

Education

PRINCETON UNIVERSITY, PRINCETON, NJ, USA

Degree: Ph.D., Electrical Engineering (09/2010)
Thesis: "Channel coding: non-asymptotic fundamental limits"
Advisers: H. V. Poor and S. Verdú

MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY, RUSSIA

Degree: M.S. with Honors, Applied Mathematics and Physics (06/2005)
Degree: B.S. with Honors, Applied Mathematics and Physics (06/2003)

Journal Publications and Preprints

- U. Hadar, J. Liu, Y. Polyanskiy and O. Shayevitz, "Communication complexity of estimating correlations," *arXiv:1901.09100*, Jan. 2019.
- S. Kowshik and Y. Polyanskiy, "Fundamental limits of many-user MAC with finite payloads and fading," *arXiv:1901.06732*, Jan. 2019.
- A. Bhatt, B. Nazer, O. Ordentlich and Y. Polyanskiy, "Information-distilling quantizers," *arXiv:1812.03031*, Dec. 2018.
- A. Makur, E. Mossel and Y. Polyanskiy, "Broadcasting on random directed acyclic graphs," *arXiv:1811.03946*, Nov. 2018.
- Y. Sun, Y. Polyanskiy and E. Uysal-Biyikoglu, "Sampling of the Wiener process for remote estimation over a channel with random delay," *arXiv:1707.02531*, Nov. 2018.
- Z. Goldfeld, K. Greenewald and Y. Polyanskiy, "Estimating differential entropy under Gaussian convolutions," *arXiv:1810.11589*, Oct. 2018.
- Z. Goldfeld, E. van den Berg, K. Greenewald, I. Melnyk, N. Nguyen, B. Kingsbury and Y. Polyanskiy, "Estimating information flow in neural networks," *arXiv:1810.05728*, Oct. 2018.
- Y. Polyanskiy and Y. Wu, "Application of information-percolation method to reconstruction problems on graphs," *arXiv:1806.04195*, Jun. 2018.
- Z. Goldfeld, G. Bresler and Y. Polyanskiy, "Information storage in the stochastic Ising model," *arXiv:1805.03027*, May 2018.
- N. Alon, B. Bukh and Y. Polyanskiy, "List-decodable zero-rate codes," *IEEE Trans. Information Theory*, vol. 65, no. 3, pp. 1657–1667, Mar. 2019
- W. Yang, A. Collins, G. Durisi, Y. Polyanskiy, and H. V. Poor, "Beta-Beta bounds: finite-blocklength analog of the golden formula," *IEEE Trans. Information Theory*, vol. 64, no. 9, pp. 6236–6256, Sep. 2018.
- A. Collins and Y. Polyanskiy, "Coherent multiple-antenna block-fading channels at finite block-length," *IEEE Trans. Information Theory*, vol. 65, no. 1, pp. 380–405, Jan. 2019.
- Y. Polyanskiy, A. T. Suresh and Y. Wu, "Sample complexity of population recovery," *Proc. Conf. on Learning Theory (COLT-2017)*, Jul. 2017.
- M. Dalai and Y. Polyanskiy, "Bounds on the reliability function of typewriter channels," *IEEE Trans. Information Theory*, vol. 64, no. 9, pp. 6208–6222, Sep. 2018.
- J. Tang, D. Wang, Y. Polyanskiy and G. Wornell, "Defect tolerance: fundamental limits and examples," *IEEE Trans. Information Theory*, vol. 64, no. 7, pp. 5240–5260, Jul. 2018.
- A. Makur and Y. Polyanskiy, "Comparison of channels: criteria for domination by a symmetric channel," *IEEE Trans. Information Theory*, vol. 64, no. 8, pp. 5704–5725, Aug. 2018.
- Y. Polyanskiy and A. Samorodnitsky, "Improved log-Sobolev inequalities, hypercontractivity and uncertainty principle on the hypercube," *arXiv:1606.07491*, Jun. 2016.
- F. P. Calmon, Y. Polyanskiy and Y. Wu, "Strong data processing inequalities for input constrained additive noise channels," *IEEE Trans. Information Theory*, vol. 64, no. 3, pp. 1879–1892, Mar. 2018.
- Y. Polyanskiy and Y. Wu, "Strong data-processing inequalities for channels and Bayesian networks," In *Convexity, Concentration and Discrete Structures*, part of *The IMA Volumes in Mathematics and its Applications*, vol. 161, Springer-Verlag, New York, 2017.

- M. Dalai and Y. Polyanskiy, "Bounds for codes on pentagon and other cycles," *arXiv:1508.03020*, Aug. 2015.
- W. Yang, G. Durisi and Y. Polyanskiy, "Minimum energy to send k bits over multiple-antenna fading channels," *IEEE Trans. Information Theory*, vol. 62, no. 12, pp. 6831–6853, Dec. 2016.
- Y. Polyanskiy and Y. Wu, "Wasserstein continuity of entropy and outer bounds for interference channels," *IEEE Trans. Information Theory*, vol. 62, no. 7, pp. 3992–4002, Jul. 2016.
- Y. Polyanskiy, "On metric properties of maps between Hamming spaces and related graph homomorphisms," *J. Combin. Theory Ser. A*, vol. 145, pp. 227–251, 2017.
- V. Kostina, Y. Polyanskiy and S. Verdú, "Joint source-channel coding with feedback," *IEEE Trans. Information Theory*, vol. 63, no. 6, pp. 3502–3515, Jun 2017.
- G. Durisi, T. Koch, J. Östman, Y. Polyanskiy and W. Yang, "Short-packet communications with multiple antennas: transmit diversity, spatial multiplexing, and channel estimation overhead," *IEEE Trans. Comm.*, vol. 64, no. 2, pp. 618–629, Feb. 2016.
- H. Roozbehani and Y. Polyanskiy, "Algebraic methods of classifying directed graphical models," *arXiv:1401.5551*, Dec. 2014.
- Y. Polyanskiy, "Upper bound on list-decoding radius of binary codes," *IEEE Trans. Information Theory*, vol. 62, no. 3, pp. 1119–1128, Mar. 2016.
- W. Yang, G. Caire, G. Durisi and Y. Polyanskiy, "Optimum power control at finite blocklength," *IEEE Trans. Information Theory*, vol. 61, no. 9, pp. 4598–4615, Sep. 2015.
- Y. Polyanskiy and Y. Wu, "Dissipation of information in channels with input constraints," *IEEE Trans. Information Theory*, vol. 62, no. 1, pp. 35–55, Jan. 2016.
- V. Kostina, Y. Polyanskiy and S. Verdú, "Variable-length compression allowing errors," *IEEE Trans. Information Theory*, vol. 61, no. 8, pp. 4316–4330, Aug. 2015.
- W. Yang, G. Durisi, T. Koch and Y. Polyanskiy, "Quasi-static multiple-antenna fading channels at finite blocklength," *IEEE Trans. Information Theory*, vol. 60, no. 7, pp.4232–4265, Jul. 2014.
- Y. Polyanskiy, "Hypercontractivity of spherical averages in Hamming space," *arXiv:1309.3014*, Sep. 2013.
- Y. Polyanskiy and Y. Wu, "Peak-to-average power ratio of good codes for Gaussian channel," *IEEE Trans. Information Theory*, vol. 60, no. 12, pp. 7655–7660, Dec 2014.
- A. Makhdoumi, S.-L. Huang, M. Médard and Y. Polyanskiy, "On locally decodable source coding," *arXiv:1308.5239*, Aug. 2013.
- Y. Polyanskiy, "Hypothesis testing via a comparator and hypercontractivity," *preprint*, Feb. 2013.
- Y. Polyanskiy, "Saddle point in the minimax converse for channel coding," *IEEE Trans. Information Theory*, vol. 59, no. 5, pp. 2576–2595, May 2013.
- Y. Polyanskiy and S. Verdú, "Empirical distribution of good channel codes with non-vanishing error probability," *IEEE Trans. Information Theory*, vol. 60, no. 1, pp. 5–21, Jan. 2014.
- Y. Polyanskiy, "Asynchronous communication: exact synchronization, universality, and dispersion," *IEEE Trans. Information Theory*, *IEEE Trans. Information Theory*, vol. 59, no. 3, pp. 1256–1270, Mar. 2013.
- Y. Polyanskiy, H. V. Poor and S. Verdú, "Feedback in the non-asymptotic regime," *IEEE Trans. Information Theory*, vol. 57, no. 8, pp. 4903 - 4925, Aug. 2011.
- Y. Polyanskiy, H. V. Poor and S. Verdú, "Minimum energy to send k bits through the Gaussian channel with and without feedback," *IEEE Trans. Information Theory*, vol. 57, no. 8, pp. 4880 - 4902, Aug. 2011.
- Y. Polyanskiy, H. V. Poor and S. Verdú, "Dispersion of the Gilbert-Elliott channel," *IEEE Trans. Information Theory*, vol. 57, no. 4, pp. 1829–1848, Apr. 2011.
- Y. Polyanskiy, H. V. Poor and S. Verdú, "Channel coding rate in the finite blocklength regime," *IEEE Trans. Information Theory*, vol. 56, no. 5, pp. 2307–2359, May 2010.
- V. Gorokhov, G. Popelnukha, G. Polyanskiy, Y. Polyanskiy, V. Tsukanov, Russian Federation Patent №31061 (RU), "Switchboard for managing submersible electric motors," Jul. 10, 2003.

Awards

- 2016** Jerome H. Saltzer Teaching Award
- 2015** Simons-Berkeley Research Fellowship
- 2013** NSF CAREER Award
- 2011** IEEE Information Theory Best Paper Award
- 2010** Best Student Paper Award at *2010 IEEE Int. Symp. Information Theory (ISIT)*
- 2009** Harold W. Dodds Fellowship (Princeton University Honorific Fellowship)
- 2008** Best Student Paper Award at *2008 IEEE Int. Symp. Information Theory (ISIT)*

Work Experience

2015-now MIT, Associate Professor of EECS

2012-2015 MIT, Robert J. Shillman Career Development Professor of EECS

2011-2012 MIT, Assistant Professor of EECS

2010-2011 PRINCETON UNIVERSITY, Postdoctoral Research Associate (Sponsor: S. Verdú)

2005-2010 PRINCETON UNIVERSITY, Assistant-in-Research, Assistant-in-Instruction

assisted in teaching ELE528 “Information Theory” (2007) and ELE 486 “Digital Communication” (2009).

2002-2005 INSTITUTE OF CONTROL SCIENCES, RUSSIAN ACADEMY OF SCIENCES, Research Assistant

Improved normalized gradient (NLMS) algorithm of recursive identification (M.S. thesis); constructed color pre-filter and morphological post-processor for face detection (B.S. thesis); continued fractions for solving polynomial equations and computing special functions.

2000-2005 BORETS LLC (MOSCOW), Dept. Surface Oilfield Equipment, Chief Software Designer

Designed algorithms and implemented hardware for controlling submersible pumps (in 2005 those controllers occupied 40% of the national market): embedded architectures (ARM, AVR, 8051 et al), kernel programming for Linux, Windows and Windows CE, DSP programming, FPGA.

Interests

- *Research:* Information theory, coding theory, digital communications.
- *Mathematics:* probability, combinatorics, algebraic geometry, algebra.
- *Hobby:* Linux kernel development, open source projects, network security.
- *Service:* FnT in Comm. and Inform. [EDITORIAL BOARD],
IEEE Int. Symp. Information Theory (ISIT) [TPC],
IEEE Trans. Information Theory, IEEE Trans. Communications [REVIEW]

Invited Talks

- Y. Polyanskiy, “Multiple access with finite payloads and many users,” *Qualcomm NJ Research Center*, Qualcomm, Bridgewater, NJ, Jan 2019.
- Y. Polyanskiy, “Communication complexity of estimating correlations,” *Center for Data Science (CDISE)*, Skoltech, Skolkovo, Russia, Jan. 2019
- Y. Polyanskiy, “Partition functions and massive multiple-access,” *Workshop on Applications of Partition Functions*, Bernoulli Center, EPFL, Lausanne, CH, Nov 2018.
- Y. Polyanskiy, “Information-theoretic perspective on massive multiple-access (tutorial),” *2018 North-American School of Information Theory*, Texas A&M University, College Station, TX, May 2018.
- , *short course*, SkolTech Inst. Of Tech., Moscow, Russia, Jul. 2018.
- Y. Polyanskiy, “Tight sample complexity bounds via dualizing LeCam’s method,” *MSR Talk Series*, Microsoft Research, Redmond, WA, Aug 2018.
- , *Joint Statistics Meeting (JSM’2018)*, Vancouver, CA, Jul 2018.
- , *ISL IT Forum*, Stanford University, Stanford, CA, May 2018.
- , *Joint PACM-EE Colloquium*, Princeton University, Princeton, NJ, Apr. 2018
- Y. Polyanskiy, “Broadcasting on directed acyclic graphs,” *Probability Seminar*, MIT, Cambridge, MA, May 2018.
- , *Real-Time Decision Making Program*, Simons Inst., Berkeley, CA, May 2018
- Y. Polyanskiy, “Energy-Efficiency and Random-Access,” *NSF Workshop on Low-Latency Wireless Random Access*, MIT, Cambridge, MA, Nov. 2017.
- , *55th Allerton Conference on Communications and Control*, U. of Illinois, USA, Oct. 2017.
- Y. Polyanskiy, “Sample complexity of population recovery,” *Stochastics and Statistics Seminar*, IDSS, MIT, Sep. 2017.
- , *ECE Seminar*, U. of Maryland (College Park), Oct. 2017.
- Y. Polyanskiy, “Zero-rate list-decodable codes in Hamming and Euclidean spaces,” *Center for Data Science (CDISE)*, Skoltech, Skolkovo, Russia, Aug. 2017
- Y. Polyanskiy, “Fundamental limits and schemes for random-access in wireless channels,” Institute for Communications Engineering (LNT), T.U.-München, Munich, Germany, Jul. 2017.
- , *Theoretische Grundlagen der Kommunikationstechnik (CommIT)*, T.U.-Berlin, Berlin, Germany, Jun. 2017.
- Y. Polyanskiy, “On maps between Hamming spaces that expand pairwise distances,” *Seminar*, School of Computer and Communication Sciences, EPFL, Switzerland, Apr. 2017.
- Y. Polyanskiy, “Codes for MAC in communication and digital right management,” *Shaping the Future: Big Data, Biomedicine and Frontier Technologies (MIT-Skoltech Symposium)*, Skoltech, Skolkovo, Russia, Apr. 2017
- Y. Polyanskiy, “Strong data processing inequalities for channels and Bayesian networks,” *Beyond I.I.D.*, Institut d’Estudis Catalans, Barcelona, Spain, Jul. 2016.
- Y. Polyanskiy, “Uncertainty principle and stronger hypercontractivity on the hypercube,” *Information Theory and Applications (ITA)*, San Diego, CA, Feb. 2017.
- , *Mathematics, Theoretical Physics and Data Science (Sinai-Margulis Conference)*, Moscow Indep. Univ., Moscow, Jul. 2016.
- , *2016 SIAM Conf. Discr. Math (DM-16)*, Georgia State Univ., Atlanta, GA, Jun. 2016.
- Y. Polyanskiy, “Finite blocklength information theory (tutorial),” *2016 European School of Information Theory*, Chalmers University, Gothenburg, Sweden, Apr. 2016.
- Y. Polyanskiy, “Asymptotics of codes in strong products of graphs,” *Bassalygo seminar*, Inst. of Information Transmission Problems (IITP), Moscow, Russia, Jan. 2016.
- Y. Polyanskiy, “Coupling, entropy and Costa’s corner-point conjecture,” *LIDS Seminar*, MIT, Cambridge, MA, Nov. 2015
- Y. Polyanskiy, “Graph homomorphisms, Schrijver’s theta-function and maps between Hamming spaces,” *Seminar*, Simons Inst. for the Theory of Computing, Berkeley, CA, Feb. 2015.

- , *Jerusalem Combinatorics Seminar*, Hebrew University (HUJI), Jerusalem, Israel, Apr. 2015.
- , *Systems of Lines: Algebraic Combinatorics*, WPI, Worcester, MA, Aug. 2015.
- Y. Polyanskiy, “Finite blocklength information theory of wireless channels,” *Seminar*, Univ. of California, San Diego, CA, Apr. 2015
- , *ISL Colloquium*, Stanford Univ., Stanford, CA, Apr. 2015
- Y. Polyanskiy, “Wasserstein continuity of entropy and outer bounds for interference channels,” *Inform. Theory Forum*, Stanford Univ., Stanford, CA, Apr. 2015
- , *Seminar*, Dept. of EE, Tel-Aviv Univ., Tel-Aviv, Israel, May 2015.
- Y. Polyanskiy, “Upper bound on list-decoding radius of binary codes,” *Workshop on Information Theory in Complexity Theory and Combinatorics*, Simons Institute for the Theory of Computing, Berkeley, CA, Apr. 2015.
- Y. Polyanskiy, “Energy and spectral efficiency in fading channels,” *2015 Information Theory Workshop (ITW)*, Jerusalem, Israel, Apr. 2015.
- Y. Polyanskiy, “Short packet communication over wireless links,” *MIT Wireless Center 5G Day*, Wireless @ MIT, MIT, Cambridge, MA, May 2015
- Y. Polyanskiy, “Dissipation of information in channels with input constraints”, Dept. of EE, U. of Hawaii, Honolulu, HI, Jun 2014.
- , *Theory Group Seminar*, Microsoft Research, Redmond, WA, May 2014.
- , *Beyond I.I.D.*, Centre for Quantum Tech., NUS, Singapore, May 2014.
- , *Charles River Science of Information Day*, MIT, Cambridge, MA, Apr 2014.
- Y. Polyanskiy, S. Verdú “Finite blocklength methods in information theory (tutorial)”, ISIT’2013, Istanbul, Turkey, Jul 2013.
- Y. Polyanskiy, “Finite blocklength methods in channel coding”, Chalmers Univ., Gothenburg, Sweden, Jul 2013
- Y. Polyanskiy, “Hypercontractivity of spherical averages in Hamming space,” *Theory Group Seminar*, Microsoft Research New England, Cambridge, MA, USA, Jun 2013.
- Y. Polyanskiy, “On asynchronous capacity and dispersion,” *LIDS Advisory Committee Meeting*, MIT, Cambridge, MA, USA, Apr. 2012.
- Y. Polyanskiy, “Optimal channel codes and concentration of measure,” *Th. of Computation Colloquium*, EECS, MIT, Cambridge, MA, Oct. 2011.
- Y. Polyanskiy, “On the properties of optimal codes,” Alcatel-Lucent Bell Labs, NJ, Jun. 2011.
- Y. Polyanskiy, “Data transmission: non-asymptotic fundamental limits,” Dept. of ECE, U. of Texas, Austin, TX, Apr. 2011.
- , ITA Center, UCSD, San Diego, CA, Apr. 2011.
- , Dept. of EE, USC, Los Angeles, CA, Mar. 2011.
- , Dept. of EECS, MIT, Cambridge, MA, Mar. 2011.
- , Dept. of EE, Columbia University, NY, Mar. 2011.
- Y. Polyanskiy, “Channel coding: non-asymptotic fundamental limits,” Texas Instruments, Dallas, TX, Aug. 2012.
- , U. of Illinois at Urbana-Champaign (UIUC), IL, Feb. 2011.
- , U. of Southern California, Los Angeles, CA, Feb. 2011.
- , Research Laboratory of Electronics (RLE), MIT, Cambridge, MA, Jan. 2011
- , Polytechnical Institute of New York University (NYU-Poly), NY, Dec. 2010.
- , Alcatel-Lucent Bell Labs, NJ, Dec. 2010.
- , Cornell University, Ithaca, NY, Nov. 2010.
- Y. Polyanskiy, “Achievability bounds in the regime of fixed probability of error”, U. of Maryland, College Park, MD, Nov. 2009

Conference Proceedings

- Z. Goldfeld, G. Bresler and Y. Polyanskiy, "Information storage in the stochastic Ising model at zero temperature," *2018 IEEE Int. Symp. Information Theory (ISIT)*, Vail, CO, USA, Jun. 2018.
- O. Ordentlich and Y. Polyanskiy, "Entropy under additive Bernoulli and spherical noises," *2018 IEEE Int. Symp. Information Theory (ISIT)*, Vail, CO, USA, Jun. 2018.
- H. Hassani, S. Kudekar, O. Ordentlich, Y. Polyanskiy and R. Urbanke, "Almost optimal scaling of Reed-Muller codes on BEC and BSC channels," *2018 IEEE Int. Symp. Information Theory (ISIT)*, Vail, CO, USA, Jun. 2018.
- Y. Kochman, O. Ordentlich and Y. Polyanskiy, "Ozarow-type outer bounds for memoryless sources and channels," *2018 IEEE Int. Symp. Information Theory (ISIT)*, Vail, CO, USA, Jun. 2018.
- H. Roozbehani and Y. Polyanskiy, "Input-output distance properties of good linear codes," *2018 IEEE Int. Symp. Information Theory (ISIT)*, Vail, CO, USA, Jun. 2018.
- H. Roozbehani and Y. Polyanskiy, "Triangulation codes: a family of non-linear codes with graceful degradation," *2018 Conf. Inform. Sciences and Syst. (CISS)*, Princeton, NJ, USA, Mar. 2018.
- Y. Polyanskiy, A. T. Suresh and Y. Wu, "Sample complexity of population recovery," *Proc. Conf. on Learning Theory (COLT-2017)*, Jul. 2017.
- Y. Polyanskiy, "A perspective on massive random-access," *2017 IEEE Int. Symp. Information Theory (ISIT)*, Aachen, Germany, Jun. 2017.
- O. Ordentlich and Y. Polyanskiy, "Low complexity schemes for the random access Gaussian channel," *2017 IEEE Int. Symp. Information Theory (ISIT)*, Aachen, Germany, Jun. 2017.
- A. Makur and Y. Polyanskiy, "Less noisy domination by symmetric channels," *2017 IEEE Int. Symp. Information Theory (ISIT)*, Aachen, Germany, Jun. 2017.
- B. Nazer, O. Ordentlich, and Y. Polyanskiy, "Information-distilling quantizers," *2017 IEEE Int. Symp. Information Theory (ISIT)*, Aachen, Germany, Jun. 2017.
- Y. Sun, Y. Polyanskiy, and E. Uysal-Biyikoglu, "Remote estimation of the Wiener process over a channel with random delay," *2017 IEEE Int. Symp. Information Theory (ISIT)*, Aachen, Germany, Jun. 2017.
- J. Tang, D. Wang, Y. Polyanskiy, and G. Wornell, "Defect tolerance: fundamental limits and examples," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- A. Collins and Y. Polyanskiy, "Dispersion of the coherent MIMO block-fading channel," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- W. Yang, A. Collins, G. Durisi, Y. Polyanskiy, and H. V. Poor, "A beta-beta achievability bound with applications," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- Y. Polyanskiy and Y. Wu, "Converse bounds for interference channels via coupling and proof of Costa's conjecture," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- A. Mazumdar, Y. Polyanskiy, A.S. Rawat and H. Roozbehani, "Distance-preserving maps and combinatorial joint source-channel coding for large alphabets," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- D. Cullina, M. Dalai and Y. Polyanskiy, "Rate-distance tradeoff for codes above graph capacity," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- M. Dalai and Y. Polyanskiy, "Bounds on the reliability of a typewriter channel," *2016 IEEE Int. Symp. Information Theory (ISIT)*, Barcelona, Spain, Jul. 2016.
- M. Dalai and Y. Polyanskiy, "Bounds for codes on pentagon and other cycles (invited)," *53rd Allerton Conference on Communications and Control*, U. of Illinois, USA, Oct. 2015.
- G. Ajjanagadde and Y. Polyanskiy, "Adder MAC and estimates for Rényi entropy," *53rd Allerton Conference on Communications and Control*, U. of Illinois, USA, Oct. 2015.
- Y. Polyanskiy, "Upper bound on list-decoding radius of binary codes," *2015 IEEE Int. Symp. Information Theory (ISIT)*, Hong Kong, China, Jun. 2015.
- A. Young and Y. Polyanskiy, "Converse and duality results for combinatorial source-channel coding in binary Hamming spaces," *2015 IEEE Int. Symp. Information Theory (ISIT)*, Hong Kong,

- China, Jun. 2015.
- W. Yang, G. Durisi and Y. Polyanskiy, "Minimum energy to send k bits over Rayleigh-fading channels," *2015 IEEE Int. Symp. Information Theory (ISIT)*, Hong Kong, China, Jun. 2015.
- F. Calmon, Y. Polyanskiy and Y. Wu, "Strong data processing inequalities in power-constrained Gaussian channels," *2015 IEEE Int. Symp. Information Theory (ISIT)*, Hong Kong, China, Jun. 2015.
- V. Kostina, Y. Polyanskiy and S. Verdú, "Joint source-channel coding with feedback," *2015 IEEE Int. Symp. Information Theory (ISIT)*, Hong Kong, China, Jun. 2015.
- Y. Polyanskiy and Y. Wu, "Strong data-processing of mutual information: beyond Ahlswede and Gács," *2015 Inform. Theory and Appl. Workshop (ITA)*, UCSD, San Diego, CA, USA, Feb. 2015.
- Y. Polyanskiy, "Hypercontractivity in Hamming space (invited)," *52nd Allerton Conference on Communications and Control*, U. of Illinois, USA, Oct. 2014.
- A. Collins, Y. Polyanskiy, "Orthogonal designs optimize achievable dispersion for coherent MISO channels," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- V. Kostina, Y. Polyanskiy, S. Verdú, "Variable-length compression allowing errors," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- D. Wang, Y. Polyanskiy, G. Wornell, "Scalar quantization with noisy partitions and its application to flash ADC design," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- H. Roozbehani, Y. Polyanskiy, "Algebraic methods of classifying directed graphical models," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- M. Johnston, E. Modiano, Y. Polyanskiy, "Opportunistic scheduling with limited channel state information: a rate distortion approach," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- W. Yang, G. Caire, G. Durisi, Y. Polyanskiy, "Finite-blocklength channel coding rate under a long-term power constraint," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- W. Yang, G. Durisi, T. Koch, Y. Polyanskiy, "Dispersion of quasi-static MIMO fading channels via Stokes' theorem," *2014 IEEE Int. Symp. Information Theory (ISIT)*, Honolulu, Hawaii, US, Jul. 2014.
- W. Gao, Y. Polyanskiy, "On the bit error rate of repeated error-correcting codes," *2014 Conf. Inform. Sciences and Syst. (CISS)*, Princeton, NJ, USA, Mar. 2014.
- Y. Polyanskiy, "On dispersion of compound DMCs (invited)," *51st Allerton Conference on Communications and Control*, U. of Illinois, USA, Oct. 2013.
- A. Mazumdar, Y. Polyanskiy, B. Saha, "On Chebyshev radius of a set in Hamming space and the closest string problem," *2013 IEEE Int. Symp. Information Theory (ISIT)*, Istanbul, Turkey, Jul 2013.
- W. Yang, G. Durisi, T. Koch, Y. Polyanskiy, "Quasi-static SIMO fading channels at finite block-length," *2013 IEEE Int. Symp. Information Theory (ISIT)*, Istanbul, Turkey, Jul 2013.
- A. Andoni, H. L. Nguyễn, Y. Polyanskiy, Y. Wu, "Tight lower bound for linear sketches of moments," *2013 Internat. Coll. Automata, Languages, and Programming (ICALP)*, Riga, Latvia, Jul 2013.
- Y. Polyanskiy, " ℓ_p -norms of codewords from capacity and dispersion-achieving Gaussian codes (invited)," *50th Allerton Conference on Communications and Control*, U. of Illinois, USA, Oct. 2012.
- Y. Kochman, A. Mazumdar, Y. Polyanskiy, "Results on the combinatorial joint source-channel coding (invited)," *2012 Information Theory Workshop (ITW)*, Lausanne, Switzerland, Sept. 2012.
- W. Yang, G. Durisi, T. Koch, Y. Polyanskiy, "Diversity versus channel knowledge at finite block-length," *2012 Information Theory Workshop (ITW)*, Lausanne, Switzerland, Sept. 2012.
- Y. Polyanskiy, "Hypothesis testing via a comparator," *2012 IEEE Int. Symp. Information Theory (ISIT)*, Cambridge, MA, USA, Jul. 2012.

- Y. Kochman, A. Mazumdar, Y. Polyanskiy, “The adversarial joint source-channel problem,” *2012 IEEE Int. Symp. Information Theory (ISIT)*, Cambridge, MA, USA, Jul. 2012.
- Y. Polyanskiy, “On asynchronous capacity and dispersion,” *2012 Conf. Inform. Sciences and Syst. (CISS)*, Princeton, NJ, USA, Mar. 2012
- Y. Polyanskiy and S. Verdú, “Relative entropy at the channel output of a capacity-achieving code,” *49th Allerton Conference on Communications and Control*, U. of Illinois, USA, Sep. 2011.
- Y. Polyanskiy and S. Verdú, “Scalar coherent fading channel: dispersion analysis,” *2011 IEEE Int. Symp. Information Theory (ISIT)*, St. Petersburg, Russia, Aug. 2011.
- Y. Polyanskiy and S. Verdú, “Binary hypothesis testing with feedback,” *2011 Inform. Theory and Appl. Workshop (ITA)*, UCSD, San Diego, CA, USA, Feb. 2011.
- Y. Polyanskiy and S. Verdú, “Arimoto channel coding converse and Rényi divergence,” *48th Allerton Conference on Communications and Control*, U. of Illinois, USA, Sep. 2010.
- Y. Polyanskiy and S. Verdú, “Channel dispersion and moderate deviations limits for memoryless channels,” *48th Allerton Conference on Communications and Control*, U. of Illinois, Sep. 2010.
- Y. Polyanskiy, H. V. Poor and S. Verdú, “Memoryless channels: the benefits of feedback in the non-asymptotic regime (poster),” *2010 School of Information Theory*, Univ. of Southern California, Los Angeles, CA, USA, Aug. 2010.
- Y. Polyanskiy, H. V. Poor and S. Verdú, “Variable-length coding with feedback in the non-asymptotic regime,” *2010 IEEE Int. Symp. Information Theory (ISIT)*, Austin, TX, USA, Jun. 2010.
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