

## Javier Mateos

### Professional Preparation/Education:

Salamanca University  
Salamanca University

M. S. (Physics), 1993  
Ph.D. (Physics), 1997

### Appointments/Experience:

Salamanca University  
Salamanca University  
Salamanca University  
Salamanca University

Associate Professor, 1999-present  
Assistant Professor, 1997-1999  
Research Grant Holder, 1994-1996  
Assistant Professor, 1993

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### Publications:

#### (a) Five products most closely relevant to the proposed project:

- 1.- "Room temperature direct and heterodyne detection of 0.28 to 0.69 THz waves based on GaN 2DEG unipolar nanochannels," C. Daher, J. Torres, I. Iñiguez-de-la-Torre, P. Nouvel, L. Varani, P. Sangaré, G. Ducournau, C. Gaquière, J. Mateos, and T. González, IEEE Transactions on Electron Devices **63**, 353- 359 (2016)
- 2.- "Monte Carlo study of the operation of GaN planar nanodiodes as sub-THz emitters in resonant circuits," B. G. Vasallo, J. F. Millithaler, I. Iñiguez-de-la-Torre, T. González, G. Ducournau, C. Gaquière and J. Mateos, Semicond. Sci. Technol. **29**, 115032 (2014).
- 3.- "On the effect of  $\delta$ -doping in self-switching diodes," A. Westlund, I. Iñiguez-De-La-Torre, P-Å Nilsson, T. González, J. Mateos, P. Sangaré, G. Ducournau, C. Gaquière, L. Desplanque, X. Wallart, J. Grahn, Appl. Phys. Lett. **105**, 093505 (2014).
- 4.- "Optimized V-shape design of GaN nanodiodes for the generation of Gunn oscillations", J. F. Millithaler, I. Iniguez-De-La-Torre, A. Iñiguez-de-la-Torre, T. González, P. Sangaré, G. Ducournau, C. Gaquière and J. Mateos, Appl. Phys. Lett. **104**, 073509 (2014).
- 5.- "Experimental demonstration of direct terahertz detection at room-temperature in AlGaN/GaN asymmetric nanochannels," P. Sangaré, G. Ducournau, B. Grimberty, V. Brandli, M. Faucher, Christophe Gaquière, A. Iñiguez-de-la-Torre, I. Iñiguez-de-la-Torre, J. F. Millithaler, J. Mateos, and T. González, J. Appl. Phys. **113**, 034305 (2013).

#### (b) Five others significant products:

- 1.- "Monte Carlo Study of 2-D Capacitance Fringing Effects in GaAs Planar Schottky Diodes," D. Moro-Melgar, A. Maestrini, J. Treuttel, L. Gatilova, T. González, B. G. Vasallo, and J. Mateos, IEEE Transactions on Electron Devices **63**, 3900-3907 (2016)
- 2.- "Impact of substrate and thermal boundary resistance on the performance of AlGaN/ GaN HEMTs analyzed by means of electrothermal Monte Carlo simulations," S. García, I. Iñiguez-de-la-Torre, J. Mateos, T. González and S. Pérez, Semiconductor Science and Technology **31**, 065005 [1-9] (2016)
- 3.- "Phonon black-body radiation limit for heat dissipation in electronics," J. Schlee, J. Mateos, I. Iniguez-de-la-Torre, N. Wadefalk, P. A. Nilsson and J. Grahn and A. J. Minnich, Nature Materials, **14**, 187-192 (2015)
- 2.- "Monte Carlo modelling of noise in advanced III-V HEMTs," J. Mateos, H. Rodilla, B. G. Vasallo and T. González (Invited paper), Journal of Computational Electronics **14**, 72-86 (2015)
- 3.- "Experimental assessment of anomalous low-frequency noise increase at the onset of Gunn oscillations in InGaAs planar diodes," Ó. García-Pérez, Y. Alimi, A. Song, I. Iñiguez-de-la-Torre, S. Pérez, J. Mateos and T. González, Appl. Phys. Lett. **105**, 113502 (2014)

**(c) Hirsch factor: 23** (Google Scholar)

**Synergistic Activities:**

Author and co-author of one book chapter, over 200 publications in peer reviewed international journals and conference proceedings, and above 150 conference presentations, including over 20 invited lectures.

Principal Investigator (PI) on over 10 (1 active) Spanish and European research grants (including the coordination of the EU project ROOTHZ)

Expert for the European Union and Spanish Ministry of Education in charge of the evaluation of research grants since 2004

**Senior Collaborators (past 48 months):**

- 1.- M. Margala, Univ. of Massachusetts, Lowell, MA
- 2.- A. Minnich, California Institute of Technology, Pasadena, CA
- 3.- C. Gaquiere, G. Ducournau, A. Cappy, V. Hoel, S. Bollaert IEMN, Lille, France
- 4.- J. Grahn, Chalmers University of Technology, Sweden
- 5.- A. M. Song, A. Rezazadeh, University of Manchester, UK
- 6.- L. Varani, J. Torres, Univ. Montpellier, France

**Graduate and Postdoctoral Advisors:**

Graduate PhD advisor: Prof. T. González, Salamanca University, 1994-97

Postdoctoral advisors: Prof. A. Cappy, IEMN France, 1998

**Graduate Students and Postdoctoral Associates Supervised (past 5 years):**

PhD Grad. students: H. Rodilla (PhD 2010)

**Graduate Students and Postdoctoral Associates Under Supervision:**

Graduate: Hector Sánchez Martín, Sergio Sánchez Martín

Post-docs: José Antonio Novoa López (Universidade de Vigo, Spain)