

Ministry of Education and Science, Youth and Sports of Ukraine
Donetsk National University
Ivan Franko National University of Lviv
Taras Shevchenko National University of Kyiv
Institute Appl. Math. Mech. Nat. Ac. Sci. of Ukraine
Institute of Math. Nat. Ac. Sci. of Ukraine

Initiated by

Department of Differential Equations
Mathematics and Information Technologies Faculty of
Donetsk National University

*4th International Conference for Young Mathematicians on
Differential Equations and Applications dedicated to
Ya. B. Lopatinskii*

PROGRAM

**Donetsk National University
Donetsk 2012**

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Thursday, November 15

Conference Hall, 2nd floor

10.00 – 10.30 Opening ceremony

10.30 – 11.15 *Hol'kin A.M., Mariupol, Ukraine; Rofe-Beketov F.S., Kharkiv, Ukraine.* On spectrum of differential operators with block-triangular matrix potentials.

11.15 – 12.00 *Kozhanov A.I., Novosibirsk, Russia.* Boundary problems for degenerate equations of Sobolev type.

12.00 – 12.45 *Babayan A.O., Yerevan, Armenia.* Dirichlet problem for properly elliptic equation in a disk.

12.45 – 14.30 Lunch

Session A (room 403)

« Linear partial differential equations »

14.30 – 15.10 *Burskii V.P., Donetsk, Ukraine.* On boundary value problems for PDEs connected with a new moment problem.

15.10 – 15.30 *Diyachenko E.O., Potsdam, Germany.* Shapiro-Lopatinskiy condition for elliptic equations with small parameter.

15.30 – 15.50 *Bondar L.N., Novosibirsk, Russia.* Solvability of boundary problem for one elliptic equation.

15.50 – 16.10 *Blokhin A.M., Bychkov A.S., Novosibirsk, Russia.* Numerical test of Lopatinskiy condition for the problem of shock waves stability.

16.10 – 16.30 *Zaretska A.A., Burskii V.P., Donetsk, Ukraine.* Shteiner problem, John process and Dirichlet problem for the string equation in a ellipse.

16.30 – 17.00 Coffee break

- 17.00 – 17.20** *Lesina Ye.V., Donetsk, Ukraine.* Neumann problem for the second order improperly elliptic equation
- 17.20 – 17.40** *Miroshnikova A.A., Donetsk, Ukraine.* Eigenvalues of Dirichlet problem for wave equation in n- dimensional ball.
- 17.40 – 18.00** *Kornuta A.A., Simferopol, Ukraine.* Dynamics of stationary structures in parabolic problem.
- 18.00 – 18.20** *Plyshevskaya S., Simferopol, Ukraine.* Stable structures of second boundary Chiphy-Infante problem.
- 18.20 – 18.40** *Zarubin A.N., Orel, Russia.* Gellerstedt problem for mix type equation with multiple late deviation of argument.
- 18.40 – 19.00** *Peliushkevych O.V., Lviv, Ukraine.* Global classical solvability of a problem for a degenerate hyperbolic system.

Session C (room 409)

«Applications of differential equations»

- 14.30 – 14.50** *Nesvit E.V., Kharkiv, Ukraine.* Singular and hypersingular boundary integral equation of wave diffraction problem on impedance grating and numerical experiment.
- 14.50 – 15.10** *Gaziev E.L., Simferopol, Ukraine.* Determination of equilibrium surface of liquid in the system “liquid-gas” and stability problem of this system
- 15.10 – 15.30** *Kopachevskiy N.D., Sinshaeva Z.Z., Simferopol, Ukraine.* Problem of screw movement of the compressed liquid in the cylindrical channel.
- 15.30 – 15.50** *Burmistrova O.A., Novosibirsk, Russia.* Stability of free film of liquid in the longitudinal field of weight with Marangoni's effect.

15.50 – 16.10

Popov M.I., Voronezh, Russia. Some scheme of integration of the non-stationary non-uniform biharmonic equation in square domain.

16.10 – 16.30

Stogniy V.I., Kopas I.N., Markitanov Yu.N., Kiev, Ukraine. Group classification of generalized Kramers equation.

16.30 – 17.00 Coffee break

Session B (room 409)**« Ordinary differential equations and dynamic systems »**

- 17.00 – 17.20** *Chuiko S.M., Chuiko Ye.V., Slavyansk, Ukraine.*
Regularization of periodic boundary value problem with impulse interaction.
- 17.20 – 17.40** *Pranevich A.F., Grodno, Belarus.* Integrals of reducible ordinary differential systems
- 17.40 – 18.00** *Anashkin O.V., Mitko O.V., Simferopol, Ukraine.*
Stability of impulse systems in critical cases.
- 18.00 – 18.20** *Pismennyi N.A., Voronezh, Russia.* Analogous of Malkin theorem for system of differential equations with periodic right-hand side which contains two small parameters .
- 18.20 – 18.40** *Perevaryukha A.Yu., Saint-Petersburg, Russia.*
Applications of differential equation for modeling sturgeon fish reproduction
- 18.40 – 19.00** *Gotsulenko V. V., Kiev, Ukraine.* The relaxation of periodic self-oscillations defined by singular perturbed systems of ordinary differential equations.
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Friday, November 16

Conference Hall, 2nd floor

9.30 – 10.15

Shishkov A.E., Donetsk, Ukraine. Supersingular solutions of semilinear elliptic and parabolic equations.

10.15 – 11.00

Kovalevsky A.A., Donetsk, Ukraine. Weighted weak solutions to the Dirichlet problem for degenerate anisotropic elliptic equations with L^1 -data.

11.00 – 11.30 Coffee break

11.30 – 12.15

Kopachevskiy N.D., Simferopol, Ukraine. The second order integro-differential Volterra equations in the Hilbert spaces.

12.15 – 13.00

Orlov I.V., Simferopol, Ukraine. Compact subdifferentials in Banach spaces.

13.00 – 14.30 Lunch

Session D (room 403)**«Nonlinear partial differential equations»**

- 14.30 – 14.50** *Tsygankova A.V., Simferopol, Ukraine.* Jacoby condition in multi-dimension variation problems.
- 14.50 – 15.10** *Bozhonok E.V., Simferopol, Ukraine.* Euler-Ostrogradsky equation and Legendre condition for a variation functional in the scale of Sobolev spaces over multidimensional domains..
- 15.10 – 15.30** *Sadovy D.YU., Kyiv, Ukraine.* Averaging of boundary value problems in two-level thick junctions consisting of thin disks with rounded or sharp edges.
- 15.30 – 15.50** *Bobkov V. E., Ufa, Russia.* On existence of alternative solution to elliptic equations with convex-concave nonlinearities.
- 15.50 – 16.10** *Markasheva V. A., Donetsk, Ukraine.* Regularity and asymptotic properties of the solutions of the Cauchy problem for degenerate quasilinear parabolic equations with a nonlinear operator of Baouendi-Grushin type.
- 16.10 – 16.30** *Gladkaya Z.N., Kharkiv, Ukraine.* Investigation of the asymptotic behavior for large time of solutions of the Korteweg-de Vries equation with initial data of step type.

16.30 – 17.00 Coffee break

- 17.00 – 17.20** *Rudakova O.A., Donetsk, Ukraine.* On Γ -compactness of integral functionals with variable domains of definition and degenerated locally Lipschitz integrands.
- 17.20 – 17.40** *Voitovich M.V., Donetsk, Ukraine.* L^{∞} -estimate of bounded solutions of the Dirichlet problem for a class of nonlinear fourth-order elliptic equations.
- 17.40 – 18.00** *Gorban Yu.S., Donetsk, Ukraine.* On boundedness of solutions for a class of degenerate anisotropic variational inequalities.
- 18.00 – 18.20** *Danilov V.G., Rudnev V.Yu., Kretov V.I., Moscow, Russia.* Simulation of the heat transmission in the nano-sized cathode
- 18.20 – 18.40** *Firman T.I., Lviv, Ukraine.* Cauchy problem for countable quasi – linear hyperbolic system of equations
- 18.40 – 19.00** *Popov A.V., Kyiv, Ukraine.* Asymptotic expansions of the eigenelements of Dirichlet spectral problem in thin perforated domains with rapidly varying thickness and different limit dimensions.

Session E (room 409)

«Differential operators and operator theory»

- 14.30 – 14.50** *Bondar A.A., Lugansk, Ukraine.* On the local diffeomorphism submanifolds of matrices and compact operators with fixed Jordan block structure.
- 14.50 – 15.10** *Kuzmenko E., Simferopol, Ukraine.* Compact-analytical properties of variation functional in the scale of Sobolev spaces over multidimensional domain.
- 15.10 – 15.30** *Romanenko I.A., Simferopol, Ukraine.* Fundamental systems of compacts in integrated spaces and in spaces of smooth functions.

15.30 – 15.50 *Syomkina E.V., Simferopol, Ukraine.* Some classes of second-order integro-differential equations unresolved with respect to the highest time derivative.

15.50 – 16.10 *Khalilova Z.I., Simferopol, Ukraine.* Compact subdifferentials in Banach spaces and their applications to variation functionals

16.10 – 16.30 *Zakora D. A., Simferopol, Ukraine.* On strong solutions of the first and second order integro-differential evolution equations

16.30 – 17.00 **Coffee break**

- 17.00 – 17.20** *Safonova T.A., Arkhangelsk, Russia.* Connection between singular differential operator and potential of Jacoby matrix.
- 17.20 – 17.40** *Kolomoitsev Yu.S., Donetsk, Ukraine.* On multiplicative sufficient conditions for Fourier multipliers.
- 17.40 – 18.00** *Agibalova A.V., Donetsk, Ukraine.* Properties of set of root vectors for ordinary differential equations system.
- 18.00 – 18.20** *Ananieva A.Yu., Donetsk, Ukraine.* Positive extension of symmetric Jacoby matrix.
- 18.20 – 18.40** *Luniev A.A., Donetsk, Ukraine.* Properties of root vector system of boundary value problem for ordinary differential equations system.
- 18.40 – 19.00** *Piskarev S., Moscow, Russia.* The exponential dichotomy under discretization.

Saturday, November 17

Conference Hall, 2nd floor

9.30 – 10.15 *Vasiliev V.B., Lipetsk, Russia.* Pseudo-differential equations in multidimensional cone.

10.15 – 11.00 *Panov Ye.Yu., Novgorod, Russia.* Periodic solutions of nonlinear elliptic-hyperbolic equations.

11.00 – 11.30 **Coffee break**

11.30 – 12.15 *Malamud M.M., Donetsk, Ukraine.* To the spectral theory of Schrödinger operators with point interactions.

12.15 – 13.00 *Soldatov A.P., Belgorod, Russia.* Theory of elliptic systems in the plane.

13.00 – 14.30 **Lunch**

Session C (room 403)**« Applications of differential equations »**

- 14.30 – 15.10** *Kononov Yu.N., Donetsk, Ukraine.* Stability and stabilization of rigid body movement with cavities which contain liquid and elastic inclusions.
- 15.10 – 15.30** *Kiseliova N.V., Kononov Yu.N. Donetsk, Ukraine.* Necessary conditions of stability of uniform rotation of asymmetric rigid body with cylindrical cavity which contains perfect fluid.
- 15.30 – 15.50** *Antoniewa N.V., Kononov Yu.N., Donetsk, Ukraine.* Stability of uniform rotation of Lagrange horoscope with perfect fluid.
- 15.50 – 16.10** *Kononov Yu.N., Didok N.K., Donetsk, Ukraine.* Small oscillation of rigid body with elastic compartments which contain perfect fluid.
- 16.10 – 16.30** *Grushka Ya.I., Kiev, Ukraine.* Mathematical modeling of evaluation systems.

16.30 – 17.00 **Closing ceremony**

Session E (room 409)**« Differential operators and operator theory »**

- 14.30 – 14.50** *Stonyakin F.S., Simferopol, Ukraine.* Analogous of Lyapunov theorem on image convexity for vector measure in Hilbert and Banach spaces.
- 14.50 – 15.10** *Krylova A.S., Melitopol, Ukraine.* Precise solutions of spectral problem on the periodic frames.
- 15.10 – 15.30** *Miroshnikova E.I., Rostov-on-Don, Russia.* Boundedness and fredholm property of pseudo-differential operators with anisotropic homogeneous kernels which act in Sobolev spaces scale.
- 15.30 – 15.50** *Oleinik E.V., Kharkov, Ukraine.* Investigation of some class of systems of Lax type.
- 16.00 – 16.20** *Dassios I.K., Athens, Greece.* Algebraic duality of singular linear matrix difference equations.

16.30 – 17.00 **Closing ceremony**