Belgian Mathematical Society

Comité National de Mathématique CNM

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NCW Nationaal Comite 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

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1 News from the BMS

1.1 General Assembly, May 27, 2002

In his address to the general assembly, the outgoing president, Jean Schmets, gave a survey of the achievements of the BMS during the past 3 years.

Dear Friends,

On this General Assembly day, I have been asked to present a short report on the activities of the Belgian Mathematical Society during these past three years.

Maybe the first thing to mention is that its official name for international purposes has effectively become Belgian Mathematical Society — in short BMS — on October 2nd, 1999.

Unfortunately during this period of three years, the BMS has lost two of its prominent members : Maurice Boffa who worked a lot with the committee and for the Bulletin, Pascal Laubin who has been a promising member of the Committee and of the editorial board of the Bulletin. The BMS has been very sad twice; condolences have been presented to the families.

Now I come to the achievements of the BMS since 1999.

Firstly let me emphasize the points related to the Bulletin of the Belgian Mathematical Society - Simon Stevin :

a) As chief editor, Yves Felix has done a great job. Now the Bulletin has a Science Citation Index, a significative one indeed. Everyone recognizes that the quality of the Bulletin has greatly improved. Nowadays Hendrik Van Maldeghem has taken over the task of chief editor and the promises are great too.

b) After many years of tries and decievements, the BMS Exchange Library has finally been organized in April 2000 in a completely satisfactory way, with location at the libraries of the KUL and UCL. Here Yves Felix and Adhemar Bultheel have been of great help. Too bad it has not been possible to use the good will of Marc Halin.

c) The financial balance of the BMS is satisfactory, even good. This is due to the fact that another printer has been chosen for the Bulletin. The quality of the printing has remained as good as before; here thanks must be delivered to Camille Debiève for his constant but hidden help.

This good financial situation has given the BMS the possibility to participate in different projects or realizations.

c.1) For instance, following an idea of Luc Lemaire, the BMS has cooperated for the printing of the advertizing of the Mathematical Year 2000 in the metro in Brussels. This advertizing has also been distributed to the mathematical institutes and, due to the quality of the design, we have been able to see it posted at different places on the campuses.
c.2) The BMS has also given support to the organization of the European Mathematical Society Executive Meeting in Brussels in February of this year.
c.3) The BMS has just decided to ask the European Mathematical Society to become a corporate member of class 2 instead of class 1. There are three classes : 1, 2 and 3, 1 being the lowest. At the birth of the EMS, the BMS was proposed to become corporate member of class 2 but due to some hesitation and to the finances, BMS argued at the time to just be of class 1.

The BMS has had strong contacts with Professor Bernd Wegner to set up the possibility for all Belgian mathematical institutes to have access on line to the Zentralblatt data base. Luc Lemaire had well prepared the discussions so that it has been possible to set up solutions for the universities of the different communities by separate means, with very favourable financial conditions.

In May 2000, a reciprocity agreement with the Real Sociedad de Matematica Espagnola has been signed.

The joint BMS-NCM Newsletter has continued to appear regularly. Jules Leroy takes, I should say took, care of this publication on top of his duty of secretary. Moreover he started the realization of the web pages of the BMS, a task now assumed by Philippe Cara.

Each year a leaflet containing informations on the achievements of the BMS and on the membership as well as on the reciprocity membership has been widely distributed in the mathematical institutes. It has led to some new members but with around 250 members, I feel the BMS is too small and has to find ways to increase the number of its members.

This number of members is not compatible with the organization of the large meetings the BMS has set up. I recall with pleasure :
a) the BMS-LMS Meeting that took place here at the ULB on May 14th to 16th in 1999 and
b) the BMS-DMV Meeting that took place at the ULg on June 8th to 10th last year. In both cases, the lectures have been of great quality and the organization very fine, especially if you realize that in both cases there were around 200 participants. In this line, there is a project under discussion dealing with the organization of a joint meeting with the SMF and the mathematical societies of Netherland and Luxemburg.

Several modifications of the membership in the committee of the BMS have taken place during these past three years. I want to thank very much those who left the committee after several years of big and helpful involvement. I also want to thank heartedly those who joined the committee and made the BMS stay a well organized and strong society.

Being president of the BMS has been a very valuable experience. It has been possible because I got so much help and good will from the members of the committee. I like to take this opportunity to thank them all very much. However there are three members I would like to thank in particular. Three years ago when elected, I made it clear that I was wishing Jules Leroy would stay secretary, Stef Caenepeel treasurer and Adhemar Bultheel would become vice-president. Adhemar Bultheel has been vice-president. Let me say that he assumed this reponsability with a great care. He has been very helpful. Adhemar, thank you very much for advices. Being treasurer of a society is not an easy task : although very important, it is a rather hidden job. Moreover, very often, the treasurer is the man who has the reputation to say "No" when a project is discussed. I do not know how Stef does but he has been able to say "Yes" most of the time although keeping the financial balance in a good position. Stef, thank you very much for your help. Jules Leroy is the secretary. He assumes this task for many many years. Now he has asked for retirement. Jules is a memory of the BMS. With a secretary of such quality, it is easy to be president. He took care not only of the secretary business but also of the Newsletter, of the web pages, of the exchanged periodicals, ... I stop here, I fear that in any case I would forget some of the duties he assumed. Nowadays these tasks are taken over by different members and each oneof them has a full mission to accomplish. Often I wonder how Jules could manage with all this. Dear Jules, I want to thank you very much for all you did for the BMS. It is a real pleasure to work with you. Jules, thank you very much.

This is what I wanted to say. Thank you very much for your attention.

Unanimously and by acclamation, the following people were elected for the period 2002-2005:

as President:	Adhemar Bultheel (K.U.Leuven)
as Vice-President:	Catherine Finet (U. Mons Hainaut)
as Secretary:	Jan van Casteren (U. Antwerpen)
as Treasurer:	Stefaan Caenepeel (V.U. Brussel)
as Editor in Chief of the Bulletin:	Hendrik Van Maldeghem (R. U. Gent)
as Book Review Editor:	Yves Felix (U.C. Louvain-la-Neuve)
as Editor of the BMS/NCM Newsletter:	Françoise Bastin (U. Liège)
as Members:	Eva Colebunders (V. U. Brussel), Freddy Dumortier (Limburg U. C.), Paul Godin (U. L. Bruxelles), Albert Hoogewijs (R. U. Gent), Christian Michaux (U. Mons Hainaut), Jean Schmets (U. Liège), Philippe Toint (FUNDP Namur), Michel Van den Bergh (Limburg U. C.), Lieven Vanhecke (U. C. Leuven), Fred Van Oystaeyen (U. Antwerpen), Marc Willem (U. C. Louvain-la-Neuve).

Philippe Cara (V. U. Brussel) will be the webmaster of the BMS.

1.2 A word from the new president

Since I became a member of the BMS committee in 1992, a decade has passed. The environment in which the BMS has to operate are not the same any more. Of course, a decade is a relatively short period in the perspective of social and economical evolution, yet some trends emerged or came more pronounced which our Society will have take into account. As the new president, I want to discuss some of these trends that I think of as being important and formulate some thoughts on how these may influence the politics of the BMS.

One irreversible evolution to observe is the *growing importance of Europe* in our daily life. Commercial companies collaborate or even melt together to cope with a growing market.

The BMS is not a commercial company but Europe plays an ever increasing role also for mathematicians in Belgium. Think of research funding, the promotion of international collaboration and mobility, the educational agreements, etc. So the BMS should have *good contacts* and *collaborate* with other European math societies. This has been the case in the past and this should be maintained and possibly intensified.

The previous presidents of the BMS (L. Lemaire, F. Dumortier, J. Schmets), did realize this and European issues were an ever returning point of the agenda of the Committee meetings.

Luc Lemaire, currently the vice president of the EMS, is our main contact with the EMS, but several other members of the Committee are involved in several European commissions too.

Besides many personal contacts, there are also formal agreements with several other math societies. There is a membership *reciprocity agreements* with the EMS (EUR), AMS (USA), SMF (FR), DMV (GE), LMS (UK), RSME (ES), WG (NL).

Another exponent of collaboration on an international level are *joint meetings*. The BMS has realized this and started organising their congresses in collaboration with other societies (1996 BMS-AMS meeting in Antwerp, 1999 BMS-LMS meeting in Brussels, 2001 BMS-DMV meeting in Liège). The EMS has plans to encourage joint conferences with national mathematical societies. The BMS should make use of this opportunity.

A mirror web site of EMIS (European Mathematical Information System) was set up in Belgium. A job page was set up on the web site of the BMS and linked to the EMIS site. The meeting of the executive committee of the EMS was hosted in Brussels in 2002. All this should show that the BMS, although it is a relatively small society, plays its role in a European context and it will continue to do so. Therefore, just recently in 2002, the BMS upgraded from a class 1 to a class 2 member of the EMS, to express its recognition of the importance of the European perspective.

Challenges for the near future are the realisation of the *Bologna agreement* and other educational matters. For example Luc Lemaire was member of the Mathematics Tuning group that had to investigate the possibility of tuning the math education programs in Europe. You can read about it elsewhere in this newsletter. The group played an excellent role and the future evolution has to be watched carefully. The implementation of Bologna in Belgium is a point of which the outcome is not totally sure yet. Even if political decisions are made, the practical realisation may result in quite different things when rules are interpreted in quite different ways. Also here, the BMS should follow this carefully and as far as it can influence the outcome, see to it that North and South in Belgium do not diverge too much and that the coming changes are for the better and do not become a step backward for mathematics.

Thus far this very brief sketch of some European issues and how that could influence the politics of the BMS.

Another tendency that can be observed worldwide is the *decrease in the number of math students* and the growing *depreciation of mathematics* in the educational process. This is how I would analyse the problem:

Our society is changing, and that of course is a good thing. However, the rate at which it is changing is increasing very fast. So that changes do not come over several generations anymore, but there are several changing systems during one generation. Today's projects are already outdated tomorrow. Long term planning has become a relative notion. All this is made possible because of the explosion of information and communication technology and of human mobility. In combination with an optimisation of efforts and resources, this creates a "just in time" and very utilitarian short time mentality, not only in economical goods, but also in information, science and knowledge, which became economical goods themselves, time as such being the most precious of all.

Nowadays, there is so much information available that it becomes impossible to assimilate it all, so the new educational paradigm is to look up a solution or to search for elements that can be brought together to lead to a solution of the (practical) problem at hand. You learn about things when you need them and because you need them and look at them from a more general perspective.

In this line of thinking, one should not learn students to prove theorems that have already been proved. Students should be taught the main results and they should be challenged to apply them to solve some (practical) problem. This removes the foundations of our classical math educational system and hence brings along a depreciation for classical theorem-proof type of mathematics courses in general, and even in specialised, curricula.

This is in flaming contrast with the fact that our society is more and more digitized, but most importantly also more and more "mathematised". Communication, finance, medicine, environment, energy, mobility, agriculture, etc., without mathematics, nothing would exist as it is now, and the importance of mathematics (and not only discrete mathematics or informatics!) is still growing.

Of course there is no point in fighting against evolution, but there is some danger in the current math education project that is being politically promoted. Evolution comes in waves and the need for more advanced mathematics is increasing and will certainly increase even more in the future.

The initiative of the International Mathematical Year 2000 was an attempt of the global math community to draw the attention of the public opinion to all these "hidden" mathematics in our modern society. Many conferences, books projects and even prices were set up at the turn of the century to promote mathematical challenges of the twenty first century.

I do not believe that the BMS can play a leading role in steering this evolution, which is too global. However, in my opinion, the BMS could be active on two fronts, concerning this problem. On one hand, it should *stimulate*, where possible, *fundamental research in pure mathematics* (a lot of mathematics became "useful" long after they were developed) and on the other hand, it should *encourage and promote the role of mathematics in applications*. These objectives could be realized by organising study days on certain more specialised topics on a national level. Collaboration with contact groups (FNRS) and WOG's (FWO) and the National Committee of Mathematics (NCM) seems to be appropriate to achieve these goals.

Following this mathematics-are-everywhere idea, *our view of mathematics should be broadened*. Nowadays a lot of beautiful mathematics are going on in applied fields such as physics, chemistry, informatics, robotics, data mining, bio-informatics, finance and many more. Usually all these research communities have their own organisations, but we shouldn't give the mathematics out of hand. It is not because a differential equation models the growing process of an apple, or that a function is called a signal, that it is not mathematics anymore. Instead of feeling isolated from these kind of mathematics, the BMS should raise the interest of mathematicians for these applications and look for a way of collaboration with the applied researchers. They may not consider themselves as mathematicians, but they are in fact (applied) mathematicians, thus mathematicians after all.

Mathematical sheep are not all white; they come in all colours. Shouldn't they all be brought in the same flock? Could the BMS be also a home for all these applied people or at least be a partner in discussions? A capital challenge!

Finally, there is the growing importance of *informatisation*, communication over the *Internet* and the on-line publication of *scientific literature*.

Several commercial publishers increase their journal prices constantly at a rate never seen before. Libraries complain everywhere because it becomes impossible to keep their usual collections of journals complete. Society journals have often been a counter weight in this evolution. They publish their journals at reasonable prices.

The BMS has contributed in this direction. The *Bulletin* merged with Simon Stevin in 1993 and it got a face lift at this occasion. At the same time it was emphasised that also the quality should be increased. And it did. It improved drastically since Y. Félix became the editor in chief and C. Debiève took care of the TeXnicalities. This resulted in a Science Citation Index of 0.346 in 1999; a main achievement indeed. The level of the journal is kept high and is now maintained by the new editor in chief H. Van Maldeghem. Communication is now mainly by email for efficiency reasons. Thus the Bulletin is on the right track.

Issues of the Bulletin older than five years are placed with full text accessibility on the web site of the BMS. Jules Leroy and Yves Félix took the initiative to set up a web site and in 2002 P. Cara became officially the web master of the BMS.

With regard to other books and journals, we could mention the library of the BMS that has been made more

accessible by transferring it to the fully equipped libraries of the UCL and the K.U.Leuven. The book review sections (Y. Félix took over from J. Mawhin, after he retired from his post as editor in chief) works efficiently. A reasonable number of book reviews appears on a reasonable number op pages in the Bulletin.

The university libraries do realize the problems with commercial journal publishers and they are reasonably well organised. So the BMS should not be a major partner in price negociations. Nevertheless, the BMS played a prominent role when in 1999 a Belgian consortium was formed to subscribe to the Zentralblatt für Mathematik. Currently solutions are being worked out for bringing MathSciNet (Mathematical Reviews) to all the Belgian universities. In fact MathSciNet is already available in the Flemish part since 2002.

The web site of the BMS contains general information on the Society, a list of conferences announcements, links to Belgian mathematical institutes, preprint servers, and a job page.

Also the *Newsletter* of the BMS, since 1997 joint Newsletter of the BMS and the NCM, is placed on the web. With the new editor F. Bastin, the Newsletter will be face lifted too. It is intended to become more attractive (at least the electronic version could occasionally have colours). For this and for financial reasons the electronic distribution of the Newsletter is promoted. Thus the perspectives for the Newsletter look very promising too.

There lies not only a challenge in the digitalisation of our publications but an even greater challenge is the *informatisation of the secretary* and all its administration. J. Van Casteren, the new secretary is willing to collaborate with P. Cara to set up a database of all the members and all the relevant information. Part of it could be made available on the web. A new style for the web site and more interactive pages (search engines, registration forms, etc.) and possibly an own domain name should be considered. The secretary, the Newsletter, and the web pages, were all excellently taken care of by J. Leroy for as long as I know. Now that these three tasks are redistributed over J. Van Casteren, F. Bastin and P. Cara, new initiatives become possible to reorganise things. For example, the initiative of the EMS to digitise old math journals is one project in which the BMS may consider to take some action.

Finally, the BMS has always been working with a tight *budget*. S. Caenepeel, who has been treasurer as long as I have been withe the BMS, keeps things in balance. Of course the income of the Society depends mainly on the *number of members* and subscribers to the Bulletin. A lot of effort has been put in publishing a high quality journal at the lowest possible cost. Over the years, the number of members is more or less constant. An increase on this income side could possibly be obtained by actively promoting institutional memberships and by recruiting in a broader multicoloured flock of pure and applied mathematicians. Also with the new style of Newsletter, advertising can be reconsidered or provoked.

So there are a lot of challenges, a lot of work, and a lot of unknowns, that the Committee will have to face. For some issues, I indicated that I think we are on the right track, so we only have to continue our efforts. There are few thoughts for other issues, some of them, admittedly, rather abstract. However, in the past decade, I have experienced very constructive Committee meetings, and all the Committee members have contributed in one way or another to shape the BMS as it is now. The newly elected members already took up their duties with enthusiasm as I sketched above. I am convinced that this atmosphere will not change in the next few years. I had some very good examples given by previous presidents, and I will try very hard to be as good a president as they were. I have the privilege to collaborate with C. Finet, the first female vice president of the BMS and that certainly helps, but I call upon the Committee members and upon all the members to help me, if not by taking up a special task, then by constructive comments. I am certainly open for discussion of the matters touched upon above and to all others issues that I didn't even mention.

A. Bultheel

1.3 Relations with the EMS

The BMS is now a Class 2 Corporate Member of the EMS

1.4 Web Pages

Recall that the Web Pages of our Society are located at the address **http://www.ulb.ac.be/assoc/bms/**. The person in charge of them is Philippe Cara (pcara@vub.ac.be).

The short term announcements should be sent to P. Cara directly.

1.5 List of Members of BMS, September 2002

Belgium

ADRIAENSSENS, Jan
ALBERT, Adelin
BAIR, Jacques
BALLIEU, Michel
BASTIN, Françoise
BELLEMANS, J.
BILO, Julien
BINGEN, Franz
BLOEMEN, Iris
BLONDEL, Vincent
BOECKX, Eric
BOEL, Jacques
BOIGELOT, Christine
BONCKAERT, Patrick
BORREY, Sabine
BOTTERMAN, Stefaan
BOULANGER, Ph.
BRACKX, Freddy
BUEKENHOUT, Francis
BULTHEEL, Adhemar
CAENEPEEL, Stefaan
CAHEN, Michel
CAPRACE, Pierre
CARA, Philippe
CARTON-LEBRUN, C.
CAUBERGH, Magdalena
CAUCHIE, Sara
CERF, Corinne
CHAUVEHEID, Paul
COLEBUNDERS, Eva
COPPENS, Marc
COYETTE, Michel
CRAMA, Yves
CROMBEZ, Gilbert
DALL'OLIO, Emmanuel
DE BRUYN, Bart
DE BRUYN, Kristien
DE CANNIERE, Jean
DE CLERCK, Frank
DE GROEN, Pieter
DE MAESSCHALCK, Peter
DE MEDTS, Tom
DE MEERSMAN, Roger
DE MEESTER, Patrick
DE MEYER, Hans
DE MOL, Christine
DE SCHEPPER, Hennie
DE VOLDER, Cindy
DE WINTER, Stefaan
DEBIEVE, Camille
DEBREMAEKER, Raymond
DEHAYE, Paul Olivier
DEHON, Michel
DEHOUSSE, Martin
DEKIMPE, Karel
DELANDTSHEER, Anne
DELANGHE, Richard
DELCOUR, Adrien
DELHEZ, Eric
DELVAUX, Lydia
DEPUNT, Julien
DEVILLERS, Alice
DEVILLERS, Raymond
DEWALLENS, Jean-Henri
DILLEN, Franki
DOIGNON, J.P.
DOYEN, Jean
DRABBE, Jean
DUMORTIER, Freddy
DUTRIFOY, Alexandre
DZIERZGOWSKI, Daniel
ERVYNCK, Gontran
ESSER-SIMON, A-M.
ETIENNE, Emile
FELIX, Yves
FERRET, Sandy
FINET, Catherine
FIORINI, Samuel
GEIVAERTS, Marcel
GERMAY, Noel
GILSON, Olivier
GLINEUR, Franois
GOCHET, P.
GODIN, Paul
GOSSEZ, J.P.
GOVAERT, Eline
GOVAERTS, Patrick
GOVAERTS, Willy
GUTT, Simone
HABETS, P.
HANSOUL, Georges
HENRARD, Paul
HERREMANS, Adriaan
HERSSENS, Chris
HOCEPIED, Jean-Bapt.
HOOGEWIJS, A.
HUYBERECHTS, S.
IGODT, Paul
IMPENS, Chr.
JASON, Edouard
JESPERS, Eric
KATILOVA, Natalia
KENNES, Robert
KIEBOOM, Rudger
KUIJKEN, Elisabeth
KUIJLAARS, Arno
LAMBERT, P.V.
LAMI DOZO, Enrique
LAVIS, A.
LECOMTE, Pierre
LEEMANS, H. W. E
LEEMANS, Dimitri
LEMAIRE, Luc
LEROY, Jules
LORIS-TEGHEM, J.
LUCAS, Thierry
LUMER, Gunter
LUYCKX, Deirdre
MAES, Arnaud
MASSON, Saji
MATHONET, Pierre
MATTHYS, Jean-C .
MAUER, Murielle
MAWHIN, Jean
MAYNE, Georges
MICHAUX, Christian
MIELANTS, Wim
MISERCQUE, Didier
MOONS, Theodoor
MOTMANS, L.
NICAISE, S.
NIEDERKORN, Philippe
NOEL, Guy
OHN, Christian
OMEY, Edward
PARIS, José
PAUWELS, Jean-Louis
PEETERS, Marc
PEIFFER, Karl
PENNE-HUYSSEN,
PERCSY-LEFEVRE, Ch.
PERES-VANDERBORGHT, Y.
PETRY, Andre
PIERRE, Christian
PIRET, Philippe
PLASTRIA, Frank
PLATEAU, Eric
POELS, P.
PUYSTJENS, Roland
QUARTA, Lucas
RADOUX, Christian
REIGNIER, J.
RIGO, Michel
RIVIERE, Cedric
ROELANTS, Herman
ROISIN,
ROUCHE, Nicolas
SARLET, W.
SCEVENELS, Dirk
SCHILLEWAERT, Jeroen
SCHMETS, Jean
SCHNEIDERS, Jean-Pierre
SCHOUTENS, Wim
SEBILLE, Michel
SENGIER-DIELS, Jacqueline
SIAU, Paul
SIOEN, Mark
STIENON, Mathieu

STORME, Leo	STULENS, Koen	TEUGELS, Jozef
THAS, J.	THAS, Koen	THYSSEN, Marie
TIGNOL, Jean-Pierre	TILLEUIL, Philippe	TOINT, Philippe
TROESSAERT,	VAN ASSCHE, Walter	VAN CAMP, Ellen
VAN CASTEREN, Johannes	VAN DEN BERGH, M.	Van der Meulen, Edward
VAN GEEL, Jan	VAN GUCHT, Patrick	VAN GUCHT, Patrick
VAN HAMME, Julien	VAN KEER, Roger	VAN MALDEGHEM, Hendrik
VAN NUFFELEN, Cyriel	VAN OYSTAEYEN, Fred	VAN PRAAG, Paul
VAN STEEN, Guido	VANBENDEGEM, Jean -Paul	VANDENEYNDE, Urbain
VANDERWINDEN, A-J	VANDEVOORDE, Robert	VANHECKE, Lieven
WARRINNIER, Alfred	WAUTERS, Paul	WUIDAR, Jose
ZHANG, Yinhuo		

Algeria
DAILI, Noureddine

Australia
BROWN, Matthew
HAMILTON, Nicholas
O'KEEFE, Christine

South-Africa
KALINDE, Albert

Congo
MOUKAMBA, Fidèle

France

ANTETOMASO, Richard	BALVAY, Pierre	BARAT, Guy
BAVENCOFFE, Edgard	BERNOU, Jean-Louis	BERTHOMIEU, Alain
BERTRAND, Franois	BOULEAU, Nicolas	CAMOUS, Daniel
CHAREYRE, Sebastien	CHOQUET, Nicolas	DE COSTER, Colette
DE PAUW, Thierry	DESPLANQUES, Pierre	ELSKENS, Yves
FARINA, Bruno	GOICHOT, Franois	GREKOS, Georges
JOLY, Pierre	LEFEBVRE, Michel	LEGAGNEUX, Jean-Louis
LI, Daniel	PICAVET, Gabriel	PIRET, Philippe
SOTIRIADES, Olivier	THOMAS, Jean-Claude	TITS, Jacques
YUE CHI MING, Roger		

Germany
GOTTSCHALK, Harald
KRAMER, Linus
MOMTAHEN, N.

Greece
DARAS, Nicolas J.
NANOS-DE WITTE, Rita

Italy
DE RESMINI, M.J.
PASINI, Antonio

Luxemburg
PIER, J.P.
HUPPERICH, Marcel
WAGENER, Raymond

Netherland
VAN DER BLIJ, F.

Scotland
LENAGAN, T.H.

Switzerland
HENRARD, Marc
VALETTE, Alain

USA
DAUBECHIES, Ingrid
MARTENS, Johan
VAN STEIRTEGHEM, Bart

2 Tuning Educational Structures in Europe

During the years 2001 and 2002, representatives from over 100 universities in Europe gathered periodically to examine possible adaptations of the higher educational system that could follow from the Bologna declaration, the possible mobility of students and workforce, and societal factors.

In this framework, a working group in mathematics gathered 14 mathematicians from European universities.

I represented Belgium, and kept in contact with delegates of the Belgian mathematics departments all through the programme.

The mathematics group focused a good deal of its efforts on the following question : what could be the definition of a minimal Bachelor or Master programme in mathematics in Europe ?

It turned out, to our surprise, that the intersection of COMPULSORY material between the obviously valid existing programmes was small : linear algebra and calculus/analysis.

However, other characteristics were identified by the group, and the following text can be seen as the group's recommendation of criteria that could lead to European recognition of a programme.

I feel it can also give reasonable guidelines in the attempts to implement the Bologna declaration.

As mentioned in the text, it is widely open to remarks and debate.

Luc Lemaire

Towards a common framework for Mathematics degrees in Europe

THE MATHEMATICS TUNING GROUP[1]

In the wake of the Bologna Declaration [B], signed in 1999 by Ministers responsible for Higher Education from 29 European countries, and its follow up, the Prague Communiqué [P], a group of universities established the project "Tuning educational structures in Europ" [T1, T2]. It was co-ordinated by the Universities of Deusto and Groningen and benefited from the financial support of the European Union. As its name suggests, the main objective of the project was to study how to "tune" (not to make uniform) educational structures in Europe, and thereby aid the development of the European Higher Education Area. This in turn should help mobility and improve the employability of European graduates.

Mathematics was one of the areas included in Tuning, and this paper reflects the unanimous consensus of the mathematics group of the project. But since the group does not pretend to have any representative role, we think it is necessary to make this document available for comment to the wider community of European mathematicians. We believe that any kind of action along the lines we sketch will only be possible and fruitful when a broad agreement has been reached. Indeed any mathematician member of the group welcomes comments on the document. E-mail addresses appear at the end.

The Mathematics Tuning Group is happy to express its thanks to the co-ordinators of the Tuning Project, Julia González (Universidad de Deusto) and Robert Wagenaar (Rijksuniversiteit Groningen), as well as to the European Commission, for creating the conditions for fruitful and pleasant interactions between its members.

Summary

- This paper refers only to universities (including technical universities), and none of our proposals apply to other types of institutions.
- The aim of a "common framework for mathematics degrees in Europ" is to facilitate an automatic recognition of degrees in order to help mobility.

[1] Group members are listed at the end of the paper.

- The idea of a common framework must be combined with an accreditation system.
- The two components of a common framework are similar (although not necessarily identical) structures and a basic common core curriculum (allowing for some degree of local flexibility) for the first two or three years.
- Beyond the basic common core curriculum, and certainly in the second cycle, programmes could diverge significantly. Since there are many areas in mathematics, and many of them are linked to other fields of knowledge, flexibility is of the utmost importance.
- Common ground for all programmes will include calculus in one and several real variables and linear algebra.
- We propose a broad list of further areas that graduates should be acquainted with in order to be easily recognised as mathematicians. It is not proposed that all programmes include individual modules covering each of these areas.
- We do not present a prescriptive list of topics to be covered, but we do mention the three skills we consider may be expected of any mathematics graduate: (a) the ability to conceive a proof, (b) the ability to model a situation mathematically, (c) the ability to solve problems using mathematical tools.
- The first cycle should normally allow time to learn some computing and to meet at least one major area of application of mathematics.
- We should aim for a wide variety of flavours in second cycle programmes in mathematics. Their unifying characteristic feature should be the requirement that all students carry out a significant amount of individual work. To do this, a minimum of 90 ECTS credits[2] seems necessary for the award of a Master's qualification.
- It might be acceptable that various non-identical systems coexist, but large deviations from the standard (in terms of core curriculum or cycle structure) need to be grounded in appropriate entry level requirements, or other program specific factors, which can be judged by external accreditation. Otherwise, such degrees risk not benefiting from the automatic European recognition provided by a common framework, even though they may constitute worthy higher education programmes.

1. A common framework: what it should and shouldn't be or do

1.1 The only possible aim in agreeing a "common European framework" should be to facilitate the automatic recognition of mathematics degrees in Europe in order to help mobility. By this we mean that when somebody with a degree in mathematics from country A goes to country B:

a) He/she will be legally recognised as holding such a degree, and the Government of country B will not require further proof of competence.

b) A potential employer in country B will be able to assume that he/she has the general knowledge expected from somebody with a mathematics degree.

Of course, neither of these guarantees employment: the mathematics graduate will still have to go through whatever procedures (competitive exams, interviews, analysis of his/her curriculum, value of the degree awarding institution in the eyes of the employer,...) are used in country B to obtain either private or public employment.

1.2 One important component of a common framework for mathematics degrees in Europe is that all programmes have similar, although not necessarily identical, structures. Another component is agreeing on a basic common core curriculum while allowing for some degree of local flexibility.

1.3 We should emphasise that by no means do we think that agreeing on any kind of common framework can be used as a tool for automatic transfer between Universities. These will always require consideration by case, since different programmes can bring students to adequate levels in different but coherent ways, but an inappropriate mixing of programmes may not.

1.4 In many European countries there exist higher education institutions that differ from universities both in the level they demand from students and in their general approach to teaching and learning. In fact, in order

[2]ECTS stands for "European Credit Transfer System". ECTS credits measure the learning outcomes attained by students. The basic general assumption is that the learning outcomes that an average full time student is expected to attain in one academic year are worth 60 ECTS credits. Therefore, the workload required to get 60 ECTS credits should correspond to what an average full time student is expected to do in one academic year.

not to exclude a substantial number of students from higher education, it is essential that these differences be maintained. We want to make explicit that **this paper refers only to universities (including technical universities)**, and that any proposal of a common framework designed for universities would not necessarily apply to other types of institutions.

2. Towards a common core mathematics curriculum

2.1 General remarks

At first sight, mathematics seems to be well suited for the definition of a core curriculum, especially so in the first two or three years. Because of the very nature of mathematics, and its logical structure, there will be a common part in all mathematics programmes, consisting of the fundamental notions. On the other hand, there are many areas in mathematics, and many of them are linked to other fields of knowledge (computer science, physics, engineering, economics, etc.). Flexibility is of the utmost importance to keep this variety and the interrelations that enrich our science.

There could possibly be an agreement on a list of subjects that must absolutely be included (linear algebra, calculus/analysis) or that should be included (probability/statistics, some familiarity with the mathematical use of a computer) in any mathematics degree. In the case of some specialised courses, such as mathematical physics, there will certainly be variations between countries and even between universities within one country, without implying any difference of quality of the programmes.

Moreover, a large variety of mathematics programmes exist currently in Europe. Their entry requirements vary, as do their length and the demands on the student. It is extremely important that this variety be maintained, both for the efficiency of the education system and socially, to accommodate the possibilities of more potential students. To fix a single definition of contents, skills and level for the whole of European higher education would exclude many students from the system, and would, in general, be counterproductive.

In fact, the group is in complete agreement that programmes could diverge significantly beyond the basic common core curriculum (e.g. in the direction of "pure" mathematics, or probability - statistics applied to economy or finance, or mathematical physics, or the teaching of mathematics in secondary schools). The presentation and level of rigour, as well as accepting there is and must continue to be variation in emphasis and, to some extent, content, even within the first two or three years, will make all those programmes recognisable as valid mathematics programmes.

As for the second cycle, not only do we think that programmes could differ, but we are convinced that, to reflect the diversity of mathematics and its relations with other fields, all kinds of different second cycles in mathematics should be developed, using in particular the specific strengths of each institution.

2.2 The need for accreditation

The idea of a basic core curriculum must be combined with an accreditation system. If the aim is to recognise that a given program fulfils the requirement of the core curriculum, then one has to check on three aspects:

- a list of contents
- a list of skills
- the level of mastery of concepts

These cannot be reduced to a simple scale.

To give accreditation to a mathematics programme, an examination by a group of peer reviewers, mostly mathematicians, is considered essential. The key aspects to be evaluated should be:

(a) the programme as a whole

(b) the units in the programme (both the contents and the level)

(c) the entry requirements

(d) the learning outcomes (skills and level attained)

(e) a qualitative assessment by both graduates and employers

The group does not believe that a (heavy) system of European accreditation is needed, but that universities in their quest for recognition will act at the national level. For this recognition to acquire international standing, the presence on the review panel of mathematicians from other countries seems necessary.

3. Some principles for a common core curriculum for the first degree (Bachelor) in mathematics

We do not feel that fixing a detailed list of topics to be covered is necessary, or even convenient. However, we do think that it is possible to give some guidelines for the common content of a "European first degree in mathematic", and more important, for the skills that all graduates should develop.

3.1 Contents

3.1.1 All mathematics graduates will have knowledge and understanding of, and the ability to use, mathematical methods and techniques appropriate to their programme. Common ground for all programmes will include

- calculus in one and several real variables
- linear algebra.

3.1.2 Mathematics graduates must have knowledge of the basic areas of mathematics, not only those that have historically driven mathematical activity, but also others of more modern origin. Therefore graduates should normally be acquainted with most, and preferably all, of the following:

- basic differential equations
- basic complex functions
- some probability
- some statistics
- some numerical methods
- basic geometry of curves and surfaces
- some algebraic structures
- some discrete mathematics

These need not be learned in individual modules covering each subject in depth from an abstract point of view. For example, one could learn about groups in a course on (abstract) group theory or in the framework of a course on cryptography. Geometric ideas, given their central role, could appear in a variety of courses.

3.1.3 Other methods and techniques will be developed according to the requirements and character of the programme, which will also largely determine the levels to which the developments are taken. In any case, all programmes should include a substantial number of courses with mathematical content.

3.1.4 In fact, broadly two kinds of mathematics curricula currently coexist in Europe, and both are useful. Let us call them, following [QAA][3], "theory base" and "practice based" programmes. The weight of each of the two kinds of programmes varies widely depending on the country, and it might be interesting to find out whether most European university programmes of mathematics are "theory base" or not.

Graduates from theory-based programmes will have knowledge and understanding of results from a range of major areas of mathematics. Examples of possible areas are algebra, analysis, geometry, number theory, differential equations, mechanics, probability theory and statistics, but there are many others. This knowledge and understanding will support the knowledge and understanding of mathematical methods and techniques, by providing a firmly developed mathematical context.

Graduates from practise-based programmes will also have knowledge of results from a range of areas of mathematics, but the knowledge will commonly be designed to support the understanding of models and how and when they can be applied. Besides those mentioned above, these areas include numerical analysis, control theory, operations research, discrete mathematics, game theory and many more. (These areas may of course also be studied in theory-based programmes.)

3.1.5 It is necessary that all graduates will have met at least one major area of application of their subject in which it is used in a serious manner and this is considered essential for a proper appreciation of the subject. The nature of the application area and the manner in which it is studied might vary depending on whether the programme is theory-based or practice-based. Possible areas of application include physics, astronomy, chemistry,

[3]This document was considered extremely useful and met with unanimous agreement from the group. In fact we have quoted it almost verbatim at some points.

biology, engineering, computer science, information and communication technology, economics, accountancy, actuarial science, finance and many others.

3.2 Skills

3.2.1 For a standard notion like integration in one variable, the same "content" could imply:

- computing simple integrals
- understanding the definition of the Riemann integral
- proving the existence and properties of the Riemann integral for classes of functions
- using integrals to model and solve problems of various sciences.

So, on one hand the contents must be clearly spelled out, and on the other various skills are developed by the study of the subject.

3.2.2 Students who graduate from programmes in mathematics have an extremely wide choice of career available to them. Employers greatly value the intellectual ability and rigour and the skills in reasoning that these students will have acquired, their firmly established numeracy, and the analytic approach to problem-solving that is their hallmark.

Therefore, the three key skills that we consider may be expected of any mathematics graduate are:

(a) the ability to conceive a proof,

(b) the ability to model a situation mathematically,

(c) the ability to solve problems using mathematical tools.

It is clear that, nowadays, solving problems should include their numerical and computational resolution. This requires a sound knowledge of algorithms and programming and the use of available software.

3.2.3 Note also that skills and level are developed progressively through the practice of many subjects. We do not start a mathematics programme with one course called "how to make a proof" and one called "how to model a situation", with the idea that those skills will be acquired immediately. Instead, it is through practice in all courses that these develop.

3.3 Level

All graduates will have knowledge and understanding developed to higher levels in particular areas. The higher-level content of programmes will reflect the title of the programme. For example, graduates from programmes with titles involving statistics will have substantial knowledge and understanding of the essential theory of statistical inference and of many applications of statistics. Programmes with titles such as mathematics might range quite widely over several branches of the subject, but nevertheless graduates from such programmes will have treated some topics in depth.

4. The second degree (Master) in mathematics

We have already made explicit our belief that establishing any kind of common curriculum for second cycle studies would be a mistake. Because of the diversity of mathematics, the different programmes should be directed to a broad range of students, including in many cases those whose first degree is not in mathematics, but in more or less related fields (computer science, physics, engineering, economics, etc.). We should therefore aim for a wide variety of flavours in second cycle programmes.

Rather than the contents, we think that the common denominator of all second cycles should be the level of achievement expected from students. A unifying characteristic feature could be the requirement that all second cycle students carry out a significant amount of individual work. This could be reflected in the presentation of a substantial individual project.

We believe that, to be able to do real individual work in mathematics, the time required to obtain a Masters qualification should be the equivalent of at least 90 ECTS credits. Therefore, depending on the national structure of first and second cycles, a Master would typically vary between 90 and 120 ECTS credits.

5. A common framework and the Bologna agreement

5.1 How various countries implement the Bologna agreement will make a difference on core curricula. In particular, 3+2 may not be equivalent to 5, because, in a 3+2 years structure, the 3 years could lead to a professional diploma, meaning that less time is spent on fundamental notions, or to a supplementary 2 years, and in that case the whole spirit of the 3 years programme should be different.

5.2 Whether it will be better for mathematics studies to consist of a 180 ECTS Bachelor, followed by a 120 ECTS Master (a 3+2 structure in terms of academic years), or whether a 240+90 (4+1+project) structure is preferable, may depend on a number of circumstances. For example, a 3+2 break up will surely facilitate crossing between fields, where students pursue Masters in an area different from that in which they obtained their Bachelor degree.

One aspect that can not be ignored, at least in mathematics, is the training of secondary school teachers. If the pedagogical qualification must be obtained during the first cycle studies, these should probably last for 4 years. On the other hand, if secondary school teaching requires a Master (or some other kind of postgraduate qualification), a 3 years Bachelor may be adequate, with teacher training being one of the possible postgraduate options (at the Masters level or otherwise).

5.3 The group did not attempt to solve contradictions that could appear in the case of different implementations of the Bologna agreement (i.e. if three years and five years university programmes coexist; or different cycle structures are established: 3+1, 3+2, 4+1, 4+1+project, 4+2 have all been proposed). As we said before, it might be acceptable that various systems coexist, but we believe that large deviations from the standard (such as a 3+1 structure, or not following the principles stated in section 3) need to be grounded in appropriate entry level requirements, or other program specific factors, which can be judged by external accreditation. Otherwise, such degrees risk not benefiting from the automatic European recognition provided by a common framework, even though they may constitute worthy higher education programmes.

6. References

[B]`http://www.bologna-berlin2003.de/pdf/bologna_declaration.pdf\verb`

[P]`http://www.bologna-berlin2003.de/pdf/Prague_communiquTheta.pdf\verb`

[QAA] The Benchmark document on Mathematics, Statistics and Operational Research, from the UK Quality Assurance Agency for Higher Education,
`http://www.qaa.ac.uk/crntwork/benchmark/phase2/mathematics.pdf.\verb`

[T1] The official sites of the project Tuning educational structures in Europe:
`http://www.relint.deusto.es/TuningProject/index.htm,\verb`
`http://www.let.rug.nl/TuningProject/index.htm \verb`

[T2] Information on the project Tuning educational structures in Europe in the European Commission site:
`http://europa.eu.int/comm/education/tuning.html\verb`

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3 Meetings and Conferences

3.1 September 2002

- In the framework of the contact groups of FNRS the interuniversity seminar of mathematical logic (FNRS) will have a 3 days programme on September 19, 20 and 21, 2002. Thema is "Usual sets and Models". Talks will take place at ULB on September 19 and 20, and at The Fondation Universitaire on September 21. Details are available from `http://www.umh.ac.be/math/logic/interuni/gpecontact.htm`

- On Friday, September 20, Professor Jean-Pierre Croisille, from the University of Metz, will give a conference at the Institute of Mathematics of the University of Liège (amphithéâtre 01, 15h15):

  Diffraction by an immersed elastic wedge

  For more information, contact F. Bastin: tel. 04 366 94 74, email F.Bastin@ulg.ac.be

3.2 October 2002

- On October 10-11, the fourth Interregional Colloquium of Mathematics will take place at the FNDP Namur. An announcement can be found at the end of this Newsletter.

- The interuniversity seminar of mathematical logic (FNRS) will start its weekly meetings on Thursday 3rd of October 2002 at 11h at the usual place (ULB, Campus de la Plaine, Building NO, Room 2NO906). The program is available from the site `http://www.umh.ac.be/math/logic/seminars.htm`

3.3 November 2002

On November 28-29, 2002, a workshop

Mathematical and Numerical methods for modelling in the life sciences

is organized by the Flemish Research Community "Advanced numerical methods for mathematical modelling" at the University of Gent. Organizers are E. Dick (Fluid Mechanics Laboratory, University of Gent), W. Govaerts (Applied Mathematics and Computer Science, University of Gent), D. Roose (Computer Science Department, University of Leuven).

More complete information, a provisional list of invited speakers and participants, as well as details on participation and registration can be found at `allserv.rug.ac.be/~ajdhooge/workshop.html`

3.4 February 2003

On 10-13 February 2003, jointly with SMAI and SMF, the EMS organises a conference in Nice

Applied Mathematics, Application of Mathematics

For more information: Alain Damlamian (damla@coputeserve.com, damla@libertysurf.fr,damla@univ-paris12.fr) and the web pages `http://acm.emath.fr/amam` and `http://www.emis.de/`

4 Open position

There is an open position in algebraic geometry at the U. Mons-Hainaut. For more information see `http://www.umh.ac.be/math`. The announcement (format pdf) is available from `http://www.umh.ac.be/math/institut/annoncepostevp.pdf`

5 Summary of PhD

Multiple Orthogonal Polynomials Associated with Modified Bessel Functions

Els Coussement
Promotor W. Van Assche
4 July 2002

Abstract:

Orthogonal polynomials play an essential role in least squares polynomial approximation and numerical quadrature (Gauss quadrature) but also in rational approximation where the denominators (and numerators) of Padé approximants to a Markov function (i.e., a Stieltjes transform of a positive measure μ) are orthogonal polynomials for the measure μ. Nowadays we know a large collection of orthogonal polynomials which can be expressed as special functions, in particular hypergeometric and basic hypergeometric polynomials. These classical orthogonal polynomials have been studied intensively en satisfy several interesting properties and identities like differential equations, generating functions, Rodrigues formulas en recurrence relations.
For simultaneous rational approximation of several Markov functions (Stieltjes transforms of positive measures $\mu_1, \ldots, \mu_r$) one can use Hermite-Padé approximation. The denominators of these rational approximants will again satisfy a number of orthogonality relations, but now with respect to the r measures $\mu_1, \ldots, \mu_r$, and hence they are known as multiple orthogonal polynomials or poly-orthogonal polynomials. There are two types of multiple orthogonal polynomials corresponding to the two types of Hermite-Padé approximation.
In this thesis two examples of multiple orthogonal polynomials of order $r = 2$ are given which are not related to the classical orthogonal polynomials but satisfy some interesting properties. The example associated with the modified Bessel functions K_ν was introduced by Van Assche and Yakubovich. In this thesis we found some new results for this example: explicit formulas and generating functions for the multiple orthogonal polynomials of type I and II and a differential equation for type II. The example associated with the modified Bessel functions is I_ν new. For these polynomials we found differential properties, explicit formulas, generating functions and a differential equation. We also obtained some asymptotics for the two examples. The asymptotics of the multiple orthogonal polynomials of type II associated with the functions I_ν are similar to those of Laguerre polynomials. Therefore, these polynomials are strongly related to the classical orthogonal polynomials. The example associated with the functions K_ν has asymptotics that are totally different from those of classical orthogonal polynomials.

6 Mathematics and fictions

Denis Guedj *Le théorème du perroquet*, Editions du Seuil, Paris, 1998; *The parrot's theorem*, St. Martin's Press, 2001; *De stelling van de papegaai*, Ambo, 1999.

The author is professor of Mathematics and Science History in Paris VIII. This novel where he mixes adventure, mystery and the history of mathematics is not his sole attempt to sell science in a popular way. He is also a playwright and a cineast. This novel has been a hit in France but not so much in other countries. The plot is as follows. Three study pals from a Paris University have lost track of each other some 30 years ago. Edgar Grosrouve was interested in mathematics and retires in the Amazone jungle to devote himself to the proofs of two important theorems 'that would amaze the whole world', but once he has found them, he wants to keep the secret for himself.

The second one Pierre (πR) Ruche is paralyzed after an accident and lives in the back of his little Montmartre bookshop, which is run by Perrette. This rather obscure woman lives above the shop together with Max, her adopted deaf son, and her twin children Jonathan and Lea. The book starts when Pierre, the philosopher, receives a legacy from Edgar, the mathematician. He leaves Pierre a gigantic library on (the history of) mathematics. Because Edgard's dead is somewhat mysterious, these five people from the bookshop (especially the enthousiastic and adventurous children) try to find out what has happened. They hope to find some answers in the books of the library that has arrived in complete disorder. They try to order and organize the library and while they do, the reader gets informed, more or less chronologically, about the anecdotes of mathematical history. The children become as enthousiastic about these math stories as they are about their 'real' detective work to solve the mystery.

Of course there is also the talking parrot Nofuture (or Sidney in the English version). He is the most colorful (in all senses) character of the book. The animal was saved on page 1 by Max at a flea market where the bird was being mutilated by two mafioso-type of bad-guys. It turns out that the parrot knows more about the proofs of the theorems, since it has been Edgard's companion in the Amazone. When Max and Nofuture are

kidnapped by Don Ottavio, and when Pierre goes on a rescue mission, it turns out that this Don Ottavio is the old friend of Pierre and Edgard, and that this rich Don Ottavio is eager to lay hands on the proofs of the theorems and that he is therefore after the parrot. Together they fly to the Amazone jungle in search for the proofs. Did Edgard indeed prove Fermat's last theorem or the Goldbach conjecture?

So far for the plot. The bulk of the book is however on the history of mathematics, and this is rather disconnected from the adventurous part. I can imagine that younger children (13-14 year) for which the book seems to be written will have a difficulty in keeping up the attention during these relatively long mathematical intermezzo's.

Although the mathematics are rather naive, and are constitute more of a 'petite histoire' than of a real history, still several of the important concepts and periods are passing the show: the Greek and Arab tradition, the quest for the quadrature of the circle, the French and Italian Schools, Goldbach's conjecture and Fermat's theorem, and many more issues.

This novel is an interesting experiment, but the suspense is slowed down too much by the mathematics and the overall concept is less focussed.

A. Bultheel

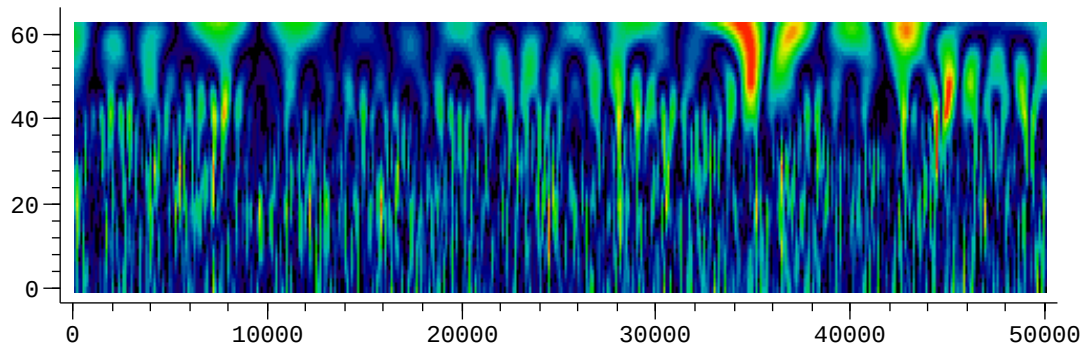
Invitation.

In case you read an interesting book or see an interesting film containing a mathematics component, do not hesitate to communicate titles and, if possible, a summary. (Send your comments to F. Bastin@ulg.ac.be)

7 The way you receive this newsletter

We strongly recommend members who forgot to communicate their email to send us this information. In this way, they will receive the electronic version of the newsletter, much more attractive than the paper version.

From Samuel Nicolay, University of Liège: *Wavelet transform of an ADN walk with the second derivative of the Gaussian function* ψ *(G2)* : $W_\psi f(b,a) =< f, \psi_{b,a} >$ with $\psi_{b,a}(x) = \frac{1}{\sqrt{a}}\psi(\frac{x-b}{a})$



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New Challenges in Mathematics

Interregional Colloquium of Mathematics

Interregionales Mathematisches Kolloquium

Colloque Interrégional de Mathématique

ICM2002

Namur, October 10 – 11, 2002

Dear Colleague,

We are pleased to inform you that the next Interregional Colloquium of Mathematics will be organized by the Department of Mathematics of the University of Namur (FUNDP, Belgium). This meeting will take place in Namur, on October 10 and 11, 2002.

Previous meetings were held at the Centre Universitaire de Luxembourg in 1999, the University of Trier in 2000 and the University of Saarbrücken in 2001. This colloquium will connect the following institutions:

Université de Metz (F)
Université Henri Poincaré, Nancy (F)
Centre Universitaire de Luxembourg (L)
Universität Kaiserslautern (D)
Universität Trier (D)
Universität des Saarlandes (D)
Université de Liège (B)
Facultés Universitaires Notre-Dame de la Paix, Namur (B)

The main goal of this meeting is to bring together researchers from these neighbouring universities in order to share their enthousiasm in Mathematics and to present and discuss the new challenges they are presently interested in.

Tél. +32 (0)81 72.49.25
Fax +32 (0)81 72.49.14
http://www.fundp.ac.be/sciences/math/dpt.html

We cordially invite you to participate in the conference, which will start on October 10 at 10.30 and will end on October 11 around 16.00. We ask you to inform the members of your department about this conference. In particular, we would like you to encourage participation of young researchers, who are very welcomed to take an active part in this conference.

As an attempt for a preliminary schedule, each university would be tentatively assigned a one and a half hour time slot. This time slot could be divided into two to four talks of typically 20 or 40 minutes (plus questions). This would give the opportunity to young researchers to present short talks on their current research, and to senior researchers to give tutorials or overviews of their research interests.

Each department of mathematics of the institutions listed above is cordially invited to submit a tentative list of talks, which should reach us on August 31, 2002 at the latest, by sending an email at the following address : Joseph.Winkin@fundp.ac.be or by completing the form below and sending it to :

Joseph WINKIN
University of Namur (FUNDP), Department of Mathematics
Rempart de la Vierge, 8
B-5000 NAMUR, BELGIUM.

Moreover each individual who wishes to attend the meeting should complete the registration form below and send it at the same address, by September 15.

Do not hesitate to contact us for any further information. We are looking forward to meeting you in Namur.

The members of the Local Organizing Committee

André Hardy, Anne Lemaître, Annick Sartenaer, Joseph Winkin (Chair)

Important deadlines :
August 31 : Submission of list of talks by each institution (see attached form)
September 15 : Registration of participants (see attached form)

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http://www.fundp.ac.be/sciences/math/dpt.html