



**ICNAAM 2004**  
Chalkis 10 – 14 September 2004

# **ICNAAM 2004**



# **FINAL PROGRAM**

**10 – 14 September 2004**



**ICNAAM 2004**

Chalkis 10 – 14 September 2004

**CONFERENCE CENTER:**

**TECHNOLOGICAL EDUCATIONAL  
INSTITUTE OF CHALKIS,  
PSAHNA, CHALKIS, GREECE  
(FOR SATURDAY, MONDAY AND  
TUESDAY)**

**WELCOME RECEPTION:  
“KOKKINO SPITI” AT  
THE CENTER OF CHALKIS  
(FOR FRIDAY)**



## **Organised by**

- European Society of Computational Methods in Sciences and Engineering (ESCMCE)



- Technological Educational Institution (TEI) of Chalkis, Greece

## **Chairmen and Organisers**

**Prof. T.E. Simos**, President of ESCMSE, Active Member of the European Academy of Sciences and Arts and Corresponding Member of the European Academy of Sciences, Department of Computer Science and Technology, Faculty of Sciences and Technology, University of Peloponnese, Greece.

**Dr. Ch. Tsitouras** , Department of Applied Sciences, Technological Educational Institute of Chalkis, Greece .

### **Vice-Chairman:**

**Dr. G. Psihoyios**, Anglia Polytechnic University , Cambridge , UK .

### **Scientific Committee:**

**Prof. G. vanden Berghe**, Belgium

**Prof. P. E. Bjørstad**, Norway

**Prof. J. Cash**, UK

**Prof. R. Cools**, Belgium

**Prof. A. Cuyt**, Belgium

**Prof. B. Fischer**, Germany

**Prof. R. W. Freund**, USA

**Prof. I. Gladwell**, USA

**Prof. B. Hendrickson**, USA

**Prof. A. Klar**, Germany

**Prof. W. F. Mitchell**, USA

**Dr. G. Psihoyios**, UK

**Prof. T.E. Simos**, Greece

**Prof. W.Sproessig**, Germany

**Dr. Ch. Tsitouras**, Greece

**Prof. G. Alistair Watson**, UK



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### **Local Advisory Committee:**

Prof. K. Kouroumbas (President of Technological Educational Institute of Chalkis)

Prof. M. Lambiris

Assist. Prof. E. Tiktopoulou

Assist. Prof. S. Tsitmidelis

Assist. Prof. X. Zianni

Assoc. Prof. A. Rigas

### **Organising Committee:**

Mrs Eleni Ralli-Simou (Secretary of ICNAAM 2004, Secretary ESCMSE)

Mr. D. Sakas

Mr. Z. Anastassi

Mr. Th. Monovasilis

Mr. K. Tselios



## ICNAAM 2004

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**FRIDAY 10 SEPTEMBER 2004**

**START OF ICNAAM 2004**

**16:30 – 19:00**

**Registration**

**19:00 – 20:30**

**Welcome reception**

The registration and welcome reception will take place in a beautiful traditional building of Chalkis (NAMED "KOKKINO SPITI") AT THE CENTER OF CHALKIS.

**DEPARTURE OF THE BUSES FROM  
"PALMARIVA HOTEL": 15:15-15:30.**

**END OF THE 1<sup>ST</sup> DAY**



## ICNAAM 2004

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<b>Saturday 11 September 2004</b>		
<b><u>Invited Speaker (ROOM 1)</u></b>		
<b>Chair: Theodore E. Simos</b>		
10:00 - 11:00	<i>G. Vanden Berghe</i>	<b>Exponential fitting: Applications for ODE-solvers</b>
<b>Coffee Break</b>		
<b>Session 1: Newton-type method and other related iterative methods with applications</b> <b>Chair: I. K. Argyros and J. M. Gutiérrez (Room 2)</b>		
11:30 - 12:00	<i>I. K. Argyros</i>	<b>A Unifying Local-Semilocal Convergence Analysis and Applications for Two-Point Newton- Like Methods in Banach Space</b>
12:00 - 12:30	<i>J. A. Ezquerro and M. A. Hernández</i>	<b>New Kantorovich-Type Conditions for Halley's Method</b>
12:30 - 13:00	<i>S. Amat, S. Busquier and A. Escudero</i>	<b>A Wavelet Adaptive Two-Step Newton Type Method</b>
<b>Coffee Break</b>		
13:30 - 14:00	<i>J. M. Gutiérrez</i>	<b>Third order methods for the simultaneous calculus of the roots of a polynomial</b>
14:00 - 14:30	<i>N. Romero and M. A. Hernández</i>	<b>On a new multiparametric family of Newton-like methods</b>



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### Session 2: Mathematical Methods in Physical Process Modelling I Chair: D. Vlachos and T.E. Simos (Room 3)

11:30 – 12:00	<i>E. Fakiris and I. Zacharias</i>	Application of Landsat Imagery, to verify the water circulation of Saronikos Gulf, as resulted from numerical modeling
12:00 – 12:30	<i>P. D. Manousopoulos, D. S. Vlachos and T. E. Simos</i>	Electromagnetic field computation in large biological bodies
12:30 – 13:00	<i>C. Tsabaris</i>	Mathematical technique for the determination of radionuclide chain elements in the marine environment
<b>Coffee Break</b>		
13:30 – 14:00	<i>T. H. Soukissian and G. Kalantzi</i>	The use of extreme value theory in climatic predictions of wave characteristics
14:00 – 14:30	<i>G. Triantafyllou, J. Hoteit, G. Korres and G. Petihakis</i>	Data Assimilation Into Marine Physical-Biochemical Models using Kalman Filtering Techniques: Progress and Problems

### Session 3: Computational Problems for Periodic Systems Chair: Eric K.-w. Chu and W.-w. Lin (Room 4)



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11:30 – 12:00	<i>Eric King-Wah Chu, Wen-Wei Lin and Alan J. Pryde</i>	<b>Perturbation of Periodic Eigenvalues via Bauer-Fike Theorems and Generalized Joint Spectra</b>
12:00 – 12:30	<i>Eric King-Wah Chu, Hung-Yuan Fan and Wen-Wei Lin</i>	<b>Reachability/Observability Gramians and Balanced Realization of Periodic Descriptor Systems</b>
12:30 – 13:00	<i>Yuen-Cheng Kuo, Wen-Wei Lin and Shu-Fang Xu</i>	<b>Regularization and Pole Assignment of Linear Discrete-Time Periodic Descriptor Systems by Derivative and Proportional State Feedback</b>
<b>Coffee Break</b>		
13:30 – 14:00	<i>Eric King-Wah Chu, Hung-Yuan Fan, Wen-Wei Lin and Chern-Shuh Wang</i>	<b>Structure Preserving Algorithms for Periodic Discrete-Time Algebraic Riccati Equations</b>
14:00 – 14:30	<i>Alexander M. Korsunsky and Lijiang Ma</i>	<b>Interpolative quadratures for singular integral equations in fracture and contact mechanics</b>
<b>Session 4: Applied Mathematics I Chair: Stefanos Spartalis (Room 5)</b>		
11:30 – 12:00	<i>I. Illiadis, S. Spartalis, F. Maris and D. Marinos</i>	<b>A Decision Support System Unifying Fuzzy Trapezoidal Function Membership Values using T-Norms: The case of river Evros Torrential Risk Estimation</b>
12:00 – 12:30	<i>Cy Mamaloukas, S. Spartalis and Z. Manussaridis</i>	<b>Similarity approach to the problem of second grade fluid flows over a stretching sheet</b>
12:30 – 13:00	<i>Wen You-Wei, Ching Wai-Ki and NG Michael K.</i>	<b>Preconditioners Based On Gohberg-Semumcul Formula For Positive Definite Toeplitz Systems</b>
<b>Coffee Break</b>		



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13:30 – 14:00	<i>Ch. Mameloukas and S. Spartalis</i>	Special curves whose tangents form minimal surfaces. Applications in the industry
14:00 – 14:30	<i>S. Spartalis and G. Vekris</i>	Information transport in 2-port cell networks
<p><b>Session 5: Function theories in <math>\mathbb{R}^n</math> and their applications (to equations of mathematical physics) I</b>  <b>Chair: Wolfgang Sprößig and Klaus Gürlebeck (Room 1)</b></p>		
11:30 – 12:00	<i>Sören Krausshar (with K. Bringmann, D. Constales)</i>	Applications of hypercomplex Poincare series to Bergman Spaces of hyperbolic polyhedron type domains
12:00 – 12:30	<i>Guy Laville</i>	Special functions in Clifford analysis
12:30 – 13:00	<i>Mircea Martin</i>	No available title
<p><b>Coffee Break</b></p>		
13:30 – 14:00	<i>Ioannis G. Stratis</i>	On causal time-invariant evolution problems and applications in complex media electromagnetics
14:00 – 14:30	<i>Luis Manuel Tovar</i>	Weighted function spaces: Monogenic functions and Primitives
<p><b>LUNCH</b></p>		
<p><b>Invited Speaker (ROOM 1)</b>  <b>Chair: Klaus Gürlebeck</b></p>		
15:15 – 16:15	<i>Wolfgang Sprößig</i>	<b>Aspects of Clifford Analysis in Applied Mathematics</b>
16:15 – 17:15	<i>Dirk Laurie, Jörg Waldvogel, Folkmar Bornemann and Stan Wagon</i>	<b>Challenges in numerical computation</b>



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### Coffee Break

#### Session 6: Development of Mathematical Methods for Applied Propagation Problems Chair: A.G. Bratsos (Room 2)

17:30 – 18:00	<i>A. G. Bratsos, D. Natsis and V. Kotsakis</i>	Linearized numerical schemes for the Boussinesq equation
18:00 – 18:30	<i>A. G. Bratsos</i>	An explicit numerical scheme for the Sine-Gordon equation in 2+1 dimensions
18:30 – 19:00	<i>A. M. Prospathopoulos, G. A. Athanassoulis and K. A. Belibassakis</i>	3D acoustic scattering from a radially layered cylinder in a plane-horizontal ocean wave guide: Low-frequency results

### Coffee Break

19:00 – 19:30	<i>E. E. Tzirtzilakis, Ch. Skokos and T. C. Bountis</i>	A Numerical Study of Soliton Solutions of the Boussinesq Equation Using Spectral Methods
19:30 – 20:00	<i>D. Natsis</i>	$L^1$ -Convergence of the sine Fourier series with coefficients monotonic with respect to strongly regularly varying sequences

#### Session 7: Mathematical Physics I Chair: Metin Demiralp (Room 3)

17:30 – 18:00	<i>Burcu Tunga and Metin Demiralp</i>	Instantaneous Series in Stability and Robustness Investigations for Quantum Optimal Control: Harmonic Oscillator
18:00 – 18:30	<i>Metin Demiralp and N. Abdülbaki Baykara</i>	Asymptotic Expansion for the Generalized Hypergeometric Function of $pF_p$ Type at Large Values of the Argument
18:30 – 19:00	<i>Tülin Kaman and Metin Demiralp</i>	Perturbation Expansion Around the Nominal Value of External Field Amplitude in Molecular Optimal Control Theory

### Coffee Break



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19:15 – 19:45	<i>H. Kaya and M. Demiralp</i>	<b>Solving 3D Poisson Equation via HDMR</b>
19:45 – 20:15	<i>Aysegül Kurşunlu, İrem Yaman and Metin Demiralp</i>	<b>A Space Extension Reductive Approach to the Solution of Eigenvalue Problems: Anharmonic Oscillator</b>
<b>Session 8: Numerical Analysis I</b> <b>Chair: Ch. Tsitouras (Room 4)</b>		
17:30 – 18:00	<i>Marwan Abukhaled</i>	<b>Stability Criteria of Explicit Weak Runge-Kutta Schemes for a 2-Dimensional Stochastic Differential Systems</b>
18:00 – 18:30	<i>Sanja Singer and Saša Singer</i>	<b>Skew-Symmetric Differential qd Algorithm is Accurate</b>
18:30 – 19:00		
<b>Coffee Break</b>		
19:15 – 19:45	<i>Lubomir Bañas</i>	<b>A numerical method for the Landau-Lifshitz equation with magnetostriction</b>
19:45 – 20:15	<i>Jean-Paul Berrut</i>	<b>Another look at the Euler-Maclaurin formula</b>
<b>Session 9: Computational Methods I</b> <b>Chair: Annie Cuyt (Room 5)</b>		
17:30 – 18:00	<i>Vit Vondrák, Zdeněk Dostál, Jiří Dobiáš and Švatopluk Pták</i>	<b>Primal and dual penalty methods to solution of contact problems</b>
18:00 – 18:30	<i>D. K. Callebaut, E. Desoppere and G. K. Karugila</i>	<b>Solution of nonlinear differential equation for falling body in viscosity meter</b>
18:30 – 19:00		
<b>Coffee Break</b>		



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19:15 – 19:45	<i>D. K. Callebaut and G. K. Karugila</i>	Non-uniform equilibrium of an infinite Newtonian gravitating medium with cosmological constant
19:45 – 20:15	<i>Mladen Rogina</i>	A Stable Algorithm for Calculating with Some Singular B-Splines
<b>Session 10: Applied Mathematics II</b> <b>Chair: G.A. Watson (Room 1)</b>		
17:30 – 18:00	<i>Mohammed R. Abdel-Aziz</i>	Effects of Relative Perturbations on a Class of Eigenvalues in Free Vibration Analysis
18:00 – 18:30	<i>Ken Horie and Takashi Matsuhisa</i>	Communication in awareness reaching consensus without acyclic condition
18:30 – 19:00	<i>Ioan R. Ionescu</i>	Safety factor analysis for landslides modeling
<b>Coffee Break</b>		
19:15 – 19:45	<i>Emil Kasap and Fahir Akyildiz</i>	A Method of the Determination of a Geodesic Curve on Timelike Ruled Surface with Spacelike Rulings
19:45 – 20:15	<i>K. Ngo</i>	An Approach of Eigenvalue Perturbation Theory
<b>Coffee Break</b>		
<b><u>Invited Speaker (ROOM 1)</u></b> <b>Chair: Theodore E. Simos</b>		
20:30 – 21:30	<i>Carsten Carstensen</i>	<b>Computational Micromagnetism</b>



# END OF THE 2<sup>ND</sup> DAY



**ICNAAM 2004**

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**SUNDAY 12 SEPTEMBER 2004**

**Excursion of ICNAAM 2004**

**Place of Excursion: Delphi (One of  
the most beautiful archaeological  
places of Greece)**

**Departure: 09:00**

**Central Dinner: Palmariva Hotel  
21:00**

**END OF THE 3<sup>RD</sup> DAY**



**ICNAAM 2004**

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<p><b>Monday 13 September 2004</b></p> <p><u><i>Invited Speaker (ROOM 1)</i></u></p> <p><b>Chair: Iain Duff</b></p>		
09:30 - 10:30	<i>Annie Cuyt</i>	<p><b>Rational Approximation Successes in Computational Science and Engineering</b></p>
<p><b>Coffee Break</b></p>		
<p><b>Session 11: Adaptive modelling and applications</b></p> <p><b>Chair: Annie Cuyt, T. Dhaene and B. Verdonk (Room 1)</b></p>		
11:00 - 11:30	<i>T. Dhaene</i>	<p><b>Compact Surrogate Modeling of Passive Electronic Components</b></p>
11:30 - 12:00	<i>W. H. A. Schilders</i>	<p><b>Numerical methods for coupled circuit and interconnect simulations</b></p>
12:00 - 12:30	<i>Vigdis Brevik Petersen</i>	<p><b>Orthogonal Polynomials and Signal Processing</b></p>
<p><b>Coffee Break</b></p>		
13:00 - 13:30	<i>Annie Cuyt, Gene Golub, Peyman Milanfar and Brisette Verdonk</i>	<p><b>Inverting a multidimensional shape from moments</b></p>
13:30 - 14:00	<i>J. Van Deun and A. Bultheel</i>	<p><b>Moment-based algorithms for computing orthogonal rational functions</b></p>
14:00 - 14:30	<i>P. Meyer, R. Lehmensiek and W. Steyn</i>	<p><b>On the Application of Rational Interpolation to Root-Finding Problems in Microwave Engineering</b></p>



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<p><b>Session 12: Function theories in <math>\mathbb{R}^n</math> and their applications (to equations of mathematical physics) II</b>  <b>Chair: Wolfgang Sprößig and Klaus Gürlebeck (Room 2)</b></p>		
11:30 – 12:00	<i>Bin Lin Dai and Ai Nong Fang</i>	<b>On Limit Sets and Discreteness Criteria for Nonelementary Subgroups of <math>M(\bar{\mathbb{R}}^n)</math></b>
12:00 – 12:30	<i>Rauno Aulaskari</i>	<b>On Möbius invariant function spaces</b>
12:30 – 13:00	<i>Fred Brackx and Hennie De Schepper</i>	<b>Convolution kernels in Clifford Analysis</b>
<b>Coffee Break</b>		
13:30 – 14:00	<i>Klaus Gürlebeck and Isabel Cação</i>	<b>Monogenic Primitives of Monogenic Functions</b>
14:00 – 14:30	<i>Yakov Krasnov</i>	<b>Analytic function theories in algebras</b>
<p><b>Session 13: Mathematical Methods in Physical Process Modelling II</b>  <b>Chair: D. Vlachos (Room 3)</b></p>		
11:30 – 12:00	<i>D. S. Vlachos</i>	<b>Optimal ship routing based on wind and wave forecasts</b>
12:00 – 12:30	<i>D. S. Vlachos</i>	<b>A local supervised learning algorithm for multi-layer perceptrons</b>
12:30 – 13:00	<i>D. S. Vlachos, C. G. Tsaharis and I. Thanos</i>	<b>The Use of Vertical and Horizontal Accelerations of a Floating Buoy for the Determination of Directional Wave Spectra in Coastal Zones</b>
<b>Coffee Break</b>		
13:30 – 14:00	<i>Eric King-Wah Chu, Hung-Yuan Fan, Wen-Wei Lin and Chern-Shuh Wang</i>	<b>Structure-Preserving Algorithms for Periodic Discrete-Time Algebraic Riccati Equations</b>
14:00 – 14:30	<i>T. H. Soukissian, Z. Theochari, P. Vamvakoussi and D. Koutsogiannis</i>	<b>Stochastic forecasting and simulation tools in sea waves modelling</b>



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<b>Session 14: Mathematics Methods II</b> <b>Chair: Ch. Tsitouras (Room 4)</b>		
11:30 – 12:00	<i>K. A. Papakonstantinou and C. B. Belias</i>	<b>Mathematical Modeling of environmental conditions around buildings. The case of a public buildings complex of culture in Thessaloniki</b>
12:00 – 12:30	<i>D. G. Pavlou, Ch. Tsitouras, N. V. Vlachakis, M. G. Pavlou, V. N. Vlachakis</i>	<b>Non linear stress analysis of pressure pipes under creep conditions</b>
12:30 – 13:00		
<b>Coffee Break</b>		
13:30 – 14:00	<i>P. Psarrakos and Ch. Tsitouras</i>	<b>Numerical approximation of the boundary of numerical range of matrix polynomials</b>
14:00 – 14:30		
<b>LUNCH</b>		

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**POSTER SESSION**

**15:00 – 15:30**

*D. S. Vlachos and T. E. Simos*

**Partitioned linear multistep method for long term integration of the N-body problem**

*D. S. Vlachos and T. E. Simos*

**Inverse parameter estimation of interdigital dielectrometry sensors**

*C. Tsabaris and G. Perdikakis*

**Nuclear model calculations for the  $^{58}\text{Ni}(n, p)^{58}\text{Co}$  reaction**

*Z. A. Anastassi and T. E. Simos*

**Trigonometrically-Fitted Runge-Kutta Methods for the Numerical Solution of the Schrödinger Equation**

*D. P. Sakas and T. E. Simos*

**A Family of Seventh Algebraic Order Trigonometrically Fitted P-C Schemes for the Numerical Solution of the One-Dimensional Schrödinger Equation**

*S. Nakamori, A. Hermoso, J. Linares and M. I. Sánchez*

**Signal estimation from observations affected by random delays and white plus coloured noises**

*S. Nakamori, R. Caballero, A. Hermoso, J. Jiménez and J. Linares*

**An innovation approach to the estimation problem from uncertain observations with correlated signal and noise**

*Th. Monovasilis, Z. Kalogirakou and T. E. Simos,*

**Exponential-fitting Symplectic Methods for the Numerical Solution of the Schrödinger Equation**



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<u><b>Invited Speaker (ROOM 1)</b></u>		
<b>Chair: Andy Wathen</b>		
<b>15:30 - 16:30</b>	<i>Iain Duff</i>	<b>Partitioning and parallelism in the solution of large sparse systems</b>
<u><b>Invited Speaker (ROOM 1)</b></u>		
<b>Chair: Annie Cuyt</b>		
<b>16:30 - 17:30</b>	<i>Weibo Gong and Jintao Xiong</i>	<b>Rational Approximation for Engineering Problems</b>
<b>Coffee Break</b>		
<b>Session 15: Function theories in <math>R^n</math> and their applications (to equations of mathematical physics) III</b> <b>Chair: Wolfgang Sproßig and Klaus Gürlebeck (Room 1)</b>		
<b>18:00 - 18:30</b>	<i>Viktor G. Kravchenko and Vladislav V. Kravchenko</i>	<b>On a generalized Schrödinger operator and Darboux transformations</b>
<b>18:30 - 19:00</b>	<i>L. Meister and H. Schaeben</i>	<b>Geometrical approach to quaternion transformations and integrating in quaternion space</b>
<b>19:00 - 19:30</b>	<i>Nai Bing</i>	<b>On Algebraic and Geometric Convergence of Clifford Matrix Groups</b>
<b>Coffee Break</b>		
<b>20:00 - 20:30</b>	<i>Swanhild Bernstein</i>	<b>The Radon transform in texture analysis</b>
<b>20:30 - 21:00</b>	<i>K. Bringmann, D. Constales, and R.S. Kraußhar</i>	<b>Applications of hypercomplex Poincaré series to Bergman Spaces of hyperbolic polyhedron type domains</b>



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### Session 16: Computer Science Chair: Z. Kalogiratou (Room 2)

18:00 – 18:30	<i>Hiroaki Mohri</i>	Network Design Problem for Some Graphs
18:30 – 19:00	<i>Iakovos Ouranos, Petros Stefaneas and Panayiotis Frangos</i>	MobileOBJ: A Mobility Approach Using CafeOBJ Algebraic Specification Language
19:00 – 19:30		
<b>Coffee Break</b>		
20:00 – 20:30	<i>Evangelos Tzaniis</i>	Collatz Conjecture and Other Recurrence Sequences: Algorithms and Stopping time
20:30 – 21:00	<i>V. K. Stefanidis and K. G. Margaritis</i>	Algorithm Based Fault Tolerance: Review and experimental study

### Session 17: Numerical Analysis II Chair: Susanne Brenner (Room 3)

18:00 – 18:30	<i>S. Bertoluzza</i>	The mortar method with approximate constraint: Coupling finite elements on unstructured non-matching grids in 3D
18:30 – 19:00	<i>Igor Bock</i>	On Discretization and Linearization of von Kármán Equations for Vuscoelastic Plates
19:00 – 19:30	<i>A. Davari and E. Babolian</i>	A Computable Error Bound for Approximate Solution of Linear Integral Equations by Adomian Decomposition Method
<b>Coffee Break</b>		
20:00 – 20:30	<i>S. Bertoluzza and M. Pennacchio</i>	Preconditioning the Mortar Method by Substructuring: the high order case
20:30 – 21:00	<i>Yong Duan</i>	Meshless Galerkin Method Based on Regions Partitioned into Subdomains Using Global RBF



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### Session 18: Computational Methods II Chair: Iain Duff (Room 4)

18:00 - 18:30	<i>Fahir Talay Akyildiz, Hamid Bellout and Mustafa Yapici</i>	<b>On the Use of Kantorovich Method in Viscoelastic Flow</b>
18:30 - 19:00	<i>M. T. Cao, C. Moreno and P. Quintela</i>	<b>Simulation of Rayleigh waves in cracked plates</b>
19:00 - 19:30		
<b>Coffee Break</b>		
20:00 - 20:30	<i>Andrea Comerlati, Giorgio Pini and Giuseppe Gambolati</i>	<b>Linearized solutions to two phase flow in porous media solved by Finite Elements</b>
20:30 - 21:00	<i>D. Echeverria and P. W. Hemker</i>	<b>A Defect Correction Based approach to Space Mapping</b>

END OF THE 4<sup>TH</sup> DAY



# ICNAAM 2004

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## Tuesday 14 September 2004

### Invited Speaker (ROOM 1)

Chair: G.A. Watson

09:30 - 10:30	<i>Susanne Brenner</i>	<b>Multigrid and Domain Decomposition for <math>C^0</math> Interior Penalty Methods</b>
<b>Coffee Break</b>		
<b>Session 19: Function theories in <math>R^n</math> and their applications (to equations of mathematical physics) IV</b> <b>Chair: Wolfgang Sprößig and Klaus Gürlebeck (Room 1)</b>		
11:00 - 11:30	<i>L. Leonardo Traversoni</i>	<b>Quaternion splines and wavelets in hydrodynamics</b>
11:30 - 12:00	<i>Ricardo Abreu</i>	<b>On Boundary Values of Harmonic Multivector Fields via Clifford Analysis</b>
12:00 - 12:30	<i>El-Sayed, Ahmed</i>	<b>On hyperholomorphic Bloch functions</b>
<b>Coffee Break</b>		
13:00 - 13:30	<i>Sirkka-Liisa Eriksson</i>	<b>Cauchy-type integral formulas for k-hypermonogenic functions</b>
13:30 - 14:00	<i>Jaime Keller</i>	<b>Comprehensive Representation of Physical Phenomena in a 5-dimensional quadratic space</b>



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### Session 20: Numerical Analysis III Chair: Z. Kalogiratou (Room 2)

11:30 – 12:00	<i>Vjeran Hari</i>	<b>On Some New Applications of the CS Decomposition</b>
12:00 – 12:30	<i>S. M. Hashemiparast, M. MasjedJamei and M. R. Eslahchi</i>	<b>On Numerical Solution of some ill-Condition Nonlinear Systems</b>
12:30 – 13:00		
<b>Coffee Break</b>		
13:30 – 14:00	<i>Taku Itoh, Daichi Fujimoto, Takashi Kitagawa and Susumu Nakata</i>	<b>Incomplete Cholesky Preconditioners with Band – Diagonalization for Sparse Symmetric Systems</b>
14:00 – 14:30	<i>Radek Kučera, Jaroslav Haslinger and Zdeněk Dostál</i>	<b>An algorithm for solving 3D contact problems with friction</b>

### Session 21: Computational Methods III Chair: Ch. Tsitouras (Room 3)

11:30 – 12:00	<i>G. R. Karamali and A. Shidfar</i>	<b>An Inverse Nonlinear Diffusion Equation with a Nonlocal Boundary Condition</b>
12:00 – 12:30	<i>K. Tavakoli and A. Shidfar</i>	<b>An Inverse Problem of Parabolic Type</b>
12:30 – 13:00	<i>M. M. Kassem</i>	<b>Group solution of unsteady free-convection flow from a continuous moving vertical surface subjected to constant heat flux</b>
<b>Coffee Break</b>		
13:30 – 14:00	<i>A. Shidfar and R. Pourgholi</i>	<b>A Numerical Solution of an Inverse Heat Conduction Problem</b>
14:00 – 14:30	<i>Xia Cui</i>	<b>Characteristic Modification ADFE Method for Convection-dominated Parabolic Integro-differential Equation</b>





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**Session 22: Numerical Analysis IV  
Chair: Michael Vrahatis (Room 4)**

11:30 - 12:00	<i>T. Bartz-Beielstein, K. E. Parsopoulos and M. N. Vrahatis</i>	<b>Analysis of Particle Swarm Optimization Using Computational Statistics</b>
12:00 - 12:30	<i>D. G. Sotiropoulos, A. E. Kostopoulos and T. N. Grapsa</i>	<b>Training Neural Networks using Two-Point Step-size Gradient Methods</b>
12:30 - 13:00	<i>Saša Singer and Sanja Singer</i>	<b>Efficient Termination Test for the Nelder-Mead Search Algorithm</b>
<b>Coffee Break</b>		
13:30 - 14:00	<i>D. G. Sotiropoulos and T. N. Grapsa</i>	<b>An Interval Branch-and-Prune Algorithm for Discrete Minimax Problems</b>
14:00 - 14:30	<i>E. C. Laskari, G. C. Meletiou and M. N. Vrahatis</i>	<b>Inverse Interpolation over Finite Fields</b>

**Session 23: Numerical Analysis V  
Chair: M. Menegutte (Room 5)**

11:30 - 12:00	<i>Abdelhakim Lotfi</i>	<b>A Preconditioned Domain Decomposition Algorithm for Frictional Contact Problem</b>
12:00 - 12:30	<i>M. Menegutte, M. Messias and V. A. Botta</i>	<b>Stability of multistep second derivative methods for integrodifferential equations</b>
12:30 - 13:00		
<b>Coffee Break</b>		
13:30 - 14:00	<i>Marcelo Messias and Messias Menegutte Jr.</i>	<b>On the existence of infinite heteroclinic cycles in polynomial systems and its dynamic consequences</b>
14:00 - 14:30	<i>Kamel Nafa</i>	<b>Pressure Stabilized finite element approximation for the generalized Stokes Problem</b>

**LUNCH**



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<u><b>Invited Speaker (ROOM 1)</b></u>		
<b>Chair: Guido Vanden Berghe</b>		
<b>15:30 - 16:30</b>	<i>I. Al-Subaihi and G. A. Watson</i>	<b>The use of the <math>l_1</math> and <math>l_\infty</math> norms in fitting curves and surfaces to data</b>
<u><b>Invited Speaker (ROOM 1)</b></u>		
<b>Chair: Ch. Tsitouras</b>		
<b>16:30 - 17:30</b>	<i>Andy Wathen</i>	<b>Numerical simulation of pattern formation on growing domains</b>
<b>Coffee Break</b>		
<b>Session 24: Mathematics Methods I</b>		
<b>Chair: Ch. Tsitouras (Room 2)</b>		
<b>18:00 - 18:30</b>	<i>M. P. Halias, J. C. Statharas, K. Kouroumbas</i>	<b>Estimation of the strange attractor invariants and the use of them in forecasting the nonequilibrium thermodynamics data from liquid spilling experiments performed with hydrogen</b>
<b>18:30 - 19:00</b>	<i>N. I. Kavallaris, C. V. Nikolopoulos and D. E. Tzanetis</i>	<b>Estimates of blow-up time for the "open-spectrum" case for the radial symmetric semilinear heat equation</b>
<b>19:00 - 19:30</b>	<i>K. A. Belibassakis, Ch. N. Stefanakos, A. Bratsos and A. M. Prospathopoulos</i>	<b>Numerical simulation of weakly nonlinear wave propagation in variable bathymetry regions</b>
<b>Coffee Break</b>		



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20:00 – 20:30	<i>Anastasios Chronopoulos</i>	<b>Learning in Distance Education</b>
20:30 – 21:00	<i>A. K. Baldoukas, G. A. Demosthenous, D. E. Manolakos, P. Kostazos, A. Tsatsaris, S. A. Mavrommatis, B. D. Tsoukalas</i>	<b>Optimizing the crashworthy characteristics of guardrail spacers using the explicit FE code LS-DYNA</b>
<b>Session 25: Computational Methods IV</b> <b>Chair: D. Vlachos (Room 3)</b>		
18:00 – 18:30	<i>Shu-Ming Chang, Tai-Chia Lin and Wen-Wei Lin</i>	<b>Dynamics of Three Vortices Bose-Einstein Condensates</b>
18:30 – 19:00	<i>O. I. Kosmidou and Y. S. Boutalis</i>	<b>On the Riccati Equations Arising in Robust Control Approaches</b>
19:00 – 19:30	<i>Moody T. Chu, Yuen-Cheng Kuo and Wen-Wei Lin</i>	<b>On inverse quadratic eigenvalue problems with partially prescribed eigenstructure</b>
<b>Coffee Break</b>		
20:00 – 20:30	<i>Shu-Ming Chang, Wen-Wei Lin and Shih-Feng Shieh</i>	<b>Fixed Point Methods for Energy States of Multi-Component Bose-Einstein Condensates</b>
20:30 – 21:00	<i>Roland Rozsnyo and Klaus-Dieter Semmler</i>	<b>Optimal Control of Geodesics in Riemannian Manifolds</b>
<b>Session 26: Numerical Analysis VI</b> <b>Chair: Dirk Laurie (Room 4)</b>		
18:00 – 18:30	<i>N. Parumasur, J. Banasiak and J. M. Kozakiewicz</i>	<b>Numerical Modelling of Kinetic Equations: Diffusion Approximations with Initial Data Correctors</b>
18:30 – 19:00	<i>Willy Malfliet</i>	<b>The tanh method: a tool for solving certain classes of nonlinear PDE's</b>
19:00 – 19:30	<i>Tetsuya Sakurai, Hiroto Tadano, Yuichi Inadomi and Umpei Nagashima</i>	<b>A moment-based method for large scale eigenvalue problems</b>
<b>Coffee Break</b>		
20:00 – 20:30		
20:30 – 21:00		



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<b>Session 27: Mathematical Physics II</b> <b>Chair: Metin Demiralp (Room 5)</b>		
18:00 – 18:30	<i>Gülşen Taşkin and Metin Demiralp</i>	A Matrix Algebraic Analytic Continuation Method for Hypergeometric Functions of ${}_{p+1}F_p$ Type
18:30 – 19:00	<i>M. Alper Tunga and Metin Demiralp</i>	Error Propagation Through Generalized High Dimensional Model Representation For Data Partitioning
19:00 – 19:30		
<b>Coffee Break</b>		
20:00 – 20:30	<i>Sevda Üsküplü and Metin Demiralp</i>	A Factorization Method for ${}_{p+1}F_p$ Type Hypergeometric Function Evaluations
20:30 – 21:00	<i>İrem Yaman, Metin Demiralp and N. Abdülbaki Baykara</i>	Factorization of Evolution Matrix to Approximate the Hypergeometric Functions of Type $F_{p,p}$
<b>Session 28: Numerical Analysis VII</b> <b>Chair: Michael Vrahatis (Room 1)</b>		
18:00 – 18:30	<i>Bernard Mourrain, Nicos G. Paolidis, Dimitris K. Tascoulis and Michael N. Vrahatis</i>	Computing the Number of Real Roots of Polynomials through Neural Networks
18:30 – 19:00	<i>Lin Fuyong</i>	Orthogonal complex bases of spline and its application
19:00 – 19:30	<i>Hiroto Tadano and Tetsuya Sakurai</i>	A method for avoiding breakdown in product-type iterative methods and its behavior for Toeplitz linear systems
<b>Coffee Break</b>		



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20:00 – 20:30	<i>M. H. van Raalte and P. W. Hemker</i>	<b>Fourier Two-level Analysis for Discontinuous Galerkin Discretization of the Convection Diffusion equation</b>
20:30 – 21:00	<i>A. Amat, S. Busquier and J.C. Trillo</i>	<b>Stable Interpolatory Nonlinear Multiresolution Transforms in 3D</b>

END OF THE 5<sup>TH</sup> DAY

END OF THE CONFERENCE

We hope to see you next year  
in RHODES

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