

**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)

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*Five parallel conferences:*

Smart Sensors, Actuators,  
and MEMS

VLSI Circuits and Systems

Nanotechnology

Bioengineered and Bioinspired  
Systems

Photonic Materials, Devices,  
and Applications

**SPIE Europe**

# 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. Vértsey, 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, l'Univ. 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 Er<sup>3+</sup> - 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 Ho<sup>3+</sup> 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 Er<sup>3+</sup> 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 SnO<sub>2</sub> 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 LiNbO<sub>3</sub> 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  $\mu\text{m}$  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

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## 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.

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## 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.

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