



**Zentrum für  
interdisziplinäre Forschung**

# **Opening Conference**

## **ZiF Research Year**

*"General Theory of Information Transfer and Combinatorics"*

**November 4 - 9, 2002**

**with two days devoted to the memory of**

**Levon Khachatryan**

Zentrum für interdisziplinäre Forschung (ZiF)  
der Universität Bielefeld  
Wellenberg 1  
33615 Bielefeld  
<http://www.uni-bielefeld.de/ZIF>

**Monday - November 4, 2002**

- 9:00            **Welcome Address by Ipke Wachsmuth, Director of the ZiF**
- 9:10            **Rudolf Ahlswede, "General Theory of Information Transfer and Combinatorics"**
- 9:30
- Klaus Mainzer, "Information Dynamics in Nature and Society"**
- 10:00
- Alberto Apostolico, "Bearable Monotonies of Surprise"**
- 10:30-11:00                            *- Coffee Break -*
- 11:00            **Laxmi Parida, "Using Permutation Patterns in Bioinformatics"**
- 11:30            **Raimund Apfelbach, "Chemical Information Transfer in Phodopus Hamsters"**
- 12:00            **Zhanna Reznikova, "Applying Ideas of Information Theory to Study Animal Communicative and Cognitive Skills"**
- 12:30 - 14:30                            *- Lunch -*
- 14:30            **Lloyd Demetrius, "Quantum Statistics and Allometric Scaling Relations in Biology"**
- 15:00
- Elena V. Konstantinova, "Information Indices and Their Discriminating Power"**
- 15:30
- Arkadii Dyachkov, "On Entropy and Information of Trees"**
- 16:00 - 16:30                            *- Coffee Break -*
- 16:30            **Stefano Galatolo, "Information in Weakly Chaotic Dynamical Systems"**
- 17:00            **Ludwig Staiger, "Information, Entropy and Dimension"**
- 17:30            **END**

**Tuesday - November 5, 2002**

- 9:00            **Imre Csiszar, "Secret Key Capacities for Multiple Terminals"**
- 9:30            **Mariam and Evgueni Haroutunian, "E-Capacities of Varying Channels"**
- 10:00           **Sandor Csibi and Edward van der Meulen, "Huge-Size Codes for Identification via a Multiple Access Channel Under a Word Length Constraint"**
- 10:30-11:00                            *- Coffee Break -*
- 11:00           **Yuri Shtarkov, "Joint Matrix Universal Codes of Sequences of Independent Symbols"**
- 11:30           **Peter Harremoes, "Testing Binomial vs. Poisson Distributions Using Information Theoretic Methods"**
- 12:00           **Vladimir Blinovskiy, "Large Deviations in the Commutative and Non-Commutative Case"**
- 12:30 - 14:30                            *- Lunch -*
- 14:30           **Viacheslav Prelov and Edward van der Meulen, "Optimal Covering of Ellipsoids With Balls in the Hamming Space"**
- 15:00           **Sergey Avgustinovich and A. Yu. Vasil'eva, "Testing Sets for 1-Perfect Codes"**
- 15:30           **Dmitrii Nogin, "Bounds on Packings of Spheres in the Grassmann Manifold"**
- 16:00 - 16:30                            *- Coffee Break -*
- 16:30           **Vladimir Balakirsky, "Estimates of the Bit Error Probabilities for Linear Block Codes and Symmetric Binary-Input Memoryless Channels"**
- 17:00           **Gergely Berczi, "On Finite Pseudorandom Sequences of k Symbols"**
- 17:30           **END**

- 9:00 **Christoph Gusy, Prorektor Universität Bielefeld**
- 9:15 *J.S. Bach, Konzert für zwei Violinen, d-moll, Erster Satz, A. Kharatyan und T. Kharatyan*
- 9:25 **Gurgen Khachatrian, "Remembering Levon"**
- 9:45 **Sergej Adian, "Investigation of Periodical Groups Using Combinatorial Methods"**
- 10:25-10:55 - *Coffee Break* -
- 10:55 **Victor Zinoviev, "On Goethals Codes and Kloosterman Sums Over  $GF(2^m)$ "**
- 11:25 **Andras Sárközy, "On Primitive Sequences"**
- 12:05 **Gyula Katona, "Extremely Strong Results of Levon Khachatrian in Extremal Set Theory"**
- 12:45 **Luisa Gargano, "Broadcasting in Communication Networks"**
- 13:15 *E. Bagdasarian, Rhapsodie für Violine, Katharina Schulz*
- 13:25 - 15:00 - *Lunch* -
- Session on Combinatorial Number Theory and Cryptography*
- 15:00 **Gregory Freiman and Aleksandr Yudin, "On the Interface Between Probability Theory (Limit Theorems) and Additive Number Theory (Structure Theory of Set Addition)"**
- 15:40 **Melvyn Nathanson, "Additive Number Theory and the Ring of Quantum Integers"**
- 16:20 **Gyula Karolyi, "Transversals of Additive Latin Squares"**
- 17:00 **Jean-Louis Nicolas, "Sets of Parts Such That the Partition Function is Even"**
- 17:40 **Oriol Serra, "The Erdős-Turan Property for a Class of Additive Basis"**
- 18:00 - 18:30 - *Coffee Break* -
- 18:30 **Christian Mauduit, "Measures of Pseudorandomness for Finite Sequences"**
- 19:10 **James Massey, "Reed Muller Codes and Certain Stream Ciphers"**
- 19:50 **END**

*Session on Combinatorics*

- 9:00           **Ian Roberts, "Completely Separating Systems"**
- 9:30           **Harout Aydinian, "Intersection Theorems Under Dimensions Constraints: The Unrestricted Case"**
- 10:00          **Peter L. Erdős, "Property B and Some Generalization"**
- 10:30-11:00                    - *Coffee Break* -
- 11:00          **Norihide Tokushige, "Some Results on Multiply Intersecting Families"**
- 11:30          **Konrad Engel, "Optimal Multileaf Collimator Field Segmentation for Inverse Radiotherapy Planning"**
- 12:00          **Christian Bey, "Remarks on an Edge Isoperimetric Problem"**
- 12:30 - 14:30                   - *Lunch* -

*Session on Coding and Networks*

- 14:30          **Vladimir Levenshtein, "Combinatorial Problems Motivated by Comma Free Codes"**
- 15:00          **Grigori Kabatianski, "Hash Codes and Functions: Bounds and Constructions"**
- 15:30          **Melsik Kyureghyan, "Recurrent Methods for Constructing Sequences of N-Polynomials Over  $F_2^s$ "**
- 16:00 - 16:30                   - *Coffee Break* -
- 16:30          **Faina Solov'eva, "Steiner Triple Systems Bi-Embedded in Nonorientable Surfaces"**
- 17:00          **Stefan Dodunekov, "Proper Codes: an Overview and Recent Results"**
- 17:30          **END**
- 19:00          ***Reception at the city hall of Bielefeld by the mayor Eberhard David***

**Friday – November 8, 2002**

- 9:00            **Jana Dittmann, "Invertible Watermarking Combined With Electronic Signatures for Image and Audio Authentication"**
- 9:30            **Boris Ryabko, "A new Statistical Testing for Random Numbers and its Application to Some Cryptographic Problems."**
- 10:00           **Kingo Kobayashi, "Percolation on k-ary Trees"**
- 10:30-11:00                            *- Coffee Break -*
- 11:00            **Rüdiger Reischuk, "Online Algorithms – The Power of Knowledge When Accessing Data"**
- 11:30            **Maciej Liskiewicz, "Private Computations in Incomplete Networks"**
- 12:00            **Vladimir Batagelj, "Efficient Algorithms for Citation Network Analysis"**
- 12:30 - 14:30                            *- Lunch -*
- 14:30            **Ingo Wegener, "On the Complexity of Black-Box Search"**
- 15:00            **Christian Deppe, "An Upper Bound for the Binary Channel With Feedback and a Fixed Number of Errors"**
- 15:30            **Marina Kyreghyan, "Complexity of Monotonicity Checking"**
- 16:00 - 16:30                            *- Coffee Break -*
- 16:30            **Gohar Kyreghyan, "Minimal Polynomials of the Modified De Bruijn Sequences"**
- 17:00            **END**

**Saturday - November 9, 2002**

- 9:00            **Timothy Havel, "Information Dynamics in Open Quantum Systems"**
- 9:30            **Rusins Freivalds, "On Quantum Finite Automata"**
- 10:00           **Hiroshi Nagaoka, "Hypothesis Testing, Channel Coding and Information Spectrum in Quantum Information Theory"**
- 10:30-11:00                 *- Coffee Break -*
- 11:00           **Rainer Wilms, "On Quantum Broadcast Channels"**
- 11:30           **Armin Uhlmann, "Quantum Information Transfer from one System to Another one"**
- 12:00           **Erdal Arikani, "An Information Theoretic Analysis of Grover's Algorithm"**
- 12:30           **Jens Eisert, "From Reversibility to Irreversibility and Back Again: Asymptotic State Manipulation in Quantum Mechanics"**
- 13:00                                 *- END -*