BELGIAN MATHEMATICAL SOCIETY

Comité National de Mathématique   CNM

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NCW   Nationaal Comite voor Wiskunde

BMS-NCM NEWS
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No 74, September 15, 2009

Letter from the editor

Welcome

to the September 15, 2009- Issue of our Newsletter

Have a nice semester

Regards,
Françoise

Contents

1 News from the BMS

No PhD-day is scheduled in 2009... but we can already announce that

the next **PhD-day**

of the BMS will take place in Brussels on

Monday September 13, 2010.

More informations will be availbale in the forthcoming Newsletters!

2 Meetings, Conferences, Lectures

2.1 September 2009

Contact Forum Coding Theory and Cryptography III
Friday, September 25, 2009

Where? *At the royal flemish academy of Belgium for science and the arts*
Informations? *See the announcement at the end of this Newsletter*

2.2 December 2009

Joint meeting of the Belgian and London Mathematical Societies

December 4-5, 2009

A joint meeting of the BMS and LMS will be held in Leuven on December 4 and 5, 2009. During this meeting, the Lucien Godeaux lecture will be given by Cédric Villani (ENS Lyon).

Other plenary speakers: I.K. Capdeboscq (Warwick), T. De Medts (Gent), P. van Moerbeke (U.C.Louvain), J. Tanner (Edinburgh)

Special sections: algebraic geometry and cryptography, logic, differential equations and dynamical systems, scientific computing and mathematical modelling, Hopf algebras and quantum groups, groups and geometry, statistics, random matrices

All information, including a registration form, is available on

http://www.cs.kuleuven.be/conference/BLMS2009/

3 Some PhD theses

PhD's Mathematics University Antwerp

- title: Adaptive modeling and sampling methods for polynomial, RBF and DACE models
  name: Wouter Hendrickx
  supervisors: T. Dhaene, J. Broeckhove
  date: 20 May 2009

- title: Bornological structures in approach theory and metrically generated theories
  name: Tom Vroegrijk
  supervisor: B. Lowen
  date: 29 May 2009

- title: Deformation Quantization and Lie Theory
  name: Panagiotis Batakidis
  supervisors: F. Van Oystaeyen
  date: 19 June 2009

- title: Crystalline Graded Rings
  name: Tim Neijens
  supervisor: F. Van Oystaeyen
  date: 26 June 2009

- title: Multivariate rational interpolation: error formulas and matrix techniques
  name: XiangLan Yang
  supervisor: A. Cuyt
  date: 29 June 2009

PhD's Mathematics K.U.Leuven

- title: The Hermite-Padé approximation technique for proving irrationality of certain numbers
  name: Christophe Smet
  supervisor: W. Van Assche
  date: 23 September 2009
  url: http://www.kuleuven.be/doctoraatsverdediging/cm/3E07/3E070465.htm

- title: Multiscale geometric image approximation
  name: Ward Van Aerschot
  supervisors: M. Jansen, A. Bultheel
  date: 18 September 2009
  url: https://lirias.kuleuven.be/handle/123456789/240553

<u>FUNDPN</u>

QAMML : Probability Distributions For Functional Data

Cuvelier Etienne
September 25, 2009, 15:30, FUNDP

<u>Advisor</u>: Prof. M. Noirhomme-Fraiture
<u>Place</u>: Faculté d?'Informatique, rue Grandgagnage, 21 - 5000 Namur, auditorium I2

<u>Abstract</u>

Functional data analysis is the part of data analysis which is interested specifically by the functional data. Functional data arise naturally in the study of many phenomenons, and are any continuous phenomenon which can be measured for any values of a varying parameter, this parameter can be the time, but not in all the cases. The study of functional data could become mainstream due to the increasing interest for the data analysis of streaming data, which become ubiquitous in our networked world. But a specificity of functional data is that they belong to an infinite dimensional space, which increases the difficulty to define certain concepts, like the probability distribution of a functional random variable. However probability distributions are be valuable tools, because they can be seen as the Swiss army knife of the data analysis: they are used in many procedures: unsupervised classification by mixture decomposition, Bayesian supervised classification, regression functi! ons, s tatistical inference... Then, there were a strong interest to develop probability distributions for functional data, and this is the cornerstone of this thesis: the definition, the construction and the use in the data analysis framework, of probability distributions directly defined in the infinite dimensional space of functional data. We define a new kind of probability distributions, called QAMML distributions, in mixing two close concepts: Archimedean copulas and Quasi-arithmetic means. QAMML distributions, directly defined in the infinite dimensional space of functional data, need also the definition of an adapted kind of density, and for this we use a directional differential called the Gateaux differential. Our approach is not only a theoretical one, because we use these new tools, in data analysis of functional and symbolic data, simply like a ?plug-in? in two existing methods: the unsupervised classification by mixture decomposition and the Bayesian supervised classification. We use also the QAMML distributions to build functional confidence intervals.

The defense will be held in French and is followed by a reception.

The defense is public, but if you intend to attend, could you, please, inform gyselle.henrard@fundp.ac.be before the 21st of September.

4   Miscellaneous

4.1   From ULB

**FREDERIC BOURGEOIS AWARDED
A STARTING GRANT OF THE ERC**

Frédéric Bourgeois, professor at the mathematics department of the ULB, has been awarded a starting grant by the European Research Council.

This prestigious grant will fund his research team for a period of five years.

His research concerns differential geometry, more precisely the study of contact and symplectic structures, via algebraic topological techniques.

5   History, maths and art, fiction, jokes, quotations. . .

Sexy Mathematics

If you are reading Dutch and you are interested in mathematical puzzles, book reviews, anecdotes, petty facts, things you want to have at hand when conversation is slowing down among mathematicians, then there is a very interesting weblog site that I would like to recommend

<div align="center">

`http://weetlogs.scilogs.be/index.php?blogId=11`.

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The blog is called *Wiskunde is sexy*, which is indeed the kind of math stories they want to bring.
   The most recent subjects that were treated:

- *Hoe eenzaam zijn die priemgetallen eigenlijk?*
  referring to the best-selling novel by Paolo Giordano "*The Solitude of Prime Numbers*", this contribution deals with special prime numbers: palindromes, sexy primes, vampire primes, Mersenne primes, twin primes, etc.

- *Over een bibliotheek met oneindig veel vakantielectuur*
  About Jorge Luis Borges' "*The Library of Babel*", and related tales.

- *Het Nash-evenwicht bij belastingcontroles en schaambrokjes*
  About game theory: the shotgun-clause, a beautiful mind, the ultimatum game, the prisoner's dilemma, and the last cooky on the plate.

- *De diepe gedachte van Wolfram Alpha*
  About the supercomputer "*Deep Thought*" from Douglas Adams' "*The hichhiker's guide to the galaxy*" that can give the answer to any question you ask (or perhaps it can not) and the recently released site `wolframalpha.com` that has ambitions in this direction.

- . . .

And there are many more such gems for {popular-math}-lovers to enjoy. If you have some of these stories available when socializing you may become a popular-{math-lover} yourself.

<div align="right">

Adhemar Bultheel

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Contact Forum
Coding Theory and Cryptography III

On Friday, September 25, 2009, the *Academy Contact Forum*

Coding Theory and Cryptography III

will take place at the

THE ROYAL FLEMISH ACADEMY OF BELGIUM FOR SCIENCE AND THE ARTS,

Brussels, Belgium.

The speakers are:

1. Yves Edel (UGent, Belgium)

2. Sebastiaan Indesteege (K.U. Leuven, Belgium)

3. Gary McGuire (University College Dublin, Ireland)

4. Matthew Parker (University of Bergen, Norway)

5. Vincent Rijmen (K.U. Leuven, Belgium)

6. Nicolas Sendrier (INRIA-Rocquencourt, France)

7. Geertrui Van de Voorde (UGent, Belgium)

Everybody is cordially invited to attend this contact forum.
We ask all people attending the contact forum to register, before September 10, via the website

http://cage.ugent.be/~ls/website2009/contactforum2009.html

All information will be made available via this website.

The organizers:

Svetla Nikova
Bart Preneel
Leo Storme