

2011 Numerical Simulation of Optoelectronic Devices

(NUSOD 2011)

Rome, Italy
5 – 8 September 2011



IEEE Catalog Number: CFP11817-PRT
ISBN: 978-1-61284-876-1

Table of Contents

Monday, 5 September 2011

MA Novel Devices

- MA1** Optical Design of Organic/Polymer Solar Cells and Light Emitting Devices; Wallace C.H. Choy; University of Hong Kong, China (**invited**) 1
- MA2** Effects of hydrostatic strain on eigenstates of Möbius strips; B. Lassen (1), M. Willatzen (1), and J. Gravesen (2); (1) The University of Southern Denmark, Denmark (2) The Technical University of Denmark, Denmark 3
- MA3** A High-Efficiency Photonic Nanowire Single-Photon Source Featuring An Inverted Conical Taper; N. Gregersen (1), T. R. Nielsen (1), J. Mørk (1), J. Claudon (2) and J. M. Gérard (2); (1) Technical University of Denmark, Denmark; (2) CEA Grenoble, France 5
- MA4** Thermal management of GaInNAs/GaAs disk lasers; A. K. Sokol, R. P. Sarzala, and W. Nakwaski; Technical University of Lodz, Poland 7

MB Plasmonics

- MB1** Analysis of a Gap Plasmonic Waveguide Using the Frequency-Dependent 3-D LOD-FDTD Method; J. Shibayama, R. Ando, J. Yamauchi, and H. Nakano; Hosei University, Japan 9
- MB2** B-CALM: An Open-Source GPU-based 3D-FDTD with Multi-Pole Dispersion for Plasmonics; Pierre Wahl(1,2) , Dany-Sebastien Ly-Gagnon (2), Christof Debaes (1), David A.B. Miller (2) , Hugo Thienpont (1); (1) Vrije Universiteit Brussels, Belgium; (2) Stanford University, USA 11
- MB3** Numerical Simulation of Nano-disk Plasmonic Laser; Q. Wang (1) and S.T. Ho (2); (1) Data Storage Institute, Singapore; (2) Northwestern University; USA 13
- MB4** Asymptotic Analysis of Surface-Plasmon Whispering-Gallery Resonators for Large Q-factor; N. Cinosi (a), J. Sarma (b), F. Causa (b); (a) Imperial College, UK; (b) University of Bath, UK 15

MC Solar Cells

- MC1** Hot carrier solar cells: the device that did not exist; Jean-Francois Guillemoles (1), A. Le Bris (1), L. Lombez (1), S. Laribi (1), E. Tea (2), F. Aniel (2) (1) IRDEP, UMR CNRS, France; (2) University of Paris XI, France **(invited)** 17
- MC3** Innovative Simulated Structure for Dye Solar Cells; A. Gagliardi, M. Auf der Maur and A. Di Carlo; University of Rome ``Tor Vergata'', Italy 19
- MC4** Dye Solar Cells efficiency maps: a parametric study; D. Gentilini, A. Gagliardi and A. Di Carlo; University of Rome ``Tor Vergata'', Italy 21
- MC6** First investigation of quantum effects in heterojunction solar cells; J. Coignus (1), J. Singer (1), M. Baudrit (1), R. Lachaume (2), X. Garros (2), P. Thony (1); (1) CEA-INES RDI, France; (2) CEA-LETI, France 23

MP Posters

- MP1** Resonance Cavity Enhanced Midinfrared Photodetectors Employing Subwavelength Grating; M. Zohar (1), M. Auslender (1), S. Hava (1), and L. Faraone (2); (1) Ben Gurion University of the Negev, Israel; (2) University of Western Australia, Australia 25
- MP2** Optical Solitons in Si-nc Sandwiched Optical Slot Waveguides; F. De Leonardis and V. M. N. Passaro; Politecnico di Bari, Italy 27
- MP3** All optical tunable nematic liquid crystal waveguide; M. Trotta (1), R. Asquini (1), A. d'Alessandro (1), and R. Beccherelli (2); (1) Sapienza University of Rome, Italy; (2) CNR-IMM Rome, Italy **PDE**
- MP4** Study of InGaN/GaN/InGaN Multi-Layer Barrier in GaN-based Light Emitting Diode; Liwen Cheng(1), Chunyan Xu(2), Yang Sheng(3), Weida Hu(1), Wei Lu(1), and Zhanming (Simon) Li(4); (1) Shanghai Institute of Technical Physics, China; (2) Wuxi Institute of Communications Technology, China; (3) Crosslight Software China, China; (4) Crosslight Software Inc., Canada 31
- MP5** Finite element modeling of plasmon based single-photon sources; Y. Chen, N. Gregersen, T. R. Nielsen, P. Lodahl and J. Mørk; Technical University of Denmark, Denmark 33

MP6	Analysis of polarization characteristics based on asymmetric metal-clad optical waveguides with buffer layer; Hong-Seung Kim (1), Tae-Kyeong Lee (1), Geum-Yoon Oh (1), Doo-Gun Kim (2), and Young-Wan Choi (1); (1) Chung-Ang University, Korea; (2) Korea Photonics Technology Institute, Korea	35
MP7	Influence of minority carrier lifetime on photoresponse characteristics of visible-blind Al _{0.25} Ga _{0.75} N MSM photodetectors; Jessica Schlegel (1), Martin Martens (1), Frank Brunner (2), Sven Einfeldt (2), Markus Weyers (2), and Michael Kneissl (1,2); (1) Technische Universität Berlin, Germany; (2) Ferdinand-Braun-Institut, Germany	37
MP8	Electro-optical characteristics of separate absorption and multiplication GaN avalanche photodiode; X. D. Wang (1), W. D. Hu (1), X. S. Chen (1), J. T. Xu (2), X. Y. Li (2), and W. Lu (1); (1) National Lab for Infrared Physics, China; (2) State Key Laboratories of Transducer Technology, China	39
MP11	Apodization along Thickness Direction of Holographic Transmission Grating in Sb-doped Sn ₂ P ₂ S ₆ ; Y. Wakayama (1), A. Okamoto (1), A. Tomita (1), A. A. Grabar (2), K. Sato (3), and H. Nihei (4); (1) Hokkaido University, Japan; (2) Uzhgorod National University, Ukraine; (3) Hokkai-Gakuen University, Japan; (4) Health Sciences University of Hokkaido, Japan	41
MP12	PSPICE Models for Dye Solar Cells and Modules; F. Giordano(1), A. Guidobaldi(2), E. Petrolati(2), S. Mastroianni(1), T. M. Brown(1,2), A. Reale(1,2), A. Di Carlo(1,2); (1) University of Rome “Tor Vergata”, Italy; (2) DYEPower Consortium, Italy	43
MP13	Efficient Simulation for Silicon-on-Insulator Waveguide Electro-Optic Devices; DeGui Sun, Trevor J. Hall, Rob Vandusen, T. Garry Tarr; (1) University of Ottawa, Canada; (2) Carleton University, Canada	45
MP14	Integrated Simulator for Single-Photon Avalanche Diodes; M. Anti, F. Acerbi, A. Tosi, F. Zappa; Politecnico di Milano, Italy	47
MP15	Simple Design of Edge-Emitting Diode Laser to Overcome Thermal Lens Effect; N. N. Elkin, A. P. Napartovich, and D. V. Vysotsky; SRC RF Troitsk Institute for Innovation and Thermonuclear Research, Russia	49
MP16	Simulation of a Ridge-Type Semiconductor Laser with Selectively Proton-Implanted Cladding Layers; Hazuki Yoshida and Takahiro Numai; Ritsumeikan University, Japan	51

MP17 The phosphor's optical properties - white light quality relationship of white LEDs; C. Sommer (1), P. Hartmann (1), P. Pachler (2), H. Hoschopf (2), F. P. Wenzl (1); (1) Joanneum Research Forschungsgesellschaft mbH, Austria; (2) Tridonic Jennersdorf GmbH, Austria	53
MP18 Trapping Power Improvement of Twin-Core Fiber Optical Tweezers; Farzin Emami, Ammar Rahimi-Kazerooni, Alireza Keshavarz; Shiraz University of Technology, Iran	55
MP19 Simulation Method for LWIR Radiation Distribution Using a Visual Ray-Tracer; Alexander Utz, Lutz Gendrisch, Dirk Weiler, Stephan Kolnsberg and Holger Vogt; Fraunhofer Institute for Microelectronic Circuits and Systems (IMS), Germany	57
MP21 Investigation of a p-i-n Dual-Cavity E-Field Photonic Sensor; V. M. N. Passaro, P. Barile and F. De Leonardi; Politecnico di Bari, Italy	59
MP22 Pulse Compression and Super-Continuum Generation using Cascaded Higher-Order Solitons; J. Nathan Kutz (1), Qian Li (2) and P. K. A. Wai (2); (1) University of Washington, USA; (2) The Hong Kong Polytechnic University, China	61
MP23 The GEMINI Concept: A New Efficient Method To Modelize Local Effects In Solar Cells; J. Singer, J. Coignus, M. Baudrit, P. Thony, R. Cabal, P. Brand; CEA-LITEN / INES, France	63
MP24 MEG/STRD Modeling of Optical Antenna Sensors as Micro Rectangular Apertures; A. Massaro, F. Spano, R. Cingolani, and A. Athanassiou; Italian Institute of Technology (IIT- CBN), Italy	65
MP25 Design of Optical Triplexer with Cascaded Multi-Mode Interference Couplers; Shintaro Ikeya, Hideki Yokoi, Takayuki Kawasaki, Tomohiro Hoshi; Shibaura Institute of Technology, Japan	67
MP26 Theoretical and experimental study of erbium doped photonic crystal fiber ring laser; L.Sojka(1), E.Beres-Pawlik(1), P.Jaworski(1), W.Góra(1), D.Furniss(2), A.Seddon(2), T.M.Benson(2), P.Mergo(3), S.Sujecki(2); (1)Wroclaw University of Technology, Poland; (2)University of Nottingham,UK; (3)Marie Curie-Sklodowska University, Poland	69
MP27 Dispersion Characteristics in Metal Coated Long Period Fiber Gratings; Zhengtian Gu (1), Yanjun Shi (1), and Kan Gao (2); (1)University of Shanghai for Science and Technology, China; (2) No.23 Research Institute of China Electronics Technology Group, China	71

- MP28** Simulation of incoherent interaction between bright-bright screening soliton in an unbiased series two-photon photorefractive crystal circuit; A. Keshavarz(1), M.Hatami(2), Z. Abbasi(2); (1) Shiraz University of Technology , Iran (2) Yazd University, Iran 73
- MP29** Optical Modulation Bandwidth Enhancement of Heterojunction Bipolar transistor Lasers Using Base Width Variation; H.Kaatuzian, H.R.Mojaver, I.Taghavi; Amirkabir University of Technology, Iran PDE
- MP31** Design of polarization-maintaining photonic crystal fiber with high birefringence; Y. D. Wu, J. J. Lee, and T. T. Shih; National Kaohsiung University of Applied Sciences, Taiwan 77
- MP32** Elimination of an impact of mechanical stresses on an operation of nitride light-emitting diodes; S. Morawiec, R. P. Sarzala, and W. Nakwaski; Technical University of Lodz, Poland 79
- MP33** Development of a Broadband Matching Network for Electro- Absorption Modulators; W.Han (1), C.Daunt (1),(2), H.Yang (1), M.Rensing (1), X.Wang(1), P.O'Brien(1), and F.H.Peters (1),(2); (1) Tyndall National Institute, Cork, Ireland;(2) University College Cork, Ireland 81
- MP34** Compact Acousto-Optic Interrogator for Fiber Optic Bragg Sensors; A. V. Tsarev (1), F. De Leonardis (2), V. M. N. Passaro (3); (1) A.V. Rzhanov Institute of Semiconductor Physics SB RAS, Novosibirsk, Russia; (2) Politecnico di Bari, Taranto, Italy; (3) Politecnico di Bari, Bari, Italy 83
- MP35** FEM Modeling of Conductivity and Electrical Coupling in Polymeric Nanocomposite Material; Alessandro Massaro, Fabrizio Spano, Roberto Cingolani, Athanassia Athanassiou; Italian Institute of Technology (IIT-CBN), Italy 85
- MP36** Material type and Dimension Effects of Quantum Box in QD- based waveguides; A Rostami, S K Seyyedi S, H. Rasooli, K Khaffaf, S Zabihi; University of Tabriz, Iran 87
- MP37** Modelling of Semiconductor Optical Amplifier Chirp Compensation Using Optical Delay Interferometer; Z.V. Rizou (1), K.E. Zoiros (1), and M.J. Connelly (2); (1) Democritus University of Thrace, Greece; (2) University of Limerick, Ireland 89
- MP38** Ultra compact and low crosstalk triplexer based on photonic crystal waveguide; Y. D. Wu, J. H. Hsu, J. J. Lee, and T. T. Shih; National Kaohsiung University of Applied Sciences, Taiwan 91

MP40 Simulation of gain saturation on dark soliton switching in Er+3- doped chalcogenide glasses; M. Hatami, Z. Tahmasbi, Alireza Keshavarz, G. Honarasa; (1) Yazd University, Iran; (2) Shiraz University of Technology, Iran; (3) Yazd University, Iran	93
--	----

Tuesday, 6 September 2011

TuA Optoelectronic Integrated Circuits

TuA1 Modeling of Semiconductor Optical Amplifier RIN and Phase Noise for Optical PSK Systems; M.J. Connelly and C.L. Janer; (1) University of Limerick, Ireland; (2) Universidad de Sevilla, Spain	95
TuA2 SOA Modeling for Advanced Optical Modulation Formats; H. Khaleghi, P. Morel, A. Sharaiha, T. Rampone, M. Guégan; École Nationale d'Ingénieurs de Brest (ENIB), France	97
TuA3 Numerical and experimental investigation of upconversion in Er doped sol-gel SiO ₂ ; Oladeji Ayodele(1), Polly L. Arnold(2), Mohammad I. Ali(2), Andrew Phillips(1), Igor V. Sazanovich(3), Julia A. Weinstein(3), Slawomir Sujecki(1); (1) University of Nottingham, UK; (2) University of Edinburgh, UK; (3) University of Sheffield, UK	99
TuA4 Numerical Analysis of Wavelength Conversion Based on Semiconductor Optical Amplifier Integrated with Microring Resonator Notch Filter; Mohammad Razaghi (1), Mojtaba Gandomkar (2), Vahid Ahmadi (2), Narottam Das (3) and Michael J. Connelly (4); (1) University of Kurdistan, Iran; (2) Tarbiat Modares University, Iran; (3) Edith Cowan University, Australia; (4) University of Limerick, Ireland	101
TuA5 Simulation of Ultrafast All-Optical NOT Gate with Quantum-Dot SOA-Based Mach-Zehnder Switch; E. Dimitriadou, and K.E. Zoiros; Democritus University of Thrace, Greece	103
TuA6 Simulation of Ultrafast All-Optical XOR Gate with SOA-Based UNI and Cascaded ODI; K.E. Zoiros, C. Demertzis; Democritus University of Thrace, Greece	105

TuB Numerical Methods

TuB1 Novel modeling techniques for photonic devices; K. B. Dossou (1), L.C. Botten (1), A.A. Asatryan (1), B.P.C. Sturmberg (2), M. A. Byrne (1), C.G. Poulton (1), R.C. McPhedran (2) and C.M. de Sterke (2); (1) University of Technology, Australia; (2) University of Sydney, Australia (invited)	107
---	-----

- TuB2** GPU Implementation of Hertzian Potential Formulation for Simulation of Nanosensors; D. Tartarini (1), A. Massaro (2); (1) University of Salento, Italy; (2) Center for Bio-Molecular Nanotechnologies of IIT, Italy 109
- TuB3** A flexible, plane-wave-based formulation of continuum elasticity and multiband k*p-models; O. Marquardt (1), S. Schulz (1), E.P. O'Reilly (1), C. Freysoldt (2), S. Boeck (2), T. Hickel (2), and J. Neugebauer (2); (1) Tyndall National Institute, Ireland; (2) Max-Planck-Institut fuer Eisenforschung, Germany 111
- TuB4** A computationally efficient, non-equilibrium, carrier temperature dependent semiconductor gain model for FDTD simulation of optoelectronic devices; Koustuban Ravi (1), Yingyan Huang(2), Seng Tiong Ho(1),(3); (1) Data Storage Institute, Singapore; (2) Optonet Inc, Evanston, USA; (3) Northwestern University, Evanston, USA 113
- TuB5** Elimination of numerical underflow in the modelling of optoelectronic devices using multiple precision; S.N. Kaunga-Nyirenda, J. J. Lim, S. Bull and E.C. Larkins; University of Nottingham, UK 115
- TuB6** Application of a computationally efficient implementation of the RCWA method to numerical simulations of thin film amorphous solar cells; I. Semenikhin (1), M. Zanuccoli (2), M.Benzi (2) , V. Vyurkov (1), E. Sangiorgi (2), C. Fiega (2); (1) Institute of Physics and Technology RAS, Russia; (2) ARCES-DEIS University of Bologna & IUNET, Italy 117

TuC Surface-Emitting Laser Diodes

- TuC1** Finite element simulation of optical modes in VCSELs; J. Pomplun(1), S. Burger (1,2), M. Rozova (2), L. Zschiedrich (1), F. Schmidt (1,2); (1) JCMwave GmbH, Germany; (2) Zuse Institute Berlin, Germany 119
- TuC2** Optical Simulation of a Ring-Defect Photonic Crystal Vertical-Cavity Surface-Emitting Laser; P. Nyakas; Furukawa Electric Institute of Technology, Hungary 121
- TuC3** Modes discrimination analysis of coherently coupled AlInGaAs VCSEL array; Tomasz Czyszanowski(1), Jaroslaw Walczak(1), Maciej Dems(1), Robert P. Sarzala(1), Elodie Lamothe(2), Lukas Mutter(2); (1) Technical University of Lodz, Poland; (2) Ecole Polytechnique Federal de Lausanne (EPFL), Switzerland 123

TuC4 Robust design of subwavelength grating mirror for mid-infrared VCSEL application; Christyves Chevallier (1,2), Frédéric Genty (1,2), Nicolas Fressengeas (2) and Joel Jacquet (1,2); (1) SUPELEC Metz, France; (2) Université Paul Verlaine de Metz, France 125

TuC5 Modal properties control in Photonic-Crystal Vertical-Cavity Surface-Emitting Lasers; Tomasz Czyszanowski(1), Maciej Dems(1), Krassimir Panajotov (2); (1) Technical University of Lodz, Poland; (2) Vrije Universiteit Brussels, Belgium 127

TuD Photonic Crystals

TuD1 Coupling of nanoparticles and photonic crystals for non-linear applications; Jeff F. Young, Charles Foell, Ellen Schelew and Haijun Qiao; University of British Columbia, Canada (**invited**) 129

TuD2 Numerical Modelling of Optical Trapping in Hollow Photonic Crystal Cavities; U. Dharanipathy, N. Le Thomas and R. Houdré; École Polytechnique Fédérale de Lausanne (EPFL), Switzerland 131

TuD3 Numerical modeling in photonic crystals integrated technology: the COPERNICUS Project; Stefania Malaguti (1), Andrea Armaroli (1), Gaetano Bellanca (1), Stefano Trillo (1), Simeon Kaunga-Nyirenda (2), Jun Lim (2), Eric Larkins (2), Philip Trost Kristensen (3), Kresten Yvind (3), Jesper Mork (3), Yannick Dumeige (4), Mathilde Gay (4), Pierre Colman (5), Sylvain Combrié (5), Alfredo De Rossi (5); (1) University of Ferrara, Italy; (2) University of Nottingham, UK; (3) Technical University of Denmark, Denmark; (4) University of Rennes 1, France; (5) Thales Research and Technology, France 133

TuD4 Design and Analysis of Polarization Selective Tunable Photonic Crystal Filters; U. Akcakoca, and B. Witzigmann, R. Zamora, T. Kusserow, and H. Hillmer; University of Kassel, Germany 135

TuD5 Coupling between PhC membrane and lensed fiber: simulations and measurements; Akram Akrout (1), Kevin Lengle (1), Thanh Nam Nguyen (1), Philippe Rochard (1), Laurent Brumerie (1), Mathilde Gay (1), Monique Thual (1), Stefania Malaguti (2), Andrea Armaroli (2), Gaetano Bellanca (2), Stefano Trillo (2), Sylvain Combrié (3), Alfredo De Rossi (3); (1) University of Rennes 1 ENSSAT, France; (2) University of Ferrara, Italy; (3) Thales Research and Technology, France 137

TuD6 Strongly confined light in a single mode near quantum dots embedded in photonic crystals; Hiroyuki Nihei; Health Sciences University of Hokkaido, Japan 139

Wednesday, 7 September 2011

WA Edge-Emitting Laser Diodes

- WA1** Travelling-Wave Modeling Of Dynamics Of Ultrafast Reflective-Intracavity-Filter Tunable Fabry-Pérot Lasers For Optical Coherence Tomography; Eugene A.Avrutin, Lixiong Zhang; University of York, UK 141
- WA2** Theoretical and experimental analysis of the lateral modes of high-power broad-area lasers; H. Wenzel(1), P. Crump(1), H. Ekhteraei(1), C. Schultz(1), J. Pomplun(2), S. Burger(3,2), L. Zschiedrich(2), F. Schmidt(3,2) and G. Erbert(1); (1) Ferdinand-Braun-Institut, (2) JCMwave GmbH, (3) Zuse-Institut , all in Berlin, Germany 143
- WA3** Bifurcation analysis of traveling wave models; J. Javaloyes, A. Perez-Serrano, and S. Balle; (1) Universitat de les Illes Balears, Spain. (2) IFISC, Universitat de les Illes Balears, Spain. (3) Institut Mediterrani d'Estudis Avançats, Spain 145
- WA5** Thermo-Electrical Modelling of Nitride Mini-Arrays Based on the Single Edge-Emitting Laser Diode; M. Kuc and R. P. Sarzala; Technical University of Lodz, Poland 147
- WA6** Theoretical Observation of Two State Lasing from InAs/InP Quantum-Dash Lasers; M. Z. M. Khan, Tien K. Ng, U. Schwingenschlogl, and Boon S. Ooi; King Abdullah University of Science & Technology (KAUST), Saudi Arabia 149

WB Material Properties

- WB1** Band-offset engineering at organic/inorganic semiconductor heterointerfaces; S. Blumstengel, F. Henneberger, N. Koch; Humboldt-Universität zu Berlin, Germany (**invited**) 151
- WB2** Maxwell-Bloch approach to Four-Wave Mixing in quantum dot semiconductor optical amplifiers; N. Majer, K. Lüdge, and E. Schöll; Technische Universität Berlin, Germany 153
- WB4** Investigating the Effect of Non Linear Piezoelectricity on the Excitonic Properties of III-N Semiconductor Quantum Dots; J. Pal, G. Tse, S.Tomic; and M.A. Migliorato; University of Manchester, UK 155

WB5	Characterization of TiO ₂ Atomic Crystals for Nanocomposite Materials Oriented to Optoelectronics; L. Chiodo (1), A. Massaro (1), R. Cingolani (1), A. Romero (2), A. Rubio (3); (1) Istituto Italiano di Tecnologia IIT, Italy; (2) Unidad Querétaro, Mexico; (3) Universidad del País Vasco UPV/EHU, Spain	157
WB6	Theoretical Analysis of FWM by ISBT in InGaAs/AlAsSb QWs for Wavelength Conversion; H. Kuwatsuka, R. Akimoto, T. Ogasawara, S. Gozu, T. Mozume, T. Hasama, and H. Ishikawa; National Institute of Advanced Industrial Science and Technology, Japan	159

WC Photonic Devices

WC1	Numerical Analysis of the Whispering Gallery Regime in Open Waveguide Micro-Bends; R. Stabile and K.A. Williams; Technical University of Eindhoven, Netherlands	161
WC2	TE/TM-mode pass polarizers and splitter based on an asymmetric twin waveguide and resonant coupling; A. Wieczorek, B. Roycroft, F.H. Peters, B. Corbett; Tyndall National Institute, Ireland	163
WC4	Synthesis of Negative Group Time Delay Bragg Gratings for Continuum Generation; G.A. Iordachescu, X. Wu, J. Jacquet; SUPELEC, France	165

WD Nanostructures

WD1	Strain and piezoelectric effects in quantum-dot structures; M. Willatzen (1), B. Lassen (1), S. Madsen (1), D. Baretton (2), A. Pecchia (2), A. Di Carlo (2); (1) Mads Clausen Institute, Denmark; (2) Univ. of Rome "Tor Vergata", Italy (invited)	167
WD2	Effective Microscopic Theory of Quantum Dot Superlattice Solar Cells; U. Aeberhard; Forschungszentrum Juelich, Germany	169
WD3	Modeling of InAs\GaAs QD-SOAs for amplification of ultra-short high power pulses; M. Gioannini (1), M. Rossetti (2), I. Montrosset (1), L. Drzewietzki (2) , G. Grozman (2), W. Elsaßer (2), I. Krestnikov (3); (1) Politecnico di Torino, Italy; (2) Technische Universität Darmstadt, Germany; (3) Innolume GmbH, Germany	171
WD4	Conductivity of Quantum-Dot Crystal Simulation Using Physics Based Models; A. Fedoseyev, T. Bald; CFD Research Corporation, USA	173

WD5	Control of carrier relaxation for suppression of optical gain damping by using Well-in-Well structure; Yasutaka Higa, Mikio Sorimachi, Takuya Nishinome, and Tomoyuki Miyamoto; Tokyo Institute of Technology, Japan	175
WD6	Comparison of continuum and atomistic methods for the analysis of InAs/GaAs quantum dots; Daniele Barettoni (1), Alessandro Pecchia (1), Gabriele Penazzi (1) (3), Matthias Auf der Maur (1), Benny Lassen (2), Morten Willatzen (2), and Aldo di Carlo (1); (1) Univ. of Rome Tor Vergata, Italy; (2) University of Southern Denmark, Denmark	177

Thursday, 8 September 2011

ThA Photonic Integrated Circuits

ThA1	Coupled non-linear microresonator systems: modelling and applications; Y. Dumeige, P. Féron; Université Européenne de Bretagne, France (invited)	179
ThA2	Dynamical Transitions in a Coupled Integrated Device; B. Cemlyn, D. Labukhin, M. J. Adams and I. D. Henning; University of Essex, UK	181
ThA4	Hybrid Time-and-Frequency-Domain Approach for Modeling Photonic Integrated Circuits; Sergei Mingaleev (1), Eugene Sokolov (1), Cristina Arellano (2), Igor Koltchanov (2), and Andre Richter (2); (1) VPI Development Center, Belarus; (2) VPIsystems, Germany	183
ThA5	Control, Routing and Mode-Locking Generation of Light Bullets in Planar Waveguide Arrays; Matthew Williams and J. Nathan Kutz; University of Washington, USA	185

ThB Light-Emitting Diodes

ThB1	An industry perspective on the optimization of InGaN lasers and LEDs via modeling; A. Gomez-Iglesias (1), M. Sabathil (1), T. Lermer (1), J. Müller (1), B. Galler (1), C. Eichler (1), A. Avramescu (1), D. Dini (1), I. Pietzonka (1), S. Tautz (1), A. Breidenassel (1), G. Bruederl (1), A. Lell (1), T. Meyer (1), M. Peter (1), S. Lutgen (1), U. Strauss (1), B. Pasenow (2), S.W. Koch (3), W. Scheibenzuber (4), and U. T. Schwarz (4); (1)OSRAM Opto-Semiconductors GmbH, Germany; (2) University of Arizona, USA; (3) Philipps Universität Marburg, Germany; (4) Fraunhofer Institute for Applied Solid State Physics IAF, Germany (invited)	187
-------------	---	-----

ThB2	Numerical Simulations of Blue and Green GaN Superluminescent Light Emitting Diodes (SLEDs); Nicolai Matuschek, Marco Rossetti, Jerome Napierala, Marcus Duelk, Christian Velez; EXALOS AG, Switzerland (invited)	189
ThB3	Polarization-Doped AlGaN Light-Emitting Diode; Joachim Piprek; NUSOD Institute LLC, USA	191
ThB4	Band gap engineering approaches to increase InGaN/GaN LED efficiency; M. Auf der Maur (1), K. Lorenz (2) and A. Di Carlo (1); (1) University of Rome Tor Vergata, Italy; (2) Instituto Tecnologico e Nuclear, Portugal	193
ThB5	Atomistic simulation of InGaN/GaN quantum disk LEDs; M. Lopez, F. Sacconi, M. Auf der Maur, A. Pecchia, A. Di Carlo; University of Rome Tor Vergata, Italy	195
 ThC <u>Photodetectors</u>		
ThC1	Timing Enhanced Silicon SPAD design; M. Assanelli, A. Gulinatti, I. Rech and M. Ghioni; Politecnico di Milano, Italy	197
ThC2	3D Electromagnetic and Electrical Simulation of HgCdTe Pixel Arrays; C. A. Keasler and E. Bellotti; Boston University, USA	199
ThC3	GPU Computing of Quantum Dot Infrared Photodetectors; A. Fedoseyev, V. Venugopalan; CFD Research Corporation, USA	201
ThC4	Design of Strain Compensated InGaAs/GaAsSb Type-II Quantum Well Structures for Mid-infrared Photodiodes; Baile Chen, A. L. Holmes Jr, W.Y. Jiang, Jinrong Yuan; University of Virginia, USA	203
ThC5	Modeling the Effects of Interface Traps on Passive Quenching of a Ge/Si Geiger Mode Avalanche Photodiode; John M. Hayes (1), Farzan Gity (1), Brian Corbett (1), and Alan P. Morrison (2); (1) Tyndall National Institute, Ireland; (2) University College Cork, Ireland	205
Author Index		207

Postdeadline paper summaries are distributed separately at the conference.