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SESSION 1: Process technology for devices and simulation

ORAL PRESENTATIONS

0.1.1. Invited: *Thin Dielectric Films Grown by Atomic Layer Deposition: Properties and Applications.*

Francesca Campabadal, J.M. Rafí, M.B. González, M.Zabala, O. Beldarrain, M.C. Acero and M. Duch

Institut de Microelectrònica de Barcelona, IMB-CNM (CSIC).

0.1.2. *Plasma oxidation of metallic Gd deposited on silicon by high pressure sputtering as high permittivity dielectric* **R38**

M. A. Pampillón¹, P. C. Feijoo¹, E. San Andrés¹, J. L. G. Fierro²

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0.1.3. *Use of PMMA to obtain Graphene layers* **R93**

A. Bosca¹, D. Lopez-Romero¹, S. Alvarez-Garcia², A. de Andres², J. Pedros¹, J. Martinez¹ and F. Calle¹

¹ Instituto de Sistemas Optoelectrónicos y Microtecnología, Universidad Politécnica de Madrid, 28040 Madrid, Spain.

² Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas, 28049 Madrid, Spain.

0.1.4. *Nanodevice simulations on CloudStack* **R98**

F. Gomez-Folgar, E. Comesaña, R. Valin, A. Garcia-Loureiro, T. F. Pena.

Centro de Investigación en Tecnoloxías da Información (CITIUS). Universidad de Santiago de Compostela.

0.1.5. *Direct-write patterning of metals and reduced graphene oxide electrodes by arc erosion for organic device manufacturing* **R110**

M. García-Vélez, A. L. Alvarez, C. Coya, G. Alvarado, J. Jiménez-Trillo¹, X. Díez-Betriú², A. de Andrés²

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0.1.6. Microscopic modeling of interdiffusion in SiGe alloys **R117**

Pedro Castrillo, Iván Santos, Ruth Pinacho, Emiliano Rubio, and Martín Jaraiz
Dpto. de Electrónica, Universidad de Valladolid, E.T.S.I. Telecomunicación, Paseo Belén 15, 47011 Valladolid, Spain.

POSTER PRESENTATIONS

P.1.1. Gadolinium scandate by high pressure sputtering as a high-k dielectric **R5**

P.C. Feijoo, M.A. Pampillón, E. San Andrés
Dpto. Física Aplicada III: Electricidad y Electrónica. Universidad Complutense de Madrid. Av/Complutense S/N. 28040 Madrid (Spain).

P.1.2. Effects of Ozone Pre-deposition Treatment on GaSb MOS Capacitors **R13**

Zhen Tan, Lianfeng Zhao, Ning Cui, Jing Wang, and Jun Xu
Tsinghua National Laboratory for Information Science and Technology, Institute of Microelectronics, Tsinghua University, Beijing 100084, P.R.China.

P.1.3. Towards high-k integration with III-V channels: interface optimization of high pressure sputtered Gd₂O₃ on InP **R45**

E. San Andrés, M. A. Pampillón, C. Cañadilla, P. C. Feijoo, A. del Prado.
Departamento de Física Aplicada III (Electricidad y electrónica). Facultad de Ciencias Físicas, Universidad Complutense de Madrid. Madrid, E-28040.

P.1.4. Etching of AlGa_N/Ga_N HEMT structures by Cl₂-based ICP **R55**

Z. Gao, M. F. Romero, F. Calle
Dpto. Ingeniería Electrónica and Instituto de Sistemas Optoelectrónicos y Microtecnología. ETSI Telecomunicación, Universidad Politécnica de Madrid, 28040 Madrid, Spain.

P.1.5. Ab initio study of the electronic properties of defect states in Silicon **R94**

Iván Santos, María Aboy, Pedro Castrillo, Pedro López, Lourdes Pelaz, and Luis A. Marqués.
Dpto. de Electrónica, Universidad de Valladolid, E.T.S.I. Telecomunicación, Paseo Belén 15, 47011 Valladolid, Spain.

P.1.6. Two dimensional electron gas related luminescence in InAl(Ga)_N/Al_N/Ga_N-based heterostructures **R106**

M. F. Romero¹, M. Feneberg², A. Minj³, A. Cavallini³, P. Gamarra⁴, M.-A. di Forte Poisson⁴, A. Vilalta-Clemente⁵, P. Ruterana⁵, F. Calle¹, and R. Goldhahn^{2,6}

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⁶Institut für Physik, Technische Universität Ilmenau, PF100565, 98684 Ilmenau, Germany.

P.1.7. *Fabrication of High-Ordered PBDTTT-CF Polymer Nanopillar Arrays for Optoelectronic Applications* **R109**

V.S. Balderrama, J. Ferré-Borrull, J. Pallarés, and L.F. Marsal

Departament d'Enginyeria Electrònica, Elèctrica i Automàtica, Universitat Rovira i Virgili, Avda. Països Catalans 26, 43007 Tarragona, Spain.

P.1.8. *Identification of stable defect structures induced by irradiation in Si* **R112**

Pedro López, Lourdes Pelaz, Luis A. Marqués, Iván Santos and María Aboy

Departamento de Electricidad y Electrónica, Universidad de Valladolid, ETSI Telecomunicación, Paseo de Belén 15, 47011 Valladolid, Spain.

P.1.9. *Photonic crystal optimization using a process variation aware genetic algorithm.* **R120**

Rodrigo Picos¹, Bernat Mut¹, Eugeni Garcia-Moreno¹, Lluís F. Marsal²

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²Universitat Rovira i Virgili, DEEA, Tarragona, Spain.

SESSION 2: Device modeling

ORAL PRESENTATIONS

O.2.1. Invited: *Modeling of radiation effects in MOSFETs*

Jesús Banqueri.

Departamento de Electrónica y Tecnología de Computadores. E.T.S.I. Informática y Telecomunicación. Universidad de Granada.

O.2.2. *A new strategy to improve frequency performance of emerging devices without length scaling* **R116**

A. Benali, F. L. Traversa, G. Albareda, M. Aghoutaneb¹ and X. Oriols

Universitat Autònoma de Barcelona, 08193, Bellaterra, Spain

¹Universidad Abdelmalek Essaâdi, 93000, Tetuán, Morocco

0.2.3. Wide frequency band scalable modeling of 3D embedded decoupling capacitors

Hélène Jacquinot¹, David Denis² **R22**

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0.2.4. Monte Carlo analysis of thermal effects in Self-Switching Diodes **R48**

J.-F. Millithaler, I. Iñiguez-de-la-Torre, T. González, J. Mateos

Departamento de Física Aplicada, Universidad de Salamanca, 37008 Salamanca, Spain.

0.2.5. OTFT modeling: development and implementation in EDA tools **R113**

A. Castro-Carranza¹, M. Cheralathan¹, C. Valla², M. Estrada³, A. Cerdeira³, F. Pouillet², G. Depeyrot², B. Iñiguez¹ and J. Pallarès¹

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³Sección de Electrónica del Estado Sólido (SEES), CINVESTAV-IPN, 07360 Mexico D.F., Mexico.

0.2.6. Analysis of Crossover Point and Threshold Voltage for Triple Gate MOSFET.

Dheeraj Sharma and Santosh Vishvakarma **R62**

Nanoscale Devices, VLSI/Circuit and System Design Lab, Electrical Engineering, Indian Institute of Technology, Indore, India.

POSTER PRESENTATIONS

P.2.1. Subthreshold response of a MOSFET to radiation effects **R3**

A.J. Palma¹, M.A. Carvajal¹, S. Martínez-García¹, M. Vilches², A.M. Lallena³ and J. Banqueri¹

¹Electronics Department, ETSIIT.

³Atomic, Nuclear and Molecular Physics Department, Science Faculty, University of Granada.

²Universitary Hospital "San Cecilio" Granada (Spain).

P.2.2. Effects of Coverage Factor, Inhomogeneous Broadening and Cavity Length on Static and Dynamic Behavior of Self-Assembled Quantum-Dot Lasers **R16**

Mahdi Razm-Pa¹, and Farzin Emami²

¹Electronic Department, Islamic Azad University, Boushehr Branch Islamic Azad University of Boushehr, Boushehr, Iran.

²Optoelectronic Research Centre of Electronic Department, Shiraz University of Technology, Airport Blvd., Shiraz, Iran.

- P.2.3.** *Space quantization effects in Double Gate SB-MOSFETs: role of the active layer thickness* **R20**
José S. García, María J. Martín, Raúl Rengel
Departamento de Física Aplicada. Universidad de Salamanca. Plaza de La Merced s/n. 37008. Salamanca. Spain.
- P.2.4.** *Schottky Barrier MOSFETs working in the linear regime: A Monte Carlo study of microscopic transport.* **R21**
Carlos Couso, Raúl Rengel and María J. Martín
Departamento de Física Aplicada, Universidad de Salamanca, Spain.
- P.2.5.** *A simple compact model for the junctionless Variable Barrier Transistor (VBT).* **R27**
Oana Moldovan, Francois Lime, Bogdan Nae, Benjamin Íñiguez.
Universitat Rovira i Virgili (URV), ETSE DDEEA. Tarragona, Spain.
- P.2.6.** *Influence of the Contact Effects on the Variation of the Trapped Charge in the Intrinsic Channel of OTFTs* **R33**
KM Awawdeh¹, JA Jiménez Tejada¹, P López Varo¹, JA López Villanueva¹, MJ Deen²
¹Departamento de Electrónica y Tecnología de Computadores. CITIC-UGR. Facultad de Ciencias. Universidad de Granada. 18071 Granada, SPAIN.
²Department of Electrical and Computer Engineering McMaster University, Hamilton, ON L8S 4K1 CANADA.
- P.2.7.** *An Improved I-V Model of 4H-SiC MESFETs Incorporating Substrate Trapping, Surface Trapping and Thermal Effects* **R39**
M. Hema Lata Rao, *Student Member IEEE* and Neti V.L.Narasimha Murty
School of Electrical Sciences, IIT Bhubaneswar, India.
- P.2.8.** *Time-domain Monte Carlo simulations of resonant-circuit operation of GaN Gunn diodes* **R43**
S. García, B. G. Vasallo, J. Mateos and T. González
Departamento de Física Aplicada, Universidad de Salamanca, Plaza de la Merced s/n, 37008 Salamanca, Spain.
- P.2.9.** *Study of RFIDs with SOI technology for UWB* **R49**
Raúl Rodríguez¹, B. González^{1,2}, J. García^{1,2}, M. Marrero-Martín^{1,2}, and A. Hernández^{1,2}
¹ Institute for Applied Microelectronics (IUMA). Universidad de Las Palmas de Gran Canaria (ULPGC)
²Departamento de Ingeniería Electrónica y Automática. Universidad de Las Palmas de Gran Canaria (ULPGC)
- P.2.10.** *Performance of Two Possible Implementations of ILUT Preconditioners in the 3D Nanodevice Simulation* **R54**

A. Garcia-Rivera¹, R.Valin¹, N. Seoane¹, M. Aldegunde², and A. J. Garcia-Loureiro¹

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²College of Engineering, Swansea University – Swansea, United Kingdom

P.2.11. *Static and Dynamic Characteristics of Self-Assembled InAs-GaAs Quantum Dot Laser Considering Carrier Recombination and Escape Time; A Circuit-Level Modeling* **R15**

Mahdi Razm-Pa¹, and Farzin Emami²

¹Electronic Department, Islamic Azad University, Boushehr Branch, Iran.

²Optoelectronic Research Centre of Electronic Department, Shiraz University of Technology. Airport Blvd., Shiraz, Iran.

P.2.12. *Macroporous Silicon FET Transistors for Power Applications* **R69**

Didac Vega, Raúl Najar, María Pina, Ángel Rodríguez

Departament de Enginyeria Electronica. Universitat Politècnica de Catalunya (UPC) Spain

P.2.13. *Study of statistical variability in 22 nm SOI FinFET introduced by LER, RDF and MGG* **R102**

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SESSION 3: Sensors, actuators and micro/nano systems

ORAL PRESENTATIONS

0.3.1. Invited: *Sensors and Microsystems for the Food sector.*

Carles Cané.

Institut de Microelectrònica de Barcelona, IMB-CNM (CSIC).

0.3.2. *Benzene sensor based on in-situ grown ZnO nanostructures* **R47**

J. Gonzalez-Chavarri, I. Castro-Hurtado, G. G. Mandayo, and E. Castaño

Ceit and Tecnun, P. Manuel Lardizabal 15, 20018, San Sebastian, Spain

0.3.3. *Ceramic Capacitive Pressure Sensor based on LTCC Technology* **R65**

Josep M. Fernández-Sanjuán^{1,2}, Núria Bonet², Josep G. Rodríguez², Francisco M. Ramos^{1,2}, Javier J. Sieiro³, José M. López-Villegas³, Albert Cirera¹

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³GRAF Electronics Department, Universitat de Barcelona, Martí i Franquès, 1, Barcelona 08028, Spain.

0.3.4. *Microfluidics applied to Love-wave devices to detect biological warfare agents in dynamic mode.* **R67**

D. Matatagui¹, J. Fontecha¹, M.J. Fernández¹, I. Gràcia², C. Cané², J.P. Santos¹, M.C. Horrillo¹

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²Instituto de Microelectrónica de Barcelona, CSIC, Campus UAB, 08193 Bellaterra, Spain

0.3.5. *Electroosmotic impulsion device for integration in PCB-MEMS* **R96**

Antonio Luque, José M. Soto, Francisco Perdigones, Carmen Aracil, José M. Quero. Dpto. Ingeniería Electrónica, Escuela Técnica Superior de Ingeniería, Universidad de Sevilla. Av. Descubrimientos s/n E41092 Sevilla.

0.3.6. *Low power consumption single metal oxide nanowire based gas sensor integrated on MEMS Microhotplates* **R104**

J. Samà¹, R. Jiménez-Díaz¹, J.D. Prades¹, O. Casals¹, F. Hernandez-Ramirez^{2 3}, J. Santander⁴, C. Calaza⁴, L. Fonseca⁴, C. Cané⁴, S. Barth⁵, A. Romano-Rodríguez¹

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⁵ Institute of Materials Chemistry, TU Wien, Getreidemarkt 9/165, A-1060 Vienna, Austria.

POSTER PRESENTATIONS

P.3.1. *SENSOSOL: MultiFOV 4-Quadrant high precision sun sensor for satellite attitude control* **R11**

Francisco J. Delgado¹, José M. Quero¹, Juan García¹, Cristina L. Tarrida¹, José M. Moreno¹, Agustín G. Sáez¹, Pablo Ortega²

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²Universidad Politécnica de Cataluña, Grupo de Micro y Nanotecnologías (UPC, Spain)

P.3.2. *Carbon Nanotube-based SAW sensors* **R25**

I Sayago¹, M J Fernández¹, J L Fontecha¹, M C Horrillo¹, E Terrado², A Seral-Ascaso³ and E Muñoz³

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³ Instituto de Carboquímica ICB-CSIC, Miguel Luesma Castán 4, 50018 Zaragoza, Spain

P.3.3. *Microfluidic impulsion system manufactured by PCB-MEMS for Lab on a chip* Carmen Aracil, Francisco Perdigones, Antonio Luque, José Manuel Quero **R28**
University of Seville. Spain.

P.3.4. *Quasi-digital conversion for resistive devices: application in GMR-based IC current sensors* **R29**

C. Reig^{1,*}, A. De Marcellis², M.-D. Cubells-Beltrán¹, J. Madrenas³, S. Cardoso⁴, P.P. Freitas⁴,

¹ Dept. of Electronic Engineering, University of Valencia, Burjassot, Spain

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³ Dept. of Electronic Engineering, Catalan Polytechnic University, Barcelona, Spain

⁴ *Inst. of Eng., Sist. and Comp. - Microsistemas e Nanotecnologias*, Lisbon, Portugal

P.3.5. *Macroporous Silicon Microreactor for the Preferential Oxidation of CO* **R68**

N. J. Divins^{1, 2}, C. Moreno², E. López^{1, 3}, D. Vega⁴, Á. Rodríguez⁴, F. González de Rivera⁵, I. Angurell⁵, M. Seco⁵, O. Rossell⁵, J. Llorca^{1,2}

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³ Institute of Energy Technologies, UPC, Barcelona, Spain, and Planta Piloto de Ingeniería Química (CONICET-UNS), Bahía Blanca, Argentina

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⁵ Dept. Inorganic Chemistry, University of Barcelona, Barcelona, Spain

P.3.6. *Macroporous Silicon Photonic Crystals for Gas Sensing* **R70**

Didac Vega, Jordi Reina, Ángel Rodríguez

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P.3.7. *Pressurized Microvalve with SMD-Based Activation to Drive Fluid in Low-Cost and Autonomous MEMS* **R79**

Guadalupe Flores, Francisco Perdigones and José M. Quero

University of Seville, Spain.

P.3.8. *Localized grown self-contacted nanowires for gas nanosensor device*

J. Samà¹, S. Barth², R. Jiménez-Díaz¹, J.D. Prades¹, O. Casals¹, I. Gracia³, J. Santander³, C. Calaza³, C. Cané³, A. Romano-Rodríguez¹ **R105**

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P.3.9. *NO sensors for disease control and medication monitoring in asthmatic patients* **R108**

J. L. Pau, A. García Marín, C. García Nuñez, E. Ruiz, J. Piqueras

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P.3.10. *Effective electrical resistance due to current-induced heat flow in thermoelectric generators* **R118**

PedroCastrillo and José Miguel Salgado

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SESSION 4: Emerging devices

ORAL PRESENTATIONS

O.4.1. Invited: *Metamaterials, a chance for High Frequency Electronics?*

José Represa, A. C. López, I. Barba and A. Grande.

Departamento de Electricidad y Electrónica. Facultad de Ciencias. Universidad de Valladolid.

O.4.2. *DC and AC characterization of PTFT inverters using Poly(9,9-dioctylfluorene-co-bithiophene) (F8T2).* **R12**

M. F. Ávila¹, L. Reséndiz², M. Estrada¹, A. Cerdeira¹

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²Sección de Estudios de Posgrado e Investigación, UPIITA-IPN, México D.F. 07340, México.

O.4.3. *SnO₂-based TFTs fabricated by inkjet printing* **R114**

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0.4.4. Terahertz detection using Si-SiGe MODFETs

R72

Y.M. Meziani¹, E. García-García², J.E. Velázquez-Pérez¹, D. Coquillat³, N. Dyakonova³, W. Knap³, I. Grigelionis⁴, K. Fobelets⁵

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³Laboratoire Charles Coulomb, UMR 5221 CNRS-Université Montpellier 2, Montpellier 34095, France.

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0.4.5. Scaling Limits of Rectangular and Trapezoidal Channel FinFETs

R74

J. Mohseni, J. D. Meindl

Georgia Institute of Technology, Atlanta, GA, USA.

0.4.6. Metal oxide nanowires as building blocks for light detectors, gas sensors and biosensors.

R107

J. L. Pau, C. García Nuñez, A. García Marín, E. Ruiz, J. Piqueras

Laboratorio de Microelectrónica, Dpto. Física Aplicada, Facultad de Ciencias, Universidad Autónoma de Madrid, c/Fco. Tomás y Valiente 7, Madrid 28049, Spain.

POSTER PRESENTATIONS

P.4.1. A Monte Carlo Study of Electron Transport in Suspended Monolayer Graphene

Raúl Rengel, Carlos Couso and María J. Martín

R6

Departamento de Física Aplicada, Universidad de Salamanca, Spain

P.4.2. Thickness dependence of organic photodetector bandwidth

R7

B. Arredondo¹, B. Romero¹, C. de Dios², R. Vergaz², A. R. Criado², J. M Sánchez-Pena²

¹Electronic Technology Department, University Rey Juan Carlos, Móstoles 28933, Madrid.

²Electronic Technology Department, University Carlos III de Madrid, Leganés 28911, Madrid.

P.4.3. Effect of electric field and temperature variability on spin dephasing in SiGe nanowires

R19

Bhupesh Bishnoi, Associate Member, IEEE, Aahwani Verma, Sheikh Sabiq Chishti, AkshayKumar Salimath and Bahniman Ghosh

Department of Electrical Engineering, Indian Institute of Technology Kanpur, Kanpur, India 208016

- P.4.4.** *2D atomic plane crystals based field-effect transistors* **R35**
David Jiménez
Departament d'Enginyeria Electrònica, Escola d'Enginyeria, Universitat Autònoma de Barcelona
- P.4.5.** *Ballistic Deflection Transistor: Geometry Dependence and Boolean Operations* **R44**
Ignacio Íñiguez-de-la-Torre¹, Vikas Kaushal², Martin Margala², Javier Mateos¹ and Tomás González¹
¹Departamento de Física Aplicada, Universidad de Salamanca, Plaza de la Merced s/n, 37008 Salamanca, Spain.
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University of Massachusetts Lowell, 301 Ball Hall One University Ave. Lowell, MA 01854, USA.
- P.4.6.** *Monte Carlo Simulation of Temperature and Confinement Dependent Spin Transport in Germanium Nanowire* **R50**
Akshaykumar Salimath, , S Sabiq Chishti , Ashwani Verma, Bhopesh Bishnoi, Bahniman Ghosh
Department of EE, IIT Kanpur, Kanpur, UP-208016. India.
- P.4.7.** *Vacancies in Regimented Elongated InAs/GaAs Quantum Dots Arrays* **R53**
Trinidad García, Salvador Rodríguez-Bolívar and Francisco Manuel Gómez Campos
Departamento de Electrónica y Tecnología de Computadores, Campus Fuentenueva s/n, Universidad de Granada, Spain.
- P.4.8.** *Effect of Doping Profile on Tunneling Field Effect Transistor Performance* **R63**
Vikas Vijayvargiya and Santosh Kumar Vishvakarma
Nanoscale Devices, VLSI/ULSI Circuit and System Design Lab, Electrical Engineering Discipline. Indian Institute of Technology Indore, India.
- P.4.9.** *Terahertz Time Domain Spectroscopy for chemical identification* **R73**
E. García-García¹, Y.M. Meziani², J. Calvo-Gallego³, J.E. Velázquez-Pérez¹
¹Centro de Láseres Pulsados (CLPU), 37185 Villamayor, Salamanca, Spain
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³EPS de Zamora, Avda. Cardenal Cisneros, 34, Universidad de Salamanca, 49022 Zamora, Spain
- P.4.10.** *Simulation of nanohole particle filling by electrospray* **R95**
Arnau Coll, Sandra Bermejo and Luis Castañer
Universitat Politècnica de Catalunya. MNT group: Jordi Girona 1-3, Barcelona.

P.4.11. *Peak Emission Wavelength Tuning for Light Emitting Diodes and Lasers for InGaN – deltaIn_yGa_{1-y}N Quantum Well by varying the Composition of the Delta well*

Saumya Biswas¹, Md. Shofiqul Islam², Ifana Mahbub³, Saugata Biswas⁴ **R99**

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P.4.12. *Conduction band-Valence band Coupling Effects on the Band Structure of In_{0.28}Ga_{0.72}N / GaN Quantum Well* **R100**

Saumya Biswas, Md. Shofiqul Islam, Ifana Mahbub

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P.4.13. *Room Temperature THz Detection and Emission with Semiconductor Nanodevices.* **R101**

J. Mateos¹, J.F. Millithaler¹, I. Íñiguez-de-la-Torre¹, A. Íñiguez-de-la-Torre¹, B.G. Vasallo¹, S. Pérez¹, P. Sangare², G. Ducournau², C. Gaquiere², Y. Alimi³, L. Zhang³, A. Rezazadeh³, A.M. Song³, A. Westlund⁴, J. Grahn⁴, and T. González¹

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P.4.14. *Modeling the thermal conductivity of semiconductor NWs; A step forward to the increase of the thermoelectric figure of merit.* **R115**

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P.4.15. *Enhancement of the radiation properties of a lineal array of planar antennas with a chiral metamaterial cover* **R121**

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SESSION 5: Characterization and reliability

ORAL PRESENTATIONS

0.5.1. Invited: *Failure analysis of MIS/MIM structures using spatial statistics*

Enrique Miranda

Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona.

0.5.2. *Thin film YSZ solid state electrolyte characterization performed by electrochemical impedance spectroscopy* **R8**

Lander Rojo, Gemma G^a Mandayo and Enrique Castaño

Microelectronics and Microsystems Unit, CEIT and TECNUN (University of Navarra)

Paseo Manuel de Lardizábal 15, 200018, San Sebastián, Spain.

0.5.3. *Improving Yield on RF-CMOS ICs* **R40**

Amparo Herrera, Yolanda Jato

Department of Communications Engineering, Universidad de Cantabria, Santander, Spain.

0.5.4. *EEL spectroscopic tomography: a new dimension to nanomaterials analysis*

Lluís Yedra^{1,2}, Alberto Eljarrat¹, Raúl Arenal^{3,4}, Eva Pellicer⁵, Moisés Cabo⁵, Alberto López-Ortega⁶, Marta Estrader⁶, Jordi Sort⁷, Maria Dolors Baró⁵, Sònia Estradé^{1,2}, Francesca Peiró¹ **R52**

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0.5.5. *Modeling of BTI related time-dependent variability* **R83**

J. Martin-Martinez, N. Ayala, R. Rodriguez, M. Nafria and X. Aymerich

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O.5.6. Er-doped Si-based electroluminescent capacitors: Role of different host matrices on the electrical and luminescent properties **R88**

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POSTER PRESENTATIONS

P.5.1. Accelerated life tests of lead free solder alloys in presence of distilled water

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²Radio Access Networks Department, Telefonica Investigacion and Desarrollo, Madrid Spain.

P.5.2. Laser Induced Single Events in SRAMs **R4**

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P.5.3. Modeling of the Post-Breakdown IG-VG-VD Characteristics of La2O3-based MOS Transistors **R10**

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²Frontier Research Center, Tokyo Institute of Technology, Yokohama, Japan.

P.5.4. CMOS VCO Design Optimization Using Reliable 3D Electromagnetic Inductor Models **R41**

Carmen Pérez, Yolanda Jato, Amparo Herrera

Department of Communications Engineering, Universidad de Cantabria, Santander, Spain.

P.5.5. First Run S-DMB MMIC LNA **R42**

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Department of Communications Engineering, Universidad de Cantabria, Santander, Spain.

P.5.6. EELS-HAADF combination for characterization of AlN/GaN distributed bragg reflectors **R64**

A. Eljarrat¹, L. López-Conesa¹, Ž. Gačević², S. Fernández-Garrido^{2,3}, E. Calleja², C. Magén^{4,5}, S. Estradé^{1,6} and F. Peiró¹

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P.5.7. Nanoscale morphology of graphene on different substrates **R66**

M. Lanza^{1,2}, A. Bayerl², M. Porti², M. Nafria², X. Aymerich², Y. Wang¹, T. Gao³, H. Liang⁴, G. Jing⁵, Z. Liu³, Y. Zhang³, H. Duan¹

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⁵Physics Department, Northwest University, Xi'an 710069, China

P.5.8. Intermixing in InAs_xP_{1-x}/InP Quantum Wells Induced by Dry Etching Processes **R71**

V. Hortelano¹, A. Torres¹, M. Sanz¹, J. Jiménez¹, O. Martínez¹, J.P. Landesman²

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P.5.9. Site specific (EF)TEM for Si-based electrophotonic devices **R78**

L. López-Conesa¹, J.M. Rebled^{1,2}, J.M. Ramírez¹, Y. Berencén¹, S. Estradé^{1,3}, B. Garrido¹ and F. Peiró¹

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P.5.10. *Defect Assessment and Leakage Control in Atomic Layer Deposited Al₂O₃ and HfO₂ Dielectrics* **R80**

M.B. Gonzalez, J.M. Raff, O. Beldarrain, M. Zabala and F. Campabadal

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P.5.11. *Nanoscale and device level analysis of the resistive switching phenomenon in ultra-thin high-k gate dielectrics* **R85**

A. Crespo-Yepes, M. Lanza, J. Martin-Martinez, V. Iglesias, R. Rodriguez, M. Porti, M. Nafria, and X. Aymerich

Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona (UAB) 08193, Bellaterra, Spain.

P.5.12. *Electrical study of ScO_x-based MIS structures using Al and Ti as gate electrodes* **R86**

H. García¹, H. Castán¹, S. Dueñas¹, L. Bailón¹, P. C. Feijoo², M. A. Pampillon², and E. San Andrés²

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P.5.13. *SiO_x/SiO₂ superlattices for photovoltaic applications: structural and electro-optical properties* **R87**

J. López-Vidrier¹, S. Hernández¹, O. Blázquez¹, D. Hiller², S. Gutsch², M. Schnabel³, P. Löper³, L. López-Conesa², S. Estradé^{1,4}, F. Peiró¹, S. Janz³, M. Zacharias² and B. Garrido¹

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⁴TEM-MAT, CCiT-UB, Scientific and Technological Center - University of Barcelona, Solé i Sabarís 1, E-08028 Barcelona, Spain.

P.5.14. *Performance measurement of amorphous silicon modules under ambient conditions* **R92**

P. Otero¹, J. Rodríguez¹, C. Alberte¹, E. Comesaña², A. J. García Loureiro², M. Vetter¹

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²Universidade de Santiago de Compostela, Departamento de Electrónica e Computación, 15782 Santiago de Compostela, Spain.

P.5.15. *An Experimental Study on Electrical Parameter Dispersion on Organic TFTs* **R119**

Rodrigo Picos¹, Eugeni García-Moreno¹, Magali Estrada², Antonio Cerdeira²

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²SEES, CINVESTAV-IPN, Mexico DF, Mexico.

SESSION 6: Solar Energy: thermal and photovoltaic devices

ORAL PRESENTATIONS

0.6.1. Invited: *Wide Band Gap Power Semiconductor Devices*

José Millán.

CNM-CSIC, Campus Universidad Autónoma de Barcelona, 08193 Bellaterra, Barcelona.

0.6.2. Invited: *Sliding mode control-based maximum power point tracking for interconnected converters in photovoltaic systems*

Luis Martínez-Salamero

Universidad Rovira i Virgili, Tarragona.

0.6.3. Invited: *The intermediate band approach in the third solar cell generation context*

Germán González-Díaz et al.

Departamento de Física Aplicada III. Facultad de Ciencias Físicas. Universidad Complutense. Madrid.

0.6.4. Invited: *The role of defects in solar cells: Control and detection*

Salvador Dueñas, E. Pérez, H. Castán, H. García, and L. Bailón.

Departamento de Electricidad y Electrónica. E.T.S. de Ingenieros de Telecomunicación. Universidad de Valladolid.

0.6.5. Invited: *Trends in crystalline growth of low cost and efficient photovoltage cells*

Vicente Parra, Ismael Guerrero, Teresa Carballo, David Cancillo, Andrés Black.

DC Wafers Investments, S.L. Ctra Madrid km 320. 24227 Valdelafuente, León.

O.6.6. Invited: *Degradation signatures of high-power laser diodes*

Juan Jiménez, J. Anaya, V. Hortelano, J. Souto, A. Martín

Departamento de Física de la Materia Condensada, I+D building, Paseo de Belén 11, 47011. Universidad de Valladolid.

POSTER PRESENTATIONS

P.6.1. *Deep level defects on mono-like and polycrystalline silicon solar cells* **R2**

E. Pérez¹, H. García¹, H. Castán¹, S. Duenas¹, L. Bailón¹, B. Moralejo², O. Martínez², J. Jiménez² and V. Parra³

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P.6.2. *Method for estimating the cell temperature of a HCPV one-cell module based on the open circuit voltage.* **R14**

Eduardo F. Fernández¹, A. J. García Loureiro², F. Almonacid¹, P. Rodrigo¹, Pedro J. Pérez Higuera¹, G. Almonacid¹.

¹Centre of Advanced Studies in Energy and Environment, University of Jaén, Spain.

²University of Santiago de Compostela, Santiago de Compostela.

P.6.3. *Influence of cathode in organic solar cells performance* **R17**

G. del Pozo, B. Romero and B. Arredondo.

Electronic Technology Dept., Universidad Rey Juan Carlos, C/ Tulipán s/n, 28933, Móstoles, Madrid.

P.6.4. *Low cost spray-coating boron diffusion on n-type silicon* **R18**

Elena Navarrete Astorga, Efraín Ochoa Martínez, José R. Ramos Barrado

Laboratorio de materiales y superficies (unidad asociada al CSIC), Facultad de Ciencias, Universidad de Málaga, Spain.

P.6.5. *Boron diffused emitters passivated with Al₂O₃ films* **R24**

G. Masmitja, P. Ortega, G. López, E. Calle, M. Garcia, I. Martin, A. Orpella, C. Voz, R. Alcubilla.

Universitat Politècnica de Catalunya UPC. C/ Jordi Girona 1-3, Modulo C-4, 08034 Barcelona, Spain.

P.6.6. *An IBC solar cell for the UPC CubeSat-1 mission* **R26**

P. Ortega, R. Jove-Casulleras, A. Pedret, R. González, G. López, I. Martín, M. Domínguez, R. Alcubilla, A. Camps.

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P.6.7. Hydrogenated amorphous silicon deposited by high pressure sputtering for HIT solar cells **R32**

R.García-Hernansanz¹, E.García-Hemme^{1,2}, J.Olea^{3,2}, D.Pastor^{1,2,3}, A.delPrado¹, I.Mártil¹, G. González-Díaz¹, F.J. Ferrer⁴.

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P.6.8. High efficient thin film CdTe solar cells **R36**

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P.6.9. Progress in Silicon Heterojunction Solar Cell fabrication with rear laser-fired contacts. **R46**

A. Morales-Vilches, C. Voz, M. Colina, G. López, I. Martín, A. Orpella, J. Puigdollers, M. García and R. Alcubilla.

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P.6.10. Photocurrent measurements for solar cells characterization **R60**

E. Pérez, M. Maestro, H. García, H. Castán, S. Dueñas and L. Bailón

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P.6.11. Low-Cost system for characterizing full-wafer photoluminescence in silicon photovoltaic **R61**

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P.6.12. Influence of Hydrogen on the Optical absorption of GaAs(Ti) films deposited by R.F. sputtering. **R76**

A. Boronat, S. Silvestre, L Castañer.

MNT- Electronic Engineering Department, Universitat Politècnica de Catalunya C/ Jordi Girona 1-3, Campus Nord UPC, 08034 Barcelona, Spain.

P.6.13. Silicon Solar Cells for III-V on Silicon PV Integration **R77**

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P.6.14. *Trapping activity on multicrystalline Si wafers studied by combining fast PL imaging and high resolved electrical techniques* **R81**

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P.6.15. *Modification of the properties of CdS and CdTe films grown by close space vapour sublimation for solar cell applications* **R82**

J. L. Plaza¹, S. Rubio¹, O. Martínez², V. Hortelano², E. Diéguez¹

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P.6.16. *Finite-Element Modeling of Interdigitated Heterojunction Organic Photovoltaic Devices* **R84**

P. Granero, V. S. Balderrama, J. Ferré-Borrull, J. Pallarès, and L. F. Marsal

Nano-electronic and Photonic Systems (NePhoS), Department of Electronic, Electrical and Automatic Control Engineering, Universitat Rovira i Virgili, Av. Països Catalans 26 43007, Tarragona, Spain.

P.6.17. *Influence of exciton blocking layer in small molecule organic solar cells*

S. Galindo¹, M. Ahmadpour¹, A. Marsal¹, Vikas L.S.², C. Voz¹, J. Puigdollers¹ **R89**

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P.6.18. *Influence of the Blend Concentration on the Performances of PTB1: PCBM BHJ Solar Cells.* **R90**

P.L. Han, V.S. Balderrama, M. Alba, P. Formentin, J. Pallarés and L.F. Marsal*

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P.6.19. *Ab initio study of the defect states at a-Si:H/c-Si interfaces* **R91**

Iván Santos¹, Marco Cazzaniga², Bénédicte Demaurex³, Stefaan De Wolf³, Giovanni Onida², and Luciano Colombo⁴

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P.6.20. *Development of a very fast spectral response measurement system for measurement of silicon thin film modules* **R97**

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Parque Tecnológico de Galicia, Avda. de Vigo 5, E-32900 San Cibrao das Viñas (Ourense), Spain.

P.6.21. *Simulation of a-Si:H/a-Si:H Tandem Solar Cells* **R103**

A. Garcia-Rivera¹, E. Comesaña¹, J.A. Rodríguez², A. J. Garcia-Loureiro¹, and M. Vetter²

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P.6.22. *Electrical properties of silicon supersaturated with titanium or vanadium for intermediate band material.* **R34**

E. García-Hemme^{1,2}, R. García-Hernansanz^{1,2}, J. Olea^{2,3}, D. Pastor^{1,2,3}, I. Mártil^{1,2}, G. González-Díaz^{1,2}, P. Wahnón^{2,3,4}

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