BELGIAN MATHEMATICAL SOCIETY

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

Campus Plaine c.p. 218/01,
Bld du Triomphe, B–1050 Brussels, Belgium

BMS-NCM NEWS
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No 81, January 15, 2011

Letter from the editor

HAPPY NEW YEAR!!!!
best wishes!!!

Regards, Françoise

Contents

1 News from the BMS

Please find all the information (leaflet) at the end of this Newsletter for

the renewal of you membership to our society!

A bank document should also be available in the envelop (as usual in January, you are to receive also a paper copy of this Newsletter).

Many thanks for your support

2 Meetings, Conferences, Lectures

2.1 February 2011

Professor Alain Valette (Université de Neuchâtel)
Francqui Chair 2010-2011

Graphs with large girth
Inaugural lecture, February 16, 2011 at 18h00 at KULAK

The Francqui Foundation has granted a Francqui Chair 2010-2011 to Professor Alain Valette (Université de Neuchâtel)
You are cordially invited to the inaugural lecture "Graphs with large girth".
Address: Building A, Auditorium A305, Etienne Sabbelaan 53, 8500 Kortrijk.
Registration is required before February 4, 2011 on

http://wis.kuleuven.be/francqui

You are also invited to the Francqui lecture series that Professor Valette will deliver at K.U.Leuven and that is entitled

Metric embeddings in Hilbert and Banach spaces.

The Francqui lecture series starts on February 28, 2011 and the agenda of the lectures can be found on the same web page http://wis.kuleuven.be/francqui

See also the poster at the end of this Newsletter.

Best regards,
Paul Igodt and Stefaan Vaes

2.2 March 2011

Les services *d'Analyse Mathématique et de Probabilités et Statistique de l'Université de Mons* organisent une journée de rencontres et d'exposés dans le cadre de l'EDT Mathématique-FNRS, **le 15 mars 2011**. Le conférencier est **Bernard Beauzamy,** Président de la Société de Calcul Mathématique (Paris). Les thèmes de ses exposés sont

- 10h30: *Peut-on être mathématicien dans le secteur privé*

- 14h30: *Description des activités de la Société de Calcul Mathématique*

La réunion aura lieu au bâtiment "le Pentagone" (local 0A11), avenue du champ de Mars, Mons.

Informations et contact: catherine.finet@umons.ac.be

2.3 January-June 2011

Doctoral course:
6 lectures in multicriteria decision aid and multi-objective optimization.

Organizers: Y. De Smet (ULB), Th. Marchant (UGent), M. Pirlot (UMONS)

Target audience: doctoral students in decision, optimization, operational research, preferences in data base search

Goal: offer an introduction (at doctoral level) to a few fundamental mathematical models in the field of multiple criteria decision analysis and multi-objective optimization and to algorithmic problems raised by the use of such models.

Organization: six lectures of about 3 hours in English (once a month from January to June). Each lecture focuses on a specific topic. All lectures will take place in Brussels (ULB, Campus Plaine) or Mons (UMONS, Faculté Polytechnique) as indicated in the programme below.

Venue for the first lecture in Mons: UMONS, Faculté Polytechnique, rue de Houdain 9, 7000 Mons, Seminar room of MathRO (Mathematics and Operational Research department), third floor

All lectures in Mons will take place in the same room. The location of the lectures in Brussels will be announced later.

Further information: contact Prof. Marc Pirlot: marc.pirlot@umons.ac.be

Inscription is free; for organizational purposes it is asked that people intending to attend the lectures let it know to one of the organizers.

 Programme

1. January 20, 2011 (Thursday), 14.00-17.00 in Mons. M. Pirlot (UMONS): Additive value functions and conjoint measurement

2. February 23, 2011 (Wednesday), 14.00-17.00 in Brussels. D. Bouyssou (CNRS Paris Dauphine): Models for deciding under risk and uncertainty

3. March 23, 2011 (Wednesday), 14.00-17.00 in Brussels. J. Figueira (Université de Nancy): Outranking methods

4. April 27, 2011 (Wednesday), 14.00-17.00 in Mons. P. Meyer (Telecom Bretagne): Algorithms and software for aiding decision : the Decision Deck project

5. May 18, 2011 (Wednesday), 14.00-17.00 in Brussels. To be confirmed, M. Geiger (Universität Hamburg): Interactive methods in multiple objective optimization

6. June 15, 2011 (Wednesday), 14.00-17.00 in Mons. P. Perny (Paris VI): Multiobjective combinatorial optimization

This programme could be modified. The persons who would like to be informed of possible changes in the programme are invited to contact the organizers.

This course is organized with the support of the thematic doctoral school in Mathematics (EDT Math, FNRS).

2.4 May 2011

The European Science Foundation (ESF) - in partnership with EMS and ERCOM/IML - is organising a conference on 'MEGA 2011:

<div align="center">

Effective Methods in Algebraic Geometry
May 2011, Sweden.

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See http://www.esf.org/conferences/11372

This conference will be chaired by Prof. Sandra di Rocco, KTH Stockholm, SE and Mikael Passare, Stockholm University, SE.

Closing date for paper submissions is February 8, 2011. Closing date for applications is March 16, 2011.

This conference is part of the 2011 ESF Research Conferences Programme¡http://www.esf.org/conf2011¿ and is accessible online from www.esf.org/conferences/11372¡http://www.esf.org/conferences/11372¿.

2.5 September 2011

<div align="center">

First announcement of a Congress in Honour of the 80th birthday of Heisuke Hironaka

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The Congress will be held in Las Casas del Tratado, Tordesillas (Valladolid), Spain, on September, 18th - 23rd, 2011. At present, we are asking for pre-inscriptions. In March 2011 we will give precise details about accommodation and a tentative schedule.

Information and pre-inscription forms are to be found in the web page http://www5.uva.es/hironaka

<div align="right">

J.M. Aroca (Director) and José Cano
(from the organization committee).

</div>

Jose M. CANO TORRES
Dpto. Algebra, Geometria y Topologia, Fac. Ciencias. Univ. de Valladolid, 47005-Valladolid. Spain
e-mail:jcano@agt.uva.es

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

Apocalypse when? Calculating how long the human race will survive *Willard Wells*, Springer Verlag (New York), and Praxis Publishing (Chichester, UK) 2009 (xxiv+212 p.), soft cover, ISBN 978-0-387-09836-4, 29,95€.
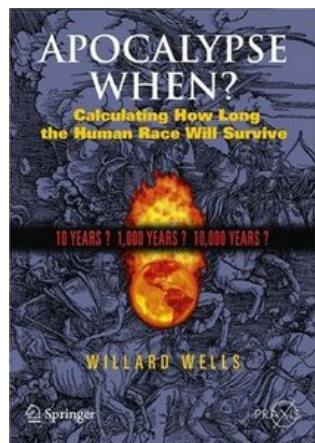
Apocalypse, well Wells, Welles, what's the link in the names? H.G. (Herbert George) Wells (1866–1946) is the well known science fiction writer whose novels *The Time Machine: a future apocalypse (1895)* and *The Invisible Man (1897)* are classics, but most of all his *The War of the Worlds (1898)* is best known by a wide public because of the radio drama directed by Orson Welles (sic) on 30 October 1931 that caused panic in the US because people believed the Martians really had landed in New Jersey. As far as I know, there was no "Well(e)s" connected with Francis Ford Coppola's film *Apocalypse now (1979)* about the Vietnam war. And now there is Willard Wells' book *Apocalypse when? (2009)*. Dr. Willard Wells, who received his Ph.D. in theoretical physics and mathematics from Caltech in 1959, under the supervision of Richard Feynman. Until his retirement in 1994, Wells worked at L-3 Photonics. Before, he also led the Quantum Electronics group at Caltech/Jet Propulsion Laboratory, where he worked in space communications and co-invented a satellite de-spin mechanism.

So one may not expect a novel here, but rather a "scientific" approach of some probably controversial viewpoints. Such subjects will always raise strong polarization between believers and sceptics.

Let me start with the conclusions: the risk of civilization collapse now is about 1% every year. Thus the chance that it will happen in a near future is real. About the risk covered by an average insurance policy. But do not worry. This will ultimately be a blessing for the human race. It will whipe out most of the humans but it will also destroy all the hazards, the man-made but perhaps also some natural ones, and this will result in the very long run in a 70% chance that the human race (in whatever form it may exist) will eventually survive. With a half-life of 8.6 billion people-centuries[1], we shall be around for a while in this universe if the world population number does not explode.

Those are quite precise numbers, but note that the subject is really about "when" and not about the nature of the cataclysm that will happen. It is not a prediction of the future, and there is no guideline about what parameters we have to monitor to avoid the apocalypse. In fact all the known hazards are not the real threats. It is a completely unexpected one or an interplay of several of these that we have to fear. But you cannot fear what you do not know. Hence you may still rest in peace.

So how does Wells arrive at these numbers? Well, he uses four quite different approaches that converge to approximately the same value. They rely on rather simple reasoning backed up by some "fuzzy" mathematics, that may be the cause of dispute and scepticism. There are (1) available statistics of businesses and stage shows, (2) random hazard rates, (3) history of survival, and (4) a Bayesian theory.

To explain this in some detail, Wells needs to explain some notions, which I will summarize below. I apologize in advance but if it is a bit confusing, it only reflects the style of the book.

The principle of indifference is a term coined by J.M. Keynes[2]. It says that if there are N possibilities and there is no further information, then each one will happen with the same probability $1/N$.

The major player in this book is the Doomsday Argument (1983) or rather Gott's survival predictor (GSP) of 1993 which is named after J. Richard Gott III. The argument in this historical paper goes as follows. Let n be the number of years humans exist, and N the number of years humans will survive. The probability of a total N prior to knowing n is $P(N) = k/N$ (k is a normalizing constant). Now by the indifference principle $P(n|N) = 1/N$. Since also $P(n) = k/n$ and using a Bayesian formula, we arrive at

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[1] To be understood in the sense of man-hours: more people means less centuries.

[2] Its earlier name was "principle of insufficient reason" used by Boole, Venn and others referring to Leibniz's "principle of sufficient reason". Wells attributes that to Laplace himself, but according to wikipedia, Laplace thought this to be so obvious that he never cared about giving it a name.

$P(N|n) = P(n|N)P(N)/P(n) = n/N^2$. Thus $P(N \leq Z) = \int_{N=n}^{N=Z} P(N|n)dN = (Z-n)/Z$. This is how Gott derives with 97.5% certainty that, given $n = 2 \times 10^5$ years, our race still has $N - n = 7.8 \times 10^6$ years to go.

Another player in this book is of course the appearance of possible hazards that can lead to the end of an entity. If $Q(T)$ is the fraction that survives after T years, then it decays like $Q(T) = 1/(1 + T/J)$. Here J is a parameter used to fit the data[3]. The age A of an individual is also important. Let F be the future time until extinction then the probability of survival given age A reads $G(F|A) = 1/(1 + F/P)$ with $P = A + J$ the "past" and J a parameter[4].

H.G. Wells, author of War of the worlds. Orson Welles turned it into a radio play in 1937, causing panic in the US.

However if hazard rates are not constant and vary in time, then T is not the appropriate parameter. In that case it is better to replace the time axis T with a risk axis Z where Z is the cumulative risk (or cum-risk) of all possible hazards. For example one could write $G(Z_f|Z_a) = 1/(1 + Z_f/Z_p)$. Thus time is a particular instance of cum-risk, billion people centuries (BPC) could be another one. For natural hazards, time is the appropriate scale, but since man-made hazards have drastically increased since the 1950's, time is obviously not the best choice here.

In several appendices, Wells writes out mathematical arguments to justify the formula $Q(T)$ above and writes other more detailed expressions for e.g. Q or Z. The previous formula is then checked in Chapter 2 against statistical data about the survival of stage plays in London theaters, or Portugese business firms. Wells argues that these (and similar data) are subject to hazards just as the human race (although at a different time scale) and these data can be brought in correspondence with the above mentioned formula by choosing an appropriate value for the parameter J.


Apocalypse now, a film by Francis Ford Coppola

Chapters 3 and 4 make a distinction between man-made and natural risks. For multiple risks, one has to use a formula for Q which is the product of $(Q_i)^{\alpha_i}$ where each Q_i represents the the survival rate of the individuals according to hazard i and the sum of the α_i's equals 1. For natural phenomena, the GSP is $G_n = 1/(1 - T_f/T_p)$ and for man-made hazards $G_m = 1/(1 + M_f/M_p)^{\omega+1}$, where M is the number of people-years lived after the start of technology measured by US patents (here 1350 AD). The parameter ω is used to fit the data (here $\omega = 2.1$). This gives an overall GSP probability of survival of the human race equal to $G_n^{1-q} \cdot G_m^{q(1+\omega)}$, $0 < q < 1$. By filling in all the data and the parameters, it turns out that the chance is higher that you will die in a global disaster than in a house fire (if you are living in a normal house).

The last chapter is devoted to "apocalypse how"[5] where possible scenarios are discussed ranging from a global epidemic over selfsustaining robots, a mutant phytoplankton to a mega-rich person going bananas.

All in all it is a book that has some juicy stuff that will attract many readers but it ends up being a bit chaotic. It somehow hesitates between being mathematics, statistics or just entertaining. It is obviously intended for a wide public, but I doubt that most of them will finish it or get the essence of it. Most "entertaining" if you may say so, is Chapter 5 with all the doomsday scenarios. But the mathematics, hidden in the appendices (they use 80 pages or 40% of the book) are a bit messy and the relation with the rather simple formulas in the chapters is not always made very clear. It could be a commercial success, attracting readers by its title, or by the controversies it may give rise to. But I believe a well structured paper about the mathematics would be very welcome for mathematicians.   Adhemar Bultheel
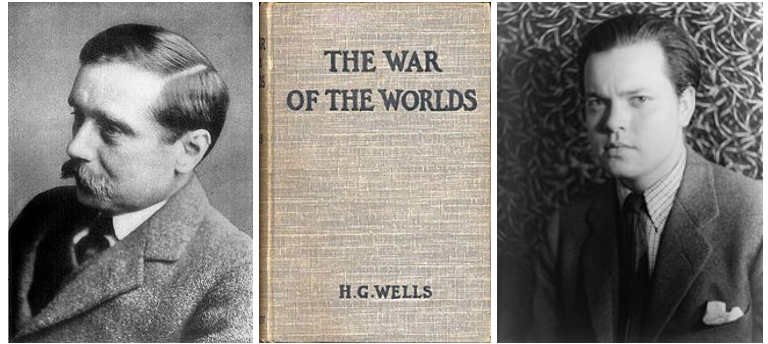
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[3]Almost every formula in this book has this magic GSP form $1/(1 + R/S)$.

[4]G refers to Gott's predictor. I use below a for "age", p for "past" and f for "future".
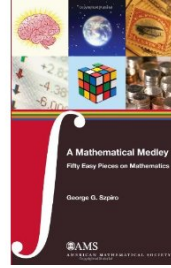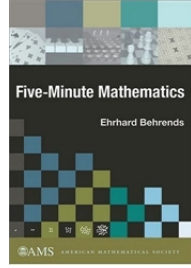
[5]This is only 1 letter away from the Vietnam movie.

Five-Minute Mathematics *Ehrhard Behrends*, AMS, 2008 (xxvi+380 p.), soft cover, ISBN 978-0-8218-4348-2.

A Mathematics Medley, Fifty easy pieces of mathematics *George G. Szpiro*, AMS, 2010 (x+236 p.), soft cover, ISBN 978-0-8218-4928-6.

E. Behrends

G.G. Szpiro

In this era of blogging, where things should be presented in flashy short bite-size chunks, not taking longer than 5 minutes to consume, the two books of this review fit perfectly well. As a surfing mathematician you will probably have discovered some of the many mathematical blogs around on the web. These books are like "frozen and printed" blogs. They also fit into the current boom of popularizing science books dealing in one way or another with mathematics. These deal essentially with mathematics as such or how mathematics is omnipresent in our society. There are also a lot of novels that have this mathematical flavor be it as a central theme or as a side effect. These can be historical with a flavour of fiction, about the fascinating life of some mathematical genius (e.g. The Indian Clerk), but they may also be psychological (e.g. The solitude of prime numbers), or thrillers where some mathematician (not the mathematics) plays a central role (e.g. 1q84, Murakami's recent trilogy), etc.

It seems that creative people like novelists, playwrights, film directors, (and they need not be mathematicians themselves) and thus our society is realizing that mathematicians are indeed part of the same society that they live in. That they are not creature from an other world, operating in some isolated universe. Perhaps the message that mathematics have been preaching for so long is finally getting through: mathematics is everywhere and everything is mathematics,... well, almost everything. And yet, most teaching mathematicians complain about a change of attitude of students towards mathematics and the fading interest in studying mathematics. Perhaps we need some die-hard mathematicians who do live in another world, but we also need some spin-doctors interpreting mathematics for a broad public. This is exactly what the authors of these two books do.

Ehrhard Behrends achieved something that is, as far as I know, unprecedented. He proposed to write a weekly column in *Die Welt*, a regular newspaper distributed worldwide. We all know such columns in journals, magazines, of newsletters intended for a mathematical audience, but here we are dealing with a worldwide distributed ordinary newspaper. His proposal was accepted and the *Five-Minute Mathematics* book is a collection of the columns that appeared in 2003–2004. It is in fact a edited translation of the German original that has appeared in 2006. Translator David Kramer did an excellent job in enhancing and completing the text and make even tiny corrections at some places. Also several glossy pictures were added to the newspaper texts for the purpose of the book.

Shalosh B. Ekhad

For a mathematician, the 100 columns that are collected here may be not that interesting since most of the content is more or less general knowledge among mathematicians. It contains the most diverse topics of general interest, such as statistical items: the chance to win the lottery, the chance of people having the same birthday, etc. Of course there is are several items about number theory, which is usually an easy problem to formulate for a general public: primes, pi, Fermat, zero and infinity and the likes. Others are related to computation: $P = NP$, simulated annealing, quantum computing,... And there are many topics of interest to a general public that can be covered in 100 chapters: Hilbert's hotel, Escher, Ramanujan, cryptography, games, puzzles, magicians's tricks, music, options, arbitrage, chess, bar codes,... All nice things to know and to keep up your sleeve when there is an annoying silence in your company just after you identified yourself as a mathematician.
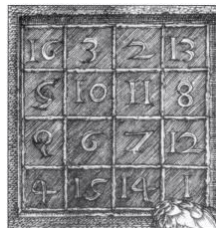
On the other hand, Szpiro's book *A Mathematical Medley* will probably be more to the likings of mathematicians, although it is again written for a general public. Surprising as it is, the previous book does contain some formulas, while there isn't a single one here. It has almost no illustrations, but it does have a list of references, but no index as the first one does. Perhaps it is judged that dealing with only 50 chapters, instead of 100, is still something one can go through to retrieve an item. Moreover the chapters are somehow gathered around nine different themes plus an introductory chapter out of competition. The latter deals with the question when and how we came to our decimal system and why besides 10, also 12 is such an omnipresent number in human culture. Since 50 topics is still to many to cover them individually in this review, let me make a selection by taking one from each theme. The chapters in a theme have very loose ties and the theme refers to the environment in which the mathematics are applied like "mathematics in the air" or "mathematics and money" but this does not mean that they deal with a specific branch of mathematics.

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Baden-Württemberg	1,103	1,364	1,672	1,907	2,292	2,517	2,847	3,232	3,509	3,738	3,955	3,974	4,296	
Bavaria	1,436	1,751	2,222	2,808	3,830	4,305	5,342	6,088	7,437	8,014	8,930	9,591	10,416	
Hesse	6,784	7,019	7,986	8,453	8,607	8,922	9,194	9,255	9,167	9,145	9,179	9,102	9,032	
Lower Saxony	5,158	5,569	6,251	6,574	6,877	7,228	7,815	8,141	8,695	8,985	9,242	9,493	9,839	
North Rhine-Westphalia	751	1,034	1,235	1,329	1,439	1,603	1,850	2,000	2,269	2,346	2,417	2,575	2,663	
Rhineland Palatinate	1,040	1,263	1,630	1,741	1,929	2,148	2,388	2,557	2,845	2,985	2,974	3,041	3,006	
Saarland	390	428	456	475	482	487	538	551	621	697	709	721	705	
Schleswig-Holstein	710	812	951	1,022	1,062	1,211	1,380	1,664	1,818	1,899	2,009	2,110	2,170	
Brandenburg	217	512	1,043	1,497	1,497	2,156	2,933	3,683	4,143	4,669	4,654	4,713	4,174	
Mecklenburg-Upper Pomerania	128	398	588	931	1,261	1,585	2,057	2,521	2,764	2,829	2,684	2,720	2,720	
Saxony	570	817	1,051	1,292	1,415	1,654	1,949	2,338	2,552	2,635	2,595	2,594	2,484	
Saxony-Anhalt	604	754	754	1,826	2,501	2,839	3,365	3,686	3,945	4,022	3,893	3,670	3,703	
Thuringia	360	648	1,087	1,337	1,093	1,297	1,655	3,365	3,034	3,291	3,533	3,626	3,626	
Berlin	67	90	99	96	101	54	67	120	120	135	56	56	117	
Bremen	13	15	16	17	16	16	21	24	40	35	31	35	36	
Hamburg	14	37	58	73	72	81	83	109	130	129	128	130	143	
Total	19,345	22,511	27,099	31,378	34,474	38,123	43,484	49,334	53,089	55,554	56,989	58,151	59,130	

Number of Girls in Youth Fire Brigades in the German States
(from the website of the German Ministry of Family Affairs)

There are chapters about primes, number theory and computation, just as in the first book, but there is always something extra for a mathematics reader to learn. For example one chapter doesn't deal with the history and the current state of computing the decimals of pi, but instead there is a similar discussion about the computation of the Littlewood-Salem-Izumi constant. Another curiosity: The proof of Kepler's conjecture was not published in the *Annals of Mathematics* in 1998 (only the strategy of the proof was accepted). The reason was that it was a proof by computer, and therefore it was deferred to *Discrete and Computational Geometry* where it appeared only in 2006. Or the story of the paper published by Shalosh B. Ekhad, who turned out to be an Hebrew pseudonym for a computer 3B1, a name chosen by the co-author (Doron Zeilberger).

Another thing that surprised me: In many real life data sets, the probability that the numbers start with the digit 9 is not about 10%, but instead the frequency of numbers starting with the digit d is $\log(1 + 1/d)$, which is approximately 0.046 for $d = 9$ (check in table above). Did you know that the human brain can interpret quantitative data properly when they depend on not more than four parameters. I never realized that the time between receiving an e-mail and me sending an answer obeys the same law as the time that Darwin or Einstein needed to answer their letters. There are of course the chapters about games and puzzles. So I learned about old and recent results related to Rubik's cube, Sudoku puzzles, magic squares, chequers, tic-tac-toe, and the likes. But there are many more nice things to learn about scheduling problems, how an extra road can cause more traffic chaos, the frequency of earthquakes, ringtones, and so much more. I believe that every chapters of this booklet will trigger a "whaw!",an "aha", a "meuh nice", or an "oh really?" type of experience. So it is an absolute must if you are interested in mathematics. Although mathematical knowledge is not really assumed, an mathematical insider may be more alert for the finer shades in significance of the short stories. Adhemar Bultheel
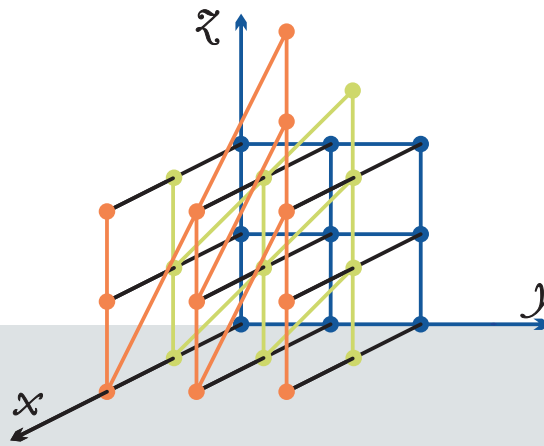
Francqui Chair Professor Alain Valette

professor of mathematics, Université de Neuchâtel
Francqui Chair 2010 – 2011, K.U.Leuven

inaugural lecture
Graphs with large girth

KULAK, Etienne Sabbelaan 53, Kortrijk
Wednesday, February 16, 2011 at 18h00

next lectures
Metric embeddings in Hilbert and Banach spaces

Auditorium Computer Science
Building A, Celestijnenlaan 200, Heverlee

1. Monday, February 28, 2011
2. Tuesday, March 1, 2011
3. Monday, March 7, 2011
4. Tuesday, March 8, 2011

15h30 – 16h30, First Lecture
16h30 – 17h00, Break
17h00 – 18h00, Second Lecture

information & registration http://wis.kuleuven.be/francqui
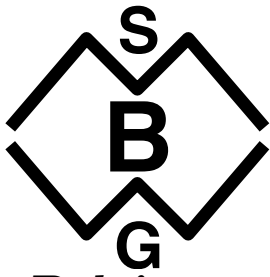
**Belgian
Mathematical
Society**
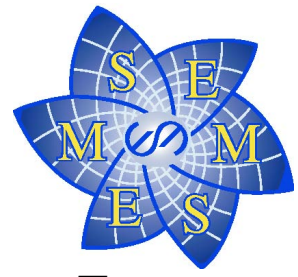
**European
Mathematical
Society**

Be a member of the
Belgian Mathematical Society (BMS)
and of the
European Mathematical Society (EMS)

As a member of the *BMS*

You will receive five times a year **BMS-NCM NEWS**, the Newsletter of the **BMS** and of the National Committee for Mathematics (**NCM**), containing information on what's going on in mathematics in Belgium.

You will receive the "**Bulletin of the BMS** - **Simon Stevin**", a periodical containing peer reviewed papers as well as book reviews.

You will benefit from reciprocity agreements with the AMS, DMV, LMS, RSME, SMF, SBPMef, VVWL and WG.

As a member of the *EMS*

You will receive a Newsletter of high interest containing papers, interviews, European meeting announcements, book reviews, . . .
You will benefit from a large discount on the "**Journal of the EMS**".

As a member of the *BMS* and the *EMS*

You are taking part in the mathematical life in Belgium and in Europe.

You give the two Societies the possibility to develop their actions: organizing meetings and lobbying with the authorities.

You provide more strength to the two Societies, enabling them to promote mathematics and its financing.

The *BMS* and the *EMS* help you

The **BMS** has conceived and promoted the on line access to the **Zentralblatt** in the Belgian Universities.

The **EMS** seeks to promote mathematics in the program of the European Union.

Activities of the *BMS* and of the *EMS*

The **BMS** has been active in organizing international congresses: **2005** Gent: joint meeting with SMF and the three BeNeLux Societies. **2005, 2007** Brussels: Ph.D. day. October 15, 2008 symposium "The mathematics of ranking" (Royal Academy), December 4–5, **2009** Leuven: joint meeting with the London Mathematical Society, September 13 **2010** Ph.D. day Royal Academy Brussels. Future plans: meeting on Mathematics and teaching (**2011**: exact day to be fixed), joint meeting with RSME (Real Sociedad Matemática Española) **2012**.

The **BMS** and the National Committee for Mathematics has published official standpoints in the BaMa discussion and in the use of the Science Citation Index and Impact Factors for the evaluation of mathematicians. This has been approved by the **EMS**.

The activities of the **EMS** are numerous and of high quality with the organization of the European Congress of Mathematics (ECM) every four years (Paris in 1992; Budapest in 1996; Barcelona in 2000, Stockholm in 2004, Amsterdam in 2008, 6th ECM, Krakow, July 2–7, 2012), with the Forum Mathématique Diderot, with the publication of the **Journal of the EMS**. The **EMS** as also created its own publishing house and offers a large and well-maintained collection of non-commercial journals and books on **EMIS**, the European Mathematics Information Service (www.emis.de).

Committee of the *BMS* Stef Caenepeel (VUB) (president)

Françoise Bastin (ULg) (vice-president, editor of BMS-NCM NEWS)

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