

Tuesday, September 2

08:00 - 09:30 Registration
09:30 - 09:50 Opening Remarks

Plenary Session

Room L2 , chair Y. Saridakis

09:50 - 10:15 *Elias Houstis*
[Remembering Theo Papatheodorou](#)
10:15 - 11:00 *Athanassios S. Fokas*
[The interplay of the Concrete and General: from PDEs to Medical Imaging](#)

11:00 - 11:30 Coffee break

Session 1

Workshop on Fokas Method

Room L2

chair A. Ashton

Room L0

chair V. Lisitsa

11:30 - 11:50 *Beatrice PELLONI*
[Unified Transforms and classical spectral theory of operators](#)
11:50 - 12:10 *Anthony ASHTON*
[Functional Analytic Framework of the Fokas Method for Elliptic Boundary Value Problems](#)
12:10 - 12:30 *Athanassios FOKAS*
[Numerical Solution of the Unified Transform for Linear Elliptic PDEs in Polygonal Domains](#)
12:30 - 12:50 *Martin ARCIGA*
[Stochastic Riesz-Fractional Partial Differential Equation with White Noise on the Half-Line](#)
12:50 - 13:10 *Maria HADJINIKOLAOU*
[Fokas method and Kelvin transformation applied to potential problems in non convex unbounded domains](#)

Kailash PATIDAR
[Robust numerical simulation of reaction-diffusion models arising in Mathematical Ecology](#)
Mohanmmmed BENMIR
[Multi-scale hybrid model of cell differentiation propagation as traveling waves](#)
Vadim LISITSA
[Sensitivity of the Domain Decomposition Method to Perturbation of the Transmission Conditions](#)
Seungil KIM
[Domain decomposition method with complete radiation boundary conditions for the Helmholtz equation in waveguides](#)
Zhihong LIU
[Decreasing Computational Load by Using Similarity for Lagrangian Approach to Gas-solid Two-phase Flow](#)
Svilen VALTCHEV
[A Meshfree Method with Fundamental Solutions for Inhomogeneous Elastic Wave Problems](#)

13:10 - 13:30

13:30 - 15:00 Lunch break

Session 2

Workshop on Fokas Method

Room L2

chair *B. Pelloni*

Room L0

chair *E. Mathioudakis*

15:00 - 15:20

Konstantinos KALIMERIS

[Eigenvalues and eigenfunctions for the Laplace Operator](#)

Maria Grazia RUSSO

[Nystrom methods for two-dimensional Fredholm integral equations on unbounded domains](#)

15:20 - 15:40

Anastassis SIFALAKIS

[Fokas transform method for classes of advection-diffusion IBVPs](#)

Maria Carmela De BONIS

[Numerical evaluation of hypersingular integrals on the semiaxis](#)

15:40 - 16:00

Kevin CROOKS

[Two numerical implementations of the Fokas method for elliptic equations in a polygon](#)

Wanyok ATISATTAPONG

[Obviating the Bin Width Effect of the 1/t Algorithm for Multidimensional Numerical Integration](#)

16:00 - 16:20

Elena LUCA

[Solving Wiener-Hopf problems without kernel factorisation](#)

Domingo HERNANDEZ-ABREU

[Splitting methods based on Approximate Matrix Factorization and Radau-IIA formulas for the time integration of advection diffusion reaction PDEs](#)

16:20 - 16:40

Iasonas HITZAZIS

[The Fokas Method and Initial-Boundary Value Problems for Multidimensional Integrable PDEs](#)

Yiannis HADJIMICHAEL

[Strong-stability-preserving additive linear multistep methods](#)

16:40 - 17:00

Athanasios BRATSOS

[A modified predictor-corrector method for the generalized Burgers-Huxley equation](#)

17:00 - 17:30 Coffee break

Session 3

Workshop on Medical Imaging

Room L2

chair *G. Kastis*

Room L0

chair *K. Patidar*

17:30 - 17:50

George KASTIS

[Quantitative evaluation of SRT for PET imaging: Comparison with FBP and OSEM](#)

Alexander SPIVAK

[Successive approximations for optimal control in some nonlinear systems with small parameter](#)

17:50 - 18:10	<i>Athanassios FOKAS</i> The definitive estimation of the neuronal current via EEG and MEG using real data	<i>Antoine ZAMBELLI</i> Normalizations of the Proposal Density in Markov Chain Monte Carlo Algorithms
18:10 - 18:30	<i>Rumen ULUCHEV</i> Approximations Using Radon Projection Data in the Unit Disc	<i>Stanislav MAKHANOV</i> Curvilinear Grids for Five-Axis Machining
18:30 - 18:50	<i>Enrico SCHIOPPA</i> Solving CT reconstruction with a particle physics tool (RooFit)	<i>Luke UKPEBOR</i> Order 19-Rational Integrator
18:50 - 19:10	<i>Raja GUEDOUAR</i> Optimization of pre-reconstruction restoration filtering for filtered backprojection reconstruction (FBP)	
19:10 - 19:30	<i>Konstantinos SPANAKIS</i> Application of an image registration method based on maximization of mutual information	

Wednesday, September 3

09:00 - 09:30	Info Desk
---------------	-----------

Plenary Session

Room L2 , chair *A. Hadjidimos*

09:30 - 10:15	<i>Dimitrios NOOTSOS</i> Perron-Frobenius Theory - Some Extensions and Applications
10:15 - 11:00	<i>Zhong-Zhi BAI</i> Scalable and Fast Iteration Methods for Complex Linear Systems

11:00 - 11:30	Coffee break
---------------	--------------

Session 1

Room L2
chair *N. Bebiano*

Room L0
chair *A. Papini*

11:30 - 11:50	<i>Apostolos HADJIDIMOS</i> On the Solution of the Linear Complementarity Problem by the Generalized AOR Iterative Method	<i>Alessandra PAPINI</i> Quadratic Penalty Methods for Shape from Shading
11:50 - 12:10	<i>Guo-Feng ZHANG</i> A local preconditioned alternating direction iteration method for generalized saddle point problems	<i>Aigul MANAPOVA</i> Numerical solution of Optimization problems for Semilinear Elliptic Equations with Discontinuous Coefficients and Solutions

12:10 - 12:30	<i>F. OKULICKA / A. SMOKTUNOWICZ</i> Numerical stability of block direct methods for solving symmetric saddle point problem	<i>Ioannis NIKAS</i> Efficient unconstrained optimization Multistart solvers using a self-clustering technique
12:30 - 12:50	<i>Paris VASSALOS</i> Essential spectral equivalence via multiple step preconditioning and applications to ill conditioned Toeplitz matrices	<i>Drosos KOUROUNIS</i> Constraint handling for gradient-based optimization of compositional reservoir flow
12:50 - 13:10	<i>Xue-Ping GUO</i> Preconditioned derivative-free globally convergent Newton-GMRES methods for large sparse nonlinear systems	<i>Maria ZAKYNTHINAKI</i> An improved model of heart rate kinetics
13:10 - 13:30	<i>Yi-Ming BU</i> A recursive multilevel approximate inverse-based preconditioner for solving general linear systems	<i>Jaime CARPIO / Juan Luis PRIETO</i> A local anisotropic adaptive algorithm to solve time-dependent dominated convection problems
13:30 - 15:00	Lunch break	
15:00 - 15:20	NumAn2014 Group Photo	

Session 2

	Workshop on Complex Systems Room L2 chair <i>T. Bountis</i>	Workshop on Multi-Physics, Multi-Domain Problems Room L0 chair <i>M. Vavalis</i>
15:20 - 15:40	<i>Tassos BOUNTIS</i> Complex Statistics and Diffusion in Nonlinear Disordered Particle Chains	<i>Spyridon LYKOTHANASSIS</i> Application of a hybrid parallel Monte Carlo PDE Solver on rectangular multi-domains
15:40 - 16:00	<i>Chris ANTONOPOULOS</i> Do Brain Networks Evolve by Maximizing Flow of Information?	<i>Panagiota TSOMPANOPOULOU</i> Interface Relaxation Methods for the solution of Multi-Physics Problems
16:00 - 16:20	<i>George KALOSAKAS</i> Modeling drug release kinetics	<i>Aigli KORFIATI</i> Serial and Parallel Implementation of the Interface Relaxation Method GEO
16:20 - 16:40	<i>Vassilios ROTHOS</i> Homoclinic chaos in a pair of parametrically-driven coupled SQUIDS	<i>Ioannis ATHANASAKIS</i> Discontinuous Hermite Collocation and Runge-Kutta schemes for multi-domain linear and non-linear brain tumor invasion models
16:40 - 17:00	<i>Giorgos KANELLOPOULOS</i> Granular Transport Dynamics: Numerics and Analysis	<i>Nikolaos VILANAKIS</i> Solving discontinuous collocation equations for a class of brain tumor models on GPUs

17:00 - 17:30 Coffee break

Session 3

Workshop on Complex Systems

Room L2

chair *T. Bountis*

Workshop on Multi-Physics, Multi-Domain Problems

Room L0

chair *S. Lykothanassis*

17:30 - 17:50

Panagiotis KONTOGIORGOS

[An energy market stackelberg game solved with particle swarm optimization](#)

Nikolaos BELLAS

[Significance-Based Computing for Reliability and Power Optimization](#)

17:50 - 18:10

I. K. MYLONAS

[Perturbation Theory of Dark-Bright solitons in Bose-Einstein condensates](#)

Christos ANTONOPOULOS

[SOpenCL: An Infrastructure for Transparently Integrating FPGAs in Heterogeneous, Accelerator-Based Systems](#)

18:10 - 18:30

Kyriaki ANTONIADOU

[Continuation and stability deduction of resonant periodic orbits in three dimensional systems](#)

Manolis MAROUDAS

[Software Platforms for Multi-Domain Multi-Physics Simulations](#)

18:30 - 18:50

Theodoros KOULOUKAS

[A special class of integrable Lotka-Voltera systems and their Kahan discretization](#)

Athanasios FEVGAS

[Exploring the Performance of Out-of-Core Linear Algebra Algorithms in Flash based Storage](#)

18:50 - 19:10

Helen CHRISTODOULIDI

[Dynamical and statistical behavior of the Fermi-Pasta-Ulam model with long-range interactions](#)

Manolis VAVALIS

[On the Numerical Solution of Power Flow Problems](#)

Thursday, September 4

09:00 - 09:30 Info Desk

Plenary Session

Room L2 , chair *S. Gallopoulos*

09:30 - 10:15

Michael VRAHATIS

[Sign Methods for Imprecise Problems](#)

10:15 - 11:00

Arieh ISERLES

[Fast computation of the semiclassical Schrodinger equation](#)

11:00 - 11:30 Coffee break

Session 1

Room L2

chair *T. Taha*

Thiab TAHA

11:30 - 11:50

[Numerical simulations for 1+2 dimensions coupled nonlinear Schrodinger type equations](#)

Pedro ANTUNES

11:50 - 12:10

[Numerical Solution of the Magnetic Laplacian Eigenvalue Problem using Radial Basis Functions](#)

Zheng-Jian BAI

12:10 - 12:30

[A Riemannian Newton algorithm for nonlinear Eigenvalue problems](#)

Gulcin MUSLU

12:30 - 12:50

[A Fourier Collocation Method for the Nonlocal Nonlinear Wave Equation](#)

Minhyuk KIM

12:50 - 13:10

[An effective approach on finite-difference-time-domain method for quasi-static electromagnetic field analysis](#)

Saifon CHATURANTABUT

13:10 - 13:30

[Nonlinear Model Reduction with Localized Basis for Two-Phase Miscible Flow in Porous Media](#)

Room L0

chair *C. Christara*

Christina CHRISTARA

[Efficient GPU pricing of interest rate derivatives: PDE formulation and ADI methods](#)

Alexandros KOURIS

[Towards robust parallel solvers for tridiagonal systems for multiGPUs](#)

Qian LI

[Katservich Algorithm Based on Spherical Detector for Cone-Beam CT and the Implementation on GPU](#)

Nikolaos NIKOLOUTSAKOS

[Local Stiffness matrix calculations for FSI applications on multi-GPU systems](#)

Konstantinos PETSOUNIS

[MATLAB: Parallel and Distributed Computing using CPUs and GPUs](#)

Niki CHARALAMPAKI

[CPU-GPU computations for MultiGrid techniques coupled with Fourth-Order Compact Discretizations for Isotropic and Anisotropic Poisson problems](#)

13:30 - 15:00

Lunch break

Session 2

Room L2 chair *A. Delis* **Workshop on Wave Breaking in Boussinesq-type Models**

Vassilios DOUGALIS

15:00 - 15:20

[Error Estimates for the Standard Galerkin-Finite Element Method for the Shallow Water Equations](#)

Paola BACIGALUPPI

15:20 - 15:40

[A 1D stabilized finite element model for non-hydrostatic wave breaking and run-up](#)

Vadim LISITSA

15:40 - 16:00

[Combining Discontinuous Galerkin and Finite Differences Methods for Simulation of Seismic Wave Propagation](#)

Evangelia FLOURI

16:00 - 16:20

[Tsunami hazard and inundation for the northern coast of Crete](#)

16:20 - 16:40 *Maria KAZOLEA*
[A wave breaking mechanism for an unstructured finite volume scheme](#)

16:40 - 17:00 *Vassilios MANDIKAS*
[A MultiGrid accelerated high-order pressure correction compact scheme for incompressible Navier-Stokes solvers](#)

17:00 - 17:30 Coffee break

Session 3

Room L2, chair *A. Delis*

17:30 - 17:50 *Panagiotis CHATZIPANTELIDIS*
[On positivity preservation for finite element based methods for the heat equation](#)

17:50 - 18:10 *Andrea SACCONI*
[On the comparison between fitted and unfitted finite element methods for the approximation of void electromigration](#)

15:00 - 18:30 **Poster Session**

Domingo BARRERA
[Solving the Fredholm integral equation of the second kind by global spline quasi-interpolation of the kernel](#)

Dimitris BOBOLAKIS
[Efficient Solution of the Two-Dimensional Shallow-Water Equations using GPUs](#)

Maria GAITANI
[Numerical Solution for Sparse Linear Systems that occur from the discretization of Boussinesq-type equations](#)

Pedro GONZALEZ
[Filling holes with geometric constraints](#)

Maria Jose IBANEZ
[Parameter determination in MOSFETs transistors based on Discrete Orthogonal Chebyshev polynomials](#)

Agnieszka PRUSINSKA
[Method for solving nonlinear singular problems](#)

Miguel RODRIGUEZ
[Multiresolution analysis for 3D scattered data sets](#)

Paris STRATIS
[Stochastic optimization for a problem of saltwater intrusion in coastal aquifers with heterogeneous hydraulic conductivity](#)

Ewa SZCZEPANIK
[Method for solving degenerate sub-definite nonlinear equations](#)

Katerina TSAKIRI
[A Numerical Model for the prediction of flooding in Water Rivers](#)

18:30 - 20:45 Museum - Old Town Guided Visit

21:00 - 23:00 Conference Dinner (ANTIGONI TAVERN)

Friday, September 5

Session 1

Room L2 , chair *N. Stylianopoulos*

09:40 - 10:00	<i>Nikos STYLIANOPOULOS</i> Inverse moment problems with applications in shape reconstruction
10:00 - 10:20	<i>Ioannis DEMETRIOU</i> A Characterization Theorem for the Discrete Best L1 Monotonic Approximation Problem
10:20 - 10:40	<i>Georgios ZOURARIS</i> Finite element approximations for a linear stochastic Cahn-Hilliard-Cook equation
10:40 - 11:00	<i>Dimitra ANTONOPOULOU</i> Finite elements for a class of nonlinear stochastic pdes from phase transition problems
11:00 - 11:30	Coffee break

Session 2

Room L2
chair *G. Gravvanis*

Room L0
chair *L. Lopez*

11:30 - 11:50	<i>Natalia BEBIANO</i> Spectral inclusion regions for matrix pencils	<i>Luciano LOPEZ</i> Numerical techniques for sliding motion in Filippov discontinuous systems
11:50 - 12:10	<i>Suzana FURTADO</i> Structured Strong Linearizations obtained from Fiedler Pencils with Repetition	<i>Wutiphol SINTUNAVARAT</i> Approximate algorithm for single valued nonexpansive and multi-valued strictly pseudo contractive mappings in Hilbert spaces
12:10 - 12:30	<i>George GRAVVANIS</i> On the numerical modelling and solution of multi-asset Black-Scholes equation based on Generic Approximate Sparse Inverse Preconditioning	<i>Xi YANG</i> The WR-HSS Methods for Non-Self-Adjoint Positive Definite Linear Differential Equations and Applications to the Unsteady Discrete Elliptic Problem
12:30 - 12:50	<i>Chuanqing GU</i> The Error Analysis of the Indirect Pade Method for Matrix Exponential	<i>Efraim SHMERLING</i> Ziggurat Algorithm for Sampling from Bivariate Distributions
12:50 - 13:10	<i>Zeng-Qi WANG</i> Chebyshev accelerated preconditioned MHSS iteration methods for a class of block two-by-two linear systems	

13:10 - 13:30

Christos FILELIS-PAPADOPOULOS
[A comparative study on the effect of the ordering schemes for solving sparse linear systems, based on factored approximate sparse inverse matrix methods](#)

13:30 - 14:00

Lunch break

Room L2

chair *A. Hadjidimos / E. Gallopoulos*

14:00 - 15:00

Closing - Exchanging Ideas