



PHASE 2007
International Workshop
on
PHysics & Applications of
SEMiconductor LASERS

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IPSSO 2007
International Workshop
on
Instabilities, Patterns and
Spatial SOLitons

Supélec, Metz (France)
March 28-30 (2007)

March 28

08h30 Registration

09h10 Welcome

PHASE Session 1 : Photonic crystal laser devices	IPSSO Session 1 : Dissipative solitons
09h30 Keynote Speaker John O'Brien <i>Photonic crystal devices</i>	09h35 X. Tr. Tran, N. N. Rosanov <i>Dissipative solitons in active nonlinear fibers with Bragg gratings</i>
10h15 M. Dems, T. Czyszanowski, K. Panajotov <i>Polarization control in photonic-crystal VCSELs with elliptical holes</i>	09h55 D. Gomila, G.-L. Oppo <i>Spatial dissipative solitons with intra-cavity photonic crystals</i>
	10h15 J.M. Soto-Crespo, N. Akhmediev, Ph. Grelu, N. Devine <i>Spatio-temporal solitons in dissipative systems</i>

10h35 Coffee Break

PHASE Session 2 : Fabrication and characterization of laser devices	IPSSO Session 2 : Spatial solitons in various nonlinear media
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- 11h05 Y. Sun, N. Balkan, M. Yilmaz, B. Ulug, A. Ulug, M. Sopanen, O. Reentilä, M. Mattila, C. Fontaine, A. Arnoult
Optical assessment of modulation-doped n and p type GaInNAs/GaAs quantum wells for 1,3 μ m laser application
- 11h25 J. Pozo, N. Vogiatzis, J. W. Lu, O. Ansell, J. M. Rorison, P. J. Heard, P. Tuomisto, J. Konttinen, M. Saarinen, C. Peng, J. Viheriälä, T. Leinonen, M. Pessa
Fabrication and characterization of GaInNAs/GaAs semiconductor optical amplifiers
- 11h45 M. Blazek, S. Breuer, T. Gensty, W. E. Elsässer, M. Hopkinson, K. M. Groom, M. Calligaro, P. Resneau, M. Krakowski
Intensity noise of quantum dot-superluminescent light emitting diodes and lasers at 1,3 μ m
- 12h05 A. Beveratos, A. Beveratos, A. Michon, R. Hosten, I. Robert-Philip, G. Beaudoin, N. Gogneau, I. Sagnes
Towards a single photon source at telecom wavelength based on InAs/InP quantum dots

- 11h00 **Keynote Speaker**
Ulf Peschel
Solitons in modulated space
- 11h45 D. Neshev, A. A. Sukhorukov, A. Dreischuh, R. Fischer, S. Ha, J. Bolger, L. Bui, W. Krolikowski, B.J. Eggleton, A. Mitchell, M. W. Austin, Y. S. Kivshar
Observation of supercontinuum spatial gap solitons
- 12h05 M. Pesch, T. Ackemann, D. Gomila, W. Lange
Growth laws, pinning and localized structures, an experiment in sodium vapor

12h30 Lunch

PHASE/IPSSO Joint Session 1 : Semiconductor laser nonlinear dynamics

14h00 **Keynote Speaker**

Jia-Ming Liu

Nonlinear Dynamics of Semiconductor Lasers and Applications

14h45 H. Erzgraber, B. Krauskopf

Transitions from locking to delay coupled semiconductor lasers

15h05 M. Yousefi, S. Beri, Y. Barbarin, E. A. J. M. Bente, M. K. Smit, D. Lenstra

Investigation of the nonlinear dynamics of photonic integrated circuits

15h25 G. Huyet, D. Goulding, S. Melnik, O. Rasskazov, S. P. Hegarty, D. Rachinskii

Instabilities in quantum dot semiconductor lasers at 1.3 μ m

15h45 I. Gatare, M. Sciamanna, M. Nizette, K. Panajotov

Bifurcations to polarization switching and locking in optically injected VCSELs

16h05 Coffee Break**PHASE Session 3 : Quantum dot laser modelling****IPSSO Session 3 : Break-up and control of instabilities**

16h30 P. Moreno, A. Markus, B. Deveaud, A. Fiore
Modeling of phase dynamics in quantum dot lasers and amplifiers

16h30 S.P. Gorza, Ph. Emplit, M. Haelterman
Break up of spatially extended temporal bright soliton due to snake instability

16h50 M. Gioannini, I. Montrosset
Comprehensive model for quantum dot superluminescent diodes and lasers

16h50 G.R. M. Robb, W. J. Firth
Recoil induced collective instabilities in cold atomic gases

17h10 T. Erneux, E. A. Viktorov, P. Mandel
Nonlinear stability of quantum dot semiconductor lasers

17h10 A. Mussot, M. Tlidi, E. Louvergneaux, G. Kozyreff, A. G. Vladimirov, M. Taki
Control and removing modulation instabilities in fiber cavities by dispersion shaping

PHASE Session 4 : Design of laser structures

17h30 L. Piskorsky, R. P. Sarzala, W. Nakwaski
Mode selectivity of 650-nm GaInP/AlGaInP quantum well GaAs-based vertical-cavity surface-emitting diode lasers

17h50 L. Columbo, F. Prati
Role of the alpha factor in the destabilization of on-axis emission in broad area semiconductor lasers

18h10 P. Morel, A. Sharaiha, M. Amaya
Simulation of optical speed-up at transparency in SOAs, taking gain compression into account

18h30 End of Day 1

March 29

PHASE Session 4 : VECSELS

IPSSO Session 4 : Photorefractive and Kerr media

08h45 **Keynote Speaker**

Ursula Keller

The next generation of passively modelocked VECSELS – a new class of ultrafast semiconductor lasers

09h30 B. Cocquelin, G. Lucas-Leclin, P. Georges, I. Sagnes, A. Garnache

Design of a low-threshold VECSEL emitting at 852 nm for Cs atomic clocks

09h50 J. P. Turrenc, S. Bouchoule, A. Khadour, J. Decobert, A. Miard, J. C. Harmand, J. L. Oudar

Single transverse mode RT CW operation of an OP-VECSEL at 1,56 um with hybrid metallic-metamorphic mirrors

08h50 T. Richter, F. Kaiser

Anisotropic gap vortices in photorefractive media

09h10 R. Passier, F. Devaux, M. Chauvet

Dynamical behaviour of vortices in photorefractive medium

09h30 C. Dan, N. Khelifaoui, D. Wolfersberger, N. Fressengeas, H. Leblond

Photorefractive self-focusing in InP :Fe on microsecond timescale at near infrared

09h50 G. Fanjoux, J. Michaud, M. Delqué, H. Maillotte, T. Sylvestre

Spatio temporal dynamics of multicolour spatial Kerr solitons

10h10 S. D. Jenkins, L. Columbo, F. Prati, L. A. Lugiato

Cavity light bullets in a Kerr-like dissipative model

10h30 Coffee Break

PHASE Session 5 : High performance laser devices

IPSSO Session 5 : Photonic Lattices and Surface Solitons

11h00 I. Hassiaoui, N. Michel, M. Lecomte, O. Parillaud, M. Calligaro, M. Krakowski

Coherent coupling of tapered laser diodes in an external talbot cavity

11h20 Y. Barbarin, E. A. J. M. Bente, M. J. R. Heck, D. Lenstra, M. K. Smit

Simulation of symmetric and assymmetric integrated extended cavity passively mode-locked ring lasers

11h00 **Keynote Speaker**

Moti Segev

Nonlinear waves, solitons, and Anderson Localization in photonic lattices

11h40 M. Radzunias, U. Troppenz, J. Kreissi
Tailoring a passive feedback DFB laser for direct modulation applications

12h00 N. Michel, I. Hassiaoui, M. Calligaro, O. Parillaud, M. Krakowski
High-power, high-brightness, index-guided tapered lasers, comparison between CW and pulsed operation

12h20 F. Hopfer, A. Mutig, G. Fiol, M. Kuntz, V. Shchukin, N. N. Ledentsov, D. Bimberg, S. S. Mikhurin, I. L. Krestnikov, D. A. Livshits, A. R. Kovsh, C. Bornholdt
10 Gbit/s 1250 nm VCSELs based on low-temperature grown quantum dots

12h00 K. Motzek, A. A. Sukhorukov, Y. S. Kivshar
Polychromatic effects at nonlinear photonic lattice interfaces

12h20 Y. V. Kartashov, L. Torner
New surface soliton phenomena

12h40 Lunch

PHASE/IPSSO Joint Session 2 : Semiconductor cavity solitons

14h00 Keynote Speaker

Luigi Lugiato

Cavity soliton laser

14h45 F. Pedaci, S. Barland, E. Caboche, P. Genevet, M. Giudici, J. R. Tredicce

Cavity soliton motion in semiconductor lasers

15h05 M. Brambilla, T. Maggipinto, I. M. Perrini, S. Barbay, R. Kuszelewicz

Cavity solitons and pattern forming instabilities in a pumped quantum dot semiconductor microresonator

15h25 T. Ackemann, Y. Tanguy, A. J. Scroggie, W. J. Firth, P. Paulau, A. V. Naumenko, N. A. Loiko, R. Jäger

Cavity-soliton lasers in broad-area vertical-cavity devices with filtered feedback

15h45 M. Martinez-Quesada, G. J. de Valcarcel

Phase-cavity solitons in class B lasers

16h05 Coffee Break

PHASE/IPSSO Poster Session

18h00 End of Day 2

20h00 Gala Dinner

March 30

PHASE Session 6 : Quantum Cascade Lasers

IPSSO Session 6 : Control and motion of spatial solitons

09h00 **Keynote Speaker**

Claire Gmachl

Recent results in quantum cascade lasers and applications

09h45 M. Klimenko, I. M. Safonov, O. V. Shulika, I. A. Sukhoivanov,
R. Michalzik

Effective-mass superlattice as an injector in quantum cascade lasers

10h05 J. Bai, D. S. Citrin

Design of nonlinearity enhanced quantum cascade lasers

09h05 N. Rosanov, S. V. Fedorov, A. N. Shatsev, N. A. Veretenov
Motion of complexes of laser solitons

09h25 B. Gütlich, C. Cleff, C. Denz

Dynamic and static position control of optical feedback solitons in a LCLV single feedback system

09h45 A. Jacobo, D. Gomila, P. Colet, M. A. Matias

Dynamics of localized structures in nonlinear cavity with an addressing Gaussian beam

10h05 S. Barbay, Y. Menésguen, X. Hachair, T. Elsass, I. Sagnes,
R. Kuszelewicz

Physical mechanism and numerical modelling of the incoherent writing/erasure of cavity solitons in a vertical cavity semiconductor optical amplifier

10h30 **Coffee Break**

PHASE Session 7 : Multimode laser dynamics

IPSSO Session 7 : Interactions of spatial solitons

11h05 F. Pedaci, S. Barland, M. Giudici, J. R. Tredicce, S. Lepri,
G. Giacomelli, S. Balle

Stochastic effects in the modal dynamics of bulk semiconductor lasers

11h25 S. O'Brien, S. Osborne, K. Buckley, A. Amann, S. Hegarty, G.
Huyet, E. P. O'Reilly

Dynamics of an optically injected two-colour Fabry-Perot laser diode

11h45 A. Valle, M. Sciamanna, K. Panajotov

Polarization dynamics in VCSELs subject to high-frequency current modulation

11h00 **Keynote Speaker**

Stefano Trillo

Instabilities and soliton generation driven by collisionless shocks

11h45 A. Degasperis, M. Conforti, F. Baronio, S. Wabnitz

Propagation and interactions of three-wave parametric solitons

12h05 K. Green, B. Krauskopf, D. Lenstra
Effects of optical feedback induced mode-coupling in VCSELS

12h05 M. Delqué, G. Fanjoux, T. Sylvestre
Collisions between vector and scalar spatial solitons

12h30 Lunch

PHASE Session 8 : Coupled lasers and synchronization

IPSSO Session 8 : Nonlocal solitons, nonlocal coupling and nonlocal interactions

14h00 S. Lea, P. S. Spencer
Frequency domain analysis of the chaotic synchronization of injection-locked semiconductor lasers

14h20 C. Gonzalez, C. Masoller, M. C. Torrent, J. Garcia-Ojalvo
From clustering to synchronization in a semiconductor laser array

14h40 O. Vaudel, J. F. Hayau, P. Besnard
Synchronization between optically injected semiconductor lasers on different dynamics

15h00 T. Perez, C. R. Mirasso, H.-J. Wünsche, F. Henneberger, M. Radzunias
Synchronization of chaotic unidirectionally coupled multisection lasers

14h00 C. Conti, N. Ghofraniha, G. Ruocco, S. Trillo
Nonlocal solitons and filamentation in soft matter

14h20 W. Firth, L. Columbo
Nonlocal coupling resolves cavity solitons theory-experiment discrepancy

14h40 R. Zambrini, F. Papoff
Two point nonlocality in nonlinear optical devices

15h00 L. Gelens, P. Tassin, G. Van der Sande, I. Veretennicoff P. Kockaert, M. Tlidi, D. Gomila, J. Danckaert
Influence of nonlocal interactions on the formation and stability of cavity solitons

15h20 End of Day 3

PHASE/IPSSO March 29 Poster Session

PHASE-01	R. Brazis, V. Ivanov, M. Godlewski	Tuneability of photon energy emitted by laser-excited CdMnTe crystals
PHASE-02	J.M. Noriega, A. Valle, L. Pesquera	Timing jitter reduction in gain-switched VCSELs induced by external optical injection
PHASE-03	M.S. Torre, A. Valle, L. Pesquera	Transverse mode selection in VCSELs with external optical injection
PHASE-04	P. Ridha, L. Li, M. Rossetti, G. Patriarche, A. Fiore	Polarization dependence of electroluminescence from closely-stacked and columnar quantum dots
PHASE-05	M. Arizaleta, J. Hernandez, K. Koltys, A. Tabaka, H. Thienpont, M. Lopez-Amo, K. Panajotov	Wavelength modulation of an edge-emitting semiconductor laser subject to optical feedback from an extremely short external cavity: causes and limits
PHASE-06	V. Ligeret, S. Bansropun, M. Lecomte, M. Calligaro, O. Parillaud, M. Krakowski	Narrow spectral linewidth between 10 and 90°C, high-power Al-free active region DFB operating at 852 nm for Cs pumping
PHASE-07	P. Resneau, M. Calligaro, B. Rousseau, F. Lelarge, M. Krakowski	Low threshold, very low noise, high temperature operation of 1,55 μm InP-based Fabry-Perot quantum dashes-in-a-well (DWELL) lasers
PHASE-08	A. Homayounfar, M. J. Adams	Analysis of pumping, birefringence and spin relaxation effects on free running VCSELs and the dynamic map for optical injection
PHASE-09	E. Gesikowska, W. Nakwaski	Thermal problems in modern multi-layered semiconductor devices
PHASE-10	S. Beri, M. Yousefi, P. C. De Jagher, D. Lenstra, M. K. Smit	Complete rate equation modelling for the dynamics of multi-mode semiconductor lasers
PHASE-11	M. Wasiak	Steady-state over-threshold model of VCSELs and its numerical analysis
PHASE-12	S. Ortin, M. Jacquot, L. Pesquera, M. Peil, L. Larger	Extraction of nonlinear dynamics of chaotic cryptosystems based on delayed optoelectronic feedback
PHASE-13	J. P. Turrenc, A. Khadour, S. Bouchoule, J. Decobert, X. Lafosse, L. Leroy, I. Sagnes, J. L. Oudar	Thermal optimization of 1,55 μm OP-VECSELs

PHASE-14	M. C. Arikan, A. Erol, M. Aslan, Y. Sun, N. Balkan, M. Sopanen, O. Reentilä, M. Mattila, C. Fontaine, A. Arnoult	Spectral investigations of GaInNAs p and n-modulation doped quantum wells for 1,3 μm laser structures
PHASE-15	M. Radzunias	Simulation and analysis of the multimode model for semiconductor ring lasers
PHASE-16	A. Vladimirov, U. Bandelow, E. A. Viktorov, P. Mandel	Delay-differential models for passive mode-locking in semiconductor lasers
PHASE-17	V. Kokonenko, B. F. Kuntsevich, M. Marciniak	Nonlinear dynamics of directly modulated quantum well heterostructure laser diodes and deviation of the emission frequency
PHASE-18	L. Borruel, H. Odriozola, J. M. G. Tijero, I. Esquivias, S. Sujecki, E. C. Larkins	Design strategies to increase the brightness of gain guided tapered lasers
PHASE-19	W. Abou Hamad, T. Rampone, A. Sharaiha, B. Pucel	All-optical microwave mixer used as a frequency down-converter, based on semiconductor optical amplifier (SOA)
PHASE-20	N. Gogneau, L. Le Gratiot, E. Cambril, G. Beaudoin, A. Beveratos, R. Hosten, I. Robert-Philip, I. Sagnes	New approach of Nano Selective Area Growth (NSAG) of localized InAs/InP quantum dots for single photon source applications
PHASE-21	T. Czynanowski, M. Dems, K. Panajotov	Design of long wavelength VCSEL with photonic crystal in the top DBRs
PHASE-22	A. Garnache, I. Sagnes, G. Beaudoin, L. Couraud	Tunable metal-semiconductor reflection filters for single frequency sources
PHASE-23	K. Veselinov, M. Gioannini, I. Montrosset, F. Grillot, A. Bekiarski, S. Loualiche	Lasing spectra of 1.55 μm InAs/InP quantum dot lasers : theoretical analysis and comparison with the experiments
PHASE-24	M. Jacquemet, M. Domenech, J. Dion, M. Strassner, G. Lucas Leclin, P. Georges, I. Sagnes, A. Garnache	High-Power Single-Frequency VECSEL at 1003.4 nm & 501.7 nm
PHASE-25	I. Gatara, M. Sciamanna, A. Locquet, K. Panajotov	Polarization synchronization in unidirectionally coupled VCSELs

IPSSO-01	R. Brazis, R. Raguotis	Electron and phonon dynamics in indium antimonide crystals
IPSSO-02	K. G. Koprulu, A. Locquet, P. L. Voss	Evolution of spatial patterns of optical quantum noise by Z-translation of thin Kerr nonlinear media
IPSSO-03	A. Mussot, M. Beaugois, M. Bouazaoui, T. Sylvestre	Tailoring strong cw supercontinuum generation in microstructured fibers with two-zero dispersion wavelengths
IPSSO-04	M. Fontana, J. P. Salvestrini	On the frequency dependence of electro-optic and nonlinear optic coefficients
IPSSO-05	A. Ruso, M. Aillerie, N. Fressengeas	Engraving an optical waveguide in a lithium niobate crystal fiber
IPSSO-06	Ch. Dan, D. Wolfersberger, N. Fressengeas, G. Montemezzani, A. A. Grabar	Near infrared steady state photorefractive self focusing in Sn ₂ P ₂ S ₆ :Te crystals
IPSSO-07	M. Gorram, G. Montemezzani, A. A. Grabar	Reconfigurable waveguides induced in photorefractive ferroelectrics by visible light
IPSSO-08	F. Petazzi, M. Alonzo, E. Fazio, A. Petris, V. I. Vlad, V. Coda, M. Chauvet	IR Self-focusing in lithium niobate by means of second harmonic generated seeds
IPSSO-09	G. Renversez, M. Zacaes, F. Drouart, G. March, A. Nicolet, A. Ferrando	Donor and acceptor modes in nonlinear microstructured optical fibers