CURRICULUM VITAE

SURNAME: Zinoviev **FIRST NAME:** Dmitrii

Affiliation and official address: Institute for Problems of Information Transmission, Russian Academy of Sciences, Bolshoi Karetnyi per. 19, GSP-4, Moscow, 101447, RUSSIA.
email: *dzinov@iitp.ru*

Date and place of birth: 13.02.1969, Moscow, Russia
Nationality: Canadian, Russian

Education (degrees, dates, universities)

Ph.D.	1991-1997	Mathematics	The Ohio State University
MS.	1986-1991	Computer Science and Mathematics	Moscow Institute of Physics and Technology

Specialization and experience

Mathematics/ Computer Science

(i) main fields in Mathematics:

Coding Theory, Cryptography, Representation Theory;

(ii) main fields in Computer Science:

Computer Algebra and Geometry;

(iii) current research interest:

Finite Field, Coding Theory, Cryptography, Representation Theory;

(iv) computer related background:

- 15 years of C/C++/Assembly language experience;
- optimization techniques and vector algorithms;
- 3D Computer Graphics;
- Computer Architecture and various hardware platforms;

Career/Employment (employers, positions, dates, responsibilities)

1991 - 1997: Graduate Teaching Associate, Department of Mathematics, The Ohio State University, Columbus, Ohio.

Responsibilities:

- Teaching Mathematics (Analysis, Algebra) to the undergraduate students;
- Research in Mathematics;

1997 - 1998: Software Engineer, Memotec, Montreal, Canada.

Responsibilities:

- Developed Operating System for Real Time Embedded Systems (RTS);
- Mathematical modeling of ATM protocol.

1998 - 2000: Senior Software Engineer, ATI Technologies, Toronto, Canada.

Responsibilities:

- Research in Computer Graphics, real-time 3D Rendering algorithms, Linear Algebra and Geometry;
- Development and Analysis of vector algorithms.
- Performance analysis of real-time 3D graphics in professional applications;
- Performance analysis of Computer Games and Entertainment applications;
- Computer Architecture and Graphics hardware;

2001: Post-Doc (1-year), INRIA, Sophia Antipolis, France.
Responsibilities:
- Research in Algebraic Curves and Surfaces in Computer Aided design and Robotics.
- Developed and analyzed new algorithms for solving algebraic equations of high degree.

2002 - present: Scientific Researcher, Institute for Problems of Information Transmission, Russian Academy of Sciences, Moscow, Russia.
Responsibilities: Research in Coding Theory and Cryptography,
- Classification of non-equivalent perfect codes of length 16 of rank 13 and 14;
- Classification of Steiner Systems of rank 13 and 14;
- Development of Computer Algebra tools: Isotropy Groups Iso(16), Iso(8) acting on binary spaces of length 16 and 8;
- Computational Complexity analysis;
- Publications and Conferences;

2003: Post-Doc (1-year), CNRS-I3S, ESSI, Sophia Antipolis, France.
Responsibilities: Research in Wireless systems and Cryptography,
- Constructed and studied pseudorandom sequences using Fourier analysis on finite groups and character sums;
- New constructions of weighted degree trace codes;

2001 - present: Consultant, Softplast, Moscow, Russia.
Responsibilities: Research and Software development,
- Computer Graphics and Geometry in visualization of large 3D data structures;
- Real-time 3D rendering and visual effects;
- Vector algorithms for computations in Applied mathematics;
- Performance and optimization;

Honors, Awards, Fellowships, Membership of Professional Societies

1. M.S.(Hons), Moscow Institute of Physics and Technology, Moscow, Russia.
2. 6/86-6/91 Research Fellowship, Moscow Institute of Physics and Technology, Moscow, Russia
3. 6/91-6/92 The Ohio State University, Department of Mathematics, Presidential Fellowship
4. Summers 94/95 INRIA, Paris, France, Research
5. Summer 93, Research, Gauss Laboratory, Puerto-Rico.
6. Membership: 1992-1997, American Mathematical Society (AMS).
7. Membership: 1997-2000, Association for Computing Machinery (ACM).

1. **On Poles of Twisted Tensor L-functions** (with Y. Flicker) Proceedings of the Japan Academy, 71-A (6), (1995) 114–116.
2. **On Several New Projective Curves over F_2 of Genus 3, 4, and 5** (with O. Moreno and V. Zinoviev) IEEE Transactions on Information Theory, 41 (6), (1995) 1646–1648.
3. **Relation of Orbital Integrals on SO(5) and PGL(2)** Israel Journal of Mathematics, 106 (1998), 29–78.
4. **On Vinogradov's Constant in Goldbach's Ternary Problem** Journal of Number Theory, 65 (1997), 334–358.
5. **A complete Vinogradov 3-primes Theorem under the Riemann Hypothesis** (with J.-M. Deshouillers, G. Effinger, and H. te Riele), Electronic Research Announc. Amer. Math. Soc. 3 (1997), 99–104.
6. **On the Symmetric Square. Unstable Twisted Characters.** (with Y. Flicker) Israel Journal of Mathematics, 134 (2003), 307–315.
7. **Twisted Characters of a small Representation of PGL(4).** (with Y. Flicker) Moscow Mathematical Journal, V. 4, N° 2, April-June 2004, P. 333–368.
8. **Twisted Characters of a small Representation of GL(4).** (with Y. Flicker) Preprint 2002.
9. **Computing robustly the intersection of two algebraically defined surfaces.** (with Bernard Mourrain, Jean-Pierre Tecourt) Technical Report ECG-TR-242108-01, INRIA Sophia-Antipolis, 2003.
10. **Binary extended perfect codes of length 16 by generalized concatenated construction.** (with V. Zinoviev) Problems of Information Transmission. 2002. V. 38. N° 4. P. 296–322
11. **Binary extended perfect codes of length 16 by generalized concatenated construction.** (with V. Zinoviev) in: Proceedings of Eighth International Workshop. Algebraic and Combinatorial Coding Theory, 8 - 14 September, 2002, Tsarskoe Selo, Russia, pp. 268-271.
12. **Binary extended perfect codes of length 15 by generalized concatenated construction.** (with V. Zinoviev) Problems of Information Transmission, 2004. V 40. N° 1. P. 25–36
13. **$\mathbf{Z}_8$-Kerdock codes and pseudo-random binary sequences.** (with J. Lahtonen, S. Ling, P. Solé) Journal of Complexity, Volume 20 (2004) pp. 312–330.
14. **Quaternary Codes and Biphase Sequences from $\mathbf{Z}_8$-Codes.** (with P. Solé) Problems of Information Transmission, 2004. V 40. N°2. P. 147–158
15. **The Most Significant Bit of Maximum Length Sequences Over $\mathbf{Z}_{2^l}$: Autocorrelation and Imbalance.** (with P. Solé) IEEE Transactions on Information Theory, Vol. 50 (2004) pp. 1844–1846.
16. **Low Correlation, High Nonlinearity Sequences for multi-code CDMA.** (with P. Solé) Submitted 2003.
17. **Weighted degree trace codes for PAPR reduction.** (with P. Solé) SETA 2004, LNCS 3486, pp. 406–413, 2005.
18. **Classification of Steiner Quadruple Systems of order 16 and Rank at most 13.** (with V. Zinoviev) Problems of Information Transmission, 2004. V 40. N°4. P. 337–355
19. **Distribution of r-Pattern in the Most Significant Bit of a Maximum Length Sequence over $\mathbf{Z}_{2^l}$.** (with P. Solé) SETA 2004, LNCS 3486, pp. 275–281, 2005.

20. **Classification of Steiner Quadruple Systems of order 16 and Rank at most 13.** (with V. Zinoviev) in: Proceedings of Ninth International Workshop. Algebraic and Combinatorial Coding Theory, 19 - 25 June, 2004, Kranevo, Bulgaria, pp. 399-403.
21. **Vasiliev codes of length $n = 2^m$ and Steiner systems $S(n, 4, 3)$ of rank $n - m$ over F_2.** (with V. Zinoviev) Submitted.
22. **Binary extended perfect codes of length** 16 **of rank** 14 **over $\mathbf{F}_2$.** (with V. Zinoviev) Submitted.
23. **Classification of Steiner quadruple systems of order** 16 **and rank** 14**.** (with V. Zinoviev) Submitted 2005.
24. **A MacWilliams formula for Convolutional Codes** (with P. Solé) Submitted 2005.