

CDE 2015 EXTENDED PROGRAM

Wednesday, Feb. 11th, 2015

10:00 h -

Palacio del Nuncio, entrance hall

REGISTRATION

14:30 h - 16:00 h

Aranjuez Village
VISIT TO THE ROYAL PALACE OF ARANJUEZ.

16:00 h - 18:15 h

Auditorium, Palacio del Nuncio.

IEEE Electron Device Society MINICOLLOQUIUM ON
ADVANCES IN NANO- AND LARGE AREA ELECTRONICS (free
attendance). Welcome by the EDS Spain Chapter. **Prof.
Benjamin Iñiguez. Chair**

WELCOME TO THE STUDENTS. ELEVATOR-PITCH SESSION

SESSION A. Distinguished lecturers:

- **Prof. Arokia Nathan** (*Cambridge University Centre for Advanced Photonics and Electronics, UK*)
-- *Amorphous Oxide Technology for Large Area Electronics: From Devices to Circuits and Systems, Facilitated by CAD -*
- **Prof. Benjamín Iñiguez** (*U. Rovira I Virgili, SP*)
-- *Compact modeling of junctionless transistors --*
- **Prof. Jamal Deen** (*McMaster University, CA*)
-- *Flexible Electronics - Opportunities and Challenges --*

18:15 h - 18:30 h

Courtyard, Palacio del Nuncio

EDS Mini-Colloquium COFFEE BREAK

18.30 h - 19.45 h

SESSION B. Prof. **Prof. Benjamín Iñiguez, Chair.**

Distinguished lecturers:

- **Prof. Tibor Grasser** (*Technische Universität Wien, Au*)
- **Prof. Lluís Marsal** (*U. Rovira I Virgili, SP*)
-- *Nanostructured polymer solar cells: fabrication, characterization and modeling --*

20:00 h – 20:15 h Auditorium, Palacio del Nuncio
WELCOME RECEPTION ON BEHALF OF MUNICIPAL, AND
ACADEMIC AUTHORITIES FROM UNIVERSIDAD REY JUAN
CARLOS.

Universidad Rey Juan Carlos CHAMBER CHOIR performance
(program at the “Final Program” web site)

21:00 h – Courtyard, Palacio del Nuncio
RECEPTION COCKTAIL

Thursday, Feb. 12th, 2015

8:00 h - Palacio del Nuncio, entrance hall

REGISTRATION

8:30 h – 8:45 h Auditorium, Palacio del Nuncio
OPENING: Prof. Ramón Alcubilla, President of the Spanish CDE

8.45 h - 9.30 h **PLENARY TALK: Fernando Martín Galende, EU Programmes
Division - Spanish ICT National Contact Point – Horizon 2020**

9.30 h - 11.35 h Auditorium, Palacio del Nuncio
**SESSIONS 1 and 3: Graphene, new materials, and device processing technology
Chairperson**

9.30 h - 9.50 h

O.1.1. In situ TEM study of reduction of graphene oxide by Joule heating

Gemma Martín^{a,*}, Aida Varea^a, J.M. Rebled^{a,b} Ruben Sánchez-Hidalgo^c, David López-Díaz^c, M. Mercedes Velázquez^c, Albert Cirera^a, Francesca Peiró^a, Sònia Estradé^a and Albert Cornet^a

^aMIND/IN2UB, Departament d'Electrònica, Universitat de Barcelona, Martí i Franqués 1, 08028 Barcelona, Spain

^bCCiT, Universitat de Barcelona, C/Lluís Solé i Sabaris 1, 08028 Barcelona, Spain

^cDto de Química Física, Facultad de Ciencias Químicas. Universidad de Salamanca, E37008 Salamanca, Spain

9.50 h - 10.10 h

O.1.2. Dry etching of graphene: from nanodots to microwires

Carmen Coya¹, Miguel García-Vélez¹, Angel Luis Álvarez¹, Esteban Climent-Pascual², Carmen Munuera² and Alicia de Andrés²

¹ Escuela Técnica Superior de Ingeniería de Telecomunicación (ETSIT), Universidad Rey Juan Carlos, 28933 Madrid, Spain

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

10.10 h - 10.30 h

O.1.3. Influence of Doping on the Optical Response of GaInP

E. Ochoa-Martínez^{a,*}, M. Gabás^a, L. Barrutia^b, M. Ochoa^b, I. Rey-Stolle^b, E. Barrigón^b, Carlos Algora^b

^aUniversidad de Málaga, The Nanotech Unit, Departamento de Física Aplicada I, 29071 Málaga, Spain

^bInstituto de Energía Solar, Universidad Politécnica de Madrid, Avda. Complutense 30, 28040 Madrid, Spain.

10.30 h - 10.50 h

O.1.4. On the growth mechanisms of GaAs nanowires by Ga-assisted chemical beam epitaxy

C. García Núñez, A.F. Braña, N. López and B.J. García

Grupo de Electrónica y Semiconductores. Dpto. Física Aplicada. Universidad Autónoma de Madrid..

10.50 h - 11.10 h

O.1.5. Automatic transfer of graphene and its electrical characterization

Alberto Boscá^{1,2,*}, J. Pedrós^{1,3}, A. Ladrón de Guevara¹, J. Martínez^{1,4}, F. Calle^{1,2,3}

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

²Dpto. Ingeniería Electrónica, E.T.S.I de Telecomunicación, Universidad Politécnica de Madrid, Madrid, 28040, Spain

³Campus de Excelencia Internacional, Campus UCM-UPM, Madrid, 28040, Spain

⁴Dpto. de Ciencia de Materiales, E.T.S.I de Caminos, Canales y Puertos, Universidad Politécnica de Madrid, Madrid, 28040, Spain.

11.10 h - 11.30 h

O.1.6. Chemical vapour deposition of 3D graphene foams: synthesis, properties, and applications

J. Pedrós^{1,2,*}, A. Boscá^{1,3}, P. Bonato¹, J. Martínez^{1,4}, E. Climent⁵, A. de Andrés⁵, and F. Calle^{1,2,3}

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

³Dpto. Ingeniería Electrónica, E.T.S.I de Telecomunicación, Universidad Politécnica de Madrid, Madrid, 28040, Spain

²Campus de Excelencia Internacional, Campus Moncloa UCM-UPM, Madrid, 28040, Spain

⁴Dpto. de Ciencia de Materiales, E.T.S.I de Caminos, Canales y Puertos, Universidad Politécnica de Madrid, Madrid, 28040, Spain.

11:30 h – 11:55 h Courtyard, Palacio del Nuncio
COFFEE BREAK

12.00 h - 13.45 h Auditorium, Palacio del Nuncio
SESSION 4 a : Sensors, actuators and micro/nano systems
Chairperson

12.00 h - 12.20 h

O.4.1. Microsensors for the multiparametric analysis of natural gas quality

Irene Castro-Hurtado¹, Isabel Ayerdi¹, Enrique Castaño¹, Angel M^a Gutierrez²,
Juan Ramón Arraibi²

¹Microelectronics and Microsystems Unit, CEIT and Tecnun (University of Navarra),
Paseo Manuel de Lardizabal 15, 20018-San Sebastián, Spain

²EDP NATURGAS ENERGIA, General Concha 20, 48010-Bilbao, Spain

12.20 h - 12.40 h

O.2.1. DC SHEs on GaN HEMTs varying substrate material

Raúl Rodríguez¹, Benito González¹, Javier García¹, Fetene Mulugeta², José María
Tirado³, Benjamín Iñiguez², and Antonio Núñez¹

¹ Institute for Applied Microelectronics (IUMA), ULPGC, Las Palmas de G.C., Spain;
email: rrodriguez@iuma.ulpgc.es

² Department of Electric, Electronic and Automation Engineering, URV, Tarragona,
Spain

³ Department of Electric, Electronic, Automation and Communications Engineering,
UCLM, Toledo, Spain.

12.40 h - 13.00 h

**O.4.3. ZnO conductometric sensor for indoor air quality measurement inside
buildings**

J. González-Chávarri^{1,2}, I. Castro-Hurtado^{1,2}, I. Ayerdi^{1,2}, E.Castaño^{1,2}, G.G. Mandayo^{1,2}

¹CEIT and Tecnun (Universidad de Navarra), P. Mikeletegi 48, 20009 San Sebastián,
Spain

²CIC microGUNE, Goiru Kalea 9 Polo Innovación Garaia, 20500 Arrasate-
Mondragón, Spain.

13.00 h - 13.20 h

O.4.4. Piezoresistive cantilever force sensors based on polycrystalline silicon

L.G. Villanueva¹, G. Rius², F Pérez-Murano, J Bausells
Barcelona Microelectronics Institute, IMB-CNM (CSIC), Campus UAB, E-08193
Bellaterra, Spain.

¹ EPFL, BM 5134 - Station 17, CH-1015 Lausanne, Switzerland.

² Nagoya Institute of Technology, NITech, Gokiso, Showa, 466-8555 Nagoya, Japan.

13.20 h - 13.40 h

O.4.5. Liquid-crystalline pushing micropillars as actuators for haptic devices

N. Torras^a, A. Sánchez-Ferrer^b, K.E. Zinoviev^a, J. Esteve^a

^a Instituto de Microelectrónica, IMB-CNM (CSIC), Campus UAB, Bellaterra, E-08193
Barcelona, Spain.

^b ETH Zurich, Department of Health Sciences & Technology, Institute of Food,
Nutrition & Health, Food & Soft Materials Science Group, Schmelzbergstrasse 9, CH-
8092 Zurich, Switzerland.

15:00 h – 16:30 h

Aranjuez village
VISIT TO THE GARDENS OF THE ROYAL PALACE

16:45 h – 17:25 h Auditorium, Palacio del Nuncio.

IEEE Electron Device Society MINICOLLOQUIUM ON ADVANCES IN
NANO- AND LARGE AREA ELECTRONICS (free attendance). **Prof. Lluís
Marsal**, EDS Spain Chapter *Chair*

FINAL SESSION. Distinguished lecturer:

- **Prof. Enrico Sangiorgi** (*Universita degli Studi di Bologna, IT*)
-- *Micro-nanopower systems for energy harvesting* --

17.30 h - 18.30 h

Auditorium, Palacio del Nuncio
SESSION 4 b : Sensors, actuators and micro/nano systems
Chairperson

13:45 h – 15:00 h Dining room, basement, Palacio del Nuncio
LUNCH

17.30 h - 17.50 h

O.4.6. *Ge nanowire-based gas sensor fabricated by localized growth on microhotplates*

J. Samà¹, S. Barth², J.D. Prades¹, M. Seifner², O. Casals¹, I. Gracia³, J. Santander³, C. Calaza³, L. Fonseca³, C. Cané³, A. Romano-Rodríguez¹

¹ Universitat de Barcelona (UB), MIND-IN2UB-Departament d'Electrònica, c/Martí i Franquès, 1, 08028 Barcelona,

Spain; tel: 93 403 91 56, FAX: 93 402 11 48, e-mail: albert.romano@ub.edu

² Technical University Vienna, Institute of Materials Chemistry, Getreidemarkt 9/BC/02, 1060 Vienna, Austria

³ Consejo Superior de Investigaciones Científicas (CSIC), Institut de Microelectrònica de Barcelona-Centro Nacional de Microelectrónica, Campus UAB, 08193 Bellaterra, Spain

17.50 h - 18.10 h

O.4.7. *Hybrid Integration of VCSEL and Microlens for a Particle Detection Microoptical System*

I. Bernat¹, L. Fonseca², M. Moreno¹, A. Romano-Rodríguez¹

¹ Departament de Electrònica, Facultat de Física, Universitat de Barcelona. Martí i Franquès 1, 08028 Barcelona

² Instituto de Microelectrónica de Barcelona, CNM (CSIC), Campus UAB, 08193 Bellaterra, Spain.

18.10 h - 18.30 h

O.4.8. *Intracellular silicon chips: A new research line at the IMB-CNM (CSIC)*

M. Duch, R. Gómez-Martínez, S. Duran, J. Esteve, J. A. Plaza

Instituto de Microelectrónica de Barcelona, CNM (CSIC), Campus UAB, 08193 Bellaterra, Spain.

18:30 h – 18:45 h *Courtyard, Palacio del Nuncio*
COFFEE BREAK

18:45 h – 19:25 h *Auditorium, Palacio del Nuncio*
SESSION 2 a : Device modeling and simulation
Chairperson

18:45 h - 19.05 h

O.4.2. *SiNERGY, a project on energy harvesting and microstorage empowered by Silicon technologies*

Luis Fonseca, Carlos Calaza, Marc Salleras, Gonzalo Murillo, Jaume Esteve Albert Tarancón¹, Alex Morata¹, Jose D. Santos¹, Gerard Gadea¹

IMB-CNM (CSIC) Carrer dels Til·lers, Campus UAB Bellaterra 08193

¹Institut de Recerca en Energia de Catalunya (IREC), Jardins de les Dones de Negre 1, 08930 Sant Adrià de Besòs, Barcelona, Spain

19:05 h – 19:25 h

O.2.2. *Low Gain Avalanche Detectors for High Energy Physics Experiments*

P. Fernández-Martínez^{1*}, M. Baselga¹, M. Fernández García², D. Flores¹, V. Greco¹, S. Hidalgo¹, G. Kramberger³, G. Pellegrini¹, D. Quirion¹, and I. Vila²

¹ IMB-CNM (CSIC), Campus UAB, 08193 – Bellaterra, Barcelona (Spain)

² IFCA (CSIC), Av. de los Castros s/n, 39005 – Santander (Spain).

³ Institut Jožef Stefan, Jamova 39, 1000 – Ljubljana (Slovenia)

19:25 h *Board Room Palacio del Nuncio*
CDE Committee meeting

19.25 h – 20:45 h *Courtyard, Palacio del Nuncio*
MAIN POSTER SESSION (all posters are exhibited)

21:00 h *Aranjuez Village*
GALA DINNER

Friday, Feb. 13th, 2015

8:00 h - *Palacio del Nuncio, entrance hall*
REGISTRATION

8.45 h - 9.30 h **PLENARY TALK: Prof. George G. Malliaras,**
Head Department of Bioelectronics, ENSM- Centre Microélectronique de Provence -EMSE, MOC

-- *Interfacing with the Brain using Organic Electronics* --

9:30 h – 10:50 h *Auditorium, Palacio del Nuncio*
SESSION 2 b : Device modeling and simulation
Chairperson:

9:30 h – 9:50 h

O.2.3. Implementation of numerical methods for nanoscaled semiconductor device simulation using OpenCL.

E. Coronado-Barrientos, A. Garcia-Loureiro, G. Indalecio, N. Seoane¹

Centro de Investigacion en Tecnoloxias da Informacion (CiTIUS), Universidad de Santiago de Compostela, Santiago de Compostela, Spain.

¹ Electronic Systems Design Centre, College of Engineering, Swansea University, Wales, United Kingdom

9:50 h – 10:10 h

O.2.4. Time-dependent physics of double-tunnel junctions

Vincent Talbo¹, Javier Mateos¹, Sylvie Retailleau², Philippe Dollfus², Tomás González¹

¹ Departamento de Física Aplicada, Universidad de Salamanca, Plaza de la Merced S/N, E-37008 Salamanca, Spain

² Institut d'Electronique Fondamentale, Université Paris-Sud, CNRS UMR 8622, F-91405 Orsay, France.

10:10 h – 10:30 h

O.2.5. Calculation of self-heating in cryogenic InP HEMTs by Monte Carlo simulations of phonon and electron transport

J. Mateos¹, I. Iniguez-de-la-Torre¹, H. Rodilla², J. Schlee², J. Grahn², T. González¹ and A. J. Minnich³

¹ Dpto. Física Aplicada, Universidad de Salamanca, 37008 Salamanca, Spain

² Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden

³ Division of Engineering and Applied Science, California Institute of Technology, Pasadena, CA 91125

10:30 h – 10:50 h

O.2.6. New result for Optical OFDM in Code Division Multiple Access systems using direct detection

A. Cherifi¹, B. Bouazza¹, A. O. Dahmane², B. Yagoubi³

¹ Laboratory Technology of Communication, University Of Tahar Moulay Saida, 138 nasr, Algeria.

² University of Québec à Trois-Rivières C .P. 500, Trois-Rivières, Québec, Canada / G9A 5H7

³ University of Abdelhamid Ibn Bdis Mostaganem, Algeria.

10.55 h - 11.20 h Courtyard, Palacio del Nuncio
COFFEE BREAK and **POSTER SESSION CONTINUATION**

11.20 h - 13.20 h Auditorium, Palacio del Nuncio
SESSIONS 5a: Characterization and reliability

11.20 h - 11.40 h

O.5.1. Investigation of the Resistive Switching Behavior in Ni/HfO₂-based RRAM Devices

M.B. Gonzalez, M.C. Acero, O. Beldarrain, M. Zabala, and F. Campabadal

Institut de Microelectrònica de Barcelona, IMB-CNM (CSIC), Campus UAB, 08193 Bellaterra, Spain

11:40 h – 12:00 h

O.5.2. Electrical characterization of MIS capacitors based on Dy₂O₃-doped ZrO₂ dielectrics

H. García¹, H. Castán¹, S. Dueñas¹, E. Pérez¹, L. Bailón¹, A. Tamm², K. Mizohata³, K. Kukli², J.Aarik²

¹ Dept. de Electricidad y Electrónica, Universidad de Valladolid, ETSI Telecomunicación, Paseo de Belén 15, 47011 Valladolid, Spain

² University of Tartu, Institute of Physics, Department of Materials Science, EE-50411 Tartu, Estonia

³ Department of Physics, University of Helsinki, P.O. Box 43, FI-00014, University of Helsinki, Finland

12.00 h - 12.20 h

O.5.3. Amorphous/crystalline silicon interface characterization by capacitance and conductance measurements

R. García-Hernansanz^{*1,2}, E. García-Hemme^{1,2}, D. Montero-Alvarez^{1,2}, J. Olea^{3,2}, D. Pastor^{1,2}, A. del Prado¹, I.Mártel¹ and G. González-Díaz¹

¹ Dpto. Física Aplicada III, Univ. Complutense de Madrid

² CEI Campus Moncloa, UCM-UPM, Madrid, Spain

³ Instituto de Energía Solar, E.T.S.I. Telecomunicación, Univ. Politécnica de Madrid.

12.20 h - 12.40 h

O.5.4. Valence EELS analysis of multiple InGaN-QW structure for electronic properties

A. Eljarrat^{1,*}, L. López-Conesa¹, C. Magén^{2,3}, N. García-Lepetit⁴, Ž. Gačević⁴, E. Calleja⁴, S. Estradé^{1,5} and Francesca Peiró¹

¹ LENS-MIND-IN2UB, Departament d'Electrònica, Universitat de Barcelona, c/ Martí i Franqués 1, 08028 Barcelona, Spain.

² LMA-INA, Departamento de Física de la Materia Condensada, Universidad de Zaragoza, 50018 Zaragoza, Spain

³ Fundación ARAID, 50018 Zaragoza, Spain.

⁴ TEM-MAT, Centres Científics i Tecnològics (CciT), Universitat de Barcelona, Solís Sabarís 1, Barcelona, Spain.

⁵ ISOM, Universidad Politécnica de Madrid, Ciudad Universitaria s/n, 28040 Madrid, Spain.

12.40 h - 13.00 h

O.5.5. Anomalous Low-Frequency Noise Increase at the Onset of Oscillations in Gunn Diodes

Ó. García-Pérez¹, Y. Alimi², A. Song², I. Íñiguez-de-la-Torre¹, S. Pérez¹, J. Mateos¹, T. González¹

¹ Dpto. Física Aplicada, Universidad de Salamanca, 37008 Salamanca, Spain

² School of Electrical and Electronic Engineering, University of Manchester, Manchester M13 9PL, United Kingdom.

13.00 h - 13.20 h

O.5.6. Impact of NBTI and CHC stress on the nanoscale electrical properties of strained and non-strained MOSFETs

Q.Wu, M. Porti, A. Bayerl, J. Martin-Martínez, R. Rodriguez, M. Nafria, X. Aymerich, E. Simoen¹

Dept. Enginyeria Electrònica, Universitat Autònoma de Barcelona (UAB), Barcelona, Spain

¹ IMEC, Leuven, Belgium

13:30 h – 15:00 h *Dining room, basement, Palacio del Nuncio*
LUNCH

15:00 h – 15:40 h *Auditorium, Palacio del Nuncio*
SESSION 5 b : Characterization and reliability
Chairperson

15.00 h - 15.20 h

O.5.7. *Impact of millisecond anneal induced for ultra-shallow junctions on Negative Bias Temperature Instability*

M. Moras^a, J. Martin-Martinez^a, V. Velayudhan^a, R. Rodriguez^a, M. Nafria^a, X.

Aymerich^a and E. Simoen^b

^a Departament d'Enginyeria Electrònica, Universitat Autònoma de Barcelona (UAB), Bellaterra, Barcelona, Spain

^b IMEC, Leuven, Belgium

15.20 h - 15.40 h

O.5.8. *Thermal stability study of AlGaIn/GaN MOS-HEMTs using Gd₂O₃ as gate dielectric fabricated on Si*

Z. Gao^{1*}, M. F. Romero¹, M. A. Pampillon², E. San Andres², F. Calle¹

¹ Dep. Ingeniería Electrónica and Instituto de Sistemas Optoelectrónicos y Microtecnología, ETSI Telecomunicación, Universidad Politécnica de Madrid, Av. Complutense 30, 28040 Madrid, Spain

² Dep. Física Aplicada III (Electr. y Electron.), Univ. Complutense de Madrid, Madrid, Spain.

15.45 h - 16.25 h **PLENARY TALK: Prof. Joan Bisquert**,
Departamento de Física. Universitat Jaume I de Castelló
-- *Dynamic processes in perovskite solar cells* --

16:30 h – 19:00 h *Auditorium, Palacio del Nuncio*
SESSION 6 Optoelectronic, photovoltaic devices and displays. Hybrid and organic electronics.
Chairperson:

16.30 h - 16.50 h

O.6.1. *New Generation Architectures in III-V Multijunction Solar Cells for Efficiencies of 50%*

C. Algora, I. Rey-Stolle, E. Barrigón, I. García, M. Vázquez, N. Núñez, R. Peña. P. Espinet, M. Ochoa, L. Ayllón, L. Barrutia, V. Orlando, H. Pengyun, M. Gabás¹ and S. Palanco¹, C. Ballesteros² and B. Galiana²

Instituto de Energía Solar, Universidad Politécnica de Madrid

¹ Dpto. Física Aplicada I, The Nanotech Unit, Universidad de Málaga

² Universidad Carlos III de Madrid

16.50 h - 17.10 h

O.6.2. *Spectral Coupling of Atmosphere and the Performance of Perovskite Solar Cells*
Eduardo F. Fernandez^{1,2,3*}, S. Senthilarasu¹, F. Almonacid³, A. J. Garcia-Loureiro², T. K. Mallick¹

¹ Environment and Sustainability Institute (ESI), University of Exeter, Penryn, Cornwall TR10 9FE, United Kingdom

² Centro de Investigación en Tecnologías de Información (CITIUS), University of Santiago de Compostela, Santiago de Compostela E15782, Spain

³ Centro de Estudios Avanzados en Energía y Medio Ambiente (CEAEMA), University of Jaen, Jaen 23071, Spain

17.10 h - 17.30 h

O.6.3. *Deep level defects in mono-like, quasi-mono and multicrystalline silicon solar wafers*

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

Dept. de Electricidad y Electrónica, Universidad de Valladolid, E.T.S.I. de Telecomunicación, Paseo de Belén 15, 47011 Valladolid, Spain.

17.30 h - 17.50 h *Courtyard, Palacio del Nuncio*
COFFEE BREAK and **POSTER SESSION CONTINUATION**

17.50 h - 18.10 h

O.6.4. *Optimizing diffusion, morphology and minority carrier lifetime in Silicon for GaAsP/Si dual-junction solar cells*

Elisa García-Tabarés¹, Diego Martín², Ignacio Rey-Stolle¹

¹ Instituto de Energía Solar – Universidad Politécnica de Madrid. Avda. Complutense 30 – 28040 Madrid (Spain)

² Departamento de Matemática Aplicada, Ciencia e Ingeniería de los Materiales y Tecnología Electrónica. Universidad Rey Juan Carlos. CL Tulipán s/n, 28933 Móstoles, Madrid (Spain)

Contributions for POSTER SESSIONS

18.10 h - 18.30 h

O.6.5. Degree of ordering as a function of Sb content in $In_{0.5}Ga_{0.5}P$ layers for tandem solar cells

Ll. López¹, C. Coll¹, E. Barrigón², L. Barrutia², I. Rey-Stolle², S. Estradé¹, F. Peiró¹

¹ Laboratory of Electron Nanoscopies (LENS)-MIND/IN2UB, Dept. d'Electrònica, Universitat de Barcelona, c/ Martí Franqués 1, E-08028 Barcelona

² Instituto de Energía Solar (IES), Universidad Politécnica de Madrid.

18.30 h - 18.50 h

O.6.6. All-inkjet printed organic transistors: Strategies to minimize variability

M.C. R. Medeiros¹, V. Parkula², C. Martinez-Domingo^{3,4}, E. Ramon⁴, F. Villani⁵, F. Loffredo⁵, R. Miscioscia⁵, E. Sowade⁶, K. Y. Mitra⁶, R. R. Baumann^{6,7}, I. McCulloch⁸, J. Carrabina⁹ and Henrique L. Gomes²

¹ Instituto de Telecomunicações, DEEC, FCTUC, University of Coimbra, Pinhal de Marrocos, Coimbra, Portugal.

² Universidade do Algarve, Instituto de Telecomunicações, Av. Rovisco Pais, 1, Lisboa, Portugal

³ Catalan Institute of Nanoscience and Nanotechnology (ICN2), Campus UAB Bellaterra, Barcelona, 08193 Spain.

⁴ Institut de Microelectrònica de Barcelona, IMB-CNM (CSIC), Campus UAB Bellaterra, Barcelona, Catalonia, Spain.

⁵ Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Portici Research Center, 80055 Portici, Naples, Italy

⁶ Chemnitz University of Technology, Digital Printing and Imaging Technology, Chemnitz, Germany.

⁷ Fraunhofer Institute for Electronic Nano Systems (ENAS), Printed Functionalities, Chemnitz, Germany

⁸ Department of Chemistry Imperial College London London SW7 2AZ, UK

⁹ CAIAC, Universitat Autònoma de Barcelona, Bellaterra, Catalonia, Spain

- P.1.1-** *Effect of the blistering of ALD Al₂O₃ films on the silicon surface in Al-Al₂O₃-Si structures* .#0016
M.C. Acero, O. Beldarrain, M. Duch, M. Zabala, M. B. González, and F. Campabadal.
- P.1.2-** *Monte Carlo Modeling of Mobility and Microscopic Charge Transport in Supported Graphene.* #0020
Raúl Rengel, José M. Iglesias, Elena Pascual and María J. Martín.
- P.1.3-** *On the ageing mechanisms of graphene electrodes.* #0030
Yuanyuan Shi, Yanfeng Ji, Fei Hui, Mario Lanza.
- P.1.4-** *Graphene devices fabricated by laser.* #0040
A. Ladrón de Guevara, A. Bosca, J. Pedros, F. Calle, J. Martinez
- P.1.5-** *Electrostatics and drift-diffusion current model of bilayer graphene field-effect transistors.* #0061
Pasadas Cantos, Francisco; Jiménez Jiménez, David.
- P.1.6-** *Simulation of the phonon-limited electron mobility in multi-layer MoS₂ field-effect transistors.* #0070
J.M. González-Medina, F. G. Ruiz, A. Godoy, E. G. Marin, F. Gámiz.
- P.1.7-** *Graphene transferred on atomic force microscope tips provides superior performance.* #0017
Fei Hui; Marc Porti; Montserrat Nafria; Mario Lanza.
- P.2.1-** *3D TCAD Modeling of Laser Processed c-Si Solar Cells.* #0002
Juan M. López-González, Isidro Martín, Pablo Ortega, Albert Orpella and Ramón Alcubilla.
- P.2.2-** *Intrinsic factors determining the metal-graphene contact resistance.* #0009
Chaves Romero, Ferney Alveiro; Jimenez Jimenez, David.
- P.2.4-** *Modeling of the I-V and I-t Characteristics of Multiferroic BiFeO₃ Layers.* #0010
E. Miranda, D. Jiménez, A. Tsurumaki-Fukuchi, J. Blasco, H. Yamada, J. Suñé, and A. Sawa.
- P.2.5-** *Floating-Body-Related Subthreshold Behavior of SOI NMOS Device Considering Back-Gate-Bias Effect.* #0019
S. K. Hu and J. B. Kuo.
- P.2.6-** *Optoelectronic properties of small defect clusters in Si from multiscale simulations.* #0042
I. Santos, M. Aboy, P. López, L. A. Marqués, M. Ruiz, L. Pelaz
- P.2.7-** *Modeling of nanocalorimetry experiments to investigate the kinetics of damage annealing in self-implanted Si.* #0044
Ruiz Prieto, Manuel; Pelaz Montes, Lourdes; Marqués Cuesta, Luis Alberto; López Martín, Pedro; Santos Tejido, Iván; Aboy Cebrián, María.
- P.2.8-** *MD simulations of vacancy-like defects in amorphous Ge.* #0045
Lopez Martin, Pedro; Sanchez Hurtado, Jose Miguel; Pelaz Montes, Maria Lourdes; Marques Cuesta, Luis Alberto; Santos Tejido, Ivan; Aboy Cebrian, Maria; Ruiz Prieto, Manuel.
- P.2.9-** *A charge-dependent mobility memristor model* . #0049
Picos, Rodrigo; Al-Chawa, M. Moner; Garcia-Moreno, Eugeni
- P.2.10-** *Geometrical effects on the quality factor of extensional microplate resonators in liquid* .
Ruiz-Diez, Víctor; Manzanque, Tomás; Hernando-García, Jorge; Abdallah, Ababneh; Seidel, Helmut; Sánchez-Rojas, José Luis. #0064
- P.2.11-** *Short Channel Effects in Graphene Field-Effect Transistors.* #0066
Feijoo Guerra, Pedro Carlos; Jiménez Jiménez, David
- P.2.12-** *Impact of the Absorption in Transmittance and Reflectance on Macroporous Silicon Photonic Crystals.* #0072
Cardador Maza, David; Vega Bru, Didac; Rodriguez Martinez, Angel .
- P.2.13-** *Raytracing and electromagnetic 2-D simulations of the EQE of a-Si:H thin-film solar cells.* #0021
M. Fortes, E. Comesaña, J.A. Rodriguez, P. Otero, A. J. Garcia-Loureiro

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POSTER SESSION FINAL DISCUSSIONS

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CONCLUDING REMARKS
and **EDS BEST STUDENT CONTRIBUTION AWARD**

- P.2.14-** *A tool to deploy nanodevice simulations on Cloud.* #0038
F. Gomez-Folgar, G. Indalecio. E. Comesaña, A. J. Garcia-Loureiro, T. F. Pena
- P.2.15-** *Evaluation of the Thermal Resistance in GaN-Diodes by means of Electro-Thermal Monte Carlo Simulations.* #0043
S. García, I. Íñiguez-de-la-Torre, Ó. García-Pérez, J. Mateos, T. González and S. Pérez
- P.2.16-** *Comparison of state-of-the-art distributed computing frameworks with the GWM.* #0074
G. Indalecio, F. Gómez-Folgar, A. J. Garcia-Loureiro, Natalia Seoane
- P.2.17-** *Influence of systematic gate alignment variations on static characteristics in DG-SB-MOSFETs.* #0092
José M. Iglesias*, María J. Martín, Elena Pascual, Raúl Rengel
- P.4.1-** *Flexible gas sensing devices with directly grown tungsten oxide nanoneedles via AACVD.* #0005
Vallejos Vargas, Stella; Gràcia Tortadés, Isabel; Figueras Costa, Eduardo; Sánchez López, Javier; Mas Colomina, Roser; Beldarrain Fernández, Oihane; Cané Ballart, Carles
- P.4.2-** *RADFET response to photon and electron beams.* #0011
Martínez Garcia, María Sofía; Torres del Rio, Julia; Banqueri Ozáez, Jesús; Carvajal Rodríguez, Miguel Angel; Palma López, Alberto José.
- P.4.3-** *Comparative study of printed capacitive sensors.* #0013
Rivadeneira Torres, Almudena; Fernández Salmerón, José; Agudo Acemel, Manuel; Capitán Vallvey, Luis Fermín; Palma López, Alberto; López Villanueva, Juan Antonio.
- P.4.4-** *Synthesis and characterization of SnO₂ nanowires grown by CVD for application as gas sensors .* #0018
Sayago , Isabel ; Fernández , María Jesús; Fontecha , José Luis; Horrillo, Mari Carmen; Santos , José Pedro.
- P.4.5-** *Liquid characterization by means of Love-wave device combined with microfluidic platform.* #0027
D. Matatagui, M.J. Fernandez, J. Fontecha, J.P. Santos, I. Sayago, I. Gràcia, C. Cané, M.C. Horrillo.
- P.4.6-** *Use of an electronic nose as a tool to differentiate winemaking techniques.* #0041
M. Aleixandre, J.P. Santos, I. Sayago, J.M. Cabellos, T. Arroyo, M.C. Horrillo.
- P.4.7-** *Real time detection of beer defects with a hand held electronic nose.* #0053
Santos Blanco, José Pedro; Lozano Rogado, Jesús.
- P.4.8-** *Compact Device for CO₂ Optical Sensing using Macroporous Silicon Photonic Crystals.* #0069
Vega Bru, Didac ; Trifonov , Trifon; Calavia Boldu, Raúl; Vilanova Salas, Xavier; Rodríguez Martínez, Ángel.
- P.4.9-** *Microfluidic platform with absorbance sensor for glucose detection.* #0055
G. Flores, F. Perdigones, C. Aracil, M. Cabello and J.M. Quero.
- P.4.10-** *A New Kind of Miniature Sun Sensors Design.* #0091
Wang Sui'an, Li Peihao, Guo Qi
- P.4.11-** *Design of an enhanced MEIGA-MetNet dust micro-sensor able to perform gas sensing in Mars atmosphere.* #0093
Miguel A. Rodríguez, Alberto Fernández, Francisco Cortés, Fernando López
- P.5.1-** *Single Event Transients Generation in Silicon Devices with Pulsed Laser. A comparative Study.* #0003
De Paul , Ivan; Bandi , Franco; Segura, Jaume; Bota, Sebastià A.
- P.5.2-** *Performance of Advanced Metering Infrastructure Using Cellular Communication based on Uplink CDMA.* #0029
Rodriguez Morocho, Guillermo.
- P.5.3-** *Low dose radiation effects on a-Si:H TFTs.* #0032
Picos , Rodrigo; Papadopoulos , Nikolaos P.; Lee , Czung-Ho; Lopez-Grifols , Alvaro; Roca , Miquel; Isern , Eugeni; Wong , William S.; Garcia-Moreno, Eugeni.
- P.5.4-** *Straightforward Determination of the Effective Mobility-Lifetime Product of Small Molecule Organic Solar Cells.* #0048
Gerling Sarabia, Luis Guillermo; Amahdpour, Mehrad; Galindo Lorente, Sergi; Asensi López, José Miguel; Voz Sánchez, Cristobal; Puigdollers González, Joaquim; Alcubilla González, Ramón.
- P.5.5-** *Radiation Effects in nanometric SRAMs induced by 18 MeV Protons.* #0062
Daniel Malagón Perriñez, J.L. Merino, G. Torrens, J. Segura, S.A. Bota
- P.5.6-** *Distinguishing conductive filament and non-localized gate conduction in resistive switching devices.* #0007
M. Maestro, A. Crespo-Yepes, J. Martin-Martinez, S. Claramunt, R. Rodriguez, M. Nafria, X. Aymerich
- P.5.7-** *The Meyer-Neldel Rule in the properties of the deep-level defects present in silicon supersaturated with titanium.* #0025
E. Pérez, H. Castán, H. García, S. Dueñas, L. Bailón, D. Montero, R. Garcia-Hernansanz, E. García-Hemme, J. Olea, and G. González-Díaz.
- P.5.8-** *Optoelectronic properties of embedded silicon nanocrystals by hyperspectral low-loss EELS.* #0046
A. Eljarrat, L. López-Conesa, J. López-Vidrier, S. Hernández, S. Estradé, C. Magén, B. Garrido and F. Peiró.
- P.5.9-** *XPS and SEM as diagnosis tools for failure analysis after reliability tests performed on III-V multijunction solar cells.* #0076
V. Orlando, M. Gabás, P. Espinet-González, R. Romero, M. Vázquez, S. Bijani, N. Núñez, S. Palanco, C. Algora.
- P.6.1-** *High efficiency interdigitated-back-contact c-Si solar cells.* #0004
E. Calle, P. Ortega, G. López, I. Martín, D. Carrió, C.Voz, A. Orpella, J. Puigdollers, R. Alcubilla.
- P.6.2-** *Effect of doping in the current voltage characteristics of organic diodes .* #0012
P. López Varo, J. A. Jiménez Tejada, J. A. López Villanueva, M. J. Deen.
- P.6.3-** *Effect of nanofluid conductivity and humidity on the self-assembly of colloidal crystals by means of electrospray.* #0022
Arnau Coll, Sandra Bermejo, Isidro Martin and Luis Castañer.
- P.6.4-** *Feasibility of dispensing technology to create local contacts on silicon solar cells.* #0035
Elena Navarrete Astorga, Miguel Marín Enríquez, José Ramón Ramos Barrado .
- P.6.5-** *Synthesis of PbS/Semiconducting Polymer Nanocomposites Via Thiolate Decomposition.* #0060
J.C. Ferrer, S. Fernández de Ávila, J.L. Alonso.