

Ministry of Education and Science of Ukraine  
Vasyl' Stus Donetsk National University  
Institute of Mathematics of the National Academy of Sciences of Ukraine  
Institute of Applied Mathematics and Mechanics of the  
National Academy of Sciences of Ukraine

# **PROGRAM**

**5th International Conference for Young Scientists  
On Differential Equations and Applications  
dedicated to Yaroslav Lopatynsky**

**9-11 November, 2016, Kyiv, Ukraine**



Initiated by  
The Differential Equations Department  
of the Donetsk National University  
since 2006

## **CONFERENCE ORGANIZERS**

Ministry of Education and Science of Ukraine  
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Institute of Mathematics of the National Academy of Sciences of Ukraine  
Institute of Applied Mathematics and Mechanics of the National Academy  
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Mykhailo Voitovych, Sergiy Yanchenko.

# Wednesday, November 9

## Conference Hall (305)

**10.00 – 10.30**    **Opening ceremony**

### Lectures

- 10.30 – 11.15**    **Valeriy H. Samoilenko, Yulia I. Samoilenko, Kyiv, Ukraine.** Exact and asymptotic solutions to Korteweg-de Vries equation.
- 11.15 – 12.00**    **Andrey E. Shishkov, Sloviansk, Ukraine.** Very singular solutions of semi-linear elliptic and parabolic equations.
- 12.00 - 12.30**    **Coffee-break**
- 12.30 – 13.15**    **Igor I. Skrypnik, Sloviansk, Ukraine.** Harnack's inequality for quasilinear elliptic equations with singular absorption term.
- 13.15 - 14.00**    **Mykola M. Bokalo, Lviv, Ukraine.** Nonlinear elliptic-parabolic equations and inclusions.
- 14.00 – 15.00**    **Lunch**
- 15.00-15.45**    **Olexander O. Murach, Kyiv, Ukraine.** Hormander spaces, interpolation, and their applications to elliptic operators.
- 15.45-16.00**    **Break**

## Session A

- 16.00 – 16.15**      **Serhii V. Gryshchuk, Kyiv, Ukraine.** On a boundary value problem for biharmonic functions on the plane.
- 16.15 – 16.30**      **Andrii Anikushyn, Kyiv, Ukraine.** Well-posedness of multidimensional thermoelastic system for nonsimple materials.
- 16.30 – 16.45**      **Iryna V. Romaniuk, Kyiv, Ukraine.** Existence of global attractors for some class of discontinuous dynamical systems.
- 16.45 – 17.00**      **Sergii I. Potseluev, Kharkiv, Ukraine.** Parametric oscillations of two-layer system of immiscible ferrofluids.
- 17.00 - 17.15**      **Vyacheslav Gerasimov, Sergei Gefter, Kharkiv, Ukraine.** Linear differential equations in the ring  $\mathbb{Z}[[x]]$  and polyadic sums of integers.
- 17.15 - 17.35**      **Coffee-break**
- 17.35-17.50**      **Olga Ilnytska, Lviv, Ukraine.** Problems without initial conditions for nonlinear parabolic equations with time delay.
- 17.50-18.05**      **Olga Sus, Mykola M. Bokalo, Lviv, Ukraine.** Initial-boundary value problems for degenerate parabolic equations with integral operators.
- 18.05-18.20**      **Iryna Skira, Lviv, Ukraine.** Initial boundary value problem for higher-order anisotropic integral-differential elliptic-parabolic equations with variable exponents of nonlinearity.

- 18.20-18.35**                    **Yevgeniia Yevgenieva, Sloviansk, Ukraine.** Boundary regimes with singular peaking for quasilinear parabolic equations.
- 18.35-18.50**                    **Yulia Kudrych, Vinnytsia, Ukraine.** On the Wiener test for quasilinear elliptic equations with  $(p,q)$ -growth conditions.
- 18.50-19.05**                    **Yaroslav O. Baranetskiy, Lyubov I. Koliasa, Lviv, Ukraine.** Properties of the problem with Samarsky-Ionkin boundary conditions for the differential equations with involution.

# Tuesday, November 10

## Lectures

### Conference Hall (305)

- 10.00 – 10.45**                      **Vitaliy I. Slyn'ko, Kyiv-Cherkasy, Ukraine.** The stability of fixed points of discrete dynamical systems.
- 10.45 – 11.30**                      **Taras A. Mel'nyk, Kyiv, Ukraine.** Mathematical modeling of atherosclerosis development.
- 11.30-12.00**                      **Coffee break**
- 12.00- 12.45**                      **Oleksii G. Mazko, Kyiv, Ukraine.** Robust stabilization and generalized  $H_\infty$ -optimization of control systems.
- 12.45-13.30**                      **Yuriy M. Kononov, Vinnytsia, Ukraine.** Stability and stabilization of a rigid body with  $m$  elastic cylindrical compartments containing an ideal fluid.
- 13.30 – 15.00**                      **Lunch**
- 15.00 – 15.45**                      **Oleg S. Limarchenko, Kyiv, Ukraine.** Asymptotic and variational methods in problems of dynamics of liquids bodies with a free surface.
- 15.45 -16.00**                      **Break**

## Session A (305)

- 16.00-16.15** Oleksii G. Mazko, **Sergii M. Kusii, Kyiv, Ukraine.** Robust stabilization and suppression of limited disturbances in control systems.
- 16.15-16.30** **Arsen V. Klevtsovskiy, Kyiv, Ukraine.** Asymptotic approximation for the solution to the nonlinear monotone boundary-value problem in the thin aneurysm-type domain.
- 16.30-16.45** **Danylo Radchenko, Kyiv, Ukraine.** Approximation by maps satisfying first-order differential inequalities.
- 16.45-17.00** **Vitalii Soldatov, Kyiv, Ukraine.** About continuity in a parameter of solutions to generic one-dimensional boundary-value problems.
- 17.00-17.15** **Iryna Zelenska, Kropyvnytskyi, Ukraine.** The system of singularly perturbed differential equations with internal turning point.
- 17.15-17.35** **Coffee-break**
- 17.35-17.50** **Larysa Khilkova, Rubizhne, Ukraine.** The study of the asymptotic behavior of the third boundary value problem solutions in domains with fine-grained boundaries.
- 17.50- 18.05** **Ganna Masliuk, Kyiv, Ukraine.** On the one-dimensional boundary-value problems for differential systems of higher order in Slobodetsky spaces.
- 18.05-18.20** **Olha Pelekhata, Kyiv, Ukraine.** On convergence of solutions of multipoint boundary value problems.

- 18.20-18.35** **Maria S. Filipkovska, Kharkiv, Ukraine.** Lagrange stability and instability of nonregular semilinear differential-algebraic equations and applications.
- 18.35-18.50** **Victor Novikov, Kyiv, Ukraine.** On self-adjointness and spectrum of Schrodinger operators with singular potentials.
- 18.50-19.05** **Stanislav Kravchuk, Cherkasy, Ukraine.** Stability conditions of impulsive switched linear systems.
- 19.05-19.20** **Ivan V. Atamas', Cherkasy, Ukraine.** Stability in terms of two measures for quasilinear impulsive set differential equations of the second order.

### **Session B (208)**

- 16.00-16.15** **Victor V. Kyrychenko, Vladislava G. Veselovskaya, Kyiv, Ukraine.** The use of Andoyer-Deprit variables for exploration of Hess gyroscope rotations.
- 16.15-16.30** **Victor V. Kyrychenko, Nataliia V. Purdik, Anatolii I. Zasikan, Kyiv, Ukraine.** Information security algorithms using reversible dynamical systems.
- 16.30-16.45** **Miranda Gabelaia, Tbilisi, Georgia.** On deflections of a prismatic shell exponentially cusped at infinity in the  $N = 0$  approximation of hierarchical models.
- 16.45-17.00** **Olga Chepok, Odesa, Ukraine.** Asymptotic properties of slowly varying solutions of second order differential equations with different types of nonlinearities.



**17.00-17.15**

**Greta Gerzhanovskaya, Odesa, Ukraine.** The conditions of existence of slowly varying solutions of essentially nonlinear differential equations of the second order.

**17.15-17.35**

**Coffee-break**

# Friday, November 11

## Session A (305)

- 10.00-10.40**      **Fedir M. Sokhatsky, Halyna V. Shelepalo (Krainichuk), Vinnytsia, Ukraine, Olena O. Tarkovska, Khmelnytsky, Ukraine.** On solutions of functional equations over the set of topological invertible functions.
- 10.40-10.55**      **Iryna S. Chepurukhina, Kyiv, Ukraine.** On the Lawruk elliptic boundary value problems on a scale of the function Hormander spaces.
- 10.55-11.10**      **Oleksandr O. Murach, Kyiv, Ukraine, Tetiana Zinchenko, Chernihiv, Ukraine.** On applications of Hormander spaces to elliptic systems on vector bundles.
- 11.10 -11.25**      **Anna V. Anop, Kyiv, Ukraine.** On boundary-value problems for homogeneous elliptic equations in Hormander spaces.
- 11.25-11.40**      **Anna V. Anop, Tetiana M. Kasirenko, Kyiv, Ukraine.** On general elliptic boundary value problems on the extended Sobolev scale.
- 11.40-11.55**      **Yevgenia V. Hnyp, Kyiv, Ukraine.** Continuity in a parameter of solutions to generic boundary-value problems on Slobodetsky spaces.
- 11.55-12.10**      **Obidjon Kh. Abdullaev, B. Islomov, Tashkent, Uzbekistan.** A fractional boundary value problem with an integral gluing condition.
- 12.10-12.25**      **Nargiza K. Ochilova, K. Matchanova, Tashkent, Uzbekistan.** Existence and uniqueness theorem for a degenerating mixed type equation .

**Closing ceremony**

## **Session B (208)**

- 10.00-10.30**      **Andrey V. Pokrovskii, Kyiv, Ukraine, Olga D. Trofymenko, Vinnytsia, Ukraine.** Mean value theorems characterizing solutions of linear partial differential equations with constant coefficients.
- 10.30-10.45**      **Oleksandr O. Pokutnyi, Kyiv, Ukraine.** Boundary value problems for partial differential equations.
- 10.45-11.00**      **Andrii Anikushyn, H. Granishak, Kyiv, Ukraine.** On a weak solvability of a hyperbolic integro-differential equation.
- 11.00-11.15**      **Yulia S. Gorban, Vinnytsia, Ukraine.** Existence and uniqueness of entropy solution for nonlinear elliptic degenerate anisotropic equations.
- 11.15-11.30**      **Olena V. Chornenka, Nizhyn, Ukraine.** Solutions of linear singularly perturbed systems of differential equations in the form of double series.
- 11.30-11.45**      **Tetyana Kuzmenko, Kyiv, Ukraine** The relation between G-monogenic mappings and partial differential equations.
- 11.45-11.55**      **Svitlana Akopian, Vinnytsia, Ukraine.** Cauchy problem for the telegraph and diffusion equations with fractional derivatives.
- 11.55-12.05**      **Alyona Nozdranovska, Olga Trofymenko, Vinnytsia, Ukraine.** Mean value theorem for the function of special type.
- 12.05-12.15**      **Yulia Perevierzieva, Vinnytsia, Ukraine.** Bessel equation for the function of special type.

**Closing ceremony (Conference Hall, 305)**

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