

National Technical University “Kharkov Polytechnic Institute”

McGill University

Technion - Israel Institute of Technology

S. Timoshenko Institute of Mechanics NAS of Ukraine

A. Podgorny Institute for Mechanical Engineering Problems NAS of Ukraine

National Committee of Ukraine on Theoretical and Applied Mechanics

The 5th International Conference
“Nonlinear Dynamics – 2016”

*Dedicated to the 90th Anniversary
of Academician V.L. Rvachev*



(ND-KhPI2016)

Conference Program

September, 27-30, 2016

Kharkiv
NTU KhPI

The conference organized by the:

National Technical University “Kharkov Polytechnic Institute” (Kharkov, UKRAINE);

Institute of Mechanics NAS of Ukraine (Kiev, UKRAINE);

McGill University (Montreal, CANADA);

Technion - Israel Institute of Technology (Haifa, ISRAEL)

A.Podgorny Institute for Mechanical Engineering Problems NAS of Ukraine (Kharkiv, Ukraine)

and in partnership with the

National Committee of Ukraine on Theoretical and Applied Mechanics, NAS of Ukraine



ORGANISING COMMITTEE OF THE CONFERENCE:

Prof. Sokol E.I., Rector of the National Technical University “KhPI” - Chairman

Prof. Kurpa L.V. (vice-Chairman)

Prof. Khrypunov G.S. (vice-Chairman)

Prof. Mikhlin Yu.V. (vice-Chairman)

Prof. Marchenko A.P.

Prof. Konkin V. N.

Dr. Larin O.O. (Secretary)

Dr. Vodka O.O.

Dr. Osetrov A.O.

Dr. Perepelkin N.V.

The conference will be held in the

National Technical University “Kharkiv Polytechnic Institute”

Address: **Kyrpycheva (Frunze) str., 21,**

Kharkiv, Ukraine



<http://web.kpi.kharkov.ua/nd-khpi/>

<http://nd.khpi.edu.ua/NDKhPI2016/index>

Conference Schedule

Registration hours:

Monday, September, 26 at 10.00-18.00 in the 2nd Educational Building (U2), Dept. of Appl. Math.

Tuesday, September, 27 since 8.30 in the Hall of Main Building

Tuesday, September, 27

9.30-10.10..... Opening ceremony

10.10 - 12.50..... General Session

13.00 - 14.00..... Lunch

14.30 - 16.30..... Mini-symposium “The R-FUNCTIONS THEORY,
Its DEVELOPMENT and RECENT APPLICATIONS”; *Section 1*

Wednesday, September, 28

10.00- 12.40..... General Session

13.00 - 14.00..... Lunch

14.00 - 16.30..... Sections 2 and 3

17.30 - 21.00..... Special WEB Session. Key lectures

Thursday, September, 29

10.00 - 12.00..... General Session

12.00 - 13.10.... Poster Session

13.15 - 14.15.... Lunch

14.30 - 17.30.... Tour (Excursion)

18.30..... Banquet for the conference participants

Friday, September, 30

10.00 - 12.20..... Sessions 4 and 5

12.30 - 13.15 Closing ceremony

TUESDAY, SEPTEMBER, 27

Registration of participants

9.30-10.10	Opening ceremony	Main Building, Room 12
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General Session		Main Building, Room 12
Chairs: L. Kurpa, Yu. Mikhlin, F. Pellicano		
10.10-10.40	<u>Eduardo Saetta, Giuseppe Rega</u> (<i>Roma, Italy</i>) MODELLING AND NONLINEAR DYNAMICS OF THIRD-ORDER THERMOMECHANICALLY COUPLED LAMINATED PLATES (Key Lecture; WEB presentation)	
10.40-11.10	<u>Yuri Kivshar</u> (<i>Kanberra, Australia</i>) NONLINEAR SYSTEMS WITH PARITY-TIME SYMMETRY (Key Lecture; WEB presentation)	
11.10-11.40	<u>Lidiya Kurpa</u> (<i>Kharkiv, Ukraine</i>) APPLICATION OF R-FUNCTIONS THEORY TO PROBLEMS OF NONLINEAR DYNAMICS OF MULTILAYER SHALLOW SHELLS AND PLATES.	

Coffee Break

General Session		Main Building, Room 12
Chairs: L. Kurpa, Yu. Mikhlin, F. Pellicano		
12.00-12.25	<u>Francesco Pellicano, Antonio Zippo, Marco Barbieri, Matteo Strozzi</u> (<i>Modena, Italy</i>). NONLINEAR DYNAMICS OF PRE-COMPRESSED CIRCULAR CYLINDRICAL SHELL UNDER AXIAL HARMONIC LOAD: EXPERIMENTS.	
12.25-12.50	<u>Zvonko Rakaric, Ivana Kovacic</u> (<i>Novi Sad, Serbia</i>). BURSTING OSCILLATIONS IN NONLINEAR OSCILLATORS WITH SLOWLY VARYING EXCITATION (WEB Presentation)	

Lunch (13:00-14:00)

TUESDAY, SEPTEMBER, 27

Mini-symposium: Library Building “The R-functions theory, its development and recent applications”	
Chairs: V. Kolodyazhny, L. Kurpa,	
14.00-14.20	Tetyana Shmatko, Atul Bhaskar (<i>Kharkiv, Ukraine, Southampton, UK</i>). GEOMETRICALLY NONLINEAR VIBRATIONS OF FUNCTIONALLY GRADED SHALLOW SHELLS.
14.20-14.40	Lidiya Kurpa, Olga Mazur, Viktorya Tkachenko (<i>Kharkiv, Ukraine</i>) INVESTIGATION OF THE PARAMETRIC VIBRATIONS OF LAMINATED PLATES BY RFM.
14.40-15.00	Katherine Lyubitska, Lydiya Kurpa (<i>Kharkiv, Ukraine</i>) APPLICATION OF THE R-FUNCTIONS METHOD FOR NONLINEAR BENDING OF ORTHOTROPIC SHALLOW SHELLS ON AN ELASTIC FOUNDATION.

Coffee Break

Mini-symposium: Library Building “The R-functions theory, its development and recent applications”	
Chairs: V. Kolodyazhny, L. Kurpa,	
15.20-15.40	Tatiana Sheiko, Yulia Litvinova, Kyrylo Maksymenko-Sheiko (<i>Kharkiv, Ukraine</i>) R-FUNCTIONS IN DEVELOPMENT OF ANALYTICAL IDENTIFICATION OF GEOMETRICAL OBJECTS.
15.40-16.00	Volodymyr M. Kolodyazhny (<i>Kharkiv, Ukraine</i>) ATOMIC FUNCTIONS: THE HISTORY OF THE FORMATION, DEVELOPMENT AND PRACTICAL APPLICATION.
16.00-16.20	<u>Sergiy Sklepus</u> (<i>Kharkiv, Ukraine</i>) THE R-FUNCTIONS METHOD IN THE CREEP AND CREEP DAMAGE PROBLEMS OF PIECEWISE-HOMOGENEOUS BODIES OF REVOLUTION WITH MERIDIONAL SECTION OF ANY SHAPE.
16.20-16.40	<u>Roman Uvarov</u> (<i>Kharkiv, Ukraine</i>) ANALYZING PARALLEL COMPUTATION OF THE FUNCTIONS CREATED WITH R-OPERATIONS IN CUDA.

TUESDAY, SEPTEMBER, 27

Section 1 Applications of Nonlinear Dynamics		Library Building
Chairs: D. Breslavsky, O. Larin		
14.00-14.20	Valery Gulyayev, <u>Olena Vashchilina</u>, Sergey Glazunov (Kiev, Ukraine) INCIPIENT REGIMES OF DRILL BIT WHIRLINGS ON UNEVEN BOTTOMS OF DEEP BORE-HOLES.	
14.20-14.40	Dmitry Breslavsky, Oksana Tatarinova Holm Altenbach, Konstantin Naumenko, (Kharkiv, Ukraine; Magdeburg, Germany) MODELLING OF CREEP AND OSCILLATIONS IN MATERIAL DESCRIBED BY ARMSTRONG-FREDERICK EQUATIONS.	
14.40-15.00	Oleg Morachkovsky, Denis Lavinsky (Kharkiv, Ukraine). THE NONLINEAR DEFORMATION OF THE BODY SYSTEM UNDER ELECTROMAGNETIC FIELD ACTION.	

Coffee Break

Section 1 Applications of Nonlinear Dynamics		Library Building
Chairs: D. Breslavsky, O. Larin		
15.20-15.40	Yurii Vorobiov, Leopold Kruszka, <u>Nataliia Ovcharova</u> (Kharkiv, Ukraine; Warsaw, Poland) NONLINEAR DEFORMATION OF STRUCTURE ELEMENTS FROM DIFFERENT MATERIALS UNDER IMPULSE AND SHOCK LOADS.	
15.40-16.00	<u>Pavel Krot</u>, Vladimir Korennoy (Dnipro, Ukraine) NONLINEAR EFFECTS IN ROLLING MILLS DYNAMICS.	
16.00-16.20	<u>Rasim Labibov</u>, Yuri Chernyakov (Dnipro, Ukraine) MODELING OF SLOW PLASTICITY WAVES.	

WEDNESDAY, SEPTEMBER, 28

General Session		Main Building, Room 12
Chairs: O.Gendelman. L.Manevitch, A.Shvets		
10.00-10.30	<u>Leonid Manevitch, Valeri Smirnov</u> (<i>Moscow, Russia</i>) SEMI-INVERSE METHOD IN THE NONLINEAR DYNAMICS.	
10.30-11.00	<u>Oleg Gendelman, T. Sapsis</u> (<i>Haifa, Israel; Massachusetts, USA</i>) ENERGY EXCHANGE AND LOCALIZATION IN ESSENTIALLY NONLINEAR OSCILLATORY SYSTEMS: CANONIC FORMALISM.	
11.00-11.30	<u>Aleksandr Shvets, Vasily Sirenko</u> (<i>Kiev, Ukraine</i>) COMPLICATED SCENARIOS OF TRANSITIONS TO DETERMINISTIC CHAOS IN NON-IDEAL DYNAMIC SYSTEMS.	

Coffee Break

General Session		Main Building, Room 12
Chairs: O.Gendelman. L.Manevitch, A.Shvets		
11.50-12.15	<u>Fotios Georgiades</u> (<i>Lincoln, UK</i>) NONLINEAR DYNAMICS OF A SPINNING SHAFT WITH NON-CONSTANT ROTATING SPEED.	
12.15- 12.40	<u>Roman Kushnir, Mykhailo Marchuk</u> (<i>Lviv, Ukraine</i>) THE NONLINEAR DYNAMICS OF COMPOSITE PLATES AND SHELLS.	

Lunch (12:50-13:50)

Section 2. Theoretical Problems of Nonlinear Dynamics		Library Building
Chairs: Yu. Mikhlin, F.Georgiades		
14.00-14.25	<u>Matteo Strozzi, Leonid Manevitch, Valeri Smirnov, Francesco Pellicano</u> (<i>Ferrara, Modena, Italy; Moscow, Russia</i>) NONLINEAR DYNAMICS OF SWNTS. ENERGY BEATING AND LOCALIZATION.	
14.25-14.50	<u>Kateryna Plakisy, Yuri Mikhlin</u> (<i>Kharkiv, Ukraine</i>) RESONANCE BEHAVIOR OF THE FORCED DISSIPATIVE SPRING-PENDULUM SYSTEM. .	
14.50-15.15	<u>Nikolay Perepelkin</u> (<i>Kharkiv, Ukraine</i>) NON-ITERATIVE RAUSCHER METHOD FOR 1-DOF SYSTEM: A NEW APPROACH TO STUDYING NON-AUTONOMOUS SYSTEM VIA EQUIVALENT AUTONOMOUS ONE.	

Coffee Break

WEDNESDAY, SEPTEMBER, 28

Section 2. Theoretical Problems of Nonlinear Dynamics		Main Building, Room 12
Chairs: Yu. Mikhlin, F.Georgiades		
15.30-15.50	Igor Andrianov, <u>Viktor Olevskiy</u>, Yulia Olevska (Aachen, Germany; Dnipro, Ukraine) ANALYTICAL APPROXIMATION OF PERIODIC ATEB FUNCTIONS VIA ELEMENTARY FUNCTIONS.	
15.50-16.10	Victor Bazhenov, <u>Olga Pogorelova</u>, <u>Tatiana Postnikova</u> (Kiev, Ukraine) DISCONTINUOUS BIFURCATIONS UNDER 2-DOF VIBROIMPACT SYSTEM MOVING.	
16.10-16.30	<u>Anton Tkachuk</u>, Manfred Bischoff (Stuttgart, Germany) SIMULATION OF VIBRO-IMPACT SYSTEMS USING RECIPROCAL MASS MATRICES.	

Section 3. Dynamics of shells and plates		Library Building
Chairs: V.Gristchak, M.Marchuk		
14.00-14.25	Yuliia Fatieieva, <u>Viktor Gristchak</u>. (Zaporizhia, Ukraine) AN APPROXIMATE ANALYTICAL SOLUTION OF VIBRATION PROBLEM FOR IMPERFECT FGM SHALLOW SHELLS WITH TIME DEPENDENT THICKNESS UNDER STATIC LOADING.	
14.25-14.50	Mykhailo Marchuk, Taras Goriachko, Vira Pakosh, Oksana Lesyk (Lviv, Ukraine) METHOD OF DETERMINATION OF NATURAL FREQUENCIES AND FORMS OF NONLINEAR VIBRATIONS FOR LAYERED CYLINDRICAL PANELS	
14.50-15.15	Ivan Breslavsky, Marco Amabili, Mathias Legrand (Montreal, Canada) CIRCULAR CYLINDRICAL SHELL MADE OF NEO-HOOKEAN -FUNG HYPERELASTIC MATERIAL UNDER STATIC AND DYNAMIC PRESSURE.	

Coffee Break

WEDNESDAY, SEPTEMBER, 28

Section 3. Dynamics of shells and plates		Library Building
Chairs: V.Gristchak, M.Marchuk		
15.30-15.50	Elena Strelnikova, Vitaly Naumemko, Vasyl Gnitko <i>(Kharkiv, Ukraine)</i> MULTI-DOMAIN BOUNDARY ELEMENT METHOD IN NONLINEAR LIQUID SLOSHING ANALYSIS FOR FUEL TANKS.	
15.50-16.10	Natalia Obodan, Victor Adlutsii, <u>Vasilii Gromov</u> <i>(Dnipro, Ukraine)</i> INVERSE BIFURCATION PROBLEM AS A TOOL FOR RAPID ASSESSMENT PROGRESSIVE COLLAPSE FOR THIN-WALLED SYSTEMS.	

Special WEB Session		Main Building, Room 12
Chairs: Yu.Mikhlin, F.Pellicano		
17.15-21.00.		
1	<u>Marco Amabili</u> <i>(Montreal, Canada)</i> IDENTIFICATION OF NONLINEAR DAMPING FOR LARGE-AMPLITUDE VIBRATIONS OF PLATES AND CURVED PANELS. Key lecture.	
2	<u>José Manoel Balthazar</u> <i>(São José dos Campos, Brasil)</i> NONLINEAR DYNAMIC INTERACTIONS AND PHENOMENA: VIBRATING SYSTEMS WITH LIMITED POWER SUPPLY: AN EMERGENT TOPIC AFTER PROF. KONONENKO. Key lecture.	
3	<u>Alexander Vakakis</u> <i>(Urbana, USA)</i> NONLINEAR SONIC VACUA. Key lecture	
4	<u>Si Mohamed Sah, Richard Rand</u> <i>(Stockholm, Sweden; Ithaca, USA)</i> THREE WAYS OF TREATING A LINEAR DELAY DIFFERENTIAL EQUATION	
5	<u>Pol Spanos</u> <i>(Houston, USA)</i> POTENT METHODS FOR STOCHASTIC ANALYSIS OF NONLINEAR DISCRETE DYNAMIC SYSTEMS Key lecture	
6	<u>Shiyang Chen, Bogdan Epureanu</u> <i>(Ann Arbor, USA)</i> FORECASTING BIFURCATION OF PARAMETRICALLY EXCITED SYSTEMS: THEORY & EXPERIMENTS.	

THURSDAY, SEPTEMBER, 29

Plenary lectures		Library Building
Chairs: V. Gristchak, K. Hedrih, A. Manevich		
10.00-10.25	<u>Katica R. Hedrih (Stevanović)</u> <i>(Belgrade, Niš, Serbia)</i> FROM GEOMETRY, KINEMATICS AND DYNAMICS OF BILLIARDS TO THE EXTENDED THEORY OF SKEW COLLISION BETWEEN TWO ROLLING BODIES AND METHODOLOGY OF VIBRO-IMPACT DYNAMICS.	
10.25-10.50	<u>Arkadiy Manevich</u> <i>(Dnipro, Ukraine)</i> NONLINEAR INTERACTION OF OSCILLATION AND ROTATION IN OSCILLATOR-VIBRATOR SYSTEMS.	

Coffee Break

Plenary lectures		Library Building
Chairs: V. Gristchak, K. Hedrih, A. Manevich		
11.10-11.35	<u>Julian Stephen Gosliga, Olga Ganilova</u> <i>(Sheffield, UK)</i> IMPROVEMENT OF PIEZOELECTRIC ENERGY HARVESTER EFFICIENCY THROUGH OPTIMAL PATCH CONFIGURATION.	
11.35- 12.00	<u>Victor Belan, Alexander Kovalev, Anastasiya Peretyatko</u> <i>(Kharkiv, Ukraine)</i> BREATHING MODES INDUCED BY LOCALIZED RF RADIATION: ANALYTICAL AND NUMERICAL APPROACHES.	

Poster Session		Library Building
12.00-13.15		

Lunch (12:50-13:50)

Tour (Excursion) (14:30)

Banquet for the conference participants (19:00)

LIST OF POSTER PRESENTATIONS

1	<p>Leonid D. Akulenko, Tatyana A. Kozachenko, Dmytro D. Leshchenko, Yanina S. Zinkevich <i>(Moscow, Russia; Odessa, Ukraine)</i> PERTURBED ROTATIONS OF A RIGID BODY CLOSE TO THE LAGRANGE CASE UNDER THE ACTION OF UNSTEADY PERTURBATION TORQUES.</p>
2	<p>Igor Baranov, Oleg Kravchenko, Iryna Suvorova <i>(Kharkiv, Ukraine; Moscow, Russia)</i> DEVELOPING STRUCTURAL METHODS FOR SOLVING BOUNDARY-VALUE PROBLEMS IN NON-SMOOTH BOUNDARY DOMAINS.</p>
3	<p>Dmitry Breslavsky, <u>Volodymyr Mitielov</u>, Oleg Morachkovsky, Oksana Tatarinova, Sergey Pashchenko <i>(Kharkiv, Ukraine)</i> ASYMPTOTIC SOLUTION OF ANISOTROPIC CYCLIC CREEP PROBLEM.</p>
4	<p>George M. Chechin, Denis S. Ryabov, Stepan A. Shcherbinin <i>(Rostov-on-Don, Russia)</i> BUSHES OF NONLINEAR NORMAL MODES IN SINGLE-LAYER GRAPHENE.</p>
5	<p>Alexander Ya. Grigorenko, Serhii A. Pankratiev, Serhii N. Yaremchenko <i>(Kiev, Ukraine)</i> NUMERICAL ANALYSIS OF STRESS-STRAIN STATE OF ORTHOTROPIC PLATES IN THE FORM OF ARBITRARY CONVEX QUADRANGLE.</p>
6	<p>Yaroslav Grigorenko, Elena Bepalova, Natalia Yaremchenko <i>(Kiev, Ukraine)</i> SOME STATIONARY DEFORMATION PROBLEMS OF COMPOUND SHELLS OF REVOLUTION.</p>
7	<p><u>Dariusz Grzelczyk</u>, Jan Awrejcewicz <i>(Lodz, Poland)</i> RESONANCES AND SYNCHRONIZATION IN TWO COUPLED OSCILLATORS WITH STICK-SLIP VIBRATIONS AND SPRING PENDULUMS.</p>
8	<p><u>Anna Karpik</u>, Yuri Vorobjov <i>(Kharkiv, Ukraine)</i> NONLINEAR ANALYSIS OF GAS FLOW IN COMPRESSORS STAGE BASED ON CFD-METHOD.</p>
9	<p>Victor F. Kravchenko, Oleg V. Kravchenko, Yaroslav Yu. Konovalov, Vladislav I. Pustovoit, Dmitry V. Churikov <i>(Moscow, Russia)</i> R-FUNCTIONS AND WA-SYSTEMS OF FUNCTIONS IN MODERN INFORMATION TECHNOLOGIES.</p>
10	<p>Lidiya Kurpa, Galina Timchenko, Andrey Osetrov <i>(Kharkiv, Ukraine)</i> APPLICATION OF R-FUNCTIONS THEORY TO NONLINEAR VIBRATION PROBLEMS OF LAMINATED SHALLOW SHELLS WITH CUTOUTS.</p>
11	<p>Oleksiy Larin, <u>Oleksii Vodka</u>, Ruslan Kaidalov, Volodymyr Bashtovoi <i>(Kharkiv, Ukraine)</i> STOCHASTIC DYNAMICS OF THE SPECIALIZED VEHICLE WITH NONLINEAR SUSPENSION.</p>
12	<p>Olga Yu. Lisina <i>(Kharkiv, Ukraine)</i> MODELING OF NONLINEAR ENVIRONMENT WITH THE HELP OF FAMILIES OF THE ATOMIC FUNCTIONS.</p>

13	Gennadii Martynenko (<i>Kharkiv, Ukraine</i>) NONLINEAR VIBRATIONS OF ROTORS IN SYSTEMS WITH MAGNETIC BEARINGS.
14	Yuri Mikhlin, <u>Natalia Goloskubova</u> (<i>Kharkiv, Ukraine</i>) ANALYSIS OF TRAVELING AND STANDING WAVES IN THE DNA MODEL BY PEYRARD-BISHOP-DAUXOIS.
15	Igor Moiseyenko, Valeriy Storozhev, Oksana Sidash (<i>Donetsk, Ukraine</i>) KINEMATIC CHARACTERISTICS OF NONLINEAR SECOND HARMONIC FOR GUIDED TORSION ELASTIC WAVES IN TRANSVERSELY ISOTROPIC CYLINDER.
16	Irina Morachkovska, Galina Timchenko, Kateryna Lyubitskaya (<i>Kharkiv, Ukraine</i>) APPLICATION OF THE VARIATIONAL-STRUCTURAL METHOD TO INVESTIGATE THE ELASTO-PLASTIC BENDING OF THIN SHELLS AND PLATES.
17	<u>Nikolay Perepelkin</u> (<i>Kharkiv, Ukraine</i>) CONSTRUCTION OF NONLINEAR NORMAL MODES BY SHAW-PIERRE VIA SCHUR DECOMPOSITION.
18	Ivan Sergienko, Oleg M. Lytvyn, Oleg O. Lytvyn, Oleksandr Tkachenko, Olga Grytsai (<i>Kharkiv, Zaporizhia, Ukraine</i>) ISOGEOMETRIC APPROXIMATION METHODS USING THE INTERLINEATION OPERATORS.
19	<u>Nataliya Sizova</u> (<i>Kharkiv, Ukraine</i>) STRUCTURAL MODELING OF ELASTOPLASTIC DEFORMATION PROCESSES OF THE BODIES OF NON-CLASSICAL SHAPE.
20	<u>Eduards Skukis, Kaspars Kalnins, Olgerts Ozolins</u> (<i>Riga, Latvia</i>) APPLICATION OF VIBRATION CORRELATION TECHNIQUE FOR OPEN HOLE CYLINDERS.
21	Sergey Storozhev (<i>Donetsk, Ukraine</i>) FUZZY EVALUATIONS FOR KINEMATIC CHARACTERISTICS OF NONLINEAR SECOND HARMONICS OF SHEAR WAVES IN TRANSVERSELY ISOTROPIC ELASTIC MEDIUM.
22	Igor Tsukanov (<i>Miami, USA</i>) APPLICATION OF SOLUTION STRUCTURE METHOD TO MODELING DYNAMIC RESPONSE OF MECHANICAL STRUCTURES.
23	<u>Roman Uvarov</u> (<i>Kharkiv, Ukraine</i>) ALGORITHMS AND JAVASCRIPT PROGRAMS IN CALCULATION OF R-FUNCTIONS AND PRODUCING THEIR TWO- AND THREE-DIMENSIONAL CHARTS.
24	<u>Alexei Zotov, Anvar Valeev, Sergey Glebov</u> (<i>Ufa, Russia</i>) OSCILLATING SYSTEMS WITH ELASTIC ELEMENT MOVING BETWEEN GUIDES WITH GIVEN SHAPE.

FRIDAY, SEPTEMBER, 30

Section 4 - Nonlinear Physics, Biomechanics		Main Building
Chairs: Y. Syrkin, Yu. Romashov		
10.00-10.20	Victor Lykah, Yevgen Syrkin <i>(Kharkiv, Ukraine)</i> STABILITY, BIFURCATION AND TRANSITIONS OF THE NONLINEAR MOLECULAR CHAIN IN ELECTRIC FIELD.	
10.20-10.40	Alexander Kazachkov, Victor Lykah, Ksenia Minakova, Evgeniy Syrkin, Olena Tkachenko <i>(Kharkiv, Ukraine)</i> LIQUID NONLINEAR OSCILLATIONS IN THE U-TUBE SYSTEM.	

Coffee Break

Section 4 - Nonlinear Physics, Biomechanics		Main Building
Chairs: Y. Syrkin, Yu. Romashov		
11.20-11.40	<u>Yurii Romashov</u>, Natalya Kizilova, Gediminas Gaidulis <i>(Kharkiv, Ukraine; Vilnius, Lithuania)</i> MATHEMATICAL MODELING OF MITRAL VALVE DYNAMICS: NONLINEAR VS LINEAR MODELS.	
11.40-12.00.	Helen Solovyova, Natalya Kizilova, J. Mizerski <i>(Kharkiv, Ukraine; Warsaw, Poland)</i> NONLINEAR MODEL OF BLOOD FLOW THROUGH STENOSED CORONARY ARTERIES.	
12.00-12.20	<u>Valeriy Grytsay</u> <i>(Kiev, Ukraine)</i> NONLINEAR DYNAMICS OF A METABOLIC PROCESS OF THE ATHEROSCLEROSIS.	

FRIDAY, SEPTEMBER, 30

Section 5 - Engineering Problems		Main Building
Chairs: O. Larin, M. Tkachuk		
10.00-10.20	Dmitry Gristchak <i>(Zaporizhia, Ukraine)</i> NONLINEAR VIBRATION PROBLEM OF LAUNCH VEHICLE CARRYING A MOVING TIME-DEPENDENT MASS.	
10.20-10.40.	Mykola M. Tkachuk, Yuriy Kostenko, Andriy Grabovsky, Mykola A. Tkachuk <i>(Kharkiv, Ukraine)</i> PARAMETER ANALYSIS OF VIBRO-IMPACT MACHINES DYNAMICS WITH VARIABLE MASS AND STIFFNESS.	
10.40-11.00	Yuri Andreev, Roman Antoshchenkov <i>(Kharkiv, Ukraine)</i> DYNAMICS OF MULTIELEMENT AGRICULTURAL AGGREGATES, TAKING INTO ACCOUNT NONHOLONOMIC CONSTRAINTS AND SPATIAL MOTION.	

Coffee Break

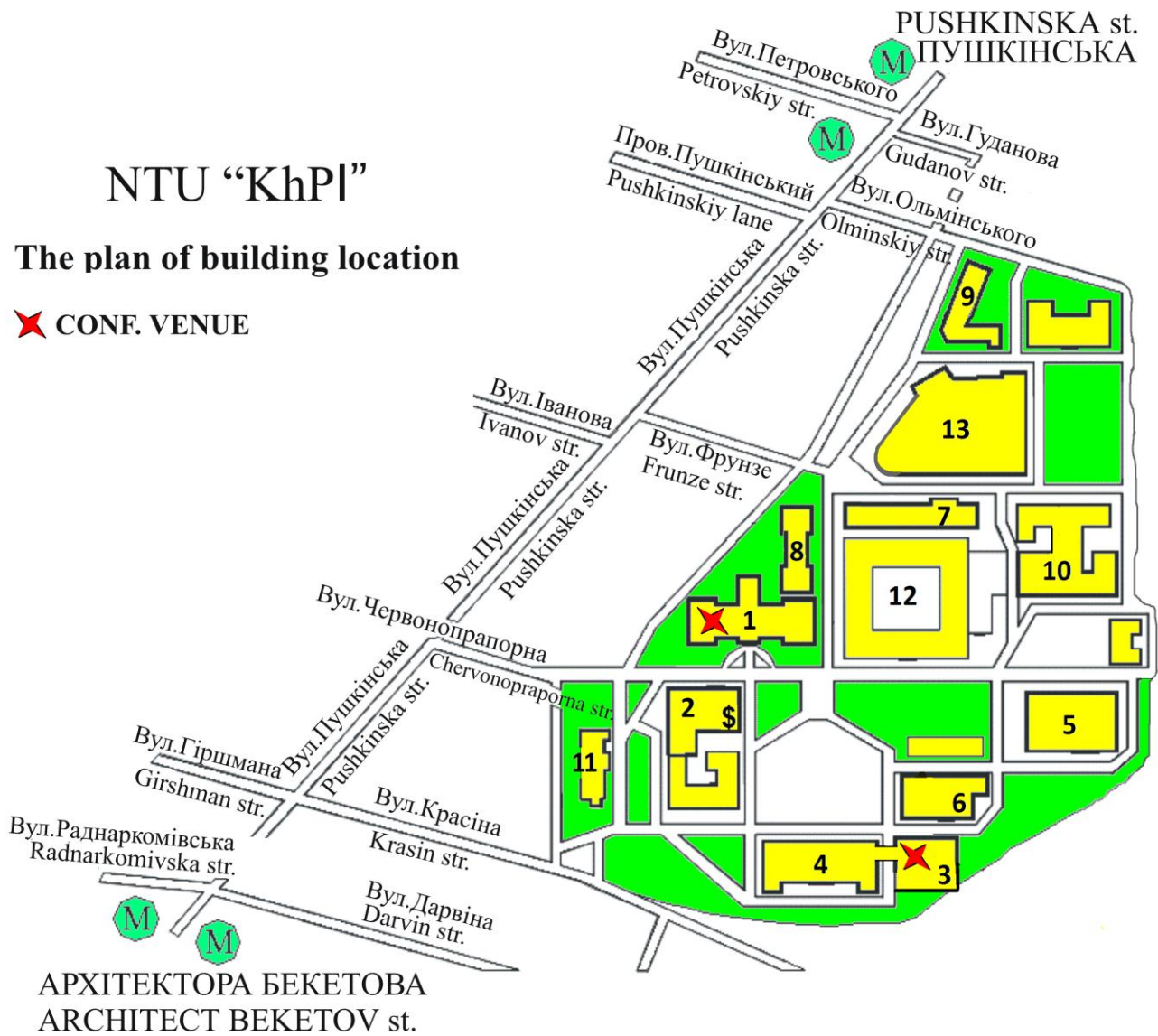
Section 5 - Engineering Problems		Main Building
Chairs: O. Larin, M. Tkachuk		
11.20-11.40	Iuliia Petrova, Oleksiy Larin <i>(Kharkiv, Ukraine)</i> A SIMULATION OF THE TRANSIENT SELF-HEATING PROCESS IN DYNAMICALLY LOADED RUBBER-BASED MULTILAYERS REINFORCED COMPOSITES.	
11.40-12.00	Vladimir Kulyabko, Vyacheslav Chaban, Andrey Makarov, Denis Yaroshenko <i>(Dnipro, Ukraine)</i> TAKING ACCOUNT OF NONLINEAR PROPERTIES OF SUBSYSTEMS IN PROBLEMS OF DYNAMIC INTERACTION OF STRUCTURES WITH LOADS, BASES AND FLOWS.	

12.30-13.15	Closing ceremony	Main Building, Room 12
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NTU “KhPI”

The plan of building location

✖ CONF. VENUE



1 – Main Building

Registration of the participants will be held in the hall of this building.

Opening Ceremony, General Sessions and Closing Ceremony also will be held in this building

2 – The Second Educational Building (U2)

The local organizing committee is situated in the 4th floor of this building:

Faculty of Physical Engineering Dean's office and Department of the Applied Mathematics.

3 – Scientific Library of the National Technical University “KhPI”

Technical sessions will be held in this building

4 – Main Auditorium Building (GAK);

5 – The First Educational Building (U1);

6 – Chemical Building (HK or “Him Korpus”); 7 – Mathematical Building;

8 – Engineering Building; 9 – Administrative Building;

10 – Technical Building; 11 – **Dinner Hall**; 12 – Experimental Factory;

13 – Electro-Technical Building (EK)

the letter “M” is the mark that indicate the underground station (METRO).

