

Program of the 5th international conference “Computer algebra”.

The plenary talks are marked by *.

Moscow time (UTC +3) on Zoom.

The corresponding connection Zoom link will be e-mailed later to the participants.

Monday, June 26

11:00–11:15 Opening: the conference chair I.A. Sokolov.

Morning Session

Chair: L.A. Sevastianov

11:15–11:40 A.Yu. Gorchakov, V.I. Zubov *Automatic Differentiation. Practical Aspects*

11:45–12:10 R.R. Gontsov, I.V. Goryuchkina *Generalized Power Series Solutions of q -Difference Equations and the Small Divisors Phenomenon*

12:15–12:40 Yu.E. Danik, M.G. Dmitriev *Asymptotic Approximations and Symbolic Representation of Parametric Families of Feedback Controls in Nonlinear Systems*

12:45–13:10 A.V. Demidova, O.V. Druzhinina, O.N. Masina, A.A. Petrov *Modeling of One-Step Processes Using Computer Algebra Tools*

13:15–13:40 D.V. Divakov, A.A. Tiutiunnik *Symbolic-Numerical Investigation of Asymptotic Method for Studying Waveguide Propagation Problems*

13:45–15:00 *Break*

Afternoon Session

Chair: S.A. Gutnik

15:00–15:40 *E.V. Zima *Modular Arithmetic with Special Choice of Moduli*

15:45–16:10 A. Khvedelidze, A. Torosyan *On the States of N -level Quantum System with Positive Wigner Function*

16:15–16:40 A.S. Kuleshov, N.M. Vidov *Nonlinear Effects of Motion Near the Equilibrium Manifold of Nonholonomic Systems*

16:45–17:10 V.N. Salnikov *Learning Port-Hamiltonian Systems*

17:15–17:40 G. Chuluunbaatar, A.A. Gusev, O. Chuluunbaatar, S.I. Vinitzky *Hermite Interpolation Polynomials on Parallelepipeds and FEM Applications*

Tuesday, June 27

Morning Session

Chair: D.S. Kulyabov

- 10:00–10:25 A.V. Galatenko, A.E. Pankratiev, R.A. Zhigliaev *An Optimized Procedure for Deciding Affinity of Finite Quasigroups*
- 10:30–10:55 M.V. Maisuradze, A.A. Mikhalev *Primitive Elements of Free Non-associative Algebras Over Finite Fields*
- 11:00–11:25 F. Mikhailov *Computing of Tropical Sequences Associated with Somos Sequences in Gfan Package*
- 11:30–11:55 T.V. Yakovleva *Optimisation of Computer Algebra Techniques Application for Riccian Data Analysis*
- 12:00–12:25 A.P. Nemytykh *A Note on Application of Program Specialization to Computer Algebra*
- 12:30–14:00 *Break*

Afternoon session.

In memory of Marko Petkovšek

Chair: E.V. Zima

- 14:00–14:40 *Sh. Chen, L. Du, M. Kauers *Hermite Reduction for D-finite Functions*
- 14:45–15:10 M. Wu *On Tight and Efficient Bound Propagation for Neural Networks Based on Bernstein Polynomial Approximations*
- 15:15–15:40 V.V. Korniyak *A Constructive Approach to Problems of Quantum Mechanics*
- 15:45–16:00 *Break*
- 16:00–16:40 *S. Watt *Two Methods for Efficient Generic Inversion*
- 16:45–17:10 S.A. Gutnik *Symbolic Investigation of the Plane Equilibria of the System of Two Connected Bodies on a Circular Orbit*
- 17:15–17:40 S.A. Abramov, M. Petkovšek, A.A. Ryabenko *On Incomplete Rank Matrices*
- 17:45–18:30 *Reminiscences*

Wednesday, June 28

Morning Session

Chair: D.V. Divakov

11:00–11:40 *A.D. Bruno *Asymptotic Nonlinear Analysis as a Calculus and Applications*

11:45–12:10 Y.S. Mukhina *Bounding the Support in the Differential Elimination Problem*

12:15–12:40 A.A. Azimov, A.D. Bruno *On Computation of Power Transformations*

12:45–13:35 *Poster session*

- Y.A. Blinkov *The First Differential Approximation on the Example of the Van der Pol Oscillator*
- M.N. Gevorkyan, A.V. Korolkova, D.S. Kulyabov *Analytical geometry of the projective space $\mathbb{R}P^3$ in terms of Plücker coordinates and geometric algebra*
- D.E. Khmelnov, A.A. Ryabenko *Algorithm EG as a Tool for Finding Laurent Solutions of Linear Differential Systems with Truncated Series Coefficients*
- A.V. Seliverstov *On a Simple Lower Bound for the Matrix Rank*
- A.B. Batkhin, Z.Kh. Khaydarov *Structure of Resonant Variety in Hamiltonian Systems With Three Degrees of Freedom*

13:40–15:00 *Break*

Afternoon session

Chair: R.R. Gontsov

15:00–15:40 *M. van Hoeij *A Saga on a Generating Function of the Squares of Legendre Polynomials*

15:45–16:10 B.B. Iusup-Akhunov, I.G. Kamenev, A.A. Zhukova, N.P. Pilnik *Symbolic Calculus for Optimal Control in Multi-Agent Economic Model*

16:15–16:40 I.E. Shirokov *Calculations of Quantum Corrections in Supersymmetric Theories Using Computer Algebra Methods*

16:45–17:10 A.B. Aranson *Power Algebra for Power Geometry*

17:15–17:40 V.F. Edneral *Integrable Cases of the resonant Bautin system*

17:45–18:10 D.O. Ilyukhin, A.V. Parusnikova *Regularity Criterion for a Linear Differential System with Meromorphic Coefficients*

18:15–18:30 *Closing*