Vladimir Vasil'evich Sergeichuk
Curriculum Vitae

December 2017

Personal data:

Date of birth: August 17, 1949
Citizenship: Ukraine
Address: Institute of Mathematics
Tereshchenkivska 3
01004, Kiev-4, Ukraine
Mob. phone: (+38 096) 5492975
Email: sergeich@imath.kiev.ua
Homepage: http://www.imath.kiev.ua/~sergeich
Preprints: http://arxiv.org/a/sergeichuk_v_1

Education

2016 **Certificate of Professor**, Ministry of Education and Science of Ukraine

1993 **Habilitation in Mathematics** (Doctor of Science), Kiev State University
Thesis: *Classification Problems of Linear Algebra*

1975 **Ph.D. in Mathematics** (Candidate of Science), Kiev State University
Advisor: Andrei Vladimirovich Roiter
Thesis: *Applications of the Theory of Matrix Problems to the Group Theory*

1971 **M.Sc. in Mathematics**, Kiev State University

Employment

Feb. 1994–present **Leading Researcher**, Institute of Mathematics, Kiev
Sept. 1991–Jan. 1994 **Senior Researcher**, Institute of Mathematics, Kiev
Sept. 1979–Aug. 1991 **Associate Professor**, Kiev State University
Sept. 1974–Aug. 1979 **Assistant Professor**, Kiev State University

Activities

- **Senior Editor** of *Linear Algebra and its Applications.*
- **Member of the Scientific Committee** of *Journal of Applied Mathematics and Computational Mechanics*.
- **Member of the Program Committee** of International conferences *"Computer Aspects of Numerical Algorithms"* in Wisla 2008 and 2010, Szczecin 2011, Wroclaw 2012, Krakow 2013, Warsaw 2014, Lodz 2015, Gdansk 2016, Prague 2017, Poznań 2018.
- **Member of the Program Committee** of I–V and VII–X International Algebraic Conferences in Ukraine.
- **State Prize of Ukraine** in the field of science and engineering (2007).

International Grants

2016	**FAPESP** (Sao Paulo, Brazil), processo 2015/05864-9
2014	**Grant of the International Mathematical Union** to attend the International Congress of Mathematicians, Seoul, Korea, 2014
2013–2014	**FAPESP** (Sao Paulo, Brazil), processo 2012/18139-2
2012	**Grant of the Organizing Committee** to attend the 6th European Congress of Mathematicians, Krakow, Poland, 2012
2010–2011	**FAPESP** (Sao Paulo, Brazil), processo 2010/07278-6
2010	**Grant of the International Mathematical Union** to attend the International Congress of Mathematicians, Hyderabad, India, 2010
2006–2007	**FAPESP** (Sao Paulo, Brazil), processo 05/59407-6
2003	Fellow from Ben-Gurion University (Israel)
2000–2003	**NSF grant** DMS 0070503 (P.I.: Roger Horn)
1996–1999	**Cooperative Research Grant** UMI-314 from US Civilian Research and Development Foundation for Independent States of FSU
1995	**Travel Grant** from Soros International Science Foundation, USA, to attend the *5th ILAS Conference*, Atlanta, Georgia, USA
1994–1995	**Long-Term Research Grant** U6E000 from Soros International Science Foundation, USA
1992	**Emergency Grant** from Soros International Science Foundation, USA

Selected Conferences

November 2017	**Groups, Group Rings, and Related Topics,** Khorfakkan, UAE
August 2016	**24th Brazilian Algebra Meeting**, Diamantina, Brazil
October 2015	**Wildness in Computer Science, Physics, and Mathematics**, Santa Fe, USA
August 2015	**Matrix Methods in Mathematics and Applications**, Moscow, Russia
November 2014	**Conference on Mathematics and its Applications**, Kuwait City, Kuwait
August 2014	**International Congress of Mathematicians**, Seoul, Korea
August 2014	**19th International Linear Algebra Society Conference**, Seoul, Korea
September 2013	**Journey to algebra in Amazon**, Itacoatiara, Brazil
June 2013	**Symmetries in Mathematics and Physics II**, Rio de Janeiro, Brazil
October 2012	**LAA Editorial Board Meeting**, Madison, USA
July 2012	**6th European Congress of Mathematicians**, Krakow, Poland
June 2011	**Matrix Methods in Mathematics and Applications**, Moscow, Russia
August 2010	**International Congress of Mathematicians**, Hyderabad, India
May 2009	**Matrix Theory Conference**, Haifa, Israel
July 2007	**Matrix Methods and Operator Equations**, Moscow, Russia
April 2007	**Matrix Theory Conference**, Haifa, Israel
June 2005	**Matrix Methods and Operator Equations**, Moscow, Russia
June 2002	**10th ILAS** (International Linear Algebra Society) **Conference**, Auburn, USA
June 2001	**9th ILAS Conference**, Haifa, Israel
July 1999	**8th ILAS Conference**, Barcelona, Spain
September 1998	**Representation Theory of Algebras**, Bielefeld, Germany
August 1996	**6th ILAS Conference**, Chemnitz, Germany
Sept.- Oct. 1995	**Representation Theory of Groups, Algebras and Orders**, Constanta, Romania
August 1995	**5th ILAS Conference**, Atlanta, Georgia, USA

Selected Scientific Visits

Sao Paulo University, Brazil *(Feb. 2006–Feb. 2007, Sept. 2010–Mar. 2011, Feb. 2013–Jan. 2014, Mar.–Dec. 2016)*
University of Utah, Salt Lake City, USA *(Mar.–Jun. 2002, Oct. 2000–Jan. 2001, Mar.–Jun. 2003)*
Ben-Gurion University, Beer-Sheva, Israel *(Jun. 2001, Nov.–Dec. 2003, Apr. 2007, May 2009, Apr. 2014)*
Zurich University, Switzerland *(Aug.1993, Oct.1992, May 1991)*
University of Bielefeld, Germany *(Nov.–Dec.1999, Dec.1998)*
IHÉS, France *(Mar.–May 2012)*
Technische Universität Berlin, Germany *(May 2012)*

Publications

1. Reduction of a pair of skew-symmetric matrices to its canonical form under congruence (with V.A. Bovdi, T.G. Gerasimova, and M.A. Salim), *Linear Algebra Appl.* 543 (2018) 17-30.
2. Symplectic spaces and pairs of symmetric and nonsingular skew-symmetric matrices under congruence (with V.A. Bovdi, R.A. Horn, and M.A. Salim), *Linear Algebra Appl.* 537 (2018) 84-99.
3. Wildness of the problems of classifying two-dimensional spaces of commuting linear operators and certain Lie algebras (with V. Futorny, T. Klymchuk, and A.P. Petravchuk), *Linear Algebra Appl.* 536 (2018) 201-209.
4. Classification of linear mappings between indefinite inner product spaces (with J. Meleiro, T. Solovera, and A. Zaidan), *Linear Algebra Appl.* 531 (2017) 356-374.
5. Generalization of Roth's solvability criteria to systems of matrix equations (with A. Dmytryshyn, V. Futorny, and T. Klymchuk), *Linear Algebra Appl.* 527 (2017) 294-302.
6. Specht's criterion for systems of linear mappings (with V. Futorny and R.A. Horn), *Linear Algebra Appl.* 519 (2017) 278-295.
7. Topological classification of systems of bilinear and sesquilinear forms (with C.M. da Fonseca, V. Futorny, and T. Rybalkina), *Linear Algebra Appl.* 515 (2017) 1-5.
8. Neighborhood radius estimation for Arnold's miniversal deformations of complex and *p*-adic matrices (with V.A. Bovdi and M.A. Salim), *Linear Algebra Appl.* 512 (2017) 97-112.
9. Roth's solvability criteria for the matrix equations $AX - \hat{X}B = C$ and $X - A\hat{X}B = C$ over the skew field of quaternions with an involutive automorphism $q \mapsto \hat{q}$ (with V. Futorny and T. Klymchuk), *Linear Algebra Appl.* 510 (2016) 246-258.
10. Each *n*-by-*n* matrix with $n > 1$ is a sum of 5 coninvolutory matrices (with M.N.M. Abara, D.I. Merino, V.I. Rabanovich, and J.P. Sta. Maria), *Linear Algebra Appl.* 508 (2016) 246-254.
11. Topological classification of sesquilinear forms: Reduction to the nonsingular case (with C.M. da Fonseca and T. Rybalkina), *Linear Algebra Appl.* 504 (2016) 581-589.

12. Tame systems of linear and semilinear mappings and representation-tame biquivers (with T. Klimchuk, D. Kovalenko, and T. Rybalkina), *Contemp. Math.* 658 (2016) 103-114.
13. Change of the congruence canonical form of 2-by-2 and 3-by-3 matrices under perturbations and bundles of matrices under congruence (with A. Dmytryshyn, V. Futorny, Bo Kågström, and L. Klimenko), *Linear Algebra Appl.* 469 (2015) 305-334.
14. Topological classification of the oriented cycles of linear mappings (with T.V. Rybalkina), *Ukrainian Math. J.* 66 (2015) 1575-1581.
15. Consimilarity and quaternion matrix equations $AX - \hat{X}B = C$, $X - A\hat{X}B = C$ (with T. Klimchuk), *Special Matrices* 2 (2014) 180-186.
16. Regularizing decompositions for matrix pencils and a topological classification of pairs of linear mappings (with V. Futorny and T. Rybalkina), *Linear Algebra Appl*. 450 (2014) 121-137.
17. Topological classification of oriented cycles of linear mappings (with T. Rybalkina), *Ukrain. Mat. Zh.* 66 (2014) 1407-1413.
18. Change of the *congruence canonical form of 2-by-2 matrices under perturbations (with V. Futorny and L. Klimenko), *Electr. J. Linear Algebra* 27 (2014) 146-154.
19. Miniversal deformations of matrices under *congruence and reducing transformations (with A.R. Dmytryshyn and V. Futorny), *Linear Algebra Appl.* 446 (2014) 388-420.
20. Symmetric matrix pencils: codimension counts and the solution of a pair of matrix equations (with A. Dmytryshyn and Bo Kågström), *Electr. J. Linear Algebra* 27 (2014) 1-18.
21. An informal introduction to perturbations of matrices determined up to similarity or congruence (with L. Klimenko), *São Paulo J. Math. Sci*. 8 (2014) 1-22.
22. *Representations of quivers and mixed graphs* (with R.A. Horn), *Chapter 34 in:* L. Hogben (Ed.), Handbook of Linear Algebra, 2nd ed., CRC Press, 2014.
23. *Other canonical forms* (with R.A. Horn), *Chapter 7 in:* L. Hogben (Ed.), Handbook of Linear Algebra, 2nd ed., CRC Press, 2014.
24. Simultaneous unitary equivalences (with T.G. Gerasimova and R.A. Horn), *Linear Algebra Appl.* 438 (2013) 3829-3835.
25. Cycles of linear and semilinear mappings (with D. Duarte de Oliveira, V. Futorny, T. Klimchuk, and D. Kovalenko), *Linear Algebra Appl.* 438 (2013) 3442-3453.
26. Skew-symmetric matrix pencils: Codimension counts and the solution of a pair of matrix equations (with A. Dmytryshyn and Bo Kågström), *Linear Algebra Appl.* 438 (2013) 3375-3396.
27. Systems of subspaces of a unitary space (with V.M. Bondarenko, V. Futorny, T. Klimchuk, and K. Yusenko), *Linear Algebra Appl.* 438 (2013) 2561-2573.
28. Topological classification of chains of linear mappings (with T. Rybalkina), *Linear Algebra Appl.* 437 (2012) 860-869.
29. Remarks on the classification of a pair of commuting semilinear operators (with D. Duarte de Oliveira, R.A. Horn, and T. Klimchuk), *Linear Algebra Appl.* 436 (2012) 3362-3372.
30. Miniversal deformations of matrices of bilinear forms (with A.R. Dmytryshyn and V. Futorny), *Linear Algebra Appl.* 436 (2012) 2670-2700.

31. Topological classification of Möbius transformations (with T.V. Rybalkina), *Fundam. Prikl. Mat.* (in Russian) 17 (6) (2011/2012) 175-183. English translation: *J. Math. Sci*. (N.Y.) 193 (2013) 769-774.
32. A criterion for unitary similarity of upper triangular matrices in general position (with D. Farenick, V. Futorny, T.G. Gerasimova, and N. Shvai), *Linear Algebra Appl.* 435 (2011) 1356-1369.
33. A canonical form for nonderogatory matrices under unitary similarity (with V. Futorny and R.A. Horn), *Linear Algebra Appl.* 435 (2011) 830-841.
34. Block triangular miniversal deformations of matrices and matrix pencils (with L. Klimenko), in: V. Olshevsky, E. Tyrtyshnikov (Eds), *Matrix Methods: Theory, Algorithms and Applications*, World Sci. Publ., Hackensack, NJ, 2010, pp. 69-84.
35. Matrices that are self-congruent only via matrices of determinant one (with T.G. Gerasimova and R.A. Horn), *Linear Algebra Appl*. 431 (2009) 1620-1632.
36. Canonical forms for unitary congruence and *congruence (with R.A. Horn), *Linear Multilinear Algebra* 57 (2009) 777-815.
37. Problems of classifying associative or Lie algebras over a field of characteristic not two and finite metabelian groups are wild (with G. Belitskii, A.R. Dmytryshyn, R. Lipyanski, and A. Tsurkov), *Electr. J. Linear Algebra* 18 (2009) 516-529.
38. Preface [Special issue in honor of Thomas J. Laffey] (with R. Gow, R. Loewy, J.F. Queiró), *Linear Algebra Appl.* 430 (2009) 1725-1729.
39. Pairs of mutually annihilating operators (with V.M. Bondarenko and T.G. Gerasimova), *Linear Algebra Appl.* 430 (2009) 86-105.
40. Normal form of *m*-by-*n*-by-2 matrices for equivalence (with G. Belitskii and M. Bershadsky), *J. Algebra* 319 (2008) 2259-2270.
41. Tridiagonal canonical matrices of bilinear or sesquilinear forms and of pairs of symmetric, skew-symmetric, or Hermitian forms (with V. Futorny and R.A. Horn), *J. Algebra* 319 (2008) 2351-2371.
42. Canonical matrices of isometric operators on indefinite inner product spaces, *Linear Algebra Appl.* 428 (2008) 154-192.
43. Canonical matrices of bilinear and sesquilinear forms (with R.A. Horn), *Linear Algebra Appl*. 428 (2008) 193-223.
44. Classification of squared normal operators on unitary and Euclidean spaces (with V. Futorny and R.A. Horn), *Fundam. Prikl. Mat.*13 (no. 4) (2007) 225-232 (in Russian). English translation: *J. Math. Sci*. (N.Y.) 155 (2008) 950-955.
45. Linearization method in classification problems of linear algebra, *São Paulo J. Math. Sci*. 1 (2007) 219-240.
46. Classification of sesquilinear forms with the first argument on a subspace or a factor space (with V. Futorny), *Linear Algebra Appl.* 424 (2007) 282-303.
47. Positivity criteria generalizing the leading principal minors criterion (with V. Futorny and N. Zharko), *Positivity* 11 (no. 1) (2007) 191-199.
48. A regularization algorithm for matrices of bilinear and sesquilinear forms (with R.A. Horn), *Linear Algebra Appl.* 412 (2006) 380-395.
49. Rigid systems of second-order linear differential equations (with M.I. Garcia-Planas, M.D. Magret, and N.A. Zharko), *Linear Algebra Appl.* 414 (2006) 517-532.

50. Canonical forms for complex matrix congruence and *congruence (with R.A. Horn), *Linear Algebra Appl.* 416 (2006) 1010-1032.
51. Congruence of multilinear forms (with G. Belitskii), *Linear Algebra Appl.* 418 (2006) 751-762.
52. Canonical Matrices and Related Questions, *Proceedings of Institute of Mathematics of NAS of Ukraine. Mathematics and its Applications*, V. 57, Kiev, 2006, 326 p.
53. Miniversal deformations of chains of linear mappings (with T.N. Gaiduk and N.A. Zharko), *Algebra Discrete Math.* (no.1) (2005) 47-61.
54. The problems of classifying pairs of forms and local algebras with zero cube radical are wild (with G. Belitskii, V.M. Bondarenko, R. Lipyanski, and V.V. Plachotnik), *Linear Algebra Appl.* 402 (2005) 135-142.
55. Solution of linear matrix equations in a *congruence class (with R.A. Horn and N. Shaked-Monderer), *Electr. J. Linear Algebra* 13 (2005) 153-156.
56. Problems of classifying associative or Lie algebras and triples of symmetric or skew-symmetric matrices are wild (with G. Belitskii and R. Lipyanski), *Linear Algebra Appl*. 407 (2005) 249-262.
57. Computation of canonical matrices for chains and cycles of linear mappings, *Linear Algebra Appl.* 376 (2004) 235-263.
58. Generic canonical form of pairs of matrices with zeros (with T. Gaiduk), *Linear Algebra Appl.* 380 (2004) 241-251.
59. Congruences of a square matrix and its transpose (with R.A. Horn), *Linear Algebra Appl.* 389 (2004) 347-353.
60. Complexity of matrix problems (with G. Belitskii), *Linear Algebra Appl.* 361 (2003) 203-222.
61. Estimate of the number of one-parameter families of modules over a tame algebra (with T. Bruestle), *Linear Algebra Appl.* 365 (2003) 115-133.
62. Generic families of matrix pencils and their bifurcation diagrams (with M.I. Garcia-Planas), *Linear Algebra Appl.* 332/334 (2001) 165-179.
63. Canonical matrices for linear matrix problems, *Linear Algebra Appl.* 317 (2000) 53-102.
64. Simplest miniversal deformations of matrices, matrix pencils, and contragredient matrix pencils (with M.I. Garcia-Planas), *Linear Algebra Appl.* 302/303 (1999) 45-61.
65. Littlewood's algorithm and quaternion matrices (with D.I. Merino), *Linear Algebra Appl.* 298 (1999) 193-208.
66. Unitary and Euclidean representations of a quiver, *Linear Algebra Appl*. 278 (1998) 37-62.
67. On subgroups lifting modulo central commutant, *Ukrainian Math. J.* 50 (no. 5) (1998) 842-845.
68. Elementary and multi-elementary representations of vectroids (with K.I. Belousov, L.A. Nazarova, and A.V. Roiter), *Ukrainian Math. J.* 47 (no. 11) (1995) 1661-1687.
69. Existence of a multiplicative basis for a finitely spaced module over an aggregate (with A.V. Roiter), *Ukrainian Math. J.* 46 (no. 5) (1994) 604-617.
70. Classification of pairs of linear operators in a four-dimensional vector space (with D.V. Galinskii), *Infinite groups and related algebraic structures*, Akad. Nauk Ukrainy, Inst. Mat., Kiev, 1993, 413-430 (in Russian).

71. Tame and wild subspace problems (with P. Gabriel, L.A. Nazarova, A.V. Roiter, and D. Vossieck), *Ukrainian Math. J.* 45 (no. 3) (1993) 335-372.
72. Classification of sesquilinear forms, pairs of Hermitian forms, and selfadjoint and isometric operators over the field of quaternions, *Math. Notes* 49 (no. 3-4) (1991) 409-414.
73. A note on classification of holomorphic matrices up to similarity, *Funct. Anal. Appl.* 25 (no. 2) (1991) 135.
74. Symmetric representations of algebras with involution, *Math. Notes* 50 (no. 3-4) (1991) 1058-1061.
75. Classification of pairs of subspaces in spaces with scalar product, *Ukrainian Math. J.* 42 (no. 4) (1990) 487-491.
76. Pseudolinear matrix pencils and systems of linear differential equations with meromorphic coefficients, *Differ. Equ.* 25 (1989) 1201-1206.
77. Classification problems for systems of forms and linear mappings, *Math. USSR-Izv.* 31 (1988) 481-501.
78. Holomorphic equivalence of a system of linear differential equations with meromorphic coefficients to a system with linear fractional coefficients, *Differ. Uravn.* 24 (no. 6) (1988) 1064-1066 (in Russian).
79. Metric representations of a quiver (with H.M. Havidi), *Dokl. Akad. Nauk Ukrain. SSR Ser. A* (no. 12) (1988) 19-21 (in Russian).
80. Two semiclassifying theorems for metabelian groups (with H.M. Hawidi), *Delta J. Sci.* 12 (no. 1) (1988) 31-43.
81. The canonical form of the matrix of a bilinear form over an algebraically closed field of characteristic 2, *Math. Notes* 41 (no. 5-6) (1987) 441-445.
82. *Classification problems for systems of linear mappings and sesquilinear forms*. Kiev Sttate University, 1983, 60 p. = Manuscript No. 196 Uk-D84, deposited at the Ukrainian NIINTI, 1984 (in Russian); R. Zh. Mat. 1984, 7A331.
83. Classification of linear operators in a finite-dimensional unitary space, *Functional Anal. Appl.* 18 (no. 3) (1984) 224-230.
84. Representation of dischemes, *Linear algebra and the theory of representations*, Akad. Nauk Ukrain. SSR, Inst. Mat., Kiev, 1983, 110-134 (in Russian).
85. Representations of simple involutive quivers. *Representations and quadratic forms*, Akad. Nauk Ukrain. SSR, Inst. Mat., Kiev, 1979, 127-148 (in Russian).
86. Finitely generated groups with commutator group of prime order. *Ukrainian Math. J.* 30 (no. 6) (1978) 592-598.
87. The classification of metabelian *p*-groups, *Matrix problems*, Akad. Nauk Ukrain. SSR, Inst. Mat., Kiev, 1977, 150-161 (in Russian).
88. Application of modules over a dyad for the classification of finite *p*-groups possessing an abelian subgroup of index *p* and of pairs of mutually annihilating operators (with L.A. Nazarova, A.V. Roiter, and V.M. Bondarenko), *Zap. Nauchn. Sem. Leningrad. Otdel. Mat. Inst. Steklov.* 28 (1972) 69-92 (in Russian). English translation: *J. Soviet Math*. 3 (1975) 636-654.