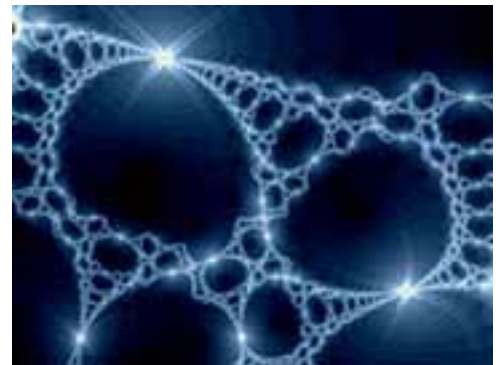


BELGIAN MATHEMATICAL SOCIETY

Comité National de Mathématique CNM

C W M
N

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 46, January 15, 2004



1 BMS membership dues for 2004

Members who did not yet renew their membership are kindly asked to do so as soon as possible.

The membership fees are:

- 18 euro (ordinary member BMS)
- 15 euro (reciprocity member)
- 38 euro (ordinary member BMS +EMS)
- 35 euro (reciprocity member BMS+EMS).

Members living in Belgium are requested to pay their contribution on account number 000-0641030-54.

Members living in another country of the eurozone are requested to pay their contribution on account number IBAN : BE 42 0000 6410 3054; BIC : BPOTBEB1.

Members living outside the eurozone are requested to pay using visa or mastercard.

For more details, see the website of the BMS: <http://www.ulb.ac.be/assoc/bms/> AND ALSO THE PAGES at the end of this Newsletter.

2 News from the BMS

News from the meeting of the Executive Committee (January 10, 2004) will be given in our next issue.

3 Meetings, seminars, conferences

3.1 April 2004

Joint Conference: BMS with Koninklijk Wiskundig Genootschap (The Netherlands)

Tilburg, April 16-17, 2004

On April 16 and 17, 2004 there will be a conference organized jointly by the *Belgian Mathematical Society* and the Dutch *Koninklijk Wiskundig Genootschap*. It will take place at the University of Tilburg. For the Dutch, it will count as the 40th *Dutch Mathematical Congress*.

The main speakers will be

- * **Neil Sloane** (AT & T), in the area of *Integral Sequences*;
- * **Bernard De Baets** (Ghent University), in the area of *Fuzzy Mathematics*;
- * **Stef Tijs** (University of Tilburg), in the area of *Game Theory*.

There will also be three special lectures:

- * The so-called *Beegerlezing* will be given by **Manjul Bhargava** (Princeton University), about *Number Theory*;
- * **Casper de Vries** (Erasmus University Rotterdam) will give a *Mathematical Auction Lecture*;
- * **Ben van der Genugten** (University of Tilburg) will lecture on *Gambling*.

Furthermore there are fourteen Mini Symposia (Optimization, System Theory, Statistics, Social Choice Theory, Discrete Mathematics, Mathematics Applied, Computer Algebra and Computer Geometry, Partial Differential Equations, Game Theory, Cryptography, Numerical Mathematics, Didactics, Incidence Geometry, Number Theory).

There will also be a number of short communications, and an organized session for Ph.D.-students to present their work.

For more and up-to-date information, we refer to the Web Site <http://www.uvt.nl/nmc2004>.

3.2 May 2004

Risk Analysis : Statistical and Probabilistic Methods

KUL, May 26-27, 2004

Next spring, a two-days colloquium “Risk Analysis : Statistical and Probabilistic Methods” is organized at the Katholieke Universiteit Leuven on May 26-27. This colloquium is organized by the University Center for Statistics and the research group on Actuarial Sciences.

For more information about the colloquium, please consult the colloquium website

<http://www.kuleuven.ac.be/ucs/colloq.htm#jlt>

with more details as they become available.

In name of the organizing committee,
An Carbonez

3.3 June 2004

Functional Analysis, FNRS Contact Group

Han/Lesse, June 7-8 2004

The next Han-sur-Lesse meeting on “Functional Analysis and Partial Differential Equation” is foreseen on June 7–8 2004 (contact: F.Bastin@ulg.ac.be,jpschneiders@ulg.ac.be,J.Schmets@ulg.ac.be).

The following speakers are expected (the list will be completed)

- J. Bonet (University Pol. Valencia)
- S. Jaffard (University Paris 12)
- D. Vogt (University Wuppertal)
- J. Zafarani (University Ispahan)

Third Croatian Congress of Mathematics

Split, Croatia, June 16-18 2004

I am glad to inform you that the Third Croatian Congress of Mathematics will held in Split, Croatia, June 16-18 (<http://www.pmfst.hr/congress/>). We would like to have our Congress with a strong international component.

Nikica Uglesic
President of the Scientific Committee.

5th International Conference on Functional Analysis and Approximation Theory

Maratea, June 16-23, 2004

Organizing Committee: F. Altomare, A. Attalienti, L. D’Ambrosio, M. Campiti, S. Diomedede, G. Mastroianni, D. Occorsio, M. G. Russo.

The meeting will be devoted to some significant aspects of contemporary mathematical research on Functional Analysis, Operator Theory and Approximation Theory including the applications of these fields in other areas such as partial differential equations, integral equations, numerical analysis and stochastic analysis.

See the pages <http://www.dm.uniba.it/faat2004> and <http://www.dm.unile.it/faat2004>

Colloque d'analyse non linéaire

En l'honneur de Haim Brezis, à l'occasion de son soixantième anniversaire.

Paris, du 21 au 25 juin 2004

Dates et lieu: du 21 au 25 juin 2004. Le Carre des Sciences, rue de la Montagne Sainte Genevieve, 75005 Paris.

Conférenciers: A. Aftalion, L. Ambrosio, G.I. Barenblatt, F. Bethuel, J. Bourgain, X. Cabre, L. Caffarelli, A. Chang, Y. Choquet-Bruhat, P. Constantin, L.C. Evans, F. Hamel, S. Klainerman, J.-F. Le Gall, Y.Y. Li, E.H. Lieb, F.-H. Lin, P.-L. Lions, H. Matano, Y. Meyer, M. Mimura, S. Muller, N. Nadirashvili, F. Otto, S. Serfaty, G. Sivashinsky, E. Stein.

Renseignements: <http://www.ann.jussieu.fr/HB2004/> Contact : hb2004@ann.jussieu.fr

Inscription gratuite mais souhaitée (via adresse internet ci-dessus).

Comité d'organisation: H. Berestycki, M. Bertsch, M. Chipot, M. Comte, J.-M. Coron, I. Diaz, Y. Maday, I. Shafrir, D. Smets, L. Veron.

Comité scientifique: A. Ambrosetti, A. Bahri, H. Berestycki, J.-P. Bourguignon, F. Browder, J.-M. Coron, G. Da Prato, M. Giaquinta, D. Kinderlehrer, L. Nirenberg, B. Peletier, J. Serrin, R. Temam.

3.4 September 2004

Tenth Mons theoretical computer science days

University of Liège, 8-11 September 2004

Theme: Some aspects of theoretical computer science and discrete mathematics related to combinatorics on words (in the broad sense).

Scopes: This conference is widely open to young researchers. Notice that English and French are the two official languages of the meeting.

Topics: Combinatorics on words (including algebraic and algorithmic aspects), all aspects of formal languages theory, variable length codes, automata theory and verification.

Main Speakers: J. Cassaigne, D. Caucal, C. Frougny, T. Helleseht, S. Langerman, F. Neven, M.-F. Sagot.

Call for papers: please check the webpage.

Organizers: J. Berstel, V. Bruyère, P. Lecomte, M. Rigo.

Location: Institute of Mathematics, University of Liège (Belgium).

Grants: Some financial support for young scientists is expected, see the conference website for updated information.

Deadline: 1st June for submission of a paper, 1st August for registration.

Information: e-mail : M.Rigo@ulg.ac.be , website : <http://www.jm2004.ulg.ac.be>

4 Summary of PhD theses

Computing zeta functions of curves over finite fields

Frederik Vercauteren

November 2003, K.U.Leuven

Promotors: Bart Preneel and Jan Denef

This thesis focuses on p -adic algorithms to compute zeta functions of curves over finite fields. The zeta function contains important arithmetic and geometric information about the curve and its Jacobian. Motivated by practical applications such as cryptography and coding theory, efficient algorithms to compute the zeta function have become increasingly important. Due to their p -adic nature, these algorithms are only practical in small characteristic p .

The first part of this thesis deals with p -adic algorithms to count the number of points on an elliptic curve over a finite field following the work of Satoh. The main idea of Satoh's algorithm is to lift both the curve and the Frobenius endomorphism to a p -adic ring and to recover the number of points directly from the lifted data. The principles of Satoh's original algorithm are explained and a new memory efficient variant is described. Finally, a detailed overview of the more recent developments in elliptic curve p -adic point counting is given.

The second part contains algorithms to compute the zeta function of hyperelliptic curves over finite fields using Monsky-Washnitzer cohomology, i.e. the de Rham cohomology of a ring of overconvergent p -adic power

series. The zeta function is recovered from the characteristic polynomial of a Frobenius operator acting on the first Monsky-Washnitzer cohomology group. This line of research was initiated by Kedlaya, who described such an algorithm for hyperelliptic curves over finite fields of odd characteristic. After presenting an overview of Kedlaya's algorithm, a new extension to characteristic two is described.

The final part presents a new algorithm to compute the zeta function of C_{ab} curves over any finite field of small characteristic. This algorithm is again based on Monsky-Washnitzer cohomology, but is much more general than the algorithm for hyperelliptic curves. Furthermore, several lifting and proof techniques are valid for general curves.

Stable collocation methods for the first kind boundary values problem of the Lamé system in a plane polygon

Olivier Gilson

December 15, 2003, ULg

The equilibrium equations of linear elasticity form the best-known example of an elliptic system. An interesting way to handle such problems is to reduce it to a boundary value problem. In domains with corners, the strong ellipticity, and even the continuity of the operator defined by the double layer potential, are lost in high order Sobolev spaces. The reason for this is the existence of singular solutions generated by each corner, see [2] and [3]. The order of convergence reached by classical methods of approximation is therefore restricted.

Our aim in this thesis is to construct stable collocation methods for the Dirichlet problem of the Lamé system, and to get optimal order of convergence without mesh refinement but with the use of the explicit singular functions in the trial-test space.

The first step is the definition of an bijective boundary operator to be discretized.

In a second step, we study the properties of the boundary potential using the Mellin transform. In the main regularity result we show that it is possible to remove a linear combination of singular functions from the solution of the boundary integral equation, in such a way that this solution not only becomes regular in Sobolev sense, but also vanishes at a high order at the corners of the polygon.

To prove the stability of the Galerkin method, we use Cea's lemma. Among its assumptions, this classical result requires the strong ellipticity of the operator. Unfortunately, in our case, the boundary operator generated by the double layer potential fails to be coercive in L^2 or H^1 , which are the usual spaces for collocation and Galerkin methods. For this reason, we introduce weighted Sobolev spaces where the strong ellipticity of the boundary operator allows us to construct stable Galerkin methods.

In order to exploit the regularity result, we add the singular functions to the weighted splines in the trial-test space. The Galerkin scheme is now equivalent to a "non-standard" collocation method, where orthogonality conditions with the singular functions appear. The approximate solution produced by this scheme now converges with optimal order to the exact solution of the boundary integral equation.

[1] Elschner J. and Hansen O., *A collocation method for the solution of the first boundary value problem of elasticity in a polygonal domain of \mathbb{R}^2* , J. of Integral Equations and Appl. 11 (2), 1999, 141-196.

[2] Grisvard P., *Elliptic problems in nonsmooth domains*, Monographs and Studies in Mathematics, 24, Pitman, 1985.

[3] Kondratiev V.A., *Boundary problems for elliptic equations in domains with conical or angular points*, Trans. Moscow Math. Soc. 16, 227-312, 1967.

[4] Laubin P., *High order convergence for collocation of second kind boundary integral equations on polygons*, Numer. Math. 79, 1998, 107-140.

5 Mathematical Olympiad

We did not receive any solution to the problems proposed in our last issue (November 15, 2003). So let us invite you again to send answers!

IMO 2003 Japan — Second Day

4. Let $ABCD$ be a cyclic quadrilateral. Let P , Q and R be the feet of the perpendiculars from D to the lines BC , CA and AB respectively. Show that $PQ = QR$ if and only if the bisectors of $\angle ABC$ and $\angle ADC$ meet on AC .

5. Let n be a positive integer and x_1, x_2, \dots, x_n be real numbers with $x_1 \leq \dots \leq x_n$.

(a) Prove that

$$\left(\sum_{i=1}^n \sum_{j=1}^n |x_i - x_j| \right)^2 \leq \frac{2(n^2 - 1)}{3} \sum_{i=1}^n \sum_{j=1}^n (x_i - x_j)^2.$$

(b) Show that equality holds if and only if x_1, x_2, \dots, x_n is an arithmetic sequence.

6. Let p be a prime number. Prove that there exists a prime number q such that for every integer n , the number $n^p - p$ is not divisible by q .

Philippe Niederkorn
co-leader of the belgian team, IMO 2003

And now, we are waiting for your solutions. . .

 Do not forget to send them to
F.Bastin@ulg.ac.be for the next issue of our Newsletter, i. e. before March 5, 2004. Thanks!

6 Miscellaneous

Visitors to the Universities of Brussels (VUB) and Antwerp (UA)

Arthur Ruuge (Moscow State University): January-March 2004

Serge Skryabin (Chebotarev Research Institute of Math. and Mechanics, Kazan): January-December 2004

Sergey Ludkovsky (Moscow State University): January-June 2004

EMS Call for Proposals

The European Mathematical Society is launching a new call for proposals for three activities : EMS lectures, mathematical joint week ends and summer schools.

EMS Lectures, EMS Joint Mathematical Weekends, EMS Summer Schools

The deadline for this call is February 20, 2004, by e-mail at the address: llemaire@ulb.ac.be

However, proposals will be welcome at any time. They need not be in final form, but should include ideas of subject, location, date, main speakers. The proposals will be examined by the "General meetings committee" and the scientific panel of the EMS. The deadline will allow the EMS to present a coherent proposal of activities for EU funding, thereby allowing organisers of single meetings to be part of a series of events. EMS direct support being limited, the result of this application will bear on the funding for the meetings selected by EMS. There will be similar calls each year in the future.

Here is a description of these three activities. For any question or tentative project, please contact llemaire@ulb.ac.be at any time.

EMS Lectures. The EMS is calling for proposals of EMS lectures, in the following new format. The idea of the EMS lectureship is to allow an institution inside the EMS area to invite a distinguished mathematician (in pure or applied mathematics) to give a series of lectures, and build a small conference around his presence. Typically, she or he would give between 4 and 8 lectures, complemented by talks of the participants to the meeting. The lectures of the main speaker should lead to a publication in an EMS Lecture Notes Series. An application should be introduced by a European institution, with agreement of the main lecturer, and include some plan of the meeting built around the course. The EMS will cover the travel expenses of the main speaker, and a lecture fee upon submission of a manuscript. It will help to obtain support for the meeting, provided it has an European dimension in participation. The preceding EMS lecturers (in a somewhat different format) have been professors H.W. Lenstra (Berkeley), M.J. Cutland (Hull), M. Lyubich (Stony Brook), G. Papanicolau (Stanford), M. Vergne (Palaiseau) and G. Dal Maso (SISSA, Trieste). The aim is to maintain the rhythm of one such course per year, and to help dissemination and development of cutting edge subjects.

EMS Joint Mathematical Weekends. Joint meetings of the EMS with regional or national societies. The EMS has launched a new format of joint meetings with its corporate member societies, following the model set out by

the Portuguese Mathematical Society in the meeting that took place in Lisbon from September 12 to 14, 2003 (see <http://www.math.ist.utl.pt/ems/>). These “EMS- joint mathematical week-ends” will start on a Friday, and finish on the Sunday, both at lunchtime, so that they can be easily attended during term-time. Each would cover around 4 subjects, chosen by the local organisers to fit the research strengths of the local mathematicians, or new subjects they would want to develop. For each subject, a plenary lecture and two half-days of parallel sessions will be organised. Past experience shows that such an internationalisation of the meetings of national societies helps to substantially increase participation. The EMS will help with scientific organisation, publicity and funding applications. With more than fifty corporate members, the EMS hopes to see regular meetings of this format. Note that mathematics departments or individual members can also plan such meetings.

EMS Summer Schools in Fundamental and Interdisciplinary Mathematics. The EMS will pursue its programme of Summer schools, aiming at running such schools in pure and applied mathematics. This call for proposals concerns all schools that any group of mathematicians would like to run in 2005 or later years. The guidelines for such events are that there must be a very strong component of training of young researchers (in the first 10 years of their career) by means of integrated courses and lectures at advanced level. This can be supplemented by conference type research lectures, but the training component is needed. The courses should aim at an international audience (no more than 30% of participants should come from a single state). The EMS will help with advertisement and organisation, as well as the applications for financial support.

Luc LEMAIRE

Phone: (+32) 2 6505837, e-mail: llemaire@ulb.ac.be

Call for Nominations of Candidates for ten EMS Prizes

Principal Guidelines. Any European mathematician who has not reached his or her 35th birthday on 30 June, 2004, and who has not previously received the prize, is eligible for an EMS Prize at 4ECM. A total of 10 prizes will be awarded.

The maximum age may be increased by up to three years in the case of an individual with a corresponding “broken career pattern”. Mathematicians are defined to be “European” if they are of European nationality or their normal place of work is within Europe. “Europe” is defined to be the union of any country part of which is geographically within Europe or that has a corporate member of the EMS based in that country.

Prizes are to be awarded for the best work published before the 31 December, 2003.

The Prize Committee shall interpret the word “best” using its judgement: e.g., it may refer to innate quality or impressiveness, influence, etc.

Nomination for the Award. The Prize Committee, headed by Professor Nina Uraltseva (St. Petersburg), is responsible for solicitation and evaluation of nominations. Nominations may be made by anyone, including members of the Prize Committee or by the candidates themselves. It is the responsibility of the nominator to provide all relevant information to the Prize Committee, including a summary and documentation.

The nomination for the awards should be reported by the Prize Committee to the EMS President at least three months prior to the date of the awards. The nomination for each award must be accompanied by a written justification and a citation of about 100 words that can be read at the award ceremony.

The prizes cannot be shared.

Description of the Award. The award comprises a certificate including the citation and a cash prize of 5000 euro.

Award Presentation. The prizes will be presented at the Fourth European Congress of Mathematics by the President of the European Mathematical Society. The recipients will be invited to present their work at the conference.

Prize Fund. The money for the Prize Fund will be raised by the organizers of the Fourth European Congress of Mathematics in Stockholm.

Deadline for Submission. Nominations for the prize must reach the office in Stockholm at the following address no later than the 1 February, 2004:

4ECM Organizing Committee, Prof. Ari Laptev,

Department of Mathematics, Royal Institute of Technology, SE-100 44 Stockholm, Sweden.

E-mails: laptev@math.kth.se, uunur@nur.usr.pu.ru

<http://www.math.kth.se/4ecm/>

Fax: +46-8-723 17 88, Phone: +46-8-790 84 86

Bringing mathematicians into biology

The Human Frontier Science Program is an international funding agency, supported by the G7 governments, the European Union and Switzerland. The HFSP supports interdisciplinary, international collaborations in the life sciences, with a clear focus on bringing scientists from various fields such as physics, mathematics, chemistry, computer science and engineering together with biologists to open up new approaches to understanding complex biological systems. The HFSP promotes international collaboration through collaborative research grants and post-doctoral fellowships.

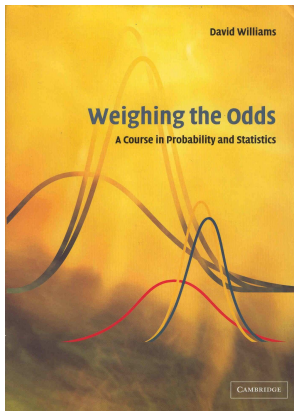
The next deadline for applications for letters of intent to submit research grants is March 31st 2004.

Further information can be obtained from the HFSP web site at

<http://www.hfsp.org>

7 Fiction

David WILLIAMS. *Weighing the odds - A course in Probability and Statistics*. Cambridge University Press, Cambridge (2001). x+547 pages. paperback, ISBN 0521 00618 X, £ 24.95, US\$ 37.95.



With this book, the author wants to help students to build the different kinds of intuition needed for Probability and for Statistics. Probability is treated not only as the foundation for Statistics but also as an important and challenging subject in its own right. The Statistics chapters present both the Frequentist and Bayesian approaches. An important chapter is devoted to the theory of Linear Regression and ANOVA. It explains how MCMC methods allow greater flexibility in modelling.

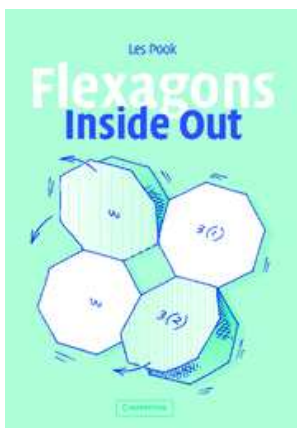
This book is meant to teach. It is not introductory but is written for students who already have had an introduction to Probability and Statistics and are familiar with the mechanics of elementary statistical methods and with some computer packages.

This textbook is well-written, even if the use of many abbreviations makes the reading sometimes rather difficult. The presentation is enriched with examples and exercises drawn from different kinds of fields of application. Most of the notions are introduced and illustrated with real life examples and the author gives an intuitive approach when new ideas are introduced. But the proofs are not omitted and the mathematical baggage that is needed can be found in the appendices. This book contains a significant amount of numerical works to illustrate topics and to show how methods and packages work or fail to work. C or WinBUGS code is provided for a number of computational examples and simulations. Many exercises are included and hints or solutions are often provided.

An interesting book in order to provide a link between Probability and Statistics to enable people to read more advanced books on Statistics.

Marielle CHERPION

Les Pook *Flexagons inside out*, Cambridge University Press, 2003 (170p.) ISBN 0-521-52574-8.



Flexagons were discovered in 1939 by Arthur H. Stone, a postgraduate student at Princeton University. He cut American size paper to fit it in an English binder. He folded the ribbons of paper that he had cut off, in a spiraling fashion and glued the ends together and that was the first flexagon.

It is difficult to explain to a reader what exactly a flexagon is if he has never actually made a paper flexagon or at least played with one that was produced by somebody else. A somewhat fuzzy definition from Eric Weinstein's encyclopedia of mathematics goes as follows.

An object created by folding a piece of paper along certain lines to form loops. The number of states possible in an n -flexagon is a Catalan number. By manipulating the folds, it is possible to hide and reveal different faces.

That is correct of course, but it will not help you much to imagine what this "object" actually looks like. Well I didn't have the faintest clue after reading and re-reading this definition a couple of times.

So, I think the first thing you have to do if you are interested in knowing what flexagons are and never actually played with one, is to produce one. So here is a little exercise that you can do yourself, or that you can ask the children to do for you if they are old enough to use scissors. I show in the accompanying figure a square grid which you should cut in paper. Fold along the lines in both directions and flatten again. The numbers without brackets are written on the top and the numbers in brackets are written on the back of the squares. Then fold along the lines such that (3) covers (3) and 3 covers 3. The top line AB and the bottom line AB will then match and these are glued together with a piece of tape. The result is a 2 by 2 square with on one side all 1's and on the other side all 2's. Fold along the horizontal line to let the 1's cover up each other and reopen to let the 3's reappear. Now the 2 by 2 square has all 3's on one side and all 2's on the other. This is the simplest possible square flexagon with only 2 possible states. If you look at this paper model topologically, you will see that it is actually a Moebius-like thing with only one side (after the gluing).

In general flexagons can have a polygonal outline when it is in one of its flexed states, and some folding/unfolding manipulation will transform it from one state into another.

A simple google search on the Internet will result in many weblinks related to flexagons. Some of them show how to make some flexagon, others show a movie in which you can see the flexing actually taking place. Others give nice decorations (the numbers can be replaced by colors or different decorations which are decomposed and reassembled by flexing).

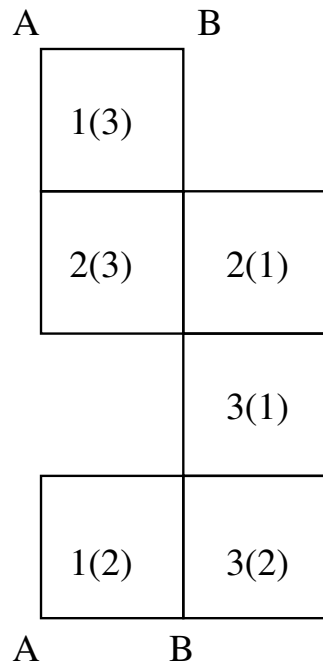
Flexagons have been popular ever since they were discovered. A 'Flexagon Committee' was founded at Princeton with members R.P. Feynman (a physics student) and J.W. Tuckey (young mathematics lecturer). In fact already in 1940 they worked out a first theory on hexaflexagons (which have an hexagonal shape). Construction and a brilliant simulation can be found on www.drking.worldonline.co.uk/hexagons/flexagons/.

Martin Gardner has further popularized these "puzzles" in his *Scientific American* column in 1956 and 1957. It was only in 1957 that a serious mathematical paper on flexagons authored by Oakley and Wisner appeared in the *American Math. Monthly*. A key reference is an internal RIAS report by Conrad and Hartline that is now available at delta.cs.cinvestav.mx/~mcintosh/oldweb/new.html.

The mathematical theory is not simple, certainly not if one moves to all possible generalizations that reach beyond what is practically realizable, or when classical components like squares or triangles are replaced by other polygons. While flexagons are in their different states two-dimensional, but fold in three-dimensional space to switch between the different states, flexahedra are in their different states three-dimensional, while transformations are in the four-dimensional space.

Flexagons have always been in the realm of recreational mathematics, and the serious mathematical study has not known an overwhelming number of publications. The present book is also to be placed in the recreational sphere (the reader need not know anything about mathematics) but it still wants to stimulate the reader to think about some of the mathematical questions that could be asked in this context. However in the first place it is a collection of nets and instructions to construct numerous different flexagons. You just have to photocopy some pages and the rest is cutting and pasting. The reader who gets easily addicted to this kind of puzzles should refrain from reading this book, unless he/she is retired and has a lot of free time to spend on it. Fun is guaranteed.

A. Bultheel



8 The end ...

A mathematician and an engineer attend a lecture by a physicist. The topic concerns Kulza-Klein theories involving physical processes that occur in spaces with dimensions of 9, 12 and even higher. The mathematician is sitting, clearly enjoying the lecture, while the engineer is frowning and looking generally confused and puzzled. By the end the engineer has a terrible headache. At the end, the mathematician comments about the wonderful lecture.

The engineer says "How do you understand this stuff?"

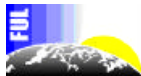
Mathematician: "I just visualize the process."

Engineer: "How can you visualize something that occurs in 9-dimensional space?"

Mathematician: "Easy, first visualize it in N-dimensional space, then let N go to 9."

Faites des Sciences... au Sart Tilman !

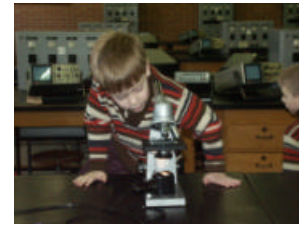
Dans le cadre du Printemps des Sciences



Du 22 au 28 mars 2004, les acteurs de l'enseignement des sciences et de la recherche scientifique de **douze institutions du Pôle mosan de l'enseignement supérieur**¹ convient les écoles et le grand public à participer à un événement qui tient désormais sa place dans le calendrier des manifestations liégeoises d'envergure : le Printemps des Sciences², dont le thème en 2004 est **Sciences sur mesure**.

Faites des Sciences... au Sart Tilman!, c'est à la fois une exposition interactive, des activités de laboratoire et d'éveil scientifique, mais aussi des visites de laboratoires de recherches et de musées : des activités et des métiers qui émerveillent.

Mesurer la Terre, ou même la distance entre les étoiles ? Pourquoi mettre la chimie en mesure et à quoi se mesure l'Homme ? Comment mesurer un micro-organisme en même temps qu'une baleine ? Et les incertitudes, on peut aussi les mesurer ? C'est grâce à son imagination et sa créativité que l'Homme peut mesurer le temps, les distances, la vitesse et le son ; mesurer les paramètres vitaux et la qualité de l'environnement ; mesurer aussi la mémoire, le goût des aliments et le comportement amoureux d'une caille. Méthodes et instruments de mesure nous montrent pourquoi et comment mesurer : mesurer pour comprendre, pour automatiser et pour prédire ; mesurer pour détecter, apprécier et décider.



Des questions et des réponses sur les sciences et la mesure en un lieu unique : le Sart Tilman, accueil aux Grands Amphithéâtres de Physique et de Chimie – Parkings P14-15).

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² Le Printemps des Sciences est une vaste manifestation de sensibilisation aux sciences initiée par Madame la Ministre Française Dupuis et par les Doyens des cinq Facultés des Sciences des Universités de la Communauté française de Belgique (FUNDP, UCL, ULB, ULg, UMH). Programme complet de l'édition 2004 sur le site www.printempsdessciences.be

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