PROGRAM
for
THE SEVENTH IMACS INTERNATIONAL CONFERENCE ON NONLINEAR EVOLUTION EQUATIONS AND WAVE PHENOMENA: COMPUTATION AND THEORY
ATHENS, GA
APRIL 04-07, 2011

SUNDAY, APRIL 03, 2011
05:00 – 07:00   REGISTRATION
05:00 – 07:00   RECEPTION

MONDAY, APRIL 04, 2011

07:00 – 09:00   **REGISTRATION**
08:00 – 08:20   **WELCOME, Masters Hall**
        Thiab R. Taha/Program Chair and Conference Coordinator
        Jere Morehead /Provost, Senior Vice President for Academic Affairs, UGA

08:20 - 09:20   KEYNOTE LECTURE: George Papanicolaou, Masters Hall
        Title: Linear and Non-linear Waves in Random Media
        Chair: Jerry Bona

09:20 - 10:20   **SESSION 1, Masters Hall**
        Chair: Jerry Bona, Min Chen and Vassilios Dougalis
        Title: Nonlinear Waves

09:20 - 09:50   Speaker: Vishal Vasan and Bernard Deconinck
        Title: Boundary-value problems for the linear BBM equation
09:50 - 10:20   Speaker: Vassilios Dougalis
        Title: Numerical solution of Boussinesq systems

09:20 - 10:20   **SESSION 15, Room Q**
        Chairs: Philippe Guyenne, Henrik Kalisch and Emilian Parau
        Title: Internal Waves

09:20 - 09:50   Speaker: Walter Craig, Philippe Guyenne and Catherine Sulem
        Title: Coupling between internal and surface waves
09:50 - 10:20   Speaker: Hugh Woolfenden and Emilian Parau
        Title: Numerical computation of gravity-capillary solitary waves in a two-layer
            fluid and related flows

09:20 - 10:20	**SESSION 17, Room R**
	Chairs: Dmitry Pelinovsky and Tetsu Mizumachi
	Title: Long-time dynamics of solitary waves
09:20 - 09:50	Speaker: Gideon Simpson
	Title: Carrier Shocks and Coherent Structures in the Nonlinear Maxwell Equations
09:50 - 10:20	Speaker: Igor Barashenkov
	Title: Rocking modes of the sine-Gordon and phi-4 kink

09:20 - 10:20	**SESSION 03, Room K**
	Chairs: Zhijun Qiao, Changezheng Qu, Yue Liu, Taixi Xu
	Title: Recent development in integrable systems and solitons
09:20 - 09:50	Speaker: D.J. Kaup and Robert Van Gorder
	Title: Defining Scattering Data for the Nondegenerate N x N Operator
09:50 - 10:20	Speaker: Robert Van Gorder and David Kaup
	Title: Resonant solitons for the 3x3 operator

09:20 - 10:20	**SESSION 11, Room L**
	Chairs: Andrei Ludu and Ivailo Mladenov
	Title: Nonlinear Geometry of Drops, Membranes and Filaments
09:20 - 09:50	Speaker: Todd Smith, Roy Choudhury and Craig White
	Title: Generalized Hopf Bifurcations and Chaos in a Laser-Diode and a Predator-Prey System
09:50 - 10:20	Speaker: Christo Christov
	Title: Geometrically Nonlinear First-Order Theory of Ultra Thin Shells: Momentum Supporting Membranes

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| 10:20 - 10:40 | **COFFEE BREAK** |

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10:40 - 12:10	**SESSION 1, Masters Hall**
	Chair: Jerry Bona, Min Chen and Vassilios Dougalis
	Title: Nonlinear Waves
10:40 - 11:10	Speaker: Constance Schober and A. Islas
	Title: Rogue waves and downshifting
11:10 - 11:40	Speaker: Jorge Alvarez and Angel Duran
	Title: Computation of solitary wave profiles in Boussinesq systems: A comparative study
11:40 - 12:10	Speaker: Nghiem V. Nguyen and Zhi-Qiang Wang
	Title: On the orbital stability of solitary waves for the 2-coupled nonlinear Schrodinger system

10:40 - 12:10   **SESSION 02, Room R**
Chair: Pedro Jordan, Ivan Christov and Michail Todorov
Title: Recent trends in nonlinear wave phenomena---Achievements and challenges:
A symposium dedicated to Prof. Christo I. Christov on the occasion of his
60th birthday

10:40 - 11:10   Speaker: Hady Joumaa and Martin Ostoja-Starzewski
Title: Wave Propagation in Fractal Media
11:10 - 11:40   Speaker: Richard Keiffer
Title: A Causal Scheme for Reducing the Dimensionality of Stochastic Basis
Expansions for Wave Propagation in Random Media
11:40 - 12:10   Speaker: Benoit Sarels
Title: Reaction-diffusion fronts crossing localized defects

10:40 - 12:10   **SESSION 19, Room K**
Chairs: Jianke Yang
Title: Nonlinear waves in periodic and quasi-periodic media
10:40 - 11:10   Speaker: Zhigang Chen and Peng Zhang
Title: Spatial control of beam propagation with specially-engineered photonic
lattices
11:10 - 11:40   Speaker: Panos Kevrekidis
Title: Coherent Structures in Granular Crystals: From Traveling Waves to Discrete
Breathers and Beyond
11:40 - 12:10   Speaker: Guenbo Hwang
Title: Solitary waves and their stability in nonlinear lattices

10:40 - 12:10	**SESSION 13, Room L** Chair: Yuri Latushkin and Hermen Jan Hupkes Title: Spectral and nonlinear stability for waves
10:40 - 11:10	Speaker: Anna Ghazaryan , Jeffrey Humpherys and Joshua Lytle Title: On the unstable fronts in high Lewis number combustion model
11:10 - 11:40	Speaker Todd Kapitula Title: A Signature-Detecting Evans Function: the Krein Matrix
11:40 - 12:10	Speaker: Vahagn Manukian Title: On the traveling waves in the Gray-Scott model

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12:10 - 1:20	**LUNCH**

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1:20 - 3:20	**SESSION 8, Masters Hall** Chair: Kenichi Maruno, Anton Dzhamay, Baofeng Feng, and Stephane Lafortune Title: Symmetry and Integrability of Discrete and Ultradiscrete Systems
1:20 – 1:50	Speaker: Hiroshi Miki and Satoshi Tsujimoto Title: Spectral transformation of skew orthogonal polynomials
1:50 – 2:20	Speaker: Dmitry Zakharov and Igor Krichever Title: Real-normalized Abelian differentials and Morse theory on the moduli space of pointed Riemann surfaces
2:20 – 2:50	Speaker: Anton Dzhamay Title: Combinatorial properties of eigenvectors of rational matrix functions and Applications

1:20 – 3:20	**SESSION 17, Room Q** Chairs: Dmitry Pelinovsky and Tetsu Mizumachi Title: Long-time dynamics of solitary waves
1:20 – 1:50	Speaker: Robert Pego and Shu-Ming Sun Title: Asymptotic linear stability of solitary water waves
1:50 - 2:20	Speaker: Tetsu Mizumachi and Nikolay Tzvetkov Title: Miura transformation and orbital stability of KP-II solitons
2:20 – 2:50	Speaker: Atanas Stefanov Title: Transverse instability for periodic waves of KP-I and Schrodinger equations
2:50 – 3:20	Speaker: Yue Liu Title: Wave breaking phenomena and solitary waves for the mu-Camassa-Holm equation

1:20 – 3:20	**SESSION 2, Room R**
	Chairs: Pedro Jordan, Ivan Christov and Michail Todorov
	Title: Recent trends in nonlinear wave phenomena---Achievements and challenges: A symposium dedicated to Prof. Christo I. Christov on the occasion of his 60th birthday

1:20 – 1:50	Speaker: George Homsy
	Title: Transport of heat or mass from chaotically stirred drops
1:50 - 2:20	Speaker: Brian Straughan
	Title: Cattaneo-Christov thermohaline convection
2:20 – 2:50	Speaker: Nikolay Moshkin and K. Narong
	Title: Comparative assessment of high-order finite-difference upwind schemes for the modeling of mixed region collapse in a stratified fluid
2:50 – 3:20	Speaker: Ronald Mickens
	Title: A NSFD Discretization of the Generalized Telegraph PDE

1:20 - 3:20	**SESSION 03, Room K**
	Chair: Zhijun Qiao, Changezheng Qu, Yue Liu, Taixi Xu
	Title: Recent development in integrable systems and solitons

1:20 – 1:50	Speaker: Jacek Szmigielski and Hans Lundmark
	Title: On a two-potential generalization of the Degasperis-Procesi equation
1:50 – 2:20	Speaker: Tony W.h. Sheu and C.h. Yu
	Title: Numerical study of switching and dissipative behaviors natures in the Camassa-Holm equation
2:20 - 2:50	Speaker: Engui Fan and Y C Hon
	Title: Super Bell Polynomials with Their Applications to Superymmetric Equations
2:50 – 3:20	Speaker: Caixia Chen
	Title: Wave Breaking Phenomena and Global Solutions for a Generalized Periodic Two-component Camassa-Holm System

1:20 - 3:20	**SESSION 04, Room L**
	Chair: Ricardo Carretero and Panayotis Kevrekidis
	Title: Nonlinear Schrödinger Models: Mathematical Analysis and Physical Applications

1:20 – 1:50	Speaker: Nir Dror and Boris Malomed
	Title: Solitons supported by localized nonlinearities in periodic media
1:50 – 2:20	Speaker: Anton Sakovich and Dmitry Pelinovsky
	Title: Internal modes of discrete solitons near the anti-continuum limit of the dNLS equation
2:20 - 2:50	Speaker: Erwin Suazo and Sergei K. Suslov
	Title: On separation of variables for linear and nonlinear Schroedinger equation

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1:20 – 3:45	**POSTER PAPERS**, Pecan Tree Galleria
	Author: Nuwan De Silva
	Paper 1: Moment Closure Methods in Conductance Based Neurons: A Theoretical Justification.
	Authors: Leonidas Deligiannidis and Thiab Taha
	Paper 2: A GUI Based Tool to Exercise Numerical Simulation Algorithms

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| **3:20 – 3:45** | **COFFEE BREAK** |

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3:45 – 6:15	**SESSION 8, Masters Hall**
	Chairs: Kenichi Maruno, Anton Dzhamay, Baofeng Feng, and Stephane Lafortune
	Title: Symmetry and Integrability of Discrete and Ultradiscrete Systems
3:45 – 4:15	Speaker: Tetsuji Tokihiro
	Title: On negative soliton solutions to ultradiscrete KdV equation
4:15 – 4:45	Speaker: Jonathan Nimmo
	Title: Bound states for the discrete Schroedinger equation and solutions of the ultradiscrete KdV equation
4:45 – 5:15	Speaker: Shin Isojima
	Title: Ultradiscrete Painleve II equation with parity variables and a class of its special function solutions
5:15 – 5:45	Speaker: Shinsuke Iwao
	Title: Tropical curves and Ultradiscrete systems

3:45 – 6:15	**SESSION 13, Room Q**
	Chairs: Yuri Latushkin and Hermen Jan Hupkes
	Title: Spectral and nonlinear stability for waves
3:45 – 4:15	Speaker: Stephen Schecter, Anna Ghazaryan and Yuri Latushkin
	Title: Stability of traveling waves for a class of reaction-diffusion systems that arise in chemical reaction models
4:15 – 4:45	Speaker: Alin Pogan
	Title: Localized Patterns and Conservation Laws
4:45 – 5:15	Speaker: Blake Barker and Kevin Zumbrun
	Title: A numerical stability investigation of strong ZND detonations
5:15 – 5:45	Speaker: Aaron Hoffman and Erik Van Vleck
	Title: Multi-dimensional stability of planar fronts in the discrete Allen-Cahn Equation

3:45 – 6:15	**SESSION 12, Room R**
	Chairs: John Carter, Mark Groves and Erik Wahlen
	Title: Recent Developments in Mathematical Studies of Water Waves
3:45 – 4:15	Speaker: Harvey Segur
	Title: Gravity-driven waves on a viscous fluid

4:15 – 4:45	Speaker: Vera Mikyoung Hur
	Title: Gain of regularity vs. wave breaking for surface water waves
4:45 – 5:15	Speaker: Rouslan Krechetnikov
	Title: On the crown formation in the drop splash problem
5:15 – 5:45	Speaker: Harry Yeh
	Title: Mach Reflection -- Validation of Theory with Experiments
5:45 – 6:15	Speaker: David Ambrose
	Title: Numerical methods for time-periodic interfacial flows

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3:45 – 6:15 **SESSION 09, Room K**
Chairs: Alex Himonas and Dan Geba
Title: Analysis and Geometry of Nonlinear Evolution Equations"

3:45 – 4:15	Speaker: Jerry Bona and Fred Weissler
	Title: Blow-up of Complex-valued Solutions of the KdV-equation
4:15 – 4:45	Speaker: Hongqiu Chen
	Title: Comparison of Quarter-plane and Two-point Boundary Value
	Problems: The Regualrized Boussinesq system of Equation
4:45 – 5:15	Speaker: Nikolaos Tzirakis
	Title: High frequency perturbation of cnoidal waves
5:15 – 5:45	Speaker: Curtis Holliman
	Title: Well-Posedness of Camassa-Holm Type Equations
5:45 – 6:15	Speaker: Elizabeth Groves and Joseph Eberly
	Title: Double-Soliton Solution for Information Storage and Retrieval

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3:45 – 6:15 **SESSION 04, Room L**
Chair: Ricardo Carretero and Panayotis Kevrekidis
Title: Nonlinear Schrödinger Models: Mathematical Analysis and Physical
Applications

3:45 – 4:15	Speaker: Peter Engels, JiaJia Chang, Chris Hamner and Mark Hoefer
	Title: Nonlinear hydrodynamics in binary Bose-Einstein Condensates:
	Superfluid counterflow and novel types of solitons
4:15 – 4:45	Speaker: Michael Fraser, Georgios Roumpos, Makoto Kuwata-Gonokami,
	Sven Hofling, Alfred Forchel and Yoshihisa Yamamoto
	Title: Vortex dynamics in a dissipative exciton-polariton condensate
4:45 – 5:15	Speaker: Brian P. Anderson, Edward C. Samson, Kali E. Wilson,
	Zachary L. Newman and Ewan M. Wright
	Title: Creation and Manipulation of Vortices in a Bose-Einstein Condensate
5:15 – 5:45	Speaker: Scott Strong and Lincoln Carr
	Title: Vortex Filaments, Local Induction and Simulating Quantum Turbulence
5:45 – 6:15	Speaker: Ronald Caplan and Ricardo Carretero
	Title: Vortex Ring dynamics and interactions in the Nonlinear Schödinger Equation

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TUESDAY, APRIL 05, 2011

8:00 - 9:00	**KEYNOTE LECTURE**: Mark Ablowitz, Masters Hall
	Chair: Thiab Taha
	Title: Nonlinear waves: from beaches to 'optical graphene'

9:00 – 10:00	**SESSION 5, Masters Hall**
	Chairs: Yuji Kodama and Virgil Pierce
	Title: Weak dispersion limits of integrable systems and random matrix models

9:00 – 9:30	Speaker: Kanehisa Takasaki
	Title: Non-degenerate solutions of universal Whitham hierarchy

9:00 – 10:00	**SESSION 16, Room Q**
	Chairs: Benjamin Akers and David Nicholls
	Title: Water waves with gravity and surface tension

9:00 – 9:30	Speaker: Mark Groves
	Title: Existence and stability of fully localised three-dimensional gravity-capillary solitary water waves
9:30 – 10:00	Speaker: Jon Wilkening and Chris Rycroft
	Title: Computation of Time-Periodic Water Waves

9:00 – 10:00	**SESSION 2, Room R**
	Chairs: Pedro Jordan, Ivan Christov and Michail Todorov
	Title: Recent trends in nonlinear wave phenomena---Achievements and challenges: A symposium dedicated to Prof. Christo I. Christov on the occasion of his 60th birthday

9:00 – 9:30	Speaker: Len Margolin
	Title: Finite Time Equations for High-Strain Rate Plasticity
9:30 – 10:00	Speaker: Sanichiro Yoshida
	Title: Wave dynamics in plastic deformation

9:00 – 10:00	**SESSION 7, Room K**
	Chairs: Willy Hereman
	Title: Symbolic Computation in the Study of Nonlinear Differential and Difference Equations

9:00 – 9:30	Speaker: Thomas Trogdon and Bernard Deconinck
	Title: The numerical solution of Riemann-Hilbert problems associated with integrable systems
9:30 – 10:00	Speaker: Unal Goktas and Willy Hereman
	Title: Symbolic computation of recursion operators of nonlinear differential-difference equations

| 9:00 – 10:00 | **PAPERS, Room L** |
| | Chairs: Ranis Ibragimov |

9:00 – 9:30	Speaker: Ranis Ibragimov
	Title: Nonlinear atmospheric motion around the rotating Earth
9:30 – 10:00	Speaker: Yair Zarmi
	Title: Special polynomials and soliton dynamics

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| 10:00 – 10:20 | **COFFEE BREAK** |

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10:20 – 12:20	**SESSION 5, Masters Hall**
	Chair: Yuji Kodama and Virgil Pierce
	Title: Weak dispersion limits of integrable systems and random matrix models

10:20 – 10:50	Speaker: Peter Miller
	Title: Fluxon Condensates and the Semiclassical Sine-Gordon Equation
10:50 – 11:20	Speaker: Takashi Takebe
	Title: hbar-expansion of integrable hierarchies: Recursive construction of solutions
11:20 – 11:50	Speaker: Nicholas Ercolani
	Title: Random Matrix Combinatorics
11:50 – 12:20	Speaker: Virgil Pierce
	Title: Continuum limits of the Toda hierarchy and map enumerations

10:20 – 12:20	**SESSION 12, Room Q**
	Chair: John Carter, Mark Groves and Erik Wahlen
	Title: Recent Developments in Mathematical Studies of Water Waves

10:20 – 10:50	Speaker: Shu-Ming Sun
	Title: Existence of 3D Capillary-Gravity Waves on Water of Finite Depth
10:50 – 11:20	Speaker: Walter Strauss
	Title: Pressure Beneath a Stokes Wave
11:20 – 11:50	Speaker: David Lannes
	Title: A stability criterion for two-fluids interface
11:50 – 12:20	Speaker: Mats Ehrnström
	Title: Steady water waves with multiple critical layers

| 10:20 – 12:20 | **PAPERS: Room R** |
| | Chair: Hassan Fathallah-shaykh |

10:20 – 10:50	Speaker: Hassan Fathallah-shaykh
	Title: Dynamics of the Drosophila Circadian Clock: Theoretical Anti-Jitter Network and Controlled Chaos
10:50 – 11:20	Speaker: Paul Christodoulides, Frederic Dias and Lazaros Lazari
	Title: Falling streams hitting horizontal walls in the presence of stagnation points

11:20 – 11:50	Speaker: Wen-Xiu Ma and Junyi Tu
	Title: Hirota bilinear equations possessing linear superposition principles
11:50 – 12:20	Speaker: Lev Ostrovsky, Konstantin Gorshkov and Irina Soustova
	Title: Dynamics of strongly nonlinear kinks and flat-top solitons: Perturbation theory

10:20 – 12:20	**SESSION 4, Room K**
	Chair: Ricardo Carretero and Panayotis Kevrekidis
	Title: Nonlinear Schrödinger Models: Mathematical Analysis and Physical Applications
10:20 – 10:50	Speaker: Chandra Raman
	Title: Spinor sodium Bose-Einstein condensates
10:50 – 11:20	Speaker: Rudy Horne
	Title: Stability and dynamics of solitary waves in BEC spinor lattices
11:20 – 11:50	Speaker: Li You
	Title: Spin squeezing: transforming one-axis-twisting into two-axis-twisting
11:50 – 12:20	Speaker: Yaroslav V. Kartashov, Vladimir V. Konotop, Victor A. Vysloukh, and Dmitry A. Zezyulin
	Title: Nonlinear modes supported by localized gain

10:20 – 12:20	**SESSION 1, Room L**
	Chair: Jerry Bona, Min Chen and Vassilios Dougalis
	Title: Nonlinear Waves
10:20 – 10:50	Speaker: Min Chen, Serge Dumont and Olivier Goubet
	Title: Nonlocal viscous dispersive and diffusive asymptotical models for Water waves
10:50 – 11:20	Speaker: Olivier Goubet and Guillaume Warnault
	Title: Linear viscous asymptotic model for water waves
11:20 – 11:50	Speaker: Dimitrios Mitsotakis
	Title: On the use of the finite-fault solution for tsunami generation problems
11:50 – 12:20	Speaker: Denys Dutykh, Theodoros Katsaounis and Dimitrios Mitsotakis
	Title: Numerical simulation of a dispersive wave runup

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2:20 – 1:20	**LUNCH**

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1:20 – 3:20	**SESSION 17, Masters Hall**
	Chair: Dmitry Pelinovsky and Tetsu Mizumachi
	Title: Long-time dynamics of solitary waves
1:20 – 1:50	Speaker: Zhiwu Lin
	Title: Stable and unstable manifolds of Euler equations
1:50 – 2:20	Speaker: Jeremy Marzuola
	Title: Nonlinear bound states on manifolds

2:20 – 2:50	Speaker: Tuoc Phan
	Title: Stable directions for degenerate excited states of nonlinear Schrodinger equations
2:50 – 3:20	Speaker: Stephen Gustafson and Eva Koo
	Title: Global solutions of Landau-Lifshitz and Schrodinger map equations

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1:20 – 3:20	**SESSION 11, Room Q**
	Chairs: Andrei Ludu and Ivailo Mladenov
	Title: Nonlinear Geometry of Drops, Membranes and Filaments
1:20 – 1:50	Speaker: Annalisa Calini
	Title: Linear stability of closed finite-gap solutions of the vortex filament equation
1:50 – 2:20	Speaker: Ivailo M. Mladenov
	Title: On the Geometry of Rotating Liquid Drop
2:20 – 2:50	Speaker: Gregor Kovacic, Peter Kramer, Ildar Gabitov and Ethan Atkins
	Title: Stochastic Integrable Optical Pulse Dynamics in Resonant Active Optical Media
2:50 – 3:20	Speaker: John Steinhoff and Subhashini Chitta
	Title: Capturing short waves over long distances as nonlinear solitary waves

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1:20 – 3:20	**SESSION 10, Room R**
	Chair: Gino Biondini and Barbara Prinari
	Title: Discrete and continuous integrable systems
1:20 - 1:50	Speaker: A. Moro
	Title: Critical behaviour of the Boussinesq equation and Universality conjecture
1:50 - 2:20	Speaker: S. Chakravarty
	Title: Line solitons of KPII and permutations
2:20 - 2:50	Speaker: Francesco Demontis and Cornelis Van Der Mee
	Title: Exact Solutions to the Focusing Discrete Nonlinear Schrodinger Equation

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1:20 – 3:20	**SESSION 4, Room K**
	Chair: Ricardo Carretero and Panayotis Kevrekidis
	Title: Nonlinear Schrödinger Models: Mathematical Analysis and Physical Applications
1:20 – 1:50	Speaker: Dmitriy Zezyulin, Vladimir Konotop and Georgy Alfimov
	Title: Dissipative parabolic and double-well potentials: nonlinear stationary and pulsating modes
1:50 – 2:20	Speaker: Maxim Molchan and Igor Barashenkov
	Title: Stability analysis of cnoidal waves of the parametrically driven nonlinear Schrödinger equation

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2:20 – 2:50	Speaker: Francesco Fedele
	Title: Nonlinear Schrödinger invariants and wave statistics
2:50 – 3:20	Speaker: Daniel Cargill, Richard Moore and Colin McKinstrie
	Title: A variational approach for determining the effects of dispersive radiation on the parameters of Schrödinger solitons

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1:20 – 3:20	**SESSION 9, Room L**
	Chair: Alex Himonas and Dan Geba
	Title: Analysis and Geometry of Nonlinear Evolution Equations
1:20 – 1:50	Speaker: Manoussos Grillakis
	Title: Second order correction to the mean field of weakly interacting Bosons
1:50 – 2:20	Speaker: Dan-Andrei Geba
	Title: Energy arguments for Skyrme wave maps
2:20 – 2:50	Speaker: Robin Ming Chen
	Title: Wave-breaking and global existence for a generalized two-component Camassa-Holm system
2:50 – 3:20	Speaker: Zhijun Qiao
	Title: The Degasperis-Procesi Hierarchy

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1:20 – 3:45	**POSTER PAPERS, Pecan Tree Galleria**
	Author: Wei Yin, Kenichi Maruno and Sarbarish Chakravarty
	Paper 1: Soliton solutions of (2+1)-dimensional ultradiscrete integrable systems and ultradiscrete determinants

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3:20 – 3:45   COFFEE BREAK

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3:45 – 6:15	**SESSION 08, Master Hall**
	Chairs: Kenichi Maruno, Anton Dzhamay, Baofeng Feng, and Stephane Lafortune
	Title: Symmetry and Integrability of Discrete and Ultradiscrete Systems
3:45 – 4:15	Speaker: Gino Biondini
	Title: Soliton reflection in boundary value problems for discrete and continuous nonlinear Schrodinger equations
4:15 – 4:45	Speaker: Fedor Soloviev
	Title: On integrability of the pentagram map
4:45 – 5:15	Speaker: Rei Inoue
	Title: Integrable difference equations and cluster algebras
5:15 – 5:45	Speaker: Chikashi Arita
	Title: Spectrum of a multi-species exclusion process

3:45 – 6:15	**SESSION 21, Room Q**
	Chairs: Gregor Kovacic and Peter Kramer
	Title: Evolution Equations in Biological Sciences
3:45 – 4:15	Speaker: Samuel Isaacson
	Title: Stochastic Reaction-Diffusion Equations in Biology
4:15 – 4:45	Speaker: Scott McKinley
	Title: Cooperative Dynamics of Processive Molecular Motors

4:45 – 5:15	Speaker: Peter Kramer
	Title: Synchronous Dynamics of a Stochastically Driven Neuronal Network Model
5:15 – 5:45	Speaker: Pavel M. Lushnikov
	Title: Logarithmic-type corrections in the collapse of Keller-Segel equation
5:45 – 6:15	Speaker:
	Title:

3:45 – 6:15 SESSION 20, Room R
Chairs: Keith Promislow and Todd Kapitula
Title: Nonlinear stability of interacting structures in higher order systems

3:45 – 4:15	Speaker: Thomas Bellsky and Keith Promislow
	Title: Semi-strong multi-pulse evolution in weakly damped reaction-diffusion systems
4:15 – 4:45	Speaker: Gurgen Hayrapetyan and Keith Promislow
	Title: Geometric evolution of structured interfaces in the Functionalized Cahn- Hilliard equation
4:45 – 5:15	Speaker: Hermen Jan Hupkes, Dmitry Pelinovsky and Bjorn Sandstede
	Title: Propagation failure in the discrete Nagumo equation
5:15 – 5:45	Speaker: Russell Jackson
	Title: On the mechanisms for instability of standing waves in nonlinearly coupled Schrodinger equations
5:45 – 6:15	Speaker: Myunghyun Oh and Kevin Zumbrun
	Title: Nonlinear stability of periodic waves in multi-dimensions

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3:45 – 6:15 SESSION 2, Room K
Chairs: Pedro Jordan, Ivan Christov and Michail Todorov
Title: Recent trends in nonlinear wave phenomena---Achievements and challenges: A symposium dedicated to Prof. Christo I. Christov on the occasion of his 60th birthday

3:45 – 4:15	Speaker: John Boyd
	Title: Comparison of Three Spectral Methods for the Benjamin-Ono Equation: Fourier pseudospectral, rational Christov functions and Gaussian radial basis functions
4:15 – 4:45	Speaker: Marios Christou
	Title: An Overview of the Christov spectral method for solving soliton problems in $L2(-\infty, \infty)$
4:45 – 5:15	Speaker: Alfred Osborne
	Title: Hyperfast Numerical Algorithm for Nonlinear Integrable Wave Equations With Periodic Boundary Conditions
5:15 – 5:45	Speaker: Ivan Christov
	Title: Interactions of dissipative solitons in a weakly-nonlinear acoustic Euler-α Model
5:45 – 6:15	Speaker: Tanel Peets
	Title: Internal scales and dispersive properties of microstructured materials

3:45 – 6:15	**SESSION 18, Room L**
	Chairs: David Ambrose
	Title: Free Boundary Problems in Viscous Fluids
3:45 – 4:15	Speaker: Lea Jenkins, Vince Ervin and Shuyu Sun
	Title: Coupled Generalized Non-linear Stokes Flow with flow through a Porous Media
4:15 – 4:45	Speaker: Mike Nicholas and Ricardo Cortez
	Title: Regularized Slender Body Theory
4:45 – 5:15	Speaker: Abtin Rahimian and George Biros
	Title: Vesicle Flows in Two and Three Dimensions
5:15 – 5:45	Speaker: Michael Siegel, David Ambrose and Svetlana Tlupova
	Title: A non-stiff boundary integral method for 3D porous media flow with surface tension

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7:00 – 9:00	**BANQUET**
	Speaker: Jerry Bona
	Awards (Best Student Papers): Thiab Taha

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WEDNESDAY, APRIL 06, 2011

8:00 – 10:00   **SESSION 19, Masters Hall**
                 Chair: Jianke Yang
                 Title: Nonlinear waves in periodic and quasi-periodic media

8:00 – 8:30   Speaker: Laith Haddad
                 Title: Relativistic Linear Stability Equations for the Nonlinear Dirac Equation
8:30 – 9:00   Speaker: Mikael C. Rechtsman
                 Title: Disorder induced DE-localization in photonic quasi-lattices
9:00 – 9:30   Speaker: Yi Zhu and Mark Ablowitz
                 Title: Nonlinear dynamics in two-dimensional honeycomb lattices
9:30 – 10:00   Speaker: Guenbo Hwang, T.R. Akylas and Jianke Yang
                 Title: Gap solitons and their linear stability in one-dimensional periodic media

8:00 – 10:00   **SESSION 1, Room Q**
                 Chair: Jerry Bona, Min Chen and Vassilios Dougalis
                 Title: Nonlinear Waves

8:00 – 8:30   Speaker: Mathieu Colin and Masahito Ohta
                 Title: Bifurcation from semi-trivial standing waves and ground states for a system
                     of nonlinear Schrodinger equations
8:30 – 9:00   Speaker: Jerry Bona, Sanja Pantic and Dimitrios Mitsotakis
                 Title: A numerical study of traveling wave solutions for the generalized BBM
                     equations with more nonlinear terms
9:00 – 09:30   Speaker: Thierry Colin and Sandra Tancogne
                 Title: Stability of jets in a channel
9:30 – 10:00   Speaker: Jerry Bona, Hongqiu Chen, Jonathan Cohen and Gang Wang
                 Title: Coupled Systems of Nonlinear, Dispersive Wave Equations

8:00 – 10:00   **SESSION 2, Room R**
                 Chair: Pedro Jordan, Ivan Christov and Michail Todorov
                 Title: Recent trends in nonlinear wave phenomena---Achievements and challenges:
                     A symposium dedicated to Prof. Christo I. Christov on the occasion of his
                     60th birthday
8:00 – 8:30   Speaker: Andrus Salupere
                 Title: On hidden solitons in KdV related systems
8:30 – 9:00   Speaker: W. Josh Sonnier
                 Title: Parameterizing the Shapes of Repelling Quasi-particles of the Vector
                     Nonlinear Schrödinger Equations
9:00 – 9:30   Speaker: Michail Todorov
                 Title: The Effect of the Elliptic Polarization on the Quasi-Particle Dynamics of
                     Linearly Coupled Systems of Nonlinear Schrödinger Equations
9:30 – 10:00   Speaker: Alexey Porubov
                 Title: Solitary wave interactions in coupled systems

8:00 – 10:00	**SESSION 16, Room K**
	Chair: Benjamin Akers and David Nicholls
	Title: Water waves with gravity and surface tension

8:00 – 8:30	Speaker: Jean-Marc Vanden-Broeck
	Title: Numerical studies of gravity-capillary waves and related problems
8:30 – 9:00	Speaker: Emilian Parau and Jean-Marc Vanden-Broeck
	Title: Three-dimensional hydroelastic waves and related flows
9:00 – 9:30	Speaker: Olga Trichtchenko, Bernard Deconinck and Katie Oliveras
	Title: Stability of gravity waves with surface tension
9:30 – 10:00	Speaker: David Nicholls and Ben Akers
	Title: Spectral stability of traveling water waves: Eigenvalue collision, singularities, and direct numerical simulation

8:00 – 10:00	**PAPERS, Room L**
	Chair: Andrei Ludu

8:00 – 8:30	Speaker: Alina Chertock, Jian-Guo Liu and Terrance Pendleton
	Title: Convergence Analysis of the Particle Method for the Camassa-Holm Equation
8:30 – 9:00	Speaker: Georgi Grahovski, Vladimir Gerdjikov and Rossen Ivanov
	Title: On the (Non)-Integrability of KdV and Camassa-Holm Hierarchies with Self-consistent Sources
9:00 – 9:30	Speaker: Yi-Ping Ma and Edgar Knobloch
	Title: Dynamics of 2-D localized structures in a non-variational system

8:00 – 10:00	**SESSION 14, Room V/W**
	Chair: Ziad Musslimani, Demetri Christodoulides, and Kostas Makris
	Title: Wave propagation in linear and nonlinear optical PT media

8:00 – 8:30	Speaker: A. Douglas Stone, Yidong Chong and Li Ge
	Title: S-matrix approach to PT-symmetry breaking and interferometric amplifier-absorbers
8:30 – 9:00	Speaker: Tsampikos Kottos and Demetrios Christodoulides
	Title: PT-synthetic Optical materials
9:00 – 9:30	Speaker: Mikael Rechtsman, Alexander Szameit and Mordechai Segev
	Title: Tachyons and Landau Solitons in Photonic Graphene
9:30 – 10:00	Speaker: Stefan C. Mancas and Harihar Khanal
	Title: 2D Solitons in Dissipative Media

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10:00 – 10:20   COFFEE BREAK

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10:20 – 12:20   **TUTORIAL, Masters Hall**
Speaker: William Kath
Title: Nonlinear signaling in neurons and networks of neurons

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10:20 – 12:20   **SESSION 15, Room Q**
Chairs: Philippe Guyenne, Henrik Kalisch and Emilian Parau
Title: Internal Waves

10:20 – 10:50   Speaker: Henrik Kalisch and Nguyet Nguyen
Title: On the Stability of Internal Waves
10:50 – 11:20   Speaker: Roxana Tiron, Wooyoung Choi and Roberto Camassa
Title: Strongly nonlinear internal waves in a two-layer system of piecewise linear
stratification
11:20 – 11:50   Speaker: Handan Borluk and Henrik Kalisch
Title: Periodic Travelling Waves in Nonlocal Model Equations
11:50 – 12:20   Speaker: Tae-chang Jo, Arnaud Goullet and Wooyoung Choi
Title: A Regularized Model for Dynamics of Strongly Nonlinear Long Internal
Waves

10:20 – 12:20   **SESSION 14, Room R**
Chair: Ziad Musslimani, Demetri Christodoulides, and Kostas Makris
Title: Wave propagation in linear and nonlinear optical PT media
10:20 – 10:50   Speaker: Carl Bender
Title: Extending PT symmetry from the Heisenberg algebra to other algebras
10:50 – 11:20   Speaker: Demetrios Christodoulides
Title: PT-Symmetry in Optics
11:20 – 11:50   Speaker: Wenjie Wan, Yidong Chong, Li Ge, Heeso Noh, A. Doug Stone and
Hui Cao
Title: Time-Reversed Lasing and Interferometric Control of Absorption
11:50 – 12:20   Speaker: Stefan Rotter, Florian Libisch, Philipp Ambichl and Konstantinos Makris
Title: Time-delay eigenstates and PT-symmetry

10:20 – 12:20   **SESSION 12, Room K**
Chairs: John Carter, Mark Groves and Erik Wahlen
Title: Recent Developments in Mathematical Studies of Water Waves

10:20 – 10:50   Speaker: Wooyoung Choi
Title: Instability of finite amplitude capillary waves
10:50 – 11:20   Speaker: Richard Kollar
Title: Evans function and Krein signature
11:20 – 11:50   Speaker: Samuel Walsh
Title: Theory of steady stratified water waves: existence and qualitative features
11:50 – 12:20   Speaker: Didit Adytia and E. van Groesen
Title: Optimizied variational Boussinesq model applied to simulations of irregular
waves

10:20 – 12:20	**SESSION 03, Room L**
	Chairs: Zhijun Qiao, Changezheng Qu, Yue Liu, Taixi Xu
	Title: Recent development in integrable systems and solitons

10:20 – 10:50	Speaker: Alex Himonas
	Title: On well-posedness and ill-posedness of weakly dispersive nonlinear evolution equations
10:50 – 11:20	Speaker: Jyh-Hao Lee and Oktay K. Pashaev
	Title: The Reaction-Diffusion Systems Related to the Nonlinear Schrodinger Equation with Quantum Potential
11:20 – 11:50	Speaker: Ruguang Zhou and Baoqiang Xia
	Title: Integrable Rosochatius deformations of the restricted soliton flows
11:50 – 12:20	Speaker: Taixi Xu and Sen-Yue Lou
	Title: Peakons of Soliton Equations

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12:20 – 1:20 LUNCH

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1:20 – 3:20	**SESSION 10, Masters Hall**
	Chairs: Gino Biondini and Barbara Prinari

Title: Discrete and continuous integrable systems

1:20 - 1:50	Speaker: Orlando Ragnisco and Federico Zullo
	Title: Backlund transformations for classical Gaudin models: an example of discrete integrable systems
1:50 - 2:20	Speaker: D. Pelinovsky
	Title: Backlund transformation and L2-stability of NLS solitons
2:20 - 2:50	Speaker: J. Jung
	Title: Uncertainty quantification of the kink dynamics of the sine-Gordon equation with a point-like impurity
2:50 - 3:20	Speaker: D. Wang
	Title: Detailed study of numerical methods for the perturbed sine-Gordon equation with impulsive forcing

1:20 – 3:20	**SESSION 11, Room Q**
	Chairs: Andrei Ludu and Ivailo Mladenov
	Title: Nonlinear Geometry of Drops, Membranes and Filaments

1:20 – 1:50	Speaker: Vakhtang Putkaradze
	Title: Ordered and disordered dynamics in monolayers of rolling particles
1:50 – 2:20	Speaker: Naohisa Ogawa
	Title: Curvature Dependent Diffusion Flow on Surface with Thickness
2:20 – 2:50	Speaker: Andrei Ludu
	Title: Geometry of Loop Vortices in Compact Mesoscopic Superconductors

1:20 – 3:20	**SESSION 13, Room R**
	Chairs: Yuri Latushkin and Hermen Jan Hupkes
	Title: Spectral and nonlinear stability for waves

1:20 – 1:50	Speaker: Mathew Johnson and Kevin Zumbrun
	Title: The Transverse Instability of Periodic Traveling Waves in the Generalized Kadomtsev-Petviashvili Equation
1:50 – 2:20	Speaker: Jonathan Ben-artzi
	Title: Spectral Instability of the Relativistic Vlasov-Maxwell System
2:20 – 2:50	Speaker: Peter Van Heijster
	Title: Front interactions in a three-component FitzHugh-Nagumo system
2:50 – 3:20	Speaker: Milena Stanislavova and Atanas Stefanov
	Title: Asymptotic estimates and stability of Kuramoto-Sivashinsky type models

1:20 – 3:20	**SESSION 21, Room K**
	Chairs: Gregor Kovacic and Peter Kramer
	Title: Evolution Equations in Biological Sciences

1:20 – 1:50	Speaker: Todd Smith
	Title: Periodic and Quasiperiodic Wavetrains from Double Hopf Bifurcations in Predator-Prey Systems with General Nonlinearities
1:50 – 2:20	Speaker: Wenjun Ying
	Title: Modeling Electrical Wave Propagation in the Heart with an Adaptive Algorithm
2:20 – 2:50	Speaker: Andrea K. Barreiro
	Title: Dynamics and complexity of neural spike correlations
2:50 – 3:20	Speaker: Dan Hu
	Title: Information Transmission along the Blood Wave

1:20 – 3:20	**SESSION 3, Room L**
	Chair: Zhijun Qiao, Changezheng Qu, Yue Liu, Taixi Xu
	Title: Recent development in integrable systems and solitons"

1:20 – 1:50	Speaker: Stephen Anco
	Title: Integrable systems and bi-Hamiltonian geometric curve flows
1:50 – 2:20	Speaker: Ruoxia Yao
	Title: A Maple package to compute Lie symmetry groups and symmetry reductions for nonlinear differential equations
2:20 – 2:50	Speaker: Deshou Zhong
	Title: On the Existence of Global Bisections of Lie Groupoids
2:50– 3:20	Speaker: Changzheng Qu and Junfeng Song
	Title: Invariant Geometric Flows and Camassa-Holm Type Equations in Certain Geometries

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3:20 – 3:45   COFFEE BREAK

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3:45 – 6:15	**SESSION 8, Masters Hall**
	Chairs: Kenichi Maruno, Anton Dzhamay, Baofeng Feng, and Stephane Lafortune
	Title: Symmetry and Integrability of Discrete and Ultradiscrete Systems

3:45 – 4:15	Speaker: Jarmo Hietarinta and Da-Jun Zhang
	Title: Multi-dimensional consistency and multi-component lattice equations
4:15 – 4:45	Speaker: Claude Michel Viallet
	Title: Consistency and Complexity approach to quad maps
4:45 – 5:15	Speaker: Pavlos Xenitidis
	Title: Hierarchies of symmetries of discrete KdV equations
5:15 – 5:45	Speaker: Kenichi Maruno, Bao-Feng Feng, Kenji Kajiwara, Yasuhiro Ohta
	Title: Motion of discrete curves and discrete hodograph transformations
5:45 – 6:15	Speaker: Bao-Feng Feng, Kenichi Maruno , Kenji Kajiwara, Yasuhiro Ohta
	Title: Integrable discretization of the Harry-Dym equation

3:45 – 5:45	**SESSION 07, Room Q**
	Chair: Willy Hereman
	Title: Symbolic Computation in the Study of Nonlinear Differential and Difference Equations

3:45 – 4:15	Speaker: Willy Hereman and Terry Bridgman
	Title: Symbolic computation of Lax pairs of integrable nonlinear partial difference equations on quad-graphs
4:15 – 4:45	Speaker: Martin Guay, Fabrice Colin, and Richard Egli
	Title: Extensions of higher-dimensions of an unconditionally stable ADE method for the convection-diffusion equation using symbolic computation
4:45 – 5:15	Speaker: Stephane Lafortune, Joceline Lega, and Silvia Madrid-Jaramillo
	Title: Instability of local deformations of an elastic filament: numerical computation of the Evans function
5:15 – 5:45	Speaker: Wen-Xiu Ma
	Title: A multiple exp-function method for nonlinear equations in Maple
5:45 – 6:15	Speaker: Muhammed Usman
	Title: A study of bifurcations in the steady state solution of a forced Kuramoto-Sivashinsky equation

3:45 – 5:45	**SESSION 2, Room R**
	Chairs: Pedro Jordan, Ivan Christov and Michail Todorov
	Title: Recent trends in nonlinear wave phenomena---Achievements and challenges:
	  A symposium dedicated to Prof. Christo I. Christov on the occasion of his
	  60th birthday

3:45 – 4:15	Speaker: Mads Peter Sorensen Title: Compound shock waves in a higher order nonlinear model of thermoviscous fluids
4:15 – 4:45	Speaker: Pedro Jordan Title: On the Propagation of Acoustic Traveling Waves in Newtonian Fluids with a Quadratic Equation of State
4:45 – 5:15	Speaker: Abo-el-nour Abd-alla Title: Reflection and Refraction of Plane Longitudinal Waves at interface between Two Anisotropic Thermo-piezoelectric Materials
5:15 – 5:45	Speaker: Jayaprakash K R, Yuli Starosvetsky and Alexander Vakakis Title:Nonlinear Waves and Resonance Phenomena in Disordered Granular Chains Under Zero Pre-Loading

3:45 – 6:15	**SESSION 09, Room K** Chairs: Alex Himonas and Dan Geba Title: Analysis and Geometry of Nonlinear Evolution Equations"
3:45 – 4:15	Speaker: Karen Yagdjian Title: Parametric Resonance in Wave Maps
4:15 – 4:45	Speaker: Boris Ettinger Title: Well-posedness of the equation for the three-form field in the eleven dimensional supergravity
4:45 – 5:15	Speaker: David Karapetyan Title: Well-posedness and Regularity for NLS
5:15 – 5:45	Speaker: Melissa Davidson Title: Continuity properties of the data-to-solution map for the Ostrovsky-Hunter Equation
5:45 – 6:15	Speaker: Jonatan Lenells, Gerard Misiolek and Feride Tiglay Title: Integrable evolution equations on tensor densities and their peakon solutions

3:45 – 6:15	**SESSION 22, Room L** Chairs: Tianming Liu and Qun Zhao Title: Nonlinear Signal Analysis for Biomedical and Biological Systems
3:45 – 4:15	Speaker: Qun Zhao, Joonsang Lee, Justin Abell and Yiping Zhao Title: Independent Component Analysis for Biological Analytes

4:15 – 4:45	Speaker: Suchendra Bhandarkar, Anirban Mukhopadhyay, Tianming Liu and Zhen Qian

4:15 – 4:45 Speaker: Suchendra Bhandarkar, Anirban Mukhopadhyay, Tianming Liu and
    Zhen Qian
    Title: Morphological Analysis of the Ventricular Endocardial Surface and
    Diagnosis of Coronary Artery Disease
4:45 – 5:15 Speaker: Ming-jun Lai and Qun Zhao
    Title: Bivariate Splines for Image Segmentation and Enhancement
5:15 – 5:45 Speaker: Jinae Lee, Cheolwoo Park, Nicole Lazar, Benjamin Austin,
    Kara Dyckman, Qingyang Li and Jennifer E. Mcdowell
    Title: Practice-related changes in neural circuitry supporting eye movements
    investigated via wavelet-based clustering analysis
5:45 – 6:15 Speaker: Fan Deng and Tianming Liu
    Title: FMRI Signal Analysis Using Empirical Mean Curve Decomposition

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3:45 – 6:15 **SESSION 14, Room V/W**
    Chairs: Ziad Musslimani, Demetri Christodoulides, and Kostas Makris
    Title: Wave propagation in linear and nonlinear optical PT media

3:45 – 4:15 Speaker: Hugh Jones
    Title: PT-Symmetric Sinusoidal Optical Lattices at the Symmetry-Breaking
    Threshold
4:15 – 4:45 Speaker: Hakan Tureci, Li Ge, Stefan Rotter and Matthias Liertzer
    Title: Lasing in PT-symmetric cavities
4:45 – 5:15 Speaker: Konstantinos Makris, Ramy El-Ganainy, Demetrios
    Christodoulides and Ziad Musslimani
    Title: PT-symmetric Optics
5:15 – 5:45 Speaker: Ziad Musslimani
    Title: Stability and formation of nonlinear coherent structures in the PT
    invariant nonlinear Schrodinger equation

THURSDAY, APRIL 07, 2011

12:00 – 1:00   **LUNCH, Georgia Center**

THE END OF THE PROGRAM