

SPIE Europe

Microtechnologies for the New Millennium 2007

2–4 May 2007 *Gran Hotel Costa Meloneras*
Maspalomas, Gran Canaria, Spain

Building a Better Future with Light

Symposium Chairs

José Fco. López Feliciano, Univ. de Las Palmas de Gran Canaria (Spain)

Roberto Sarmiento Rodríguez, Univ. Las Palmas de Gran Canaria (Spain)

Steve Kang, Univ. California/Santa Cruz (USA)

Five parallel conferences:

Smart Sensors, Actuators,
and MEMS

VLSI Circuits and Systems

Nanotechnology

Bioengineered and Bioinspired
Systems

Photonic Materials, Devices,
and Applications

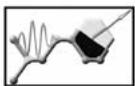
SPIE Europe

SPIE Europe

Microtechnologies for the New Millennium 2007

2-4 May 2007 *Gran Hotel Costa Meloneras
Maspalomas, Gran Canaria, Spain*

Cooperating Organisations:



PhOREMOST



EOARD

**SOCIEDAD ESPAÑOLA
DE ÓPTICA**

**Government of the Canary
Islands**



**UNIVERSIDAD DE LAS PALMAS
DE GRAN CANARIA**

**Cátedra Telefónica, ETSI de
Telecomunicación**

**Departamento de Ingeniería
Electrónica y Automática**

**Instituto Universitario de
Microelectrónica Aplicada (IUMA)**

Sponsored by:

SPIE Europe

Plan Now to Attend!

Take this opportunity to participate in the 3rd SPIE Europe International Symposium on Microtechnologies for the New Millennium.

Enjoy the picturesque Canary Islands, the ideal place to meet with your colleagues to discuss the latest advances on a variety of technologies, which are already shaping this millennium. Five exciting conferences on VLSI, MEMS, Nanotechnology, and Bio-Inspired Systems, and Photonic Materials, Devices and Applications have been planned for this event. You will have a unique opportunity to hear about the latest advances on biosensors, sensory-information processing, GHz data communications, molecular electronics, or the combination between living tissue and microelectronics, among many other cutting-edge topics.

Exchange new ideas, address your shared concerns, and get access to information not yet published in these topical areas, share your research with other engineers, scientists, researchers, and managers. Accepted and presented, your paper will be permanently archived in the SPIE Digital Library, where it will be made available to others in the international scientific community who seek to learn, make discoveries, and innovate.

Besides participating in a most stimulating scientific symposium, you will have the opportunity to enjoy the idyllic countryside of the islands as well as their modern conveniences.

We welcome you to enjoy the best of Spanish hospitality as well as participating in a most stimulating scientific symposium.

Symposium Chairs:



**Roberto Sarmiento
Rodriguez**, Univ. de
Las Palmas de Gran
Canaria (Spain)



Steve Kang,
Univ. California/Santa
Cruz (USA)



José Fco. López Feliciano,
Univ. de Las Palmas de
Gran Canaria (Spain)

Organising Committee:

- Paolo Arena**, Univ. di Catania (Italy)
Gonçal Badenes, Institut de Ciències Fotòniques (Spain)
N. Scott Barker, Univ. of Virginia (USA)
Thomas Becker, EADS Deutschland GmbH (Germany)
Fernando Briones, IMM-CSIC (Spain)
Carles Cané, CNM-CSIC (Spain)
Valentín de Armas, Univ. de Las Palmas de Gran Canaria (Spain)
Kamran Eshraghian, Eshraghian Labs. Pty Ltd. (Australia)
Suzi Jarvis, CRANN, National Univ. of Ireland/ Dublin (Ireland)
Steve Kang, Univ. California/Santa Cruz (USA)
Gustavo Liñán-Cembrano, Ctr. Nacional de Microelectrónica (Spain)
José Fco. López Feliciano, Univ. de Las Palmas de Gran Canaria (Spain)
Giancarlo C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy)
Ángel Rodríguez-Vázquez, AnaFocus (Spain)
Roberto Sarmiento, Univ. Las Palmas de Gran Canaria (Spain)
Ali Serpengüzel, Koç Univ. (Turkey)
Carl V. Thompson, Massachusetts Institute of Technology
Félix B. Tobajas, Univ. de Las Palmas de Gran Canaria (Spain)

Contents

Plenary Presentations	4-5
Special Events	5
Proceedings of SPIE	5
Conf. 6589 Smart Sensors, Actuators and MEMS (Becker)	6-8
Conf. 6590 VLSI Circuits and Systems (de Armas)	9-12
Conf. 6591 Nanotechnology (Briones)	13-14
Conf. 6592 Bioengineered and Bioinspired Systems (Arena)	15-16
Conf. 6593 Photonic Materials, Devices, and Applications (Serpengüzel)	17-20
General Information	21
Travel Information	22
Hotel Reservation Form	22
Registration Form	23

Make your hotel reservations early! *See page 22.*

Register Early!

spie.org/events/emtadvance

Daily Schedule

Tuesday	Wednesday	Thursday	Friday
Conferences			
Conf. 6589 Smart Sensors, Actuators and MEMS , (Becker, Cané, Barker), p. 6-8			
Conf. 6590 VLSI Circuits and Systems , (Sosa, Eshraghian, Tobajas), p. 9-12			
Conf. 6591 Nanotechnology , (Fernando Briones, Thompson, Jarvis), p. 13-14			
Conf. 6592 Bioengineered and Bioinspired Systems , (Arena, Liñán-Cembrano, Rodríguez-Vázquez), p. 15-16			
Conf. 6593 Photonic Materials, Devices, and Applications , (Serpengüzel, Badenes, Righini), p. 17-20			
Special Events			
Welcome Reception , 20.00 to 21.30, p. 5	Plenary Presentation I: The Nano Revolution: Bottom-up Manufacturing with Biomolecules , (Trent), 9.00 to 9.50, p. 4	Conference Dinner , 20.00, p. 5 Plenary Presentation II: Research in Micro- Nano- Technology and Systems: a European Perspective. Opportunities in Framework Programme 7: 2007-2013 , (Van Caenegem), 9.00 to 9.50, p. 4 Poster Session , 16.40 to 18.00, p. 5	Plenary Presentation III: The Final Frontier: Addressing the Global Challenge of Terahertz Frequencies , (Abbott), 9.00 to 9.50, p. 5

Plenary Presentations

Wednesday 2 May

Welcome and Opening Remarks

8.30 to 9.00

José Fco. López Feliciano, Univ. de Las Palmas de Gran Canaria (Spain)

Roberto Sarmiento Rodríguez, Univ. Las Palmas de Gran Canaria (Spain)

Steve Kang, Univ. California/Santa Cruz (USA)

Plenary Presentation I

9.00 to 9.50

The Nano Revolution: Bottom-up Manufacturing with Biomolecules



Jonathan Trent, Univ. of California/Santa Cruz and NASA Ames Research Ctr., USA

As the nano-scale becomes a focus for engineering electronic, photonic, medical, and other important devices, an unprecedented role for biomolecules is emerging to address one of the most formidable problems in nano-manufacturing: precise manipulation and organization of matter on the nano-scale. Biomolecules are a solution to this problem because they themselves are nanoscale particles

with intrinsic properties that allow them to precisely self-assemble and self-organize into the amazing diversity of structures observed in nature. Indeed, there is ample evidence that the combination of self-assembly with mutation, selection, and replication has the potential to create structures that could truly revolutionize manufacturing processes in many sectors of industry. Genetically engineered biomolecules are already being used to make the next generation of nano-scale templates, nano-detailed masks, and molecular scaffolds for the future manufacturing of electronic devices, medical diagnostic tools, and chemical engineering interfaces. This presentation will explore the feasibility of this approach, using examples from the Protein Nanotechnology Group at NASA Ames, which is using proteins to create flash memory devices for data storage, pathogen sensors for medical diagnostics, and enzyme arrays to help solve the impending energy crisis.

Biography: **Jonathan Trent** is currently a senior scientist at NASA Ames Research Center, where he leads the Protein Nanotechnology Group and is an Adjunct Professor in the Biomolecular Engineering Department at U.C. Santa Cruz. For over twenty years, he has studied the physical and chemical limits of life, the organisms that define those limits known as "extremophiles," and the structure and function of biomolecules produced by extremophiles. For the last eight years, his group at NASA Ames Research Center has focused on using extremophilic biomolecules for applications in nanotechnology. Dr. Trent has lectured extensively in the US and Europe and has published in many International Journals. In 2006, he received the Nano50 award for Innovation in Nanotechnology and was elected a Fellow of the California Academy of Sciences for his contributions in Astrobiology, Marine Biology, and Microbiology.

After receiving his Ph.D. in Biological Oceanography at Scripps Institution of Oceanography, Dr. Trent spent six years in Europe at the Max Planck Institute for Biochemistry in Germany, the University of Copenhagen in Denmark, and the University of Paris at Orsay in France. He returned to the U.S.A. to work at the Boyer Center for Molecular Medicine at Yale Medical School before establishing a biotechnology group at Argonne National Laboratory. In 1998 he moved to NASA Ames Research Center to be part of NASA's Astrobiology Programme and in 1999 he established the Protein Nanotechnology Group. In addition to working at NASA, he is an Adjunct Professor in the Dept. of Biomolecular Engineering at UC Santa Cruz.

Thursday 3 May

Plenary Presentation II

9.00 to 9.50

Research in Micro- Nano- Technology and Systems: a European Perspective. Opportunities in Framework Programme 7: 2007-2013

Griet Van Caenegem, European Commission, DG Information & Media: Micro- and Nanosystems, Belgium

The area which started with MEMS devices has grown into an area of Microsystems and Micro Nano Technology for a wide set of applications. Today researchers from various disciplines are working together to achieve the objectives of research in the MST field. The new instruments IPs and NoEs will help to coordinate research in an integrated manner, ranging from feasibility to industrialisation. Technologies are converging while the MST field is expanding to the field of 'Smart Integrated Systems'.

In the future the 7th Framework and the further coordination of national or regional initiatives will help to realise the research agenda for this strategic field for Europe. The presentation will give some results of ongoing initiatives, some visions and an outlook for the future. The most recent information known for Framework Programme 7 and the calls for proposals will be presented. The presentation will mainly cover the priority NMP and the priority IST. The focus will be towards micro and nano electronics, photonics, micro and nanosystems and organic electronics with displays. The related European Technology Platforms will be presented as well.

Biography: **Griet Van Caenegem** has obtained her degree of Engineer in Physics from the university of Gent, Belgium in 1994. She has been working with Alcatel for 7 years and has joined the European Commission in 2001 in the unit of Micro- and Nano Systems. One of the responsibilities of the EC Scientific Officers is organising workshops and consultation meetings in order to define the strategy for the research in the area for the upcoming years. We are in charge of the evaluation process of proposals and once we finalise the negotiation process, we do monitor with external experts the progress of the EU funded projects.

Special Events

Friday 4 May

Plenary Presentation III

9.00 to 9.50

The Final Frontier: Addressing the Global Challenge of Terahertz Frequencies



Derek Abbott, Univ. of Adelaide, Australia

Terahertz (T-ray) radiation has traditionally been an inaccessible part of the electromagnetic spectrum. Recent advances in femtosecond lasers have enabled the emergence T-rays as a safe imaging technology, which can identify substances non-invasively, as molecular vibrational modes tend to be in this frequency range. This talk will present the exciting global challenge for terahertz frequencies in terms of imaging, sensing, and short-path

communications—leading to applications in pharmaceutical development, biochips, aerospace, and defence security. Historically, industry is transformed whenever a new part of the spectrum is accessed: T-rays are at the next frontier.

Biography: **Derek Abbott** is with The University of Adelaide, where he is presently the Director of the Centre for Biomedical Engineering (CBME) and full professor within the Scholl of Electrical & Electronic Engineering. His work has received scientific reportage in *New Scientist*, *The Sciences*, *Scientific American*, *Nature*, *The New York Times*, and *Sciences et Avenir* and he holds over 300 publications/patents. Prof Abbott has been an invited speaker at over 80 institutions around the world, including Princeton, NJ; MIT, MA; Santa Fe Institute, NM; Los Alamos National Laboratories, NM; Cambridge, U.K.; and EPFL, Lausanne, Switzerland. He won the GEC Bursary (1977), the Stephen Cole the Elder Prize for scholarship (1998), the E.R.H. Tiekink Memorial Award for scientific publication activity (2002), a Tall Poppy Award for Science (2004) and the Premier's SA Great Award in Science & Technology for outstanding contributions to South Australia (2004). He has served as an editor and/or guest editor for a number of journals including *Chaos* (AIP), *Smart Structures and Materials* (IOP), *Journal of Optics B* (IOP), *Microelectronics Journal* (Elsevier), *Proceedings of the IEEE*, and *Fluctuation Noise Letters* (World Scientific). He is a chartered physicist and Life Fellow of the Institute of Physics (IOP). He is also a chartered engineer and Fellow of the Institution of Electrical & Electronic Engineers (IEEE).

Welcome Reception

The location is by the poolside.

Tuesday 1 May 20.00 to 21.30

All attendees are invited to relax, socialize, and enjoy light refreshments. Please remember to wear your conference registration badges. Dress is casual.

All Symposium Poster Session

Conference Area Hallway

Thursday 3 May 16.20 to 18.00

All registered symposium attendees are invited to attend the interactive poster session. Attendees are encouraged to review the high-quality papers that are presented in this alternate format and to interact and network with colleagues in your field. Poster presenters can begin to post their papers at 11.20 on Thursday. Each poster presenter is provided a space 1.10 x 1.30m in which to display a summary of the paper. Poster presenters will stand by their posters from 16.20 to 18.00 to answer questions. Posters must be removed at the end of the poster session since the poster boards will then be removed and the remaining posters discarded. Please remember to wear your conference registration badges. Light refreshments will be served.

Conference Dinner

Thursday 3 May 20.00

A conference dinner will be held at the Via Veneto Restaurant of the Gran Hotel Costa Meloneras. One ticket is included with your registration fees; please tick the appropriate box on the registration form to reserve a seat for yourself. You MUST preregister for the Conference Dinner by 23 April 2007.

Proceedings of SPIE

SPIE Europe

Microtechnologies for the New Millennium 2007

Order Proceedings volumes now and receive low prepublication prices

Vol#	Title (Editor)	Prepublication Price
6589	Smart Sensors, Actuators, and MEMS III (T. Becker)	\$90
6590	VLSI Circuits and Systems III (V. de Armas Sosa)	\$90
6591	Nanotechnology III (F. Briones)	\$53
6592	Bioengineered and Bioinspired Systems III (P. Arena)	\$70
6593	Photonic Materials, Devices, and Applications II (A. Serpengüzel, G. Badenes, G. C. Righini)	\$105

SPIE Europe

Microtechnologies for the New Millennium

Proceedings on CD-ROM

Full-text papers from all 5 Proceedings volumes. PC, Macintosh, and Unix compatible.

Microtechnologies for the New Millennium 2007

(Includes Vols. 6589-6593)

Order No. **CDS258** • Est. pub. June 2007

Meeting attendee: 125 €

Nonattendee member price: \$290

Nonattendee nonmember price: \$380

Smart Sensors, Actuators and MEMS

Conference Chair: **Thomas Becker**, EADS Deutschland GmbH (Germany)

Cochairs: **Carles Cané**, CNM-CSIC (Spain); **N. Scott Barker**, Univ. of Virginia (USA)

Programme Committee: **Kris Baert**, IMEC (Belgium); **Joan Bausells**, Ctr. Nacional de Microelectrónica (Spain); **James Becker**, Montana State Univ. (USA); **Thomas Bischoff**, Infineon Technologies AG (Germany); **Nicolaas F. de Rooij**, Univ. de Neuchâtel (Switzerland); **Rhonda Drayton**, Univ. of Minnesota (USA); **Martin Eickhoff**, Technische Univ. München/Walter Schottky Institute (Germany); **Guido Faglia**, Univ. degli Studi di Brescia (Italy); **Carles Ferrer**, Univ. Autònoma de Barcelona (Spain); **F. Javier Gracia**, Ctr. de Estudios e Investigaciones Técnicas de Gipuzkoa (Spain); **Katia M. Grenier**, LAAS-CNRS (France); **Klas Hjort**, Uppsala Univ. (Sweden); **Gianfranco Innocenti**, Centro Ricerche Fiat (Italy); **Jeong-Bong Lee**, The Univ. of Texas at Dallas (USA); **Santiago Marco Colás**, Univ. de Barcelona (Spain); **Dean P. Neikirk**, The Univ. of Texas/ Austin (USA); **Sergio Pacheco**, Freescale Semiconductor, Inc. (USA); **John Papapolymerou**, Georgia Institute of Technology (USA); **Ulrich Schmid**, Saarland Univ. (Germany); **Steven J. Setford**, Cranfield Univ. (United Kingdom); **Pietro Siciliano**, Consiglio Nazionale delle Ricerche (Italy); **Christos Tsamis**, National Ctr. of Scientific Research (Greece); **Wouter van der Wijngaart**, Kungliga Tekniska Högskolan (Sweden); **Jürgen Wöllenstein**, Fraunhofer-Institut für Physikalische Messtechnik (Germany)

Wednesday 2 May

Opening Remarks 9.55 to 10.00
Thomas Becker, EADS Deutschland GmbH (Germany)

SESSION 1

Room: Meloneras **Wed. 10.00 to 11.20**

Power Generation and Low-Power Architectures

Chairs: **Thomas Becker**, EADS Deutschland GmbH (Germany);
Carles Cané, Ctr. Nacional de Microelectrónica (Spain)

10.00: **Fabrication and characterization of a passive silicon-based direct methanol fuel cell**, J. P. Esquivel Bojorquez, N. Torres, N. Sabate, J. Santander, C. Cane, Ctr. Nacional de Microelectrónica (Spain) [6589-01]

10.20: **Low-power, low-latency, MAC protocol for aeronautical applications**, J. Sabater, M. Kluge, S. Bovelli, EADS Deutschland GmbH (Germany) [6589-02]

10.40: **Design and implementation of mechanical resonators for optimized inertial electromagnetic microgenerators**, C. Serre, A. Pérez-Rodríguez, N. Fondevilla, J. R. Morante, Univ. de Barcelona (Spain); E. Martincic, Univ. Paris-Sud-XI (France); J. Montserrat, J. Esteve, Ctr. Nacional de Microelectrónica (Spain) [6589-03]

11.00: **Implementation of hard magnetic thin films on suspended cantilevers for electromagnetic energy harvesters**, E. Makarona, T. Speliotis, A. Darsinou, C. Tsamis, S. Chatzandroulis, D. Niarchos, National Ctr. for Scientific Research (Greece) [6589-04]

Coffee Break 11.20 to 11.40

SESSION 2

Room: Meloneras **Wed. 11.40 to 13.00**

Optical MEMS

Chairs: **Katia M. Grenier**, LAAS-CNRS (France); **Klas Hjort**, Uppsala Univ. (Sweden)

11.40: **Compact optical ethylene monitoring system**, J. Wöllenstein, S. Hartwig, J. Hildenbrand, Fraunhofer-Institut für Physikalische Messtechnik (Germany); M. Moreno, J. Fonollosa, Univ. de Barcelona (Spain); J. Santander, R. Rubio, L. Fonseca, Ctr. Nacional de Microelectrónica (Spain) [6589-05]

12.00: **Oxygen measurements at high pressures using a low cost, polarisation stabilized, widely tunable Vertical Cavity Surface Emitting Laser**, B. Scherer, J. Wöllenstein, Fraunhofer-Institut für Physikalische Messtechnik (Germany); J. Ostermann, R. Michalzik, F. Rinaldi, Univ. Ulm (Germany) [6589-06]

12.20: **Thermo-activated nano-material for use in optical devices**, S. Mias, Lab. d'Analyse et d'Architecture des Systèmes (France); J. Sudor, Commissariat à l'Energie Atomique (France); H. Camon, Lab. d'Analyse et d'Architecture des Systèmes (France) [6589-07]

12.40: **Dye-based light sensor for tag integration**, I. Sayhan, EADS Deutschland GmbH (Germany); B. Hoetzer, D. G. Ebling, J. Wöllenstein, Fraunhofer-Institut für Physikalische Messtechnik (Germany); E. Rose, T. Becker, EADS Deutschland GmbH (Germany) [6589-08]

Lunch Break 13.00 to 15.00

SESSION 3

Room: Meloneras **Wed. 15.00 to 16.20**

Microfluidic Systems

Chairs: **Christos Tsamis**, National Ctr. for Scientific Research (Greece); **Guido Faglia**, Univ. degli Studi di Brescia (Italy)

15.00: **LTCC: fascinating technology platform for miniaturized devices (Invited Paper)**, U. Schmid, Saarland Univ. (Germany) [6589-09]

15.40: **Ferromagnetic 3D impeller-shaped micro-stirrer bar for micromixing**, J. Lee, The Univ. of Texas at Dallas (USA); A. K. Nallani, Intel Corp. (USA) [6589-10]

16.00: **Development of MEMS-based liquid chromatography modules for agrofood applications**, A. Benvenuto, L. Lorenzelli, V. Guarneri, C. Collini, A. Adami, Istituto Trentino di Cultura (Italy) [6589-11]

Coffee Break 16.20 to 16.40

SESSION 4

Room: Meloneras **Wed. 16.40 to 18.00**

Aerospace Applications

Chairs: **Jürgen Wöllenstein**, Fraunhofer-Institut für Physikalische Messtechnik (Germany); **Thomas Becker**, EADS Deutschland GmbH (Germany)

16.40: **OPTOMAG-MANTIS: microsystem-based payload for planetary exploration**, M. D. Michelena, R. P. del Real, I. Lucas, V. de Manuel, Instituto Nacional de Técnica Aeroespacial (Spain); J. A. Plaza, M. Duch, J. Esteve, Ctr. Nacional de Microelectrónica (Spain); H. Guerrero, Instituto Nacional de Técnica Aeroespacial (Spain) [6589-12]

17.00: **Presentation of silicon platforms for wireless advanced networks of sensors for aeronautics application**, K. Moreau, V. Rouet, R. Cedric, P. Benoit, R. Sebastien, EADS-CCR (France) [6589-13]

17.20: **Novel low-power fluxgate sensor using a macroscale optimisation technique for space physics instrumentation**, G. Dekoulis, F. Honary, Lancaster Univ. (United Kingdom) [6589-14]

17.40: **Investigation on the passivation of thin film flow sensors on flexible substrates**, U. Schmid, A. Ababneh, H. Seidel, Saarland Univ. (Germany); R. Wagner, K. Bauer, EADS Deutschland GmbH (Germany) [6589-15]

Thursday 3 May**SESSION 5****Room: Meloneras Thurs. 10.00 to 11.20****Physical Sensors***Chairs: Ulrich Schmid*, Saarland Univ. (Germany); *Jeong-Bong Lee*, The Univ. of Texas at Dallas (USA)10.00: **Tuning fork gyro with compensated imbalance signal**, E. Arnold, F. Nuscheler, EADS Deutschland GmbH (Germany) [6589-16]10.20: **Low-power sigma-delta interface for micromachined gyroscopes**, M. Dienger, HSG-IMIT (Germany); T. Northemann, Rofin-Sinar Laser GmbH (Germany); Y. Manoli, Albert-Ludwigs-Univ. Freiburg (Germany) [6589-17]10.40: **New micromachined sensor system for tactile measurements of high-aspect ratio microstructures**, M. Balke, E. Peiner, Technische Univ. Braunschweig (Germany); L. Doering, Physikalisch-Technische Bundesanstalt (Germany) [6589-18]11.00: **Searching for hypothetical forces in the Casimir regime using a MEMS based force sensor**, R. S. Decca, Indiana Univ.-Purdue Univ. Indianapolis (USA) [6589-19]

Coffee Break 11.20 to 11.40

SESSION 6**Room: Meloneras Thurs. 11.40 to 13.00****Smart System Integration***Chairs: Griet van Caenegem*, European Commission Directorate-General for Research (Belgium); *Carles Cané*, Ctr. Nacional de Microelectrónica (Spain)11.40: **Fabrication process for a flexible tag microlab**, E. Abad, Fundación TEKNIKER (Spain); B. Mazzolai, Scuola Superiore Sant'Anna (Italy); A. Juarros, D. Gomez, Fundación TEKNIKER (Spain); A. Mondini, Scuola Superiore Sant'Anna (Italy); I. Sayhan, A. Krenkow, T. Becker, EADS Deutschland GmbH (Germany) [6589-20]12.00: **Ultra-low-power electronics and devices for a multisensing RFID tag**, S. Zampolli, I. Elmi, G. C. Cardinali, Consiglio Nazionale delle Ricerche (Italy); A. Scorzoni, M. Cicioni, Univ. degli Studi di Perugia (Italy); S. Marco, F. Palacio, J. M. Gómez-Cama, Univ. de Barcelona (Spain); I. Sayhan, T. Becker, EADS Deutschland GmbH (Germany) [6589-21]12.20: **RFID reader with gas sensing capability for monitoring fruit along the logistic chain: array development and signal processing**, E. Llobet, Sr., A. Vergara, Rovira i Virgili Univ. (Spain); S. Zampolli, Consiglio Nazionale delle Ricerche (Italy); T. Becker, EADS Deutschland GmbH (Germany); L. Fonseca, Ctr. Nacional de Microelectrónica (Spain) [6589-22]12.40: **Design of all-plastic distributed pressure sensors based on electroactive materials**, E. Ochoteco, J. A. Pomposo, H. Maccior, Ctr. de Tecnologías Electroquímicas (Spain); F. Martinez, G. Obieta, IKERLAN (Spain); H. Grande, Ctr. de Tecnologías Electroquímicas (Spain) [6589-23]

Lunch Break 13.00 to 15.00

SESSION 7**Room: Meloneras Thurs. 15.00 to 16.20****Fabrication and Process Technology***Chairs: Katia M. Grenier*, LAAS-CNRS (France); *Ulrich Schmid*, Saarland Univ. (Germany)15.00: **Two-dimensional MEMS array for maskless lithography and wavefront modulation (Invited Paper)**, O. D. Lopez, Lucent Technologies/Bell Labs. (USA) [6589-24]15.40: **Plasma-activated wafer bonding: the new low-temperature tool for MEMS fabrication**, V. Dragol, G. Mittendorfer, P. Lindner, EV Group E. Thallner GmbH (Austria) [6589-25]16.00: **Influence of varying sputter deposition conditions on the wet chemical etch rate of AlN thin films**, A. Ababneh, H. Seidel, U. Schmid, Hochschule für Technik und Wirtschaft des Saarlandes (Germany) [6589-26]**✓ Posters-Thursday***All registered symposium attendees are invited to attend the interactive poster session and reception. Posters will be on display after 11.40 Thursday morning in the conference area hallway. An interactive poster session and reception with authors present will be held on Thursday 16.20 to 18.00. Light refreshments will be served.*✓ **Development of peristaltic antithrombotic micropumps for in-vitro and ex-vivo blood transportation tests**, Y. Hsu, S. Lin, Southern Taiwan Univ. of Technology (Taiwan); C. Hou, Chi-Mei Foundation Medical Ctr. (Taiwan); L. Jang, National Cheng Kung Univ. (Taiwan) [6589-42]✓ **Bismuth-coated microelectrode array for heavy metals determination**, V. Rehacek, I. Hotovy, M. Vojs, Slovenska Technicka Univ. (Slovak Republic) [6589-43]✓ **Novel lab chip with amorphous thin film diodes used for highly selective and sensitive electrochemiluminescence detection of Hg²⁺ ions in aqueous solution**, H. Schäfer, H. Lin, M. Schmittl, M. Böhm, Univ. Siegen (Germany) [6589-44]✓ **Gamma radiation sensing properties of In₂O₃:ZnO:SnO₂ thin films**, K. I. Arshak, O. Korostynska, G. Hickey, Univ. of Limerick (Ireland) [6589-45]✓ **Quartz crystal nano-balance for hydrogen sensing at room temperature using carbon nanotubes aggregates**, L. Massimiliano, F. Toschi, S. Orlanducci, E. Tamburri, M. L. Terranova, Univ. degli Studi di Roma/Tor Vergata (Italy) [6589-46]✓ **VHDL Implementation of a communication interface for integrated MEMS**, E. Magdaleno, M. Rodríguez-Valido, A. J. Ayala-Alfonso, Univ. de La Laguna (Spain) [6589-47]✓ **Modelling and simulation of a micromachined angular rate sensor with optimised mechanical suspension**, A. Kulygin, M. Gergen, U. Schmid, H. Seidel, Hochschule für Technik und Wirtschaft des Saarlandes (Germany) [6589-48]✓ **Laser vibrometry and impedance characterization of self-sensing piezoelectric microcantilevers**, P. Sanz-Gonzalez, J. Hernandez, J. Vazquez, J. L. Sanchez-Rojas, Univ. de Castilla-La Mancha (Spain)[6589-49]✓ **Design and development of a microheater on GaAs for MEMS gas sensor array**, I. Hotovy, V. Rehacek, Slovenska Technicka Univ. (Slovak Republic); T. Lalinsky, S. Hascik, Institute of Electrical Engineering (Slovak Republic) [6589-50]✓ **Alternative system for mycotoxin detection based on amorphous silicon sensors**, D. Caputo, G. de Cesare, C. Fanelli, A. Nascetti, Univ. degli Studi di Roma/La Sapienza (Italy); A. Ricelli, Consiglio Nazionale delle Ricerche (Italy); R. Scipinotti, Univ. degli Studi di Roma/La Sapienza (Italy) [6589-51]✓ **Pulse voltammetry wine defects identification by means of miniaturized microelectrodes**, L. Francioso, Consiglio Nazionale delle Ricerche (Italy); R. Bjorklund, C. Ulrich, Linköpings Univ. (Sweden); P. Siciliano, Consiglio Nazionale delle Ricerche (Italy) [6589-52]✓ **SPICE modelling of a precise two-directional MOSFET magnetic field sensor**, A. Abou-Elmour, Ajman Univ. of Science & Technology Network (United Arab Emirates) [6589-53]✓ **Development of an automated microrobot station for nanocharacterization**, S. Fatikow, V. Eichhorn, F. Krohs, C. Stolle, S. Hagemann, Univ. of Oldenburg (Germany) [6589-54]✓ **Mixed metal oxide films as pH sensing materials**, K. I. Arshak, E. Gill, A. Arshak, O. Korostynska, Univ. of Limerick (Ireland) [6589-55]✓ **Development of a miniaturised electronic tongue system for wine defects identification**, G. M. Verrelli, Univ. degli Studi di Roma/Tor Vergata (Italy); L. Francioso, Consiglio Nazionale delle Ricerche (Italy); R. Paolesse, Univ. degli Studi di Roma/Tor Vergata (Italy); P. Siciliano, Consiglio Nazionale delle Ricerche (Italy); C. Di Natale, A. D'Amico, Univ. degli Studi di Roma/Tor Vergata (Italy) [6589-56]✓ **Consideration of wafer level micropackaging for the distributed RF MEMS phase shifters**, X. He, Harbin Univ. of Science and Technology (China) [6589-57]✓ **Silicon cantilever sensor for micro-/nanoscale dimension and force metrology**, E. Peiner, Technische Univ. Braunschweig (Germany); L. Doering, Physikalisch-Technische Bundesanstalt (Germany); M. Balke, Technische Univ. Braunschweig (Germany); A. Christ, Martin-Luther Univ. Halle-Wittenberg (Germany) [6589-58]✓ **Feedback loops with magnetically-driven microcantilevers**, J. Malo, J. Izpura, Univ. Politécnica de Madrid (Spain) [6589-59]✓ **Micro- and nanotechnologies for the development of an integrated chromatographic system**, A. Romano-Rodríguez, X. Illa, O. Casals, C. Zamani, A. Vila, J. R. Morante, Univ. de Barcelona (Spain); P. Ivanov, I. Gracia, C. Cane, E. Figueras, N. Sabate, J. Santander, Ctr. Nacional de Microelectrónica (Spain) [6589-60]

- ✓ **Simulation and experiment on ST-cut quartz saw delay line response**, Y. Hsu, Southern Taiwan Univ. of Technology (Taiwan); L. Jang, National Cheng Kung Univ. (Taiwan); N. Le, Southern Taiwan Univ. of Technology (Taiwan); S. Hsun, National Cheng Kung Univ. (Taiwan) [6589-61]
- ✓ **Acid etched micro-cavities in optical fibres**, G. F. Fernando, The Univ. of Birmingham (United Kingdom) [6589-62]
- ✓ **A domotic application for educational tasks**, S. Alayón, C. González, Y. Vargas, L. Hernández, Univ. de La Laguna (Spain) [6589-63]
- ✓ **Microfluidic chamber with acoustic actuation by LiNbO3 interdigital transducers for tumor cell investigations**, M. Gruber, R. Heming, FernUniv. in Hagen (Germany); E. Schnäker, Univ. Münster (Germany) [6589-64]

Friday 4 May

SESSION 8

Room: Meloneras Fri. 10.00 to 11.20

RF MEMS

Chairs: **Klas Hjort**, Uppsala Univ. (Sweden); **Pietro Siciliano**, Consiglio Nazionale delle Ricerche (Italy)

- 10.00: **Temperature stress impact on power RF MEMS switches**, C. Bordas, Ctr. National de la Recherche Scientifique (France) [6589-27]
- 10.20: **Inductively coupled MEMS-based micro RFID transponder**, J. Lee, H. Lu, The Univ. of Texas at Dallas (USA); C. L. Goldsmith, MEMtronics Corp. (USA) [6589-28]
- 10.40: **Germanium as an integrated resistor material in RF MEMS switches**, K. M. Grenier, C. Bordas, S. Pinaud, L. Salvagnac, D. Dubuc, R. Plana, Ctr. National de la Recherche Scientifique (France) [6589-29]
- 11.00: **Metal-to-metal contact RF MEMS switch towards handsets applications**, T. Vähä-Heikkilä, P. Rantakari, VTT Technical Research Ctr. of Finland (Finland) [6589-30]
- Coffee Break 11.20 to 11.40

SESSION 9

Room: Meloneras Fri. 11.40 to 13.00

Chemical- and Bio-Sensors

Chairs: **Jeong-Bong Lee**, The Univ. of Texas at Dallas (USA); **Christos Tsamis**, National Ctr. for Scientific Research (Greece)

- 11.40: **Innovative JFET type bio-nanotransistor for electrical DNA sensing**, G. Faglia, C. Baratto, Univ. degli Studi di Brescia (Italy); G. Andreano, Istituto di Cristallografia (Italy); A. Flamini, Istituto di Struttura della Materia (Italy); G. Marrazza, Univ. degli Studi di Firenze (Italy); A. Nannini, Univ. degli Studi di Pisa (Italy); E. Comini, M. Ferroni, Univ. degli Studi di Brescia (Italy); L. Cellai, Istituto di Cristallografia (Italy); G. Pennelli, M. Piotto, Univ. degli Studi di Pisa (Italy); G. Sberveglieri, Univ. degli Studi di Brescia (Italy) [6589-31]
- 12.00: **Detection of unburned fuel as contaminant in engine oil by a gas microsensor array**, S. Capone, M. Epifani, L. Francioso, D. S. Presicce, P. Siciliano, M. Zuppa, Consiglio Nazionale delle Ricerche (Italy) [6589-32]
- 12.20: **Nano- and micro-stripe-based metal oxide thin film gas sensors**, J. Wöllenstein, Fraunhofer-Institut für Physikalische Messtechnik (Germany); F. Hernandez Ramirez, Univ. de Barcelona (Spain); E. Moretton, S. Palzer, Fraunhofer-Institut für Physikalische Messtechnik (Germany); J. R. Morante, A. Romano-Rodriguez, Univ. de Barcelona (Spain) [6589-33]
- 12.40: **Nanofabrication of TiO₂ nanowires: I-V characteristic and improvement of metal oxides gas sensing properties**, L. Francioso, A. Forleo, A. M. Taurino, P. Siciliano, Consiglio Nazionale delle Ricerche (Italy) [6589-34]
- Lunch Break 13.00 to 15.00

SESSION 10

Room: Meloneras Fri. 15.00 to 16.20

Bio-MEMS and Actuators

Chairs: **Guido Faglia**, Univ. degli Studi di Brescia (Italy); **Jürgen Wöllenstein**, Fraunhofer-Institut für Physikalische Messtechnik (Germany)

- 15.00: **The "MicroActive" project: automatic detection of disease-related molecular cell activity (Invited Paper)**, L. Furuberg, SINTEF Microsystems and Nanotechnology (Norway) [6589-35]
- 15.40: **TiNi shape memory thin films based microcage for biopsy applications**, Y. Fu, Univ. of Cambridge (United Kingdom) [6589-36]
- 16.00: **SMA micro actuators for active shape control, handling technologies and medical applications**, M. Leester-Schädel, B. Hoxhold, S. Demming, S. Büttgenbach, Technische Univ. Braunschweig (Germany) [6589-37]
- Coffee Break 16.20 to 16.40

SESSION 11

Room: Meloneras Fri. 16.40 to 18.00

Materials and Simulation

Chairs: **N. Scott Barker**, Univ. of Virginia (USA); **Thomas Becker**, EADS Deutschland GmbH (Germany)

- 16.40: **Study of influence of nanosized palladium clusters at the surface of SnO₂ thin films on the gas response**, J. Wöllenstein, Fraunhofer-Institut für Physikalische Messtechnik (Germany); C. Yin, B. von Issendorf, Albert-Ludwigs-Univ. Freiburg (Germany); S. Palzer, Fraunhofer-Institut für Physikalische Messtechnik (Germany) [6589-38]
- 17.00: **Anomalous temperature dependence of resistance for FIB deposited platinum**, J. Teng, C. Anthony, P. D. Prewett, M. Ward, The Univ. of Birmingham (United Kingdom) [6589-39]
- 17.20: **Three-dimensional simulation of sacrificial etching**, J. Cervenka, H. Ceric, S. Selberherr, Technische Univ. Wien (Austria) [6589-40]
- 17.40: **Application of PZT thick films for kinematics for adjusting purposes in micro-optical-systems**, C. Bruchmann, T. Peschel, W. Buss, B. Höfer, P. Schreiber, Fraunhofer Institut für Angewandte Optik und Feinmechanik (Germany); A. Tünnermann, Fraunhofer Institut für Angewandte Optik und Feinmechanik (Germany) and Friedrich-Schiller-Univ. (Germany); R. Eberhardt, E. Beckert, Fraunhofer Institut für Angewandte Optik und Feinmechanik (Germany) [6589-41]

SPIEDigital
Library

Research driving technological innovation

spiedl.org

VLSI Circuits and Systems

Conference Chair: **Valentín de Armas Sosa**, Univ. de Las Palmas de Gran Canaria (Spain)

Cochairs: **Kamran Eshraghian**, Eshraghian Labs. Pty Ltd. (Australia); **Félix B. Tobajas**, Univ. de Las Palmas de Gran Canaria (Spain)

Programme Committee: **Said F. Al-Sarawi**, The Univ. of Adelaide (Australia); **Sebastián A. Bota**, Univ. de les Illes Balears (Spain); **Massimo Conti**, Univ. Politecnica delle Marche (Italy); **Francisco V. Fernández**, IMSE-CNM-CSIC and Univ. de Sevilla (Spain); **Paul D. Franzon**, North Carolina State Univ. (USA); **Eby G. Friedman**, Univ. of Rochester (USA); **Helmut Graeb**, Technische Univ. München (Germany); **Dake Liu**, Linköping Univ. (Sweden); **Sebastián López Suárez**, Univ. de Las Palmas de Gran Canaria (Spain); **Antonio López-Martín**, Univ. Publica de Navarra (Spain); **Marie-Minerve Louerat**, Univ. Paris VI (France); **Gustavo Marrero Callico**, Univ. de Las Palmas de Gran Canaria (Spain); **Salvador Mir**, TIMA Lab. (France); **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain); **Massoud Pedram**, Univ. of Southern California (USA); **Belén Pérez-Verdú**, IMSE-CNM-CSIC (Spain); **Hans-Jörg Pfeleiderer**, Univ. Ulm (Germany); **Teresa Riesgo-Alcaide**, Univ. Politécnica de Madrid (Spain); **Josep Samitier-Martí**, Univ. de Barcelona (Spain); **César Sanz**, Univ. Politécnica de Madrid (Spain); **Sachin Sapatnekar**, Univ. of Minnesota (USA); **Javier Jose Seiro**, Univ. de Barcelona (Spain); **Walter Stechele**, Technische Univ. München (Germany)

Wednesday 2 May

Opening Remarks 9.55 to 10.00

Valentin de Armas, Univ. de Las Palmas de Gran Canaria (Spain)

SESSION 1

Room: Maspalomas 3 Wed. 10.00 to 11.20

Digital Design Methodologies and Tools

Chairs: **César Sanz**, Univ. Politécnica de Madrid (Spain); **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain)

10.00: **High-level power estimation for digital system (Invited Paper)**, Y. A. Durrani, A. Abril, T. Riesgo, Univ. Politécnica de Madrid (Spain) [6590-01]

10.40: **Partitioning and characterization of high speed adder structures in deep-submicron technologies**, A. Estrada, Ctr. Nacional de Microelectrónica (Spain) and Univ. de Sevilla (Spain); C. J. Jiménez, M. Valencia, Univ. de Sevilla (Spain) [6590-02]

11.00: **Power-driven FPGA to ASIC conversion**, W. Fang, L. Spaanenburg, Lund Univ. (Sweden) [6590-04]

Coffee Break 11.20 to 11.40

SESSION 2

Room: Maspalomas 3 Wed. 11.40 to 13.00

Multimedia I

Chairs: **Sebastián López Suárez**, Univ. de Las Palmas de Gran Canaria (Spain); **César Sanz**, Univ. Politécnica de Madrid (Spain)

11.40: **Low-cost VLSI architecture design for forward quantization of H.264/AVC**, G. A. Ruiz, J. A. Michell, Univ. de Cantabria (Spain) [6590-05]

12.00: **Towards the implementation of a baseline H.264/AVC decoder onto a reconfigurable architecture**, S. López, Univ. de Las Palmas de Gran Canaria (Spain); A. Kanstein, Freescale Semiconductor, Inc. (France); J. F. López, Univ. de Las Palmas de Gran Canaria (Spain); M. Berekovic, IMEC (Belgium); R. Sarmiento, Univ. de Las Palmas de Gran Canaria (Spain); J. Mignolet, IMEC (Belgium) [6590-06]

12.20: **Accelerating of a MPEG-4 video decoder through custom software/hardware co-design**, J. Díaz, D. Barreto, L. García, G. Marrero, P. P. Carballo, A. Núñez, Univ. de Las Palmas de Gran Canaria (Spain) [6590-07]

12.40: **Optimizing coarse-grain reconfigurable hardware utilization through multiprocessing: An H.264/AVC decoder example**, A. Kanstein, Freescale Semiconductor, Inc. (France); S. López Suárez, Univ. de Las Palmas de Gran Canaria (Spain); B. De Sutter, IMEC (Belgium) [6590-08]

Lunch Break 13.00 to 15.00

SESSION 3

Room: Maspalomas 3 Wed. 15.00 to 16.20

Analog Circuits I

Chairs: **Salvador Mir**, TIMA Lab. (France); **Antonio Hernández**, Univ. de Las Palmas de Gran Canaria (Spain)

15.00: **Low-Voltage, low-power reference circuits for an autonomous robot: I-SWARM**, J. Colomer, A. Saiz-Vela, P. L. Miribel-Catala, M. Puig-Vidal, J. Samitier-Martí, Univ. de Barcelona (Spain) [6590-09]

15.20: **Low-Voltage CMOS variable preamplifier for fiber-based gigabit ethernet**, J. M. Garcia del Pozo, S. Celma, C. Aldea, J. P. Alegre, Univ. de Zaragoza (Spain) [6590-10]

15.40: **Design of clock recovery circuits for optical clocking in DSM CMOS**, C. V. K. Thangaraj, K. Stephenson, T. W. Chen, K. L. Lear, A. M. Raza, Colorado State Univ. (USA) [6590-11]

16.00: **Study of mismatch in adaptive Programmable CMOS sensor compensation circuits**, G. Zatorre-Navarro, Teltronic, S.A.U. (Spain); N. Medrano-Marques, M. T. Sanz-Pascual, P. A. Martínez-Martínez, S. Celma-Pueyo, Univ. de Zaragoza (Spain) [6590-12]

Coffee Break 16.20 to 16.40

Sessions 4a and 4b run concurrently

SESSION 4a

Room: Maspalomas 3 Wed. 16.40 to 18.00

FPGAs

Chairs: **Hans-Joerg Pfeleiderer**, Univ. Ulm (Germany); **Roberto Sarmiento Rodríguez**, Univ. de Las Palmas de Gran Canaria (Spain)

16.40: **Architectural design for a low-cost FPGA-based traffic signal detection system in vehicles**, I. López, R. Salvador, J. Alarcón, F. Moreno, Univ. Politécnica de Madrid (Spain) [6590-13]

17.00: **Hand veins feature extraction using DT-CNNS**, S. Malki, L. Spaanenburg, Lund Univ. (Sweden) [6590-14]

17.20: **Real-time lane detector hardware system**, P. A. Cobos, Univ. Politécnica de Madrid (Spain) [6590-15]

17.40: **Embedded webserver based on FPGA for remote monitoring and controlling instrumentation systems**, M. Rodríguez-Valido, E. Magdaleno Castello, A. J. Ayala Alfonso, E. Enrique, Univ. de La Laguna (Spain) [6590-16]

SESSION 4b

Room: Maspalomas 5 Wed. 16.40 to 17.40

CAD

Chairs: **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain); **Kamran Eshraghian**, Eshraghian Labs. Pty Ltd. (Australia)

16.40: **Framework to support and guide the fabrication process development**, J. Popp, Cavendish Kinetics B.V. (Netherlands); T. Schmidt, Univ. Siegen (Germany); D. Orloff, S. Langenhuisen, Cavendish Kinetics B.V. (Netherlands) [6590-17]

17.00: **Exploring system interconnections architectures with VIPACES: from direct connection to NOCs**, A. Sánchez-Peña, P. P. Carballo, A. Núñez, Univ. de Las Palmas de Gran Canaria (Spain) [6590-18]

17.20: **Automatic synthesis of zero-aliasing space compactors with application to testing of embedded IP cores**, J. M. Solana, J. Frechoso, Univ. de Cantabria (Spain) [6590-19]

Thursday 3 May

SESSION 5

Room: Maspalomas 3 Thurs. 10.00 to 11.20

Analog and Mixed Signal Design Methodologies and Tools

Chairs: **Francisco V. Fernández**, Instituto de Microelectrónica de Sevilla (Spain); **Salvador Mir**, TIMA Lab. (France)

10.00: **Design automation techniques for high-resolution current folding and interpolating CMOS A/D converters**, D. M. Gevaert, IMEC-KHBO (Belgium) [6590-20]

10.20: **Towards systematic design of multistandard converters**, V. J. Rivas, A. Morgado, R. Castro-Lopez, E. Roca, R. del Río Fernández, J. M. de la Rosa, F. V. Fernández, Instituto de Microelectrónica de Sevilla (Spain) [6590-21]

10.40: **Crosscoupling power optimal wire spacing in quasilinear runtime**, P. Zuber, T. Ilseher, W. Stechele, Technische Univ. München (Germany)[6590-22]

11.00: **Methodology for switching noise estimation at gate level**, J. Castro, P. Parra, A. J. Acosta, Instituto de Microelectrónica de Sevilla (Spain) [6590-23]

Coffee Break 11.20 to 11.40

SESSION 6

Room: Maspalomas 3 Thurs. 11.40 to 13.00

Multimedia II

Chairs: **Gustavo Marrero**, Univ. de Las Palmas de Gran Canaria (Spain); **César Sanz**, Univ. Politécnica de Madrid (Spain)

11.40: **Multiformat decoder for a DSP-based IP set-top box**, F. Pescador, M. J. Garrido, C. Sanz, E. Juárez, D. Samper, R. Antoniello, Univ. Politécnica de Madrid (Spain) [6590-24]

12.00: **MPEG-4 ASP SoC receiver with novel image enhancement techniques for DAB networks**, D. Barreto, A. Quintana, L. Garcia, G. M. Callico, A. Nuñez, Univ. de Las Palmas de Gran Canaria (Spain) . . . [6590-25]

12.20: **High parallel pipeline integer-pel and fractional-pel motion estimation VLSI architecture for H.264/AVC**, A. Mora Campos, Instituto Tecnológico de Querétaro (Mexico); F. J. Ballester Merelo, M. A. Martínez Peiro, J. A. Canals Esteve, Univ. Politécnica de Valencia (Spain) [6590-26]

12.40: **H.264 video stream statistical analysis for post-compression improvements**, J. H. P. Casanova, F. J. Ballester Merelo, M. A. Martínez Peiró, J. C. Esteve, Univ. Politécnica de València (Spain) [6590-27]

Lunch Break 13.00 to 15.00

Sessions 7a and 7b run concurrently

SESSION 7a

Room: Maspalomas 3 Thurs. 15.00 to 16.00

Data Communication

Chairs: Roberto Sarmiento Rodríguez, Univ. de Las Palmas de Gran Canaria (Spain); *Dake Liu*, Linköping Univ. (Sweden)

15.00: **Implementation of a variable length packet scheduler with QoS support**, R. P. Arteaga Mesa, F. Tobajas, R. Esper-Chain, M. Monzón, R. Regidor, V. De Armas, R. Sarmiento, Univ. de Las Palmas de Gran Canaria (Spain) and Dipt. de Ingeniería Electrónica y Automática (Spain) ... [6590-28]

15.20: **Implementation of the transaction layer transmitter side of a compatible PCI express link**, P. Abreu-Luis, F. Tobajas Guerrero, V. de Armas Sosa, R. Sarmiento Rodríguez, Univ. de Las Palmas de Gran Canaria (Spain) [6590-29]

15.40: **Integrated hardware interfaces for modular sensor networks**, J. Portilla, A. Abril, Univ. Politécnica de Madrid (Spain); A. de Castro, Univ. Autónoma de Madrid (Spain); T. Riesgo, Univ. Politécnica de Madrid (Spain) [6590-30]

SESSION 7b

Room: Maspalomas 5 Thurs. 15.00 to 16.00

Analog Circuits II

Chairs: Kamran Eshraghian, Eshraghian Labs. Pty Ltd. (Australia); *Salvador Mir*, TIMA Lab. (France)

15.00: **Design of a 0.13-um CMOS expandable cascade sigma-delta modulator for multi-standard RF telecom systems**, A. Morgado, R. del Río Fernández, J. M. de la Rosa, Instituto de Microelectrónica de Sevilla (Spain) [6590-31]

15.20: **Design tool for high-resolution high-frequency cascade continuous-time sigma-delta modulators**, R. Tortosa, A. Aceituno, J. M. de la Rosa, F. V. Fernández, Instituto de Microelectrónica de Sevilla (Spain) [6590-32]

15.40: **Highly linear fast-settling envelope detector**, J. P. Alegre, S. Celma, J. M. García del Pozo, P. Martínez, Univ. de Zaragoza (Spain) [6590-33]

✓ Posters-Thursday

All registered symposium attendees are invited to attend the interactive poster session and reception. Posters will be on display after 11.40 Thursday morning in the conference area hallway. An interactive poster session and reception with authors present will be held on Thursday 16.20 to 18.00. Light refreshments will be served.

- ✓ **Ultra low-power-switched current finite impulse response filter banks realized in CMOS 0.18um technology**, R. Dlugosz, Univ. of Alberta (Canada) [6590-49]
- ✓ **Mixed analog-digital synchronous and asynchronous multiplexers for medical imaging realized in CMOS 0.18um technology**, R. Dlugosz, K. Iniewski, Univ. of Alberta (Canada) [6590-50]
- ✓ **Resizing methodology for CMOS analog circuits**, T. Levi, J. Tomas, N. Lewis, Univ. Bordeaux I (France) [6590-51]
- ✓ **IP-based design reuse for analogue systems: a case study**, T. Levi, J. Tomas, N. Lewis, Univ. Bordeaux I (France) [6590-52]
- ✓ **Study of stacked and miniature three-dimensional inductor performance for RF IC design**, A. Goñi Iturri, F. J. del Pino, S. L. Khemchandani, J. A. García, B. González, A. Hernández, Univ. de Las Palmas de Gran Canaria (Spain) [6590-53]
- ✓ **Fully integrated VCO with a wide tuning range for DVB-H**, S. L. Khemchandani, G. Betancort, J. d. P. Suarez, Univ. de Las Palmas de Gran Canaria (Spain); U. Alvarado, Ctr. de Estudios e Investigaciones Técnicas de Gipuzkoa (Spain); A. Goni-Iturri, A. Hernandez, Univ. de Las Palmas de Gran Canaria (Spain) [6590-54]
- ✓ **FPGA realization of a split radix FFT processor**, J. M. García, J. A. Michell, G. A. Ruiz, A. M. Burón, Univ. de Cantabria (Spain) [6590-55]
- ✓ **Fully integrated folded mixer in CMOS 0.35 um technology for 802.11a WIFI applications**, F. J. del Pino Suárez, R. Diaz Ortega, M. Afonso, F. Cabrera, A. Goñi Iturri, S. Lalchand Khemchandani, Univ. de Las Palmas de Gran Canaria (Spain) [6590-56]
- ✓ **Influence of the diffusion geometry on PN Integrated Varactors**, J. A. García, B. González, I. Aldea, M. Marrero-Martin, J. del Pino, A. Hernández, Univ. de Las Palmas de Gran Canaria (Spain) [6590-57]
- ✓ **Enhanced instrumentation system to characterize the electric behavior of AFLC displays**, J. M. Sánchez-Pena, J. I. Santos, J. C. Torres, N. Gaona, C. Vazquez, Univ. Carlos III de Madrid (Spain) [6590-58]
- ✓ **3-10 GHz ultrawide band SiGe LNA with wideband LC matching network**, J. d. P. Suárez, S. L. Khemchandani, H. G. Vázquez, R. P. Medina, A. G. Iturri, A. H. Ballester, Univ. de Las Palmas de Gran Canaria (Spain) [6590-59]
- ✓ **Automatic logic synthesis for parallel alternating latches clocking schemes**, D. Guerrero, M. J. Bellido, J. J. Chico, P. Ruiz, A. Millán, E. Ostúa, J. Viejo, Instituto de Microelectrónica de Sevilla (Spain) and Univ. de Sevilla (Spain) [6590-60]
- ✓ **Effects of buffer insertion on the average/peak power ratio in CMOS VLSI digital circuits**, A. J. Acosta, J. M. Mora, J. Castro, P. Parra, Instituto de Microelectrónica de Sevilla (Spain) [6590-61]
- ✓ **Improved performances CMOS Voltage references with superior-order curvature-correction techniques**, Cosmin Popa, Univ. Politehnica Bucharest (Romania), [6590-62]
- ✓ **Improved linearity CMOS active resistor using complementary computational blocks**, Cosmin Popa, Univ. Politehnica Bucharest (Romania), [6590-63]

- ✓ **Flexible and low-power binary tree current mode min/max nonlinear filters realized in CMOS technology**, R. Dlugosz, Univ. of Alberta (Canada); T. Talaska, Univ. of Technology and Agriculture (Poland) [6590-64]
- ✓ **HEAPAN: high-level computer architecture analysis tool**, D. Peñalosa, C. J. Jimenez, M. Valencia, Univ. de Sevilla (Spain) [6590-65]
- ✓ **Atmospheric wavefront phase recovery using FPGAs: correlation centroiding algorithm and Hudgin reconstructor**, J. J. Díaz García, L. F. Rodríguez-Ramos, Instituto de Astrofísica de Canarias (Spain); G. D. Sutter, Univ. Autónoma de Madrid (Spain); J. G. Marichal-Hernández, F. L. Rosa, J. M. Rodríguez-Ramos, Univ. de La Laguna (Spain) [6590-66]
- ✓ **Computational circuits using bulk-driven subthreshold-operated MOS devices**, C. R. Popa, Univ. Politehnica Bucuresti (Romania) [6590-67]

Friday 4 May

SESSION 8

Room: Maspalomas 3 Fri. 10.00 to 11.20

Circuit Design for RF Applications

Chairs: **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain); **Antonio Hernández**, Univ. de Las Palmas de Gran Canaria (Spain)

- 10.00: **Behavioral modeling and simulation of multi-standard RF receivers using MATLAB/SIMULINK**, A. Morgado, R. del Río Fernández, J. M. de la Rosa, Instituto de Microelectrónica de Sevilla (Spain) [6590-34]
- 10.20: **Low-power considerations and design for a CMOS VCO applied for direct conversion receivers at 5GHz**, I. Adin, C. Quemada, H. Solar, Ctr. de Estudios e Investigaciones Técnicas de Gipuzkoa (Spain); B. Sedano, I. Gutierrez, Univ. de Navarra (Spain) [6590-35]
- 10.40: **Test measurements evaluation for VCO and charge pump blocks in RF PLLs.**, A. Asquini, J. Carbonero, STMicroelectronics (France); S. Mir, TIMA Lab. (France) [6590-36]
- 11.00: **Low-Voltage fully-balanced CMFF transconductor with improved linearity**, B. Calvo, S. Celma, M. T. Sanz, Univ. de Zaragoza (Spain) [6590-37]
- Coffee Break 11.20 to 11.40

SESSION 9

Room: Maspalomas 3 Fri. 11.40 to 13.00

High Level Modelling and VLSI Arithmetic

Chairs: **Teresa Riesgo**, Univ. Politécnica de Madrid (Spain); **Antonio Núñez Ordóñez**, Univ. de Las Palmas de Gran Canaria (Spain)

- 11.40: **Powerline LonTalk protocol performance analysis in SystemC**, M. Conti, S. Orcioni, S. Isaia, G. Vece, Univ. Politecnica delle Marche (Italy) [6590-38]
- 12.00: **Mixed signal SystemC modelling of a SoC architecture with dynamic Voltage scaling**, M. Conti, G. Leoce, S. Orcioni, G. Biagetti, G. Vece, Univ. Politecnica delle Marche (Italy) [6590-39]
- 12.20: **Efficient hardware implementation of 3X for radix-8 encoding**, G. A. Ruiz, M. Granda, Univ. de Cantabria (Spain) [6590-40]
- 12.40: **Division for mobile computing applications**, V. Holimath, J. Bruguera, Univ. de Santiago de Compostela (Spain) [6590-41]
- Lunch Break 13.00 to 15.00

SESSION 10

Room: Maspalomas 3 Fri. 15.00 to 16.20

Systems and Network on a Chip

Chairs: **Dake Liu**, Linköping Univ. (Sweden); **Teresa Riesgo**, Univ. Politécnica de Madrid (Spain)

- 15.00: **Dynamic power management of an AMBA AHB system on a chip**, M. Conti, S. Marinelli, Univ. Politecnica delle Marche (Italy) [6590-42]
- 15.20: **Implementation of a parameterizable router architecture based on a novel routing algorithm**, R. Regidor, F. B. Tobajas, V. De Armas, J. M. Rivero, R. Sarmiento, Univ. de Las Palmas de Gran Canaria (Spain) and Dipt. de Ingeniería Electrónica y Automática (Spain) [6590-43]
- 15.40: **SoC for Study multi-agent software/algorithms on a real swarm of mm3-sized microrobots**, R. Casanova, A. Dieguez, A. Arbat, A. Sanuy, O. Alonso, J. Canals, M. Puig, J. Samitier, Univ. de Barcelona (Spain) .. [6590-44]
- 16.00: **New FPSoC-based architecture for efficient FSBM motion estimation processing in video standards.**, J. A. Canals Esteve, M. A. Martínez Peiró, F. J. Ballester Merelo, Univ. Politécnica de València (Spain); A. Mora Campos, Instituto Tecnológico de Querétaro (Mexico) [6590-45]
- Coffee Break 16.20 to 16.40

SESSION 11

Room: Maspalomas 3 Fri. 16.40 to 17.40

Technology

- Chairs:* **Antonio Hernández**, Univ. de Las Palmas de Gran Canaria (Spain); **Kamran Eshraghian**, Eshraghian Labs. Pty Ltd. (Australia)
- 16.40: **Electrical origin of the excess noise in solid-state devices and integrated circuits**, J. Izpura, Univ. Politécnica de Madrid (Spain) .. [6590-46]
- 17.00: **Stochastic model of digital switching noise**, G. Boselli, G. Trucco, V. Liberali, Univ. degli Studi di Milano (Italy) [6590-47]
- 17.20: **Analysis of the influence of the Temperature in the Delay of multiple-input CMOS gates**, C. De Benito, S. A. Bota, J. L. Rosselló, J. Segura, Univ. de les Illes Balears (Spain) [6590-48]

Nanotechnology

Conference Chair: **Fernando Briones**, IMM-CSIC (Spain)

Cochairs: **Carl V. Thompson**, Massachusetts Institute of Technology (USA); **Suzi Jarvis**, CRANN, National Univ. of Ireland/Dublin (Ireland)

Programme Committee: **Núria Barniol**, Univ. Autònoma de Barcelona (Spain); **Martin L. Bennink**, Univ. Twente (Netherlands); **Flemming Besenbacher**, Univ. of Aarhus (Denmark); **J. Colchero**, Univ. de Murcia (Spain); **Eugenio Coronado**, Univ. de València (Spain); **G. Faini**, L2M-CNRS (France); **Dino Fiorani**, Consiglio Nazionale delle Ricerche (Italy); **Asher A. Friesem**, Weizmann Institute of Science (Israel); **L. Gonzalez**, IMM-CSIC (Spain); **Costas P. Grigoropoulos**, Univ. of California/Berkeley (USA); **Heinrich Hofmann**, École Polytechnique Fédérale de Lausanne (Switzerland); **M. Luna**, IMM-CSIC (Spain); **Lars Montelius**, Lunds Univ. (Sweden); **Pablo Ordejón**, Consejo Superior de Investigaciones Científicas (Spain); **Fernando Palacio**, Consejo Superior de Investigaciones Científicas (Spain); **S. Penades**, IIQ-CSIC (Spain); **Jose Rivas**, Univ. de Santiago de Compostela (Spain); **Hartmut Rohrmann**, Unaxis Balzers AG (Liechtenstein); **Antonio Rubio**, Univ. Politècnica de Catalunya (Spain); **Juan J. Saenz**, Univ. Autónoma de Madrid (Spain); **Miguel Salmeron**, Lawrence Berkeley National Lab. (USA); **Richard W. Siegel**, Rensselaer Polytechnic Institute (USA); **Farhad Tavassoli**, Commissariat à l'Énergie Atomique (France); **E. Tronc**, Ctr. National de la Recherche Scientifique (France)

Wednesday 2 May

Opening Remarks 9.55 to 10.00

Fernando Briones, IMM-CSIC (Spain)

SESSION 1

Room: Maspalomas 2 Wed. 10.00 to 11.20

Nanofabrication I

Chair: **Suzi Jarvis**, Trinity College Dublin (Ireland)

10.00: **Fabrication process of 3D photonic crystals via UV nanoimprint lithography**, T. Glinsner, P. Lindner, EV Group (Austria); M. Mühlberger, I. Bermair, R. Schöftner, Profactor Produktionsforschungs GmbH (Austria); K. Hingerl, CD Lab. of Surface Optics (Austria) [6591-01]

10.20: **3D nanomanufacturing with femtosecond lasers and applications**, B. N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [6591-02]

10.40: **Maskless nonlinear direct-write femtosecond laser lithography**, J. Koch, E. Fadeeva, B. N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [6591-03]

11.00: **Functionalized nanowires from electrospun polymer nanofibers**, R. Valentin, Univ. de Puerto Rico Mayagüez (USA) [6591-04]

Coffee Break 11.20 to 11.40

SESSION 2

Room: Maspalomas 2 Wed. 11.40 to 13.00

Nanofabrication II

Chair: **Suzi Jarvis**, Trinity College Dublin (Ireland)

11.40: **Drilled dielectric membranes for highly resonant filtering in the infrared**, G. Vincent, ONERA (France) and Ctr. National de la Recherche Scientifique (France); S. S. Collin, Ctr. National de la Recherche Scientifique (France); R. Haidar, ONERA (France); A. Madouri, D. Chouteau, F. Pardo, J. Pelouard, Ctr. National de la Recherche Scientifique (France) [6591-05]

12.00: **Nanolithography on organic semiconductor films by atomic-force microscopy**, A. M. Song, J. Kingsley, C. Balocco, The Univ. of Manchester (United Kingdom) [6591-06]

12.20: **Functionalization of carbon nanotubes for field effect transistor biosensors**, M. J. Esplandiú, M. del Valle, E. Bellido, Univ. Autònoma de Barcelona (Spain) [6591-07]

12.40: **Ruthenium film grown by atomic layer deposition technique using Ru(CO)₃(C₆H₈) precursor**, Y. Song, S. Chung, H. Jang, Korea Polytechnic Univ. (South Korea) [6591-08]

Thursday 3 May

SESSION 3

Room: Maspalomas 2 Thurs. 10.00 to 11.20

Nanophotonics I

Chair: **Fernando Briones**, Ctr. Nacional de Microelectronica (Spain)

10.00: **Nonlinear optical properties of PECVD Si-nc under nanosecond excitation**, S. Hernández, P. Pellegrino, A. Martínez, Y. Lebour, G. Carles, S. Marcos, B. Garrido, Univ. de Barcelona (Spain); R. Spano, M. Cazzanelli, N. Daldosso, L. Pavesi, Univ. degli Studi di Trento (Italy); E. Jordana, J. M. Fedeli, Lab. d'Electronique de Technologie de l'Information (France) [6591-09]

10.20: **Defect density and lifetime in nitrogen-doped nanocrystalline and polycrystalline diamond**, M. C. Rossi, S. Salvatori, G. Conte, Univ. degli Studi di Roma Tre (Italy); V. G. Ralchenko, General Physics Institute (Russia) [6591-10]

10.40: **Charge transport in nanoscaled silicon-on-insulator devices**, F. J. Gamiz, A. Godoy, C. Sampedro, Univ. de Granada (Spain) [6591-11]

11.00: **Fundamentals of theory of cooperative spontaneous emission from two-level atom trapped in microcavity and optical Moessbauer effect**, V. F. Cheltsov, Moscow States Mining Univ. (Russia) [6591-12]

Coffee Break 11.20 to 11.40

SESSION 4

Room: Maspalomas 2 Thurs. 11.40 to 13.00

Nanophotonics II

Chair: **Fernando Briones**, Ctr. Nacional de Microelectronica (Spain)

11.40: **Silicon nanophotonics: light emission, wavelength-selective waveguiding and laser-induced thermal effects**, L. Khriachtchev, M. Räsänen, S. S. Novikov, Teknillinen Korkeakoulu (Finland) [6591-13]

12.00: **Sensitized NIR luminescence in dye-covered gold nanoparticles**, M. Montalti, Univ. degli Studi di Bologna (Italy) [6591-14]

12.20: **Temperature dependence of conductivity of single porous SnO₂ nanoribbon**, Y. Wang, I. Ramos, Univ. de Puerto Rico en Humacao (USA); J. J. Santiago-Aviles, Univ. of Pennsylvania (USA) [6591-15]

12.40: **Optical properties of GaN/AlGaIn quantum dot quantum dot (QDQD)**, A. Rostami, Univ. of Tabriz (Iran) [6591-16]

Conference 6591

✓ Posters-Thursday

All registered symposium attendees are invited to attend the interactive poster session and reception. Posters will be on display after 11.40 Thursday morning in the conference area hallway. An interactive poster session and reception with authors present will be held on Thursday 16.20 to 18.00. Light refreshments will be served.

- ✓ **Physical properties of magnetic semiconductors Fe, Cr,Sn and S**, D. A. Miles, Samarkand State Univ. (Uzbekistan) [6591-22]
- ✓ **Synthesis of diamond-like carbon films by pulsed laser deposition in a tiny vacuum chamber**, J. Eskusson, R. Jaaniso, E. Lust, Tartu Ülikool (Estonia) [6591-23]
- ✓ **Fabrication of nanostructured tungsten oxide using carbon nanotubes template in supercritical fluid for NOx sensing**, S. Wang, C. Liu, C. Wu, M. Liang, I-Shou Univ. (Taiwan) [6591-24]
- ✓ **Assembling x-ray sources by carbon nanotubes**, V. Sessa, Univ. degli Studi di Roma/Tor Vergata (Italy); M. Lucci, F. Toschi, S. Orlanducci, E. Tamburri, M. L. Terranova, Univ. degli Studi di Roma/Tor Vergata (Italy) and Interdisciplinary Micro and Nano-Structured Systems Lab. (Italy); A. Ciorba, Univ. degli Studi di Roma/La Sapienza (Italy); D. Hampai, G. Cappuccio, Consiglio Nazionale delle Ricerche (Italy) and INFN-LNF (Italy) . . . [6591-25]
- ✓ **Research of spacing stability of tunable F-P filter**, S. Shi, Shanghai Institute of Optics and Fine Mechanics (China) [6591-26]
- ✓ **Exciton-polariton in 1D resonant photonic crystals**, F. F. Ouerghi, Univ. El Manaur (Tunisia) [6591-27]

Friday 4 May

SESSION 5

Room: Maspalomas 2 Fri. 10.00 to 11.40

Nanochemistry

Chair: **Carl V. Thompson**, Massachusetts Institute of Technology (USA)

10.00: **PEEK-WC membranes b-CD functionalised for cholesterol solutions treatments**, A. Gordano, ITM-CNR (Italy); F. Trotta, Univ. degli Studi di Torino (Italy); E. Drioli, ITM-CNR (Italy) [6591-17]

10.20: **Electrospun tin oxide nanofibers for gas sensing applications**, G. Figueroa, N. Leon, A. Melendez, I. Ramos, N. J. Pinto, Univ. de Puerto Rico en Humacao (USA); J. J. Santiago-Aviles, Univ. of Pennsylvania (USA) . [6591-18]

10.40: **Electrochemical characterization of amperometric transducers based on carbon nanotubes**, M. J. Esplandiú, M. del Valle, M. Pacios, Univ. Autónoma de Barcelona (Spain) [6591-19]

11.00: **Mechanical dynamical analysis of ultra-thin resist film for microlithography applications**, C. Petitdidier, R. Tiron, C. Sourd, Commissariat à l'Energie Atomique (France); B. P. Mortini, STMicroelectronics (France) [6591-20]

11.20: **Determination of tetracycline residues in food using a disposable screen-printed gold electrode (SPGE)**, P. Masawat, Naresuan Univ. (Thailand) [6591-21]

SPIEDigital
Library

Research driving technological innovation

spiedl.org

Bioengineered and Bioinspired Systems

Conference Chair: **Paolo Arena**, Univ. di Catania (Italy)

Cochairs: **Gustavo Liñán-Cembrano**, Ctr. Nacional de Microelectrónica (Spain); **Ángel Rodríguez-Vázquez**, AnaFocus (Spain)

Programme Committee: **Andreas G. Andreou**, Johns Hopkins Univ. (USA); **Ricardo Carmona**, IMSE-CNM (CSIC-Univ. de Sevilla) (Spain); **Gert Cauwenberghs**, Johns Hopkins Univ. (USA); **Ralph E. Cummings**, Univ. of Maryland/College Park (USA); **Radu Dogaru**, Univ. Politehnica Bucuresti (Romania); **Antoine Dupret**, Univ. Paris-Sud XI (France); **Luigi Fortuna**, Univ. degli Studi di Catania (Italy); **Mattia Frasca**, DIEES Univ. of Catania (Italy); **Giacomo Indiveri**, ETH Zürich (Switzerland); **Pedro Julian**, Univ. Nacional del Sur (Argentina); **Laura M. Lechuga**, Ctr. Nacional de Microelectrónica (Spain); **Davide Lombardo**, DIEES Univ. of Catania (Italy); **Robert W. Newcomb**, Univ. of Maryland/College Park (USA); **Maciej J. Ogorzalek**, Univ. of Mining and Metallurgy (Poland); **Luca Patanè**, DIEES Univ. of Catania (Italy); **Csaba Rekeczky**, Computer and Automation Research Institute (Hungary); **Elisenda Roca**, IMSE-CNM-CSIC, Universidad de Sevilla (Spain); **Ramón Ruiz-Merino**, Univ. Politècnica de Cartagena (Spain); **Josep Samitier-Marti**, Univ. de Barcelona (Spain); **Luis Serrano**, Univ. Publica de Navarra (Spain); **Bertram Shi**, The Hong Kong Univ. of Science and Technology (Hong Kong China); **Tadashi Shibata**, The Univ. of Tokyo (Japan); **Tor Sverre Lande**, Univ. of Oslo (Norway); **Ronald Tetzlaff**, Johann Wolfgang Goethe-Univ. (Germany); **Maurizio Valle**, Univ. degli Studi di Genova (Italy); **Fernando Vidal**, Univ. de Málaga (Spain); **Mona E. Zaghloul**, The George Washington Univ. (USA)

Wednesday 2 May

Opening Remarks 9.55 to 10.00

Paolo Arena, Univ. di Catania (Italy)

SESSION 1

Room: Maspalomas 3 Wed. 10.00 to 11.20

Biosignal Processing

10.00: **Seizure prediction by delay-type single-layer discrete-time cellular nonlinear networks (DTCNN) (Invited Paper)**, C. Niederhöfer, R. Tetzlaff, Johann Wolfgang Goethe-Univ. (Germany) [6592-01]

10.40: **Low-noise, low-power EEG acquisition node for scalable brain-machine interfaces**, T. J. Sullivan, S. R. Deiss, Univ. of California/San Diego (USA); G. Cauwenberghs, Johns Hopkins Univ. (USA); T. Jung, Softmax, Inc. (USA) [6592-02]

11.00: **Classification of EMG signals through wavelet analysis and neural networks for controlling an active prosthesis for the hand**, G. C. Gini, M. Arveti, Politecnico di Milano (Italy) [6592-03]

Coffee Break 11.20 to 11.40

SESSION 2

Room: Maspalomas 3 Wed. 11.40 to 13.00

Address Event Representation

11.40: **Wireless address event representation system for biological sensor network (Invited Paper)**, R. Etienne-Cummings, Johns Hopkins Univ. (USA); J. Tapson, Univ. of Cape Town (South Africa) [6592-04]

12.20: **Address-event-based platform for bio-inspired spiking systems**, A. Jimenez-Fernandez, C. D. Lujan, A. Linares-Barranco, F. Gomez-Rodriguez, M. Rivas, G. Jimenez-Moreno, A. Civit-Balcells, Univ. de Sevilla (Spain) [6592-05]

12.40: **AER image filtering**, F. Gómez-Rodríguez, A. Linares-Barranco, R. Paz-Vicente, L. Miró-Amarante, G. Jimenez-Moreno, A. Civit-Balcells, Univ. de Sevilla (Spain) [6592-06]

Lunch Break 13.00 to 15.00

SESSION 3

Room: Maspalomas 3 Wed. 15.00 to 16.20

Bioinspired Architectures for Perception and Cognition

15.00: **Mental models for cognitive control (Invited Paper)**, M. Schilling, H. Cruse, J. Schmitz, Univ. Bielefeld (Germany) [6592-07]

15.40: **The WLC principle for action-oriented perception**, P. Arena, L. Fortuna, D. Lombardo, L. Patanè, Univ. di Catania (Italy); M. G. Velarde, Univ. Complutense de Madrid (Spain) [6592-08]

16.00: **Multisensory architectures for action-oriented perception**, P. Arena, Univ. di Catania (Italy); L. Alba, AnaFocus (Italy); S. S. De Fiore, Univ. di Catania (Italy); J. Listan, AnaFocus (Spain); L. Patanè, G. Scordino, Univ. di Catania (Italy); B. H. Webb, Univ. of Edinburgh (United Kingdom) [6592-09]

Coffee Break 16.20 to 16.40

SESSION 4

Room: Maspalomas 3 Wed. 16.40 to 18.00

Circuits and Systems for Biomedical Applications

16.40: **Mathematical model for localization and tracking of telemetry capsules using RSSI signals**, K. I. Arshak, F. Adepoju, Univ. of Limerick (Ireland) [6592-10]

17.00: **Combined fiber optical and thermal sensor for noninvasive monitoring of blood and human tissue**, V. A. Saetchnikov, E. A. Tcherniavskaja, Belarusian State Univ. (Belarus) [6592-11]

17.20: **Integrated circuit interface for artificial skins**, R. Maldonado-López, G. Liñán, Ctr. Nacional de Microelectrónica (Spain); F. Vidal-Verdú, Univ. de Malaga (Spain) [6592-12]

17.40: **In-vivo analysis of the dynamics of hemoglobine and derivative concentrations in blood**, V. A. Saetchnikov, E. A. Tcherniavskaja, Belarusian State Univ. (Belarus); G. O. Schiffner, Ruhr-Univ. Bochum (Germany) [6592-13]

Thursday 3 May

SESSION 5

Room: Maspalomas 3 Thurs. 10.00 to 11.20

Bioinspired Circuits and Systems

10.00: **Biomimetic micromechanical adaptive flow-sensor arrays (Invited Paper)**, G. J. M. Krijnen, A. Floris, M. Dijkstra, T. S. J. Lammerink, R. J. Wiegerink, Univ. Twente (Netherlands) [6592-16]

10.40: **Bio-inspired architecture approach for a one billion transistor smart CMOS camera chip**, D. Fey, M. Komann, Friedrich-Schiller-Univ. Jena (Germany) [6592-14]

11.00: **Some aspects of Amacrine neuron simulation for motion detection**, J. A. Martin-Pereda, A. P. Gonzalez-Marcos, Univ. Politècnica de Madrid (Spain) [6592-15]

Coffee Break 11.20 to 11.40

SESSION 6

Room: Maspalomas 3 Thurs. 11.40 to 13.00

Biorobotics I

11.40: **Sensory-motor neural loop discovering statistical dependences among imperfect sensory perception and motor response (Invited Paper)**, N. Castellanos, V. A. Makarov, Univ. Complutense de Madrid (Spain); L. Patane, Univ. di Catania (Italy); M. G. Velarde, Univ. Complutense de Madrid (Spain) [6592-19]

12.20: **STDP with adaptive synaptic delay for robot navigation control**, P. Arena, L. Patanè, Univ. di Catania (Italy); F. Distefano, S. Bucolo, O. Aiello, Scuola Superiore di Catania (Italy) [6592-17]

12.40: **Walking capabilities of Gregor controlled through Walknet**, L. Patanè, Univ. di Catania (Italy); M. Schilling, Univ. Bielefeld (Germany); P. Arena, Univ. di Catania (Italy); J. Schmitz, Univ. Bielefeld (Germany) [6592-18]

Lunch Break 13.00 to 15.00

SESSION 7

Room: Maspalomas 3 Thurs. 15.00 to 16.20

Biorobotics II

15.00: **Adaptive bio-inspired landmark identification for navigation control**, P. Arena, Univ. di Catania (Italy); H. Cruse, University of Bielefeld (Germany); L. Fortuna, D. Lombardo, L. Patanè, Univ. di Catania (Italy); R. Rapisarda, Scuola Superiore di Catania (Italy) [6592-22]

15.40: **Self-adjusting negative feedback joint controller for legs standing on moving substrates of unknown compliance**, A. Schneider, H. Cruse, B. Fischer, J. Schmitz, Univ. Bielefeld (Germany) [6592-20]

16.00: **Obstacle avoidance method for a redundant manipulator controlled through a recurrent neural network**, P. Arena, Univ. di Catania (Italy); H. Cruse, Univ. Bielefeld (Germany); L. Fortuna, L. Patanè, Univ. di Catania (Italy) [6592-21]

✓ Posters-Thursday

All registered symposium attendees are invited to attend the interactive poster session and reception. Posters will be on display after 11.40 Thursday morning in the conference area hallway. An interactive poster session and reception with authors present will be held on Thursday 16.20 to 18.00. Light refreshments will be served.

✓ **Chemical modification of porous silicon mirror for biosensing applications**, G. Palestino, Univ. Montpellier II (France); B. De la Mora, A. Del Río, Univ. Nacional Autónoma de México (Mexico); E. Pérez, Univ. Autónoma de San Luis Potosí (Mexico); C. Gergely, Univ. Montpellier II (France) [6592-33]

✓ **Medical implant surface functionalization with femtosecond laser pulses**, E. Fadeeva, J. Koch, B. N. Chichkov, Laser Zentrum Hannover e.V. (Germany) [6592-34]

✓ **Two-color amorphous silicon photodiode for multi-color detection of labeled DNA**, G. de Cesare, D. Caputo, A. Nascetti, R. Negri, R. Scipinotti, Univ. degli Studi di Roma/La Sapienza (Italy) [6592-35]

✓ **Novel method for accurate patterning and positioning of biological cells**, G. Jing, Lehigh Univ (USA); J. P. Labukas, A. Iqbal, S. F. Perry, G. S. Ferguson, S. Tatic-Lucic, Lehigh Univ. (USA) [6592-36]

✓ **Wireless transmission of photoplethysmographic signals by means of the bluetooth technology**, R. Erts, J. Spigulis, E. Kvišis, Latvijas Univ. (Latvia) [6592-37]

✓ **Functionalisation of semiconductors for biosensing applications**, E. Estéphan, Univ. Montpellier II (France); C. Larroque, Univ. Montpellier I (France); T. Cloitre, C. Gergely, Univ. Montpellier II (France) [6592-38]

✓ **Design, realization and testing of a SPR biosensing system for wine quality monitoring**, G. Spoto, Ctr. per la Ricerca Elettronica in Sicilia (Italy); C. Mamma, F. Tramuto, Univ. degli Studi di Palermo (Italy); G. Badalamenti, G. D'Arpa, D. La Manna, S. Maddiona, A. Piazza, G. Reginella, S. Sclafani, Ctr. per la Ricerca Elettronica in Sicilia (Italy) [6592-39]

✓ **Immobilization and characterization of the transmembrane ion channel peptide gramicidin in a sol-gel matrix**, C. R. Mateo, R. Esquembre, J. A. Poveda, R. M. Mallavia, Univ. Miguel Hernández de Elche (Spain) [6592-40]

✓ **Advanced micro- stereo- lithography for biological and medical applications**, M. Spitzbart, Univ. of Applied Sciences Wiener Neustadt (Austria); F. Suemecz, Technische Univ. Wien (Austria); M. Gross, Landesmuseum Joanneum (Austria) [6592-41]

✓ **Towards new fluorescent bioinspired sensors: interaction of poly(fluorene- phenylene) with phospholipids bilayers**, R. M. Mallavia, F. J. Paya, A. Salinas, A. Estepa, C. R. Mateo, Univ. Miguel Hernández de Elche (Spain) [6592-42]

✓ **Quality evaluation of blurred and noisy images through local entropy**, G. Cristóbal, S. Gabarda, Consejo Superior de Investigaciones Científicas (Spain) [6592-43]

✓ **Non-reference image fusion evaluation procedure based on mutual information and a generalized entropy measure**, G. Cristóbal, Consejo Superior de Investigaciones Científicas (Spain); R. Nava, B. Escalante-Ramirez, Univ. Nacional Autónoma de México (Mexico) [6592-44]

Friday 4 May

SESSION 8

Room: Maspalomas 3 Fri. 10.00 to 11.20

Circuit and Devices for Cell Analysis

10.00: **Design and simulation of interdigitated micro-electrode arrays for tumor cells separation and detection**, L. Lorenzelli, E. Morganti, C. Collini, R. Cunaccia, Istituto Trentino di Cultura (Italy) [6592-23]

10.20: **Nanoscale electrochemical probes for single cell analysis**, S. Bai, T. Fabian, F. Prinz, R. J. Fasching, Stanford Univ. (USA) [6592-24]

10.40: **Microfluidic device for exposing optically trapped cells to fast environmental changes**, E. Eriksson, J. Scrimgeour, E. Nordström, J. Enger, D. Hanstorp, M. Goksör, Göteborg Univ. (Sweden) [6592-25]

11.00: **Real-time monitoring system for microfluidics**, F. Sapuppo, G. Cantelli, L. Fortuna, P. Arena, M. Bucolo, Univ. degli Studi di Catania (Italy) [6592-26]

Coffee Break 11.20 to 11.40

SESSION 9

Room: Maspalomas 3 Fri. 11.40 to 13.00

Biosensors and Devices

11.40: **Production of miniaturized biosensors through laser-induced forward transfer**, J. M. Fernandez-Pradas, M. Duocastella, M. Colina, P. Serra, J. L. Morenza, Univ. de Barcelona (Spain) [6592-27]

12.00: **DNA sequence detection using water-soluble conjugated polymer/surfactant and peptide nucleic acid**, H. A. Al Attar, A. P. Monkman, Univ. of Durham (United Kingdom) [6592-28]

12.20: **Glucose oxidase characterization for the fabrication of hybrid microelectronic devices**, S. Libertino, M. Fichera, V. Aiello, S. A. Lombardo, Istituto per la Microelettronica e Microsistemi (Italy); F. Sinatra, M. Renis, Univ. degli Studi di Catania (Italy) [6592-29]

12.40: **Endoscopic probe for high speed optical coherence tomography**, A. Rizwan, The Univ. of Texas at Arlington (USA) [6592-30]

SESSION 10

Room: Maspalomas 3 Fri. 13.00 to 13.40

Smart Materials for Biomedicine

13.00: **Metallic nanowires on a new protein template**, L. Stanciu, S. Padalkar, J. Rochet, J. Hulleman, E. Stach, Purdue Univ. (USA) [6592-31]

13.20: **Selective functionalization of II-VI semiconductor quantum dots with peptides and integrins of cancer cells for biophotonic applications**, B. H. Bairamov, A.F. Ioffe Physico-Technical Institute (Russia) [6592-32]

Photonic Materials, Devices, and Applications

Conference Chair: **Ali Serpengüzel**, Koç Univ. (Turkey)

Cochairs: **Gonçal Badenes**, Institut de Ciències Fotòniques (Spain); **Giancarlo C. Righini**, Istituto di Fisica Applicata Nello Carrara (Italy)

Programme Committee: **Michael J. Adams**, Univ. of Essex (United Kingdom); **Roel G. Baets**, Univ. Gent (Belgium); **Pascal A. Baldi**, Univ. de Nice Sophia Antipolis (France); **Richard K. Chang**, Yale Univ. (USA); **Brian Culshaw**, Univ. of Strathclyde (United Kingdom); **Nadir Dagli**, Univ. of California/Santa Barbara (USA); **Richard M. De La Rue**, Univ. of Glasgow (United Kingdom); **G. Di Bartolo**, Boston College (USA); **Robert E. Fischer**, OPTICS 1, Inc. (USA); **F. Javier Garcia de Abajo**, Consejo Superior de Investigaciones Científicas (Spain); **Fenna D. Hanes**, New England Board of Higher Education (USA); **M. Saif Islam**, Univ. of California/Davis (USA); **Gershon Kurizki**, Weizmann Institute of Science (Israel); **El-Hang Lee**, Inha Univ. (South Korea); **Eric Mazur**, Harvard Univ. (USA); **Anna G. Mignani**, Istituto di Fisica Applicata Nello Carrara (Italy); **Manuel Nieto-Vesperinas**, Consejo Superior de Investigaciones Científicas (Spain); **Ekmel Özbay**, Bilkent Univ. (Turkey); **Roberto R. Panepucci**, Florida International Univ. (USA); **Lorenzo Pavesi**, Univ. degli Studi di Trento (Italy); **Valerio Pruneri**, Institut de Ciències Fotòniques (Spain); **Henri J. Rajbenbach**, European Commission (Belgium); **Manijeh Razeghi**, Northwestern Univ. (USA); **Ivo Rendina**, Istituto per la Microelettronica e Microsistemi (Italy); **PierMario Repetto**, Ctr. Ricerche Fiat (Italy); **Vahid Sandoghdar**, ETH Zürich (Switzerland); **Costas M. Soukoulis**, Iowa State Univ. (USA); **Hugo Thienpont**, Vrije Univ. Brussel (Belgium); **M. S. Unlu**, Boston Univ. (USA); **Niek F. van Hulst**, Institut de Ciències Fotòniques (Spain); **Claude Weisbuch**, Ecole Polytechnique (France)

Wednesday 2 May

Opening Remarks 9.55 to 10.00

Ali Serpengüzel, Koç Univ. (Turkey)

Sessions 1a and 1b run concurrently

SESSION 1a

Room: Faro Wed. 10.00 to 11.20

Nonlinear Optics in Nanophotonics

Chair: **Giancarlo C. Righini**, Istituto di Fisica Applicata Nello Carrara (Italy)

10.00: **Nonlinear optics at the nanoscale (Invited Paper)**, E. Mazur, Harvard University (USA) [6593-01]

10.40: **Ultra-stable 12x10 GHz pulsed comb generation based on supercontinuum in a highly nonlinear fibre**, P. Ghelfi, M. Scaffardi, C. Porzi, L. Poti, A. Bogoni, Scuola Superiore Sant'Anna (Italy) [6593-02]

11.00: **Second harmonic superprism effect in 2D nonlinear photonic crystals**, E. Centeno, F. Didier, Univ. Montpellier II (France) [6593-03]

Coffee Break 11.20 to 11.40

Sessions 2a and 2b run concurrently

SESSION 2a

Room: Faro Wed. 11.40 to 13.00

Silicon Photonics I

Chair: **Maurizio Ferrari**, Univ. degli Studi di Trento (Italy)

11.40: **Novel silicon nanophotonics devices (Invited Paper)**, L. Pavesi, Univ. degli Studi di Trento (Italy) [6593-07]

12.20: **Optical study of polymer infiltration into porous Si-based structures (Invited Paper)**, S. Cheylan, Institut de Ciències Fotòniques (Spain); F. Sychev, T. Murzina, M.V. Lomonosov Moscow State Univ. (Russia); R. Alcubilla, Univ. Politècnica de Catalunya (Spain); G. Badenes, Institut de Ciències Fotòniques (Spain) [6593-08]

Lunch Break 13.00 to 15.00

SESSION 1b

Room: Maspalomas 1 Wed. 10.00 to 11.20

Metamaterials

10.00: **Experimental demonstration of sub-wavelength imaging by left handed metamaterials (Invited Paper)**, E. Ozbay, Bilkent Univ. (Turkey) [6593-04]

10.40: **Negative refraction devices based on self-collimating photonic crystals**, P. Dardano, V. Mocella, Istituto per la Microelettronica e Microsistemi (Italy); L. Moretti, Univ. degli Studi Mediterranea di Reggio Calabria (Italy); I. Rendina, Istituto per la Microelettronica e Microsistemi (Italy) [6593-05]

11.00: **Wave propagation in self-waveguiding and negative refracting photonic crystals**, J. L. Garcia-Pomar, M. Nieto-Vesperinas, Consejo Superior de Investigaciones Científicas (Spain) [6593-06]

SESSION 2b

Room: Maspalomas 1 Wed. 11.40 to 13.00

Photonic Crystals I

11.40: **Playing with light in diatoms: small water organisms with a natural photonic crystal structure (Invited Paper)**, I. Rendina, L. De Stefano, Istituto per la Microelettronica e Microsistemi (Italy); M. De Stefano, P. Maddalena, Univ. degli Studi di Napoli Federico II (Italy); I. Rea, Istituto per la Microelettronica e Microsistemi (Italy); L. Moretti, Univ. degli Studi Mediterranea di Reggio Calabria (Italy) [6593-09]

12.20: **Quasiperiodic photonic bandgap materials of biologic origin: butterfly scales**, L. P. Biró, Muszaki Fizikai es Anyagtudományi Kutatóintézet (Hungary); Z. Bálint, Hungarian Natural History Museum (Hungary); K. Kertész, Z. Vértessy, G. I. Márk, L. Tapasztó, Muszaki Fizikai es Anyagtudományi Kutatóintézet (Hungary); V. M. P. Lousse, Stanford Univ. (USA); J. Vigneron, Facultes Univ. Notre Dame de la Paix (Belgium) [6593-10]

12.40: **Designing waveguides and microcavities in hybrid architectures based on direct and inverse opals**, K. Vynck, G. Qiu, D. Cassagne, E. Centeno, Univ. Montpellier II (France) [6593-11]

Sessions 3a and 3b run concurrently

SESSION 3a

Room: Faro Wed. 15.00 to 16.20

Biophotonics

Chair: Eric D. Mazur, Harvard Univ. (USA)

- 15.00: **Ultrashort laser pulses in cell biology and microscopy (Invited Paper)**, A. Heisterkamp, Laser Zentrum Hannover e.V. (Germany) . . [6593-12]
 15.40: **Predictive analysis of thermal distribution and damage in radiotherapy on biological tissue**, F. Fanjul-Vélez, J. L. Arce-Diego, Univ. de Cantabria (Spain) [6593-13]
 16.00: **Pulsed heating of the gold nanoparticles inhibits tumor growth**, B. Y. Kogan, Organic Intermediates and Dyes Institute (Russia); A. A. Pankratov, P.A. Hertsen Moscow Research Oncology Institute (Russia); A. V. Butenin, Organic Intermediates and Dyes Institute (Russia); N. G. Khlebtsov, Institute of Biochemistry and Physiology of Plants and Microorganisms (Russia); J. D. Zolotavkina, R. I. Yakubovskaya, P.A. Hertsen Moscow Research Oncology Institute (Russia); G. N. Vorozhtsov, Organic Intermediates and Dyes Institute (Russia) [6593-14]

Coffee Break 16.20 to 16.40

Sessions 4a and 4b run concurrently

SESSION 4a

Room: Faro Wed. 16.40 to 18.00

Nanoplasmonics

Chair: Lorenzo Pavesi, Univ. degli Studi di Trento (Italy)

- 16.40: **Addressing single molecules with resonant optical nano-antennas and femtosecond pulses (Invited Paper)**, N. F. van Hulst, Institut de Ciències Fotòniques (Spain) [6593-18]
 17.20: **Resonant photonic forces induced by light transmitted through nanoapertures (Invited Paper)**, L. Blanco, Instituto de Ciencia de Materiales de Madrid (Spain); M. Nieto-Vesperinas, Consejo Superior de Investigaciones Científicas (Spain) [6593-19]

SESSION 3b

Room: Maspalomas 1 Wed. 15.00 to 16.20

Photonic Crystals II

Chair: Ivo Rendina, Consiglio Nazionale delle Ricerche (Italy)

- 15.00: **Tunable one-dimensional photonic crystal slabs (Invited Paper)**, R. Beccherelli, B. Bellini, Consiglio Nazionale delle Ricerche (Italy); D. Zografopoulos, E. E. Kriezis, Aristotle Univ. of Thessaloniki (Greece) [6593-15]
 15.40: **Aperiodic photonic bandgap devices based on nanostructured porous silicon**, I. Rea, L. De Stefano, L. Rotiroli, L. Moretti, I. Rendina, Consiglio Nazionale delle Ricerche (Italy) [6593-16]
 16.00: **Conditions for designing single-mode air-core waveguides in three-dimensional photonic crystals**, V. M. P. Lousse, S. Fan, Stanford Univ. USA [6593-17]

SESSION 4b

Room: Maspalomas 1 Wed. 16.40 to 18.00

Whispering Gallery Mode Resonators I

Chair: Romeo Beccherelli, Consiglio Nazionale delle Ricerche (Italy)

- 16.40: **Nanophotonics with spherical microresonators (Invited Paper)**, O. Benson, A. Mazzei, Humboldt-Univ. zu Berlin (Germany); S. Gotzinger, ETH Zurich (Switzerland); L. de Souza Menezes, Univ. Federal de Pernambuco (Brazil); V. Sandoghdar, ETH Zurich (Switzerland) [6593-20]
 17.20: **Photon antibunching from a single quantum dot-microcavity system in the strong coupling regime (Invited Paper)**, S. J. Goetzinger, D. L. R. Press, Y. Yamamoto, Stanford Univ. (USA); S. Reitzenstein, C. Hofmann, A. Loeffler, M. Kamp, A. W. B. Forchel, Univ. Würzburg (Germany) [6593-21]

Thursday 3 May

Sessions 5a and 5b run concurrently

SESSION 5a

Room: Faro Thurs. 10.00 to 11.20

Whispering Gallery Mode Resonators II

Chair: Oliver Benson, Humboldt-Univ. zu Berlin (Germany)

- 10.00: **Analysis of phase-matched doubly resonant second-harmonic generation using whispering gallery mode (Invited Paper)**, P. Féron, Y. Dumeige, École Nationale Supérieure des Sciences Appliquées et de Technologie (France) [6593-22]
 10.40: **Plified spontaneous emission from a microtube cavity with whispering gallery modes**, Y. P. Rakovich, S. Balakrishnan, Y. K. Gun'ko, T. S. Perova, A. Moore, J. F. Donegan, The Univ. of Dublin, Trinity College (Ireland) [6593-23]
 11.00: **The operating characteristics of an optical near-field generator fabricated on laser diodes**, M. Fukuda, Y. Yamasaki, A. Oguma, A. Utsumi, N. Oota, Toyohashi Univ. of Technology (Japan) [6593-24]

Coffee Break 11.20 to 11.40

Sessions 6a and 6b run concurrently

SESSION 6a

Room: Faro Thurs. 11.40 to 13.00

Silicon Photonics II

Chair: Patrice Féron, École Nationale Supérieure des Sciences Appliquées et de Technologie (France)

- 11.40: **Silicon microsphere photonics**, A. Serpengüzel, Koç Univ. (Turkey) [6593-28]
 12.00: **Analysis of a planar silicon optoelectronic modulator based on the waveguide-vanishing effect**, G. Coppola, M. Iodice, I. Rendina, Istituto per la Microelettronica e Microsistemi (Italy) [6593-29]
 12.20: **Photonic Crystal (PhC) micro-cavity filters embedded in silicon-on-insulator (SOI) photonic wire waveguides (Invited Paper)**, M. Zain, Ahmad Univ. of Glasgow (United Kingdom); A. Samarelli, Politecnico di Bari (Italy) and Univ. of Glasgow (United Kingdom); M. Gnan, Univ. of Glasgow (United Kingdom); M. Sorel, Univ. of Glasgow (United Kingdom); M. Arsenise, Politecnico di Bari (Italy); C. Ciminelli, Politecnico di Bari (Italy); R. De La Rue, Univ. of Glasgow (United Kingdom) [6593-87]

SESSION 5b

Room: Maspalomas 1 Thurs. 10.00 to 11.20

Advanced Optical Fibres and Waveguides

Chair: Eric D. Mazur, Harvard Univ. (USA)

- 10.00: **Recent progress in the theory and applications of optical microfibers (Invited Paper)**, M. Sumetsky, OFS Fitel, LLC (USA) . . [6593-25]
 10.40: **Determination of the fiber birefringence induced by transversal loads by means of fiber Bragg gratings**, S. Bette, C. Caucheteur, Faculté Polytechnique de Mons (Belgium); R. Garcia Olcina, S. M. Sales, Univ. Politècnica de València (Spain); M. Wuilpart, Faculté Polytechnique de Mons (Belgium); J. Capmany, Univ. Politècnica de València (Spain); P. Mégret, Faculté Polytechnique de Mons (Belgium) [6593-26]
 11.00: **Optical switch using InP optical wire technology**, M. Lesecq, S. Maricot, C. Boyaval, M. François, Univ. of Lille I (France); C. Legrand, IUniv. of Lille I (France); M. Muller, J. Vilcot, Univ. of Lille I (France) [6593-27]

SESSION 6b

Room: Maspalomas 1 Thurs. 11.40 to 1300

Nanophotonics Materials and Devices I

Chair: Niek F. van Hulst, Institut de Ciències Fotòniques (Spain)

- 11.40: **Nanocomposite photonic glasses and confined structures optimizing Er³⁺ - luminescent properties (Invited Paper)**, M. Ferrari, C. Armellini, A. Chiappini, A. Chiasera, Y. Jestin, M. Mattarelli, Univ. degli Studi di Trento (Italy); L. Minati, ITC-IRST (Italy); M. Montagna, E. Moser, Univ. degli Studi di Trento (Italy); G. Nunzi Conti, Istituto di Fisica Applicata Nello Carrara (Italy) and Centro Fermi (Italy); S. Pelli, G. C. Righini, Istituto di Fisica Applicata Nello Carrara (Italy); G. Speranza, ITC-IRST (Italy); C. Tosello, Univ. degli Studi di Trento (Italy) [6593-30]
 12.20: **Stimulated emission and lightplification in Ho³⁺ doped oxyfluoride glasses and glass-ceramics**, F. Lahoz, N. E. Capuj, Univ. de La Laguna (Spain); D. Navarro-Urrios, Univ. degli Studi di Trento (Italy); S. E. Hernandez, Univ. de La Laguna (Spain) [6593-31]
 12.40: **Signal enhancement in Er³⁺ coupled to Si nanoclusters rib-waveguides**, D. Navarro-Urrios, N. Daldosso, L. Ferraioli, Univ. degli Studi di Trento (Italy); F. Gourbilleau, R. Rizk, Ecole Nationale Supérieure d'Ingenieurs de Caen and Ctr. de Recherche (France); P. Pellegrino, B. Garrido, Univ. de Barcelona (Spain); L. Pavesi, Univ. degli Studi di Trento (Italy) [6593-32]

Lunch Break 13.00 to 15.00

Sessions 7a and 7b run concurrently

SESSION 7a

Room: Faro Thurs. 15.00 to 16.20

Ring Resonators in DWDM

Chair: **Stephan J. Goetzinger**, Stanford Univ. (USA)

- 15.00: **Ring resonator with an internal Sagnac loop for dispersion compensation in DWDM backbone networks**, J. Montalvo, C. Vázquez, Univ. Carlos III de Madrid (Spain) [6593-33]
- 15.20: **Switches and tunable filters based on ring resonators and liquid crystals**, C. Vázquez, P. C. Lallana, J. Montalvo, J. M. Sánchez Pena, Univ. Carlos III de Madrid (Spain); A. D'Alessandro, D. Donisi, Univ. di Roma La Sapienza (Italy) [6593-34]
- 15.40: **All-optical tunable dispersion compensator using ring resonator and electromagnetically induced transparency**, A. Rostami, Univ. of Tabriz (Iran) [6593-35]
- 16.00: **New integrate all-optical high-resolution spectrum analyzer structure based on ring resonator applicable to DWDM networks**, A. Rostami, Univ. of Tabriz (Iran) [6593-36]

SESSION 7b

Room: Maspalomas 1 Thurs. 15.00 to 16.20

Nanophotonic Materials and Devices II

Chair: **Manuel Nieto-Vesperinas**, Consejo Superior de Investigaciones Científicas (Spain)

- 15.00: **Rare-earth doped transparent nano-glass-ceramics: a new generation of photonic integrated devices**, V. D. Rodríguez-Armas, Univ. de La Laguna (Spain); V. K. Tikhomirov, The Univ. of Nottingham (United Kingdom); J. Méndez-Ramos, A. C. Yanes, J. Del-Castillo, Univ. de La Laguna (Spain); D. Furniss, A. B. Seddon, The Univ. of Nottingham (United Kingdom) ... [6593-37]
- 15.20: **Light emission properties of undoped and erbium-doped nanostructured silica with SnO₂ nanoparticles**, A. Paleari, S. Brovelli, N. Chiodini, F. Meinardi, Univ. degli Studi di Milano-Bicocca (Italy) ... [6593-38]
- 15.40: **Metal nanocluster and sodalime glasses: an XPS characterization**, G. Speranza, L. Minati, ITC-IRST (Italy); A. Chiasera, M. Ferrari, Univ. degli Studi di Trento (Italy); G. Righini, Istituto di Fisica Applicata Nello Carrara (Italy) and CNR-IFAC (USA) [6593-39]
- 16.00: **Organic light-emitting diodes incorporating supported nanotemplates**, C. Rothe, C. Chiang, A. P. Monkman, Univ. of Durham (United Kingdom) [6593-40]

✓ Posters-Thursaday

All registered symposium attendees are invited to attend the interactive poster session and reception. Posters will be on display after 11.40 Thursday morning in the conference area hallway. An interactive poster session and reception with authors present will be held on Thursday 16.20 to 18.00. Light refreshments will be served.

- ✓ **Ultra-high-precision temperature sensor design based on two-port ring resonator**, A. Rostami, Univ. of Tabriz (Iran) [6593-66]
- ✓ **Study of the effects on the Raman spectra of adsorption strain in porous silicon**, M. A. Ferrara, Istituto per la Microelettronica e Microsistemi (Italy); M. G. Donato, Univ. degli Studi Mediterranea di Reggio Calabria (Italy); L. Sirloto, Istituto per la Microelettronica e Microsistemi (Italy); G. Messina, a. Santangelo, Univ. degli Studi Mediterranea di Reggio Calabria (Italy); L. Rotiroli, I. Rendina, Istituto per la Microelettronica e Microsistemi (Italy) [6593-67]
- ✓ **Uncertainties of THz-TDS**, W. Withayachumnankul, B. M. Fischer, S. Mickan, D. Abbott, The Univ. of Adelaide (Australia) [6593-68]
- ✓ **Electrochemical fluorescence for the study of light-emitting conjugated polymers**, F. Montilla, R. M. Mallavia, R. Mateo, Univ. Miguel Hernández de Elche (Spain) [6593-69]
- ✓ **Role of low temperatures and aging in the photoluminescence behaviour on porous silicon stain etched films**, B. González-Díaz, J. Méndez-Ramos, R. Guerrero-Lemus, V. D. Rodríguez-Armas, C. Hernández-Rodríguez, Univ. de La Laguna (Spain) [6593-70]
- ✓ **Effect of PEDOT:PSS ratio on the electrical and optical properties of OLEDs**, P. Vacca, ENEA (Italy); M. Petrosino, Univ. degli Studi di Salerno (Italy); R. Miscioscia, G. Nenna, C. Minarini, ENEA (Italy); A. Rubino, Univ. degli Studi di Salerno (Italy) [6593-71]
- ✓ **Effect of electrodes properties on OLEDs performances**, M. Petrosino, Univ. degli Studi di Salerno (Italy); P. Vacca, R. Miscioscia, G. Nenna, C. Minarini, ENEA (Italy); A. Rubino, Univ. degli Studi di Salerno (Italy) [6593-72]
- ✓ **Temperature dependence of liquid crystals electrical response by impedance analysis**, J. C. Torres Zafra, N. Gaona Barba, I. Perez Garcilopez, V. Urruchi del Pozo, J. M. Sanchez Pena, Univ. Carlos III de Madrid (Spain) [6593-73]
- ✓ **Conceptual design of an inexpensive POF demultiplexer**, U. H. P. Fischer, M. Haupt, Hochschule Harz (Germany) [6593-74]
- ✓ **Study of optical microcavities with electromagnetically induced transparency for developing new photonic devices**, J. L. Arce-Diego, F. Fanjul-Vélez, D. Pereda-Cubián, N. Ortega-Quijano, Univ. de Cantabria (Spain) [6593-75]

- ✓ **Post-etching shaping of macroporous silicon**, T. Trifonov, M. Garin, P. R. Ortega, Univ. Politècnica de Catalunya (Spain); L. F. Marsal, Rovira i Virgili Univ. (Spain); A. Rodríguez, R. Alcubilla, Univ. Politècnica de Catalunya (Spain) [6593-76]
- ✓ **Performances of resonant cavity enhanced photodetectors based on internal photoemission effect**, M. Casalino, Consiglio Nazionale delle Ricerche (Italy) and Università Mediterranea di Reggio Calabria (Italy); L. Sirloto, Consiglio Nazionale delle Ricerche (Italy); L. Moretti, Univ. degli Studi Mediterranea di Reggio Calabria (Italy); F. G. Della Corte, Univ. degli Studi Mediterranea di Reggio Calabria (Italy); I. Rendina, Consiglio Nazionale delle Ricerche - IMM (Italy) [6593-77]
- ✓ **Dense wavelength multiplexer photonic crystals using nonlinear effect**, W. Aroua, Faculty of Sciences of Tunis (Tunisia) [6593-78]
- ✓ **Laser-light materials processing with control of microstructure parameters**, Y. N. Bulkin, RFNC-VNIIEF (Russia); G. A. Turichin, Lavochkin Research and Production Association (Russia) [6593-79]
- ✓ **Ultrasensitive nanomechanical photonic microsensor**, C. A. Barrios, Univ. Politècnica de Madrid (Spain) [6593-80]
- ✓ **Current developments and applications using multi-beam laser interference lithography technology for nanoscale structuring of materials**, S. Su, Cardiff Univ. (United Kingdom); A. Rodríguez, S. M. Olaizola, Ctr. de Estudios e Investigaciones Técnicas de Gipuzkoa (Spain); C. Peng, Tampere Univ. of Technology (Finland); Y. K. Verevkin, Institute of Applied Physics (Russia); T. Berthou, S. Tisserand, Silios Technologies (France) [6593-81]
- ✓ **Nanoscale relief on quartz: from phase masks to antireflection structures**, Y. K. Verevkin, V. N. Petryakov, A. Y. Klimov, B. A. Gribkov, Institute of Applied Physics (Russia); S. M. Olaizola, Ctr. de Estudios e Investigaciones Técnicas de Gipuzkoa (Spain) [6593-82]
- ✓ **Formation of 4-beam laser interference patterns for nanolithography**, Z. Wang, J. Zhang, Cardiff Univ. (United Kingdom); Y. K. Verevkin, Institute of Applied Physics (Russia); S. M. Olaizola, Ctr. de Estudios e Investigaciones Técnicas de Gipuzkoa (Spain) [6593-83]
- ✓ **Optic fibre used as sensor to measure low hydrogen concentrations**, M. Alexandre, J. Gutierrez, P. Corredera Guillen, M. L. Hernanz, Consejo Superior de Investigaciones Científicas (Spain) [6593-84]
- ✓ **Efficient light-emitting microstructures induced by EUV radiation in thermally evaporated lithium fluoride thin films**, R. M. Montereali, S. Almaviva, F. Bonfigli, ENEA (Italy); A. Y. Faenov, VNIIFTRI (Russia); F. Flora, I. Franzini, E. Nichelatti, ENEA (Italy); T. A. Pikuz, VNIIFTRI (Russia); M. A. Vincenti, G. Baldacchini, ENEA (Italy) [6593-85]
- ✓ **Silicon microspheres for integrated photonics**, A. Serpengüzel, A. Kurt, O. Akatlar, U. K. Ayaz, Koç Univ. (Turkey) [6593-86]

Sessions 8a and 8b run concurrently

SESSION 8a

Room: Faro Fri. 10.00 to 11.20

Photonic System Integration

Chair: **Ali Serpengüzel**, Koç Univ. (Turkey)10.00: **VLSI photonic circuits and chips on optical printed circuit boards (O-PCBs) (Invited Paper)**, E. Lee, Inha Univ. (South Korea) [6593-41]10.40: **Embodiment of optical interconnection circuits for the mobile phone application**, J. Seo, S. Seo, Y. Oh, D. Jang, SAMSUNG Electronics Co., Ltd. (South Korea) [6593-42]11.00: **Adaptive OFDM system for multi-user communications over the indoor wireless optical channel**, O. González, S. Rodríguez, Univ. de La Laguna (Spain); R. Pérez-Jiménez, Univ. de Las Palmas de Gran Canaria (Spain); B. Rodríguez Mendoza, F. Delgado, Univ. de La Laguna (Spain) [6593-43]

Coffee Break 11:20 to 11:40

Sessions 9a and 9b run concurrently

SESSION 9a

Room: Faro Fri. 11.40 to 13.00

Quantum Communication

Chair: **Ei-Hang Lee**, Inha Univ. (South Korea)11.40: **Dynamic control of noisy quantum memory channels (Invited Paper)**, G. Gordon, G. Kurizki, Weizmann Institute of Science (Israel) [6593-47]12.20: **Ultraslow optical modes in Bose-Einstein condensates**, O. E. Mustecaplioglu, Koç Univ. (Turkey); D. Tarhan, Istanbul Teknik Univ. (Turkey) [6593-48]

Lunch Break 13.00 to 15.00

Sessions 10a and 10b run concurrently

SESSION 10a

Room: Faro Fri. 15.00 to 16.20

Optical Sensors

Chair: **Gershon Kurizki**, Weizmann Institute of Science (Israel)15.00: **Fiber optic sensors system for high-temperature monitoring of aerospace structures**, V. Striano, G. Coppola, I. Rendina, Istituto per la Microelettronica e Microsistemi (Italy); V. Latini, Carlo Gavazzi Space SpA (Italy) [6593-52]15.20: **Miniature optical fiber modal interferometers for sensing applications**, J. Villatoro, Institut de Ciències Fotòniques (Spain); V. P. Minkovich, D. Monzon-Hernandez, Ctr. de Investigaciones en Óptica, A.C. (Mexico); M. P. Kreuzer, G. Badenes, Institut de Ciències Fotòniques (Spain) [6593-53]15.40: **Hydrogen sensor using fiber gratings covered by a catalytic sensitive layer**, C. Caucheteur, Faculté Polytechnique de Mons (Belgium); M. Debliquy, D. Lahem, Materia Nova asbl (Belgium); P. Megret, Faculté Polytechnique de Mons (Belgium) [6593-54]16.00: **Electric field measurements by a LiNbO₃ probe**, L. Ciccarelli, M. Medugno, I. Rendina, Istituto per la Microelettronica e Microsistemi (Italy) [6593-55]

Coffee Break 16.40 to 17.00

Sessions 11a and 11b run concurrently

SESSION 11a

Room: Faro Fri. 16.40 to 18.00

Industrial Applications

Chair: **Alexander Heisterkamp**, Laser Zentrum Hannover e.V. (Germany)16.40: **High-power picosecond laser diodes based on different methods of fast gain control for high-precision radar applications**, S. N. Vainshtein, J. T. Kostamovaara, Univ. of Oulu (Finland); V. M. Lantratov, A.F. Ioffe Physico-Technical Institute (Russia) [6593-59]17.00: **Advances in polymer laser micro welding**, A. M. Olowinsky, A. Boglea, M. Poggel, A. Gillner, Fraunhofer-Institut für Lasertechnik (Germany) [6593-60]17.20: **Fine micro-welding of thin metal sheet by high speed laser scanning**, Y. Okamoto, Okayama Univ. (Japan); A. Gillner, Fraunhofer-Institut für Lasertechnik (USA); A. M. Olowinsky, J. Gedicke, Fraunhofer-Institut für Lasertechnik (Germany); Y. Uno, Okayama Univ. (Japan) [6593-61]17.40: **Radiation properties of two types of luminous textile devices containing plastic optical fibers**, B. Selm, M. Rothmaier, EMPA (Switzerland) [6593-62]

SESSION 8b

Room: Maspalomas 1 Fri. 10.00 to 11.20

Telecom Receivers

Chair: **Carmen Vázquez García**, Univ. Carlos III de Madrid (Spain)10.00: **Self-assembled semiconductor quantum dot infrared photodetector operating at room temperature and focal plane array (Invited Paper)**, M. Razeghi, H. Lim, S. Tsao, M. Taguchi, W. Zhang, A. Quaivy, Northwestern Univ. (USA) [6593-44]10.40: **Integrated ultrafast germanium on silicon photodetectors**, L. Vivien, Univ. Paris-Sud II (France); M. Rouvière, STMicroelectronics (France) and Institut d'Electronics Fondamentale (France); J. Fédéli, Commissariat à l'Energie Atomique (France); D. Marris-Morini, Univ. Paris-Sud II (France); J. Damlencourt, L. El Melhaoui, Commissariat à l'Energie Atomique (France); E. Cassan, X. Le Roux, P. Crozat, J. Mangeney, D. Pascal, S. C. Laval, Univ. Paris-Sud II (France) [6593-45]11.00: **Characterisation of an optically enhanced conventional 10 GHz receiver**, M. Scaffardi, F. Fresi, P. Ghelfi, M. Secondini, A. Bogoni, L. Poti, Scuola Superiore Sant'Anna (Italy) [6593-46]

SESSION 9b

Room: Maspalomas 1 Fri. 11.40 to 13:00

Telecom Amplifiers

Chair: **Manijeh Razeghi**, Northwestern Univ. (USA)11.40: **Gain compression and recovery in semiconductor optical amplifiers (Invited Paper)**, M. J. Adams, Univ. of Essex (United Kingdom) [6593-49]12.20: **Reflective optical bistability and nonlinear switching in a 1550nm vertical cavity semiconductor optical amplifier (VCSOA)**, A. Hurtado, Univ. Politécnica de Madrid (Spain); I. Henning, M. J. Adams, Univ. of Essex (United Kingdom) [6593-50]12.40: **Optical gain in dye-doped polymer waveguides using oxidised porous silicon cladding**, D. Navarro-Urrios, M. Ghulinyan, P. Bettotti, Univ. degli Studi di Trento (Italy); N. E. Capuj, Univ. de La Laguna (Spain); C. J. Oton, Univ. of Southampton (United Kingdom); F. Lahoz, I. J. Martin, Univ. de La Laguna (Spain); L. Pavesi, Univ. degli Studi di Trento (Italy) [6593-51]

SESSION 10b

Maspalomas 1 Fri. 15.00 to 16.20

Telecom Emitters

Chair: **Michael J. Adams**, Univ. of Essex (United Kingdom)15.00: **High-power mid- and far wavelength infrared lasers for free space communication (Invited Paper)**, M. Razeghi, S. Slivken, A. J. Evans, Y. Bai, J. Nguyen, S. Ramezani Darvish, K. Mi, Northwestern Univ. (USA) [6593-56]15.40: **Room temperature continuous-wave operation of photonic band-edge laser near 1.55 μm on silicon wafer**, G. Vecchi, F. Raineri, I. Sagnes, R. Braive, S. Bouchoule, A. M. Yacomotti, P. Monnier, J. A. Levenson, R. Raj, Lab. de Photonique et de Nanostructures (France) [6593-57]16.00: **Linewidth influence in photonics logic device**, A. P. Gonzalez-Marcos, T. Vivero, J. A. Martin-Pereda, Univ. Politécnica de Madrid (Spain) [6593-58]

SESSION 11b

Room: Maspalomas 1 Fri. 16.40 to 18.00

Telecom Multiplexers and Modulators

Chair: **Ozgur E. Mustecaplioglu**, Koç Univ. (Turkey)16.40: **Self-referencing techniques in photonics sensors and multiplexing (Invited Paper)**, C. Vázquez, J. Montalvo, D. S. Montero, P. C. Lallana, Univ. Carlos III de Madrid (Spain) [6593-63]17.20: **Near-UV InGaN/GaN-based dual-operation quantum optoelectronic devices**, T. Ozel, E. Sari, S. Nizamoglu, H. V. Demir, Bilkent Univ. (Turkey) [6593-64]17.40: **Monolithic fully integrated Programmable micro-diffraction grating based on electro-optical materials**, G. G. Bentini, M. Chiarini, M. Bianconi, A. Cerutti, A. Nubile, S. Sugliani, Istituto per la Microelettronica e Microsistemi (Italy); G. Pennestri, Carlo Gavazzi Space SpA (Italy); G. Bellanca, A. Parini, Univ. degli Studi Ferrara (Italy); S. Petrini, L. Gallerani, P. De Nicola, F. Bergamini, Istituto per la Microelettronica e Microsistemi (Italy) [6593-65]

Microtechnologies for the new Millennium 2007

2-4 May 2007

Gran Hotel Costa Meloneras
Mar Mediterráneo, 1
35100 Maspalomas, Gran Canaria, Spain
Telephone +34-928-128-100
www.lopesanhr.com

Passport and Visa

The Canary Islands are part of Spain; therefore, all rules on passports and visas which apply to Spain apply to the Canary Islands. Please contact your travel agent to obtain current information about passport and visa requirements.

Letters of Invitation

Individuals requiring letters of invitation to obtain travel visas to present their papers may access and print an Invitation Letter Request Form found at this website: <http://spie.org/forms/invitationrequest.pdf>.

Please fill out a separate form for each person requesting a letter. All letters of invitation will be sent by airmail and PDF email attachment unless a courier account or credit card number with expiration date is provided with the original request. Please allow ample time for processing requests. SPIE is not able to contact embassies in support of an invitation attempting to gain entry to attend an SPIE Europe meeting. Because the application for a visa can be a lengthy process, we recommend that you start your visa application process as soon as you have been notified that your paper has been accepted. We also recommend that you secure your travel visa before registered for the symposium. Cancellations after the pre-registration cut-off can result in a cancellation fee.

Preregistration/Registration Date

Register with payment before 23 April 2007 and save €75 over onsite pricing. All conference registration prices quoted will go up by €75 after 23 April 2007. Early registration with payment enables attendees quick pick up of registration materials.

To preregister for the meeting, either use the online form or return the registration form on page 23 with your payment to XXX at the latest. FORMS NOT ACCOMPANIED BY PAYMENT WILL BE RETURNED. For those registering after 23 April please add €75.00 to the total registration fee. See Registration Form for special instructions for payment.

Full symposium registration includes: Admittance to the conferences, coffee breaks, welcome reception, poster reception, conference dinner, and Proceedings for SPIE as applicable under the specific registration plans (See Registration form on page 23 of this Programme). Proceedings of SPIE and CD-ROMs purchased as part of your registration plan include tax and shipping charges. Student author registration plans do not include Proceedings of SPIE.

Presentation Format

All contributing authors are asked to choose a presentation format for their papers. The Programme committee will schedule contributed papers into both oral and poster sessions. The Programme committee will determine the length of the oral presentation and authors will be informed in their acceptance notification.

Audiovisual Equipment

The meeting room will contain the following audiovisual equipment.

- Podium microphone
- Projection pointer
- Screen
- LCD Projector

Registration Hours

Conference Foyer

Tuesday 1 May 17.00 to 19.30
Wednesday 2 May 8.00 to 18.00
Thursday 3 May 8.30 to 18.00
Friday 4 May 8.30 to 17.00

Video/Digital Recording Policy

For copyright reasons, video or digital recording of any conference session or poster is strictly prohibited without written prior consent from each specific presenter to be recorded. Individuals not complying with this policy will be asked to leave a given session and to surrender their film or disc. It is the responsibility of the presenter to notify SPIE if consent is given.

Welcome Reception

The location is by the poolside.

Tuesday, 1 May 20.00 to 21.30

A welcome reception is being arranged for all of the conference participants for Tuesday evening, 1 May. All conference attendees are invited to this reception as a chance to meet and network with colleagues.

Conference Dinner

Thursday 3 May 20.00

A conference dinner will be held at the Via Veneto Restaurant of the Gran Hotel Costa Meloneras. One ticket is included with your registration fees; please tick the appropriate box on the registration form to reserve a seat for yourself. You MUST preregister for the Conference Dinner by 23 April 2007.

Interactive Poster Sessions and Receptions

Thursday 3 May 16.20 to 18.00

An interactive poster session will be held on Thursday 3 May from 16.20 to 18.00 hrs. The authors will be able to set up their poster papers in the interactive session areas after 11.00 hrs on 3 May. Supplies for posting papers will be available. The viewable size of the poster board is 0.97 m wide x 1.20 m high. Attendees can preview the posters during the day before the formal reception. Poster viewing will culminate in the formal interactive poster session with light refreshments starting at 16.20 hrs. Authors need to be present at their posters for discussion with attendees during the formal session. It is each author's responsibility to remove his/her presentation immediately at the end of the session. SPIE Europe assumes no responsibility for presentations left up after this time. Attendees are requested to wear their conference registration badge to gain access to the interactive poster session and reception.

Coffee Breaks

Wednesday to Friday 11.00 to 11.45 and 16.00 to 16.45

Coffee breaks will be in the conference area hallway.

Messages for Attendees

Messages for attendees at Microtechnologies can be left by calling the venue at +34 928 128 100 and asking for the SPIE Europe's Microtechnologies for the New Millennium registration desk. Messages will be taken during registration hours Wednesday through Friday. Attendees should check the message boards at the message centre on a daily basis.

SPIE Europe

SPIE—The International Society for Optical Engineering is dedicated to advancing scientific research and engineering applications of optical, photonic, imaging, and optoelectronic technologies through its meetings, education Programmes, and publications.

SPIE in Europe

2 Alexandra Gate, Ffordd Pengam, Cardiff, CF24 2SA
Tel: +44 29 20 89 4747 • Fax: +44 29 20 89 4750
spieurope@spieurope.org • www.spieurope.org

**Reserve your hotel by
12 April 2007!**

Hotel Reservation Form

SPIE Europe's Symposium on
Microtechnologies for the New Millennium 2007
2-4 May 2007

Contact to request the reservations:
e-mail: layala@lopesanhr.com, Atn: Luisi Ayala

To book your room at the conference hotel, please fax one copy of this form (form may be copied in case you book more than one participant) to the Gran Hotel Costa Meloneras at: +34 928 128 127 before 15.03.07 Any reservations made after this cannot be guaranteed and may be subject to an increased room rental fee. For further information on the hotel please see www.lopesanhr.com Please note that the hotel will only accept your booking as part of the conference if you use this form. In case of a no-show, one night's charge will apply.

Participant's Name: _____

Company: _____

Address: _____

City: _____ Post Code: _____

Phone: _____ Fax: _____

Email: _____

Please reserve the following rooms:

GRAN HOTEL COSTA MELONERAS ****superior

_____	DOUBLE ROOM SINGLE USE BREAKFAST	MOUNTAIN VIEW €:101,11.-PER PERSON AND DAY
_____	DOUBLE ROOM SINGLE USE HALFBOARD	MOUNTAIN VIEW €:109,11.-PER PERSON AND DAY
_____	DOUBLE ROOM BREAKFAST	MOUNTAIN VIEW €:55,75PER PERSON AND DAY
_____	DOUBLE ROOM HALFBOARD	MOUNTAIN VIEW €:63,75.-PER PERSON AND DAY

GRAN HOTEL VILLA DEL CONDE *****

_____	DOUBLE ROOM SINGLE USE BREAKFAST	GARDEN VIEW €:113,40.-PER PERSON AND DAY
_____	DOUBLE ROOM SINGLE USE HALFBOARD	GARDEN VIEW €:123,40.-PER PERSON AND DAY
_____	DOUBLE ROOM BREAKFAST	GARDEN VIEW €:63,31ER PERSON AND DAY
_____	DOUBLE ROOM HALFBOARD	GARDEN VIEW €:73,31.-PER PERSON AND DAY

"Breakfast" includes your room and breakfast. "Halfboard" includes your room, breakfast and dinner(Buffer). Prices are net, including services and taxes, INCLUDED 5% IGIC.

Arrival: _____ May 2007 Departure: _____ May 2007

Number of nights: _____

In order to complete your reservation, the hotel requests that you indicate your passport/ID card number:

Please charge the following credit card € _____
to cover in case of a no-show, a charge of one night .

Card Type: ___ Visa ___ Amex ___ MasterCard

Card Number: _____

Expiry Date: _____

Name on the Card: (please print)

NOTE: AS AN EXCEPTION • Bookings without credit card need to be paid IN FULL BEFORE ARRIVAL at the latest by 12 APRIL 2007. In this case, send the reservation form specifying that you only have this option, Fax and e-mail have to be CLEAR for us to contact you **(PLEASE DO NOT MAKE THE TRANSFER WITHOUT HAVING CONTACTED US BEFORE)*** proforma invoice to be sent previously by Luisi Ayala

Hotel Accommodation

The symposium location at the 4 star Gran Meloneras Hotel provides accommodation in an impressive sea front location in the resort of Maspalomas, enhanced by the serene tropical gardens and onsite Spa facilities.

Delegates travelling from Europe may also want to consider looking at package deals through European tour operators.

How to reach the Conference Centre

By car follow directions south (Playa del Ingles - Maspalomas) on the GC 1 road. Follow this road for 35 kilometres to the exit for Playa del Ingles - Maspalomas.

Upon arrival in Maspalomas take main road C - 812, with the direction sign (Maspalomas-Faro) follow to the end of the road. At the roundabout next to the Phare the Gran Hotel Costa Meloneras is located on the right.

By bus: At the airport terminal take bus 66 (Playa del Ingles/Faro), to the Faro-Maspalomas stop. The bus stop is located near the Gran Hotel Costa Meloneras. The Bus Service operates between 7.00 am and 22.00 pm every 60 minutes.

More information concerning the bus service between the airport and the conference hotel on 1 and 2 May 2007 will be provided in early April 2007. Look for the information in your e-mail and one event's website www.spie.org/events/emt

Airlines

Gran Canaria Airport is located 18 kilometres to the south of Las Palmas. It is served by 39 airline operators within Europe with connections to international flights.

Information desks are situated on level 1 and in all three zones the Gran Canaria Tourist Board has a tourist information point in the EU Arrivals hall in Zone A.

Facilities include a bank located on the ground floor (Zone A) and ATM's can be found on the first Floor (Zone A). Bureaux de Change located in EU arrivals hall and check in halls on Ground Floor. A post office is located in the International Arrivals hall. An Internet café can be found on the first floor of the EU Departures in Zone A. A variety of cafes, restaurants and shops are also located in the airport. On site 24 hour medical services, a pharmacy in addition to a range of travel agencies, tour operators.

Taxi stands can be found outside of the arrivals areas of all three zones.
www.aeba.es telephone 0928 579 130

Regional Information

Climate & Currency

The island is divided into two different climatic zones; the humid north-central region and the south with an arid, with desert-like landscapes. The average temperatures in May range from 19.7 - 20.7C (67.48 - 69.26F).

The official monetary currency of the Canary Islands is the Euro, all major credit cards are accepted.

About Gran Canaria

Located between Tenerife and Fuerteventura in the Atlantic Ocean off the coast of Africa, Gran Canaria covers an almost circular area of 1,560 square kilometres, with a population of 1.8 million, it is the most developed of the seven Canary Islands, also known as 'the miniature continent' owing to the variety of climates and landscapes.

Gran Canaria is a popular tourist destination attracting around 9 million visitors each year. This island with extreme contrasts with central mountainous regions including the Pozo de La Nieves peak (1,949 metres) that is covered in a layer of snow in winter, changes to areas of lush woodlands, hidden villages with white houses and red roofs, steep winding cliffs to the north, vast plantations and orchards of tropical fruits, swaying palms and the sandy beaches located in the south.

Located on the North East coast of the Island is Las Palmas is the bustling cosmopolitan capital city of Gran Canaria. Las Palmas has the biggest population within the Canary Islands and is the seventh largest city in Spain. Here you will experience an assortment of museums, squares, parks, theatres, live music, and eating out. In addition to Spanish and Canarian the food is influenced from Portugal and even South America. Local specialities include "Papas Arrugadas" (small potatoes boiled in their jackets). Las Palmas also has two long beaches, 'Las Caletas' to the north, and the 'Alcaravaneras' to the south.

Maspalomas on the southern tip of the island attracts tourists with its excellent range of tourist facilities. With magnificent beaches and dramatic sand dunes it also offers sports activities at any time of the year including; golf, tennis, sailing, diving and windsurfing.

SPIE ID #

Name and Address

 First Name MI. Last Name

 Title

 Company

 Address (include Mail Stop)

 City State Zip/Postal Code

 Country

 Phone Fax

 E-Mail Address (SPIE does not sell e-mail addresses) Date of Birth

Check this box if you do not wish to receive relevant information from organisations other than SPIE.

SPIE Membership

To receive the member discount, check appropriate box(es) below and fax or mail this form.

- Annual SPIE Membership: €75 Annual Student Membership: €20
 Journal Option (choose one):
 Optical Engineering Electronic Imaging Biomedical Optics Microlithography, Microfabrication, and Microsystems

Symposium Registration

Full conference registration includes: one proceedings volume and Proceedings, CD-ROM as applicable under the specific registration plans (proceedings purchased as included in registration plan include tax and shipping); admittance to all conferences, reception, exhibition admission and coffee/tea breaks, conference dinner.

I will attend the conference dinner.

Author or Chair Registration

- Full meeting plus one proceedings volume
 Full meeting plus Symposium CD-ROM

SPIE Member

- € 540
 € 605

Nonmember

- € 600
 € 665

Choose Proceedings Volume Here:
 Vol. _____

Meeting Registration

- Full meeting plus one proceedings volume
 Full meeting plus Symposium CD-ROM

SPIE Member

- € 600
 € 665

Nonmember

- € 660
 € 725

Full-time Student (ST) Registration

DOES NOT include Proceedings, Symposium CD-ROM

SPIE Member

- € 200

Nonmember

- € 220

Additional Proceedings, Symposium CD-ROMs, & Digital Library Subscription

(See p. 5 for a complete list of Proceedings of SPIE and Proceedings on CD-ROM for this event.)

(Proceedings) Vol. _____ @ € _____ (CD-ROMs) CDS _____ @ € _____

Tax & Shipping (see worksheet on facing page) \$ _____

(Digital Library) SPIE Member € 125 Non-Member € 200 SPIE Student Member € 80

Payment Method — please read carefully

Wire transfer of payment

If you wish to pay via bank transfer, please e-mail spieeurope@spieeurope.org for instructions.

Cheques

Mail this form with cheque in Euro drawn on a European bank to SPIE Europe.

Check # _____ Amount € _____ (payable to SPIE Europe)

Credit Card Payments

Credit card. Note: All credit card charges will be made in USD. Your credit card company or bank will convert the USD charges to your local currency at the prevailing rate. Conversion to Euro by your bank or card company may not reflect the above rates. Mail or fax form to SPIE Europe, or use the online form.

Credit Card: _____ Card Number:

VISA

I authorise SPIE to charge total payment fee (as indicated on this form) to my credit card.

MasterCard

American Express

Diners Club

Expiration Date _____ \ _____ Signature _____

Discover

Register and Pay Today!

After 23 April 2007,
Fees increase €75
PLUS you must register onsite
(Student fees increase €20)

Preregistration for the Microtechnologies for the New Millennium 2007

2-4 May 2007
 Gran Hotel Costa Meloneras
 Maspalomas, Gran Canaria, Spain

Register online:
 spieeurope.org/events/emt

Mail or fax this form with payment:
 SPIE Europe Ltd., 2 Alexandra Gate,
 Ffordd Pengam, Cardiff, CF24 2SA
 United Kingdom
 Fax: +44 (0)29 2089 4750

For enquiries about wire transfer of payment:
 Tel: +44 (0)29 2089 4747
 Fax: +44 (0)29 2089 4750
 E-mail: spieeurope@spieeurope.org

5960

After 23 April 2007 onsite prices will apply.
MEMBERSHIP TOTAL € _____
REGISTRATION TOTAL € _____
ADDITIONAL PUBLICATIONS TOTAL € _____
DIGITAL LIBRARY SUBSCRIPTION TOTAL € _____
SUBTOTAL € _____
Payment must accompany registration.
TOTAL € _____

SPIE Europe

Microtechnologies for the New Millennium 2007

*2–4 May 2007 Gran Hotel Costa Meloneras
Maspalomas, Gran Canaria, Spain*

Building a Better Future with Light

- Have your work published—
online and in print
- Hear the latest research
- Network with your peers

spie.org/events/emt

SPIE

P.O. Box 10
Bellingham, WA 98227-0010 USA

Non-Profit Org.
U.S. Postage
Paid
SPIE