

June 17, 2021

## Michail Zhitomirskii

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## CURRICULUM VITAE

Date and place of birth: May 6, 1958; Kiev, USSR

Date of immigration to Israel: November 1992

Marital status: married, 2 children

### Academic Degrees

1979 M.Sc. in Mathematical Sciences Kharkov State University, USSR

1983 Ph.D. in Mathematical Analysis Kharkov State University, USSR

### Academic Appointments

July 2006– Professor, Mathematics Department,  
Technion–Israel Institute of Technology, Haifa, Israel

Nov. 1992–June 2006 Associate Professor, Mathematics Department,  
Technion–Israel Institute of Technology, Haifa, Israel

Sept.2008 – Aug 2009 Visiting Distinguished Professor, Mathematics Department,  
University of California, Santa Cruz, USA

July 1998 –June 1999 Visiting Associate Professor, Mathematics Department,  
University of California, Santa Cruz, USA

Aug. 1991–Nov. 1992 Visiting Research Professor, Instituto de Matematica  
Pura e Aplicada, Rio de Janeiro, Brazil

Jan. 1991–July 1991 Visiting Professor, Mathematics Department,  
Plymouth Polytechnic South West, UK

Oct. 1979–Dec. 1990 Junior Researcher/Senior Researcher/Senior Lecturer,  
Kharkov Institute of Radio Electronics, USSR

### Invited Short-Term Visits (month and longer)

2006, 2004,2003,1997 Banach Center, Warsaw, Poland

2004,1999 Max Planck Institute, Bonn, Germany

2003 SISSA, Trieste, Italy

2001 Universite de Bourgogne, Dijon, France

2000 Newton Institute, Cambridge, UK

1998, 1995 University Montpellier–2, France

1998,1994 Sao Paulo University, Brazil

1997,1996 INSA, Rouen, France

1996,1995,1993 Institute of Mathematics, Warsaw, Poland

## Research Interests

Normal Forms in Various Areas of Local Analysis and Differential geometry.  
 Transitive Lie algebras. Lie-Cartan-Tanaka theory.  
 Singularity theory.

## Teaching Experience

Various graduate and undergraduate courses at the Technion, UC Santa Cruz (USA), University de Bourgogne (France), IMPA (Brazil), Plymouth University (UK) and Kharkov Institute of Radio Electronics (USSR).

In particular, I gave the following graduate courses at the Technion:

- Introduction to Singularity Theory, Dynamical Systems, Local Normal Forms, Catastrophe theory, Geometric Control Theory

## Departmental and Technion Activities

2019 -	Member of the Committee on Elisha Netanyahu Memorial Lecture Series
2017 - 2019	Member of Grossman Competition Committee
2013 - 2016	Member of the Committee regulating the work of the Center for Mathematical Sciences
2009 - 2015	Member of the Library Committee
2004– 2008	Mathematics Department Representative to Physics Department
2003– 2008	Member of the Committee on Service Math Courses
2000–2002	Member of the Committee on Postdocs and Visitors
1998–2000	Member of the Library Committee
1996–1997	Member of the Committee on Graduate Courses

## Public Professional Activities

- Member of Editorial Board: Journal of Dynamical and Control Systems (2004-2011 ).
- Referee for various scientific journals and of various research proposals.

## Organization of Conferences

- Organizer of International Workshop on Singularities and Control Theory sponsored by the Institute for Advanced Studies in Mathematics at the Technion, 30 December 1996–6 January 1997
- Co-organizer of International Workshop on Poisson Structures (0a satellite meeting to Berlin International Congress), August 1998
- One of organizers of International Conference “Algebra and Analysis” sponsored by the Institute for Advanced Studies in Mathematics at the Technion, April 3–6, 2006
- Organizer of the conference “Algebraic Geometry, Braids, Analysis ” (jointly with Yehuda Pinchover) sponsored by the Institute for Advanced Studies in Mathematics at the Technion, May 17-21, 2015
- Organizer of the workshop “How modern is modern math?” at the Technion, April 18, 2019

## Honors

- Mahler Prize for Excellence in Mathematics, awarded by Technion (2011)
- Guastella Fellowship, Israel (1993–1995)
- Fellowship of CNPQ, Brazil (1991–1992)
- Kharkov Mathematical Society Prize for Young Mathematicians (1990)

## Graduate Students

- J. Yang      Ph.D. 1997  
 “Polynomial normal forms of vector fields.”
- I. Zelenko    M.Sc 1998  
 “Non-regular abnormal geodesics of 2-distributions:  
 existence, second variation and rigidity.”  
 Ph.D. 2002  
 “Invariant curves in Lagrangian Grassmannian  
 and differential geometry of smooth control systems.”
- J. Rashed    M.Sc 2009  
 “Coarsening Dynamics for the Cahn-Hilliard equation”

## Research Grants

- Binational Science Foundation grant (BSF), No. 94-00268,  
 with R. Montgomery, USA (1996–1998)
- Israel Science Foundation grant (ISF), No. 78/01 (2001–2004)
- Israel Science Foundation grant (ISF), No. 1356/04 (2004–2007)
- Israel Science Foundation grant (ISF), No. 1383/07 (2007–2011)
- Israel Science Foundation grant (ISF), No. 510/12 (2012–2016)

## Invited and Plenary Talks at Conferences

1. *Second International Workshop on Real and Complex Singularities*, Sao Carlos, Brazil, August 1992. “Differential forms and vector fields with a manifold of singular points.”
2. *Third International Workshop on Real and Complex Singularities*, Sao Carlos, Brazil, August 1994. “Rigid curves in the sub-Riemannian geometry.”
3. *Symposium on Singularities in Differential Equations and Pfaff Systems, part 2: Singularities of Vector Fields*, Stefan Banach International Mathematical Center, Warsaw, Poland, October 1995. “Orientation on the Martinet surface and global reduction theorems.”
4. *International Workshop on Singularities and Control Theory*, Institute of Advanced Studies in Mathematics, Technion, Haifa, December 30, 1996 - January 6, 1997. “Open problems in geometric control theory.”
5. *International Workshop “Singularities et Geometrie Sous Riemannienne,”* Universite de Savoie, Chambery, October 7-10, 1997.
  1. “Singular contact structures, reduction to the Martinet surface.”
  2. “Darboux and Martinet theorems in control theory.”

6. *International Workshop "Controle des systemes non lineaires,"* Institut Henri Poincare, Paris, January 26–30, 1998.  
"Bifurcations related to the stabilizability of control systems on a plane".
7. *International Conference on Local Differentiable Dynamics and Applications to Bifurcation Theory,* Diepenbeek, Belgium, June 15-19, 1998.  
"Bifurcations in control theory."
8. *The 5-th International Workshop on Real and Complex Singularities,* Sao Carlos, Brazil, July 25–31, 1998.  
"Local reduction theorems and invariants for singular contact structures."
9. *An International Conference on Complex Analysis in Dynamical systems,* IMPA, Rio de Janeiro, September 1-11, 1998. "Singular contact structures on  $C^3$ ."
10. *An International Workshop on Applications of Singularity Theory to Wave Propagation Theory and Dynamical Systems,* Newton Institute, Cambridge, UK, September 25-29, 2000. "Cartan prolongation, Legendrian curves, Goursat flags and related problems."
11. *An International Workshop on Geometric Control Theory,* University of Aveiro, Portugal, September 25-27, 2001. "Relative Darboux theorem for singular manifolds."
12. *An International Conference on Qualitative Theory of Differential Equations in Honor to the 60th Birthday of Prof. Jorge Sotomayor,* Universidade de Sao Paulo, Sao Carlos, June 17-21, 2002. "Relative Darboux theorem for singular manifolds."
13. *International Workshop within the Trimester on Dynamical and Control Systems,* SISSA, Trieste, Italy, October 6–10, 2003. "Singularities of foliations and vector fields."
14. *The International Conference "Polish - Japanese Singularity Theory Working Days"* (within the 21-st Century of COE Program "Mathematics of Nonlinear Structure via Singularities", Hokkaido University, Japan), Bedlewo, Poland, August 30–September 8, 2004.
  1. "Germs and multigerms of integral curves in a contact 3-space."
  2. "Points and curves in the monster tower."
15. *The International Conference "Geometric Singularity Theory",* Bukovina Tatranszka, Poland, July 12-19, 2005.  
"Fully simple singularities of plane and space curves".
16. *The International Symposium "Cartan Geometry and related Mathematical Problems",* Kyoto University, Japan, October 24-27, 2005.  
"Cartan prolongation, Legendrization and Monsterization".
17. *The International Conference "Barcelona Conference in Planar Vector fields",* Universitat Autònoma de Barcelona in Bellaterra, Spain, February 13-17, 2006.  
"Curves in foliated plane".
18. *The International Workshop "Geometry of vector distributions, differential equations, and variational problems",* SISSA, Trieste, Italy, December 13-15, 2006.  
"Exact normal form for (2,5) distributions".
19. *The International Conference "Frobenius structures and singularity theory",* Bedlewo, Poland, August 25-29, 2008.  
"Singularities of differential 1-forms: functional modality".

20. *Bay Area Differential Geometry Conference*, Stanford, USA, January 31, 2009.  
“The method of algebraic restrictions for symplectic and contact singularities”.
21. *The International Workshop “Generic Singularities in Geometry”*,  
Warsaw, 8 - 12 July, 2009. “Generic singularities of symplectic immersions”.
22. *International Conference on Singularity Theory*,  
Oberwolfach, Germany, September 23-28, 2009.  
“On local classification problems with functional moduli”.
23. *International Conference “Geometry and Dynamics”*,  
Institut Henri Poincare, Paris, France, January 11-15, 2010.  
“Algebraic restrictions of differential forms and their applications in symplectic and contact geometry”.
24. *International Conference “Differential Geometry and Tanaka theory”*, RIMS (Kyoto) and  
Hiroshima University, Kyoto and Hiroshima, January 23-31, 2011.  
“Normal forms and symmetries of (2,5) distributions: 100 years after Cartan”.
25. *International Conference on Singularities in Geometry and Applications*, Banach Center,  
Bedlewo, Poland, May 2011.  
“Normal forms in singularity theory versus differential geometry”.
26. *Joint Meeting of Polish and Israeli Mathematical Societies*, Lodz, Poland, September 2011.  
“Surprises in the (2,3) Monster tower”.
27. *International conference INDAM Meeting on Geometric Control and sub-Riemannian Ge-  
ometry*, Cortona, Italy, May 2012. ”Affine line fields and Lie algebras”.
28. *International conference on Geometric Singularity Theory*, Warsaw, Poland, August 2013.  
“Homogeneous subsets of the tangent bundle”
29. *Workshop on Mathematics and Control Theory*, Holon Institute of Technology,  
May 26-28, 2015. ”Control Theory, Singularity Theory and Differential Geometry.”
30. *International Conference Polish-Japanese Singularity Theory working days*,  
Warsaw, September 7-11, 2015.  
”Normal forms and symmetries of (2,3,5)-distributions:  
100 years after E.Cartans (2,5) variables paper”.
31. *International Conference on Sub-Riemannian Geometry and Celestial Mechanics*,  
Guanajuato, Mexico, August 2016.  
”Linearization of the isotropy subalgebra of a transitive Lie algebra of vector fields.”
32. *International Conference on Geometric and Algebraic Singularity theory*,  
Bedlewo, Poland, September 2017.  
”Normal forms in local differential geometry ”.
33. *International Conference on Symmetries and Geometric Structures*,  
Warsaw, Poland, October 2017.  
“How to construct normal forms in local differential geometry and what are they for?”
34. *International Conference Contemporary Mathematics*, Moscow, December 2017  
“Methods of singularity theory for problems with functional moduli”.

35. International Conference on Dynamics, Control, and Geometry, Warsaw, Poland, September 2018  
Linearization theorems for isotropy subalgebra of a transitive algebra of vector fields”
36. International Conference on Differential Equations and Control Theory, Kharkov, Ukraine, September 2018  
Varieties in the tangent bundle
37. International Workshop “How modern is modern Math” Technion, April 18, 2019  
Invariants and symmetries: Lie, Tanaka, Poincare
38. International Workshop on Cartan Geometry, Seoul, South Korea, May 2019  
Normal forms, first invariants, and symmetries  
in local classification problems with functional moduli
39. International Conference on Differential Equations and Control Theory, Szczecin, Poland, September 2019  
General approach to local classification problems in differential geometry

### Invited Series of Lectures

40. *Banach Center Semester on Control Theory and Optimization, International Workshop on Geometry in Nonlinear Control*, Warsaw, Poland, June 1993. 5 lectures on “Singularities and normal forms of smooth distributions.”
41. *Symposium on Singularities in Differential Equations and Pfaff Systems, part 1: Analytic Geometry of Pfaff Systems*, Stefan Banach International Mathematical Center, Warsaw, Poland, September 1995. 3 lectures on “Singularities and invariants of distributions.”
42. *International Trimester on Dynamical and Control Systems*, SISSA-ICTP, Trieste, Italy, Sept.–Dec. 2003. Mini-course (10 lectures) “Singularities of foliations and vector fields.”
43. *International Workshop on Singularities of Differential Systems*, Hokkaido University, Sapporo, Japan, October 2005. 6 lectures on “Singularities of vector distributions.”

### Invited Section Talks

44. *Meetings of Moscow Mathematical Society and I.G.Petrovskii Seminar*, Moscow State University, USSR, January 1987. “Singularities of differential forms and partial differential equations.”
45. *Meetings of Moscow Mathematical Society and I.G.Petrovskii Seminar*, Moscow State University, USSR, January 1988. “Normal forms of odd-dimensional Pfaff equations.”
46. *Meetings of Moscow Mathematical Society and I.G.Petrovskii Seminar*, Moscow State University, USSR, February 1990. “Differential forms and divergence-free vector fields.”
47. *International Conference on Control Theory and its Applications*, Kibbutz Maale HaChamisha, Israel, October 1993. “Stable germs of control systems with respect to the feedback equivalence.”
48. *An international workshop on Symplectic Geometry*, Stanford University, USA, May 20-21, 1999. “Invariants of singular contact structures.”

49. The 8-th International Workshop on Real and Complex Singularities, CIRM, Marseille, France, July 19 - 23, 2004. "Germs and multigerms of integral curves in a contact 3-space."

### Invited Seminar and Colloquium Talks, Mini-Courses

In 1990-2015 I gave around 50 colloquium talks, around 50 seminar talks, and 12 mini-courses in Brazil, China, England, France, Germany, Italy, Japan, Poland, Portugal, Spain, and USA, including

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| Feb. 1999  | University of California at Berkeley, USA.<br>"Geometry on the Martinet surface."                                     |
| April 1999 | Stanford University, USA. "Singular contact structures."  |
| Sept. 2000 | Newton Institute, Cambridge, UK. "Integral curves in contact 3-space."  |
| Feb. 2001  | University of Bourgogne, Dijon, France. "Local contact algebra."  |
| Oct. 2005  | Nara Women University, Japan. "Curves in foliated plane".   |
| Oct. 2006  | Inst. of Math., Warsaw, Poland "Classification problems of local analysis".   |
| Oct. 2007  | Beijing University, China "Curves in foliated plane"  |
| March 2009 | Stanford University, USA, "Local symplectic and contact algebras<br>and algebraic restrictions of differential forms" |
| Sept. 2010 | SISSA, Trieste, Italy, a mini-course "Introduction to singularities of curves".                                       |
| Sept, 2014 | IHP, Paris, France, a mini-course "Singularities of vector distributions".  |

## LIST OF PUBLICATIONS

Ph.D. Thesis: *Local classification of differential 1-forms and vector fields.*  
 Thesis advisor: G. Belitskii

### Book

1. M. Zhitomirskii, *Typical Singularities of Differential 1-Forms and Pfaffian Equations*, Transl. of Math. Monographs, Vol. 113, AMS, 1992, 170 pages.

### Refereed Papers in Professional Journals

2. M. Zhitomirskii, On the equivalence of differential forms, *Teor. Funktsii, Funktsional. Anal. i Prilozhen.* **35** (1981), 35–41 (in Russian).
3. M. Zhitomirskii, Finite determinacy of formal series, *Teor. Funktsii, Funktsional. Anal. i Prilozhen.* **38** (1982), 57–66 (in Russian).
4. M. Zhitomirskii, Finite determinacy of differential forms, *Ukrainian Math. J.* **34** (1982), No.4 (1983) 406–409.
5. M. Zhitomirskii, A criterion for linearization of differential forms, *Soviet Math. (Iz. VUZ)* **27** No. 3 (1983), 48–56.
6. M. Zhitomirskii, Invariant normal form of series linear-equivalent to real ones, *Teor. Funktsii, Funktsional. Anal. i Prilozhen.* **40** (1983), 64–67 (in Russian).
7. M. Zhitomirskii, Systems of differential equations linearly equivalent to real ones, *Math. Notes* **34** No. 1-2 (1983), 614–617 (in Russian).
8. M. Zhitomirskii, Orbital equivalence of systems of differential equations, *Vestnik Kharkov. Gos. Univ. Mekh. Upravl. Dinam. Sistem* **241** (1983), 74–75 (in Russian).
9. M. Zhitomirskii, Finitely determined 1-forms  $\omega, \omega|_0 \neq 0$  are exhausted by the Darboux and Martinet models, *Functional. Anal. Appl.* **19** No. 1 (1985), 59–61.
10. M. Zhitomirskii, Smooth and holomorphic linearization of exterior differential 1-forms, *Functional. Anal. Appl.* **20** No. 2 (1986), 139–141.
11. M. Zhitomirskii, Finite determinacy of vector fields, diffeomorphisms and exterior differential 1-forms, *Docl. Acad. Nauk Ukr. SSR, Ser. A* **1** (1987), 6–9 (in Russian).
12. M. Zhitomirskii, Singularities and normal forms of even-dimensional Pfaff equations, *Russian Math. Surveys* **43** No. 5 (1988), 266–267.
13. M. Zhitomirskii, Singularities and normal forms of odd-dimensional Pfaff equations, *Functional. Anal. Appl.* **23** No. 1 (1989), 59–61.
14. M. Zhitomirskii, Normal forms of germs of distributions with a fixed growth vector, *Algebra and Analysis* **2** No. 5 (1990), 125–149 (in Russian); translation into English in: *Leningrad Mathematical Journal* **2** No. 5 (1990).
15. M. Zhitomirskii, Normal forms of germs of 2-dimensional distributions on  $R^4$ , *Functional. Anal. Appl.* **24** No. 2 (1990), 150–152.
16. M. Zhitomirskii, Classification of germs of regular distributions with minimal growth vector, *Funct. Anal. Appl.* **25** No. 1 (1991), 61–62.



17. M. Zhitomirskii, Normal forms of germs of smooth distributions, *Math. Notes* **49** No. 2 (1991), 139–144.
18. M. Zhitomirskii, Degenerations of differential forms and Pfaffian structures, *Russian Math. Surveys* **46:5**, 53–90.
19. M. Zhitomirskii, Local normal forms for constrained equations on 2-manifolds, *Boletim da Sociedade Brasileira de Matematica* **24** No. 2 (1993), 211–232.
20. P. Mormul, M. Zhitomirskii, The structure of the set of singular points of a codimension 1 differential system on a 5-manifold, *Transactions of AMS* **342** No. 2 (1994), 619–629.
21. M. Zhitomirskii, Differential forms and vector fields with a manifold of singular points, *Matematica Contemporanea (Brazil)* **5** (1993), 205–216.
22. M. Zhitomirskii, Normal forms of symmetric Hamiltonian systems, *Journal of Differential Equations* **111** No. 1, (1994), 58–78.
23. B. Jakubczyk, M. Zhitomirskii, Singularities and normal forms of generic 2-distributions on 3-manifolds, *Studia Mathematica* **113** No. 3 (1995), 223–248.
24. M. Zhitomirskii, Rigid and abnormal line subdistributions of 2-distributions, *Journal of Dynamical and Control Systems* **1** No. 2 (1995), 253–294.
25. I. Zelenko, M. Zhitomirskii, Rigid curves of generic 2-distributions on 3-manifolds, *Duke Math. Journal* **79** No. 2, (1995), 281–307.
26. M. Zhitomirskii, Singularities and normal forms of smooth distributions, *Banach Center Publications* **32** (1995), 379–409.
27. W. Respondek, M. Zhitomirskii, Feed-back classification of nonlinear control systems on 3-manifolds, *Mathematics of Control, Signals, and Systems* **8** (1996), 299–333.
28. P. Mormul, M. Zhitomirskii, Modules of vector fields, differential forms and degenerations of differential systems, *Israel Journal of Mathematics* **95** (1996), 411–428.
29. B. Jakubczyk, M. Zhitomirskii, Odd-dimensional Pfaffian equations: reduction to the hypersurface of singular points, *C.R. Acad. Sci. Paris* **325**, Series 1 (1997), 423–428.
30. M. Zhitomirskii, W. Respondek, Simple germs of corank one affine distributions, *Banach Center Publications* **44** (1998), 269–276.
31. J.-P. Dufour, M. Zhitomirskii, Classification of non-resonant Poisson structures, *J. London Math. Soc.* **60** (2) (1999), 935–950.
32. J. Sotomayor, M. Zhitomirskii, On pairs of foliations defined by vector fields, *Discrete and Continuous Dynamical Systems* **6** No. 3 (2000), 741–749.
33. M. Zhitomirskii, Darboux and Martinet theorems in control theory, *Singularities et Geometrie Sous-Riemannienne, Travaux en Cours* **62**, Hermann, Paris, (2000), 161–163.
34. B. Jakubczyk, M. Zhitomirskii, Singular 3-dimensional contact structures, *Singularities et Geometrie Sous-Riemannienne, Travaux en Cours* **62**, Hermann, Paris, (2000), 77–87.

35. B. Jakubczyk, M. Zhitomirskii, Local Reduction Theorems and Invariants for Singular Contact Structures, *Ann. Inst. Fourier* **51** No. 1, (2001).
36. J. P. Dufour, M. Zhitomirskii, Singularities and bifurcations of 3-dimensional Poisson structures, *Israel Journal of Mathematics* **121** (2001), 199–220.
37. J. Sotomayor, M. Zhitomirskii, Impasse singularities of differential systems of the form  $A(x)\dot{x} = F(x)$ , *J. Differential Equations* **169** No. 2 (2001), 567–587.
38. R. Montgomery, M. Zhitomirskii, Geometric approach to Goursat flags, *Annales de l'Institut Henri Poincaré. Analyse non linéaire* **18** No. 4 (2001), 459–493.
39. J. Llibre, J. Sotomayor, M. Zhitomirskii, Impasse bifurcations of constrained systems, *Fields Inst. Communications* **31** (2002), 235–255.
40. B. Jakubczyk, M. Zhitomirskii, Distributions of corank one and their characteristic vector fields, *Transactions of the AMS* **355** No. 7 (2002), 2857–2883.
41. J. P. Dufour, M. Zhitomirskii, Nambu structures and integrable 1-forms, *Letters in Mathematical Physics* **66** No. 1 (2003), 1–13.
42. M. Zhitomirskii, Completely Symmetric Centers, *Qualitative Theory of Dynamical Systems* **5** (2004), 327–342.
43. W. Domitrz, S. Janeczko, M. Zhitomirskii, Relative Poincaré lemma, contractibility, quasi-homogeneity and vector fields tangent to a singular variety, *Illinois Journal of Mathematics* **48** No. 3 (2004), 803–835
44. M. Zhitomirskii, Relative Darboux theorem for singular manifolds and local contact algebra, *Canadian Journal of Mathematics* **57** No. 6 (2005), 1314–1340
45. M. Zhitomirskii, Exact normal form for (2,5) distributions, *in: Development of Cartan Geometry and Related Mathematical Problems, Proceedings of RIMS Symposium, Kyoto, Japan, 2006 (Ed. Tohru Morimoto), 16-28.*
46. M. Zhitomirskii, Curves in foliated plane and related problems, *Proceedings of the Steklov Inst. Math., 2007, Vol. 259 (Arnold-70 Jubilee volume), 281 - 293.*
47. W. Domitrz, S. Janeczko, M. Zhitomirskii, Symplectic singularities of varieties: the method of algebraic restrictions, *J. für die Reine und Angewandte Math., 2008 (618), 197 - 235*
48. M. Zhitomirskii, Fully simple singularities of plane and space curves, *Proceedings of the London Mathematical Society, 2008, 96 (3), 792 - 812.*
49. R. Montgomery, V. Swaminathan, M. Zhitomirskii, Resolving singularities with Cartan's prolongation, *Journal of Fixed Point Theory and Applications (Arnol'd volume), 2008, Vol. 3, No. 2, 353-378.*

50. R. Montgomery, M. Zhitomirskii, Points and curves in the Monster tower,  
*Memoirs of the AMS* 203, 2011, no. 956
51. W. Domitrz, S. Janeczko, M. Zhitomirskii, Generic singularities of symplectic and quasi-symplectic immersions,  
*Mathematical Proceedings of the Cambridge Philosophical Society*, 2013, Vol. 155, No. 2, 317-329
52. M. Zhitomirskii, Homogeneous affine line fields and affine lines in Lie algebras,  
*in Springer Indam Series, Geometric Control and sub-Riemannian geometry*, 2013
53. M. Zhitomirskii, Appendix to the paper “Big denominators and analytic normal forms”  
*Journal für die Reine und Angewandte Mathematik (Crelle’s journal)*, Issue 710, 2016, pp. 238-249
54. M. Zhitomirskii, Singularities of vector distributions,  
*in Geometry, Analysis and Dynamics on sub-Riemannian Manifolds, volume 2, 275-295, D. Barilari, U. Boscain, M. Sigolatti Eds., EMS Series of Lectures in Mathematics*, 2016
55. M. Zhitomirskii, Affine varieties in the tangent bundle,  
submitted to *Journal of Dynamical and Control Systems*, 2018
56. K. Kourliouros, M. Zhitomirskii,  
First occurring singularities of functions on symplectic semi-space,  
*Journal of Pure and Applied Mathematics*, 2018, 2, 11-13.

### In Preparation

57. M. Zhitomirskii, a book  
Ordinary Differential Equations: Basic Methods, Qualitative Theory, and Fun Models  
accepted for publication by “World Scientific”
58. M. Zhitomirskii, Normal forms and symmetries of  $(2, 5)$  distributions:  
100 years after the “ $(2,5)$  variables” paper by E. Cartan
59. M. Zhitomirskii, Local homogeneous subsets of  $T\mathbb{R}^2$  and  $T\mathbb{R}^3$
60. M. Zhitomirskii, Linearization of the isotropy subalgebra  
of a transitive Lie algebra of vector fields
61. R. Montgomery, M. Zhitomirskii, Several surprises in the  $(2,3)$  Monster tower

### Lecture Notes for students

1. M. Zhitomirskii, *ODEs for Math students*
2. M. Zhitomirskii, *Algebra for 104006*
3. M. Zhitomirskii, *Center-focus problem and Andronov-Hopf bifurcation*