

The 33rd Industrial Conference on
Applied and Industrial Mathematics - CAIM 2026

August 20–23, 2026, Chişinău

Conference Programme

General Schedule

Thursday, August 20, 2026

14.30-19.30	Registration UTM - Building 6, Street Studentilor, No. 9/8
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Friday, August 21, 2026

08.00-09.00	Registration UTM - Building 3, Street Studentilor, No. 9/7
09.00-10.00	Opening Ceremony Room 3-3, UTM - Building 3, Street Studentilor, No. 9/7
10.00-10.30	<i>Coffee Break</i>
10.30-12.30	Plenary Session
12.30-14.00	<i>Lunch</i>
14.00-15.20	Communications
15.20-15.40	<i>Coffee Break</i>
15.40-17.00	Communications
17.00-17.20	<i>Coffee Break</i>
17.20-19.00	Communications
20.00-22.00	Official Dinner

Saturday, August 22, 2026

09.30-11.30	Plenary Session
11.30-12.00	<i>Coffee Break</i>
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>
16.30	ROOM 2.1 <i>Closing Ceremony</i>
16.30-	ROMAI General Assembly

Sunday, August 23, 2026

Excursion: ???????ş
Departure of participants

Plenary Section
Friday, August 21

Room 3-3

Chairperson: Libomir Chiriac

- 10.30- *Fixed Point Theory in Machine Learning: the role of nonexpansive type mappings*
 11.10 **Vasile Berinde**

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- 11.10- *Monoid algebras in light of skew polynomial rings*
 11.50 **Elena Cojohari**

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- 11.50- *Permanent function: a tool to solve combinatorial problems*
 12.30 **Alexander Guterman**

Plenary Section
Saturday, August 22

Room 3-3

Chairperson: Dumitru Cozma

- 9.30- *The fear factor: predation risk and aggregation dynamics in a three-species food chain model*
 10.10 **Paul Georgescu**

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- 10.10- *Coloring, Circuits, and Catastrophes: Extremal Bounds in Simple Line Arrangements*
 10.50 **Marcel Teleucă**

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- 10.50- *Factorization structures. History and Results*
 11.30 **Dumitru Botnaru**
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PDEs
Friday, August 21

Room 2.2

Chairperson: Victor Martinez

14.00- *3D Medical Imaging Frameworks Combining Deep Neural Networks to Partial and Ordinary Differ-*
14.20 *ential Equations*

Tudor Barbu, Dimitriana Apetrei

14.20- *A Fast Second-Order Fractional-Steps Approach for Cubic Nonlinear Reaction-Diffusion Problems*

14.40 **C. Morosan A.-M. Mosneagu,**

14.40- *Learning the Parameters of a Nonlocal Anisotropic Reaction-Diffusion Neurovascular Model from*
15.00 *the BOLD Signal*

Silviu-Dumitru Pavăl, Costică Moroşanu

15.00- *The regular relaxation of the Cauchy-Dirichlet initial boundary problem for the Cahn-Hilliard equa-*
15.20 *tion*

Andrei Perjan

15.40- *On a class of semi-linear hyperbolic systems*

16.00 **Stelian Ion**

ODE
Friday, August 21

Room 2.3	
Chairperson: Victor Pricop	
14.00-	<i>Integration of S^p Remotely Almost Periodic Functions</i>
14.20	David Cheban
14.20-	<i>On the number of functionally independent polynomial $SO(2, \mathbb{R})$-invariants of the differential system</i>
14.40	<i>$s(1, m_1, m_2, \dots, m_l)$ involved in solving the stability problem of unperturbed motion in the case of a center and a focus</i>
Natalia Neagu, Mihail Popa	
14.40-	<i>The study of the family of quadratic systems with an invariant ellipse via Artés's algorithm</i>
15.00	Cristina Bujac, Nicolae Vulpe
15.00-	<i>Algebraic limit cycles in cubic differential systems with a weak focus</i>
15.20	Dumitru Cozma
Chairperson: Cristina Bujac	
15.40-	<i>Quartic differential systems with a center-focus critical point, two parallel invariant straight lines, and the line at infinity of maximal multiplicity</i>
16.00	Vacaraş Olga
16.00-	<i>On the functional basis of invariant elements for the differential system $s^3(1, 3)$</i>
16.20	Lidia Muşinschi, Victor Pricop
16.20-	<i>Qualitative analysis of planar polynomial differential systems up to degree six with the line at infinity of maximal multiplicity</i>
16.40	Vadim Repesco
16.40-	<i>The study of the integrability of cubic differential systems with six invariant straight lines of two directions through analytical and software methods</i>
17.00	Vitalie Puţuntică
17.20-	<i>Analytical Kamenev-Type Oscillation Criteria with Numerical Illustration for Higher-Order Delay Differential Equations</i>
17.40	Ali Hasan Ali, Mimoon Ismael, Hanadi Abdulsattar, Ana Danca Poţclean
17.40-	<i>Two-dimensional systems with symmetry / anti-symmetry</i>
18.00	Raluca-Mihaela Georgescu, Eugen Vasile

ODE
Saturday, August 22

Room 2.3	
Chairperson: Anca Veronica Ion	
12.00-	<i>Dynamics of Some Delayed Nutrient Recycling Models</i>
12.20	Mihaela Sterpu, Carmen Roşoreanu, and Raluca Efrem
12.20-	<i>Jacobi Stability and Kosambi-Cartan-Chern (KCC) Geometric Theory for Chaotic Systems</i>
12.40	Florian Munteanu
12.40-	<i>Approximation of linear systems with delay, their quasi-polynomials and numerical simulation</i>
13.00	Igor Cherevko, Oleksandr Krasnokutskyi

Mathematical Modeling
Friday, August 21

Room 2.2

Chairperson: Tudor Barbu	
16.00-	<i>An Electrochemical Corrosion Problem in Oil Storage Tanks</i>
16.20	Victor Martinez-Luaces
16.20-	<i>Approaching the inverse problem modelling for the Chua dynamical system in a simplified case</i>
16.40	Adela Ionescu
16.40-	<i>Soil erosion model in ASTERIX. Part II: Numerical simulations</i>
17.00	Stefan-Gicu Cruceanu
17.20-	<i>Modeling, simulation, and implementation of concurrent computing based on membrane p-system architectures</i>
17.40	Silvia Munteanu, Viorica Sudacevschi, Viorel Cîrbune, Olese Borozan, Victor Chefala, Victor Ababii
17.40-	<i>Soil erosion model in ASTERIX. Part I: some mathematical properties and analytic solutions</i>
18.00	Dorin Marinescu

Mathematical Modeling
Saturday, August 22

Room 2.2

Chairperson: Ștefan-Gicu Cruceanu	
12.00-	<i>Pulsatory liposome and artificial neuronal network</i>
12.20	Diana R. Radnef-Constantin, D. Popescu, A. A. Mocanu, V. I. R. Niculescu
12.20-	<i>On the generalization of the Lanchester recursive model</i>
12.40	Bogdan Gheorghe MUNTEANU
12.40-	<i>Finite Element Analysis of MHD Natural Convection and Entropy Generation in an Al₂O₃-Water</i>
13.00	<i>Nanofluid-Filled Corrugated Porous Annulus</i>
	Zeeshan Badshah

Analysis
Friday, August 21

Room 3.1

Chairperson: Marcelina Mocanu	
14.00-	<i>Homogenization Results for a Diffusion Problem in a Composite Material with a Rough Imperfect Interface</i>
14.20	<i>Interface</i>
Micol Amar, Daniele Andreucci, Claudia Timofte	
14.20-	<i>Boundary variation method for the generalized Cheeger problem</i>
14.40	Oana Lupascu-Stamate
14.40-	<i>Applications of Fractional Calculus in Geometric Function Theory</i>
15.00	Georgia Irina Oros
15.00-	<i>Sharp numerical approximation of the fractional Sobolev constant</i>
15.20	Andreea Dima and Liviu I. Ignat
Chairperson: Claudia Timofte, Vladislav Seichiuc	
15.40-	<i>Applications of the Hilbert metric in Geometric Function Theory</i>
16.00	Marcelina Mocanu
16.00-	<i>Minkowski-type integral inequalities for vector functions</i>
16.20	Cristina Stamate and Anca Croitoru
16.20-	<i>A weak demi version of Dunford-Pettis operators</i>
16.40	Omer Gok
16.40-	<i>On the Hilbert depth of quadratic and cubic functions</i>
17.00	Silviu Bălănescu¹ and Mircea Cimpoeas
17.20-	<i>On direct methods in solving of some classes of linear and nonlinear singular integral equations</i>
17.40	Vladislav Seichiuc, Eleonora Seichiuc
17.40-	<i>Solution Approximation of Nonautonomous Lattice Dynamical Systems</i>
18.00	Andrei Sultan
18.00-	<i>Double-scale homogenization for heat transmission by temperature-jumping conduction in a periodic composite</i>
18.20	Camelia Gheldiu, Mihaela Dumitrache
18.20-	<i>Homogenization of the dissipative system for the wave equation in a perforated periodic domain</i>
18.40	Mihaela Dumitrache, Camelia Gheldiu

Probabilty&Optimization
Friday, August 21

Room 3.2

Chairperson: Radu Melnic	
14.00-	<i>Pure and Mixed Nash Equilibria for Dynamic Positional Games on Graphs</i>
14.20	Dmitrii Lozovanu
14.20-	<i>Extended Network Method for Stochastic Games with Multiple Final Sequences of States</i>
14.40	Alexandru Lazari
14.40-	<i>On the optimal control of semi-Markov processes</i>
15.00	Mario Lefebvre
15.00-	<i>Audio-to-Haptic Control Streams: A Computational Prototype</i>
15.20	Valeriu Ungureanu
Chairperson: Alexandru Lazari, Mario Lefebvre	
15.40-	<i>Fuzzy method for solving multi-criteria linear optimization in integers</i>
16.00	Tkacenko Alexandra
16.00-	<i>Reliability of dual Serial - Parallel and Parallel - Serial networks with Weibull distributed units</i>
16.20	<i>lifetimes and their statistical analysis</i>
	Maria Rotaru, Alexei Leahu
16.20-	<i>Quality of pseudorandom number generators approached through the lens of Monte Carlo simulation</i>
16.40	<i>of new probabilistic models in network reliability</i>
	Valentina Astafi, Alexei Leahu
16.40-	<i>Performance Analysis of Distributed Database Systems Using the M/M/c Queueing Model</i>
17.00	Dina Buza, Alexei Leahu
17.20-	<i>Multi-agent system for modeling and decision support within a university admission committee</i>
17.40	Radu Melnic, Nicu Drumea
17.40-	<i>Optimal Ordering of Parameters in Spider Charts for Confidence-Aware Clinical Stratification</i>
18.00	Iulian Secieru, Andrei Rusu, Elena Guțuleac, Olga Popcova
18.00-	<i>Regression Methods for Processing solar Spectral Data</i>
18.20	Diana R. Radnef-Constantin, L. Preda, M. Rushton, D. Popescu

Probabilty&Optimization
Saturday, August 21

Room 3.2

Chairperson: Alexei Leahu	
12.00-	<i>A Study of Leader–Antileader Configurations in Comonotone and Antimonotone Samples</i>
12.20	Gh. Zbăganu, A. M. Răducan
12.20-	<i>Estimation of Drifting Hidden Markov Models</i>
12.40	Vlad Barbu
13 12.40-	<i>Robust PM Concentration Prediction under Missing Data Conditions</i>
13.00	Alin Pohoata, Daniel Dunea

Algebra&Geometry
Friday, August 21

Room 3.2	
	Chairperson: Peter V. Dovbush
14.00-	<i>Note on algebraic and topological quasigroups obeying certain laws</i>
14.20	Liubomir Chiriac, Natalia Josu, Natalia Lupashco
14.20-	<i>On some ideals of the ring of continuous endomorphisms of an LCA group</i>
14.40	Valeriu Popa
14.40-	<i>Zero Location for analytic and harmonic polynomial and rational quadrinomials</i>
15.00	Aaron Melman
15.00-	<i>Prime numbers sequence approximation</i>
15.20	Radu Gaba
	Chairperson: Libomir Chiriac, Kuznetov Eugen
15.40-	<i>Construction of the Riemann Map</i>
16.00	Peter V. Dovbush and Steven G. Krantz
16.00-	<i>Several classes of special Hermitian metrics</i>
16.20	Cristian Ciulică
16.20-	<i>On the functorial isomorphism between the lattices of $\mathcal{P}$-quotients and of saturated sets of morphisms</i>
16.40	Dumitru Botnaru, Alina Turcanu
16.40-	<i>Subcategories $\mathcal{B}$-semireflexive</i>
17.00	Dumitru Botnaru, Olga Cerbu
17.20-	<i>On 4-quasigroups with exactly twenty-four distinct parastroph</i>
17.40	Rotari Tatiana, Syrbu Parascovia
17.40-	<i>Autotopies and automorphisms of the loop of pairs of some DK-ternar</i>
18.00	Kuznetsov Eugene
18.00-	<i>On two exponential diophantine equations</i>
18.20	Boris Taralunga
18.20-	<i>On Cartan structural equations of an acm-structure on a totally umbilical hypersurface of an almost</i>
18.40	<i>Hermitian manifold</i>
	Mihail Banaru, Galia Banaru
18.40-	<i>On Some Integration Techniques</i>
19.00	Cătălin Sterbeți

Computer Sciences
Friday, August 21

Room 4.2

Chairperson: Maria Cristei

14.00- *An Interactive Multimodal Framework for the Semantic Augmentation of Cultural Idioms using AI*
14.20 *and AR*

Titchiev Inga, Caftanatov Olesea, Dancuta Dan, Caganovschi Daniela

14.20- *Algorithm for Multiple-Precision Long Division*

14.40 **Nicolai Falico, Mihail Kulev**

14.40- *Categorical models for explainable artificial intelligence*

15.00 **Florin Cerbu**

15.00- *On the fidelity of explanations in symbolic-probabilistic-neural hybrid systems*

15.20 **Florin Cerbu, Tudor Bumbu**

Chairperson: Inga Titchieva

15.40- *The use of category theory in database programming*

16.00 **Valentina Tirsu, Lilia Sava, Olga Cerbu**

16.00- *Realistic 3D Character Animation Using Rigging and Motion Capture Systems*

16.20 **Maria Cristei**

16.20- *Analysis of Explainable Artificial Intelligence (XAI) Methods and Evaluation of Their Applicability*
16.40 *in Decision-Making Systems for the Insurance Industry*

Radames Evdochimov

16.40- *Use of category theory in formal languages and automata: theoretical and methodological perspectives*

17.00 **Nichita Nartea, Veaceslav Iurco**

17.20- *Passenger Satisfaction Profiling in Urban Trolleybus Transport Using K-Means Clustering*

17.40 **Vasile Plămădeală, Igor Rotaru, Andrei Rusu, Elena Rusu**

Education

Friday, August 21

Room 4.2	
Chairperson: Larisa Saliy, Andrei Corlat	
14.00-	<i>Conceptual delimitation between aerial algebra and aerial geometry</i>
14.20	Arina Brigalda, Dorin Afanas
14.20-	<i>Mathematical modeling of communication channels</i>
14.35	Dorin Afanas, Corina Adam, Arina Brigalda
14.35-	<i>Applications with a circle and seven points solved in Maple</i>
14.50	Raluca Mihaela Georgescu, Cristina Vasilica Tudose
14.50-	<i>Unele modalități de calcul a unor sume finite</i>
15.05	Leonid Dohotaru, Ion Jordan
15.05-	<i>Game-based learning in teaching programming: rpg-type educational platforms</i>
15.20	Maria Pavel, Dorin Pavel
Room 4.2	
Chairperson: Maria Pavel, Dorin Afanas	
15.40-	<i>Calculul sumei unor serii numerice</i>
16.00	Andrei Corlat, Ion Jordan
16.00-	<i>Developing critical thinking in high school students through the formation of mathematical modeling</i>
16.15	<i>competence</i>
	Larisa Sali, Mirela Ionel
16.15-	<i>Ethical integration of artificial intelligence in education: challenges and issues</i>
16.30	Angela Globa, Ala Gasnas
16.30-	<i>The Dual Role of Artificial Intelligence in Disinformation: From Amplification to Detection and</i>
16.45	<i>Regulation</i>
	Angela Globa, Ala Gasnas
16.45-	<i>Leveraging Open Educational Resources in the University Course "Didactics of Mathematics": Chal-</i>
17.00	<i>lenges and Solutions</i>
	Liubov Zastinceanu
Room 4.2	
Chairperson: Angela Globa, Ion Jordan	
17.20-	<i>Cu privire la proiectarea strategiilor de studiere a șirurilor numerice în gimnaziu</i>
17.40	Larisa Sali, Marcel Teleuca
17.40-	<i>Didactic approaches to teaching the course "integrated security systems"</i>
17.55	Violeta Bogdanova
17.55-	<i>Applications of the scalar product to determine the extreme values of some functions</i>
18.10	Iurie Baltag
18.10-	<i>Designing individual learning paths through artificial intelligence</i>
18.25	Teodora Vascan
18.25-	<i>Teaching Risk Management with Card Problems</i>
18.40	Ivan Borsenco
18.40-	<i>Inclusion and Artificial Intelligence as a help for school educators.</i>
18.55	Gheorghita Irina
18.55-	<i>Integrating cognitively oriented strategies in university mathematics education</i>
19.10	Lilia Solovei
19.10-	<i>Enhancing engineering mathematics education through the flipped classroom model</i>
19.25	Dmytro Anpilohov
19.25-	<i>Teaching higher mathematics through english: challenges and learning outcomes in engineering ed-</i>
19.40	<i>ucation</i>
	Nataliia Snizhko

Education
Saturday, August 22

Room 4.2

Chairperson: Tatiana Veverița, Valeriu Bordan

- 12.00- *Evaluating Merge EDU for mathematics learning through augmented reality experiences*
 12.15- **Andrei Braicov**
 12.15- *On curricular enrichment from the perspective of mathematical modeling competence training*
 12.30- **Dumitru Cozma, Larisa Sali**
 12.30- *Enhancing Geometry Education through Augmented Reality: A Deep Learning Approach*
 12.45- **Titchiev Inga, Caftanator Olesea, Bumbac Dimitrii**
 12.45- *Inegalitatea Cauchy-Buniakovski-Schwarz. Aplicații*
 13.00- **Leonid Dohotaru, Ion Jardan**

Room 4.2

Chairperson: Anfrei Braicov, Leonid Dohotaru

- 14.30- *Design and Empirical Validation of a Ninth-Grade Computer Science Textbook Oriented toward the*
 14.45- *Development of Algorithmic Thinking and the Integration of STEAM Elements*
Tatiana Veverita
 14.45- *Elements of absolute geometry in high school*
 15.00- **Afanas Dorin, Bundiuc Lilia**
 15.00- *Integration of UX/UI design in the design of an online registry*
 15.15- **Maria Cristei**
 15.15- *Solving Classical Probability Problems Using R Programming*
 15.30- **Maria-Crina Diaconu**
 15.30- *On some applications of the dot product*
 15.45- **Cebotaru Elena**
 15.45- *On mathematics instruction technology in high school based on elements of mathematical modeling*
 16.00- **Mihaela Hajdeu, Valeriu Bordan**
 16.00- *The Problem of Squaring the Circle: Historical Development and Mathematical Perspectives*
 16.15- **Ileana Ioana**