

**Ukrainian Conference in Applied Mathematics**  
**28-30 September, 2017**  
**Ivan Franko National University of Lviv,**  
**University str. 1, Lviv, Ukraine**

## Conference Program

**Thursday, 28.09.2017**

**Registration (9.00-10.00). Mirror Hall**

**Plenary session (10.00-13.00). Mirror Hall**

*Chair: Ya.Savula*

**10.00-10.35.** Open of the conference (R.Gladyshevskyy, Ya.Savula, R.Chapko, Ukraine).

**10.35-11.10.** Professor Olexandr Kostovskiy- scientist, teacher and organizer ([A.Kardash](#), Ukraine).

**11.10-11.50.** Elliptic potentials and boundary value problems ([W.Wendland](#), Germany).

**Coffee break (11.50-12.20). Room# 219**

**12.20-12.55.** Reconstruction of electromagnetic obstacles via integral equations ([O.Ivanysyn Yaman](#), F.Le Louer, Turkey-France).

**12.55-13.30.** Numerical integration from IBC perspective ([L.Plaskota](#), Poland).

**Lunch (13.30-14.40)**

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### Parallel Sessions (14.40-18.20)

**Session "Integral Equations for Applied Problems". Room # 111.**

*Chair: S.Solodky*

**14.40-15.00.** On the numerical solution of the elastodynamic problem by a combination of the Laguerre transformation and the boundary integral equation method ([R.Chapko](#), L.Mindrinis, Ukraine-Austria).

**15.00-15.20.** Solution of inverse problem Cauchy type (design) for plane layer ([M.Ciałkowski](#), A.Fraćkowiak, J.Kołodziej, Ł.Semkło, J.Mosiężny, U.Gampe, Poland-Germany).

**15.20-15.40.** On the numerical solution of the Neumann problem for an elliptic equation with variable coefficients by an integral equation approach ([A.Beshley](#), Ukraine).

**15.40 -16.00.** On the complexity of some classes of equations of the first kind (G.L.Myleiko, [I.V.Semenova](#), S.G.Solodky, Ukraine).

**Coffee break (16.00-16.40). Room #219**

**16.40-17.00.** BEM solution of transient magnetohydrodynamic flows in ducts ([H.Fendoglu](#), C.Bozkaya, M.Tezer-Sezgin, Turkey).

**17.00-17.20.** Heat transfer in an annulus enclosure under the influence of multiple magnetic sources ([F.S.Oglakkaya](#), C.Bozkaya, Turkey).

**17.20-17.40.** Direct boundary integral equation method for solving initial boundary value Dirichlet problem for homogeneous wave equation (O.Midiana, S.Litynsky, Ukraine).

**17.40-18.00.** On the numerical solution of the initial boundary value problem with Neumann condition for homogeneous wave equation (H.Posivnych, S.Litynsky, Ukraine).

**18.00-18.20.** On numerical solution of retarded potential boundary integral equations via coupling of Laguerre transform with fast-BEM (O.Midiana, H.Posivnych, S.Litynsky, Ukraine).

## **Session "FEM with Applications". Mirror Hall**

*Chair: H.Shynkarenko*

**14.40-15.00.** Mathematical modeling of unsteady flows of incompressible heat conducting fluid by the Galerkin and R-functions methods (A.V.Artiukh, Ukraine).

**15.00-15.20.** Parallel domain decomposition algorithms for thermoelastic multibody contact problems (I.I.Dyyak, I.I.Prokopyshyn, Ukraine).

**15.20-15.40.** Differential–difference iterative domain decomposition algorithms for problem of unilateral contact between nonlinear elastic bodies with Winkler cover (I.I.Prokopyshyn, S.M.Shakhno, Ukraine).

**15.40-16.00.** Numerical analysis of a posteriori error estimators of finite element approximations for the dual torsion problem (H.A.Kvasnytsia, H.A.Shynkarenko, B.B.Vasylyshyn, Ukraine-Poland).

## **Coffee break (16.00-16.40). Room #219**

**16.40-17.00.** Numerical solution of variational problems of surface and channel flows by finite elements method (Y.Kokovska, M.Prytula, P.Venherskyi, Ukraine).

**17.00-17.20.** Application of certain hp-adaptive finite element strategy to nonsymmetric convection-diffusion-reaction problems (R.G.Drebotiy, H.A.Shynkarenko, Ukraine-Poland).

**17.20-17.40.** Benchmark for some residual a posteriori error estimators of finite element approximations (O.V.Vovk, H.A.Shynkarenko, Ukraine-Poland).

**17.40-18.00.** Numerical investigation of the problem of cancer tumor growth (L.M.Diakoniuk, Ya.H.Savula, A.R.Kavetsky, Yu.O.Yashchuk, Ukraine).

**18.00-18.20.** Numerical solution of the multiscale elasticity problems for the structures with thin covers (Ya.H.Savula, A.Styaha, Ukraine-Italy).

## **Session "Numerical Methods for Non-Linear Equations". Room #216**

*Chair: S.Shakhno*

**14.40-15.00.** Finding the number of eigenvalues for two-parameter spectral problems in a some domain (B.M.Podlevskyi, Ukraine).

**15.00-15.20.** Construction of two-sided approximations to positive solutions of boundary value problems for nonlinear elliptic systems (M.Sidorov, Ukraine).

**15.20-15.40.** Spatial analogues of numerical quasiconformal mapping method for solving problems of identification (A.Ya.Bomba, M.V.Boichura, Ukraine)

**15.40-16.00.** A sampling approach to identification of a conducting inhomogeneity from electrostatic boundary data (A.T.Synavskyy, R.O.Hryniv, M.Shahin, Ukraine-USA).

### **Coffee break (16.00-16.40). Room #219**

**16.40-17.00.** Some combined iterative methods for solving nonlinear least squares problems (S.M.Shakhno, Ukraine).

**17.00-17.20.** On some combined methods for solving nonlinear equations (H.P.Yarmola, Ukraine).

**17.20-17.40.** Three-step method for solving least-square problem (M.Ya.Bartish, O.V.Kovalchuk, Ukraine).

**17.40-18.00.** Theoretical background of researches of modified Moore method based on the mathematics of functional intervals (P.S.Senyo, T.I.Stoiko, Ukraine).

**18.00-18.20.** Comparative analysis of explicit and implicit schemes for a non-linear boundary value problem (I. Mukha, I. Prusak, Ukraine).

### **Conference diner (19.00-23.00). Restoran "ArtMaestro", Lystopadovogo Chynu str.6.**

### **Friday, 29.09.2017**

### **Plenary session (10.00-13.00). Mirror Hall**

*Chair: L.Plaskota*

**10.00-10.30.** Numerical analysis of heterogeneous model for elastic body with thin flexible inclusion (Ya.Savula, Ukraine).

**10.30-11.00.** One-step methods for singular initial value problems (M.Kròl, A.V.Kunynets, M.V.Kutniv, Poland-Ukraine).

**11.00-11.30.** The extended Kantorovich method for von Karman equations (V.A.Gromov, Ukraine)

### **Coffee break (11.30-12.00). Room #219**

**12.00-12.30.** Exponentially convergent methods for nonlocal problems in abstract setting (V.Vasylyk, Ukraine).

**12.30-13.00.** Analytical and numerical methods for solving nonlinear partial differential equations (H.M.Baskonus, Turkey).

### **Lunch (13.00-14.00)**

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### **Parallel Sessions (14.00-19.20)**

### **Session "Integral Equations for Applied Problems". Room # 111.**

*Chair: O. Ivanyshyn Yaman*

**14.00-14.20.** Boundary element method in determining the stress-strain state of composite coating in tribological systems (V.V.Mozharovsky, N.A.Maryina, K.B.Ghazaryan, Belarus-Armenia).

**14.20-14.40.** On Laguerre-Fast-BEM for Robin initial-boundary value problems for the wave equation (A.Hlova, A.Muzychuk, Ukraine).

**14.40-15.00.** Fast-convergent dynamic Green's functions for boundary integral formulation of 3D periodic crack problems (V.V.Mykhas'kiv, I.Ya.Zhbadynskyi, Ukraine).

**15.00-15.20.** Uniform numerical methods for singularly perturbed integro-differential equations with delay (F.Erdogan, M.G.Sakar, O.Saldir, Turkey).

**15.20-15.40.** Transformation of discrete singularities in the numerical method for singular equations (D.Cherniy, S.Dovgiy, Ukraine).

**15.40-16.00.** On the numerical solution of a Cauchy problem for the elastostatic equation in doubly connected planar domains (M.Shkolyk, Ukraine)

### **Coffee break (16.00-16.40) Room #219**

**16.40-17.00.** Numerical realization of boundary element method for modeling of dynamics of three-dimensional homogeneous porous elastic bodies (D.Bobylyev, Ukraine).

**17.00-17.20.** On some transmission boundary value problem for Laplace equation in domain with open Lipschitz curve (Yu.M.Sybil, Ukraine).

**17.20-17.40.** Integral equations method for planar heat conduction problem realized via H-matrix technique (V.Vavrychuk, Ukraine).

**17.40-18.00.** Numerical solution of a 3-dimensional Cauchy problem for the Laplace equation by boundary integral equation based method (I.Borachok, Ukraine).

**18.00-18.20.** On numerical solution of initial-boundary value problems for the wave equation in the half-space with inclusions (Yu.Muzychuk, Ukraine)

### **Session "Numerical Methods for Non-Linear Equations". Room #216**

*Chair: H.Bulut*

**14.00-14.20.** New complex hyperbolic structures to the lonngren-wave large equation by using sine-Gordon expansion method (H.M.Baskonus, H.Bulut, T.A.Sulaiman, Turkey-Nigeria).

**14.20-14.40.** Some new feature in complex domain of the nonlinear model arising in the dynamics of ionic currents along microtubules (E.Celik, H.Bulut, H.M.Baskonus, Turkey).

**14.40-15.00.** Modified operational matrix method for second-order nonlinear ordinary differential equations with quadratic and cubic terms (B. Gürbüz, M.Sezer, Turkey).

**15.00-15.20.** Exact solutions of the nonlinear differential equation via (w/g) expansion method (F.Tascan, A.Akbulut, Turkey).

**15.20-15.40.** A novel method for Wu-Zhang system (S.T.Demiray, H.Bulut, Turkey).

**15.40-16.00.** On the exact solutions of Drinfeld-Sokolov system (S.T.Demiray, H.Bulut, Turkey) .

### **Coffee break (16.00-16.40). Room #219**

**16.40-17.00.** Summability of series by nonlinear Fourier basis and Bernstein inequality (H.Aslan, Turkey).

**17.00-17.20.** New surfaces to the Benjamin-Bona-Mahony-Peregrine-Burgers equation by using modified exponential function method (A.Esen, H.Bulut, H.M.Baskonus, Turkey).

**17.20-17.40.** The characterization of affine symmetric curve in  $R^4$  (M.Bektas, E.Cicek Cetin, Turkey).

**17.40-18.00.** A note on a anti-periodic boundary value problem for nonlinear differantial equations (M.Tuz, Turkey).

**18.00-18.20.** Positive solution for some nonlinear second order boundary value problems (M.Tuz, Turkey).

**18.20-18.40.** The geodesic equation on time scales with symmetric differential (Ö.Akgüller, S.P.Atmaca, Turkey).

**18.40-19.00.** On semi q- discrete surface of revolution (S.P.Atmaca, N.Ozsoy, E.Karaca, Turkey).

## **Session "Mathematical Modeling and Computational Methods". Mirror Hall**

*Chair: I.I.Dyyak*

**14.00-14.20.** Estimate of parameters of difference equations under uncertainty (O.G.Nakonechnyi, P.M.Zinko, Ukraine).

**14.20-14.40.** Parallel numerical method for abstract final value problem based on nonlocal regularization (D.Sytnyk, Ukraine).

**14.40-15.00.** Multifrequency systems with delay and with initial and boundary-value conditions (Ya.I.Bihun, Ukraine).

**15.00-15.20.** Methods of statistical modeling of stochastic differential equation solutions (A.O.Pashko, Ukraine).

**15.20-15.40.** A class of fully discrete TVD schemes for solving hyperbolic conservation laws (J.Farzi, Iran).

**15.40-16.00.** Optimal order maximum principle preserving DST scheme for linear hyperbolic conservation laws (S. Mousavi Yeganeh, J.Farzi, Iran).

## **Coffee break (16.00-16.40). Room #219**

**16.40-17.00.** Carbon monoxide oxidation on the catalytic surface: modeling and stability (P.Kostrobii, I.Ryzha, Ukraine).

**17.00-17.20.** Generalization of the Thiele fraction (V.Makarov, I.Demkiv, Ukraine).

**17.20-17.40.** Usage of clustering in the process of banking analysis in Ukraine (V.M.Domrachev, O.V.Liahovska, Ukraine).

**17.40-18.00.** Numerical solution of optimal control problems for one-dimensional semilinear partial differential equations (M.V.Shcherbatyy, Ukraine).

**18.00-18.20.** Generator stochastic approximation procedure in semi-Markov space (Ya.M.Chabanyuk, U.T.Khimka, W.Rosa, Ukraine-Poland).

**18.20-18.40.** Problem with integral conditions for homogeneous system of partial differential equations (G.Kuduk, Poland).

**18.40-19.00.** Financial temporary data and their analysis (I.Didmanidze, G.Kakhiani, Georgia).

**19.00-19.20.** Safety in wireless local networks (I.Didmanidze, Z.Beridze, Georgia).