-SiGe:H/p-type c-Silicon Heterojunctions”, P. Rosales, A. Torres, R. Murphy, F.J. De la Hidalga, Proceedings of the Fifth Research Encounter, INAOE, November 2004, pp. 169-172.
- 2010**      **9.21**      “Nivel Académico y Demanda de Posgrados” (*Academic Level and Demand of Graduate Studies*), R. Murphy, daily journal El Financiero, Wednesday May 26 2010, pp. 8-9.
- 9.22**      “MTT World: Microwave Engineering in Mexico”, R. Murphy, R. Torres, Microwave Magazine, Vol. 11, No. 6, October 2010, pp. 152-148.
- 2013**      **9.23**      “Mexico: More than Tortilla Chips”, R. Murphy, 50<sup>th</sup> Design Automation Conference (DAC 2013), Austin, Texas, EUA, June 2013.
- 2014**      **9.24**      “R&D in Latin America”, R. Murphy, R. Torres, J.E. Rayas, A. Reynoso, M. Maya, A. Henze, A. Zozaya, P. Del Pino, J. Peña, G. Rafael, IEEE Microwave Magazine, IMS Special Issue, May 2014, pp. 97-103.
- 2015**      **9.25**      “A Bird’s-eye View of Microwave R&D in Latin America”, R. Murphy, Proceedings of the IEEE International Microwave Symposium (IMS 2015), Phoenix, Arizona, USA, May 2015, pp. 1-3.
- 2018**      **9.26**      “High Frequency Device Characterisation Laboratory at the “Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE)”, Tonantzintla, Puebla, México”, R. Murphy, R. Torres, Proceedings of the 48<sup>th</sup> European Microwave Conference, Madrid, Spain, September 2018, pp. 592-595.

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## **10.- THESES AND CHAPTERS IN BOOKS**

- 1982**      **10.1**      “P-N Junction and MOSFET Capacitance”, St. John’s University, 1982.
- 1988**      **10.2**      “Bases para el Diseño y Fabricación de Circuitos Analógicos Integrados CMOS” (*Basis for the Design and Fabrication of Analog CMOS Integrated Circuits*), National Institute for Research in Astrophysics, Optics and Electronics, 1988.
- 1997**      **10.3**      “Prospects for the MOS Transistor as a High Frequency Device”, National Institute for Research in Astrophysics, Optics and Electronics, 1997.
- 1998**      **10.4**      “Teoría Electromagnética para Estudiantes de Electrónica y Física” (*Electromagnetic Theory for Students of Electronics and Physics*), National Institute for Research in Astrophysics, Optics and Electronics, 1998, Registered before the National Institute of Authorial Rights under number INDA # 03-1998-120912191600-01.
- 2001**      **10.5**      “Teoría Electromagnética” (*Electromagnetic Theory*), Editorial Trillas, ISBN 968-24-6277-0, June 2001.
- 10.6**      Book Chapter: “The FTO/SRO/Si Structure as a Radiation Sensor”, M. Aceves, A. Malik, R. Murphy, in book “Sensors & Chemometrics 2001”, Research Signpost, India, ISBN 81-7736-067-1, November 2001, pp. 1-25.

## **11.- PRESENTATIONS IN CONFERENCES**

- 1983**      **11.001**      “Chips y Medicina Nuclear” (*Chips and Nuclear Medicine*), XVII Annual Conference of the Mexican Society of Nuclear Medicine, Cuernavaca, Morelos, México, April 1983.  
(Plenary session presentation, 10 minutes.)
- 1989**      **11.002**      “Caracterización del Proceso de Fabricación de Circuitos Integrados del INAOE”, (*Characterization of the Integrated Circuit Fabrication Process at the INAOE*), V Seminar on Physical Electronics, México City, México, August 1989.  
(Plenary session presentation, 20 minutes.)
- 1990**      **11.003**      “Un Proceso CMOS de Nueve Niveles”, (*A Nine Level CMOS Process*), R. Murphy, Electronics and Communications Conference UDLA-P-90. Universidad de las Américas, Puebla, February 1990.  
(Simultaneous session presentation, 50 minutes.)
- 11.004**      “Diseño y Fabricación de Circuitos Integrados CMOS” (*Design and Fabrication of CMOS Integrated Circuits*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Simultaneous session presentation, 10 minutes.)
- 11.005**      “Diseño y Fabricación de un Sensor Magnético de Efecto Hall” (*Design and Fabrication of a Hall Effect Magnetic Sensor*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Oral explanation of poster.)
- 11.006**      “Desarrollo de un Proceso de Fabricación NMOS” (*The Development of an NMOS Fabrication Process*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Oral explanation of poster.)
- 11.007**      “Celdas Básicas Digitales” (*Digital Basic Cells*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Oral explanation of poster.)
- 11.008**      “Caracterización Eléctrica de Circuitos Integrados CMOS” (*Electrical Characterization of CMOS Integrated Circuits*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Oral explanation of poster.)

- 11.009** “Implantación de Iones en Circuitos MOS Complementarios” (*Ion Implantation in Complementary MOS Circuits*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Oral explanation of poster.)
- 11.010** “Películas CVD para Procesos MOS” (*CVD Films for MOS Processes*), XXXIII National Conference on Physics, Ensenada, Baja California, México, October 1990.  
(Oral explanation of poster.)
- 1991** **11.011** “Modelado de Circuitos Integrados CMOS en HSPICE” (*The Modeling of CMOS Integrated Circuits Using HSPICE*), Electronics and Communications Conference, UDLA-P-91, February 1991.  
(Plenary session presentation, 50 minutes.)
- 11.012** “Characterization and Modeling of Integrated Circuits”, México-Japan Microelectronics Seminar, INAOE, April 1991.  
(Plenary session presentation, 20 minutes.)
- 11.013** “Caracterización de Circuitos Integrados” (*Characterization of Integrated Circuits*), Universidad Autónoma de Puebla, Puebla, Puebla, México, May 2 1991.  
(Invited plenary session presentation, 50 minutes.)
- 11.014** “Modelado de Dispositivos CMOS” (*Modeling of CMOS Devices*), IV Week of Electronic Engineering, ITESO, Guadalajara, Jalisco, México, August 27 1991.  
(Plenary session presentation, 50 minutes.)
- 11.015** “Un Dispositivo para Ayuda en Deficiencias Auditivas” (*A Hearing Loss Assistance Device*), XXXIV National Conference on Physics, México City, México, October 21, 1991.  
(Simultaneous session presentation, 10 minutes.)
- 11.016** “Estudio Comparativo de los Métodos  $\Delta V_{BE}$  y Punzonado para Medir la Adherencia de Transistores de Potencia” (*A Comparative Study of the  $\Delta V_{BE}$  and Die-Punch Methods to Measure the Adherence of Power Transistors*), XXXIV National Conference on Physics, México City, México, October 22, 1991.  
(Oral explanation of poster.)
- 1992** **11.017** “Depósito LPCVD de Silicio Policristalino: Una Revisión” (*LPCVD of Polycrystalline Silicon: A Review*), XXXV National Conference on Physics, Puebla, Puebla, México, October 26 1992.  
(Simultaneous session presentation, 10 minutes.)

- 1993**      **11.018**      “Modelado de la Curva de Vaciamiento Gástrico” (*Modeling of the Gastric Emptying Curve*), XXXVI National Conference on Physics, Acapulco, Guerrero, México, October 22 1993.  
(Simultaneous session presentation, 10 minutes.)
- 1996**      **11.019**      “Sobre la Caracterización en Alta Frecuencia de Transistores MOS” (*On the High-Frequency Characterization of MOS Transistors*), R. Murphy, E. Gutiérrez, VI International Conference on Electronics, Communications and Computers (CONIELECOM UDLA'96), February 29 1996.  
(Simultaneous session presentation, 20 minutes.)
- 11.020**      “Programa de Computación BIEXP para Radiofarmaco-cinética”, (*BIEXP: a Computer Program for Radiopharmaceutical kinetics*) Advanced Workshop for the Training on Radiopharmaceutical kinetics, México City, México, March 1 1996.  
(Oral explanation of poster.)
- 11.021**      “Sobre el Modelado de Dispositivos Semiconductores” (*On the Modeling of Semiconductor Devices*), Electronic Engineering Colloquium, Instituto Tecnológico de Puebla, Puebla, Puebla, México, September 12 1996.  
(Plenary session presentation, 50 minutes.)
- 1997**      **11.022**      “Modelado de Circuitos Integrados CMOS” (*Modeling of CMOS Integrated Circuits*), R. Murphy, VII Conference on Electronics, Electricity and Computational Systems, Tuxtla Gutiérrez, Chiapas, México, October 23 1997.  
(Plenary session presentation, 50 minutes.)
- 1998**      **11.023**      “Characterization of the Submicron MOS Transistor for High-Frequency Applications”, VIII International Conference of Electronics, Communications and Computers (CONIELECOMP 98), Cholula, Puebla, México, February 25 1998.  
(Simultaneous session presentation, 20 minutes.)
- 11.024**      “Modelado de Circuitos Integrados CMOS” (Modeling of CMOS Integrated Circuits), First Updating Conference on Electronic Engineering, Communications and Computers, Poza Rica, Veracruz, México, March 25, 1998.  
(Simultaneous session presentation, 20 minutes.)
- 11.025**      “Impedancia del Polisilicio Usado como Línea de Interconexión en Circuitos Integrados” (*Impedance of the Polysilicon used as Interconnect in Integrated Circuits*), VI Regional Encounter on Research and Teaching of Physics, Puebla, Puebla, México, June 26, 1998.  
(Oral explanation of poster.)



- 11.026** “A Straightforward De-Embedding Technique for High-Frequency Measurements of MOS Transistors”, 2<sup>nd</sup> International Conference on Research in Electrical and Electronics Engineering, Aguascalientes, Aguascalientes, México, September 14, 1998. (Simultaneous session presentation, 20 minutes.)
- 11.027** “La Necesidad del Desarrollo de la Microelectrónica en México” (*The Need to Develop Microelectronics in México*), Puebla Institute of Technology, Puebla, Puebla, México, October 9, 1998. (Invited plenary session presentation, 50 minutes.)
- 1999**
- 11.028** “Impedancia de Líneas de Polisilicio” (*Impedance of Polysilicon Lines*), IX International Conference on Electronics, Communications and Computers (CONIELECOMP 99), Cholula, Puebla, México, March 2, 1999. (Simultaneous session presentation, 20 minutes.)
- 11.029** “Temperature Dependence of a Split—Drain MAGFET”, IX International Conference on Electronics, Communications and Computers (CONIELECOMP 99), Cholula, Puebla, México, March 2, 1999. (Simultaneous session presentation, 20 minutes.)
- 11.030** “Análisis de Líneas de Interconexión de Polisilicio para Circuitos Integrados CMOS” (*Analysis of Polysilicon Interconnect Lines for CMOS Integrated Circuits*), First International Conference on Electronics, Communications and Computers (CIECC’99), March 24, 1999. (Simultaneous session presentation, 20 minutes.)
- 11.031** “Algunas Consideraciones Sobre el Diseño y Fabricación de Circuitos Integrados CMOS para Comunicaciones Inalámbricas” (*Some Considerations on the Design and Fabrication of CMOS Integrated Circuits for Wireless Communications*), Institutional Seminary of the INAOE, July 22, 1999. (Plenary session presentation, 50 minutes.)
- 11.032** “Algunas Consideraciones Sobre el Diseño y Fabricación de CI CMOS para Aplicaciones Inalámbricas” (*Some Considerations on the Design and Fabrication of CMOS Integrated Circuits for Wireless Applications*), Seminary of the Master’s in Semiconductor Devices Program, Research Center for Semiconductor Devices, BUAP, July 23, 1999. (Invited plenary session presentation, 50 minutes.)

- 2000**      **11.033**      “Circuitos Integrados CMOS para Comunicaciones Inalámbricas: Lineamientos de Diseño, Fabricación y Simulación” (*CMOS Integrated Circuits for Wireless Communications: Guidelines for the Design, Fabrication and Simulation*), X International Conference on Electronics, Communications and Computers (CONIELECOMP 2000), February 29, 2000.  
(Invited plenary session presentation, 60 minutes.)
- 11.034**      “Simulación de Circuitos Integrados CMOS para Aplicaciones en Altas Frecuencias Usando SPICE” (*Simulation of CMOS Integrated Circuits for High Frequency Applications using SPICE*), X International Conference on Electronics, Communications and Computers (CONIELECOMP 2000), March 1<sup>st</sup> 2000.  
(Simultaneous session presentation, 20 minutes.)
- 11.035**      “Fabricación de Circuitos Integrados en México” (*Fabrication of Integrated Circuits in México*), SIEEEM2000, Monterrey, Nuevo León, México, October 13, 2000.  
(Invited plenary session presentation, 80 minutes.)
- 11.036**      “Caracterización del TMOS en Altas Frecuencias” (*High Frequency Characterization of the MOS Transistor*), First Research Encounter, INAOE 2000, Tonantzintla, Puebla, México, November 16, 2000.  
(Plenary session presentation, 15 minutes)
- 2001**      **11.037**      “A Perspective of Research & Development in México”, Annual Ibero American Research and Development Summit (AIRDS 2001), Albuquerque, New México, USA, May 8 2001.  
(Invited simultaneous session presentation, 20 minutes.)
- 11.038**      “Caracterización del TMOS en Altas Frecuencias” (*High Frequency Characterization of the MOS Transistor*), Second Research Encounter, INAOE 2001, Tonantzintla, Puebla, México, November 15, 2001.  
(Oral explanation of poster)
- 11.039**      “Microelectrónica en México” (*Microelectronics in México*), First International Conference of Systems and Communications, Cristóbal Colón University, Veracruz, Veracruz, México, November 17, 2001.  
(Invited plenary session presentation, 105 minutes)
- 2002**      **11.040**      “Problemas que Enfrentan los Postgrados en Ingeniería y Tecnología en México” (*Problems Affecting Graduate Programs in Engineering and Technology in México*), Third International Conference on Higher Education, Havana, Cuba, February 5 2002.  
(Plenary session, 45 minutes)

- 11.041** “La Física y las Matemáticas en el Análisis y Diseño del Transistor MOS” (*Physics and Mathematics in the Analysis and Design of the MOS Transistor*), Sixth Cycle of Physics and Mathematics Conferences, Universidad de las Américas, Cholula, Puebla, México, February 13 2002.  
(Invited plenary session presentation, 60 minutes)
- 11.042** “Microelectrónica” (*Microelectronics*), XL Week of Sciences, Universidad Autónoma de San Luis Potosí, San Luis Potosí, San Luis Potosí, México, March 21 2002.  
(Invited plenary session presentation, 60 minutes)
- 11.043** “An Alternative Method to Determine Effective Channel Length and Parasitic Series Resistance of LDD MOSFET’s”, Fourth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2002), Aruba, April 17 2002.  
(Simultaneous session presentation, 20 minutes.)
- 11.044** “Consequence of the Coupled Variables in Homotopic Simulation of Nonlinear Resistive Circuits”, Fourth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2002), Aruba, April 18 2002.  
(Simultaneous session presentation, 20 minutes.)
- 11.045** “Engineering Education in Latin America needs to be Thoroughly Overhauled” Fourth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2002), Aruba, April 18 2002.  
(Invited participation in Round Table, 150 minutes)
- 11.046** “La Educación Superior en Puebla: Características y Tendencias” (*Higher Education in Puebla: Traits and Trends*) Third Conference on Higher Education SEP-Puebla, Cholula, Puebla, México, April 26 2002.  
(Invited participation in Round Table, 135 minutes)
- 11.047** “Formando Investigadores” (*Forming Researchers*) VIII Regional Encounter on Research and Education in Physics, BUAP, Puebla, Puebla, México, June 6 2002.  
(Invited participation in Round Table, 150 minutes)
- 11.048** “Estado Actual y Perspectivas de los Postgrados en Ingeniería y Tecnología en México” (*Current State and Future of Graduate Programs in Engineering and Technology in México*), R. Murphy, XVI Nacional Graduate Studies Conference, Morelia, Michoacán, México, October 22 2001.  
(Simultaneous session presentation, 10 minutes.)

- 11.049** “Estado de la Educación en Ingeniería y Tecnología en México” (*State of Engineering and Technology in México*), IEEE Latin-American CAS Tour 2000, INAOE, Tonantzintla, Puebla, México, November 20 2002.  
(Invited participation in Round Table, 150 minutes)
- 2003**      **11.050** “On the State of Electronic Engineering Education in México”, R. Murphy, Ibero American Summit on Engineering Education, Sao José dos Campos, Brazil, March 25 2003.  
(Simultaneous session presentation, 20 minutes.)
- 11.051** “¿Es el Futuro la Especialización?” (*Is Specialization the Future?*) Third National Symposium on Optics in Industry, INAOE, Tonantzintla, Puebla, México, July 11 2003.  
(Invited participation in Round Table, 120 minutes)
- 2004**      **11.052** “Laboratorios Remotos para la Educación a Distancia en Electrónica” (*Remote Laboratorios for Distance Education in Electronics*), Fourth International Conference on Higher Education (UNIVERSIDAD 2004), Havana, Cuba, February 6 2004.  
(Simultaneous session presentation, 15 minutes.)
- 11.053** “Formación de Posgrado en Microelectrónica y Microtecnologías, ¿Es Viable Compartir Recursos?”, (*Formation of Human Resources in Microelectronics and Microthechnologies, Is Sharing Resources Feasible?*), X International Iberchip Workshop, Cartagena, Colombia, March 12 2004.  
(Invited participation in Round Table, 105 minutes)
- 11.054** “Diseño de Antenas” (*Antenna Design*), Fourth National Conference on Computer Systems, Universidad Cuauhtémoc, Puebla, Puebla, México, April 28, 2004.  
(Invited participation in plenary session, 60 minutes)
- 11.055** “CEITEC and the Latin American Microelectronics Market Development”, Seminario Desafios da Microeletrônica: o papel do CEITEC, Porto Alegre, Brazil, June 1, 2004.  
(Invited participation in Round Table, 120 minutes)
- 11.056** “Straightforward Determination of Small-Signal Model Parameters for Bulk RF-MOSFETs”, Fifth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2004), Punta Cana, Dominican Republic, November 3 2004.  
(Simultaneous session presentation, 20 minutes.)

- 11.057** “Linearity in Two Optical Receiver Structures for High-Frequency Applications”, Fifth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2004), Punta Cana, Dominican Republic, November 4 2004.  
(Simultaneous session presentation, 20 minutes.)
- 11.058** “Effects of the Low Temperature Annealing on the Transport Mechanisms in n-type a-SiGe:H/p-type c-Silicon Heterojunctions”, Fifth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2004), Punta Cana, Dominican Republic, November 4 2004.  
(Simultaneous session presentation, 20 minutes.)
- 2005**      **11.059** “Estado de los Programas de Postgrado en Ingeniería y Tecnología en México” (*On the State of Graduate Programs in Engineering and Technology in México*), National Forum on the Higher Education System, Pachuca, Hidalgo, México, October 11 2005.  
(Simultaneous session presentation, 20 minutes.)
- 2006**      **11.060** “Estado de los Programas de Postgrado en Ingeniería y Tecnología en México”, (*On the State of Graduate Programs in Engineering and Technology in México*), National Forum on the Higher Education System, México D.F., México, February 27 2006.  
(Simultaneous session presentation, 20 minutes.)
- 2007**      **11.061** “Nuevos Escenarios para el Posgrado”, (*New Scenarios for Graduate Studies*), XXI National Conference on Graduate Studies, Guadalajara, Jalisco, México, November 22, 2007.  
(Invited participation in Round Table, 90 minutes)
- 2008**      **11.062** “Perspectivas de Desarrollo de Jóvenes Investigadores en el País”, (*Perspectives for the development of Young Researchers in the Country*), VII Workshop for Syudents of Physics and Materials Science, Puebla, Puebla, México, March 13 2008.  
(Invited participation in Round Table, 120 minutes)
- 11.063** “Modelado del Transistor MOS para Aplicaciones en Altas Frecuencias”, (*Modeling of the MOS Transistor for High-Frequency Applications*), Universidad Simón Bolívar, Caracas, Venezuela, June 19 2008.  
(Invited plenary session presentation, 100 minutes)
- 2009**      **11.064** “Metamaterial-Mems Reconfigurable Transmission Line”, 2009 International Iberchip Workshop (IWS2009), Buenos Aires, Argentina, March 27 2009.  
(Simultaneous session presentation, 15 minutes)

- 11.065** “El Estado y Perspectivas de la Investigación en la Universidad Pública”, (*The State and Perspectives of Research in Public Universities*) First Forum of Research Results, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, México, August 28 2009.  
(Invited participation in Round Table, 120 minutes)
- 2010**
- 11.066** “El Estado Actual y Perspectivas del Postgrado en México”, (*The State and Perspectives of Graduate Studies in Mexico*), Universidad Autónoma de Tamaulipas, Ciudad Victoria, Tamaulipas, México, March 17 2010.  
(Invited plenary session presentation, 90 minutes)
- 11.067** “Una Visión del Postgrado en México”, (*A Vision of Graduate Studies in Mexico*) Centro de Investigaciones Biológicas del Noroeste, La Paz, Baja California Sur, México, April 21 2010.  
(Invited plenary session presentation, 60 minutes)
- 11.068** “El Estado Actual y Perspectivas del Postgrado en México”, (*The State and Perspectives of Graduate Studies in Mexico*), Universidad Autónoma de Baja California Sur, La Paz, Baja California Sur, México, April 21 2010.  
(Invited plenary session presentation, 60 minutes)
- 11.069** “La Importancia de los Medios de Comunicación Modernos en el Posgrado”, (*The Importance of the Modern Means of Communication in Graduate Studies*), Universidad Autónoma del Estado de Hidalgo, Pachuca, México, May 20 2010.  
(Invited participation in Round Table, 90 minutes)
- 11.070** “El impacto de la investigación educativa en el quehacer de las IES”, (*The Impact of Educational Research in the Daily Tasks of Institutions of Higher Learning*), Instituto Politécnico Nacional, México, D.F., México, May 28 2010.  
(Invited participation in Round Table, 120 minutes)
- 11.071** “Evaluando Resultados de los programas de Apoyo a Becas de Posgrado” (*Evaluating the Results of the Graduate Studies Scholarship Program*), México, D.F., México, June 24, 2010.  
(Invited participation in Round Table, 150 minutes)
- 11.072** “High Frequency Electronics”, Instituto Tecnológico Superior de Atlixco, Puebla, México, October 18, 2010.  
(Invited plenary session presentation, 60 minutes)
- 2011**
- 11.073** “High Frequency Measurements: The Basics”, Universidade Federal de Santa Catarina, Florianópolis, Brazil, May 16, 2011.  
(Invited plenary session presentation, 60 minutes)

- 11.074** “El PNPC y Paradigmas de Calidad en el Posgrado” (*The National Registry of Quality Graduate Programs and Quality Paradigms in Graduate Studies*), Guanajuato, Guanajuato, México, September 22, 2011.  
(Invited participation in Round Table, 150 minutes)
- 2012**
- 11.075** “La Ingeniería en América Latina: Situación y Retos” (*Engineering in Latin America: Current State and Challenges*), Bogotá Colombia, August 15, 2012.  
(Invited plenary session presentation, 60 minutes)
- 11.076** “La Situación de la Ingeniería en América Latina” (*The Situation of Engineering in Latin America*), Morelia, Michoacán, México, September 27, 2012.  
(Simultaneous session presentation, 20 minutes)
- 11.077** “ISTEC’s Impact on the Development of Science and Technology Education in Latin America”, World Engineering Education Forum (WEEF 2012), Buenos Aires, Argentina, October 17, 2012.  
(Simultaneous session presentation, 20 minutes)
- 11.078** “Overhauling Engineering Education in Latin America”, World Engineering Education Forum (WEEF 2012), Buenos Aires, Argentina, October 18, 2012.  
(Simultaneous session presentation, 20 minutes)
- 2013**
- 11.079** “Design Considerations for Integrated Antennas used in High Frequency Applications”, R. Murphy, XIX International IBERCHIP Workshop, Cusco, Perú, February 27 2013.  
(Simultaneous session presentation, 20 minutes)
- 11.080** “Tendencias Actuales y Visión de la Investigación en México” (*Current Trends and Vision of Research in Mexico*), R. Murphy, 6<sup>to</sup> Coloquio Interdisciplinario de Doctorado, Universidad Popular Autónoma del Estado de Puebla, June 27, 2013.  
(Invited plenary session presentation, 60 minutes)
- 11.081** “Relevancia de la Educación en Ingeniería para el Desarrollo de América Latina” (*Relevance of Engineering Education for the Development of Latin America*), R. Murphy, International Engineering Seminar, Universidad San Gil, Colombia, September 17, 2013, El Yopal, Casanare, Colombia; September 19 2013, San Gil, Santander, Colombia.  
(Invited plenary session presentation, 90 minutes)

- 11.082** “Engineering Education for Development”, R. Murphy, International Engineering Seminar, Universidad San Gil, Colombia, September 17, 2013, El Yopal, Casanare, Colombia; September 19 2013, San Gil, Santander, Colombia.  
(Invited participation in Round Table, 90 minutes)
- 11.083** “Antenas Integradas” (*Integrated Antennas*), R. Murphy, International Engineering Seminar, Universidad San Gil, Colombia, 18 September 2013, El Yopal, Casanare, Colombia; 20 September 2013, San Gil, Santander, Colombia.  
(Invited plenary session presentation, 90 minutes)
- 11.084** “Understanding the Properties of RF-MOSFETs Using the Smith Chart”, R. Murphy, World Engineering Education Forum (WEEF 2013), Cartagena, Colombia, September 25, 2013.  
(Simultaneous session presentation, 20 minutes)
- 11.085** “Relationship with the Environment: Innovation and Entrepreneurship”, R. Murphy, World Engineering Education Forum (WEEF 2013), Cartagena, Colombia, September 26, 2013.  
(Invited participation in Round Table, 60 minutes)
- 2014** **11.086** “Antenas Integradas” (*Integrated Antennas*), R. Murphy, Universidad Veracruzana, Veracruz, Veracruz, México, October 31, 2014.  
(Invited plenary session presentation, 90 minutes)
- 2015** **11.087** “Characterization of Semiconductor Devices in the High-Frequency Regime”, R. Murphy, IEEE Latin American Symposium on Circuits and Systems (LASCAS 2015), Montevideo, Uruguay, February 25, 2015.  
(Tutorial Course, 180 minutes)
- 11.088** “A Bird’s-eye View of Microwave R&D in Latin America”, R. Murphy, IEEE International Microwave Symposium (IMS 2015), Phoenix, Arizona, USA, May 21, 2015.  
(Simultaneous session presentation, 10 minutes)
- 11.089** “La Investigación en México, Realidad y Perspectiva” (*Research in Mexico, Reality and Perspective*), R. Murphy, Tercer Encuentro de Jóvenes Investigadores, Universidad de Colima, October 16, 2015.  
(Invited plenary session presentation, 90 minutes)
- 11.090** “Sensores for Bio-Medical Applications”, R. Murphy, Coloquio de la Sociedad de Dispositivos Electrónicos de IEEE, Universidad Javeriana, Bogotá, Colombia, October 20, 2015.  
(Invited plenary session presentation, 90 minutes)



- 11.091** “Sensores for Bio-Medical Applications”, R. Murphy, Cuarto Congreso Internacional de Instrumentación, Control y Telecomunicaciones y Primer Congreso Internacional en Diseño, Fabricación y Nuevos Materiales, Universidad Santo Tomás, Tunja, Colombia, October 22, 2015.  
(Invited plenary session presentation, 90 minutes)
- 11.092** “Antenna Design”, R. Murphy, Cuarto Congreso Internacional de Instrumentación, Control y Telecomunicaciones y Primer Congreso Internacional en Diseño, Fabricación y Nuevos Materiales, Universidad Santo Tomás, Tunja, Colombia, October 23, 2015.  
(Tutorial Course, 270 minutes)
- 11.093** “La Necesidad de Fomentar la Investigación de Alto Impacto en América Latina” (*The Need to Foster High-Impact Research in Latin America*), R. Murphy, Tercer Encuentro Grupos de Investigación, Universidad Distrital Francisco José de Caldas, Bogotá, Colombia, November 18, 2015.  
(Invited plenary session presentation, 90 minutes)
- 2016** **11.094** “Sensors for Bio-Medical Applications”, R. Murphy, XXVI Simposium Internacional Tecnológica, Instituto Tecnológico de Morelia, Michoacán, México, April 21, 2015.  
(Invited plenary session presentation, 60 minutes)
- 11.095** “Characterization of the MOS Transistor in the High-Frequency Regime”, R. Murphy, Universidade Federal do Santa Maria, Brazil, May 9, 2016.  
(Invited plenary session presentation, 90 minutes)
- 11.096** “Characterization of the MOS Transistor in the High-Frequency Regime”, R. Murphy, Universidade Federal do Rio Grande do Sul, Brazil, May 12, 2016.  
(Invited plenary session presentation, 75 minutes)
- 11.097** “An Overview of RF and Microwave Engineering Research Collaboration between Latin America and the Rest of the World”, R. Murphy, 46<sup>th</sup> European Microwave Conference (EuMWC 2016), London, England, October 6, 2016.  
(Simultaneous session presentation, 20 minutes)
- 2017** **11.098** “A Versatile, CMOS Compatible, Integrated Antenna for Millimeter-Wave Applications”, R. Murphy, 2017 Latin American Symposium on Circuits and Systems (LASCAS 2017), Bariloche, Argentina, February 22, 2017.  
(Simultaneous session presentation, 20 minutes)

- 11.099** “The Global Impact of Electrical and Computer Engineering in Society. Case in Point: Latin America”, R. Murphy, 2017 ECEDHA Conference, Miramar Beach, Florida, USA, March 18, 2017.  
(Invited participation in Round Table, 90 minutes)
- 11.100** “General Overview of the Use of Sensors in the Life-Sciences”, R. Murphy, UPAEP, Puebla, April 6, 2017.  
(Invited plenary session presentation, 60 minutes)
- 11.101** “The Importance of Scientific Work”, R. Murphy, INAOE, Tonantzintla, Puebla, Mexico, May 11, 2017.  
(Invited plenary session presentation, 60 minutes)
- 11.102** “Antenas for Wireless Communications and other Applications”, R. Murphy, UPAEP, Puebla, Puebla, Mexico, June 30, 2017.  
(Invited plenary sesión presentation, 30 minutes)
- 11.103** “Antennas in Integrated Circuits”, R. Murphy, University of Guadalajara, Jalisco, Mexico, August 23, 2017.  
(Plenary sesión presentation, 60 minutes)
- 11.104** “Integrated Antennas”, R. Murphy, Iberoamerican University, Puebla, Puebla, Mexico, October 5, 2017.  
(Plenary sesión presentation, 60 minutes)
- 2018** **11.105** “High Frequency Device Characterisation Laboratory at the “Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE)”, Tonantzintla, Puebla, México”, R. Murphy, 48<sup>th</sup> European Microwave Conference, Madrid, España, September 26, 2018.  
(Invited simultaneous session presentation, 20 minutes)
- 11.106** “Panorama de la Investigación Científica en América Latina” (*An Overview of Scientific Research in Latin America*), R. Murphy, International Conference “The Influence of Technology in Knowledge Communities”, La Paz, Bolivia, October 12, 2018.  
(Invited plenary sesión presentation, 60 minutes)
- 11.107** “Some Considerations Regarding the Modeling and Characterization of Bulk CMOS Devices for High-Frequency Applications”, R. Murphy, 2018 IEEE 13<sup>th</sup> Nanotechnology Materials and Devices Conference (NMDC), Portland, Oregon, EUA, October 15, 2018.  
(Invited simultaneous session presentation, 30 minutes)
- 11.108** “Integrated Antennas: Past, Present and Future”, R. Murphy, EDS Distinguished Lecturer Conference, Universidad Pontificia Bolivariana, Medellín, Colombia, October 18, 2018.  
(Invited plenary sesión presentation, 90 minutes)

- 11.109** “Integrated Antennas: Past, Present and Future”, R. Murphy, Workshop on Engineering Applications (WEA’18), Medellín, Colombia, October 18, 2018.  
(Invited plenary sesión presentation, 90 minutes)
- 11.110** “Integrated Antennas: Past, Present and Future”, R. Murphy, National Micro and Nanoelectronics Conference (nano MX 2018), Puebla, México, October 26, 2018.  
(Invited plenary sesión presentation, 60 minutes)
- 2019**
- 11.111** “Fundamental Aspects of CMOS RF Modeling and Characterization”, R. Murphy, Hyderabad IEEE EDS Mini Colloquium, Hyderabad, India, February 24, 2019.  
(Invited plenary sesión presentation, 60 minutes)
- 11.112** “Characterization of Semiconductor Devices in the High-Frequency Regime”, R. Murphy, MOS-AK India 2019, Hyderabad, India, February 25, 2019.  
(Invited Tutorial Course, 180 minutes)
- 11.113** “RF Electrical Characterization”, R. Murphy, ESSDERC/ESSCIRC 2019, Krakow, Poland, September 23, 2019.  
(Invited Tutorial Course, 45 minutes)
- 11.114** “Characterization of Semiconductor Devices in the High-Frequency Regime”, R. Murphy, MOS-AK San Francisco, December 11, 2019.  
(Invited Plenary sesión presentation, 30 minutes)
- 2020**
- 11.115** “Introduction to 5G technology, is it harmful?”, R. Murphy, virtual session in the First Cycle of Conferences of the "Sociedad de Ciencia, Tecnología e Investigación Juvenil de México AC", June 20, 2020.  
(Invited plenary sesión presentation, 60 minutes)
- 11.116** “The Importance of Science”, R. Murphy, virtual session in the cycle “*Martes de Ciencia con el INAOE*” July 21, 2020.  
(Plenary session presentation, 60 minutes)
- 11.117** “Integrated Antennas”, R. Murphy, virtual session for the *Universidad Centroamericana de Nicaragua*, October 3, 2020.  
(EDS DL Invited plenary sesión presentation, 60 minutes)
- 11.118** “Life After the Early Bird”, R. Murphy, virtual session for the World Week on Space, October 6, 2020.  
(Invited plenary sesión presentation, 60 minutes)

- 11.119** “Some issues on the high-frequency compact modeling of CMOS transistors and related devices”, R. Murphy, virtual talk during the 13th International MOS-AK Workshop, Silicon Valley, California, USA, December 10, 2020.  
(Invited plenary session presentation, 30 minutes)
- 2021** **11.120** “The 5G Network”, R. Murphy, virtual talk for the Instituto Tecnológico de Orizaba, March 23 2021.  
(Invited plenary session presentation, 60 minutes)
- 11.121** “Modeling Issues for CMOS RF ICs”, R. Murphy, virtual talk during the 3rd MOS-AK/LADEC Workshop, April 18 2021.  
(Invited plenary session presentation, 60 minutes)
- 11.122** “The 5G Network: Myths and Realities”, R. Murphy, virtual talk in the cycle *Tuesdays of Science with the INAOE*, June 15 2021.  
(Plenary Session, 60 minutes)
- 11.123** “Modeling Passive Devices for RF CMOS Circuits”, R. Murphy, virtual talk during the 28<sup>th</sup> International Conference “Mixed Design of Integrated Circuits and Systems”, June 26 2021.  
(Invited plenary session presentation, 30 minutes)
- 11.124** “The 5G Network: Myths and Realities”, R. Murphy, virtual conference for the graduate students in electronics and communications of the CICESE, September 29 2021.  
(Invited plenary session presentation, 60 minutes)
- 11.125** “Integrated Antennas”, R. Murphy, virtual talk for the Instituto Tecnológico de Orizaba, October 13 2021.  
(Invited plenary session presentation, 60 minutes)
- 11.126** “Sistemas Satelitales”, R. Murphy, virtual talk for the Instituto Tecnológico de Orizaba, November 23 2021.  
(Invited plenary session presentation, 60 minutes)
- 11.127** “Modeling integrated passive components for high frequency applications”, R. Murphy, virtual talk during the 2<sup>nd</sup> National Conference on Micro and Nanoelectronics (nanoMX2021), December 2 2021.  
(Invited plenary session presentation, 60 minutes)
- 11.128** “Compact Modeling of through-silicon-vias with different ground configurations”, R. Murphy, virtual talk during the 14<sup>th</sup> International MOS-AK Workshop, Silicon Valley, California, USA, December 17 2021.  
(Invited plenary session presentation, 30 minutes)

- 2022**
- 11.129** “The need for antenna compact models”, R. Murphy, virtual talk during the Latin American Spring MOS-AK Workshop, Puebla, Puebla, México, April 29 2022.  
(Plenary talk, 30 minutes)
- 11.130** “Further Considerations on RF CMOS Compact Modeling”, R. Murphy, virtual talk during the 4<sup>th</sup> MOS-AK/LAEDC Workshop, Puebla, Puebla, Mexico, July 3, 2022.  
(Plenary talk, 30 minutes)
- 11.131** “Metamaterial-based Antennas for On-chip Applications in the Millimeter-Wave Range”, R. Murphy, AP-S/URSI 2022, Denver, Colorado, EUA, July 13, 2022.  
(Simultaneous presentation, 20 minutes)
- 11.132** “Characterization and Modeling the MOS Transistor and Passive Devices for HF Operation”, R. Murphy, virtual talk during the EDS Summer School in Silchar, Assam, India, August 20, 2022.  
(Invited keynote presentation, 60 minutes)
- 11.133** “Satellite Technology”, R. Murphy, during the “Jornada del Conocimiento 2022” at the Centro de Bachillerato Tecnológico Industrial y de Servicios # 16, Atlixco, Puebla, Mexico, October 19, 2022.  
(Invited science popularization talk, 60 minutes)
- 11.134** “Evolution of Satellite Technology”, R. Murphy, Instituto Tecnológico de Morelia, Morelia, Michoacán, Mexico, November 8, 2022.  
(Invited talk, 60 minutes)
- 11.135** “Semiconductor Devices and Passive Components Characterization for High Frequency Applications”, R. Murphy, 2022 IEEE International Autumn Meeting on Power, Electronics and Computing (ROPEC 2022), Ixtapa, Guerrero, Mexico, November 9, 2022.  
(Invited keynote presentation, 60 minutes)
- 11.136** “Modeling of Integrated Antennas”, R. Murphy, 14<sup>a</sup> Semana BEIFI y Proyectos de Investigación, ESIME Culhuacán, CDMX, Mexico, November 28, de 2022.  
(Invited plenary session presentation, 45 minutes)
- 11.137** “Active and Passive Devices for High-Frequency Applications”, R. Murphy, during the CASS Tour México 2022, Universidad de Guadalajara and ITESO, Guadalajara, Mexico, November 29, 2022.  
(Invited plenary session presentation, 45 minutes)

- 11.138** “Modeling of Integrated Antennas”, R. Murphy, during the CASS Tour México 2022, Universidad Veracruzana, Veracruz, Mexico, December 2, 2022.  
(Invited plenary session presentation, 45 minutes)
- 2023** **11.139** “Satellites”, R. Murphy, virtual talk in the cycle *Tuesdays of Science with the INAOE*, March 28, 2023.  
(Plenary Session, 60 minutes)
- 11.140** “Integrated Antennas: The Future of Electronics”, R. Murphy, during the CASS Tour México 2023, Universidad de Monterrey, Monterrey, Nuevo León, Mexico, April 17, 2023.  
(Invited plenary session presentation, 45 minutes)
- 11.141** “Integrated Antennas: The Future of Electronics”, R. Murphy, during the CASS Tour México 2023, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacan, Mexico, April 19, 2023.  
(Invited plenary session presentation, 45 minutes)
- 11.142** “Issues on the Modeling of Semiconductor Devices in RF”, R. Murphy, during the CASS Tour Mexico 2023, Universidad Veracruzana, Veracruz, Veracruz, Mexico, April 21, 2023.  
(Invited plenary session presentation, 45 minutes)
- 11.143** “Microelectronics Education”, R. Murphy, during the CASS Tour Mexico 2023, Universidad Veracruzana, Veracruz, Veracruz, México, April 21, 2023.  
(Invited participation in Round Table, 120 minutes)
- 11.144** “Resonance Related Fluctuations on Experimental Characteristic Impedance Curves for PCB and On-Chip Transmission Lines”, R. Murphy, International Microwave Symposium (IMS 2023), San Diego, California, USA, June 14, 2023.  
(Invited simultaneous talk, 20 minutes)
- 11.145** “Satellites”, R. Murphy, Science popularization talk in the “Verano de la Investigación Científica” program, Tonantzintla, Puebla, México, June 22, 2023.  
(Invited talk, 60 minutes)
- 11.146** “Second order aspects of characteristic impedance determination”, R. Murphy, 5<sup>th</sup> International MOS-AK/LAEDC Workshop, Puebla, Puebla, México, July 2, 2023.  
(Invited talk, 30 minutes)

- 11.147** “Determination of the Relative Permittivity and Loss Tangent of Liquid Samples Using a Miniature Low-Cost Microwave Sensor”, R. Murphy, Latin American Microwave Conference, San José, Costa Rica, December 7, 2023.  
(Plenary session, 20 minutes)
- 11.148** “Some efforts toward the modeling of integrated antennas”, R. Murphy, MOS-AK Workshop, Santa Clara, CA, USA, December 13, 2023.  
(Invited plenary session presentation, 45 minutes)
- 2024** **11.149** “Modeling On-Chip Antennas”, R. Murphy, Seminar of the Electronics Department, INAOE, January 30, 2024.  
(Plenary session, 60 minutes)
- 11.150** “Antennas in Integrated Circuits”, R. Murphy, Series of Conferences in the ITP-INAOE Week 2024, March 5, 2024.  
(Invited plenary session presentation, 60 minutes)

## **12.- CITATIONS**

- 1990**      **12.001**      To work No.: 10.2. In: Master's Thesis, Sotero Fuentes, INAOE, pp. 72, 1990.
- 1991**      **12.002**      To work No.: 10.2. In: Master's Thesis, Federico Sandoval, INAOE, pp. 16. 1991.
- 12.003**      To work No.: 8.2. In: "Circuito Integrado para la Caracterización de Materiales, Procesos y Dispositivos" (*An Integrated Circuit for the Characterization of Materials, Processes and Devices*), J. De la Hidalga, M. Linares, P. Peykov, Proceedings of ELECTRO-91, pp. 797, 1991.
- 12.004**      To work No.: 6.4. In: "Circuito Integrado para la Caracterización de Materiales, Procesos y Dispositivos" (*An Integrated Circuit for the Characterization of Materials, Processes and Devices*), J. De la Hidalga, M. Linares, P. Peykov, Proceedings of ELECTRO-91, pp. 800, 1991.
- 12.005**      To work No.: 10.2. In: "Diseño de Circuitos Integrados Utilizando La Biblioteca de Celdas Estándar Digitales y el Proceso ECMOS I" (*Design of Integrated Circuits using the Digital Standard Cell Library and the ECMOS I Process*), S. Fuentes, T. Flores, T. León, M. Aceves, J. Palomino, Technical Report # 130, INAOE, 1991., pp. 66.
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### **13.- TAUGHT COURSES**

#### **a) Undergraduate level courses:**

<b>1987</b>	<b>13.1.1</b>	“Basic Algebra” Universidad de las Américas, Cholula, Puebla, México August-December 1987
	<b>13.1.2</b>	“Physics I” Universidad de las Américas, Cholula, Puebla, México August-December 1987
<b>1988</b>	<b>13.1.3</b>	“Electromagnetic Theory I” Universidad de las Américas, Cholula, Puebla, México January-May 1988
<b>1989</b>	<b>13.1.4</b>	“Electromagnetic Theory I” Universidad de las Américas, Cholula, Puebla, México August-December 1989
<b>1990</b>	<b>13.1.5</b>	“Electromagnetic Theory I” Universidad de las Américas, Cholula, Puebla, México January-May 1990
<b>1991</b>	<b>13.1.6</b>	“Electromagnetic Theory I” Universidad de las Américas, Cholula, Puebla, México January-May 1991
	<b>13.1.7</b>	“Electromagnetic Theory I” Universidad de las Américas, Cholula, Puebla, México August-December 1991
<b>1997</b>	<b>13.1.8</b>	“Electromagnetic Theory” Universidad de las Américas, Cholula, Puebla, México January-May 1997
	<b>13.1.9</b>	“Electronics II” Universidad de las Américas, Cholula, Puebla, México January-May 1997
	<b>13.1.10</b>	“Electromagnetic Theory” Universidad de las Américas, Cholula, Puebla, México August-December 1997
	<b>13.1.11</b>	“Antennas” Universidad de las Américas, Cholula, Puebla, México August-December 1997

- 1998**      **13.1.12**      “Electromagnetic Theory”  
Universidad de las Américas, Cholula, Puebla, México  
January-May 1998
- 13.1.13**      “Antennas”  
Universidad de las Américas, Cholula, Puebla, México  
January-May 1998
- 13.1.14**      “Electromagnetic Theory”  
Universidad de las Américas, Cholula, Puebla, México  
August-December 1998
- 13.1.15**      “Antennas”  
Universidad de las Américas, Cholula, Puebla, México  
August-December 1998
- 1999**      **13.1.16**      “Antennas”  
Universidad de las Américas, Cholula, Puebla, México  
January-May 1999
- 13.1.17**      “Antennas”  
Universidad de las Américas, Cholula, Puebla, México  
August-December 1999
- 2000**      **13.1.18**      “Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2000
- 13.1.19**      “Electromagnetic Theory”  
Universidad de las Américas, Cholula, Puebla  
January-May 2000
- 13.1.20**      “Electromagnetic Theory”  
Universidad de las Américas, Cholula, Puebla  
May-June 2000
- 13.1.21**      “Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2000
- 13.1.22**      “Electromagnetic Theory”  
Universidad de las Américas, Cholula, Puebla  
August-December 2000
- 2001**      **13.1.23**      “Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2001

- 13.1.24** “Electromagnetic Theory”  
Universidad de las Américas, Cholula, Puebla  
January-May 2001
- 13.1.25** “Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2001
- 2002** **13.1.26** “Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2002
- 13.1.27** “Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2002
- 2003** **13.1.28** “Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2003
- 13.1.29** “Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2003
- 2004** **13.1.30** “Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2004.
- 13.1.31** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2004.
- 2005** **13.1.32** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2005.
- 13.1.33** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2005.
- 2006** **13.1.34** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2006.
- 13.1.35** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2006.

- 2007**
- 13.1.36** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
January-May 2007.
  - 13.1.37** “Transmission Lines and Antennas”  
Universidad de las Américas, Cholula, Puebla  
August-December 2007.

- b) Graduate level courses:**
- 1989**
- 13.2.1** “Semiconductor Devices”  
INAOE, Tonantzintla, Puebla, México  
January-May 1989
  - 13.2.2** “Electromagnetic Theory”  
INAOE, Tonantzintla, Puebla, México  
May-July 1989
  - 13.2.3** “Modeling of Semiconductor Devices and Integrated Circuits”  
INAOE, Tonantzintla, Puebla, México  
May-August 1989
  - 13.2.4** “Characterization and Optimization of ICs”  
INAOE, Tonantzintla, Puebla, México  
August-December 1989  
(Taught jointly with Mónico Linares)
  - 13.2.5** “Physical Electronics”  
INAOE, Tonantzintla, Puebla, México  
August-December 1989
- 1990**
- 13.2.6** “Solid State Physics”  
INAOE, Tonantzintla, Puebla, México  
January-May 1990
  - 13.2.7** “Electromagnetic Theory”  
INAOE, Tonantzintla, Puebla, México  
May-July 1990
- 1991**
- 13.2.8** “Electromagnetics”  
INAOE, Tonantzintla, Puebla, México  
January-May 1991
  - 13.2.9** “Electromagnetic Theory”  
INAOE, Tonantzintla, Puebla, México  
May-July 1991
  - 13.2.10** “Electronic Devices”  
INAOE, Tonantzintla, Puebla  
August-December 1991
- 1992**
- 13.2.11** “Physics of Semiconductor Devices”  
INAOE, Tonantzintla, Puebla, México  
January-May 1992

- 13.2.12** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla, México  
 May-July 1992
- 13.2.13** “Electronic Devices”  
 INAOE, Tonantzintla, Puebla, México  
 August-December 1992
- 1993** **13.2.14** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla, México  
 June-August 1993
- 1994** **13.2.15** “Physics”  
 INAOE, Tonantzintla, Puebla, México  
 June-August 1994
- 1996** **13.2.16** “Physics of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 January-May 1996
- 13.2.17** “Physics”  
 INAOE, Tonantzintla, Puebla, México  
 June-August 1996
- 1997** **13.2.18** “Physics”  
 INAOE, Tonantzintla, Puebla, México  
 June-August 1997
- 13.2.19** “Modeling of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 August-December 1997  
 (Taught jointly with E. Gutiérrez and A. Torres)
- 1998** **13.2.20** “Physics of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 January-May 1998
- 13.2.21** “Physics”  
 INAOE, Tonantzintla, Puebla, México  
 June-August 1998
- 13.2.22** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla, México  
 August-December 1998
- 13.2.23** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla, México  
 August-December 1998

- 1999**
- 13.2.24** “Physics of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 January-May 1999
- 13.2.25** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla, México  
 January-May 1999
- 13.2.26** “Physics”  
 INAOE, Tonantzintla, Puebla, México  
 June-August 1999
- 13.2.27** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla, México  
 August-December 1999
- 2000**
- 13.2.28** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-August 2000
- 13.2.29** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla  
 August-December 2000
- 13.2.30** “Physics and Modeling of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 August-December 2000
- 2001**
- 13.2.31** “Physics of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 January-May 2001
- 13.2.32** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-August 2001
- 13.2.33** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla  
 August-December 2001
- 2002**
- 13.2.34** “Physics of Semiconductor Devices”  
 INAOE, Tonantzintla, Puebla, México  
 January-May 2002
- 13.2.35** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-August 2002



- 13.2.36** “Modeling and Simulation of Semiconductor Devices and Integrated Circuits”  
 INAOE, Tonantzintla, Puebla  
 June-August 2002.  
 (Taught jointly with Alfonso Torres)
- 13.2.37** “General Physics”  
 INAOE, Tonantzintla, Puebla  
 August-December 2002
- 2003** **13.2.38** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-August 2003
- 13.2.39** “Electronic Devices”  
 INAOE, Tonantzintla, Puebla  
 August-December 2003
- 2004** **13.2.40** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-July 2004
- 2005** **13.2.41** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2005.  
 (Taught jointly with Reydezel Torres)
- 13.2.42** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-July 2005.  
 (Taught jointly with Reydezel Torres)
- 13.2.43** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla  
 August-December 2005.
- 2006** **13.2.44** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2006.
- 13.2.45** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 June-July 2006.

- 13.2.46** “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 June-July 2006.  
 (Taught jointly with Francisco Soto, July César Ramírez and Jorge Pedraza)
- 13.2.47** “Physics and Modeling of Transistors”  
 INAOE, Tonantzintla, Puebla  
 August-December 2006.  
 (Taught jointly with Pedro Rosales)
- 2007** **13.2.48** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2007.  
 (Taught jointly with Reydezel Torres)
- 13.2.49** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-July 2007.  
 (Taught jointly with Reydezel Torres)
- 13.2.50** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2007.  
 (Taught jointly with Reydezel Torres)
- 2008** **13.2.51** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2008.  
 (Taught jointly with Reydezel Torres)
- 13.2.52** “Physics and Modeling of the MOS Transistor”  
 INAOE, Tonantzintla, Puebla  
 May-July 2008.
- 13.2.53** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-July 2008.  
 (Taught jointly with Reydezel Torres)
- 13.2.54** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2008.  
 (Taught jointly with Reydezel Torres)

- 2009**
- 13.2.55** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2009.  
 (Taught jointly with Reydezel Torres)
- 13.2.56** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-July 2009.  
 (Taught jointly with Reydezel Torres)
- 13.2.57** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2009.  
 (Taught jointly with Reydezel Torres)
- 2010**
- 13.2.58** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-April 2010.  
 (Taught jointly with Reydezel Torres)
- 13.2.59** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-July 2010.  
 (Taught jointly with Reydezel Torres)
- 13.2.60** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2010.  
 (Taught jointly with Reydezel Torres)
- 2011**
- 13.2.61** “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-April 2011.  
 (Taught jointly with Reydezel Torres)
- 13.2.62** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-July 2011.  
 (Taught jointly with Reydezel Torres)

- 13.2.63** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2011.  
 (Taught jointly with Reydezel Torres)
- 13.2.64** “Advanced Electrodynamics for the Microwave Regime”  
 INAOE, Tonantzintla, Puebla  
 August-December 2011.
- 2012** **13.2.65** “High Frequency Measurements, Characterization and Modeling of  
 Devices”  
 INAOE, Tonantzintla, Puebla  
 January-April 2012.  
 (Taught jointly with Reydezel Torres)
- 13.2.66** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-July 2012.  
 (Taught jointly with Reydezel Torres)
- 13.2.67** “Microwave Devices”  
 INAOE, Tonantzintla, Puebla  
 May-July 2012.
- 13.2.68** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2012.  
 (Taught jointly with Reydezel Torres)
- 2013** **13.2.69** “High Frequency Measurements, Characterization and Modeling of  
 Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2013.
- 13.2.70** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 May-June 2013.  
 (Taught jointly with Reydezel Torres)
- 13.2.71** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2013.  
 (Taught jointly with Reydezel Torres)
- 13.2.72** “Microwave Devices”  
 INAOE, Tonantzintla, Puebla  
 August-December 2012.

- 2014**      **13.2.73**      “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 January-May 2014.
- 13.2.74**      “High Frequency Measurements, Characterization and Modeling of Devices”  
 INAOE, Tonantzintla, Puebla  
 May-July 2014.
- 13.2.75**      “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2014.  
 (Taught jointly with Reydezel Torres and Peter Halevi)
- 2015**      **13.2.76**      “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2015.  
 (Taught jointly with Reydezel Torres and Peter Halevi)
- 13.2.77**      “Antennas”  
 INAOE, Tonantzintla, Puebla  
 August-December 2015.
- 2016**      **13.2.78**      “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 May-July 2016.  
 (Taught jointly with Reydezel Torres and Rogerio Enríquez)
- 13.2.79**      “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2016.  
 (Taught jointly with Reydezel Torres and Peter Halevi)
- 13.2.80**      “Physics”  
 INAOE, Tonantzintla, Puebla  
 August-December 2016.
- 2017**      **13.2.81**      “Transmission Lines, Waveguides and Antennas”  
 INAOE, Tonantzintla, Puebla  
 January-May 2017.
- 13.2.82**      “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 May-July 2017.  
 (Taught jointly with Reydezel Torres)

	<b>13.2.83</b>	“Physics” INAOE, Tonantzintla, Puebla August-December 2017.
<b>2018</b>	<b>13.2.84</b>	“Transmission Lines, Waveguides and Antennas” INAOE, Tonantzintla, Puebla January-May 2018.
	<b>13.2.85</b>	“Mathematical Methods” INAOE, Tonantzintla, Puebla May-July 2018. (Taught jointly with Luis Hernández)
	<b>13.2.86</b>	“High Frequency Measurements, Characterization and Modeling of Devices” INAOE, Tonantzintla, Puebla May-July 2018.
<b>2019</b>	<b>13.2.87</b>	“High Frequency Measurements, Characterization and Modeling of Devices” INAOE, Tonantzintla, Puebla January-May 2019.
	<b>13.2.88</b>	“Mathematical Methods” INAOE, Tonantzintla, Puebla May-July 2018. (Taught jointly with Reydezel Torres)
	<b>13.2.89</b>	“Electromagnetic Theory” INAOE, Tonantzintla, Puebla August-December 2019. (Taught jointly with Reydezel Torres)
	<b>13.2.90</b>	“Physics” INAOE, Tonantzintla, Puebla August-December 2019.
<b>2020</b>	<b>13.2.91</b>	“Transmission Lines, Waveguides and Antennas” INAOE, Tonantzintla, Puebla January-May 2020.
	<b>13.2.92</b>	“Research Seminar” INAOE, Tonantzintla, Puebla May-July 2020.

- 13.2.93** “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 May-July 2020.  
 (Taught jointly with Luis Hernández)
- 13.2.94** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2020.  
 (Taught jointly with Peter Halevi)
- 2021** **13.2.95** “Transmission Lines, Waveguides and Antennas”  
 INAOE, Tonantzintla, Puebla  
 January-May 2021.
- 13.2.96** “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 May-July 2021.  
 (Taught jointly with Reydezel Torres)
- 2022** **13.2.97** “Transmission Lines, Waveguides and Antennas”  
 INAOE, Tonantzintla, Puebla  
 January-May 2022.
- 13.2.98** “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 May-July 2022.  
 (Taught jointly with Reydezel Torres)
- 13.2.99** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2022.  
 (Taught jointly with Reydezel Torres)
- 2023** **13.2.100** “Transmission Lines, Waveguides and Antennas”  
 INAOE, Tonantzintla, Puebla  
 January-May 2023.
- 13.2.101** “Mathematical Methods”  
 INAOE, Tonantzintla, Puebla  
 May-July 2023.  
 (Taught jointly with Luis Hernández)
- 13.2.102** “Electromagnetic Theory”  
 INAOE, Tonantzintla, Puebla  
 August-December 2023.  
 (Taught jointly with Reydezel Torres)

**13.2.103** “Modeling and Simulation”  
INAOE, Tonantzintla, Puebla  
August-December 2023.



## **14.- DIRECTED THESES**

### **Doctoral:**

- 2000**      **14.1.1**      “Análisis, Modelado y Diseño de una Estructura Split-Drain MAGFET bajo Condiciones de Operación a 77 y 300K” (*Analysis, Modeling and Design of a Split Drain MAGFET Operating at 77 and 300K*), Pedro J. García Ramírez, INAOE, August 24, 2000.  
(Directed jointly with Edmundo Gutiérrez)
- 2003**      **14.1.2**      “Small Signal Modeling of Bulk MOSFETs for High Frequency Applications”, Reydezel Torres Torres, INAOE, December 15 2003.
- 2004**      **14.1.3**      “Transistor Bipolar de Heterounión con Emisor Amorfo Compatible con Tecnología CMOS” (*Heterojunction Bipolar Transistor with Amorphous Emitter Compatible with CMOS Technology*), Pedro Rosales Quintero. INAOE, November 15 2004.  
(Directed jointly with Alfonso Torres).
- 2008**      **14.1.4**      “Modelado de la Inductancia Propia para Interconexiones en Silicio” (*Modeling of Self Inductance for Interconnects on Silicon*), Jesús Huerta Chua, INAOE, December 19 2008.
- 2010**      **14.1.5**      “Modeling and Design of Split-Drain MAGFETs and Possible Applications in Integrated Circuit Test”, Gerard Franz Santillán Quiñonez. INAOE, July 15, 2010.  
(Directed jointly with Víctor Champac).
- 2011**      **14.1.6**      “Reconfigurable Microwave Circuits”, Georgina Guadalupe Rosas Guevara. INAOE, July 14, 2011.  
(Directed jointly with Wilfrido Moreno).
- 2013**      **14.1.7**      “Development of Methodologies for Characterization and Modeling of Devices for High Frequency Applications From Small-Signal S-Parameters”, Germán Andrés Álvarez Botero. INAOE, August 16, 2013.  
(Directed jointly with Reydezel Torres).
- 2016**      **14.1.8**      “Antennas for Millimeter-Wave Applications”, Luz Karine Sandoval Granados. INAOE, June 27, 2016.
- 14.1.9**      “Study of the MOS Transistor for Applications in RF Circuits”, Fabián Zárate Rincón. INAOE, August 26, 2016.  
(Directed jointly with Reydezel Torres).

- 2019**      **14.1.10**      “Study and Development of Radiolinks in K Band: Potential Applications in Atmospheric Attenuation Measurements and Communications”, Luis Alberto Rodríguez Meneses. INAOE, June 27, 2019.
- 2021**      **14.1.11**      “Modeling of on-chip inductors and coplanar waveguides including effects introduced by the shield used to mitigate the EM coupling with the semiconductor substrate”, José Valdés Rayón. INAOE, August 30 2021. (Directed jointly with Reydezel Torres Torres)
- 2022**      **14.1.12**      “Physically Based Analyses of Interconnects and Characteristic Impedance in Microwave Printed and Integrated Circuits”, Yojanes Andrés Rodríguez Velásquez. INAOE, December 8, 2022. (Directed jointly with Reydezel Torres Torres)
- 2024**      **14.1.13**      “Antennas for microwave and millimeter-wave applications”, Karen Nallely Olan Nuñez. INAOE, January 24, 2024.

**Master’s:**

- 1990**      **14.2.1**      “Determinación de Funcionalidad de Circuitos Integrados Digitales CMOS” (*Determination of the Functionality of Digital CMOS Integrated Circuits*), Sotero Fuentes, INAOE, October 15 1990. (Directed jointly with Mónico Linares A.)
- 1991**      **14.2.2**      “Diseño de un Otófono en Base a Celdas Básicas Analógicas CMOS” (*Design of a Hearing Aid with Basic Analog Cells*), Federico Sandoval, INAOE, May 23 1991.
- 2000**      **14.2.3**      “Método Alternativo para la Determinación de la Longitud Efectiva y la Resistencia Serie Fuente/Drenaje en el TMOS LDD” (*An Alternative Method to Determine Effective Length and Source/ Drain Series Resistance in LDD MOS Transistors*), Reydezel Torres, INAOE, August 9 2000.
- 2001**      **14.2.4**      “Reordenamiento de las Ecuaciones que Emanan de Circuitos no Lineales para Acelerar la Simulación Homotópica” (*Reordering of the Equations Emanating from Non-Linear Circuits to Accelerate Homotopic Simulation*), Héctor Vázquez Leal, INAOE, May 5 2001. (Directed jointly with Arturo Sarmiento R.)
- 14.2.5**      “Diseño de un Magnetómetro para Caracterización de Sensores Magnéticos” (*Design of a Magnetometer for the Characterization of Magnetic Sensors*), Edilberto Serrano, INAOE, May 24 2001.
- 2002**      **14.2.6**      “Fabricación y Caracterización de Inductores Coplanares Integrados” (*Fabrication and Characterization of Coplanar Integrated*)

- Integrated Inductors*), Jesús Huerta Chua, INAOE, February 22 2002.  
(Directed jointly with Alejandro Díaz Sánchez, Alfonso Torres Jacome).
- 14.2.7** “Modelado de Componentes Parásitos de Compuerta de un Transistor MOS LDD” (*Modeling of the LDD MOS Transistor’s Parasitic Gate Components*), Lucila Ortega Vargas, INAOE, November 29 2002.
- 2003**      **14.2.8** “Diseño, Fabricación y Caracterización de Antenas Integradas” (*Design, Fabrication and Characterization of Integrated Antennas*), Georgina Rosas Guevara, INAOE, September 1 2003.
- 14.2.9** “Modelado de la Interferencia Electromagnética en Líneas de Interconexión” (*Modeling of Electromagnetic Interference in Interconnect Lines*), Emmanuel Torres Rios, INAOE, October 24 2003.
- 2005**      **14.2.10** “Dos Filosofías Distintas de la Técnica de Calibración LRL Multilíneas para Eliminar los Errores Sistemáticos del Analizador de Redes Vectorial” (*Two Different Philosophies of the LRL Calibration Technique to Eliminate the Systematic Errors in a Vector Network Analyzer*), Juan Alberto Saldivar Morales, INAOE, July 8 2005.  
(Directed jointly with Ignacio Zaldívar, Apolinar Reynoso).
- 2009**      **14.2.11** “Modelado y Caracterización de MOSFETs Nanométricos Utilizando Técnicas de Circuito Equivalente” (*Characterization and Modeling of Nanometric MOSFETs using Equivalent Circuit Techniques*), Germán Andrés Álvarez Botero, INAOE, June 29 2009.  
(Directed jointly with Reydezel Torres).
- 2011**      **14.2.12** “Diseño de un Sensor de Potencia para RF” (*Design of a Power Sensor for RF*), Oscar Addiel Seseña Osorio, INAOE, July 15 2011.
- 2012**      **14.2.13** “Caracterización de MOSFETs de Microondas Considerando Variaciones en el Voltaje de Substrato” (*Microwave MOSFET Characterization Considering Bulk Voltage Variations*), Fabián Zárate Rincón, INAOE, July 18, 2012.  
(Directed jointly with Reydezel Torres).
- 2016**      **14.2.14** “Evaluación de Modelos y Metodologías para Caracterizar el TMOS en Altas Frecuencias” (*Assessment of Models and Methodologies to Characterize the MOST in High-Frequencies*), Fabio Alejandro Ruiz Molina, INAOE, February 19, 2016.

- 14.2.15** “Modelado, Medición y Caracterización de Inductores Integrados” (*Modeling, Measurement and Characterization of Integrated Inductors*), José Valdés Rayón, INAOE, February 26, 2016. (Directed jointly with Reydezel Torres).
- 2018**      **14.2.16** “Arreglo de Antenas de Microtira para Aplicaciones Satelitales” (*Microstrip Antenna Array for Satellite Applications*) , Brian Julián Sánchez Ruiz, INAOE, October 4, 2018.
- 2019**      **14.2.17** “Design, Modeling and Characterization of Antenna Arrays for Internet of Things Applications”, Karen Nallely Olán Núñez, INAOE, August 15, 2019.
- 14.2.18** “An Energy Harvesting Antenna Array for the 28 GHz Band”, Hidai Arnulfo Cárdenas Herrera, INAOE, December 13, 2019.
- 2020**      **14.2.19** “A Study of the use of Orbital Angular Momentum in Electromagnetic Waves for High Frequency Communications”, Antonia Carrasco Martínez, INAOE, December 10, 2020.
- 2023**      **14.2.20** “A Reconfigurable Antenna with Applications around the 28 GHz Band”, Vicente Alejandro Esquina García, INAOE, April 28, 2023.
- 14.2.21** “Design and optimization of flexible 28 GHz antennas for 5G applications”, Aurea Patricia Medrano Montalvo, INAOE, December 11, 2023.

**Bachelor’s:**

- 1992**      **14.3.1** “Fabricación y Caracterización de Celdas Básicas Digitales Integradas Metal-Oxido-Semiconductor Complementario (CMOS)” (*Fabrication and Characterization of Integrated Complementary Metal-Oxide-Semiconductor (CMOS) Basic Digital Cells*), Ignacio Záldivar, UAP, 1992. (Directed jointly with Mónico Linares, Arturo Prieto).
- 2002**      **14.3.2** “E-Magnetic 3D”, Carlos Marín, UDLA, January 15 2002. (Directed jointly with David Báez López).
- 2022**      **14.3.3** “Design and Implementation of a Test System for the Electric, Telemetry, and Command Subsystems for a Pico-satellite”, Adrián Quintero González, Universidad Politécnica del Estado de Morelos, enero 7 2022. (Co-director: Miguel Ángel Velasco Castillo).

## **15.- EXTERNAL PROJECTS**

- |                |             |  |
|----------------|-------------|--|
| <b>1989-90</b> | <b>15.1</b> | “Fortalecimiento al Postgrado en Microelectrónica en el INAOE” ( <i>The Strengthening of Graduate Studies in Microelectronics in the INAOE</i> ), project funded by the Council of National Technological Education (COSNET), code 183.89, directed jointly with Mónico Linares.                   |
| <b>1998-99</b> | <b>15.2</b> | “Caracterización de Transistores MOS para Aplicaciones en Alta Frecuencia” ( <i>Characterization of MOS Transistors for High-Frequency Applications</i> ), project funded by the National Council for Science and Technology (CONACyT), code 211290-5-126894A.                                     |
| <b>2000-01</b> | <b>15.3</b> | “Characterization and Modeling of High-Frequency MOS Transistors”, Joint project with the “Interuniversitair Micro-Elektronica Centrum” (IMEC), Heverlee, Belgium.   |
| <b>2001-03</b> | <b>15.4</b> | “Caracterización de Componentes Parásitas y Modelado del Transistor MOS usando Técnicas de Alta Frecuencia” ( <i>Characterization of Parasitic Components and Modeling of the MOS Transistor Using High-Frequency Techniques</i> ), project funded by CONACyT, México, under grant No. 33810-A.    |
| <b>2002-04</b> | <b>15.5</b> | “LABDILEIT: Laboratory for Distance Learning based on Internet Technology”, Project sponsored by the Alfa-2 Program of the European Community.   |
| <b>2009-12</b> | <b>15.6</b> | “Caracterización en Altas Frecuencias de Componentes para Circuitos Integrados CMOS/MEMS” ( <i>High Frequency Characterization of Components for CMOS/MEMs Integrated Circuits</i> ), project funded by the National Council for Science and Technology (CONACyT), code 83774-Y.                   |
| <b>2018-21</b> | <b>15.7</b> | “Física, Modelado y Caracterización de Dispositivos y Circuitos para Comunicaciones Inalámbricas” ( <i>Physics, Modeling and Characterization of Devices and Circuits for Wireless Communications</i> ), project funded by the National Council for Science and Technology (CONACyT), code 285199. |

## **16.- CONTINUING EDUCATION COURSES**

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|-------------|-------------|--|
| <b>1992</b> | <b>16.1</b> | “Didáctica para Estudios de Postgrado” ( <i>Didactics for Graduate Studies</i> ), INAOE, Tonantzintla, Puebla, México, March-April 1992 (20 hours).  |
|             | <b>16.2</b> | “Hybrid and Multi-Chip Module Design”, Hughes Aircraft, California, USA, December 1992 (40 hours).   |
| <b>1995</b> | <b>16.3</b> | “Hacia una Definición de las Aplicaciones para Circuitos de Alta Frecuencia: Silicio y Compuestos III-V” ( <i>Towards a Definition of the Applications of High Frequency Circuits: Silicon and III-V Compounds</i> ), INAOE, Tonantzintla, Puebla, México, December 1995 (20 hours). |
| <b>1996</b> | <b>16.4</b> | “Model 360B Network Analyzer User Training Course”, INAOE, Tonantzintla, Puebla, México, July 1996 (20 hours).   |
| <b>1999</b> | <b>16.5</b> | “RF IC Design for Wireless Communication Systems”, Swiss Federal Institute of Technology, Lausanne, Switzerland, June-July 1999 (30 hours).  |
| <b>2009</b> | <b>16.6</b> | “MEMS SUMMIT V Technology”, Sandia National Laboratories, Albuquerque, New Mexico, USA, December 2009 (20 hours).  |
| <b>2016</b> | <b>16.7</b> | “Fundamentals of Spectrum Analysis”; “Fundamentals of Power Measurements”; “Fundamentals of Vector Network Analysis”; “Calibration in Vector Network Analysis”, Rohde & Schwarz, London, England, October 2016 (6 hours).  |

## **17.- MEMBERSHIPS**

- 1992-to date** Member of the IEEE since May 1992 (No. 3107919).  
Senior Member since February 16, 2002
- 2002-to-2018** Member of the Mexican National System of Researchers (SNI),  
Level I, July 2002 to December 2018.
- 2004-2019** Member of the Board of Directors of the Iberoamerican Science  
and Technology Education Consortium (ISTEC), January 2004 to  
May 2019.
- 2004-2008** Treasurer of the Consejo Mexicano de Estudios de Posgrado, A.C.  
(COMEPO) (*Mexican Council for Graduate Studies*), January 2004  
to May 2008.
- 2004-to-date** Member of the Mexican Academy of Sciences, December 2004 to  
date.
- 2007-2014** Member and Chairman of the Board of Directors of the  
Iberoamerican Science and Technology Education Consortium  
(ISTEC), July 2007 to February 2014.
- 2008-2009** Vicepresident of the “Consejo Mexicano de Estudios de Posgrado,  
A.C. (COMEPO)” (*Mexican Council for Graduate Studies*), May  
2008 to October 2009.
- 2009-2010** President of the “Consejo Mexicano de Estudios de Posgrado,  
A.C. (COMEPO)” (*Mexican Council for Graduate Studies*), October  
2009 to October 2010.
- 2014-2019** President of the Iberoamerican Science and Technology Education  
Consortium (ISTEC), February 2014 to May 2019.
- 2016-to-date** Member of the European Microwave Association, October 2016 to  
date.
- 2019-to-date** Member of the Mexican National System of Researchers (SNI),  
Level 2, January 2019 to date.

## **18.- PARTICIPATION IN CONFERENCE ORGANIZING COMMITTEES**

- 1999**                    **Publicity Chair** for the *Third IEEE International Workshop on Design of Mixed-Mode Circuits and Applications*, Puerto Vallarta, Jalisco, México, July 26-28 1999.
- 2000**                    **Local Arrangements Chair** for the *Third IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2000)*, Cancún, Quintana Roo, México, March 15-17 2000.
- 2001**                    **Local Arrangements Chair** for the *Second IEEE Latin American Test Workshop*, Cancún, Quintana Roo, México, February 11-14 2001.
- 2001**                    **General Chair** for the *Second Research Encounter*, Tonantzintla, Puebla, México, November 14-15 2001.
- 2002**                    **Member of the International Committee** for the *Fourth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2002)*, Aruba, Netherland Antilles, April 17-19 2002.
- General Chair** for the *First Mesoamerican and Caribbean Workshop on Digital Libraries and Distance Education*, Tonantzintla, Puebla, México, May 15-17 2002.
- General Chair** for the *Third Research Encounter*, Tonantzintla, Puebla, México, November 14-15 2002.
- General Chair** for the *IEEE Latin American CAS Tour 2002*, Tonantzintla, Puebla, México, November 18-22 2002.
- 2003**                    **Co-Chair of the Technical Program** for the *XIII International Conference on Electronics, Communications and Computers (CONIELECOMP 2003)*, Cholula, Puebla, México, February 24-26 2003.
- General Chair** for the *International Conference on Devices, Circuits and Systems Veracruz 2003*, Boca del Río, Veracruz, México, June 25-27 2003.
- General Chair** for the *Fourth Research Encounter*, Tonantzintla, Puebla, México, November 13-14 2003.
- 2004**                    **Finance Chair** for the *XVIII National Conference on Graduate Studies*, Culiacán, Sinaloa, México, October 17-19 2004.



**National Chair of the Graduate Studies Exposition** during the *XVIII National Conference on Graduate Studies*, Culiacán, Sinaloa, México, October 17-19 2004.

**Co-General Chair** for the *IV Iberoamerican Conference on Sensors (IBERSENSOR 2004)*, Puebla, Puebla, México, October 27-29 2004.

**Member of the Technical Program Committee** for the *Fifth IEEE International Caracas Conference on Devices, Circuits and Systems (ICCDCS2004)*, Punta Cana, Dominican Republic, November 3-5 2004.

**General Chair** of the *Fifth Research Encounter*, Tonantzintla, Puebla, México, November 8-9 2004.

**General Chair** for the *IEEE Latin American CAS Tour 2004*, Boca del Río, Veracruz, México, November 17-19 2004.

**2005**

**Member of the Technical Program Committee** for the *XI International Iberchip Workshop (IWS-2005)*, Salvador de Bahía, Brasil, March 28-30, 2005.

**Finance Chair** for the *XIX National Conference on Graduate Studies*, Puebla, Puebla, México, September 19-21, 2005.

**General Chair** for the *Sixth Research Encounter*, Tonantzintla, Puebla, México, October 27-28 2005.

**2006**

**Member of the Technical Program Committee** for the *XII International Iberchip Workshop (IWS-2006)*, San José, Costa Rica, March 22-24, 2006.

**General Chair** for the *Sixth IEEE International Caribbean Conference on Devices, Circuits and Systems (ICCDCS2006)*, Playa del Carmen, Quintana Roo, México, April 26-28 2006.

**Finance Chair** for the *XX National Conference on Graduate Studies*, México, D.F., México, October 16-17 2006.

**National Chair** of the *Graduate Studies Exposition* during the *XX National Conference on Graduate Studies*, México, D.F., México, October 16-17 2006.

**Member of the Technical Program Committee** for the *Metrology Symposium 2006*, Querétaro, Querétaro, October 25-27 2006.

**Member of the Technical Program Committee** of the *36th ASEE/IEEE Frontiers in Education Conference*, San Diego, California, USA, October 28-31 2006.

**General Chair** for the *Seventh Research Encounter*, Tonantzintla, Puebla, México, November 8 and 9, 2006.

**2007**

**Member of the Technical Program Committee** of the *XIII International Iberchip Workshop (IWS-2007)*, Lima, Perú, March 14-16, 2007.

**Member of the Technical Program Committee** of the *XVIII European Conference on Circuit Theory and Design (ECCTD 2007)*, Sevilla, Spain, August 26-30, 2007.

**Member of the Technical Program Committee** of the *37th ASEE/IEEE Frontiers in Education Conference*, Milwaukee, Wisconsin, USA, October 10-13 2007.

**General Chair** of the *Eight Research Encounter*, Tonantzintla, Puebla, México, November 8 y 9, 2007.

**Finance Chair** for the *XXI National Conference on Graduate Studies*, Guadalajara, Jalisco, México, November 20-23 2007.

**National Chair** of the *Graduate Studies Exposition* during the *XXI National Conference on Graduate Studies*, Guadalajara, Jalisco, México, November 20-23, 2007.

**Member of the Technical Program Committee** of the *XXII Conference on Design of Circuits and Integrated Systems (DCIS 07)*, Sevilla, Spain, November 21-23, 2007.

**Local Arrangements Chair** for the *Workshop on Frontiers in Electronics (WOFE 2007)*, Cozumel, Quintana Roo, México, December 15-19 2007.

**2008**

**Local Arrangements Chair** for the *Ninth IEEE Latin American Test Workshop*, Puebla, Puebla, México, February 18-20 2008.

**General Co-Chair** for the *XIV International Iberchip Workshop (IWS-2008)*, Puebla, Puebla, México, February 20-22 2008.

**Finance and Global Arrangements Chair** for the *Seventh IEEE International Caribbean Conference on Devices, Circuits and Systems (ICDCS2008)*, Cancún, Quintana Roo, México, April 28-30 2008.

**Member of the Technical Program Committee** for the *Metrology Symposium 2008*, Querétaro, Querétaro, México, October 22-24, 2008.

**Member of the Technical Program Committee** of the *38th ASEE/IEEE Frontiers in Education Conference*, Saratoga Springs, New York, USA, October 22-25 2008.

**General Chair** for the *XXII National Conference on Graduate Studies*, Mérida, Yucatán, México October 27-29, 2008.

**General Chair** for the *Ninth Research Encounter*, Tonantzintla, Puebla, México, November 6-7, 2008.

**Member of the Technical Program Committee** of the *XXIII Conference on Design of Circuits and Integrated Systems (DCIS 08)*, Grenoble, France, November 12-14, 2008.

**Local Arrangements Chair** for the *Second Dependable Circuit Design Conference, Playa del Carmen, Quintana Roo, México, November 27-28, 2008.*

**2009**

**Member of the Technical Program Committee** of the *2009 International Workshop Series on Signal Integrity and High-Speed Interconnects (IMWS2009-R9)*, Guadalajara, Jalisco, México, February 20-21 2009.

**Member of the Technical Program Committee** of the *XIV International Iberchip Workshop (IWS 2009)*, Buenos Aires, Argentina, March 25-27 2009.

**Member of the Technical Program Committee** for the *39<sup>th</sup> ASEE/IEEE Frontiers in Education Conference*, San Antonio, Texas, USA, October 18-21 2009.

**General Chair** for the *XXIII National Conference on Graduate Studies*, San Luis Potosí, San Luis Potosí, México, October 12-14, 2009.

**Technical Program Vice-Chair** for the *XVII General Assembly of the Iberoamerican Science and Technology Education Consortium*, Albuquerque, New México, USA, October 26-30, 2009.

**General Chair** for the *Tenth Research Encounter*, Tonantzintla, Puebla, México, November 5-6, 2009.

**Local Arrangements Chair and Finance Chair** for the *IEEE Circuits and Systems for Medical and Environmental Applications Workshop (CASME 09)*, Mérida, Yucatán, México, December 14-16, 2009.

**2010**

**Member of the Technical Program Committee** for the *XVI International Workshop IBERCHIP (IWS 2010)*, Iguazú, Brazil, February 23-25 2010.

**Member of the Technical Program Committee** for the *40th ASEE/IEEE Frontiers in Education Conference*, Washington, DC, USA, October 27-30 2010.

**General Chair** for the *XXIV National Conference on Graduate Studies*, Colima, Colima, México, October 6 to 8, 2010.

**General Chair** for the *Eleventh Research Encounter*, Tonantzintla, Puebla, México, November 4 and 5, 2010.

**Local Arrangements Chair and Finance Chair** for the *IEEE Circuits and Systems for Medical and Environmental Applications Workshop (CASME 10)*, Mérida, Yucatán, México, December 13-15, 2010.

**2011**

**Co-Chairman of the Technical Program Committee** for the *XVII International IBERCHIP Workshop (IWS 2011)*, Bogotá, Colombia, February 23-25 2011.

**Member of the Technical Program Committee** for the *41<sup>st</sup> ASEE/IEEE Frontiers in Education Conference*, Rapid City, SD, USA, October 12-15 2011.

**2012**

**Local Arrangements Chair and Finance Chair** for the *IEEE Circuits and Systems for Medical and Environmental Applications Workshop (CASME 12)*, Merida, Yucatan, Mexico, January 9-10, 2012.

**General Co-Chair and Treasurer** for the *XVIII International Iberchip Workshop (IWS-2012)*, Playa del Carmen, Quintana Roo, Mexico, February 29-March 2, 2012.

**Treasurer** for the *Third IEEE Latin American Symposium on Circuits and Systems (LASCAS 2012)*, Playa del Carmen, Quintana Roo, Mexico, February 29-March 2, 2012.

**Local Arrangements Chair and Treasurer** for the *13th IEEE Latin American Test Workshop (LATW 2012)*, Quito, Ecuador, April 10-13, 2012.

**General Co-Chair** for the *Design and Test Summer School*, Puebla, Puebla, México, October 25 y 26, 2012.

**2014**

**Member of the Technical Program Committee** for the *5<sup>th</sup> Latin American Symposium on Circuits and Systems (LASCAS 2014)*, Santiago, Chile, February 25-28, 2014.

**Global Arrangements Chair and Finance Chair** for *ISTEC's XX General Assembly*, Tonantzintla, Puebla, Mexico, March 25-28, 2014.

**Global Arrangements Chair and Finance Chair** for the *IEEE International Caribbean Conference on Devices, Circuits and Systems (ICCDCS 2014)*, Playa del Carmen, Quintana Roo, Mexico, April 2-4, 2014.

**Co-Organizer of the Special Session for Latin America** during the *IEEE International Microwave Symposium (IMS 2014)*, Tampa, Florida, USA, June 4, 2014.

**Global Arrangements Chair and Finance Chair** for the *22<sup>nd</sup> IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC 2014)*, Playa del Carmen, Quintana Roo, México, October 6-8, 2014.

**2015**

**Member of the Technical Program Committee** for the *6<sup>th</sup> Latin American Symposium on Circuits and Systems (LASCAS 2015)*, Montevideo, Uruguay, February 24-27, 2015.

**Co-Organizer of the Special Session for Latin America** during the *IEEE International Microwave Symposium (IMS 2015)*, Phoenix, Arizona, USA, May 21, 2015.

**Local Arrangements Chair** for the *11<sup>th</sup> International School on the Effects of Radiation on Embedded Systems for Space Applications (SERESSA 2015)*, Puebla, México, November 30-4 December, 2015.

**2016**

**Member of the Technical Program Committee** for the *7<sup>th</sup> Latin American Symposium on Circuits and Systems (LASCAS 2016)*, Florianópolis, Brazil, February 28-2 March, 2016.

**Co-Organizer of the Special Session "Microwaves in the Americas"** during the *European Microwave Conference (46<sup>th</sup> EuMC)*, London, England, October 6, 2016.

**Co-Chair of the Technical Program Committee** for the *Latin American Microwave Conference (LAMC 2016)*, Puerto Vallarta, Jalisco, México, December 12-14, 2016.

- 2017**                    **Member of the Technical Program Committee** for the *8<sup>th</sup> Latin American Symposium on Circuits and Systems (LASCAS 2017)*, Bariloche, Argentina, February 20-23, 2017.
- General Co-Chair** for the 2017 International Caribbean Conference on Devices, Circuits and Systems (*ICCDCS 2017*), Cozumel, Quintana Roo, México, June 5-7, 2017.
- 2018**                    **General Co-Chair** for the 2018 Latin American Symposium on Circuits and Systems, Puerto Vallarta, Jalisco, México, February 25-28, 2018.
- 2019**                    **Member of the Technical Program Committee** for the *10<sup>th</sup> Latin American Symposium on Circuits and Systems (LASCAS 2019)*, Armenia, Colombia, February 25-27, 2019.
- Publications Chair** for the 2019 Latin American Symposium on Circuits and Systems, Armenia, Colombia, February 25-27, 2019.
- 2021**                    **Co-General Chair for the 3<sup>rd</sup> IEEE Mexican Humanitarian Technology Conference (MHTC 2021)**, Puebla, Puebla, México, April 21-22 2021.
- 2021**                    **General Chair for the 13<sup>th</sup> Electronics and Advance Design Seminar**, INAOE, Puebla, México, September 20-22, 2023.

## Abbreviated Résumé



Roberto S. Murphy-Arteaga (IEEE M'92, SM'02) received his B.Sc. degree in Physics from St. John's University, Minnesota, and got his M.Sc. and Ph.D. degrees from the National Institute for Research on Astrophysics, Optics and Electronics (INAOE), in Tonantzintla, Puebla, México. He has taught graduate courses at the INAOE since 1989. He has given over 150 talks at scientific conferences and directed 13 Ph.D. dissertations, 21 M.Sc. and 3 B.Sc. theses. He has published more than 160 articles in scientific journals, conference proceedings and newspapers, and is the author of a text book on Electromagnetic Theory. He is currently a senior researcher with the Microelectronics Laboratory.

Dr. Murphy's research interests are the physics, modeling and characterization of the MOS Transistor and passive components for high frequency applications, especially for CMOS wireless circuits, and antenna design.

He is a Senior Member of IEEE, a Distinguished Lecturer of the Electron Devices Society, a member of the Mexican Academy of Sciences, and a member of the Mexican National System of Researchers (SNII).