

**THE THIRD INTERNATIONAL CONFERENCE ON
UNIFORM DISTRIBUTION THEORY
(UDT2012)**

**CONGRESS CENTER OF THE SLOVAK ACADEMY OF
SCIENCES, SMOLENICE, SLOVAKIA**

JUNE 25 - 29, 2012

ABSTRACT. This volume contains papers originally presented or inspired by the Third International Conference on Uniform Distribution Theory which held in Congress Center of the Slovak Academy of Sciences, Smolenice, Slovakia, June 25 - 29, 2012. We summarize some details and results of the conference. More informations can be found at <http://www.mat.savba.sk/confer/UDT2012/index.htm>

Preface

This conference is direct continuation of the 1st conference in Marseilles, CIRM, France, January 21–25, 2008, and the 2nd conference in Strobl am Wolfgangsee, Austria, July 5–9, 2010. The first conference was organized by Vladimír Baláž and Pierre Liardet, with more than 70 participants representing 16 countries and 42 talks was given. The proceeding of this Conference was published by the journal Uniform Distribution Theory Vol. 3, no. 2, 2008. The second conference was organized by Friedrich Pillichshammer, with 55 participants representing 16 countries and 40 contributed talks and proceedings was published by the same journal Vol. 6, no. 1, 2010.

The third meeting had 48 participants representing the countries Australia, Austria, Bulgaria, Czech Republic, France, Hungary, Italy, Japan, Lithuania, Mexico, Poland, Russia, Slovakia, United Kingdom and United States.

The program of the conference consisted of the 11 plenary talks and 29 regular talks covering topics from Number Theory that can be summarized under the key words: *Quasi-Monte Carlo method, discrepancy, diaphony, L_p -discrepancy, star discrepancy bound, van der Corput sequence, (t, s) -sequence, Zaremba-Halton net, polynomial lattice point set, binary sequence, linear recurring sequence,*

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Zaremba-Halton net, lattice point problem, hybrid point sets, elliptic power generator, Hilbert space with reproducing kernel, Hausdorff dimension, permutation polynomials, Farey fractions.

We therefore can conclude that these three conferences meet the original goal that serves as a forum for the discussion and exchanges of information on the research developments, and applications on all topics related to Probabilistic Number Theory. The next UDT conference will be held nearby Ostrava, Czech Republic, June 30–July 5, 2014, where the local organizing committee consider of Ladislav Mišík.

Organizing Committee

Oto Strauch, Bratislava
Karol Nemoga, Bratislava
Vladimír Baláž, Bratislava
Ladislav Mišík, Ostrava
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Organizing Institutes

Institute of Mathematics, Slovak Academy of Sciences, Bratislava
Faculty of Chemical and Food Technology, Bratislava
Faculty of Sciences, University of Ostrava
BOKU - University of Natural Resources and Life Sciences, Vienna
University of J. Selye, Komárno
Université de Provence, CMI, Marseilles.

List of lectures

Plenary talks

JOHANN S. BRAUCHART: *Spherical nets and their relatives-optimal order Quasi-Monte Carlo methods on the sphere.*

ARTURAS DUBICKAS: *Bases with small representation function.*

VASSIL S. GROZDANOV: *On the weighted diaphony on the generalized van der Corput sequence and the Zaremba-Halton net.*

PETER HELLEKALEK: *Hybrit function systems in the theory of u.d. mod 1.*

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MARTIN HUXLEY: *Lattice point problems in plane and their relationship to uniform distribution methods.*

PIERRE LIARDET: *Group extensions: from old to new results with various applications.*

FLORIAN LUCA: *Uniform distribution modulo 1 of ratios of various arithmetic functions.*

NIKOLAY MOSHCHEVITIN: *Oscillating theorems for irrationality measures.*

FRIEDRICH PILLICHSHAMMER: *Recent Results for the Discrepancy of Polynomial Lattice Point Sets.*

ANDRÁS SÁRKÖZY: *On the family complexity of families of binary sequences.*

OTO STRAUCH: *Some unsolved problems in the theory of distribution functions.*

Contributed talks

CHRISTOP AISLEITNER: *On the limit distribution of consecutive elements of the van der Corput sequence.*

VLADIMÍR BALÁŽ - JANA FIALOVÁ - VASSIL GROZDANOV - STANISLAVA STOILOVA - OTO STRAUCH: *Hilbert space with reproducing kernel and uniform distribution preserving maps, II.*

DIMITRIY BILYK: *Directional discrepancy.*

NIKOLAY MIKHAYLOVICH DOBROVOLSKIY: *Life and work of the greatest Soviet mathematician Nikolay Mikhailovich Korobov (1917–2004).*

HENRI FAURE: *Best possible lower bounds for the star discrepancy of $(0, 1)$ -sequences.*

JÁNOS FOLLÁTH: *On the Avalanche Effect of a Preimage-Resistant Function.*

MICHAEL GNEWUCH - MAGNUS WAHLSTRÖM - CAROLA WINZEN: *Randomized Algorithms to Approximate Discrepancies and Applications.*

KATALIN GYARMATI: *On the correlation of subsequences.*

TAMÁS HERENDI: *Construction of uniformly distributed sequences modulo 3^s .*

MARKUS HOFER: *Uniform Distribution of generalized Kakutani's sequences of partitions.*

ROSWITHA HOFER: *Constructions and properties of finite-row (t, s) -sequences.*

OLEG KARPENKOV: *Approximation of the maximal commutative subgroups of $GL(n, R)$.*

IMRE KÁTAI: *Construction of normal numbers.*

SERGEI V. KONYAGIN: *On convergences with products of variables and double character sums (presentation did not take place for disease).*

PETER KRITZER: *On the distribution properties of hybrid point sets.*

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SÁNDOR ROLAND MAJOR: *Enhanced matrix multiplication algorithm for FPGA.*

LEV MARKHASIN: *Quasi-Monte Carlo methods for integration of functions with dominating mixed smoothness.*

LÁSZLO MÉRAI: *On the distribution of the elliptic curve power generator.*

LADISLAV MIŠÍK - JÁN ŠUSTEK - B. VOLKMANN: *Hausdorff Dimension of Sets of Numbers with Prescribed Digit Densities.*

RADHAKRISHNAN NAIR: *The metric theory of p -adic continued fractions.*

WERNER GEORG NOWAK - M. KÜHLEITNER: *Omega results for a class of arithmetic functions (On a question of A. Schinzel).*

FLORIAN PAUSINGER: *Generalised van der Corput sequences and permutation polynomials.*

ILYA SHKREDOV: *Additive structures in multiplicative subgroups.*

SHU TEZUKA: *A new construction of $(0,1)$ -sequences.*

ALEXEY USTINOV: *On statistical properties of 3-dimensional continued fractions.*

MARKUS WEIMAR: *Probabilistic star discrepancy bounds for double infinite random matrices.*

HEIDI WEYHAUSEN: *Asymptotic behavior of average L_p -discrepancies.*

HEIDRUN ZELLINGER: *On the Digits of Squares and the Distribution of Quadratic Subsequences of Digital Sequences.*

VOLKER ZIEGLER: *Optimality of the Width- w Non-adjacent Form - A Diophantine inequality.*

Editors

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