



INTERNATIONAL CONFERENCE ON UNIFORM
DISTRIBUTION,
MARSEILLES, CIRM, JANUARY 21–25, 2008

ABSTRACT. The present issue of Uniform Distribution Theory contains papers originally presented at the first conference quoted into the title. This is a report on the Conference.

Preface

On January 21–25, 2008, the first *International Conference on Uniform Distribution* was held at CIRM, Marseilles, France. Detailed information can be found at

<http://www.latp.univ-mrs.fr/~liardet/ud2008/>

We select the following basic data:

Organizers: VLADIMÍR BALÁŽ (Bratislava) and PIERRE LIARDET(Marseille).

Participants: More than seventy participants, representing the countries of Algeria, Austria, Bulgaria, Czech Republic, France, Hungary, Italy, Japan, Lithuania, Mexico, the Netherlands, Russia, Singapore, Slovakia, Tunisia and the United Kingdom, attended the Conference. This meeting was the first step to the upcoming cooperation of many countries in the research domain on Number Theory covered by the Conference.

Program: Forty talks was given during the meeting. Conference themes were Uniform Distribution Theory and related topics in Number Theory that include the following keywords: *Pseudorandom numbers, types of randomness, tests for randomness, statistical testing, inverse generators, pseudorandom binary sequences, Quasi–Monte Carlo integration, uniform distribution, bad distribution, discrepancy, star discrepancy, correlation measure, well–distribution, weighted b–adic diaphony, $(n\alpha)$ –sequences, $n_k\alpha$ –sequences, binary sequences, lacunary sequences, digital sequences, subsequences, van der Corput sequences, Halton sequences, Niederreiter–Halton sequences, Hammersley permuted sequences, ratio sequences, linear recurring sequences, Fibonacci sequences, Sturmian sequences,*

Benford's law, Pisot numbers, Salem numbers, Perron numbers, Gaussian integers, β -expansion, decimal expansion of special numbers, digital expansion to an integer base, canonical number system, symbolic dynamic, fractals, continued fractions, Khintchine-Lévy theorem, Gauss-Kuzmin theorem, distribution functions, distribution of digital functions, additive and multiplicative arithmetical functions, q -multiplicative functions, divisor function, characters, Legendre symbol, Dickson polynomials, permutation polynomials, Pisot polynomials, Salem polynomials, Dirichlet series, lower and upper α -densities, weighted uniform densities, Galois rings, finite fields, sum of primes, density of primes, cyclic codes, cryptography. Several open problems were presented during special section at the end of the conference.

Location: The congenial and stimulating atmosphere at this meeting was given by CIRM-Centre International de Rencontres Mathématiques. The CIRM is located on the university campus of Luminy, where a great number of research units, in virtually all scientific fields, are gathered nearby the famous calanques of Marseilles. This favoured location decided SMF (French Mathematical Society) and CNRS (National Centre for Scientific Research), about thirty years ago, to settle this internationally ambitious centre in Luminy.

Sponsoring: CIRM provided the generous financial support for this Conference. The Conference also has benefited from the support of the French Ministry of Education with the *programme ACCES*, of the *Universités de Provence* and the *Slovak Academy of Sciences*, of the *Unité de Recherche Mixte LATP, Marseille*, of local and regional institutions: the *Ville de Marseille* and the *Conseil Général des Bouches-du-Rhône*.

Proceedings: This special issue of *Uniform Distribution Theory* collect a selection of the contributions presented or inspired during the Conference. All papers in this volume were referred according to the standard of the Journal.

List of lectures and contributions

Online versions of lectures and contributions can be found on

http://www.cirm.univ-mrs.fr/videos/2008/programmes/320_Liardet.html

SHIGEKI AKIYAMA (Niigata): *Shift radix system: a bridge between number theory and symbolic dynamics.*

YANN BUGEAUD (Strasbourg): *On the decimal expansion of an algebraic number.*

KARMA DAJANI (Utrecht): *Beta-expansions: old and new.*

JEAN-MARC DESHOUILERS (Bordeaux): *Répartitions des valeurs des fonctions arithmétiques réelles.*

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MICHAEL DRMOTA (Vienna): *Digital expansions, prime numbers and uniform distribution modulo 1.*

YURI GOLUBEV (Marseille): *On statistical testing of true random number generators.*

PETER GRABNER (Graz): *Distribution properties of digital functions over Gaussian integers.*

JEAN-PIERRE KAHANE (Paris): *Quelques questions anciennes et nouvelles sur la distribution modulo 1.*

IMRE KÁTAI (Budapest): *On a theorem of Daboussi.*

SERGEI KONYAGIN (Moscow State University): *Good distribution of the values of sparse polynomials and joint distribution of monomials modulo a prime.*

LADISLAV MIŠÍK (Ostrava): *Distribution functions of ratio sequences.* (joint work with O. Strauch and J.T. Tóth)

RADHAKRISHNAN NAIR (Liverpool): *Polynomials and ergodic theorems.*

HARALD NIEDERREITER (Singapore): *Inversive pseudorandom numbers: New generation methods and new tests.*

OTO STRAUCH (Bratislava): *Distribution functions and sequences.*

CHRISTOPH AISTLEITNER (Graz): *On the discrepancy of $\{n_k x\}$.*

VLADIMÍR BALÁŽ (Bratislava): *Distribution functions of the sequence $\varphi(n)/n$, $n \in (k, k + N]$, II.* (joint work with P. Liardet and O. Strauch)

CHRISTIAN BALLOT (Caen): *Density of primes via heuristics.*

CHRISTOPH BAXA (Vienna): *On the exceptional set of Lévy's theorem.*

ARTURAS DUBICKAS (Vilnius): *Bad distribution of lacunary sequences in \mathbb{R}^m .*

HENRI FAURE (Marseille): *Star discrepancy of generalized Hammersley plane point Sets.*

JÁNOS FOLLÁTH (Debrecen): *Construction of pseudorandom binary sequences using additive characters over $\text{GF}(2^k)$.*

RITA GIULIANO (Pisa): *A comparison result between lower and upper α -densities and lower and upper α -analytic densities.*

VASSIL GROZDANOV (Blagoevgrad): *Quasi-Monte Carlo integration of weighted Korobov spaces and its connection with the weighted b -adic diaphony.*

MOHAND-OUAMAR HERNANE (Alger): *Grandes valeurs de certaines fonctions arithmétiques.*

CLEMENS HEUBERGER (Graz): *Digit distribution in positional number systems with digits forming an arithmetic progression.*

ROSWITHA HOFER (Linz): *On the distribution properties of Niederreiter-Halton sequences.*

OLEG KARPENKOV (Leiden): *Gauss-Kuzmin face distribution and invariant Möbius measure.*

FLORIAN LUCA (Mexico): *On the sum of the first n primes.* (joint work with J. Cilleruelo)

MARTIN MAČAJ (Bratislava): *A note about weighted uniform density.*

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MANFRED G. MADRITSCH (Graz): *Uniform distribution and Waring's problem with digital restrictions.* (joint work with J. M. Thuswaldner)

KENJI NAGASAKA (Hosei University): *Benford's Law to base g of order r .*

ERIC OLIVIER (Marseille): *When projection of a sophic affine set gives uniform distribution.* (in collaboration with Alain Thomas)

MILAN PAŠTÉKA (Bratislava): *Remarks on the uniform density of some sets.*

ATTILA PETHÖ (Debrecen): *On the distribution of Pisot polynomials.* (joint work with S.Akiyama, H.Brunotte and J. M.Thuswaldner)

FRIEDRICH PILLICHSHAMMER (Linz): *Uniform distribution properties of subsequences of digital sequences.* (joint work with R. Hoffer, P. Kritzer and G. Larcher)

ŠTEFAN PORUBSKÝ (Praha): *Pseudorandom binary sequences generated by sequences $(n\alpha)$.*

JOHANNES SCHOISSENGEIER (Vienna): *On the regularity of $(n\alpha)$ -sequences.*

ILYA SHKREDOV (Moscow): *On some types of randomness.*

PATRICK SOLÉ (Sophia Antipolis): *Quasi random sequence from Galois rings.*

WOLFGANG STEINER (Paris): *Discrepancy of substitutive van der Corput sequences.*

JEAN-LOUIS VERGER-GAUGRY (Grenoble): *On the dichotomy of Perron numbers and β -conjugates.*

REINHARD WINKLER (Vienna): *The distribution of dynamical sequences from a topological point of view.*

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INTERNATIONAL CONFERENCE ON UNIFORM DISTRIBUTION



Participants of the International Conference on Uniform Distribution held at CIRM, Marseille, January 21–25, 2008.

Announcement

The second International Conference on Uniform Distribution Theory should be held on July 4-10, 2010 in Strobl, a nice village by Wolfgangsee situated on the border between the Austrian provinces Salzburg and Upper Austria. Contact person: Friedrich Pillichshammer, e-mail: friedrich.pillichshammer@jku.at

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