



SCIENTIFIC OUTCOMES
2003-2018

DISSEMINATION : 33 Publications + 28 Oral International Conferences
RESEARCH PROJECT 4 NATIONAL + 4 INTERNATIONAL
TEACHING : Calculus, Electronics, Micro-electronics and Biosensors

Education

- 06.2010 **Diploma on Art Performance** (Theatre and dance) – Madrid Dramatic Art Centre – Spain
- 12.2009 **PhD in Science** – Polytechnic University of Madrid – Spain
Title: “Structural, strain state and surface aspects related to the reliability of high electron mobility transistors based in AlGaIn/GaN heterostructures” (with Honours)
Jury: Prof. José Millán Gómez (Président), Prof. Ana Jiménez Martín, Prof. Germán Vergara Ogando, Prof. Alejandro Braña de Cal, Prof. Fernando Calle Gómez. At Madrid, 18 December 2009
- 06.2004 **Diploma of Pedagogic Aptitude** – Education Science Institute – Univ. Complutense of Madrid
- 09.2003 **Bachelor in Physics** – University Autonomic of Madrid – Spain

Professional Experience

- 09.13 - **Associate Professor - Maitre des conférences** in NanoMIR's group, Institute for Electronics and Systems, University of Montpellier
- Plasmonic biosensors for environmental and biomedical applications.
 - Design and fabrication of nanostructured semiconductor devices and surfaces for topological insulators and photodetectors.
- 01.11 – 07.12 **Postdoctoral Researcher** in Prof. E. Monroy's group – Nanophysics and semiconductors laboratory Institute for Nanosciences and Cryogenics – CEA-Grenoble – France
- Electrical and photocurrent measurements in single GaN nanowires
 - Assembling a setup system for UV photodetection
 - Advanced simulation for structural and electrical GaN nanowires properties
- 09.10 – 12.10 **High-School Teacher** – Private High School « Recuerdo » Madrid – Spain
- 09.04 – 12.09 **Research Fellowship** in Prof. E. Muñoz's group – Insititue for Systems based in Optoelectronics and Microtechnology – Polytechnic University of Madrid – Spain
- Structural, surface and optical characterization in AlGaIn/GaN heterostructures
 - Design, fabrication and characterization of high electron mobility transistors (HEMTs)
 - Time step-stress reliability test in HEMTs with steady-state and pulsed bias voltages
 - Under-rate device performance evaluation with structural and surface analysis in the fabrication
- 06.06 – 10.06 **Visiting Researcher** in Prof. J. Bardwell's group – Institute of Microstructural Sciences – National Research Council – Canada
- Nanofabrication of AlGaIn/GaN HEMTs on Si(111) and SiC
 - Contamination assessment in the SiN/AlGaIn with Auger electron spectroscopy
- 07.05 – 10.05 **Visiting Researcher** in Prof. J. Bardwell's group – Institute of Microstructural Sciences – National Research Council – Canada
- Surface analysis correlated to the device fabrication by X-ray photoelectron spectroscopy
 - Effective device passivation parameters determination with ellipsometry
- 09.03 – 06.04 **Research Assistant** in Prof. B. Garcia's group – Dept. Applied Physics University Autonomic of Madrid – Spain
- Growth of diluted nitrides by chemical beam epitaxy
 - State-of-the-art study, technical set-up assistance and substrate preparation
- 09.02 – 06.03 **Erasmus Fellowship** in Prof. C. Fontaine's group – Laboratory for Analysis and Architecture of Systems – University Paul Sabatier III of Toulouse – France
- Photoluminescence characterization of (100)- and (111)-oriented GaInAsN/GaAs QWs
 - Quantum well simulation improvement to include piezoelectric effects

Scientific skills

- ❖ Material Science : X-ray diffraction and Ion Beam Analysis
Scanning electron and atomic force microscopy
Photoluminescence and photodetection (UV & IR)
X-ray photoelectron and Auger electron spectroscopy
Simulation of heterostructures and nano-objets
- ❖ Fabrication of devices : Clean room experience: etching and deposition equipments
Photolithography and e-beam lithography
- ❖ Characterisation of devices : DC, pulsed and reliability test

Publications

- [1] A. Arnoult, **F. González-Posada**, S. Blanc, V. Bardinal, C. Fontaine. {1 1 1} Quantum wells of dilute nitrides grown on GaAs by molecular beam epitaxy. *Physica E* **2004**, 23, 352
- [2] **F. González-Posada**, J. A. Bardwell, S. Moisa, S. Haffouz, H. Tang, A. F. Braña, E. Muñoz. Surface cleaning and preparation in AlGa_{1-x}N/GaN-based HEMT processing as assessed by X-ray photoelectron spectroscopy. *Appl. Surf. Sci.* **2007**, 253, 6185
- [3] **F. González-Posada**, A. F. Braña, D. L. Romero, M. F. Romero, A. Jimenez, A. Arranz, C. Palacio, E. Muñoz. 2-DEG characteristics improvement by N₂-plasma exposure in GaN HEMT heterostructures. *IEEE Proc. Spanish Conf. on Electron. Dev.* **2007**, 1, 154
- [4] A. Redondo-Cubero, R. Gago, **F. González-Posada**, U. Kreissig, M.-A. di Forte Poisson, A. F. Braña, E. Muñoz. Aluminum incorporation in Al_xGa_{1-x}N/GaN heterostructures: A comparative study by ion beam analysis and X-ray diffraction. *Thin Solid Films* **2008**, 516, 8447
- [5] S. Fernández-Garrido, J. Pereiro, **F. González-Posada**, E. Muñoz, E. Calleja, A. Redondo-Cubero, R. Gago. Photoluminescence enhancement in quaternary III-nitrides alloys grown by molecular beam epitaxy with increasing Al content. *J. Appl. Phys.* **2008**, 103, 046104
- [6] M.F. Romero, A. Jiménez, J. Miguel-Sánchez, A. F. Braña, **F. González-Posada**, R. Cuerdo, F. Calle, E. Muñoz. Effects of N₂ plasma pretreatment on the SiN passivation of AlGa_{1-x}N/GaN HEMT. *IEEE Electron Dev. Lett.* **2008**, 29, 209
- [7] A. Redondo-Cubero, R. Gago, M. F. Romero, A. Jiménez, **F. González-Posada**, A. F. Braña, E. Muñoz. Study of SiN_xH_y passivant layers for AlGa_{1-x}N/GaN high electron mobility transistors. *Phys. Stat. Sol. (c)* **2008**, 5, 518
- [8] **F. González-Posada**, A. Redondo, A. Bengoechea, A. Jimenez, R. Gago, A. F. Braña, E. Muñoz. High-resolution hydrogen profiling in AlGa_{1-x}N/GaN heterostructures grown by different epitaxial methods. *J. Phys. D* **2009**, 42, 055406
- [9] V. Tasco, A. Campa, I. Tarantini, A. Passaseo, **F. González-Posada**, A. Redondo-Cubero, K. Lorenz, N. Franco, R. Gago, E. Muñoz. Investigation of different mechanisms of GaN growth induced on AlN and GaN nucleation layer. *J. Appl. Phys.* **2009**, 105, 063510
- [10] **F. González-Posada**, C. Rivera, E. Muñoz. The effects of processing of high-electron-mobility transistors on the strain state and the electrical properties of AlGa_{1-x}N/GaN structures. *Appl. Phys. Lett.* **2009**, 95, 203504
- [11] M. F. Romero, A. Jiménez, **F. González-Posada**, S. Martín-Horcajo, F. Calle, E. Muñoz. Impact of N₂ plasma power discharge on AlGa_{1-x}N/GaN HEMT performances. *IEEE Trans. Electr. Dev.* **2012**, 59, 374
- [12] **F. González-Posada**, R. Songmuang, M. Den Hertog, E. Monroy. Responsivity and photocurrent dynamics in single intrinsic GaN nanowires. *Phys. Stat. Sol. (c)* **2012**, 9, 642
- [13] **F. González-Posada**, R. Songmuang, M. Den Hertog, E. Monroy. Room temperature photodetection dynamics of single GaN nanowires. *Nano Lett.* **2012**, 12, 172
- [14] **F. González-Posada**, R. Songmuang, M. Den Hertog, E. Monroy. GaN-based nanowire photodetectors. *Proc. SPIE* **2012**, 8268, 82680P. doi:10.1117/12.914384
- [15] M. Den Hertog, **F. González-Posada**, R. Songmuang, J.L. Rouviere, T. Fournier, B. Fernandez, E. Monroy. Correlation of polarity and crystal structure with optoelectronic and transport properties of GaN/AlN/GaN nanowire sensors. *Nano Lett.* **2012**, 12, 5691.
- [16] S. Valdueza-Felip, A. Mukhtarova, Q. Pan, G. Altamira, L. Grenet, C. Durand, C. Bougerol, D. Peyrade, **F. González-Posada**, J. Eymery and E. Monroy. Photovoltaic response of InGa_{1-x}N/GaN multiple-quantum well solar cells. *Japan. J. Appl. Phys.* **2013**, 52, 08JH05.
- [17] **F. González-Posada**, M. Azize, X. Gao, S. Guo, E. Monroy, T. Palacios. Photocurrent Phenomena in Nanoribbon InAlN/GaN HEMTs. *Japan. J. Appl. Phys.* **2013**, 52, 08JE19.
- [18] **F. González-Posada**, R. Songmuang, M. Den Hertog, E. Monroy. Environmental sensitivity of *n-i-n* and undoped single GaN nanowire photodetectors. *Appl. Phys. Lett.* **2013**, 102, 213113.
- [19] M. den Hertog, R. Songmuang, **F. Gonzalez-Posada**, and E. Monroy, Single GaN-based Nanowires for Photodetection and Sensing Applications, *Jpn. J. Appl. Phys.*, **2013**, 52, 11NG01.
- [20] R. Sellapan, M. G. Nielsen, **F. González-Posada**, P. C. Vesborg, Ib Chorkendorff, D. Chakarov. Effects of plasmon excitation on photocatalytic activity of Ag/TiO₂ and Au/TiO₂ nanocomposites. *J. of Catalysis*, **2013**, 307, 214-221.
- [21] **F. González-Posada**, R. Sellapan, B. Vanpoucke, D. Chakarov. Oxidation of copper nanoparticles in water monitored in-situ by localized surface plasmon resonance spectroscopy, *RSC Advances* **2014**, 4, 20659.
- [22] T. Taliercio, V. NTSame Guilengui, L. Cerutti, J.-B. Rodriguez, F. Barho, M.-J. Milla Rodrigo, **F. Gonzalez-Posada**, E. Tournié, M. Niehle, A. Trampert, Fano-like resonances sustained by Si doped InAsSb plasmonic resonators integrated in GaSb matrix, *Optics Express*, **2015**, 23, DOI:10.1364/OE.23.029423.
- [23] M Marcinkiewicz, F Teppe, C Consejo, N Dyakonova, W Desrat, D Coquillat, S Ruffenach, W Knap, N N Mikhailov, S A Dvoretiskii, **F Gonzalez-Posada**, J-B Rodriguez, E Tournie, Terahertz studies of 2D and 3D topological transitions, *Journal of Physics: Conference Series* **2015**, 647 012037.
- [24] F Barho, **F González-Posada**, M J Milla, M. Bomers, L Cerutti, T Taliercio, All-semiconductor plasmonic gratings for biosensing applications in the mid-infrared spectral range, *Optics Express* **2016**, 24, 16175.
- [25] M J Milla, F Barho, **F González-Posada**, L Cerutti, M Bomers, J-B Rodriguez, E Tournié, T Taliercio, Localized surface plasmon resonance frequency tuning in highly doped InAsSb/ GaSb one-dimensional nanostructures, *Nanotechnology* **27** (2016) 425201.

- [26] T Taliercio, F González-Posada, F Barho, M J Milla, M Bomers, L Cerutti, E Tournié, [Plasmonic bio-sensing based on highly doped semiconductors](#), Proc. SPIE 10353, Optical Sensing, Imaging, and Photon Counting: Nanostructured Devices and Applications **2017**, 103530S, doi: 10.1117/12.2274303.
- [27] R. Rossignol, J. B. Rodriguez, Q. Durlin, H. Aït-Kaci, J. P. Perez, F. Martinez, F. Gonzalez-Posada, P. Christol, [Capacitance voltage profiling to determine doping in InAs/GaSb LWIR SL photodetector structures](#), Proc. SPIE 10111, Quantum Sensing and Nano Electronics and Photonics XIV, 101111H (27 January 2017); doi: 10.1117/12.2251153
- [28] M J Milla, F Barho, **F González-Posada**, L Cerutti, B. Charlot, M Bomers, F. Neubrech, E Tournié, T Taliercio, [Surface-enhanced infrared absorption with Si-doped InAsSb/GaSb nano-antennas](#), *Optics Express*, **2017**, 25, 26651.
- [29] F. Omeis, R. Smaali, F. Gonzalez-Posada, L. Cerutti, T. Taliercio, and E. Centeno, [Metal-insulator-metal antennas in the far-infrared range based on highly doped InAsSb](#), Appl. Phys. Lett. **2017**, 111, 121108 doi: 10.1063/1.4995515
- [30] M. Bomers, F. Barho, M J Milla, L Cerutti, R. Arinero, **F. González-Posada**, E. Tournié, T Taliercio, [Pedestal formation of all-semiconductor gratings through GaSb oxidation for mid-IR plasmonics](#), *Journal of Physics D: Applied Physics* **2018**, (<https://doi.org/10.1088/1361-6463/aa98af>).
- [31] F. B. Barho, **F. González-Posada**, M J Milla, M. Bomers, L Cerutti, E. Tournié, T Taliercio, [Highly doped semiconductor plasmonic nanoantenna arrays for polarization selective broadband surface-enhanced infrared absorption spectroscopy of vanillin](#), *Nanophotonics* **2018**, 7(2): 507–516 (<https://doi.org/10.1515/nanoph-2017-0052>).
- [32] S. S. Krishtopenko, S. Ruffenach, **F. Gonzalez-Posada**, G. Boissier, M. Marcinkiewicz, M. A. Fadeev, A. M. Kadykov, V. V. Romyantsev, S. V. Morozov, V. I. Gavrilenko, C. Consejo, W. D e s r a t , W. Knap, E. Tournié, F. Tepp, [Temperature-dependent terahertz spectroscopy of inverted-band three-layer InAs/GaSb/InAs quantum well](#), *Phys. Review B* **2018**, 97, 245419. (<https://journals.aps.org/prb/abstract/10.1103/PhysRevB.97.245419>).
- [33] M. Bomers, A. Mezy, L. Cerutti, F. Barho, F. Gonzalez-Posada Flores, E. Tournié, T. Taliercio, [Phosphonate monolayers on InAsSb and GaSb surfaces for mid-IR plasmonics](#), Appl. Surf. Sci. **2018**, 451, 241–249.

Book Chapters

- [1] S. Fernández-Garrido, E. Calleja, A. Redondo-Cubero, R. Gago, J. Pereiro, **F. González-Posada**, E. Muñoz. [Properties and growth by plasma assisted molecular beam epitaxy of quaternary III-nitrides](#). In the book “Nitride and Dilute Nitride: Growth, Physics, and Devices”, Ed. J. M. Sánchez, Transworld Research Network, Kerala, India, **2007**. ISBN: 978-81-7895-250-5.
- [2] **F. González-Posada**. [Degradation and realibility in HEMT based in AlGaIn/GaN heterostructures](#). Proc. Young Researcher Meeting, Univ. Alcalá. **2008**. ISBN : 978-84-8138-849-7.

International conferences contributions

- [1] (Poster) A. Arnoult, S. Blanc, **F. González-Posada**, H. Carrère, C. Fontaine, [Nitrogen incorporation in GaAs on \(100\), {111} and {311} substrates: growth conditions and optical properties](#). 12th Euro-MBE, Bad Hofgastein, Austria. Feb. 2003
- [2] (Orale) C. Fontaine, A. Arnoult, **F. González-Posada**, S. Blanc, V. Bardinal, [\(111\) Quantum wells of diluted nitrides on GaAs by molecular beam epitaxy](#). 5th Int. Workshop on Epitaxial semiconductors on patterned substrates and novel index surfaces, Stuttgart, Germany. Oct. 2003
- [3] (Orale) A. F. Braña, **F. González-Posada**, E. Muñoz, A. Jimenez, J. Millan, Z. Bougrioua, [Some materials problems in GaN HEMTs](#). Eur. Microwave Week, Paris, France. Oct. 2005
- [4] (Poster) M. F. Romero, A. Jiménez, J. Miguel-Sánchez, **F. González-Posada**, A. Redondo-Cubero, A. F. Braña, E. Muñoz. [Impact of N₂ plasma pre-treatment on AlGaIn/GaN HEMT device performance](#). 15th Eur. Workshop on Heterostructure Technology (HETECH), Manchester, UK. Oct. 2006
- [5] (Poster) S. Fernández-Garrido, E. Calleja, A. Redondo, **F. González-Posada**, A. Braña, E. Muñoz, R. Gago, A. Muñoz, A. Trampert, and K. H. Ploog. [Strong Carrier Localization Enhancement in InAlGaIn Layers Grown by MBE](#). Int. Workshop on Nitride Semiconductors, Kyoto, Japan. Oct. 2006
- [6] (Orale) K. Bejtka, R.W. Martin, S. Fernández-Garrido, E. Calleja, A. Redondo-Cubero, **F. González-Posada**. [Composition and luminescence of AlInGaIn layers grown by PA-MBE](#). UK Nitride Conference, Cambridge, UK. Jan. 2007
- [7] (Poster) **F. González-Posada**, A. F. Braña, D. L. Romero, M. F. Romero, A. Jimenez, A. Arranz, C. Palacio, E. Muñoz. [2-DEG Improvement by N₂-plasma in GaN HEMT](#). Spanish Conf. on Electron. Dev., Madrid, Spain. Jan. 2007
- [8] (Oral) K. Bejtka, R.W. Martin, S. Fernández-Garrido, A. Redondo-Cubero, **F. González-Posada**, E. Calleja. [Composition and luminescence of AlInGaIn layers grown by MBE](#). 14th Euro-MBE Workshop, Granada, Spain. Mar. 2007
- [9] (Orale) A. Redondo-Cubero, R. Gago, **F. González-Posada**, S. Fernández-Garrido, J. Pereiro, A. Muñoz-Martín, A. F. Braña, U. Kreissig, D. Grambole, E. Muñoz. [Ion beam analysis of ternary and quaternary Al_xIn_yGa_{1-x-y}N/GaN heterostructures for high-power electronic devices](#). E-MRS 2007 Spring Meeting, Strasbourg, France. May 2007
- [10] (Orale) **F. González-Posada**, A. F. Braña, D. L. Romero, M. F. Romero, C. Palacio, E. Muñoz. A. Jimenez, J. Bardwell. [Effects of surface cleaning and treatments in 2DEG characteristics of GaN HEMT structures](#). 31st Workshop on Compound Semiconductor Devices and Integrated Circuits (WOCSDICE), Venecia, Italia. May 2007
- [11] (Orale) **F. González-Posada**. [Surface treatment and cleaning in the 2DEG characteristics of AlGaIn/GaN HEMT heterostructures](#). 1st Young Researcher Day of Universidad de Alcalá, Madrid, Spain. Nov. 2007
- [12] (Orale) **F. González-Posada**. [Degradation and realibility in high eletron mobility transistors based in AlGaIn/GaN heteroestructures](#). 2nd Young Researcher Day of Universidad de Alcalá, Madrid, Spain. Dec. 2008
- [13] (Orale) C. Rivera, **F. González-Posada**, E. Muñoz. [Strain-induced effects on the degradation of III-Nitride-based HEMTs](#). 33rd Workshop on Compound Semicond. Devices and Integrated Circuits (WOCSDICE), Málaga, Spain. May 2009
- [14] (Invited) E. Muñoz, C. Rivera, **F. González-Posada**. [Materials and strain issues in AlGaIn/GaN HEMT degradation](#). Conf. on Solid State Devices and Materials (SSDM09), Miyagi, Japan. Oct. 2009
- [15] (Poster) M. F. Romero, A. Jiménez, **F. González-Posada**, S. Martín-Horcajo, F. Calle, E. Muñoz. [Impact of N₂ plasma power and duration on AlGaIn/GaN HEMT](#). 9th Int. Conf. on Nitride Semiconductors (ICNS9). Glasgow, UK. Jul. 2011
- [16] (Orale) **F. González-Posada**, R. Songmuang, E. Monroy. [Responsivity and photocurrent dynamics in single intrinsic GaN nanowires](#). 9th Int. Conf. on Nitride Semiconductors (ICNS9). Glasgow, UK. Jul. 2011
- [17] (Invited) R. Songmuang, **F. González-Posada**, G. Katsaros, M. Den Hertog, R. Fath, T. Ben, R. García, C. Bourgerol, D. González, S. de. Franceschi, E. Monroy. [III-N nanowire heterostructures: Towards nitride-based nanoscale-devices](#). Workshop on Frontiers in Electronics 2011 (WOFE-2011), San Juan, Puerto Rico. December 2011
- [18] (Invited) E. Monroy, **F. González-Posada**, M. Den Hertog, R. Songmuang. [GaN-based Nanowire Photodetectors](#). Photonics West (SPIE), San Francisco, U.S.A. January 2012
- [19] (Poster) **F. González-Posada**, R. Songmuang, M. Den Hertog, E. Monroy. [Nitride-based single nanowires photodetector dynamics](#). E-MRS Spring Meeting 2012, Strasbourg, France, May 2012
- [20] (Orale) **F. González-Posada**, R. Songmuang, M. Den Hertog, E. Monroy. [Photodetection properties of single GaN nanowires](#). 4th International Symposium on Growth of III-Nitrides, St. Petersburg, Jul. 2012.
- [21] (Orale) M. Den Hertog, **F. Gonzalez-Posada**, E. Monroy, J.L. Rouviere, R. Sonmuang. [Characterization of the polarization fields in GaN-AlN nanowire heterostructures and their effects on the photodetector/sensor performance](#). 15th European Microscopy Congress, Machester, UK, Sept. 2012
- [22] (Poster) **F. González-Posada**, M. Azize, X. Gao, S. Guo, E. Monroy, T. Palacios. [Photocurrent phenomena in nanoribbon InAlN/GaN HEMTs](#). International Workshop in Nitride Semiconductors (IWN), Sapporo, Japan, Oct. 2012
- [23] (Poster) M. Den Hertog, F. González-Posada, R. Songmuang, E. Monroy, [Environmental sensitivity of GaN nanowire photodetectors](#). International Workshop in Nitride Semiconductors (IWN), Sapporo, Japan, Oct. 2012

- [24] (Poster) S. Valdueza-Felip, A. Mukhtarova, Q. Pan, A. Das, L. Grenet, C. Durand, M.-P. Chauvat, D. Peyrade, **F. Gonzalez-Posada**, P. Ruterana, J. Eymery, and E. Monroy, [Novel approaches to InGaN-based solar cells](#), International Workshop on Nitride Semiconductors (IWN-2012), Sapporo, Japan. Oct. 2012
- [25] (Poster) **F. Gonzalez-Posada**, [Nitride Nanowire Retina Implants](#), NanoLife For Science Seminar, Chalmers University, Gothenburg, Sweden, October 2012.
- [26] (Oral) S. Valdueza-Felip, A. Mukhtarova, Q. Pan, L. Grenet, C. Durand, C. Bougerol, D. Peyrade, **F. González-Posada**, J. Eymery, and E. Monroy, [Solar cells based on InGaN/GaN multiple-quantum-well heterostructures](#), 21st European Workshop on Heterostructure Technology (HETECH 2012), Barcelona, Spain. Nov. 2012.
- [27] (Invité) M. Den Hertog, R. Songmuang, **F. González-Posada**, and E. Monroy, [Single GaN-based Nanowires for Photodetection and Sensing Applications](#), 5th International Symposium on Advanced Plasma Science and its Applications for Nitrides and Nanomaterials (ISPlasma 2013), Nagoya, Japan. Jan. 2013.
- [28] (Invité) M.I. den Hertog, **F. González-Posada**, A. Prager, C. Zeiner, K. El-hajraoui, R. Songmuang, J.L. Rouviere, T. Fournier, B. Fernandez, S. De Franceschi, A. Lugstein, E. Monroy, [Transmission electron microscopy of semiconducting nanowire devices](#), 7th nanowire growth workshop, Lausanne, Switzerland, June 2013.
- [29] (Poster) S. Valdueza-Felip, A. Mukhtarova, Q. Pan, G. Altamura, A. Das, L. Grenet, C. Durand, M.-P. Chauvat, D. Peyrade, **F. González-Posada**, P. Ruterana, J. Eymery, and E. Monroy, [InGaN-based solar cells: Novel approaches](#), Photovoltaic Technical Conference – Thin Film & Advanced Silicon Solutions 2013, Montpellier, France. June 2013
- [30] (Orale) M. den Hertog, **F. Gonzalez-Posada**, R. Songmuang, J.L. Rouviere, E. Monroy, [Correlation of polarity and crystal structure with optoelectronic and transport properties of GaN/AlN/GaN nanowires sensors](#), 18th Microscopy of Semiconducting Materials (MSM XVIII), Oxford, UK, April 2013.
- [31] (Poster) F. Gonzalez-Posada, R. Sellappan, Gordon Conference, [Environment sensitivity of copper nanoparticles oxidation monitored in-situ by localized surface plasmon resonance spectroscopy](#), Gordon Research conference: Dynamics at Surfaces, Newport, RI, USA, August 2013.
- [32] (Orale) **F. Gonzalez-Posada**, R. Selleppan, D. Chakarov, [Environment sensitivity of Cu nanoparticles in UV TiO₂ photocatalysis monitored in-situ by localized surface plasmon resonance spectroscopy](#), 41th International Symposium on Compound Semiconductors (ISCS), Montpellier, France, May 2014.
- [33] (Poster) **F. Gonzalez-Posada**, R. Sellappan, D. Chakarov, [Localized surface plasmon spectroscopy for probing copper nanoparticles oxidation](#), International Conference On Sustainable Energy Technologies (ICSET 2014), Coimbatore, India, December 2014.
- [34] (Poster) M. Marcinkiewicz, F. Teppe, C. Consejo, N. Dyakonova, D. Coquillat, S. Ruffenach, W. Knap, **F. Gonzalez-Posada**, L. Cerutti, E. Tournié, N. N. Mikhailov, S. A. Dvoretzskii, [Terahertz studies/probing of 2D and 3D topological transitions](#), 19th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures, Salamanca, Spain, March 2015.
- [35] (Invité) Martien M. Den Hertog, **F. Gonzalez-Posada**, R. Songmuang, J.L. Rouviere, B. Gayral, E. Monroy, [Correlating optoelectronic and transport properties of GaN/Aln nanowires with polarity and cristal structure](#), 18th European Molecular Beam Epitaxy Workshop, Canazei, Italy, March 2015
- [36] (Poster) Marcinkiewicz1, F. Teppe1, C. Consejo1, N. Dyakonova1, D. Coquillat1, S. Ruffenach1, W. Knap1, F. Gonzalez-Posada2, L. Cerutti, E. Tournié, N. N. Mikhailov, S. A. Dvoretzskii, [Terahertz studies/probing of 2D and 3D topological transitions](#), 19th International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures, Salamaca, Spain, March 2015
- [37] (Orale) T. Taliercio, L. Cerutti, E. Tournié, J. J. Greffet, Franziska Barho, Maria-José Milla Rodrigo, **Fernando Gonzalez-Posada**, [Brewster "mode" or how to optically monitor the doping concentration in highly doped semiconductor layers](#), 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics, New York, USA, August 2015.
- [38] (Orale) T. Taliercio, Vilianne N'Tsame Guilengui, L. Cerutti, J.-B. Rodriguez, Franziska Barho, Maria-José Milla Rodrigo, **Fernando Gonzalez-Posada**, E. Tournié, [Observation of Fano-Like resonances in highly doped semiconductors plasmonic resonators](#), SPIE Optics + Photonics, San Diego, USA, August 2015
- [39] (Poster) N. Pascual, A. Dawes, **F. González-Posada**, N. Thompson, D. Chakarov, N. J. Mason, H. J. Fraser, [Amorphous Silica- and Carbon- rich nano-templated surfaces as model interstellar dust surfaces for laboratory astrochemistry](#), IAU XXIX General Assembly Honolulu, HI, August, 2015
- [40] (Invited) F. Bahro, M.J.Milla, **F. González-Posada**, L. Cerutti, J.B. Rodriguez, E. Tournie, T. Taliercio, [Optimization of plasmonic grating resonators based on highly doped semiconductors for sensing applications using 2D finite-difference time-domain simulations](#), SPIE OPTO, San Francisco, California, USA, February 2016.
- [41] (Invited) M.J. Milla, , F. Barho, **F. González-Posada**, L. Cerutti, J.B. Rodriguez, E. Tournie, T. Taliercio, [Tuning of the localized surface plasmon wavelength in highly-doped InAsSb/GaSb nanostructures](#), SPIE OPTO, San Francisco, California, USA, February 2016.
- [42] (Poster) M. Bomers, A. Mezy, L. Cerutti, **F. González-Posada**, F. Barho, M.J.Milla, E. Tournié, T. Taliercio, [Mid-IR spectroscopy of phosphonate monolayers on highly doped InAsSb:Si and GaSb for plasmonic applications](#), International Symposium on Surface Chemistry, OMNT, Paris, France, May 2016.
- [43] (Invited) M.J. Milla, F. Barho, M. Bomers, **F. González-Posada**, L. Cerutti, E. Tournié, T. Taliercio, [All semiconductor plasmonics for bio-sensing](#), International Conference on Energy, Materials and Photonics (EMP16), Troyes, France, July 2016.
- [44] (Poster) M. J. Milla, F. Barho, **F. González-Posada**, L. Cerutti, M. Bomers, E. Tournié, T. Taliercio, [Surface plasmon resonance sensing of highly doped InAsSb/GaSb nanoribbons](#), International Molecular Beam Epitaxy, Montpellier, France, Septembre 2016.

- [45] (Poster) M. Bomers, A Mezy, L. Cerutti, **F. González-Posada**, F. Barho, M.J.Milla, E. Tournié, T. Taliercio, [Surface modification of GaSb and InAsSb:Si by phosphonates for plasmonic applications](#), International Molecular Beam Epitaxy, Montpellier, France, Septembre 2016.
- [46] (Oral) M.J. Milla, F. Barho, M. Bomers, **F. González-Posada**, L. Cerutti, E.Tournié,T. Taliercio, [Highly doped InAsSb nanoribbon on GaSb for plasmonics applications](#), 13th International Conference on Mid-Infrared Optoelectronics: Materials and Devices (MIOMD-XIII), Beijing, China, Sept. 2016.
- [47] (Oral) F. Barho, **F. Gonzalez-Posada**, M-J-Milla-Rodrigo, M. Bomers, L. Cerutti, T. Taliercio, [Highly doped InAsSb plasmonic arrays for mid-infrared biosensing](#), 11th IEEE Nanotechnology Materials and Devices Conference, Toulouse, France, Octobre, 2016.
- [48] (Oral) F. Omeis, **F. Gonzalez-Posada**, L. Cerutti, R. Smaali, E. Centeno, T. Taliercio, [THz absorbers with highly doped semiconductors based in plasmonic nano-resonators](#), 11th IEEE Nanotechnology Materials and Devices Conference, Toulouse, France, Octobre, 2016.
- [49] (Oral) M.J. Milla, , F. Barho, **F. González-Posada**, L. Cerutti, B. Charlot, M. Bomers, E. Tournie,T. Taliercio, [Surface-Enhanced Infrared Absorption Using Highly Doped InAsSb/GaSb Nanostructures](#), MRS Fall Meeting, Boston, USA, November 2016.
- [50] (Oral) F. Barho, **F. Gonzalez-Posada Flores**, M. Bomers, M.-J. Milla Rodrigo, L. Cerutti, E. Tournié, T. Taliercio, [Highly doped semiconductor plasmonic resonators for surface enhanced infrared absorption spectroscopy](#), Nanophotonics and Micro/Nano Optics International Conference, Paris, France December 2016. Best submission award.
- [51] (Oral) R. Rossignol, J. B. Rodriguez, Q. Durlin, H. Ait-Kaci, J. P. Perez, F. Martinez, F. Gonzalez-Posada, P. Christol, [Capacitance voltage profiling to determine doping in InAs/GaSb LWIR SL photodetector structures](#), SPIE Photonic West Quantum Sensing and Nano Electronics and Photonics XIV, San Francisco, California, United States, February 2017,
- [52] (Oral) M.J. Milla, **F. González-Posada**, L. Cerutti, F. Barho, M. Bomers, E. Tournie,T. Taliercio, [Midinfrared surface enhanced absorption spectroscopy with 1-dimensional highly Si-doped InAsSb nano-antennas](#), EMRS Spring Meeting, Strasbourg, France, May 2017.
- [53] (Poster) M.J. Milla, **F. González-Posada**, F. Barho, M. Bomers, L. Cerutti, E. Tournie,T. Taliercio, [Surface enhanced infrared monitoring in 1-dimensional Si-doped InAsSb nano-antennas](#), 8th International Conference on Surface Plasmon Photonics, Taipei, Taiwan, May 2017.
- [54] (Poster) M. Bomers, M.J. Milla. D.M. Di Paola, F. Barho, L. Cerutti, **F.Gonzalez-Posada**, A Patané, E. Tournié, T. Taliercio, [Impact of GaSb oxidation on the mid-IR properties of InAsSb:Si / GaSb based plasmonic biosensors](#), 8th International Conference on Surface Plasmon Photonics, Taipei, Taiwan, May 2017.
- [55] (Poster) M. Bomers, A. Mezy, F. Barho, M.-J. Milla Rodrigo, L. Cerutti,, **F. Gonzalez-Posada Flores**, E. Tournié, T. Taliercio [Enhanced molecular sensing by all semiconductor plasmonic devices functionalized with phosphonates](#), 8th International Conference on Surface Plasmon Photonics, Taipei, Taiwan, May 2017.
- [56] (Oral) **F. Gonzalez-Posada**, F. Omeis, R. Smaali, L. Cerutti, E. Centeno, T. Taliercio, [THz absorbers with highly doped semiconductors based in plasmonic nanoresonators](#), EMRS Spring Meeting, Strasbourg, France, May 2017
- [57] (Poster) F. Barho, **F. Gonzalez-Posada**, M.-J. Milla, M. Bomers, L. Cerutti, E. Tournié, T. Taliercio, [From 1-dimensional to 2-dimensional Periodic Semiconductor Plasmonic Resonators: Designing the Optical Response for Sensing Applications](#), Conference on Lasers and Electro-optics - European Quatum Electronics Conference, Munich, Allemagne, June 2017.
- [58] (Oral) Y. Huang, J. Vaillant, F. Barho, M.-J. Milla, M. Bomers, F. Gonzalez-Posada, L. Cerutti, T. Taliercio, A. Bruyant, [Spectroscopic investigation of localized surface plasmon resonator structure by infrared nanoscopy near the plasma frequency](#), 8th International Conf. on Metamaterials, Photonic Crystals and PlasmonicsMETA, Incheon, Korea, July 2017.
- [59] (Oral) F. Barho, M. Bomers, M.-J. Milla Rodrigo, **F. Gonzalez-Posada Flores**, L. Cerutti, E. Tournié, T. Taliercio, [Surface enhanced infrared absorption with highly doped InAsSb plasmonic nano-antenna arrays](#) , Nanophotonics and Micro/Nano Optics International Conference, Barcelona, Espagne October 2017. **Best presentation award.**
- [60] (Oral) M. Bomers, F. Barho, A. Mezy, M.-J. Milla Rodrigo, L. Cerutti,, **F. Gonzalez-Posada Flores**, E. Tournié, T. Taliercio, [GaSb oxidation for plasmonic enhanced mid-IR molecular spectroscopy](#), Nanophotonics and Micro/Nano Optics International Conference, Barcelona, Espagne, October 2017.
- [61] (Invited) T. Taliercio, **F. Gonzalez-Posada Flores**, F. B. Barho, M.-J. Milla-Rodrigo, Mario Bomers, Laurent Cerutti, Eric Tournié, [Plasmonic bio-sensing based on highly doped semiconductors](#), SPIE NANOSCIENCE + ENGINEERING, San Diego, California, United States, August 2017.
- [62] (Oral) M Bomers, B Charlot, F Barho, L Cerutti, F González-Posada and T Taliercio, [All-semiconductor mid-IR plasmonics for IR-spectroscopy on femtolitre amounts of olive oil and organic solvents](#), International Conference on BioMedical Photonics, La Grande Motte, France, March 2018
- [63] (Poster) F Barho, M Bomers, F González-Posada, L Cerutti, E Tournié and T Taliercio, [Highly doped semiconductor plasmonic nanoantenna arrays for surface enhanced infrared absorption spectroscopy](#), International Conference on BioMedical Photonics, La Grande Motte, France, March 2018.

Participation in Research Projects

- [1] [Improvement on the optic fiber emission with III-V nitrides semiconductors](#)
Laboratoire de Analyse et Architecture des Systèmes - Centre Nationale de la Recherche Scientifique.
5 months. Toulouse (Francia)
Prof. Chantal Fontaine.
- [2] [Epitaxial growth of Ga_{1-y}In_yAs_{1-x}N_x heterostructures with gas precursors in ultra high vacuum](#)

Dpto. Física Aplicada. Universidad Autónoma de Madrid.
MCYT (2003-2005): *6 months*.
Prof. Basilio J. Garcia Carretero.

- [3] [Fabrication of AlGaIn/GaN High Mobility Transistors grown on Si\(111\) and SiC/Si\(111\) Substrates](#)
Universidad Politécnica de Madrid – Instituto de Sistemas Ópticos y Microtecnología.
Canadian – Spanish Collaboration NRC-SEPOCYT (2004 - 2006): *7 months*.
Prof. Elías Muñoz Merino
- [4] [New Generation of GaN-based sensor arrays for nano and picofluidic systems for fast and reliable biomedical testing \(GANANO\)](#) Universidad Politécnica de Madrid – Instituto de Sistemas Ópticos y Microtecnología.
STREP NMP4-CT-2003-505641 (2003-2006): *6 months*.
Prof. Elías Muñoz Merino
- [5] [Key organisation for research in integrated circuits in GaN technology \(KORRIGAN\)](#)
Universidad Politécnica de Madrid – Instituto de Sistemas Ópticos y Microtecnología.
EDA – MOD (February 2005 – July 2009): *4 years and 6 months*.
Prof. Elías Muñoz Merino.
- [6] [Croissance des couches semipolaires des semiconducteurs nitrures de qualité pour application opto-électroniques \(COSNI\)](#)
Institut Nanosciences et Cryogénie (INAC)
ANR-08-BLAN-0298-02 (2008-2011): *18 months*.
Dr. Eva Monroy
- [7] [Nordic Initiative for Solar Fuel Development \(NISFD\)](#)
Chalmers University of Technology
12 months. Nordic Energy Research (2011-2015).
Prof. Dinko Chakarov.
- [8] [Localised SURface Plasmon REsonance in highly doped seMiconductors for infrarEd Biosensing \(Supreme-B\)](#)
Université de Montpellier
12 months. Agence National de la Recherche (2014-2018).
Prof. Thierry Talercio.

Grants - Awards

Best Oral Contribution – 2016 - Nanophotonics and Micro/Nano Optics International Conference (NANOP) - Paris

Best Oral Contribution – 2017 - Nanophotonics and Micro/Nano Optics International Conference (NANOP) - Barcelona

Ministry of Education and Science (University Professor Education – PhD student)
04/2005 – 04/2009.

Dpto. Ingeniería Electrónica - Universidad Politécnica de Madrid.

Ministry of Education and Science (Abroad Brief Research for PhD student)
June 2006 – October 2006.

Institute for Microstructural Sciences – National Research Council of Canada.

Univ. Autónoma de Madrid (PhD student)
01/2004 – 06/2004.

Dpto. de Física Aplicada – Univ. Autónoma de Madrid.

Erasmus Mobility Program (Bachelor Level)
09/2002 – 07/2003.

Univ. Paul Sabatier III. Toulouse (Francia).

Additional Information

Recreational Program Director (Sociocultural Animation) – Enfocamp/Enforex – Seven years

Volunteering in attention and education to families and minors – Fundación Amoverse – Four years.

African and contemporary dancer – Dance Factory – Annual lessons and different performances – Six years.