

Vasyl' Stus Donetsk National University  
Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University  
Institute of Mathematics of National Academy of Sciences of Ukraine  
Taras Shevchenko National University of Kyiv

XII INTERNATIONAL ALGEBRAIC CONFERENCE IN UKRAINE  
DEDICATED TO THE 215TH ANNIVERSARY OF V. BUNYAKOVSKY

---

JULY 02–06, 2019  
VINNYTSIA, UKRAINE

## ABSTRACTS

Vinnytsia — 2019

Донецький національний університет імені Василя Стуса  
Вінницький державний педагогічний університет  
імені Михайла Коцюбинського  
Інститут математики Національної академії наук України  
Київський національний університет імені Тараса Шевченка

XII МІЖНАРОДНА АЛГЕБРАЇЧНА КОНФЕРЕНЦІЯ В УКРАЇНІ,  
ПРИСВЯЧЕНА 215-Й РІЧНИЦІ  
З ДНЯ НАРОДЖЕННЯ В. БУНЯКОВСЬКОГО

---

02–06 ЛИПНЯ 2019 Р.  
ВІННИЦЯ, УКРАЇНА

## ТЕЗИ ДОПОВІДЕЙ

Вінниця — 2019

УДК 512(063)

Д 22

**The XII International Algebraic Conference in Ukraine dedicated to the 215th anniversary of V. Bunyakovsky.** July 02–06, 2019, Vinnytsia, Ukraine. Abstracts. Vinnytsia: Vasyl' Stus Donetsk National University, 2019. – 142 p.

**Д 22 XII Міжнародна алгебраїчна конференція в Україні, присвячена 215-й річниці з дня народження В. Буняковського.** 02–06 липня 2019 р., Вінниця, Україна. Тези доповідей. Вінниця: Донецький національний університет імені Василя Стуса, 2019. – 142 с.

## Program Committee

Yu. Drozd (Kyiv, Ukraine)  
O. Artemovych (Ukraine, Poland)  
V. Bavula (United Kingdom)  
L. Bedratyuk (Ukraine)  
V. Futorny (Brazil)  
R. Grigorchuk (USA)  
A. Kashu (Moldova)  
V. Kirichenko (Ukraine)  
M. Kovtoniuk (Ukraine)  
L. Kurdachenko (Ukraine)  
V. Levandovskyy (Germany)  
V. Lyubashenko (Ukraine)  
O. Matiash (Ukraine)  
A. Olshanskii (Russia-USA)

A. Petravchuk (Ukraine)  
V. Sergeichuk (Ukraine)  
V. Schedryk (Ukraine)  
V. Scherbacov (Moldova)  
V. Skobelev (Ukraine)  
F. Sokhatsky (Ukraine)  
I. Subbotin (USA)  
P. Syrbu (Moldova)  
P. Varbanets (Ukraine)  
B. Zabavsky (Ukraine)  
E. Zelmanov (USA)  
A. Zhuchok (Ukraine)  
Yu. Zhuchok (Ukraine)

УДК 512(063)

## Contents

VIKTOR BUNYAKOVSKY .....	7
<i>Салтановська Н.І.</i> Віктор Якович Буняковський – успішний математик та громадський діяч .....	8
<i>Artemovych O.D.</i> FC-rings .....	10
<i>Babych V., Golovashchuk N.</i> Some homological property of simply connected bimodule problems with quasi multiplicative basis .....	11
<i>Bavula V.</i> The Generalized Weyl Poisson algebras and their Poisson simplicity criterion .....	12
<i>Bedratyuk L., Kachuryk I.</i> The specialized characters of the representation of the Lie algebra $sl_3$ in terms of $q$ - and $(q, p)$ -numbers .....	12
<i>Bedratyuk L., Luno N.</i> Some properties of generalized hypergeometric Appell polynomials .....	14
<i>Biletska D., Shapochka I.</i> Tensor products of indecomposable integral matrix representations of the symmetric group of third degree .....	16
<i>Bilous A.</i> Diagonability of idempotent matrices over duo rings .....	17
<i>Bonacci E.</i> Algebraic questions about a FTL physics .....	18
<i>Bondarenko Ie.</i> The duality in the affine actions on trees .....	19
<i>Bondarenko V.M., Styopochkina M.</i> On the classification of the serial principal posets .....	19
<i>Bondarenko V.M., Zatsikha Ja.</i> On classification of matrix representations of monoids of the fourth order .....	21
<i>Bortosh M.</i> Reducibility of canonical $t$ -cyclic monomial matrices over commutative local rings .....	21
<i>Bovdi V.</i> Normal loop rings .....	22
<i>Bovdi V., Laver V.</i> Rota-type operators on a commutative modular group algebra ..	23
<i>Chupordia V.</i> On Leibniz algebras with two types of subalgebras .....	23
<i>Derech V.</i> Classification of finite semigroups for which the inverse monoid of local automorphisms is a $\Delta$ -semigroup .....	24
<i>Desiateryk O.</i> On conditions for the Brandt semigroup to be non isomorphic to the variant .....	25
<i>Didurik N., Shcherbacov V.</i> Quasigroups with some Bol-Moufang type identities ...	26
<i>Drozd Yu.</i> Morita equivalence of non-commutative schemes .....	27
<i>Dzhaliuk N.</i> Solutions of the Sylvester matrix equation with triangular coefficients ...	28
<i>Fryz I.</i> Some notes on orthogonality .....	29
<i>Gatalevych A.</i> Diagonal reduction of matrices over commutative semihereditary Bezout rings .....	30
<i>Gatalevych A., Dmytruk A.</i> Bezout rings with nonzero principal Jacobson radical ..	31
<i>Gavrylkiv V.</i> On automorphisms of superextensions of semigroups .....	32
<i>Gekhtman I., Levit A.</i> Invariant random subgroups of rank 1 Lie groups and hyperbolic groups and their growth rates .....	33
<i>Glazunov N.</i> Abelian varieties and $p$ -divisible groups of Minkowski's conjecture concerning critical lattices of the region, its characteristic $p > 0$ analogues and expansions	34
<i>Goncharenko Ya., Lysenko I., Maslova Yu.</i> Geometry of numerical series and two-symbol systems of encoding of real numbers .....	36
<i>Goy T.</i> On some combinatorial identities involving the Horadam numbers .....	37

<i>Gritskova (Kovaleva) V.A.</i> On $\sigma$ -nilpotency of finite groups.....	38
<i>Grushka Ya.I.</i> Necessary and sufficient condition for the existence of one-point time on an oriented set .....	39
<i>Grigorchuk R.I., Dudko A.</i> Can one hear the shape of a group? .....	41
<i>Gutik O.</i> On inverse submonoids of the monoid of almost monotone injective co-finite partial selfmaps of positive integers .....	42
<i>Ilash N.</i> Hilbert polynomials for the algebra of invariants of binary $d$ -form .....	43
<i>Isere A.O.</i> Some examples of even quandles and their automorphism groups .....	44
<i>Ishchuk Yu.</i> On semicommutative semigroups and abelian polygons .....	44
<i>Jaiyéólá T.B., Effiong G.O.</i> Basarab Loop and the Generators of its Total Multiplication Group .....	45
<i>Kalashnikov I., Panasenko O., Kalashnikova E.</i> Laboratory works in courses of algebraic disciplines of higher educational institutions .....	46
<i>Kalugina M.A., Bernik V.I.</i> The number of integer polynomials whose discriminants are divided by a large prime power .....	48
<i>Karaulova T.</i> On injectors and Fischer subgroups of a finite $\pi$ -soluble group .....	49
<i>Kashu A.I.</i> Closure operators in Morita contexts: mappings and their properties .....	50
<i>Khylynskiy P., Gutik O.</i> On Bruck-Reilly $\lambda$ -extensions of semigroups .....	51
<i>Klimenko I., Lysenko S., Petravchuk A.</i> Lie algebras of derivations with large abelian ideals .....	52
<i>Kochubinska E., Krytska O.</i> On eigenvalues of random partial wreath product .....	53
<i>Krainichuk H.</i> Classification of quasigroup functional equations and identities of minimal length .....	54
<i>Krainichuk H., Andreieva Yu., Akopyan A.</i> On reducibility of uncancellable generalized functional equations .....	56
<i>Kuchma M.</i> A matrix representation of Fibonacci and Lucas polynomials .....	58
<i>Kurdachenko L.A., Pypka A.A., Subbotin I.Ya.</i> On the structure of finite groups whose non-normal subgroups are core-free .....	59
<i>Kurdachenko L.A., Subbotin I.Ya., Yashchuk V.S.</i> Leibniz algebras with the specific types of subalgebras .....	61
<i>Kyrchei I.</i> Cramer's rules for Sylvester-type quaternion matrix equations .....	62
<i>Ladzoryshyn N., Petrychkovych V.</i> $(z,k)$ -equivalence of matrices over Euclidean quadratic rings and solutions of matrix equation $AX+YB=C$ .....	63
<i>Los I.P., Safonov V.G.</i> Separability of the lattice of $\tau$ -closed totally $\omega$ -composition formations of finite groups .....	64
<i>Lutsenko A.</i> Definition of invertibility property for loops via translations .....	65
<i>Luzhetskyi V., Baryshev Yu.</i> Models of Cryptography Transformations Based on Quasigroups .....	66
<i>Lyman F., Lukashova T., Drushlyak M.</i> On non-periodic groups with non-Dedekind locally nilpotent norm of decomposable subgroups .....	68
<i>Lyman F., Odintsova O.</i> The Structure Properties of Rational Numbers Are Important Component of Mathematical Knowledge of Mathematics Teachers .....	69
<i>Lysenko I., Pratsiovytyi M.</i> Systems of encoding of real numbers with infinite alphabet and mathematical objects with fractal properties .....	70
<i>Lyubashenko V.</i> Filtered cocategories .....	71
<i>Martsenyuk V., Geftter S., Piven' A.</i> Integer solutions of implicit linear difference equations of the second order .....	72
<i>Martsinkovsky A.</i> Homological algebra in degree zero .....	73
<i>Melnyk I.</i> Some subsemimodules of differential semimodules satisfying the ascending chain condition .....	74

<i>Morozov D.</i> Class of differentiable invertible automata with an algorithmically solvable conjugacy problem .....	75
<i>Murashka V.</i> On the $A$ - $\mathfrak{F}$ -hypercenter of finite groups .....	76
<i>Obikhod T.</i> Central charge and topological invariant of Calabi-Yau manifolds .....	77
<i>Oliynyk R.</i> On the lattice of quasi-filters of left congruence on simple inverse semigroups .....	78
<i>Petechuk V., Petechuk Yu.</i> Residual and fixed modules .....	79
<i>Petravchuk A., Sysak K.</i> Solvable Lie algebras of derivations of rank one .....	80
<i>Pirus Ye.</i> Classification of quasigroups according to their parastrophic symmetry groups .....	81
<i>Plakosh A.</i> Cohomology of lattices over finite abelian groups .....	82
<i>Ponomarchuk B.</i> Metric dimension of metric transform and wreath product .....	83
<i>Popa V.</i> On some LCA groups with commutative $\pi$ -regular ring of continuous endomorphisms .....	85
<i>Popovych B.</i> Finite field elements of high order on a base of modified Gao approach ..	86
<i>Popovych R.</i> On multiplicative order of elements in finite field extension generated by a root of unity .....	87
<i>Pratsiovytyi M.</i> Algebraic structures in the theory of fractals (fractal geometry and fractal analysis) .....	88
<i>Pratsiovytyi M., Ratushniak S.</i> Mathematical structures with fractal properties in the space of sequences of zeros and ones .....	89
<i>Prokip V.</i> On similarity of tuples of matrices over a field .....	90
<i>Pyliavska O.</i> Extensions of finite fields and some class of special $p$ -groups .....	91
<i>Raievska I., Raievska M.</i> Some special $p$ -groups and nearrings with identity .....	92
<i>Romaniv A.</i> Reduction of nonsingular matrices over rings of almost stable range 1 ...	93
<i>Rotari T.</i> On the conjugate sets of IP-quasigroups .....	94
<i>Safonova I.N., Safonov V.G.</i> On sublattices of the lattice of multiply saturated formations of finite groups .....	95
<i>Sahan A.</i> Elementary reduction of idempotent matrices over semiabelian rings .....	96
<i>Savastru O.</i> Higher power moments of the Riesz mean error term of hybrid symmetric square L-function .....	97
<i>Savchuk D.M., Grigorchuk R.I.</i> Connection between automatic sequences and endomorphisms of rooted trees via $d$ -adic dynamics .....	98
<i>Semko M.N., Skaskiv L.V., Yarovaya O.A.</i> Linear groups saturated by subgroups of finite central dimension .....	100
<i>Shavarovskii B.</i> Semiscalar equivalence of one class of 3-by-3 matrices .....	101
<i>Shchedryk V.</i> On greatest common divisors and least common multiple of linear matrix equation solutions .....	102
<i>Shramko V.</i> Partition of Gaussian integers into a product of power-free numbers .....	103
<i>Skuratovskii R.</i> The commutators of Sylow 2-subgroups of alternating group and wreath product. Their minimal generating sets .....	104
<i>Sokhatsky F.</i> On general solutions of generalized ternary quadratic invertible functional equations of length three .....	105
<i>Sokhatsky F.</i> Some conditions for a quasigroup to be a group isotope .....	106
<i>Sokhatsky F., Kirka D.</i> Canonical decompositions of solutions of functional equation of generalized mediality .....	107
<i>Sokhatsky F., Lutsenko A.</i> About group isotopes with inverse property .....	108
<i>Sokhatsky F., Savchuk V.</i> An invertibility criterion of composition of two multiary central quasigroups .....	109
<i>Syrbu P.</i> On total multiplication groups .....	110
<i>Tarasevych A.</i> General solutions of generalized ternary quadratic quasigroup functional equations of length three .....	111
<i>Tarasevych A., Sokhatsky F.</i> Classification of generalized ternary quadratic quasigroup functional equations of length three .....	112

<i>Trofimuk A.</i> On the residual of a finite group with seminormal or subnormal factors ..	114
<i>Tsarev A.</i> Classes of finite rings .....	115
<i>Tushev A.V.</i> On induced modules over group rings of groups of finite rank .....	116
<i>Tylyshchak A.</i> On irreducibility of monomial matrices of order 7 over local rings.....	117
<i>Ustimenko V.</i> Can one hear the shape of permutation group? .....	118
<i>Ustimenko V., Pustovit O.</i> On extremal graphs, affine Cremona semigroups and new solutions of Post Quantum Cryptography .....	121
<i>Varbanets P., Varbanets S.</i> Exponential sums on the sequences of inversive congruential pseudorandom numbers with the variable shifts .....	122
<i>Varbanets S.</i> Inversive congruential generator of the second order with a variable shift	123
<i>Vasilchenko A.N.</i> Properties of quotient modules composed of annihilator modules in Steenrod algebra .....	124
<i>Vasilyev A., Vasilyeva T., Melchanka A.</i> Finite groups with given properties of normalizers of Sylow subgroups .....	125
<i>Voloshyna T.</i> Cotransitive subsemigroups of the full transformation semigroup $T_n$ ....	126
<i>Vorob'ev N.T.</i> On $\sigma$ -local Fitting Classes .....	127
<i>Vorob'ev N.T., Lantsetova K.</i> On $\sigma$ -local Fitting sets .....	128
<i>Vorob'ev S., Vaitkevich H.</i> On the characteristic of Fischer class .....	129
<i>Yurashev V.G.</i> On adjoint groups of radical rings .....	130
<i>Zabavskiy B., Domsha O.</i> Commutative Bezout ring, which is a ring of neat range 1	131
<i>Zabavskiy B., Romaniv O.</i> $J$ -Noetherian Bezout domain which are not of stable range 1 .....	132
<i>Zelenskiy O., Avdeyuk P.</i> Permutation Kirichenko's Latins square .....	134
<i>Zelisko V., Zelisko H.</i> On equivalence and factorization of the Kronecker product of matrices .....	134
<i>Zhuchok A.V.</i> The least dimonoid congruences on the free $n$ -nilpotent trioid .....	135
<i>Zhuchok Yuliia V.</i> On the structure of free trioids .....	136
<i>Zhuchok Yuriï V.</i> Representations of ordered doppelsemigroups .....	137
<i>Žemlička J.</i> Variants of absolute direct summand property .....	138
<b>Index of participants</b> .....	139