

Alexey Zykin

State University Higher School of
Economics

Address : 7, Vavilova st., Moscow,
Russia

E-mail : alzykin@gmail.com

Home page :

<http://www.mccme.ru/poncelet/pers/zykin/zykin.html>

Tel. : +7 917 591 34 24

Born 13/06/1984

Russian

Single

Languages: Russian,

English, French

Research interests:

- Zeta-functions and L -functions (modularity, special values, behaviour in families, Brauer–Siegel type results, distribution of zeroes);
- Algebraic geometry over finite fields (points on curves and varieties over finite fields, zeta functions, relations to coding theory);
- Families of fields and varieties, asymptotic theory (infinite number fields and function fields, limit zeta-functions);
- Abelian varieties and Elliptic Curves (Jacobians among abelian varieties, families of abelian varieties over global fields).

Main publications and preprints:

- *Asymptotic properties of zeta functions over finite fields*, preprint;
- *Uniform distribution of zeroes of L -functions of modular forms*, submitted;
- *On logarithmic derivatives of zeta functions in families of global fields* (with P. Lebacque), submitted;
- *Asymptotic properties of Dedekind zeta functions in families of number fields*, Journal de Théorie des Nombres de Bordeaux, **22**, no. 3 (2010), 689–696;
- *Jacobians among abelian threefolds: a formula of Klein and a question of Serre* (with G. Lachaud and C. Ritzenthaler), Math. Res. Lett. **17** (2010), no. 2, 323–333;
- *On the Brauer–Siegel theorem for families of elliptic surfaces over finite fields* (in Russian), Mat. Zametki, 2009, **86:1**, 148–150;
- *On the generalizations of the Brauer–Siegel theorem*, proceedings of the Conference AGCT 11 (2007), Contemp. Math. series, **487**(2009), 195–206;
- *Brauer–Siegel and Tsfasman–Vladut theorems for almost normal extensions of global fields*, Moscow Mathematical Journal, Vol. **5** (2005), Num. 4, 961–968.

Academic Employment

- 02.2010 — **Researcher**, Institute for Information Transmission Problems of the Russian Academy of Sciences;
- 09.2009 — **Associate Professor**, Mathematical Department of the State University Higher School of Economics.

Education

- 2006 — 2009 **Ph. D, Institut de Mathématiques de Luminy.**
Thesis: *Propriétés asymptotiques des corps globaux.*
Advisors: S. Vladuts and M. Tsfasman.
The thesis was defended on the 4th of June 2009 in Marseille.
Jury: M. Balazard, M. Hindry (referee), G. Lachaud (president), E. Royer, R. Schoof (referee, absent), M. Tsfasman (advisor), S. Vladuts (advisor).
- 2005 — 2010 **Ph. D studies, Mathematical Institute of the Russian Academy of Sciences, Independent University of Moscow.**
Thesis: *Asymptotic properties of global fields.*
Advisors: M. Tsfasman, A. Sergeev.
The thesis was defended on the 14th of October 2010 in Moscow.
- 2001 — 2006 **Specialist degree in Mathematics (Master's of Sciences equivalent), Moscow State University, Faculty of Mechanics and Mathematics.** Advisors: M. Tsfasman, V. Iskovskih.
- 2000 — 2005 **Specialist degree in Mathematics (Master's of Sciences equivalent), Independent University of Moscow.** Advisor: M. Tsfasman.
- 1998 — 2001 **Moscow Mathematical Highschool number 57.**

Conference Talks

- 2010.06 “Colloque des Jeunes Chercheurs en Théorie des Nombres”, Strasbourg, France. Talk: *Jacobiennes parmi les variétés abéliennes de dimension 3*.
- 2009.12 “Théorie des Nombres et Applications”, CIRM, Marseille, France. Talk: *Asymptotic properties of zeta functions*.
- 2009.07 “Journées Arithmétiques”, Saint-Etienne, France. Talk: *On the Euler–Kronecker constant and limit zeta functions*.
- 2009.03 “Arithmetic, Geometry, Cryptography and Coding Theory”, CIRM, Marseille, France. Talk: *On the asymptotic properties of zeroes of L -functions*.
- 2008.12 “Zeta Functions-2”, IUM, Laboratoire Poncelet, Moscow, Russia. Talk: *On the Euler–Kronecker constant and limit zeta functions*.
- 2007.11 “Arithmetic, Geometry, Cryptography and Coding Theory”, CIRM, Marseille, France. Talk: *On the Brauer–Siegel Theorem for Varieties over Global Fields*.
- 2007.07 “Global Fields”, IUM, Laboratoire Poncelet, Moscow, Russia. Talk: *Asymptotic problems in the theory of global fields*.
- 2006.09 “Zeta Functions”, IUM, Laboratoire Poncelet, Moscow, Russia. Talk: *The generalized Brauer–Siegel theorem*.
- 2005.09 “Arithmetic, Geometry and Coding Theory”, CIRM, Marseille, France. Talk: *The generalized Brauer–Siegel theorem*.

Seminar Talks

- 2010.12 Seminar on Riemann surfaces, Lie algebras and mathematical physics, Independent University of Moscow, Russia. Talk: *Curves over finite fields and Jacobians among abelian threefolds* (in Russian).
- 2010.01 Seminar of the Institute for Information Transmission Problems, Moscow, Russia. Talk: *Asymptotic properties of global fields* (in Russian).
- 2009.05 Algebraic Geometry Seminar, Mathematical Institute of the Russian Academy of Sciences, Moscow, Russia. Talk: *Jacobians and abelian threefolds* (in Russian).
- 2008.12 Number Theory Seminar, Institut Fourier, Grenoble, France. Talk: *Jacobiennes parmi les variétés abéliennes de genre 3*.
- 2008.11 Number Theory Seminar, Hebrew University of Jerusalem, Jerusalem, Israel. Talk: *On the generalized Brauer–Siegel theorem and limit zeta functions*.
- 2008.11 Algebraic Geometry Seminar, Bar-Ilan University, Tel-Aviv, Israel. Talk: *Jacobians among abelian threefolds*.
- 2007.11 Number Theory Seminar, Institut de Mathématiques de Luminy, Marseille, France. Talk: *Sur le Théorème de Brauer–Siegel pour des Variétés sur des Corps Globaux*.
- 2007.10 Number Theory Seminar, Institut Fourier, Grenoble, France. Talk: *Problèmes asymptotiques en théorie des corps globaux*.

Other scientific visits

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| 2010.06 | Scientific visit to the Mathematical Department of Besançon, France. Invitation by C. Maire. |
| 2009.03 | Scientific visit to the Mathematical Laboratory of the Blaise Pascal University, Clermont-Ferrand. Invitation by E. Royer. |
| 2009.01 | Winter School “Quantum chaos”, Institut de Mathématiques de Bordeaux, Bordeaux, France. |
| 2008.09 | Summer School “ p -adic Cohomology”, Institut für Mathematik, Mainz, Germany. |
| 2006.07 | Summer School “Motives and related topics”, Institut des Hautes Etudes Scientifiques, Paris, France. |
| 2005.07 | Summer School “Number fields and curves over finite fields”, Crete, Greece. |
| 2005.07 | Summer School “Algebraic groups”, Georg-August-Universität, Göttingen, Germany. |
| 2005.06 | Conference “Gauss-Dirichlet”, Georg-August-Universität, Göttingen, Germany. |
| 2005.01 | Exchange “École Normale Supérieure de Paris” — “Independent University of Moscow”, Paris, France |
| 2004.06 | Conference “Arithmetic geometry”, Euler International Mathematical Institute, St. Petersburg, Russia. |
| 2004.01 | Winter School, Weizmann Institute of Science, Rehovot, Israel. |
| 2003.05 | Conference “Arithmetic, Geometry and Coding Theory”, CIRM, Marseille, France. |
| 2003.05 | Summer School “Algebraic geometry and information theory”, CIRM, Marseille, France. |

Organized Conferences

- 2011.03 “Arithmetic, Geometry, Cryptography and Coding Theory” (together with Y. Aubry and C. Ritzenthaler), CIRM, Marseille, France.
- 2010.06 “Zeta Functions-3” (together with M. Tsfasman and M. Balazard), IUM, Laboratoire Poncelet, Moscow, Russia.
- 2007.07 “Global Fields” (together with M. Tsfasman), IUM, Laboratoire Poncelet, Moscow, Russia.

Organized seminars

- 2009 — Number Theory Seminar (together with M. Tsfasman), IUM—Laboratoire Poncelet—IITP, Moscow, Russia.
- 2009 — 2010 “Monstrous Moonshine” (together with E. Smirnov), Mathematical Department of the Higher School of Economics, Moscow, Russia.
- 2008 — 2009 “Abelian varieties” (together with C. Ritzenthaler), Luminy Mathematical Institute, Marseille, France.
- 2007 — 2008 “Complex multiplication” (together with C. Ritzenthaler and D. Kohel), Luminy Mathematical Institute, Marseille, France.
- 2006 — 2007 “Algebraic Surfaces” (together with F. Edoukou), Luminy Mathematical Institute, Marseille, France.
- 2005 — 2006 “Automorphic forms” (together with W. Zudilin), Moscow State University, Russia.

Teaching experience

- 2009 — Algebra, Calculus, Geometry, Topology, Discrete Mathematics exercise sessions at the Mathematical Department of the Higher School of Economics.
- 2010 — 2011 Number theory course at the Mathematical Department of the Higher School of Economics and IUM.
- 2010 Algebraic geometry and commutative algebra exercise sessions, “Math in Moscow” mathematical program for foreign students, Independent University of Moscow.
- 2003 — 2008 Algebra, Calculus and Number Theory exercise sessions at the Independent University of Moscow.
- 2005 — 2006 Tutorship in the “Math in Moscow” mathematical program for foreign students, Independent University of Moscow.

Prizes, Rewards, Fellowships :

- 2011 — 2012 “Dynasty” foundation scholarship;
- 2006 — 2009 Grant of the French Government for a joint French—Russian Ph.D. program;
- 2004 — 2005 Petrovsky Fellowship (IUM).

Reviewer:

2010 — Mathematical Reviews;
2010 — “Finite Fields and Applications”;
2009 — Moscow Mathematical Journal;
2008 — Zentralblatt MATH.