

The 30th Conference on Applied and Industrial Mathematics

CAIM 2023

September 14–17, 2023, Iași

Programme

General Schedule

Thursday, September 14, 2023

14.00-20.00	Registration R Building of UAIC, Alexandru Lăpușneanu 26, 700057 Iași
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Friday, September 15, 2023

09.00-10.30	Registration & Opening Ceremony: R Building of UAIC, Alexandru Lăpușneanu 26, 700057 Iași Room R 402
10.30-11.10	Plenary Session
11.10-11.40	<i>Coffee Break</i>
11.40-12.20	Plenary Session
12.20-13.00	Plenary Session
13.00-14.30	<i>Lunch</i>
14.30-15.50	Communications
15.50-16.10	<i>Coffee Break</i>
16.10-18.30	Communications
19.30-22.00	Official Dinner

Saturday, September 16, 2023

09.30-10.10	Plenary Session
10.10-10.40	<i>Coffee Break</i>
10.40-11.20	Plenary Session
11.20-11.40	Plenary Session
12.00-13.00	Communications
13.00-14.30	<i>Lunch</i>
14.30-15.30	Communications
15.30-15.50	<i>Coffee Break</i>
15.50-17.30	Communications
17.30-17.40	<i>Closing Ceremony</i>
17.40-18.30	ROMAI General Assembly

Sunday, September 23, 2018

Excursion: Darmanești, National Park Nemira
Departure of participants

Scientific Programme - Synopsis

All works will take place in the R building of UAIC, Alexandru Lapusneanu 26, Iasi

	R 402	R 215	R 306	R 317	R 407	R 417	R 402	
	Plenary	ODEs	PDE&Modeling	Analysis	Prob&CompSc	Algebra	Education	
Friday	9.00-10.30	Opening Ceremony						
		Chair: L. Chiriac						
	10.30-11.10	Mihail Popa						
	11.10-11.40	Coffee Break						
	11.40-12.20	Marian Muresan						
	12.20-13.00	Evoc. C. Meghea						
	13.00-14.30	Lunch						
			Chair: I Ursu	Chair: S.G. Cruceanu	Chair: B. Satco	Chair: B. Hancu	Chair: L. Chiriac	Chair: A. Globa
	14.30-14.50	D. Cozma	V.M. Luaces	M.M. Boureanu	E. Mandrescu	P. Syrbu	I. Titchiev	
	14.50-15.10	V. Repesco	V.M. Luaces	A. Croitoru	Gh. Zbaganu	E. Cojuhari	D. Afanas	
	15.10-15.30	V. Pricop	T. Barbu	T. Doncev	S. Paval	A. Turcanu	A. Braicov	
	15.30-15.50	A, Suba		V. Postolica	R. Buzatu	A. Guterman	A. Braicov	
	15.50-16.10	Coffee Break						
			Chair: V. Pricop	Chair: T. Barbu	Chair: M.M. Boureanu		Chair: E. Cojuhari	Chair: A. Braicov
	16.10-16.30	M. Lupu	I. Meghea	B. Satco		S. L. Romaniuc	D. Bagrin	
	16.30-16.50	D. Enciu	I. Cojuhari	C. Stamate		F. Damian	A. Gasnas	
	16.50-17.10	R. Georgescu	S. G. Cruceanu	A. Tudorache		L. Chiriac	T. Vascan	
	17.10-17.30	D. Constantinescu	I. Baltag	O. Gok		G. Banaru	M. Pavel	
	17.30-17.50	Coffee Break						
	17.50-18.10					M. Banaru	N. Snizhko	
18.10-18.30					M. Banaru	M. Bostan		
20.00-22.30	Official Diner							

Scientific Programme - Synopsis

	R 402	R 215	R 306	R 317	R 407	R 417	R 402
	Plenary	ODEs	PDE&Modeling	Analysis	Prob&CompSc	Algebra	Education
	Chair: C. Rocsoreanu						
9.30-10.10	Cazacu Cristian						
10.10-10.40	Coffee Break						
10.40-11.20	Gabriel Dimitriu						
11.20-11.40	Dumitru Botnaru						
		Chair: D. Cozma	Chair: S. Ion	Chair: P. Georgescu	Chair: G. Zbaganu	Chair: F. Damian	Chair: D. Afanas
12.00-12.20		M. Sterpu	V. Zelentov	M. Mocanu	A. Raducan	C. Anghel	V. Bogdanov
12.20-12.40		F. Munteanu	M. Alsehri	L.F. Preluca	V.S. Barbu	E. Kuznetov	M. Teleuca
12.40-13.00		C. Strebeti		A.M. Mosneagu	B. Hancu	E. Kuznetov	L. Chiriac
13.00-14.30	Lunch						
			Chair: A.V. Ion	Chair: M. Mocanu		Chair: F. Damian	Chair: L. Sali
14.30-14.50		L. Bucur	I. Stoleriu	S.D. Saglam		L. Calmutchi	T. Veverita
14.50-15.10			M. Butnaru	V. Seichuc		I. Cucu	L. Mihalache
15.10-15.30			P. Georgescu	G. Popescu		A. Mamoon	S. Grigorcea
15.30-15.50	Coffee Break						
15.50-16.10			C. Morosanu	S. Ion			I. Baltag
16.10-16.30			C. Stoicescu	C. Grunfeld			L. Calmutchi
16.30-16.50			G. Tanase				L. Calmutchi
16.50-17.10							N. Cazacioc
17.10-17.30							B. Taralunga
17.30-17.40	Closing Ceremony						
17.40-18.30	ROMAI General Assembly						

Plenary Sessions
Friday, September 15

R 402

Chair: Liubomir Chiriac

10.30- *Differential Equations and Algebras*

11.10 **Mihail Popa**

11.40- *Mathematica[®] and Differential Equations*

12.20 **Marian Mureşan**

11.40- *Constantin Meghea: His Works, the Man, and His Life*

12.20 **Aurelia Meghea, Irina Meghea, Mircea Lupu**

Saturday, September 16

R 402

Chair: Carmen Roşoreanu

9.30- *Sharp uncertainty principles and stability results*

10.10 **Cristian Cazacu**

10.40- *Regional control strategies applied to biological models. Theoretical results and computational issues*

11.20 **Gabriel Dimitriu**

10.40- *Subcategorii semireflexive*

11.20 **Dumitru Botnaru**

ODEs
Friday, September 15

R 215

Chair: Ioan Ursu

14.30- *Center conditions for a cubic differential system having an invariant conic*

14.50 **Dumitru Cozma**

14.50- *A qualitative study of the quadratic differential systems with the line at infinity of maximal multiplicity*

15.10 **Vadim Repeșco**

15.10- *About computing of ordinary Hilbert series for Sibirsky graded algebras of differential system $s(3,7)$*

15.30 **Pricop Victor**

15.30- *Quadratic differential systems with the line at infinity of maximal multiplicity*

15.50 **Alexandru Șubă**

R 215

Chair: Victor Pricop

16.10- *The absolute stabilization and optimal control of hydrofoil watercraft*

16.30 **Mircea Lupu**

16.30- *On the stability of a time-invariant linear system with time-delay and disturbances with application to aerospace engineering*

16.50 **Daniela Enciu, Ioan Ursu, Adrian Toader**

16.50- *On the Dynamics of Stochastic Systems and Fluctuation-Dissipation Theorem*

17.10 **Raluca Georgescu and Eugen Vasile**

17.10- *On the extreme multistability of some 3D dynamical systems*

17.30 **Dana Constantinescu**

Saturday, September 16

R 215

Chair: Dumitru Cozma

12.00- *Stability and bifurcations in a model from ecology*

12.20 **Mihaela Sterpu, Raluca Efrem, and Carmen Rocșoreanu**

12.20- *On the Jacobi Stability of a Chaotic System*

12.40 **Florian Munteanu**

12.40- *The study of the behavior of a three-dimensional system with cubic perturbation*

13.00 **Maria-Liliana Bucur**

14.30- *A new population model with pseudo exponential survival*

14.50 **Dragoș Pătru Covei, Traian Pirvu and Cătălin Șterbeți**

PDE&Mathematical Modelling
Friday, September 15

R 306

Chair: S.G. Cruceanu

14.30- *Parabolic PDE in Mass Transfer problems and their solution by Laplace Transform*

14.50 **Victor Martinez-Luaces**

14.50- *Applications of the Laplace Transform to chemical reactor design and the role of inverse problems*

15.10 **Victor Martinez-Luaces**

15.10- *Mathematical Models for Object Detection and Tracking*

15.30 **Tudor Barbu**

15.30- *Spectral Collocation Solutions to some Linear Pseudo-parabolic Problems*

15.50 **Călin-Ioan Gheorghiu**

R 306

Chair: Tudor Barbu

16.10- *A variant of saddle point theorem with applications*

16.30 **Irina Meghea**

16.30- *Closed-loop model estimation of the underdamped second order inertial systems*

16.50 **Irina Cojuhari**

16.50- *Flow Dynamics on Curved Surfaces*

17.10 **Stefan-Gicu Cruceanu**

17.10- *Determination of some Solutions of the Non-Stationary 2D Navier-Stokes Equations*

17.30 **Iurie Baltag**

PDE&Mathematical Modelling
Saturday, September 16

R 306

Chair: Stelian Ion

12.00- *Modeling of the adsorption of methylene blue onto clayey carbonate diatomite*

12.20 **Veaceslav Zelentsov, Oleg Bolotin, Tatiana Datsko**

12.20- *Investigation of interaction of noble metals (Cu, Ag, Au, Pt and Ir) with Nano-sheets*

12.40 **Mansoor H. Alshehri**

R 306

Chair: Anca Veronica Ion

14.30- *Validity conditions for the quasi-steady-state approximation of an enzyme kinetics model with inhi-*

14.50 *bition and substrate input*

Iulian Stoleriu, Ana Maria Moşneagu

14.50- *Some solutions for applications of metric spaces in medicine*

15.10 **Mariana Butnaru, Gheorghe Capatana, Alexandru Popov**

15.10- *Global stability of coexistence equilibria for n-species models of facultative mutualism*

15.30 **Paul Georgescu**

15.50- *On a Local and Nonlocal Second-Order Anisotropic Reaction-Diffusion model with in-homogeneous*

16.10 *Cauchy-Neumann boundary conditions: Applications to Image Processing*

Costică Moroşanu

16.10- *On a nonlocal and nonlinear second-order anisotropic reaction-diffusion system with in-homogeneous*

16.30 *Cauchy-Neumann boundary conditions. Applications on epidemic infection spread*

Cătălin Stoicescu

16.30- *A first-order fractional steps type method to approximate a nonlinear reaction-diffusion equation*

16.50 *with homogeneous Cauchy-Neumann boundary conditions*

Gabriela Tănase

Analysis
Friday, September 15

R 317

Chair: Bianca Satco

14.30- *Variable exponent systems with Leray-Lions type operators*

14.50 **Maria-Magdalena Boureanu**

14.50- *Holder and Minkowski type inequalities in Riemann-Lebesgue integrability*

15.10 **Anca Croitoru, Alina Iosif, Alina Gavriluț**

15.10- *Multivalued conformable differential equations*

15.30 **Tzanko Donchev, Alina I. Lazu**

15.30- *Splines for Set Functions*

15.50 **Vasile Postolică**

R 317

Chair: Maria Magdalena Boureanu

16.10- *A study on the viability of Stieltjes differential inclusions*

16.30 **Bianca Satco**

16.30- *Generalized convexity and applications*

16.50 **Cristina Stamate**

16.50- *Positive solutions for a fractional differential equation with sequential derivatives and nonlocal boundary conditions*

17.10 **Alexandru Tudorache, Rodica Luca Tudorache**

17.10- *On some Operators on Banach Lattices Involving Demicompactness*

17.30 **Omer Gok**

Analysis
Saturday, September 16

R 317

Chair: Paul Georgescu

12.00- *On the density of Lipschitz functions in Sobolev-type spaces on metric measure spaces*
12.20 **Marcelina Mocanu**

12.20- *New results in the theories of third-order differential subordinations and superordinations*
12.40 **Lavinia Florina Preluca, Georgia Irina Oros**

12.40- *An adaptive time step method for a non-local version of the Allen-Cahn equation*
13.00 **Ana Maria Moşneagu, Iulian Stoleriu**

R 317

Chair: Georgia Irina Oros

14.30- *Duality Results for a Class of Control Problems with Partial Differential Inclusions*
14.50 **Sevilay Demir Sağlam**

14.50- *On estimation of weakly singular integral operators and theirs applications in approximate solving*
15.10 *of weakly singular integral equations*
Vladislav Seichiuc, Eleonora Seichiuc, Gheorghe Carmocanu

15.10- *Perturbations of Rhyly Operators*
15.30 **George Popescu**

15.50- *Smoothing Noisy Terrain Data*
16.10 **Stelian Ion, Dorin Marinescu, Stefan-Gicu Cruceanu**

16.10- *On a class of positivity preserving linear maps in a pre-Riesz space*
16.30 **Cecil P. Grünfeld**

Probability&Computer Sciences
Friday, September 15

R 407

Chair: Boris Hâncu

14.30- *On k -König-Egerváry graphs*

14.50 **Eugen Mandrescu**

14.50- *Indices of inequality, compatibility conditions*

15.10 **Gheorghită Zbăganu**

15.10- *A Comparative Analysis of L^1 , L^2 , and L^∞ norms for Image Segmentation Algorithms: Sobel,*

15.30 *Prewitt, and Canny*

Silviu-Dumitru Pavăl

15.30- *A production planning model of reconfigurable manufacturing lines*

15.50 **Buzatu Radu**

Probability&Computer Sciences
Saturday, September 16

R 407

Chair: Gheorghită Zbăganu

12.00- *On a new order relation between random variables related to investment problems*

12.20 **Ana Maria Raducan**

12.20- *Solving informational extended bimatrix games*

12.40 **Hâncu Boris**

12.40- *Some statistical tests based on divergence measures*

13.00 **Vlad Stefan Barbu**

Algebra&Geometry
Friday, September 15

R 417

Chair: Liubomir Chiriac

- 14.30- *On recursive differentiability of Bruck-Belousov prolongations of quasigroups*
14.50 Parascovia Syrbu
-
- 14.50- *D-Structures, Generalized Monoid Rings and Analogues of Amitsur's Theorem*
15.10 Elena Cojuhari, Barry Gardner
-
- 15.10- *Projective, inductive limits and products of subcategories*
15.30 Alina Ţurcanu
-
- 15.30- *Matrix majorizations and their applications*
15.50 Alexander Guterman

R 417

Chair: Elena Cojuhari

- 16.10- *The Schouten-Van Kampen connection on the tangent bundle endowed with a general natural metric*
16.30 Simona-Luiza Romaniuc
-
- 16.30- *Hyperbolic Manifolds Based on Geometry of their Submanifolds*
16.50 Florin Damian
-
- 16.50- *Constructing one Symmetric Algorithm based on the Latin Groupoid Isotopes*
17.10 Liubomir Chiriac, Aurel Danilov, Violeta Bogdanova
-
- 17.10- *On quasi-Sasakian structures on η -quasi-umbilical hypersurfaces in QK-manifolds*
17.30 Mihail Banaru
-
- 17.50- *Some six-dimensional planar submanifolds of Cayley algebra of constant type*
18.10 Galia Banaru
-
- 18.10- *Mathematical foundations of economical theory of Leonid V. Kantorovich*
18.30 Mihail Banaru, Nikolai Morozov

Algebra&Geometry
Saturday, September 16

R 417

Chair: Florin Damian

12.00- *Ribbon structures and Lie pairs*

12.20 **Cristian Anghel**

12.20- *Finite Frobenius groups and maximal one-sided S-systems of orthogonal operations*

12.40 **Kuznetsov Eugene**

12.40- *A projective plane as an incidence system of cosets in the sharply 2-transitive permutation loop to*

13.00 *a suitable subloop*

Kuznetsov Eugene

R 417

Chair: Florin Damian

14.30- *Spectral spaces and spectral compactifications*

14.50 **Laurențiu Calmuțchi**

14.50- *The parametric bases in intermediates logics*

15.10 **Ion Cucu**

15.10- *A new intersection-graph type for modules*

15.30 **Mamoon Ahmed**

Education
Friday, September 15

R 402

Chair: Angela Globa

14.30- *Improving education experience with Augmented Reality (AR): Exploring the fascinating world of Pi*
14.50 **Titchiev Inga, Caftanатов Olesea, Iamandi Veronica, Talambuta Dan**

14.50- *Legea pătratelor inverse și aplicațiile ei*
15.10 **Afanas Dorin**

15.10- *The symbiosis of mathematical competence-digital competence*
15.30 **Andrei Braicov, Alexandru Bibic**

15.30- *Cloud solutions for digital communication in mathematics education*
15.50 **Andrei Braicov, Ilona Popovici**

R 402

Chair: Andrei Braicov

16.10- *Atitudinea față de studii a liceenilor prin prisma resurselor educaționale și a mediului de învățare*
16.30 **Bagrin Diana, Angela Globa**

16.30- *How to use ChatGPT in the teaching-learning process of computer science courses*
16.50 **Ala Gasnaș, Angela Globa**

16.50- *The benefits and challenges of artificial intelligence in education*
17.10 **Teodora Vascan**

17.10- *Diversificarea instrumentelor software de statistică socială cu JAMOVIE*
17.30 **Pavel Maria, Pavel Dorin**

17.50- *Some aspects of bilingual education in the technical higher school in the context of european integration*
18.10 **Nataliia Snizhko**

18.10- *Aspecte metodice ale implementării soft-ului maple în studierea cursului universitar „Teoria Grafurilor”*
18.30 **Bostan Marina**

Education
Saturday, September 16

R 402

Chair: Dorin Afanas

12.00- *From the experience of studying the digital footprint from the position of information security*
12.20 Bogdanova Violeta, Chiriac Liubomir

12.20- *Abordare interdisciplinară la studiul unor inegalități*
12.40 Teleuca Marcel, Sali Larisa

12.40- *Algoritmul genetic: interconexiune dintre biologie, matematică și informatică. aplicații practice*
13.00 Chiriac Liubomir, Chiriac Eugenia, Lupașco Natalia, Josu Natalia

R 402

Chair: Larisa Sali

14.30- *Aspecte curriculare ale programului de studii universitar animație*
14.50 Veverița Tatiana

14.50- *Unele aspecte curriculare ale disciplinei opționale modelarea și imprimarea 3D*
15.10 Mihălache Lilia

15.10- *Stimularea gândirii critice la lecțiile de biologie prin aplicarea proiectelor steam*
15.30 Grigorcea Sofia, Grecu Tatiana, Chiriac Eugenia, Nedbaliuc Boris

15.50- *Aplicații ale produsului scalar la soluționarea unor probleme de determinare a extremelor condiționate*
16.10 Baltag Iurie

16.10- *Impactul problemelor practice în stimularea interesului elevilor pentru studierea geometriei*
16.30 Calmuțchi Laurențiu, Filipopolschi Ecaterina

16.30- *Dezvoltarea capacităților intelectuale la elevi în procesul studierii matematicii prin rezolvarea problemelor cu parametri*
16.50 Calmuțchi Laurențiu, Turan Ozkan

16.50- *Proiectarea experiențelor de învățare ste(a)m în procesul schimbării și perfecționării unei societăți moderne*
17.10 Cazacioc Nadejda, Coropceanu Eduard, Șeremet Ileana Simona

17.10- *On the solutions of diophantine exponential equations $2^x + 68^y = z^2$ and $2^x + 4352^y = z^2$*
17.30 Țarălungă Boris