

Curriculum Vitæ

Department of Mathematics Masaryk University, Brno Kotlarska 2, 611 37 Brno, Czech Republic ⊠ ilyakos@gmail.com http://complex.univie.ac.at/people/ilya-kossovskiy/



Personal Information

Born: October 1982. **Nationality:** Russian Citizen; Canadian Permanent Resident.

Degrees

- 2015 Habilitation, University of Vienna, Vienna, Austria.
- 2008 Ph.D, Moscow State University, Russia, advisor: Valeri Beloshapka.
- 2004 M.S., Moscow State University, Russia, advisor: Valeri Beloshapka.

Research Interests

- General: Complex Analysis and Geometry; Dynamical Systems; Geometric Analysis.
- Primary: Cauchy-Riemann Geometry (CR-manifolds with Symmetries, CR-mappings, Analytic Continuation, Classification Problems, Normal Forms);

• Holomorphic Dynamics (Normal forms for Differential Equations, Behavior of Solutions and Local Classification near Singularities, Painlevé Equations, Briot -Bouquet Equations, Stokes Phenomena, Sectorial regularity, Summability Theory);

• Equivalence of Geometric Structures (in Application to CR-geometry and Differential Equations).

Employment

- Since 2016 Associate Professor, Masaryk University, Brno, Czech Republic.
- Since 2013 **Principal Investigator**, University of Vienna, Austria.
- 2010 2013 Assistant Professor, University of Western Ontario, Canada.
- 2009 2010 Postdoctoral Fellow, Australian National University, Canberra, Australia.

Teaching

- 2012 2013 Linear Algebra, Undergraduate Course, University of Western Ontario, Canada.
- 2010 2013 Finite Math, Undergraduate Course, University of Western Ontario, Canada.
- 2010 2011 Calculus, Undergraduate Course, University of Western Ontario, Canada.
- 2009 2010 Several Complex Variables, Graduate Course, Australian National University, Australia.

PUBLICATIONS (the most important ones are denoted by *)

Papers Published and Accepted

[1] "On the embeddability of real hypersurfaces into hyperquadrics", to appear in *Advances in Mathematics*, available at http://arxiv.org/abs/1509.01962 (with M. Xiao).

[2]* "Analytic differential equations and spherical real hypersurfaces", *Journal* of *Differential Geometry (JDG)*, Vol. 102, No. 1 (2016), pp. 67 - 126 (with R. Shafikov).

[3]* "Divergent CR-equivalences and Meromorphic Differential Equations", *Journal* of the European Math. Society (JEMS), (2016) 13, 2785–2819 (with R. Shafikov).

[4]* "Convergent normal form and canonical connection for hypersurfaces of finite type in \mathbb{C}^2 ", *Advances in Mathematics*, 2015, pp. 670-705 (with D. Zaitsev).

[5]* "On the analyticity of CR-diffeomorphisms", to appear in *American Journal of Mathematics (AJM)*, available at http://arxiv.org/abs/1408.6711 (with B. Lamel).

[6]* "Convergent normal form for real hypersurfaces at generic Levi degeneracy", to appear in *J. Reine Angew. Math. (Crelle's Journal)*, available at http://arxiv.org/abs/1405.1743 (with D. Zaitsev).

[7]* "New extension phenomena for solutions of tangential Cauchy-Riemann PDEs", *Comm. Partial Differential Equations*, 41 (2016), no. 6, 925–951. (with B. Lamel).

[8] "Sphericity of a real hypersurface via projective geometry", in *International Journal of Mathematics (IJM)*, Vol. 27, No. 12 (2016).

[9] "Sphere in \mathbb{C}^2 as a model for Levi-degenerate hypersurfaces in \mathbb{C}^3 ", **Russian** Journal of Math. Physics, 2015, V.22, N 4. (with V. Beloshapka).

[10] "Analytic continuation of holomorphic mappings from nonminimal hypersurfaces", *Indiana Univ. Math. Journal*, 62 (2013), no. 6, 1891–1916. (with R. Shafikov).

[11] "Normal forms in CR-geometry: a survey", to appear in *Contemporary Mathematics*, (with M. Kolar and D. Zaitsev).

[12]* "Classification of homogeneous CR-manifolds in dimension 4", *Journal of Mathematical Analysis and Applications*, 2011, V. 374, no 2, pp. 655-672 (with V. Beloshapka).

[13] "Homogeneous hypersurfaces in \mathbb{C}^3 , associated with a model CR-cubic", *Journal* of *Geometric Analysis*, 2010, no 3, pp.538 - 564 (with V. Beloshapka).

[14] "Continuation of CR-Automorphisms of Levi Degenerate Hyperquadrics to the Projective Space", *Illinois Journal of Mathematics*, 2010, V.54, n.2, pp. 747-752, (with A. Isaev).

[15] "Envelopes of holomorphy of model manifolds", *Ph.D Thesis*, Moscow State University, 2008.

[16]. "On envelopes of holomorphy of model manifolds", *Izvestija Mathematics*, 2007, v.71, no 3, pp.545 - 571.

[17]* "The envelope of holomorphy of a model third-degree surface and the rigidity phenomenon", *Proceedings of the Steklov Institute of Mathematics*, 2006, no 2, vol.253, pp.22-36, (with R. Gammel).

Papers Submitted

[18] "Regularity of CR-mappings into Levi-degenerate hypersurfaces", *Preprint*, available at http://arxiv.org/abs/1609.00652 (with B. Lamel and M. Xiao).

[19] "Normal form for second order differential equations", *Preprint*, available at https://arxiv.org/abs/1611.08532 (with D. Zaitsev).

[20]* "Equivalence of Cauchy-Riemann manifolds and multisummability theory", *Preprint*, available at https://arxiv.org/abs/1611.08532 (with B. Lamel and L.Stolovitch).

— Grants and Awards

- 2016 Czech Grant Agency standard grant, 180 000 EUR, team grant, Project Leader.
- 2016 Stand alone grant, 343 000 EUR, Austrian Science Fund (FWF), individual grant.
- 2012 Lise Meinter Grant, 133 000 EUR, Austrian Science Fund (FWF), individual grant.
- 2004 **Russian Science Foundation Grant**, 500 000 RUB, Russian Science Foundation, with the SCV group of Moscow State University and Steklov Institute, Moscow.
- 2007 A. Vitushkin's Scholarship for Young Researchers, Moscow State University.
- 2006 A. Vitushkin's Scholarship for Young Researchers, Moscow State University.

Visiting Positions

Spring 2016 Federal University of Santa Catarina, Florianopolis, Brazil, Teaching Visitor. Mar 2014 Trinity College Dublin, Dublin, Ireland, Scientific Visitor.

Refereeing and Reviewing

Inventiones Mathematicae, referee. Journal of Differential Geometry, referee. Crelle's Journal, referee. International Math Research Notices, referee. Journal of Geometric Analysis, referee. Differential Geometry and Applications, referee. Journal of Mathematical Analysis and Applications, referee. Izvestiya Mathematics, referee. Journal Monatshefte für Mathematik, referee. SIGMA Symmetry Integrability Geom. Methods Appl., referee.

Since 2012 Mathematical Reviews (Mathscinet), reviewer.

INVITED LECTURES

Invited Conference Talks

- Aug 2017 28. The 8th Workshop on Geometric Analysis of PDEs and Several Complex Variables, Serra Negra, Brazil.
- Jan 2017 27. The 37th Winter School Geometry and Physics, Srni, Czech Republic.
- Sep 2016 26. Conference in Complex Analysis in Honor of S. Gonchar and A. Vitushkin, Steklov Institute, Moscow, Russia.
- Sep 2016 25. Joint meeting of Austrian, Czech, et al. Math. Societies, Barcelona, Spain.
- May 2016 24. Complex Analysis and Complex Geometry Conference, Banff, Canada.
- Jan 2016 23. Conference on Analysis of PDEs, Sao Carlos, Brazil.
- Jan 2016 22. PDE and Complex Analysis Conference, Florida, USA.
- Oct 2015 21. Harmonic Analysis, ∂ , and CR Geometry Workshop, Oaxaca, Mexico.
- Oct 2015 **20. School and Workshop on Complex Analysis, Geometry and Dynamics**, Trieste, Italy.
- Aug 2015 19. The 8th Workshop on Geometric Analysis of PDEs and Several Complex Variables, Serra Negra, Brazil.
- May 2015 18. Conference on Complex Geometry and Several Complex Variables, Shanghai, China.
- Mar 2015 17. Conference on Complex Analysis and Geometry in honor of S. Webster, Madison, Wisconsin, USA.
- May 2014 16. Workshop on Complex Analysis and Geometry, Wuhan, China.
- June 2013 15. Conference CSASC 2013, Koper, Slovenia.
- Feb 2013 14. KSCV Workshop 20, Gyeong-Ju, Korea.
- June 2012 13. Conference "CR-geometry and PDEs V", Trento, Italy.
- Mar 2012 12. AMS Central Sectional Meeting, Lawrence, Kansas, USA.
- June 2010 11. Conference "CR-geometry and PDEs IV", Trento, Italy.
- Feb 2010 10. Complex Analysis Winter School and Workshop, Toulouse, France.
- Nov 2009 9. Workshop on New Currents in Geometry, Adelaide, Australia.
- Oct 2009 8. The 53rd Annual Meeting of the Australian Mathematical Society, Adelaide, Australia.
- Sept 2009 7. Australian-Japanese Workshop on Real and Complex Singularities, Sydney, Australia.
- May 2009 6. Korea-Australia Analysis Forum 2009, Busan, Korea.
- Feb 2009 5. Workshop on Complex Geometry, Adelaide, Australia.
- June 2008 4. Conference "CR-geometry and PDEs III", Trento, Italy.
- May 2008 3. Conference on Actual Problems of Complex Analysis, Urgench, Uzbekistan.
- May 2007 2. Conference in Honor of A. Leontyev, Ufa, Russia.
- Sept 2006 1. SCV Conference in Honor of A. Vitushkin, Moscow, Russia.

Award Presentation Talks

June 2015 1. Presentation talk for the 1,200,000 EUR Austrian Science Fund Start Prize, Vienna, Austria.

Invited Colloquium Talks

- Jan 2016 **13. Colloquium talk at Instituto de Matematica Pura e Applicada (IMPA)**, Rio de Janeiro, Brazil.
- Jan 2016 12. Colloquium talk at University of California, San Diego, San Diego, USA.
- Nov 2015 11. Colloquium talk at Masaryk University Brno, Brno, Czech Republic.
- Oct 2015 10. Colloquium at Trinity College, Dublin, Dublin, Ireland.
- Mar 2015 9. Colloquium talk, University of Wisconsin Madison, Madison, Wisconsin, USA.
- Feb 2015 8. Colloquium talk at Independent University Moscow, Moscow, Russia.
- Nov 2014 7. Trimester on Subriemannian Geometry at Institute Henri Poincare, Paris, Colloquium lecture, Paris, France.
- May 2014 6. Colloquium at the University of Santa Catarina, Florianopolis, Brazil.
- Jan 2014 5. Colloquium at Texas A&M University, Doha, Doha, Qatar.
- Nov 2013 4. Colloquium at the University of Fribourg, Fribourg, Switzerland.
- Nov 2013 3. Colloquium at Trinity College, Dublin, Dublin, Ireland.
- Nov 2013 2. Colloquium at the University of Bern, Bern, Switzerland.
- Mar 2008 1. Complex Analysis of Several Variables Programm, Institute Muttag-Leffler, Djursholm, Sweden.

Invited Seminar Talks

- Dec 2016 38. Geometry Seminar at Weizmann Institute, Rehovot, Israel.
- Sep 2016 37. Dynamical Systems Seminar at the University of Nice, Nice, France.
- Jul 2015 36. PDE's Seminar at the University of Sao Paulo, Sao Paulo, Brazil.
- Nov 2015 **35.** Analysis Seminar at the University of California Irvine, California, USA.
- Oct 2015 34. Geometry Seminar at the University of Houston, Texas, USA.
- Oct 2015 33. Geometry Seminar at Texas A&M University, Texas, USA.
- Oct 2015 **32.** Geometry and Dynamics Seminar at University of Illinois at Urbana-Champaign, IL, USA.
- June 2015 **31. Geometry and Dynamics Seminar, Ecole Normale Superieure de Lyon**, Lyon, France.
- Mar 2015 30. Geometry Seminar at the University of Adelaide, Adelaide, Australia.
- Mar 2015 **29. Differential Geometry Seminar at Australian National University**, Canberra, Australia.
- Feb 2015 28. Dynamical Systems Seminar at Moscow University (Ilyashenko's Seminar), Moscow, Russia.
- Feb 2015 27. Complex Analysis Seminar at Moscow University (Vitushkin's Seminar), Moscow, Russia.
- Feb 2015 26. Differential Equations Seminar at Steklov Institute, Moscow, Russia.
- Feb 2015 25. Complex Analysis Seminar at Steklov Institute, Moscow, Russia.
- Jan 2015 24. Analysis Seminar at the University of Ljubljana, Ljubljana, Slovenia.
- Nov 2014 23. Dynamical Systems Seminar at the University of Nice, Nice, France.
- Nov 2014 22. Analysis Seminar at the University of Lille, Lille, France.

- Oct 2014 21. Analysis Seminar at University of Wisconsin, Madison, Wisconsin, USA.
- Oct 2014 20. Analysis Seminar at Rutgers University, New Jersey, USA.
- Oct 2014 19. Analysis Seminar at Central Michigan University, Michigan, USA.
- Oct 2014 18. Analysis Seminar at the University of Western Ontario, Ontario, Canada.
- May 2014 17. SCV and PDEs Seminar at the University of Sao Paulo, Sao Paulo, Brazil.
- Mar 2014 16. Analysis Seminar at the University of Marseille, Marseille, France.
- Oct 2013 15. Dynamical Systems Seminar at Steklov Institute, Moscow, Russia.
- Aug 2013 14. Analysis Seminar at Pohang University, Pohang, Korea.
- Apr 2013 13. Complex Analysis Seminar at Moscow State University, Moscow, Russia.
- Mar 2013 12. Geometry Seminar at Texas A&M University, Texas, USA.
- May 2012 11. Analysis Seminar at University of California, San Diego, California, USA.
- Apr 2012 10. Analysis Seminar at University of Wisconsin, Madison, Wisconsin, USA.
- Apr 2012 9. Analysis Seminar at University of Syracuse, Syracuse, NY, USA.
- Apr 2012 8. Analysis Seminar at University of Michigan, Ann Arbor, Michigan, USA.
- Mar 2012 7. Analysis Seminar at University of Notre Dame, South Bend, IN, USA.
- Mar 2012 6. Analysis Seminar at Washington University in Saint Louis, Missouri, USA.
- Nov 2011 5. Analysis Seminar at University of Toronto, Toronto, Canada.
- Nov 2011 4. Analysis Seminar at Indiana University at Fort Wayne, Indiana, USA.
- Oct 2011 3. Analysis Seminar at Purdue University, West Lafayette, IN, USA.
- Oct 2011 2. Analysis Seminar at University of Illinois at Urbana-Champaign, IL, USA.
- May 2011 1. Complex Analysis Seminar at University of Vienna, Vienna, Austria.

Mini courses

May 2015 Mini course on Analytic Theory of Differential Equations, Masaryk University, Brno, Czech Republic.

Postdoc and Graduate Students Advising

- since 2017 Postdoc supervisor, for Dr. Jan Gregorovich, Masaryk University Brno.
- 2011-2012 Master Thesis co-Advisor, for M.S. Vitaly Bykov, "Envelopes of holomorphy of real submanifolds", in cooperation with Prof. Valeri Beloshapka.

Conference organizing

- June 2017 Workshop on Complex Analysis and Dynamics, Nice, France.
- Nov 2015 Workshop "Several complex variables and CR geometry", Schrodinger institute, Vienna, Austria.

Service and Experience

- Since 2014 Complex Analysis Seminar, Coorganizer, University of Vienna, Austria.
- 2012 2013 Analysis Seminar, Organizer, University of Western Ontario, Canada.