

IGNACIO LLAMAS GARRO

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I. MAIN INTERESTS

- Microwave Engineering
 - Reconfigurable Microwave Devices
 - Micromachined Microwave Devices
 - RF-MEMS
 - Sensors and Actuators
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II. EDUCATION

- **PhD Electronic and Electrical Engineering**, The University of Birmingham, United Kingdom, (Oct 1999 – Dec 2003)
 - **Beng Electronics and Communications Engineering**, Autonomous University of Nuevo Leon State, Mexico (Aug 1994 – Jan 1999)
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III. WORK EXPERIENCE

- **Senior Researcher** (July 2010-present)
Centre Tecnològic de Telecomunicacions de Catalunya (CTTC)
Barcelona, Spain
- **Juan de la Cierva Fellow** (May 2007-May 2010)
Signal Theory and Communications Department
Barcelona Tech (UPC).
Barcelona, Spain
- **Associate Professor** (May 2006-May 2007)
Large Millimeter Telescope Research Group
National Institute for Astrophysics, Optics and Electronics, INAOE
Puebla, Mexico
- **BK-21 Assistant professor** (Mar 2005- Mar 2006)
School of Electronic Engineering and Computer Science
Seoul National University
Seoul, Korea
- **Visiting Researcher**
ISRC (Inter University Semiconductor Research Center) (Mar 2004 – Mar 2005)
Seoul National University
Seoul, Korea
- **Postdoctoral researcher** (Mar 2004 – Mar 2005)
Laboratory for Microsensors and Actuators
Seoul National University
Seoul, Korea
- **PGTA, Post-Graduate Teaching Assistant** (Jan 2001-Aug 2003)
School of Electronic, Electrical and Computer Engineering

The University of Birmingham
England, United Kingdom

- **Engineering internship** (Aug 1997 – Jan 1998)
Technician at the television channel
CEDIMI building, UANL
Nuevo León, México

IV. TEACHING EXPERIENCE

- **Lecturer**
Barcelona Tech (UPC), Spain
Communications and Distributed Control (final year telecommunications engineering course)
- **Lecturer**
National Institute for Astrophysics, Optics and Electronics, INAOE, Mexico
Microwave and Millimetre wave systems (continuous education course)
Microwave Systems (master's course)
Electronic Communications I (master's course)
- **Lecturer**
Seoul National University, Korea
Satellite Communications (post-graduate course)
- **Short Course:**
SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference, Natal, RN-Brazil, Oct. 29-Nov. 1, 2011. Also presented at the Federal University of Pernambuco, Recife, Brazil, Nov. 4, 2011.
MEMS/solid state based reconfigurable microwave devices and micromachined millimeter-wave circuits.
- **Short Course:**
Universidad Cristóbal Colón, Veracruz, México, April 19th-20th, 2007.
“Diseño, Modelado e Implementación de Circuitos de Microondas y Tecnologías MEMS para RF”
- **Post-graduate teaching assistant and laboratory supervisor**
The University of Birmingham, UK
Introduction to communications (first year BEng)
Electric circuits (first year BEng)
Communication systems (second year BEng)

V. PRESENT/PAST RESEARCH STUDENTS

Alumni

- **Doctorate Degree**
Moisés Isaac Espinosa Espinosa
[Thesis advisor] Barcelona Tech (UPC), Spain (2015).
Thesis title: Reconfigurable Frequency Measurement Devices.

Bruno G. M. de Oliveira
[Thesis co-advisor] Universidade Federal de Pernambuco, Brazil (2014).
Thesis title: Integration of Frequency Discriminators for IFM Systems.

Edith Aline Jaimes Vera
[Thesis advisor] Barcelona Tech (UPC), Spain (2012 Awarded with honors).
Thesis title: Micromachined Polymer Based Components for Highly Integrated Millimeterwave Subsystems.

Zabdiel Brito Brito
[Thesis advisor] Barcelona Tech (UPC), Spain (2010 Awarded with honors).
Thesis title: Microwave Integrated Tunable Filters.
- **Masters Degree**

Josep Benet Freissinier

[Dissertation co-advisor] Barcelona Tech (UPC), Spain (2010). Advisor: Zabdiel Brito Dissertation Title: Automatización y control de un motor a pasos para la sintonización de filtros de microondas (in Spanish).

David Cassany Viladomat

[Dissertation co-advisor] Barcelona Tech (UPC), Spain. Visiting student at the National Institute for Astrophysics, Optics and Electronics, Puebla, Mexico (2010). Advisor: Jose Luis Olvera Cervantes, co-advisor: Alonso Corona Chavez. Dissertation Title: Diseño de celdas metamateriales usando tecnología monolítica multicapas (in Spanish).

Anna Trallero García

[Dissertation advisor] Technical Barcelona Tech (UPC), Spain (2009 Awarded with honors). Dissertation Title: Filtros de Banda Eliminada con un Ancho de Banda Moderado en Múltiples Capas (in Spanish).

Guillem Navarro Muñoz

[Dissertation advisor] Barcelona Tech (UPC), Spain (2009, Awarded with honors). Co-advisor: Zabdiel Brito. Dissertation Title: Filtros para un Cabezal de Comunicaciones entre Vehículos (in Spanish).

Carles Musoll Anguiano

[Dissertation advisor] Barcelona Tech (UPC), Spain. (2009, Awarded with honors). Co-advisor: Zabdiel Brito. Dissertation Title: Filtro Banda Eliminada con Reconfigurabilidad Continua en Selectividad, Ancho de Banda y Frecuencia Central (in Spanish).

Karim Bousfoul

[Dissertation advisor] Pierre and Marie Curie University - París VI (2009). Visiting student at the Technical University of Catalunya, Barcelona, Spain. Dissertation Title: Ka-Band Micromachined Monolithic Microwave Filter for Vehicule Radars.

Edith Aline Jaimes Vera

[Dissertation co-advisor] National Institute for Astrophysics, Optics and Electronics, Puebla, Mexico (2007). Advisor: Ignacio Zaldivar. Dissertation Title: Filtros Coaxiales de Alto Factor de Calidad Miromaquinados Utilizando Estructuras Suspendidas (in Spanish).

- **Bachelor degree**

[Dissertation advisor] Barcelona Tech (UPC), Spain.

Former students: Jefferson Ortiz, Alexis Giancarlo Diaz Flores, Amine Infad, Jorge Vásquez

Present Students

- **Doctorate Degree**

Lidiane da Silva Araújo Costa

[Thesis co-advisor], Universidade Federal de Pernambuco, Brazil.

Visiting Students

- **Doctorate Degree**

Shakila Bint Reyaz, Uppsala University, Sweden (March-April 2012). Topic: Design of Reconfigurable RF-MEMS and SIW based front-end filter.

Gustavo Oliveira Cavalcanti, Universidade Federal de Pernambuco, Brazil (December 2011-February 2012). Topic: Micromachined optical and terahertz sensors.

- **Masters Degree**

Rubén Darío Guerrero

Universidad de los Andes, Bogotá, Colombia (February-April 2012). Topic: Reconfigurable filters using MEMS technology.

VI. VISITING FACULTY

- Prof. Nouri Keltouma, Universitaire Docteur Moulay Tahar –Saida- Algérie.
 - Prof. Eduardo Fontana, Universidade Federal de Pernambuco, Brazil.
 - Prof. Marcos Tavares de Melo, Universidade Federal de Pernambuco, Brazil.
 - Prof. Adaildo Gomes D Assuncao, Universidade Federal do Rio Grande do Norte, Brazil.
 - Prof. Antonio Belfort, Universidade Federal de Pernambuco, Brazil.
 - Prof. Jung-Mu Kim, Chonbuk National University, Korea.
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VII. AFFILIATIONS

- IEEE (Student member 1999, Member 2003, Senior Member 2010)
 - IET (Student member 1999, Associate member 2002, Member 2003-2016)
 - EuMA (Member 2011)
 - KIEE (Member during 2005)
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VIII. LANGUAGES

- Spanish, native language.
 - English, fluent.
 - Portuguese, intermediate.
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IX. SCHOLARSHIPS AND AWARDS

- Recipient of the European Social Fund “Torres Quevedo” (2012-2015), ref: PTQ-11-04792.
- Senior member of the IEEE since September 2010
- Member of the National Researcher System, National Council for Science and Technology, Mexico, since August 2007. (SNI-I)
- Recipient of the European Social Fund, “Juan de la Cierva” (May 2007-May 2010)
- Achievements recognized in “Marquis Who’s Who in Science and Engineering” publications
- Achievements recognized in “Marquis Who’s Who in the World” publications
- ISRC (Inter University Semiconductor Research Center, Korea), Visiting researcher (Mar 2004 – Mar 2005)
- KOSEF (Korea Science and Engineering Foundation), Post-doctoral fellowship grant (Mar 2004 – Mar 2005)
- CONACYT (National Council for Science and Technology, Mexico), Scholarship for post-graduate studies (Oct. 1999 – Sep. 2003)
- UANL (Universidad Autónoma de Nuevo León, Mexico), Scholarship to do masters studies (Jan. 1999 – Jul. 1999)
- UANL (Universidad Autónoma de Nuevo León, Mexico), Distinction award and scholarship

X. SERVICE

Journals

- Reviewer for: Journal of Micromechanics and Microengineering.
- Reviewer for: IEEE/ASME Journal of Microelectromechanical Systems.
- Reviewer for: IEEE Transactions on Industrial Electronics.
- Reviewer for: International Journal of Microwave and Wireless Technologies.
- Reviewer for: IEEE Transactions on Microwave Theory and Techniques.
- Reviewer for: Microelectronic Engineering.
- Reviewer for: Electronics Letters.
- Reviewer for: IET Microwaves, Antennas and Propagation.
- Reviewer for: Microwave and Optical Technology Letters.
- Reviewer for: IEEE Microwave and Wireless Components Letters.
- Reviewer for: Measurement Science and Technology Journal.
- Reviewer for: IEEE Transactions on Magnetics.
- Reviewer for: Journal of Physics D: Applied Physics.
- Reviewer for: Progress in Electromagnetic Research Journals.
- Reviewer for: Sensors & Actuators: A. Physical.
- Reviewer for: Sensor Letters.
- Reviewer for: Mathematical Problems in Engineering Journal.
- Reviewer for: Journal of Electromagnetic Waves and Applications.
- Reviewer for: IEEE Transactions on Circuits and Systems-Part II.
- Reviewer for: Solid State Electronics.
- Reviewer for: Active and Passive Electronic Components Journal.
- Reviewer for: International Journal of Antennas and Propagation.
- Reviewer for: International Journal of Microwave Science and Technology.
- Reviewer for: Analog Integrated Circuits and Signal Processing.
- Reviewer for: Journal of Optics.
- Reviewer for: IEEE Transactions Latin America.
- Reviewer for: European Journal of Physics.

- Reviewer for: Ingeniare: Revista Chilena de Ingeniería.
- Reviewer for: Nova Scientia.
- Reviewer for: Journal of Microwaves, Optoelectronics and Electromagnetic Applications.
- Reviewer for Advances in Electrical and Electronic Engineering.

Government

- Reviewer for: National Council for Science and Technology: Research Projects and Postgraduate Education Programs, Mexico.
- Reviewer for: Latin-American Science & Technology Development Program (CYTED)

Conferences

- Technical program committee member: *IEEE MTT-S Latin America Microwave Conference (LAMC), Puerto Vallarta, Mexico, 12-14 December 2016.*
- Technical program committee member: *International Microwave and Optoelectronics Conference, Porto de Galinhas, Pernambuco, Brazil. 3-6 November 2015.*
- Technical program committee member: *24th IEEE International Conference on Electronics, Communications and Computers, 2011-2017.*
- Technical program committee member: *14th IEEE International Multitopic Conference, December 22-24, 2011, Karachi, Pakistan.*
- Technical program committee member: *IEEE MTT-S International Microwave Workshop Series on Millimeter Wave Integration Technologies, IMWS, 15-16 September 2011, Sitges, Spain.*
- Technical program committee member: *APMC 2008, Asia Pacific Microwave Conference, Hong Kong, China, 16-20 December 2008.*
- Chairman of the session: Microwave devices, *SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference, Porto de Galinhas, Brazil, 3-6 November 2015.*
- Chairman of the session: Microstrip Filters at the *SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference, Natal, RN-Brazil, Oct. 29-Nov. 1, 2011.*
- Chairman of the session: mm-wave filters at the *IEEE MTT-S International Microwave Workshop Series on Millimeter Wave Integration Technologies, IMWS, Sitges, Spain, 15-16 September 2011.*
- Chairman of the session: Active Microwave Components and Circuits III at the *XXIII Spanish National URSI Symposium, Madrid, Spain 22-24 September 2008.*
- Chairman of the session: Interactive Poster II at the *8th International Symposium on RF MEMS and RF Microsystems, MEMSWAVE 2007, Barcelona, Spain, June 26-29, 2007.*
- Chairman of the session: Microwave and Millimeter Wave Systems at the *17th Asia Pacific Microwave Conference, APMC, Suzhou, China, December 4-7, 2005.*
- Reviewer for: *IEEE International Conference on Ultra-Wideband (ICUWB), Sidney, Australia 15-18th September 2013.*
- Reviewer for: *The 38th Annual Conference of the IEEE Industrial Electronics Society, IECON' 2012, ETS Montreal, Quebec, Canada, 25-28 October 2012.*

- Reviewer for: *Simpósio Brasileiro de Micro-ondas e Optoeletrônica e o 10º CBMag – Congresso Brasileiro de Eletromagnetismo*. MOMAG 2012, Joao Pessoa, Paraíba, Brazil, 05 a 08 de agosto de 2012.
 - Reviewer for: *International Multitopic Conference, IMTIC'12*, March 28-30, 2012, Sindh, Pakistan.
 - Reviewer for: *Military Communications Conference 2010, MILCOM*, San Jose, California, USA, October 31-November 3, 2010.
 - Reviewer for: *XXIV Spanish National URSI Symposium*, Cantabria, Spain, 16-18 September 2009.
 - Reviewer for: *52nd IEEE Midwest Symposium on Circuits and Systems, MWSCAS 2009*, Cancun, Mexico, 2-5 August 2009.
 - Reviewer for: *5to Congreso Internacional de Ingeniería Electromecánica y de Sistemas, CIIES 2008*, Instituto Politécnico Nacional, México, 10-14 Noviembre 2008.
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XI. INVITED ACTIVITIES

- Invited seminar: "Reconfigurable RF/Microwave Circuits", Queen Mary University of London, UK, 25th of June, 2015.
- Invited seminar: "Reconfigurable Microwave Devices", The Hong Kong Polytechnic University, Hong Kong, China, 14th January 2015.
- Invited seminar: "Reconfigurable Interferometers for Frequency Measurement Applications", Federal University of Pernambuco, Recife, Brazil, 19th March 2014.
- Invited talk: "Micromachining and MEMS for millimeter-wave applications". SBMO/IEEE MTT-S International Microwave and Optoelectronics Conference, Rio de Janeiro, Brazil, August 4-7, 2013.
- Seminar: "Mejora de materiales dieléctricos y estructuras micromecanizadas para comunicaciones y radar" in Nuevos materiales para la Defensa y la Seguridad, organized by Fundación Círculo de Tecnologías para la Defensa y la Seguridad, Instituto Tecnológico de La Marañosa, San Martín de la Vega, Madrid, 14th June, 2012.
- Seminar: "Técnicas y usos de micro/nano fabricación para realizar hardware" in Estado del arte y potenciales aplicaciones de las bandas de terahercios para la Seguridad y la Defensa, organized by Fundación Círculo de Tecnologías para la Defensa y la Seguridad, Madrid, Spain, 8th March 2012.
- Invited talk: "Recent advances in reconfigurable RF filters", Seoul National University, School of Electrical Engineering and Computer Science, Korea, 10th November 2010.
- Invited talk: "Reconfigurable RF front end hardware", NEC Corporation Central Research Laboratories, Nakahara-Ku, Kawasaki, Kanagawa, 211-8666, Japan, 8th November 2010.
- Invited talk: "Micromachined Microwave Devices and Reconfigurable Filter Architectures using Diodes and MEMS Switches" CICESE, Centro de Investigación Científica y de Educación Superior de Ensenada, Mexico, 28th August 2008.
- Invited seminar: "RF MEMS: characterization and design at UPC", and "Diverse Microwave Devices with a Special Focus on: 3D Microfabricated Microwave Filters", Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Barcelona, Spain, 7th March 2008.
- Invited talk: "Diseño, construcción y los alcances del Gran Telescopio Milimétrico", XI Symposium Internacional de Ingeniería Civil, Guadalajara, Mexico, 15,16 y 17 de Marzo 2007.
- Invited talk: "Microwave Filters and Devices Using MEMS Technology", Toyota Central R&D Labs., Inc, Aichi-ken, Japan, 14th December 2006.

- Invited talk: “Filtros de Microondas y Frecuencias Milimétricas Usando Tecnología MEMS, Revisión y Perspectivas”, Congreso de Electrónica, Telecomunicaciones y Sistemas, Veracruz, México, 13-15 November 2006.
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XII. RESEARCH STUDENT EXAMINER

- **Doctorate Degree**

[Examiner], Author: Lauro Novo, Universidade Federal de Pernambuco, Brazil (November 2015).
Dissertation title: Desenvolvimento de método para detecção de desgaste ou corrosão em hastas de âncora de torres estaiadas de linhas de transmissão de energia elétrica. Advisor: Marcos T. de Melo.

[Examiner], Author: Mercedes Jimenez Blasco. Autonomous University of Barcelona, Spain (October 2015). Dissertation title: A coupling matrix vision for mobile filtering devices with micro-acoustic wave technologies, a systematic approach. Advisor: Pedro de Paco.

[Examiner], Author: Adrian Contreras. Barcelona Tech, Spain (December 2013). Dissertation Title: Multimodal Microwave Filters. Advisors: Lluís Pradell, Miquel Ribó.

[Examiner], Author: Alessandro Acampora. Barcelona Tech, Spain (July 2013). Dissertation Title: Nonlinear Analysis and Design of Microwave Multi-Device Distributed Autonomous Circuits. Advisor: Apostolos Georgiadis (CTTC), Supervisor: Jordi Mateu (UPC).

[Examiner], Author: Eduard Rocas Cantenys. Barcelona Tech, Spain. (June 2011). Dissertation Title: Nonlinear Mechanisms in Passive Microwave Devices. Advisor: Dr. Carlos Collado.

[Examiner], Author: Marco Antonio Llamas Morote. Barcelona Tech, Spain. (September 2009).
Dissertation Title: Circuitos de Microondas Uniplanares Multimodales, Reconfigurables (in Spanish).
Advisors: Dr. Lluís Pradell, Dr. David Girbau Sala.

- **Master Degree**

[Examiner], Author: Ruben Guerrero. Universidad de los Andes, Colombia (December 2011).
Dissertation Title: Incorporación de elementos activos en filtros reconfigurables (in Spanish). Advisor: Juan Carlos Bohórquez Reyes.

[Examiner], Author: Cristian Tovar. Universidad de los Andes, Colombia (December 2011). Dissertation Title: Diseño e implementación de un arreglo de antenas reconfigurable en directividad basado en tecnología SIW (in Spanish). Advisor: Juan Carlos Bohórquez Reyes.

- **Final Year Project, Telecommunications Engineering Degree (5 year course + final year project)**

[Examiner], Author: Esther Martinez Lacambra. Barcelona Tech, Spain. (July 2009). Dissertation Title: Filtros Sintonizables de Banda Dual (in Spanish). Advisors: Dr. David Girbau Sala, Dr. Lluís Pradell.

[Examiner], Author: Alfredo Parra Valbuena. Barcelona Tech, Spain. (April 2009). Dissertation Title: Modelo de Porter y Estrategias de Negocio de Operadores de Telecomunicaciones en España (in Spanish). Advisor: Josep Maria Calvet .

XIII. RESEARCH PROJECTS

Note: This is a partial project list, and will no longer be updated. An up to date project list can be found at: <http://www.cttc.es/people/illamas/> (look under the projects tab).

As principal investigator

- Project: Compact Sensor System for Unmanned Aerial Vehicles. Funded by the North Atlantic Treaty Organization (NATO/OTAN), multi-year Project started on January 8th 2015. (Ref. Sfp 984809).
- Project: Nanowave, Dispositivos ópticos y de alta frecuencia. International Project funded by the ministry of science and innovation of Spain. December 2010 to October 2015. (ref. PIB2010BZ-00585)

As external collaborator

- Project: Portfolio award, funded by the engineering and physical research council, UK. PI: Mike J. Lancaster. March 2003 to February 2008. (ref. GR/S60471/01)

As investigator

- Project: Grup de Recerca Consolidat, Generalitat de Catalunya. PI: Christos Verikoukis. 2014-2016. (ref. 2014 SGR 1551).
- Project: Infrared Surface Plasmon Resonance Sensor, NRF–Korea, PI Jung-Mu Kim, September 2013-august 2015, (ref. NRF–2013K2A1A2049144).
- Project: High frequency and optical devices, CNPq–Brazil. PI: Eduardo Fontana, December 2010 to November 2015 (ref. 56066520105).
- Project: Diseño de tecnologías integradas reconfigurables en banda milimétrica, Funded by the ministry of science and innovation of Spain. PI: Lluís Pradell. October 2010 to August 2013. (ref. TEC2010-20318-C02-01)
- Project: RF/Microwave communication subsystems for emerging wireless technologies. Funded by the European commission, PI: Apostolos Georgiadis. October 2008 to October 2012. (ref. COST IC0803)
- Project: Nuevas arquitecturas para circuitos de comunicaciones de microondas basadas en MEMS de RF. Funded by the ministry of science and innovation of Spain. PI: Lluís Pradell. October 2007 to October 2010. (ref. TEC2007-65705)
- Project: MEMICOM, MEMS based architectures for advanced microwave and millimeterwave Communication. Funded by AGAUR, Generalitat de Catalunya. PI: Lluís Pradell. October 2007 to October 2008. (ref. 2006ITT-10005)
- Project: Superconductividad de alta temperatura a frecuencia de microondas, funded by the national council for science and technology, Mexico. PI: Alonso Corona Chavez. January 2007 to January 2010. (ref. 49238)

Collaboration with industry

- Samsung: Development of a micromachined half coaxial transmission line. March 2004 to March 2006.
- LG: Study of RF-MEMS switch performance at low temperatures. March 2005 to March 2006.

Other funding sources

- Brain Korea 21 project fund for the development of micromachined transmission lines. March 2005 to March 2006.
 - Korea Science and Engineering Foundation and Inter-university Semiconductor Research Center at Seoul National University, Korea. March 2004 to March 2005.
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XIV. PUBLICATIONS

Book Chapter

- M. T. de Melo, B. G. M. de Oliveira, Ignacio Llamas-Garro, Moises Espinosa-Espinosa, “Interferometer Instantaneous Frequency Identifier”, Book: Radio Frequency Identification, M. I. B. Reaz (editor), In-Tech, June 2013, ISBN 978-953-51-1143-6.
- Ignacio Llamas-Garro and Zabdiel Brito-Brito “Reconfigurable Microwave Filters”, book: Microwave and Millimeter Wave Technologies: from Photonic Bandgap Devices to Antenna and Applications, Igor Minin (editor), In-Tech, March 2010, ISBN 978-953-7619-X-X.

Journal papers

- Jung-Mu Kim, Ignacio Llamas-Garro, Moisés I. Espinosa-Espinosa, Maolong Ke, Michael Lancaster, Marcos T. de Melo, “Permittivity and loss characteristics of SU8-quartz composite photoresist at THz frequencies”, *Microwave and Optical Technology Letters*, to appear.
- S. Sim, Y. Lee, Y. Jang, Y. Lee, Y. Kim, I. Llamas-Garro, J. Kim, “A 50-100 GHz ohmic contact SPDT RF MEMS silicon switch with dual axis movement”, *Microelectronic Engineering*, Vol. 162, pp. 69-74, August 2016.
- M. Espinosa-Espinosa, I. Llamas-Garro, B. G. M. de Oliveira, M. T. de Melo, J. Kim, “Four-Bit Reconfigurable Discriminator for Frequency Identification Receivers, a Building Block Approach”, *Radio Science*, Vol. 51, pp. 826–835, June 2016.
- Y. Lee, S. Sim, E. Fontana, I. Llamas-Garro, G. Oliveira Cavalcanti, J. Kim, “Silicon-on-quartz bonding based SPR chip”, *Microsystem Technologies*, pp. 1-7, May 2016.
- Eduardo Fontana, Jung–Mu Kim, Ignacio Llamas–Garro, Gustavo Oliveira Cavalcanti, “Microfabricated Otto chip device for surface plasmon resonance based optical sensing”, *Applied Optics*, Vol.54, No. 31, pp. 9200-9204, November 2015.
- M. Espinosa-Espinosa, B. G. M. de Oliveira, I. Llamas-Garro, and M. T. de Melo, “2-Bit, 1-4 GHz Reconfigurable Frequency Measurement Device”, *IEEE Microwave and Wireless Components Letters*, Vol. 24, No. 8, Aug. 2014, pp. 569-571.
- B. G. M. de Oliveira, M. T. de Melo, G. G. Machado, I. Llamas-Garro, “Compact Coplanar Interferometers for a 5-6 GHz IFM System”, *International Journal of Applied Electromagnetics and Mechanics*, Vol. 45, No 1-4, April 2014, pp 235-240.
- I. Llamas-Garro, Z. Brito-Brito, L. Pradell, F. Giacomozzi, S. Colpo, “A Discretely Tuned RF-MEMS Bandstop Filter with Wide Tuning Range and Uniform High Rejection”, *Electronics Letters*, Vol 48, No 17, August 2012, pp 1065-1067.
- Z. Brito-Brito, I. Llamas-Garro, G. Navarro-Muñoz, J. Perruisseau-Carrier, Ll. Pradell, F. Giacomozzi, S. Colpo, “Precise Frequency and Bandwidth Control of Switchable Microstrip Bandpass Filters using Diode and Microelectro-mechanical System Technologies”, *IET Microwaves, Antennas & Propagation*, Vol 6, No. 6, April 2012, pp 713-719.
- Yun-Ho Jang, Ignacio Llamas-Garro, Jung-Mu Kim, Yong-Kweon Kim, “RF MEMS suspended band-stop resonator and filter for frequency and bandwidth continuous fine tuning”, *Journal of Micromechanics and Microengineering*, Vol. 22, No. 1, January 2012.
- A. Jaimes-Vera, I. Llamas-Garro, A. Corona-Chavez, “Coaxial Narrowband Filters Using a Versatile Suspended Resonator”, *Progress In Electromagnetics Research, PIER*, Vol. 115, March 2011, pp. 79-94.
- Xavier Artiga, Julien Perruisseau-Carrier, Pablo Pardo-Carrera, Ignacio Llamas-Garro and Zabdiel Brito-Brito, "Halved Vivaldi Antenna with Reconfigurable Band Rejection", *IEEE Antennas and Wireless Propagation Letters*, Vol. 10, No. 1, March 2011, pp. 56-58.
- Aline Jaimes-Vera, Ignacio Llamas-Garro, Maolong Ke, Yi Wang, Michael J. Lancaster, Lluís Pradell , “Polymer Based Micromachined Rectangular Coaxial Filters for Millimeter-wave Applications”, *International Journal of Microwave and Wireless Technologies (Special Issue on 60-GHz-Communication-Systems)*, Vol. 3, No. 2, March 2011, pp. 115-120.
- Z. Brito-Brito, I. Llamas-Garro, G. Navarro-Muñoz, J. Perruisseau-Carrier, L. Pradell, “Switchable Bandpass Filter for WiFi – UMTS Reception Standards”, *Electronics Letters*, Vol 46, No. 13, June 2010, pp. 930-931.
- Carles Musoll-Anguiano, Ignacio Llamas-Garro, Zabdiel Brito-Brito, Lluís Pradell, Alonso Corona-Chavez, “Fully Adaptable Bandstop Filter using Varactor Diodes”, *Microwave and Optical Technology Letters*, Vol. 52, No. 3, March 2010, pp. 554-558.

- Alonso Corona-Chavez, Ignacio Llamas-Garro, Michael J. Lancaster, “A High Temperature Superconducting Quasi Elliptic Notch Filter for Radioastronomy”, *Microwave and Optical Technology Letters*, Vol. 52, No. 1, January 2010, pp. 88-90.
- Zabdiel Brito-Brito, Ignacio Llamas-Garro, Lluís Pradell, “Precise Frequency and Bandwidth Control of Microstrip Switchable Bandstop Filters”, *Microwave and Optical Technology Letters*, Vol. 51, No. 11, November 2009, pp 2573-2578.
- Zabdiel Brito-Brito, Ignacio Llamas-Garro, Lluís Pradell, “Selectivity Tuned Bandpass Filter”, *Electronics Letters*, Vol. 45, No. 19, September 2009, pp 984-985.
- Yongsung Kim, Ignacio Llamas-Garro, Chang-Wook Baek, Jong-Man Kim, Yong-Kweon Kim, “New release technique of the thick sacrificial layer and residue effects on novel half-coaxial transmission line filters”, *Journal of Micromechanics and Microengineering*, Vol. 19, No. 5, May 2009.
- Alonso Corona-Chavez, Ignacio Llamas-Garro, Jung-Mu Kim, Yong-Kweon Kim, “Novel Suspended-Line Microstrip Coupler Using BCB as Supporting Layer”, *Microwave and Optical Technology Letters*, Vol. 49, No. 8, August 2007, pp 1813-1814.
- Ignacio Llamas-Garro, Yongsung Kim, Chang-Wook Baek, Yong-Kweon Kim, “A Planar High-Q Micromachined Monolithic Half Coaxial Transmission Line Filter”, *IEEE Transactions on Microwave Theory and Techniques* Vol. 54, No. 12, December 2006, pp 4161- 4168.
- Hieng Tiong Su, Ignacio Llamas-Garro, Michael J. Lancaster, Martin Prest, Jae-Hyoung Park, Jung-Mu Kim, Chang-Wook Baek, and Yong-Kweon Kim, “Performance of RF MEMS Switches at Low Temperatures”, *Electronics Letters*, Vol. 42, No. 21, October 2006, pp 1219 – 1220.
- K. Jiang, M.J Lancaster, I. Llamas-Garro and P. Jin, “SU-8 Ka-Band Filter and its Microfabrication”, *Journal of Micromechanics and Microengineering*, Vol. 15, No. 8, August 2005, pp 1522-1526.
- I.Llamas-Garro, M.J.Lancaster, and P.S.Hall, “Air Filled Square Coaxial Transmission Line and its use in Microwave Filters”, *IET Microwaves, Antennas and Propagation*, Vol. 152, No. 3, June 2005, pp 155-159.
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