CURRICULUM VITAE
of
IOSIF KRASILSH′CHIK

November 13, 2003

Date of birth: February 10, 1948.
Place of birth: Moscow, USSR.
E-mail: `josephk@diffiety.ac.ru`
Current position: Full Professor at the Independent University of Moscow.
Office address: B. Vlasievskij per., 11, 121019 Moscow, Russia

Former positions:

1966–1971: A student of the Moscow State University, Mechanical and Mathematical Faculty.
1972–1980: Researcher at the All-Union Institute for Scientific and Technology Information (USSR Academy of Sciences).
1981–1989: Senior researcher at the same Institute.
1989–1992: Senior lecturer at the Moscow Institute for Municipal Economy.
1992–1997: Associate professor at the same Institute.
1997–2003: Full professor at the same Institute.
1997–up to now: Full professor at the Independent University of Moscow.

1978: Ph.D. degree in Information Science.
1997: Doctor of Science degree in Mathematics.
2000: Full Professor degree in Applied Mathematics.

A member of *Moscow Mathematical Society* and *American Mathematical Society.*

Current research: algebraic models, geometrical and cohomological methods in PDE, nonlocal structures, Poisson–Nijenhuis structures in PDE.

Short-time visiting positions:

1990: University of Firenze, Italy.
1991: University of Twente, the Netherlands.
1992: Lille University, France.
1993: University of Twente, the Netherlands;
Erwin Schrödinger Inst. for Math. Physics, Austria.
1994: Bar-Ilan University, Israel.
1995: Erwin Schrödinger Inst. for Math. Physics, Austria.
1996: University of Salerno, Italy.
1997: University of Tromsø, Norway.
1998: University of Twente, the Netherlands;
Erwin Schrödinger Inst. for Math. Physics, Austria.
1999: University of Seville, Spain;
University of Twente, the Netherlands.
2000: University of Salerno, Italy;
University of Seville, Spain.
2001: Universities of Salerno and Lecce, Italy.
2002: University of Twente, the Netherlands.
2003–2004: University of Twente, the Netherlands.

Conferences, schools & workshops (invited lecturer):

1991: Interfaces between mathematics and physics (Wien, Austria).
1993: Geometric and algebraic structures in differential equations (Enschede, the Netherlands).
1994: Lie groups and Lie algebras (Moscow, Russia).
1995: Differential geometry and its applications (Brno, Czech Republic).
1996: Secondary calculus and mathematical physics (Vietri-sul-Mare, Italy).
1997: Secondary calculus and cohomological physics (Moscow, Russia).
1998: The 1st Diffiety school (Forino, Italy).
A school on homological methods in equations of mathematical physics (Levoča, Slovakia).
Russia–Japan Workshop "100 years after S. Lie" (Kazan, Russia).
Quantization, generalized BRS cohomology and anomalies (Wien, Austria).
1999: The 2nd Diffiety school (Forino, Italy).
The 3rd Diffiety school (Pereslavl-Zalessky, Russia).
Lie Groups, Geometric Structures and Differential Equations (Kyoto–Nara, Japan).
2000: Modern Analisys and Its Applications (Voronezh, Russia).
2001: Differential Equations and Related Topics dedicated to 100th Anniversary of birthday of I.G. Petrovskii (Moscow, Russia).
Current Geometry (Naples, Italy).
2002: Frobenius Manifolds in Mathematical Physics (Enschede, the Netherlands).
The XIth Oporto Meeting on Geometry, Topology and Physics (Porto, Portugal).
2003: Kolmogorov and Contemporary Mathematics (Moscow, Russia).
Symmetry in Nonlinear Mathematical Physics (Kyiv, Ukraine).
The 6th Diffiety School (St. Stefano, Italy).

Scientific grants:

1994: ProMatematica (France);
International Science Foundation ISFN2F000.
1995: International Science Foundation ISFN2F300;
Russian Foundation for Base Research 95-01-02825b.
1996: INTAS B3/15.
1997–2000: INTAS 96-0793;
Russian Foundation for Base Research 97-01-00462a.
1998: Russian Foundation for Base Research 98-01-00462a.
2003: Russian Foundation for Base Research 03-01-14088.
2003–2004: The Netherlands Foundation for Scientific Research (NWO) NB61-522, 2003/01351/CPI.

Main publications

Monographs

1. Krasil′shchik I.S., Kersten P., Marvan M., and Verbovetsky A.M., Cohomological Methods in Differential Equations, MCCME, Moscow, 2004 (to appear).
2. Krasil′shchik I.S., Kersten P.H.M, Symmetries and Recursion Operators for Classical and Supersymmetric Differential Equations, Kluwer Acad. Publ., Dordrecht/Boston/London, 2000.
3. Krasil′shchik I.S. and Verbovetsky A.M., Homological Methods in Equations of Mathematical Physics, Open Education, Opava, 1998, 150 pp.
   `arXiv:math.DG/9808130`
   Russian PS-file see on `http://www.mccme.ru`
4. Symmetries of Differential Equations in Mathematical Physics and Natural Sciences (a monograph by A.V. Bocharov, S.V. Duzhin, et al., edited by A.M. Vinogradov and I.S. Krasil′shchik). Factorial Publ. House, 1997 (in Russian). English translation in the AMS Monograph Series, 1999.
5. Krasil′shchik I.S., Lychagin V.V., and Vinogradov A.M., Introduction into the Geometry of Nonlinear Differential Equations, Nauka Publ. House, Moscow, 1986 (in Russian).
6. Krasil′shchik I.S., Lychagin V.V., and Vinogradov A. M., Geometry of Jet Spaces and Nonlinear Differential Equations, Gordon and Breach Sci. Publ., New York, 1986.

Other

7. Kersten P.H.M., Krasil′shchik I.S., and Verbovetsky A.M., On the integrability conditions for some structures related to evolution differential equations, Acta Appl. Math., 2004 (to appear).
8. Kersten P.H.M., Krasil′shchik I.S., Verbovetsky A.M., Nonlocal Constructions in the Geometry of PDE, Proc. Conf. "Symmetry in Nonlinear Mathematical Physics", Kyiv, Ukraine, 2003. Inst. of Math. of NAS of Ukraine, Kyiv, 2004, 14 pp.
9. Krasil′shchik I.S., The long exact sequence of a covering: three applications, The Diffiety Inst. Preprint Series, DIPS 6/2003, 7 pp.
   `URL http://www.diffiety.ac.ru/preprint/2003/06_03abs.htm`
10. Kersten P.H.M., Krasil′shchik I.S., Verbovetsky A.M., A geometric approach to Hamiltonian structures for evolution equations. Proc. Conf. "Kolmogorov and Contemporary Mathematics", Moscow, Russia, 2003.
11. Krasil′shchik I.S., Verbovetsky A.M., Kersten P.H.M., Nonlocal Hamiltonian, symplectic and recursion structures for $N = 1$ supersymmetric KdV equation. Proc. Conf. "Kolmogorov and Contemporary Mathematics", Moscow, Russia, 2003.
12. Kersten P.H.M., Krasil′shchik I.S., Verbovetsky A.M., The $N = 1$ supersymmetric KdV equation: (non)local Hamiltonian and symplectic structures, recursions, and hierarchies, 15 pp.
    `arXiv:nlin.SI/0305026`
13. Igonin S.A., Kersten P.H.M., and Krasil′shchik I.S., On symmetries and cohomological invariants of equations possessing flat representations, Memorandum 1639, Faculty of Mathematical Sciences University of Twente, 2002, 24 pp. J. of Diff. Geom. and Its Appl., **19** (2003) no. 3, 319–342.

URL http://diffiety.ac.ru/preprint/2002/07_02abs.htm arXiv:math.DG/0301344

14. Kersten P.H.M. and Krasil′shchik I.S., From recursion operators to Hamiltonian structures: the factorization method. Memorandum 1624, Faculty of Mathematical Sciences University of Twente, 2002, 16 pp. Lectures delivered at MRI Spring School *Frobenius Manifolds in Mathematical Physics*.
15. Kersten P.H.M., Krasil′shchik I.S., and Verbovetsky A.M., Hamiltonian operators and ℓ^*-coverings, 23 pp. (accepted for publication by J. Geom. and Phys.).
URL http://diffiety.ac.ru/preprint/2002/06_02abs.htm
arXiv:math.DG/0304245
16. Kersten P.H.M., Krasil′shchik I.S., and Verbovetsky A.M., An extensive study of the $N = 1$ supersymmetric KdV equation, Memorandum 1656, Faculty of Mathematical Sciences University of Twente, 2002, 63 pp.
17. Krasil′shchik I.S., Geometry of differential equations: a concise introduction, Acta Appl. Math., **72**, (2002) no. 1-2, 1–17.
18. Krasil′shchik I.S., A simple method to prove locality of symmetry hierarchies, 4 pp.
URL http://diffiety.ac.ru/preprint/2002/09_02abs.htm
19. Krasil′shchik I.S. and Kersten P.H.M., Complete integrability of the coupled KdV-mKdV system. Lie Groups, Geometric Structures and Differential Equations—One Hundred Years After Sophus Lie (T. Morimoto, H. Sato, and K. Yamaguchi, eds.), Advanced Studies in Pure Mathematics, vol. 37, Math. Soc. of Japan, 2002, 151–171.
arXiv:nlin.SI/0010041.
20. Krasil′shchik I.S. and Igonin S.A., On one-parametric families of Bäcklund transformations. Lie Groups, Geometric Structures and Differential Equations—One Hundred Years After Sophus Lie (T. Morimoto, H. Sato, and K. Yamaguchi, eds.), Advanced Studies in Pure Mathematics, vol. 37, Math. Soc. of Japan, 2002, 99–114.
arXiv:nlin.SI/0010040.
21. Krasil′shchik, I.S., Deformations and integrable systems. Proc. of the International Conference "Differential Equations and Related Topics dedicated to 100th Anniversary of birthday of I.G. Petrovskii", Moscow, Russia, 2001.
22. Krasil′shchik I.S., On one-parametric families of Bäcklund transformations, The Diffiety Inst. Preprint Series, DIPS 1/2000.
URL http://www.diffiety.ac.ru/preprint/2000/01_00abs.htm
23. Krasil′shchik I.S., Integrability and supersymmetry. Proc. of International Conference: "Lie Groups, Geometric Structures and Differential Equations", Kyoto–Nara, Japan, December 1999 (RIMS Lecture Notes, v. 1150 (2000). Kyoto, Japan).
24. Krasil′shchik I.S., Cohomological approach to Poisson structures on nonlinear evolution equations, Lobachevsky Journal of Mathematics, 1999, v. 3.
URL http://ljm.ksu.ru/contents.html/
25. Krasil′shchik I.S. (in collaboration with B. Prinari), Lectures on Linear Differential Operators over Commutative Algebras (The 1st Italian Diffiety School, July, 1998), The Diffiety Inst. Preprint Series, DIPS 1/99.
URL http://www.diffiety.ac.ru/preprint/99/01_99abs.htm

26. Krasil′shchik I.S. and Marvan M., Coverings and Integrability of the Gauss-Mainardi-Codazzi Equations, Acta Appl. Math. **56**, no. 2-3, 1999. Also: Preprint of the Erwin Schrödinger International Inst. for Mathematical Physics (1998), no. 639, Wien, 16 pp.
URL `http://www.esi.ac.at/ESI-Preprints.htm`
`arXiv:solv-int/9812010`
27. Krasil′shchik I.S., Cohomology background in geometry of PDE, in M. Henneaux, I. Krasil'shchik, and A.M. Vinogradov (Eds.) Secondary Calculus and Cohomological Physics, Contemporary Mathematics, vol. 219, American Mathematical Society, Providence, RI, 1998, pp. 121-139.
28. Krasil′shchik I.S. Algebras with flat connections and symmetries of differential equations, in Lie Groups and Lie Algebras: Their Representations, Generalizations and Applications, Kluwer Acad. Publ., Dordrecht, Boston, London, 1998, pp. 407-424.
29. Krasil′shchik, I.S., Symmetries and recursion operators for soliton equations, Proc. 1st Non-Orthodox School on Nonlinearity and Geometry, Warsaw 21–28 September 1995. Banach Center Publ, Warsaw, 1998.
30. Krasil′shchik I.S., Calculus over commutative algebras: a concise user guide, Acta Appl. Math., **49**, no. 3, 1997, pp. 235–248.
31. Krasil′shchik I.S., Characteristics of linear differential operators over commutative algebras, Acta Appl. Math., **49**, no. 3, 1997, pp. 257–269.
32. Krasil′shchik I.S., Poincaré delta-lemma for smooth algebras, Acta Appl. Math., **49**, no. 3, 1997, pp. 249-255.
33. Krasil′shchik I.S., A supersymmetry approach to Poisson structures over differential equations, Proc. Conf. Diff. Geom. Appl., Brno, 1996, 14 pp.
URL `http://www.ras.ru/EMIS/proceedings/index.htm`
34. Krasil′shchik I.S., Poisson structures on nonlinear evolution equations, Memorandum of the Twente University (1996), no. 1320, 24 pp.
35. Krasil′shchik I.S. and Kersten P.H.M., Graded Frölicher–Nijenhuis brackets and the theory of recursion operators for super differential equations, Memorandum of the Twente University (1993), no. 1147, Enschede, 56 pp. Also in: Lychagin, V.V. (ed.), The Interplay between Differential Geometry and Differential equations, Advances in the Mathematical Sciences, 24. Amer. Math. Soc., Providence RI, 1995.
36. Krasil′shchik I.S., Hamiltonian formalism and supersymmetry for nonlinear differential equations, Preprint of the Erwin Schroedinger International Inst. for Mathematical Physics (1995), no. 257, Wien, 61 pp.
URL `http://www.esi.ac.at/ESI-Preprints.htm`
37. Krasil′shchik I.S., Notes on coverings and Bäcklund transformations, Preprint of the Erwin Schroedinger International Inst. for Mathematical Physics (1995), no. 260, Wien, 15 pp.
URL `http://www.esi.ac.at/ESI-Preprints.htm`
38. Krasil′shchik I.S. and Kersten P.H.M., Graded differential equations and their deformations: a computational theory for recursion operators, Acta Appl. Math. **41** (1995) 167–191. Also in: Kersten, P.H.M. and Krasil'shchik, I. S. (eds.) Geometric and Algebraic Structures in Differential Equations, Kluwer Acad. Publ., Dordrecht, Boston, London, 1995.
39. Krasil′shchik I.S. and Kersten P.H.M., Deformations and recursion operators for evolution equations, Memorandum of the Twente University (1992),

no. 1104, Enschede, 47 pp. Also in: Prastaro, A. and Rassias, Th.M. (eds.), Geometry in partial differential equations, World Scientific, Singapore, 1994.
40. Krasil′shchik I.S., Lie algebra structures for the symmetries of differential equations possessing recursion operators, Preprint of the Erwin Schrödinger International Inst. for Mathematical Physics (1993), no. 47, Wien, 14 pp. URL `http://www.esi.ac.at/ESI-Preprints.html`
41. Krasil′shchik I.S., An algebraic model for characteristics of differential equations, Preprint of the Erwin Schrödinger International Inst. for Mathematical Physics (1993), no. 48, Wien, 14 pp. URL `http://www.esi.ac.at/ESI-Preprints.html`
42. Krasil′shchik I.S., Deformation algebras of differential equations and recursion operators, Transactions of the Sci. Conf. of MIMECI, Moscow Inst. for Municipal Economy and Civil Engineering, Moscow, 1992 (in Russian).
43. Krasil′shchik I.S., Some new cohomological invariants of nonlinear differential equations, Differential Geometry and Its Appl. **2** (1992) no. 4.
44. Krasil′shchik I.S., Differential operators of constant growth and Jacobi structures of infinite order, Publ. IRMA **30** (1992), no. XI, Lille.
45. Krasil'shchik I.S., Supercanonical algebras and Schouten brackets, Mat. Zametki **49** (1991), no. 1 (in Russian, English translation in: Soviet Mat. Zametki).
46. Krasil′shchik I.S. and Vinogradov A M., Nonlocal trends in the geometry of differential equations: symmetries, conservation laws, and Bäcklund transformations, Acta Appl. Math. **15** (1989) no. 1-2. Also in: A.M. Vinogradov (ed.), Symmetries of partial differential equations. Conservation laws - Applications - Algorithms, Kluwer Acad. Publ., Dordrecht, 1989.
47. Krasil′shchik I.S., Schouten brackets and canonical algebras, Global Anal. and Math.Physics, Voronezh State University, 1987 (in Russian, English translation in: Springer Lecture Notes in Math. **1334**, Springer-Verlag, 1988).
48. Krasil′shchik I.S., Why Bäcklund transformation form a group? (1987), Mimeographed notes (in Russian).
49. Krasil′shchik I.S., Poincaré delta - lemma, Proc. of the Seminar on Algebra and Geometry of Differential Equations, Moscow State University, Moscow, 1986 (in Russian).
50. Krasil′shchik I.S. and Vinogradov A.M., On the theory of nonlocal symmetries of partial differential equations, Dokl. AN SSSR **275** (1984) no. 5 (in Russian, English translation in: Soviet Math. Dokl.).
51. Krasil′shchik I.S. and Vinogradov A.M., Nonlocal symmetries and the theory of coverings, Acta Appl. Math. **2** (1984), no. 1.
52. Krasil′shchik I.S., Lychagin V.V., and Vinogradov A.M., Geometry of Nonlinear Differential Equations, Moscow Institute of Electronic Engineering, Moscow, 1982 (in Russian).
53. Krasil′shchik I.S. and Vinogradov A. M., What is the Hamiltonian formalism? Uspekhi Mat. Nauk **30** (1975) no. 1 (in Russian, English translation in: London Math. Soc. Lecture Notes Ser., **60** (1981)).
54. Krasil′shchik I.S. and Vinogradov A.M., A method for computation of higher symmetries of nonlinear evolution equations and nonlocal symmetries, Dokl. AN SSSR **253** (1980) no. 6 (in Russian, English translation in: Soviet Math. Dokl.).

55. Krasil'shchik I.S., Hamiltonian cohomologies of canonical algebras, Dokl. AN SSSR **251** (1980) no. 6 (in Russian, English translation in: Soviet Math. Dokl.).
56. Krasil′shchik I.S., Lychagin V.V., and Vinogradov A.M., Applications of Nonlinear Differential Equations in Civil Aviation, Moscow Institute of Civil Aviation Engineers, Moscow, 1977 (in Russian).
57. Krasil′shchik I.S., Hamiltonian formalism in canonical rings, The 8th Winter Mathematical School, Voronezh State University, Voronezh, 1974 (in Russian).

Edited collections

1. Krasil′shchik I.S. (ed.), Geometry of Differential Equations: Zero-curvature Representations, Recursion Operators, and Conservation Laws. A dedicated issue of Acta. Appl. Math., 2004 (to appear).
2. Krasil′shchik I.S. (ed.), Symmetries of Differential Equations and Related Topics. A dedicated issue of Acta. Appl. Math., **72**, (2002) no. 1-2.
3. Krasil′shchik I.S. and Vinogradov A.M. (eds.), Geometrical aspects of nonlinear differential equations. A dedicated issue of Acta. Appl. Math., **56**, no. 2-3, 1999.
4. Henneaux M., Krasil′shchik I.S., and Vinogradov A.M. (eds.), Secondary Calculus and Cohomological Physics, Contemporary Mathematics, vol. 219, American Mathematical Society, Providence, RI, 1998.
5. Komrakov B.P., Krasil′shchik I.S., Litvinov G.L., and Sossinsky A.B. (eds.), Lie Groups and Lie Algebras: Their Representations, Generalizations and Applications, Kluwer Acad. Publ., Dordrecht / Boston / London, 1998
6. Krasil′shchik I.S. and Vinogradov A.M. (eds.), Algebraic aspects of differential calculus. A dedicated issue of Acta. Appl. Math., **49**, no. 3, 1997.
7. Kersten P.H.M. and Krasil′shchik I.S. (eds.), Geometric and Algebraic Structures in Differential Equations, Kluwer Acad. Publ., Dordrecht / Boston / London, 1995.