ILYA DUMER – Curriculum Vitae

Professor at the College of Engineering, University of California, Riverside, CA 92521
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RESEARCH Error Control and Data Protection

EDUCATION

1977-1981 Institute for Information Transmission Problems, Russian Academy of Sciences. Thesis: "Cascaded decoding and code constructions for discrete and semicontinuous channels". Ph.D. in Information Theory

1970-1976 Dept. of Radioelectronics, Moscow Institute of Physics and Technology, USSR. B.Sc. -1974 and M.Sc. -1976 (summa cum laude) in Electrical Engineering. Thesis:"Some New Uniformly Packed Codes".

EXPERIENCE

1995-to date *Professor* at the EE Department, University of California, Riverside. Teaching and research in Communications and Coding.

1983-1995 *Junior Researcher and Senior Researcher* at the Institute for Information Transmission Problems, Russian Academy of Sciences. Research in coding techniques.

1979-1983 *Head of the Engineering Team* at the Moscow Public Health Computer Center. Design of data processing systems.

SELECTED PAPERS (150 peer-reviewed publications)

1. I. Dumer, A. Kovalev, and L. Pryadko, "Thresholds for Correcting Errors, Erasures, and Faulty Syndrome Measurements in Degenerate Quantum Codes," Phys. Rev. Lett., vol. 115.050502, 1-10, 2014.

2. I. Dumer and O. Kapralova, "Spherically punctured biorthogonal codes," IEEE Trans. Info. Theory, 59, no. 9, pp. 6010-6017, 2013.

3. A. Kovalev, I. Dumer, and L. Pryadko, "Design of additive quantum codes via the code-word-stabilized framework," Phys. Review A, vol. 84, 062319, pp. 1-11, 2011.

4. Y. Li, I. Dumer, and L. Pryadko, "Clustered error correction of codeword-stabilized quantum codes," Phys. Review Lett., vol. 104, 190501, pp. 1-4, 2010.

5. Y. Li, I. Dumer, M. Grassl, and L. Pryadko, "Structured error recovery for codeword-stabilized quantum codes," Phys. Review A, vol. 81, 052337, pp. 1-12, 2010.

6. I. Dumer, G. Kabatiansky, C. Tavernier, "List decoding of biorthogonal codes and the Hadamard transform with linear complexity, " IEEE Trans. Info. Theory, 54, no. 10, pp. 4488-4492, 2008.

7. N. P. Anthapadmanabhan, A. Barg, and I. Dumer, "Fingerprinting Capacity Under the Marking Assumption," IEEE Trans. Info. Theory, 54, no. 6, pp. 2678-2689, 2008.

8. I. Dumer, "Covering spheres with spheres," Discrete and Comput. Geometry, vol. 38, no. 4, pp. 3-18, 2007.

9. I. Dumer and K. Shabunov, "Soft decision decoding of Reed-Muller codes: recursive lists," IEEE Trans. Info. Theory, vol. 52, no. 3, pp. 1260-1266, 2006.

10. I. Dumer, "Soft decision decoding of Reed-Muller codes: a simplified algorithm," IEEE Trans. Info. Theory, vol. 52, no. 3, pp. 954-963, 2006.

11. I. Dumer, "Covering an ellipsoid with equal balls," J.l of Combinatorial Theory, Series A, vol. 113, 1667–1676, 2006.

12. I. Dumer, D. Micciancio, and M. Sudan, "Hardness of approximating the minimum distance of a linear code," IEEE Trans. Info. Theory, 49, no. 1, pp. 22-37, 2003.

AWARDS

2007 *IEEE Fellow*

1993-1994 *Alexander von Humboldt Research Fellow,* Institute for Experimental Mathematics, Essen University, Germany

1992-1993 *Royal Society Guest Research Fellow,* Manchester University, UK

TEACHING

1996-date Courses: Analog and Digital Communications for undergraduates;
Digital communications and Error-Correcting Codes for graduate students.

Modernized and developed various courses in Communications and Error Control.
Thesis adviser for M.Sc. and Ph.D. students; University of California, Riverside.

2003 Best Mentor award, College of Engineering, UC Riverside.

2001 Best Teacher award, College of Engineering, UC Riverside

ADVISING (recent Ph.D. students)

Yunfan Li (EE Ph.D. Program, UC Riverside, defended Ph.D. in 2010)
Yi-Hsiang Wang (EE Ph.D. Program, UC Riverside, defended Ph.D. in 2011)
YuanTian (EE Ph.D. Program, UC Riverside, defended Ph.D. in 2013)
Olga Kapralova (EE Ph.D. Program, UC Riverside, defended Ph.D. in 2013)
John Buttler (EE Ph.D. Program, UC Riverside, defended Ph.D. in 2014)

OTHER ACTIVITIES

Program Committees:
International Symposia on Information theory (1997, 2003, 2005, 2006, 2007, 2008, 2010, 2011, 2015); Workshops on Information theory, Codes and Cryptography (2005, 2007, 2010, 2015, 2016);

Associate Editor for Coding Theory: IEEE Transactions on Information Theory, 2006-2009; International J. of Information and Coding Theory (2014-2016)

Visiting Positions: University of Rennes, France (2013), Tel Aviv University (2013), CNRS-Orsay, France (2003, 2006) , AT&T Bell Laboratories, Murray Hill, NJ (1995), Institute of Experimental Mathematics, Essen, Germany (1993-1994), Manchester University, UK (1992-1993), Ecole Nationale Superiore de Telecommunication, Paris, France (1992), Eindhoven University of Technology, the Netherlands (1991), Turku University, Finland (1991), Technical High School, Darmstadt, Germany (1989).