XV International Symposium "Problems of Redundancy in Information and Control Systems"

September 26-29, 2016

St. Petersburg, Russia

September, 26 (Monday)

11:30 – 12:30	**Plenary lecture**
12:30 – 13:30	### Section: Coding theory Chair: *Victor Zyablov* 1. *H. Bartz and V. Sidorenko*, On List-Decoding Schemes for Punctured Reed-Solomon, Gabidulin and Subspace Codes 2. *V. Potapov*, Linear Codes for an Effective Quantization of Data 3. *E. Gabidulin, N. Pilipchuk and I. Sysoev*, Decoding New Multicomponent Codes 4. *R. Morozov, P. Trifonov*, Directed Search Decoding of Polar Codes with Reed-Solomon Kernel 5. *I. Zhilin, A. Kreschuk*, Generalized Concatenated Code Constructions with Low Overhead for Optical Channels and NAND-Flash Memory

September, 27 (Tuesday)

| 14:30 – 16:30 | ### Section: Cryptography and data security

Chair: *Sergey Fedorenko*

1. *S. Vostokov, R. Vostokova,* Encryption System Using the Explicit Reciprocity Law
2. *B. Ryabko*, Information-Theoretical Analysis of Two Shannon's Ciphers
3. *N. Voloshina, S. Bezzateev* and *K. Zhidanov*, Weighted Digital Watermarking Approaches Comparison
4. *E. Krouk, A.Ovchinnikov*, About One Structural Attack on McEliece Cryptosystem
5. *B. Ryabko and N. Savina*, Applications of Two-Faced Processes to Random Number Generation |

	6. *O. Trushina*, On the Anonymity of Physical-Layer Network Coding Against Wiretapping
	7. *E. Krouk, A.Ovchinnikov, E. Vostokova*, About One Modification of McEliece Cryptosystem Based on Plotkin Construction
	8. *A. Urivskiy*, On Unpredictability of PRNGs Based on Multiple Block Ciphers
	9. *R. Amjad*, Variable-to-Fixed Length Resolution Codes for Approximate Random Number Generation
17:00 – 18:00	**Section: Algebra and Combinatorics** Chair: *Sergey Bezzateev* 1. *D. Bartoli, A. Davydov, M. Giulietti, S. Marcugini and F. Pambianco*, New Upper Bounds on the Smallest Size of a Saturating Set in a Projective Plane 2. *V. Potapov*, On Minimal Distance Between q-ary Bent Functions 3. *S. Fedorenko, D. Shmelkin*, Construction of the Inverse Matrix to a Block Upper Triangular Matrix 4. *P. Boyvalenkov, P. Dragnev, D. Hardin, E. Saff, M. Stoyanova*, Low Energy Bounds for Antipodal Spherical Codes and in Infinite Projective Spaces
18:00 – 19:00	**Section: Communication systems** Chair: *Alexey Frolov* 1. *A. Sergienko*, Semi-blind Approach to Reception of Short QAM Data Packets with Pilot Symbols 2. *A. Kreshchuk and V. Potapov*, On applying one-sample goodness-of-fit statistics to coded FSK decoding 3. *N. Apanasenko*, Iterative receiver of TH-SS signals in channel with Gaussian Mixture Noise 4. *I. Ivanov*, Time-Domain Equalizer with Minimax Channel Estimation

September, 28 (Wednesday)

14:30 – 16:30	**Section: Signals processing in power, control and multimedia systems** Chair: *Alexander Sergienko* 1. *N. Chervyakov, P. Lyakhov, D. Kalita and K. Shulzhenko*, Effect of RNS Dynamic Range on Grayscale Images Filtering 2. *E. Solovyeva*, Nonlinear Models Of Digital Filters And Their Application

Fields

3. *V. Pavlov*, Spatial Processing Redundancy and Accuracy of Multichannel Estimation of Radar Object Angular Coordinates

4. *V. Prokhorova, Y. Sychev*, The Control System on the Base of Signal Processing for Power Quality Improvement in Electrotechnical Complexes of Alternative and Renewable Power Sources

5. *D. Novikov, N. Egorov, M. Gilmutdinov*, Local-adaptive Blocks-based Predictor For Lossless Image Compression

6. *A. Veselov, M. Gilmutdinov,* A Rate-Distortion Adaptive Order of Bitplanes Decoding for Distributed Video Coding

   A. Krouk, L. Osipov, Synthesis of nonlinear control systems with random errors

September, 29 (Thursday)

11:30 – 13:30	**Section:** Coding in multiple access channels Chair: *Vladimir Sidorenko* 1. *V. Zyablov and V. Potapov*, Broadcasting and Multiple Access for Next Generation Wireless Networks 2. *E. Egorova and V. Potapova*, Signature Codes for a Special Class of Multiple Access Channel 3. *A. Frolov, P. Rybin and F. Ivanov*, On Iterative LDPC-Based Joint Decoding Scheme for Binary Input Gaussian Multiple Access Channel 4. *V. Klimentyev and A. Sergienko*, A Low-Complexity SCMA Detector for AWGN Channel Based on Solving Overdetermined Systems of Linear Equations 5. *E. Bakin, G. Evseev,* Improved Rate Estimation for One Coding Scheme in S-User Vector Adder Channel 6. *D. Osipov*, An upper bound on the error probability of a communication system with nonparametric detection
14:30 – 16:30	**Section:** Computational systems and networks Chair: *Grigory Kabatiansky* 1. *A. Rakitskiy and B. Ryabko*, An Information-Theoretic Approach to Performance Evaluation of Supercomputers 2. *M. Shelest*, Lower Bound for Average Delay in Transactions Processing Systems 3. *D. Bankov, E. Khorov, A. Lyakhov*, The Study of the Distributed Control

Method to Hasten Link Set-up in IEEE 802.11ah Networks.

4. *T. Tatarnikova, O. Kutuzov*, Evaluation and Comparison of Classical and Fractal Queuing Systems

5. *K. Smirnov*, Boundary Value for Data Gathering Time in Distributed Control Systems with Sporadic Accidents

6. *I. Pastushok, A. Turlikov*, Lower Bound and Optimal Scheduling for Mean User Rebuffering Percentage of HTTP Progressive Download Traffic in Cellular Networks

7. *S. Foss, G. Georgiev, D. Kim, A. Turlikov*, Extra power backup for balancing of power grid with renewables

8. *D. Malichenko*, Efficiency of Transport Layer Coding in Networks with Changing Capacities