

BELGIAN MATHEMATICAL SOCIETY

Comité National de Mathématique CNM

C W M
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NCW Nationaal Comité voor Wiskunde



**BMS-NCM NEWS: the Newsletter of
the Belgian Mathematical Society and
the National Committee for
Mathematics**

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BMS-NCM NEWS

—
No 49, September 15, 2004

1 Photos

Did you recognize the photos of the previous Newsletter (May 15, 2004)?? ¹
And now, do you recognize the ones included here?

2 Meetings, seminars, conferences

2.1 September, 2004

SECOND INTERNATIONAL COURSE OF MATHEMATICAL ANALYSIS IN ANDALUCIA

September 20-24, 2004
Granada, Spain

The aim is to give an extensive overview of new directions and advances in Mathematical Analysis. Therefore the researcher is invited to get into topics seem promising as guidelines for current and future research in this interesting area of Mathematics. Leading researchers in the field will provide us with a nice variety of topics and open problems, showing also some tools and techniques that have been helpful in similar situations. To this goal, we offer both seminars and one-hour talks. While the one-hour talk are intended to provide an overview on a variety of current topics, the seminars will extend over several days and will therefore allow an in-depth discussion of certain specific subjects. Moreover, all participants of the meeting will have the opportunity to present new results of their research in short communications.

The invited speakers of this Second Course are the following:

- Richard M. Aron (Kent State University, USA)
- Fernando Bombal (Universidad Complutense de Madrid, Spain)
- Jose Bonet (Universidad Politecnica de Valencia, Spain)
- Javier Duoandikoetxea (Universidad del Pais Vasco, Spain)
- Baldomero Rubio (Universidad Complutense de Madrid, Spain)
- Gilles Godefroy (University Paris VI , France)
- William B. Johnson (Texas A&M University, USA)
- Nigel J. Kalton (University of Missouri, USA)
- Michael Neumann (Mississippi State University, USA)
- Lawrence Narici (St. John's University, New York, USA)
- Kristian Seip (Norwegian Univ. of Sciences and Technology, Norway)
- Manuel Valdivia (Universidad de Valencia, Spain)
- Joan Verdera (Universitat Autonoma de Barcelona, Spain)
- Felipe Zo (Universidad Nacional de San Luis, Argentina).

For more information, see the pages

<http://www.ugr.es/local/amandal>

or contact Professor Victoria Velasco at the address amanda@ugr.es

REGARDS CROISES SUR LA FORMATION QUANTITATIVE DE GETIONNAIRES

en hommage aux Professeurs de Bruyn et Moors
29 septembre 2004, Université de Liège

See the announcement at the end of this Newsletter.

¹Solution: Some views of Liège (City and University) were included.

2.2 October, 2004

Groupe de contact FNRS en Géométrie Différentielle et Topologie Algébrique

Contact and symplectic topology

Université Libre de Bruxelles, October 1-2, 2004

This meeting will take place at Université Libre de Bruxelles; it will start on Friday, October 1, at 9:30am and will end on Saturday, October 2, at noon. Here is the list of speakers :

JEAN-FRANÇOIS BARRAUD (Université de Lille I)

MÉLANIE BERTELSON (Université catholique de Louvain)
Finite-dimensional Morse theory revisited

VINCENT COLIN (Université de Nantes)
Controlled constructions of Reeb vector fields

KLAUS MOHNKE (Humboldt-Universität zu Berlin)

KLAUS NIEDERKRÜGER (Universität zu Köln)
Contact 5-manifolds with $SO(3)$ -symmetry and Dehn twists

CHARLES THOMAS (Cambridge University)

For more information, please visit the meeting website (<http://homepages.ulb.ac.be/~fbourgeo/contact/FNRScontact.html>). If you intend to participate, please contact Frédéric Bourgeois at fbourgeo@ulb.ac.be.

Groupe de contact “Histoire comparée des sciences” du F.N.R.S. Simon STEVIN

1. La prochaine réunion se tiendra les

jeudi 30 septembre et vendredi 1 octobre 2004

à l’Auditorium Maurice Lippens de la Bibliothèque royale de Belgique-Koninklijke Bibliotheek van België (KBR), 4 boulevard de l’Empereur à Bruxelles (tout près de la Gare Centrale).

Elle sera consacrée à Simon Stevin sur lequel, à l’occasion de la Présidence par les Pays-Bas de l’Union Européenne, la Bibliothèque royale organise une exposition dans ses locaux du 17 septembre au 30 octobre. Un ouvrage auxquels tous les orateurs ci-dessous participent paraîtra à cette occasion aux éditions Brepols.

2. Programme:

- jeudi 30 septembre
 - 9h45 accueil
 - 10h-11h:H.J.M.Bos (U.Utrecht):
Simon Stevin and an early algebra: An essay in understanding forgotten conceptual difficulties
 - 11h15-12h15:J.P.Le Goff (IUFM et IREM de Basse-Normandie,Univ.de Caen)
Voir et représenter le voir,des origines à Stevin
 - 13h45-14h45:F.Metin(IREM de Dijon-APMEP)
Les Tables d’intérêt
 - 15h-16h:P.van Praag (UMH)
L’Appendice Algébrique de Simon Stevin de Bruges
 - 16h15:visite de l’exposition.
- vendredi 1er octobre
 - 10h-11h: H. Elkhadem (ULB))

Simon Stevin et l'émergence de la nouvelle science

– 11h15-12h15:P.Radelet-de Grave(UCL)

La réception des idées de statique de Stevin par Grégoire de Saint-Vincent et son élève Jan Cierman

– 13h45-14h45:W.Bracke(KBR-ULB)

Le char à voiles de Simon Stevin

– 15h-16h:S.Boffa:(KBR-ULB)

La castrametation de Simon Stevin

– 16h15-17h15 JJ Heirwegh (ULB)

Vie et historiographie de Simon Stevin-Question ouvertes

3. Le repas de midi (menu du jour) pourra être pris à la cafétéria de la Bibliothèque. Une place sera réservée à tout participant qui se sera annoncé AU PLUS TARD LE 25 SEPTEMBRE à Michel Delire: jmdelire@ulb.ac.be.
4. Les frais de déplacements (au maximum 15 euros) seront remboursés aux chercheurs appartenant à la Communauté Française de Belgique.
5. Tout le monde est le bienvenu.

**International Solvay Institutes
SYMPOSIUM HENRI POINCARÉ
8-9 October 2004**

Université Libre de Bruxelles, Campus Plaine, Boulevard du Triomphe, B-1050 Brussels

Friday 8 October

- 09:30 Opening of the symposium
- Morning session: Chair: Grégoire Nicolis (ULB, Belgium)
 - 09:50 - 10:40 Jean Mawhin (UCL, Belgium)

Henri Poincaré: A Life in the Service of Science
 - 10:40- 11:00 Coffee break
 - 11:00 - 11:50 Sergei Novikov (Univ. Maryland, USA and Landau Institute Moscow, Russia)

Henri Poincaré and XXth Century Topology
 - 11:50 - 12:40 Henk Broer (Universiteit Groningen, Netherlands)

Quasi-Periodicity in Dissipative and Conservative Systems
- 12:40 -14:15 Lunch
- Afternoon session: Chair: Pierre Marage (ULB, Belgium)
 - 14:20 - 15:10 Dmitrii Anosov (Steklov Math. Inst., Moscow, Russia)

Infinite Curves on Closed Surfaces
 - 15:10 - 16:00 Thibault Damour (IHES, Bures-sur-Yvette, France)

Poincaré, Relativity, Symmetry and Billiards
 - 16:00 - 16:30 Tea break
 - 16:30 - 17:20 Ludwig Faddeev (Steklov Math. Inst., St. Petersburg, Russia)

What Integrability Means in Quantum Theory

Saturday 9 October

- Morning session: Chair: Adhemar Bultheel (KUL, Belgium)

- 10:00 - 10:50 Richard Hamilton (Columbia University, USA)

The Ricci Flow and the Poincaré Conjecture

- 10:50 - 11:20 Coffee break
- 11:20 - 12:10 Leonid Shilnikov (Nizhnii Novgorod State Univ., Russia)

Poincaré Homoclinic Orbits: The State of the Art

- 12:10 - 13:00 Jacques Laskar (Bureau des Longitudes, Paris, France)

TBA

- 13:00 - 14:30 Lunch
- Afternoon session: Chair: Viviane Pierrard (IASB, Belgium)
 - 14:30 - 15:20 Lars Brink (Chalmers University of Technology, Göteborg, Sweden)

Particle Physics as Representations of the Poincaré Algebra
 - 15:20 - 16:10 Jean Reignier (VUB/ULB, Belgium)

Poincaré Synchronization: From the Local Time to the Lorentz Group
 - 16:10 - 17:00 Pierre Gaspard (ULB, Belgium)

From Dynamical Systems Theory to Nonequilibrium Thermodynamics
- 17:00 Closure of the Symposium

See the web site <http://www.ulb.ac.be/sciences/ptm/pmif/SYMPOSIUMHP.htm>

GLOBAL and GEOMETRIC ASPECTS IN NONLINEAR PDE

Yerevan, Armenia, 6 - 12 October, 2004.

Scientific Committee: Luis Cafarelli, Peter Markowich, Henrik Shahgholian

Organizing Committee: A. Hakobyan, M. Poghosyan

For detailed information please visit

<http://math.sci.am> or <http://www.math.kth.se/henriksh/armenia04.html>

Réunion du

Groupe de contact FNRS WAVELETS AND APPLICATIONS

University of Liège, October 27, 2004

The following speakers are expected

- A. ARNEODO, ENS Lyon
- W. DAHMEN, RWTH Aachen
- S. JAFFARD, University of Paris XII
- A. PIZURICA, Ghent

Everybody is welcome!

For more informations, contact

Antoine@fyma.ucl.ac.be demol@ulb.ac.be F.Bastin@ulg.ac.be

2.3 November, 2004

The Scientific Research Network
“Advanced numerical methods for mathematical modelling”
organises a symposium on
SOFTWARE ENVIRONMENTS FOR NUMERICAL PROBLEMS

November 17 - 18, 2004

Ghent University, Belgium

Aim: a lot of your researchers are developing environments for the numerical solution of mathematical problems. At traditional conferences and symposia, most of the talks are dedicated to the mathematical principles with which the problems are being solved, and often there is not enough time in the programme to present and/or to demonstrate the software part.

This symposium however will be focussed on the software part and not on the mathematical part of the research. During their talks, (preferably young) researchers will have the opportunity to demonstrate the computer tools that they have developed. Also, the organisers intend to organise a session during which the participants can try out the tools that are presented.

Apart from these talks, the programme will also contain contributions of experts in the field of numerical software. We are proud to announce three invited speakers:

- Ron Boisvert, NIST, A Handbook of Special Functions for the Digital Age
- Sven Hammarling, NAG, An Introduction to the Quality of Computed Solutions
- Tim Hopkins, University of Kent, Software Testing and Quality Metrics

More information about this symposium is available at <http://www.wogsymposium.ugent.be/>

If you are interested in giving a talk or participating at this symposium, please fill in the form that is available at the registration part of the web page.

The deadline for submission is September 20, 2004.

The programme will be announced around October 1, 2004.

For further information please contact M. Van Daele

2.4 2005, 2006

- SMF, Royal Dutch Mathematical Society, Luxembourg Mathematical Society, Belgian Mathematical Society: joint meeting on 20-22 May, 2005, Gent, Belgium.
See Newsletter 44, September 2003.
- IVth International Workshop on Functional Analysis, September 5-9, 2005, Esneux, Belgium
- International Congress of Mathematicians. Madrid, Spain; 22-30 August 2006. See: <http://www.icm2006.org/>

“Fejér Riesz Conference”
Eger, Hungary, June 8 - 14, 2005
 Preliminary Announcement

Dear Colleagues,

The János Bolyai Mathematical Society, in cooperation with the Eszterházy Károly College of Eger (Institute of Mathematics and Informatics) is organizing a conference to commemorate the 125th anniversary of the birth of two outstanding Hungarian mathematicians: Lipót Fejér and Frigyes Riesz. The scientific activity of this conference will be centered on the main areas of their fields classical, harmonic and functional analysis. The conference will be held in the charming town of Eger, Hungary, capitol of a historic wine district (home of the famous red wine "Bull's Blood"). We will send more detailed information (invited speakers, registration fee, accommodation, etc.) in November.

Looking forward to seeing you at the meeting,
 Yours sincerely,
 The Organizing Committee

3 Summary of PhD theses

Computational discovery of cis-regulatory modules in animal genomes Stein Aerts (K.U. Leuven, ESAT-SCD)– May 14, 2004

The transcriptional regulation of metazoan genes is governed by combinations of transcription factor binding sites in cis-regulatory modules. Their central role in gene regulatory networks makes their detection and characterization of great importance for the understanding of the genetic programs encoded in the genome. The availability of complete genome sequences of several metazoan species and of high-throughput expression profiling using DNA microarrays are exploited in the bioinformatics methods described here to detect sets of coexpressed genes on the one hand, and the transcription factor binding sites that govern this co-expression on the other hand. For the former, a case study of gene expression profiling during *in vitro* neuronal differentiation in mice is described. The microarray data are preprocessed, clustered, and functionally analyzed using Gene Ontology associations. The expression data is further compared with expression data from *in vivo* differentiation. A high correlation between the systems was found after mapping the time points of the two data sets by time warping. For the detection of transcription factor binding sites, new algorithms are presented to predict significant occurrences and combinations thereof as cis-regulatory modules. The methods combine the statistical over-representation of instances of known motif matrices from TRANSFAC in gene batteries with evolutionary sequence conservation. Their performance is tested either on artificial data sets, on benchmark data sets, or on proprietary data sets. For module finding, a branch-and-bound and a genetic algorithm are implemented to find the optimal combination of binding sites in a set of co-expressed genes. Genomic searches for such newly found modules then yield putative target genes, for which the functional coherence is measured to give an indication of the validity of the module. The putative target genes are further prioritized computationally by comparing their functional characteristics with the gene battery where the module was found. The methods are integrated into computational analysis strategies using multiple genomic information sources and they are made available as user-friendly software tools. Lastly, a genomic sequence analysis is performed to study the nucleotide composition around the transcription start site in several metazoan species.

Microarrays: Algorithms for knowledge discovery in oncology and molecular biology Frank De Smet (KUL)–May 28, 2004

In this thesis we have studied a general data-mining framework (feature extraction, classification and clustering) that can be used to analyse clinical, microarray and proteomic data. We have mainly applied this framework to oncology related problems.

For the prediction of the degree of myometrial invasion in endometrial cancer, we developed three models that aim to discriminate between patients with and without deep myometrial invasion using ultrasound and histopathological data.

For the analysis of microarray experiments, we evaluated the use of principal component analysis. In addition, we examined some elementary clustering techniques (K-means and hierarchical clustering). We applied and compared the performance of Fisher's linear discriminant analysis and Least Squares Support Vector Machines for the classification of expression patterns of malignancies. Based on these results, we concluded that regularization or dimensionality reduction is necessary. Subsequently, we gave a general overview of existing techniques to cluster gene expression profiles and noted that they do not possess all the desired properties for this task. This observation was the basis for the development and validation of our own algorithm called adaptive quality-based clustering. Finally, we presented an in-depth study of univariate analysis in microarray data. We described a method to estimate the total number of genes whose expression is and is not affected by a difference in tumour type. We described how a Receiver Operating Characteristic (ROC) curve could be applied to define an optimal rejection level and showed that the area under the ROC curve could be used to assign a quality measure to microarray data.

In the description of our future research, we presented some concrete clinical projects in which we will use the data-mining framework for the analysis of microarray and proteomic data.

**Bayesian learning with expert knowledge:
Transforming informative priors between Bayesian networks and multilayer perceptrons
Geert Fannes (KUL)–June 10, 2004**

The research we described in this thesis deals with learning probabilistic models based on heterogeneous information. We focussed on classification systems and used the problem of pre-operational classification of ovarian tumours as a real-world application. Different types of information are available concerning this problem, such as statistical data, expert knowledge, and electronic text documents describing the medical domain.

We can describe the a priori knowledge using a donor probabilistic model. Unfortunately, this model is usually not suitable to learn from data. We would like to perform this learning from data using an acceptor model. Dit model features good learning characteristics from data, but has often limited options to incorporate prior knowledge. We would like to combine the good properties of each model to reach an efficient learning behaviour based on data while still being able to incorporate the prior knowledge.

We developed a method to transform the information that is contained in the donor model to the acceptor model using virtual data sets. We present this method in the Bayesian framework, which is ideally suitable to describe knowledge about a certain system and specifies how we have to update this knowledge when new information is observed.

To deal with the ovarian tumour classification problem, we chose a Bayesian network as donor and a multi-layer perceptron as acceptor model. The Bayesian network enables us to describe the expert knowledge or incorporate information concerning the connection between variables that we can find by analysing the textual documents. On the down side, this model uses discrete variables and contains many parameters, which hinders its learning. The multi-layer perceptron on the other hand contains less parameters, treats continuous variables in a natural way and shows a better learning behaviour based on data. This comes at the expense of the ability to incorporate prior knowledge fluently.

The results we describe in this thesis indicate that a successful transformation of information from a Bayesian network to a multi-layer perceptron is possible. A considerable amount of the work consisted in implementing the necessary models and algorithms to perform and validate this transformation. These models and algorithms are described, together with some implementational considerations.

**Integrating scientific literature with large-scale gene expression analysis
Patrick Glenisson (KUL)–June 11, 2004**

The current tendency in the life sciences to spawn ever growing amounts of high-throughput assays has led to a situation where the interpretation of data and the formulation of hypotheses lag the pace at which information is produced. Although the first generation of exploratory algorithms scrutinizing single, large-scale data sets (e.g., clustering) found their way into the biological community, the great challenge to connect their results to existing knowledge still remains. Despite the fairly large number of biological databases that is currently available, a lot of relevant information is present in free-text format (such as textual annotations, scientific abstracts and full publications). In our work we explore how integrating high throughput, microarray data analysis with text mining can reveal biological information not identified when using microarray information alone.

4 Miscellaneous

4.1 M@th En Ligne

“Elèves du secondaire, étudiants d’une école supérieure, parents, enseignants, ingénieurs, mathématiciens de métier ou non, tout qui est concerné par les mathématiques de près ou de loin, par nécessité ou par goût,... trouvera dans le forum M@TH en Ligne:

<http://www.forum.math.ulg.ac.be>

un espace totalement libre d’accès où il pourra

- trouver de l’aide,
- partager ses connaissances et son expérience,

- débattre de questions relatives à l'enseignement des mathématiques,
- discuter de points de théorie, etc.

Les utilisateurs posent des questions, d'autres utilisateurs y répondent, le tout sous l'oeil vigilant mais bienveillant d'une équipe de modérateurs qui veillent à la bonne tenue du forum. Un forum semblable est depuis peu ouvert dans les mêmes conditions et consacré à la physique: Physique On-Line, à l'adresse

<http://www.forum2.math.ulg.ac.be>

4.2 Théâtre et mathématique

Le Rideau de Bruxelles au Palais des Beaux-Arts (Saison 2004-2005)

PARTITION
Ira Hauptman

Texte français Isabelle Anckaert.

Avec Olivier Coyette, Christian Crahay, Pierre Dherte, Itzik Elbaz, Valérie Marchant

Mise en scène Jules-Henri Marchant. Scénographie Nicolas Marchant

Étonnant destin que celui de Srinivasa Ramanujan qui, en 1913, quitte son Inde natale pour rejoindre l'Angleterre à l'invitation du professeur G.H. Hardy. À Cambridge, celui-ci mise sur une étroite collaboration avec le mathématicien prodige pour qui les théorèmes de partition n'ont plus de secrets. Mais la distance qui sépare les deux hommes n'est rien, comparée à l'abîme qui existe entre leurs deux cultures. Ainsi, l'extraordinaire instinct de Ramanujan se heurte-t-il bientôt à la logique rationnelle de l'Occident. Devant l'isolement et l'obstination du jeune Hindou, seule sa déesse bienveillante, Namagiri, semble encore en mesure de le raisonner. Tandis que Fermat, l'illustre mathématicien français du XVII^{ème} siècle, ironise.

S'inspirant d'un fait réel de l'histoire des mathématiques, l'auteur américain Ira Hauptman livre une émouvante histoire d'amitié. Comme "Preuve", cette pièce surprend et passionne, parlant autant de sciences exactes que des mystères et des rencontres déterminantes de la vie. Une pièce magnifique.

Création en langue française au Petit Théâtre du 22 septembre au 20 octobre.

RENCONTRES "THEATRE ET MATHEMATIQUE"

Découvrez les liens inattendus entre théâtre et mathématique et assistez à l'une des rencontres-débat qui auront lieu avant "Partition", avec Jules-Henri Marchant, metteur en scène, et **Luc Lemaire**, Professeur au département de mathématiques à l'Université libre de Bruxelles.

Les jeudis 23, 30 septembre, 7 et 14 octobre de 18h45 à 19h30 au Petit Théâtre. Entrée libre.

CONCOURS "THEATRE ET MATHEMATIQUES"

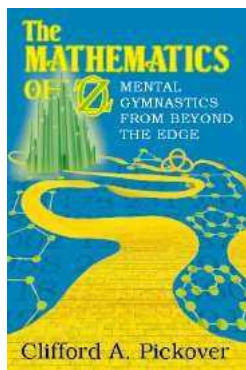
Véritable défi d'équipe à tenter par groupes de 8 à 12 étudiants du secondaire supérieur, ce concours vous proposera de résoudre des problèmes mathématiques, de vous pencher sur la vie de grands mathématiciens et de découvrir la pièce "Partition". Une aventure enrichissante qui permettra aux gagnants de découvrir d'autres spectacles de notre saison!

1er prix: 1 abonnement à 3 spectacles Rideau pour chacun des membres de l'équipe gagnante

Infos et inscriptions 02 507 83 62 Christelle Colleaux www.rideaudebruxelles.be

5 Fiction

Clifford A. PICKOVER. *The mathematics of Oz. Mental gymnastics from beyond the edge*. Cambridge University Press, Cambridge (2002). xvi+351 pages. Hard cover, ISBN 0-521-01678-9, £ 21.95.



Clifford Pickover has made a (probably lucrative) business out of his hobby of posing challenging puzzles. He has now published 30 books, at a rate of nearly one book per year. These range from neoreality science fiction to fractal art and collections of mathematical puzzles and brainteasers, weird top-ten lists, historical anecdotes etc. With the mathematics of Oz, the “Pickover factory” has delivered another collection of puzzles. It is presented as if Dorothy (from the Wizard of Oz books) is kidnaped by some mathematically obsessed aliens (Dr. Oz and his assistant Mr. Plex). Terrible things can happen to Dorothy unless she can solve all these puzzles. Each puzzle is presented in one of the 108 different chapters which have often only one or two pages. Each chapter is not just one task, but contains subsequent tasks of increasing difficulty (if you can solve this problem, then what is the longest, shortest, . . . solution? or if you add this constraint, what will happen then? etc.). The subjects are in random order. They involve geometry (in a sphere with 2 billion points, is there a plane that has exactly 1 billion points on each side?), mazelike problems (connect 3 given pairs of squares in a bounded 2D area without intersecting the connecting lines), sequences and series (complete a given sequence of images), physical world (how many bricks do you need to build a road across the US?), probability (Buffon’s needle problem), number theory (find 3 integers such that the sum of their squares is a cube and the sum of their cubes is a square). There are 4 levels of difficulty: from simply challenging to almost impossible to solve. The questions are phrased in a rather childish way (e.g. explaining what the square of a number is), but the solutions often require much more advanced mathematical techniques. These solutions are found at the end of the book. However, the solution pages often go much further than just giving the solution. They often end with posing an even more challenging question. The text is amply illustrated (the pictures often being an essential part of the problem). The Pickover fans, and some of the Martin Gardner fans –if these are nonoverlapping sets– will probably love this book as they loved the other ones. I have some problem with the character of Dorothy though. I think it is not functional and rather artificial. Frank Baum’s Dorothy, just as Lewis Carroll’s Alice, lives in a much more subtle fairy tale world than Pickover’s Dorothy. They do not seem to be related.

Adhemar BULTHEEL

6 The end . . .

Mathematics is made of 40 percent formulas, 40 percent proofs and 40 percent imagination.

Q: What caused the big bang?

A: God divided by zero. Oops!

Math is like love: a simple idea but it can get complicated.



**REGARDS CROISES SUR LA
FORMATION QUANTITATIVE
DE GESTIONNAIRES**

**EN HOMMAGE AUX PROFESSEURS
CHRISTIAN DE BRUYN
ET RENE MOORS**

29 SEPTEMBRE 2004

PROGRAMME

9 h.00 : Accueil des participants

9 h.30 - 10 h.40 : Hommages

- Introduction de la journée par le Professeur Léopold Bragard, Administrateur de l'Université de Liège
- Le Professeur Christian De Bruyn et les Méthodes Quantitatives de Gestion par Gérard Colson
- Le Professeur René Moors et l'Informatique de Gestion par Henri Born

10 h.40 - 11 h.00 : Pause-café

11 h.00 - 11 h.40 : « *Trente ans de recherche opérationnelle et d'optimisation mathématique* » par Yves Crama

11 h.40 - 12 h.20 : « *La Révolution Internet* » par Jean-Marie Choffray

12 h.30 - 14 h.00 : Repas (sandwichs)

14 h.00 - 14 h.40 : « *Probabilité risque-neutre, arbitrage et martingales* » par Louis Esch

14 h.40 - 15 h.20 : « *Le temps des noyaux...* » par Marc Roubens



EN HOMMAGE AUX PROFESSEURS
CHRISTIAN DE BRUYN
ET RENE MOORS

RENSEIGNEMENTS PRATIQUES

COORDINATION SCIENTIFIQUE DE LA JOURNÉE :

J. Bair, V. Bastin et V. Henry

DATE : 29 septembre de 9 h.00 à 16 h.00

LIEU : Université de Liège, Faculté d'Economie, de Gestion et de Sciences sociales—Campus du Sart Tilman—Parking 16—Bât B31, 3^e étage -Salle du Conseil

PARTICIPATION AUX FRAIS : 25 Euros sur le compte 091-0015718-33 du Patrimoine Ulg avec la mention « en faveur de l'OTP P.EGGEMAT01-01

J. Bair - hommage Professeurs Chr. De Bruyn et R. Moors ».

L'inscription donne droit:

- A la participation aux conférences
- A la pause-café
- Au repas de midi (sandwichs)
- A la documentation sur le thème de la journée

A partir de 16 h.00, une réception sera organisée par le Doyen de la Faculté en l'honneur des deux Professeurs Chr. De Bruyn et R. Moors.

Local: Faculty Club, 4^e étage du bâtiment B31 au Sart Tilman.

Madame, Monsieur

Adresse

.....

Tél. - Fax

participera à la journée du 29 septembre 2004, en hommage aux Professeurs Christian De Bruyn et René Moors,

et verse la somme de 25 Euros sur le compte 091-0015718-33 du Patrimoine de l'ULg avec la mention « OTP P.EGGEMAT01-01 J. Bair -Hommage De Bruyn Moors »

INSCRIPTIONS ET RENSEIGNEMENTS

Avant le 22 septembre 2004 au plus tard, auprès de Mme Claude Brose-Vodon, secrétaire, Université de Liège, Faculté d'Economie, de Gestion et de Sciences sociales, Bld. Du Rectorat, 7, Bât B31, 4000 Liège

Tél.: 04/366 27 21 Fax: 04/366 28 21

E-Mail: claud.vodon@ulg.ac.be

Internet: <http://www.eaa.egss.ulg.ac.be>