MATHEMATICAL AND STATISTICAL SCIENCES NEWSLETTER

In this issue:

Editor's comments: This is the third and last issue of this academic year as well as the present editor's last. It has been a pleasure producing the departmental newsletter for the last two years. My thanks go to all those who have had input to this and past issues. It is only their effort and contribution that can make the newsletter a success.

Until a new editor is appointed, please send any correspondence for future issues to gludwig@gpu.srv.ualberta.ca, with "Newsletter" in the subject line. This and past issues may also be found on the Department's website at http://www.math.ualberta.ca/.

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I. CHAIRMAN'S REPORT

Tony Lau

It gives me tremendous pleasure to report that Professor Robert V. Moody has won the 2002 $100,000 Killam Prize in the Natural Sciences Category by the Canada Council for the Arts. This is indeed great news for Bob, the Department, the University and the Canadian mathematical community. Congratulations, Bob, for your outstanding achievement!

The University of Alberta recently announced the third round of identifying areas of "Established and Emerging Research Excellence". Our colleague, Dr. Gordon Swaters, is again selected to be part of the "Catylitic, Interfacial and Transport Engineering" group, one of the 20 Areas of Established Research Excellence. Congratulations to Gordon for his outstanding accomplishments.

Please join me in congratulating Dr. Andy Liu for being selected as the winner of this year's Distinguished Teaching Award for the Pacific Northwest Section of the Mathematical Association of America. The selection committee was very impressed with the high praise he receives from colleagues and students, his outstanding contributions to student learning, his mentoring of other teachers, and his promotions of excellence for all students as well as for gifted students. Thank you, Andy, for your wonderful service to the University, the students, and the mathematical community!

I would like to congratulate Dr. James D. Lewis who has been chosen by the Delta Chi Fraternity, Alberta Chapter, as one of the seven professors honoured for his contribution to the education of their members, on March 9, 2002.

I would also like to congratulate Dr. Sam Shen; his research work was on the NASA Goddard Space Flight Center's top story press release on January 15, 2002. Sam and his collaborators developed a new method that greatly improves U.S. seasonal forecasts.

Teaching is an important part of training in our graduate program. Four of our graduate students: Lynn Dover, Monica Illie, Stephen Sullivan and Cynthia Yau have been chosen by the Faculty of Science to receive the 2002 Graduate Student Teaching Award. Congratulations to Lynn, Monica, Stephen and Cynthia for the wonderful job they have done for the Department as graduate teaching assistants.

A Math Fair, the first such event at the University of Alberta, was held on March 21, 2002. Dr. Ted Lewis and the 27 students in his Math 160 class organized the event. The fair was sponsored by PIMS and was run in co-ordination with a parallel event hosted by Dr. Andy Liu on problem solving for the students. About 450 local elementary school and junior highschool students attended the event.

Dr. Michael Li is organizing this year's North and South Meeting, April 27-28, 2002, with thirty colleagues coming from Calgary as well as other colleagues from Lethbridge and other Colleges. Your support and participation of this important annual event would be most welcome.

Our winter teaching term is coming to an end and the summer season is approaching. I would like to wish all of you a very happy and fruitful summer season.

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II. REPORT FROM GRADUATE STUDIES

Yau Shu Wong

I would like to congratulate the following students for winning the 2002 NSERC awards.

NSERC PDF Recipients:

Razvan Anisca and Liping Liu

Note: The University of Alberta received fourteen PDF awards from NSERC this year, and two are from our Department. This clearly indicates the strength and quality of our graduate students.

NSERC PGSA Recipient:

Sam Hillier

I would like to congratulate the following students for winning the 2002 Graduate Student Teaching Award.

Graduate Student Teaching Award Recipients:

Lynn Dover, Monica Ilie, Stephen Sullivan and Cynthia Yau

I would also like to thank Kathleen Dohan, Selly Kane, Wenxiang Liu and Ovidiu Voitcu for representing the Department of Mathematical and Statistical Sciences at the Graduate Student Association Council for the upcoming year.

With the current budget reduction, the Graduate Committee has reported at the recent Department Council meeting that the policy for T.A. support to graduate students as stated in the Department regulations and guidelines for the graduate program will be applied. In general, after the time-limit is passed, no additional T.A. support will be provided for any student in the M.Sc program. For a Ph.D. student with satisfactory academic performance, a one-half T.A. support will be approved if one additional term is requested in order to complete the Ph.D. thesis. The Graduate Committee has strongly recommended that the student's supervisor should provide the remaining one-half support to the student.

We have received over eight hundred letters/emails from students who are interested in our graduate programs. About 150 to 200 completed application files were reviewed this year. The majority of the applications (about 85%) are interested in statistics and math. finance programs. Our target for new graduate students starting in September is twenty-five, and we have sent out thirty offers so far. From the distribution, about two thirds of the new students will be in statistics and math. finance programs, and the remaining one third will be in pure and applied mathematics. I would very much appreciate it if faculty members with information on potential students who are interested in our graduate programs, in particular in the area of pure and applied math., would let us know the name and e-mail address of these students. I am happy to report that three incoming new students have been awarded F. S. Chia

Ph.D. Scholarships, and one new student (who also received an NSERC graduate scholarship) has been awarded a U of A Master's Scholarship. We will continue to nominate strong students for U of A Scholarships in the coming months.

III. REPORT FROM UNDERGRADUATE STUDIES

Bruce Allison

As I write this, the winter term is nearly over. I hope that it has been a successful term for everyone.

We were recently pleased to get the news that several undergraduates were successful in their application for NSERC Student Research Grants for the summer of 2002. The successful applicants were:

Andrew Hammerlindl, Sam Hillier, Remkes Koiistra, Richard Kublick, Julia Renouf, Steven Semenjuk, Richard VanWeelden, Stephen Wasylishen and Kerianne Yewchuk.

All of these students are excellent students and it will be great to have them working in the Department this summer. Thanks to John Bowman and the Honours Committee for coordinating the applications.

We were also glad to recently fill the advertised position for a Faculty Lecturer. Peter Balka will be joining us in the fall term from the University of Waterloo. Peter's area of expertise is Statistics. He joins an excellent group of Faculty Lecturers who contribute greatly to the teaching function of our Department.

I wish you all an enjoyable summer.

IV. REPORT FROM THE ASSOCIATE CHAIR OF RESEARCH

K.C. Carrière

November 2001 NSERC individual grant competition results are out. Generally, the funding results brought good news to the Department, as the funding level of our members has gone up. Contrary to the rumours that there will not be any funding available to equipment grant applications in this year's competition, the group of our members who requested an equipment grant was awarded 100% of the requested amount.

The Awards Committee is extremely pleased to announce to the Department that Professor Robert V. Moody has won the $100,000 Killam Prize. There is only one winner in each of the five categories, and for the first time in its history, the award went to a mathematician, and the winner is our own. This is great news for our Department and also for Canadian mathematics!

The Killam Prize was inaugurated in 1981. Many of our colleagues must still remember Werner Israel who was in our Department from 1958 to 1972 before moving to the Physics department. He won the Killam Prize in 1984 in large part for his major achievement of proving a uniqueness theorem for static black holes (a mathematical theorem), which he did while he was a mathematician in our Department. However, it was Physicist Israel who won the Prize. Nonetheless, this makes two Killam Prize winners among our colleagues, past and present. Wonderful news indeed. (I thank Garry Ludwig for pointing out the fact that Werner Israel was a Killam Prize winner.)

V. NEWS FROM THE APPLIED MATHEMATICS INSTITUTE

Jack Macki

The Institute has provided modest grants to important and useful conferences, providing an in-department catalyst for our research and teaching efforts, and complementing our program of speakers. The latest of these events involved a program of talks and collaborative work by several renowned experts in math. biology, with Karl Hadeler as wrap-up visitor. Karl's energy permeated the Department for several weeks, and he established collaborative efforts with several of our members.

The next event in which AMI is involved is the annual meeting of the Canadian Applied and Industrial Mathematics Society in Calgary, June 8-10:

http://www.math.ucalgary.ca/~CAIMS/

There will be special sessions in mathematical finance, Hamiltonian systems, environmental mathematics, fluid dynamics, computer graphics, and modelling. Plenary speakers include Jerry Marsden of Caltech, Ann Gargett of Old Dominion University, Nira Dyn of Tel Aviv, and Hilary Ockendon of Oxford University. The fluid dynamics session is the biennial Canadian Fluid Dynamics Symposium. As always, many AMI members are presenting talks.

The AMI has also provided assistance to Mike Kouritzin and his MITACS group, with a modest grant for the Filtering Theory Conference, July 25-30, 2002:

http://www.math.ualberta.ca/pints/events.htm

In addition, we connected this group with an Ottawa fibre optics firm which has some serious signal processing problems for them to consider.

Another event to which the AMI makes a major contribution, editing and typesetting the reports, is the annual Pims Industrial Problem Solving Workshop, to be held at UBC, May 27-31. Participation by U of A staff is still very thin, and only slightly better for graduate students. These workshops are a great source of new problems and ideas, as well as an excellent training ground for graduate students, and I hope we can do a better job of promoting the workshop next year. The plan is to have some special presentations based on problems attacked at previous workshops.

The AMI is very interested in sponsoring a team to take part in the annual math. modelling contest. This event attracts teams from several hundred universities. If any staff member is interested in coaching a team, please contact me.

A final event we are helping with a tiny contribution is the 5th Americas Conference on Differential Equations and Nonlinear Dynamics, July 7-12. This event was begun on the basis of the close connections between Jack Hale's group at Georgia Tech and several South American Universities. Jim Muldowney's collaboration with a colleague in Venezuela led to an invitation to hold the event here. The last time I checked the website I counted (are you ready?) 230 speakers! This should be a lot of fun.

http://www.math.ualberta.ca/~americas/

Bryant Moodie and Jack Macki are meeting weekly to assess our progress in moving the Canadian Applied Mathematics Quarterly to Canada. We have agreed with the Rocky Mountain Mathematics Consortium (based at Arizona State) to have their people do the technical editing on the long overdue volumes 8 and 9 from 2000 and 2001. These should be printed and distributed by early summer. Meanwhile we are proceeding with volume 10, 2002, concurrently. We are proceeding with our planned collaboration with the CMS technical editor, Michael Doob, in Winnipeg. Graham Wright of the CMS has been most helpful. We will be sending our first papers to him next week. We have received quotes from local printers for printing the journal, and we will be using one of them for the back volumes. Although the CMS uses the U of Toronto Press, we may not use them for our current volumes, because (like Quebecor, as we found out by asking them to bid) they may just be too big to do small jobs. To give you an idea of the diffference in costs between RMMC and Canada, the annual technical editing and printing bill for CAMQ was roughly $30,000 Canadian, while very conservative estimates for doing it here run to about $15,000. The journal is in good financial shape, with over $20,000 in the bank.

Dana McCallum has been very busy setting up our new AMI/CAMQ office space, shared with the Canadian Bulletin, on the fourth floor. We'll have a grand opening when we get it fixed up, but we can only entertain five people at a time in the space provided.

We are inviting interested staff of the University (or from outside, for that matter) to consider joining the AMI. So far we have five excellent nominees, and the membership will vote shortly. If you are interested in joining, please talk to Jack Macki or any present member of the AMI, we welcome your interest.

Michael Li has been doing an outstanding job of organizing the annual North-South Meeting
http://www.math.ualberta.ca/conference_NSmeeting.html
The AMI is participating by helping organize the conference on curriculum on day 2. We are especially interested in discussing modernization and streamlining of the curriculum and of courses in applied mathematics and engineering. If you have an interest in this area, please do attend and participate.

Finally, we found an expert on the weird graph paper! Some of you may have seen the graph paper, posted in the lounge, used to plot particle sizes for sand and gravel samples in civil engineering. It uses a log-log plot, but the one axis puts a separate log scale on several disjoint intervals. A colleague in Civil Engineering responded with something of an explanation, but we are still quite mystified as to why they use disjoint log scales on the one axis.

VI. PIMS NEWS

Jim Muldowney

Upcoming Events at the U of A:

(Details may be found in the section on <u>Upcoming Meetings</u>.)

    i.   Mathematical Biology Summer Workshop, May 11 – 19.

    ii.   4th Annual Fluid Dynamics Summer School, July 28 to August 9, 2002.

    iii.   Filtering Theory and Applications 2002, May 11 – 19.

Past Events

<u>Around Group Rings</u>

The Around Group Rings Workshop took place from February 18 - 21 in Jasper, Alberta. Forty-eight participants attended the conference from North America (Canada, United States), South America (Brazil), Europe (Ireland, Italy, Poland, The Netherlands, Belgium, Germany) and Asia (Japan). A volume of proceedings will appear in the series Resenhas do IME published by the University of Sao Paulo, Brazil.

<u>Math. Fair</u>

The Math. Fair took place at the Jubilee Auditorium / Lister Hall on Thursday, March 21. The Math. Fair attracted over four hundred students from Edmonton and surrounding areas. A special thanks goes out to Ted Lewis and his Math. 160 class for organizing the event. The Math. Fair is a noncompetitive event based on problem solving, and is suitable for grades K through 9. The university students, who are all pre-service teachers, offered a variety of entertaining math. puzzles for the visitors to try.

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VII. REPORT ON BIRS

Robert V. Moody

After all the excitement around the inauguration ceremony of BIRS, it seems like a long wait until March 15, 2003 when something will actually start to happen at Banff. In fact, a lot is already going on behind the scenes.

First, and most importantly, the program for 2003 --workshops, focused research groups, research in teams, etc. -- is largely in place. A list of all these events and their dates is available on the BIIRS

website http://www.pims.math.ca/birs/. Soon the Department will be getting a large poster with all this information on it.

The University of Alberta is significantly represented in this program, with Gerald Cliff, Rongqing Jia, Thomas Hillen, Ivan Mizera, and Randy Goebels all organizing BIRS workshops. It was really very satisfying to see how proposals from the U of A competed head-on with proposals from all over the world, and came up on top.

Although all the workshop slots are gone, and a lot of the prime summer time for the FRG/RIT part of the program is filled too, there are still many opportunities in 2003 for small groups to use the BIRS facilities for 2 day events, and for longer events in the spring and fall of 2003. I would urge you to look into this and take advantage of the opportunities for doing some of your research in this inspiring setting. You can see pretty much what is still free by checking the BIRS schedule.

Our senior administration has been incredibly supportive of the BIRS initiative. In particular, the Dean of Science, Dick Peter, and the Vice-President for Research, Gary Kachanoski, have created the "University of Alberta – BIRS Exchange Program". This is $40,000 spread over the next 3 years that will allow scientists visiting BIRS to make side trips to the University of Alberta, and allow doctoral students in our PIMS' departments to participate as observers in BIRS workshops. The fund will be administered on a competitive basis by the U of A PIMS site. You will be hearing more about this as we get closer to the opening of BIRS, but keep it in mind. BIRS should produce many good spin-offs for the U of A.

On the organizational front, we are, as I write this, still a little uncertain about the renovation process that will be necessary for BIRS to operate properly. However, there is every reason to be hopeful. We are also optimistic that BIRS will be running 48 weeks a year starting in 2004. Certainly, the interest and support for the BIRS initiative is there to make this desirable.

Soon there will be another call for proposals for BIRS workshops. I hope that many of you will start dreaming about things to do up there. I know that some people were disappointed that their proposals did not make it last time. But I am sure that over the course of the next few years BIRS will be able to host all the many worthy groups who wish to have a BIRS workshop.

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VIII.   REPORT FROM THE BIOSTATISTICS RESEARCH GROUP

K. C. Carrière

Alex de Leon (Ph.D. anticipated in June 2002, supervisor: K.C. Carrière) got an assistant professorship with the Department of Mathematics and Statistics, University of Calgary, beginning in July 2002. Congratulations, Alex!

Xiaoming Sheng (Ph.D. anticipated in April 2002, supervisor: KC Carrière) was offered a Methodologist position with Statistics Canada. Congratulations, Xiaoming!

Saumen Mandal (PDF under the supervision of K.C. Carrière) got an assistant professorship with the Department of Statistics, University of Manitoba, beginning in July 2002. Congratulations, Saumen!

The Training Consulting Centre has been very busy this semester, sometimes with three clients in a one hour session. To date, we have helped faculty, graduate students, postdoctoral fellows, and research associates from virtually every faculty on campus with their statistical theory consultations.

IX. REPORT FROM THE COMPUTING ANALYSTS

Barkley Vowk

These last few months have seen a few problems on campus that we have managed to avoid for the most part. Recently, there has been a rash of Windows 2K systems being compromised. The most common use for the hacked machines seems to be as a distribution point for movies or as a machine used to attack other users. While to date I haven't found any infections here, please be aware if you start finding odd things on your machines, it would be a good time to call Scott or me.

Several serious security holes have been discovered in most UNIX operating systems recently. I would ask anyone maintaining a UNIX system to check with their vendor to get any important patches that may have been released.

I would also like to update the KDE desktop environment on the sirius servers around the end of May. If you have any software you would like loaded, updated, or patched this would be a good time to talk to me about it. I will be taking each one of the sirius machines down briefly in turn and rebuilding them. This should improve both security, response time and maintainability down the road.

As well, I am planing to make a new critical machine list. If you have a machine that should be restarted after a power failure when you are not in, please send an e-mail to bvowk@math.ualberta.ca. Please include the room number, operating system, IP, and any special restart instructions.

X. REPORT FROM THE CENTRE FOR MATHEMATICAL BIOLOGY

Mark Lewis

Congratulations to Marjorie Wonham who has been awarded a Killam Postdoctoral Fellowship to study mathematical models for aquatic invasions in the Great Lakes ecosystem. Marjorie recently completed her doctorate at the University of Washington. She will spend her time between the Centre for Mathematical Biology in Mathematical and Statistical Sciences and the Biological Sciences Department.

XI. PUTNAM EXAMINATION

Terry Gannon

This year, a total of 2954 students from 453 colleges and universities across North America wrote the annual Putnam mathematics competition. Canada again did quite well, with two of the top ten university teams. Twenty students from the U of A competed -- one of our best turnouts ever. Our top five results were Simon Lambert (3rd year) with 40 points, Andy Hammerlindl (2nd year) with 31 points, Jeremy Macdonald and Patrick Kyba (both 3rd year) with 20 points, and Stephen Wasylishen (2nd year) with 19 points. Although the total possible points are 120, these are all very solid scores, and Simon's result is one of our university's best ever. For a second year student, Andy did remarkably well. With such a strong cast of returning students, our team next year should place well into the top twenty in North America.

XII. THE PIMS/U OF A MATH. FAIR

Ted Lewis

How often do you find grade school students happy to spend two and a half hours doing mathematics? This is what happened on Thursday, March 21, when our Department held a math. fair for about 500 young students from elementary and junior-high schools in the Edmonton area.

There were actually two parts to the activities -- the fair itself, which was presented by the students of Math. 160, and a problem solving session conducted by Andy Liu. To accommodate all of the students, we took over the banquet rooms in both Lister Hall and the Jubilee Auditorium. The visitors spent about 60 to 70 minutes in each location.

The math. fair was noncompetitive, and presented mathematical puzzles for the visitors to try. The puzzles were very diverse, from river-crossing problems to the towers of Hanoi. Here's one that was very popular (and it's solution is not immediate even for us):

Put eight hockey pucks in a straight line. The problem is to make four piles with two in each pile by jumping some of the pucks over the others. Each jumping puck must pass over exactly two pucks and land on a single puck. It doesn't matter whether the two pucks you are jumping over are an existing pile of two or are sitting by themselves. Spaces don't count.

After the students solved that puzzle they were asked to see if they can start with ten pucks and end with five piles of two, or twelve pucks and end with six piles of two and so on. At least one child figured out the recursion and showed how to do it for up to sixteen pucks.

Among other things, Andy's session involved "scientific origami". Unlike the math. fair, where the students moved from booth to booth, Andy's was a sit-down session. The problems were very challenging, and the success rate among the students was very high.

The math. fair is part of the curriculum for Math. 160 and has significantly revitalized the course. This is the first time that the math. fair took place on campus instead of at individual schools. Moving the fair here was prompted by both the popularity of the fairs and by associated logistical problems of taking a Math. 160 class to a school away from the campus. Holding it here solved some problems but raised several others. Renee Polziehn from the university outreach centre provided many useful suggestions. Shirley Mitchell and Lisa Haraba from PIMS along with Bonnie from the Jubilee Auditorium were invaluable in helping with the organization of the fair.

For the past few years, PIMS has sponsored the math. fairs, and the result is strong cooperative effort between our Department, PIMS, and the schools in Alberta in promoting mathematics. Feedback from school teachers show that the math. fairs widen the children's interest and perception about mathematics. The idea is spreading, and math. fairs modelled after the Math. 160 fair are in the works for Calgary, Vancouver, and Ft. McMurray.

XIII. UPCOMING MEETINGS

a. The Second North-South meeting

Michael Li:

This year, the Department will host the second North-South Meeting April 27-28. This is an event for mathematicians and statisticians in the province to get together and discuss issues of interest to all of us. The meeting will start by research talks on Saturday afternoon (the 27th), followed by a banquet in the evening at the Faculty Club. It will continue on Sunday morning with two parallel sessions of round-table discussion. One session will focus on a variety of research-oriented subjects such as complementarity issues (strength and uniqueness at different departments), AIF Centers, PIMS initiatives, BIRS and iCORE issues, and graduate programs. The second session will focus on undergraduate curriculum development and interaction among universities and colleges. Three specific items for this session are:

1. Jim Muldowney's proposal for a PIMS initiative to establish closer interaction among colleges and universities in the province. This is also a good opportunity for people outside the U of A and the U of C to get to know the PIMS' programs.

2. Jack Macki will host a panel discussion on undergraduate curricula in applied math. and engineering.

3. Ted Lewis and Andy Liu will give a presentation on how to integrate into MATH 160 the training of teachers to host Math. Fairs. Ted and Andy have a well-established program here, and they would like to help others to get it implemented at other campuses. There will be a display of information and materials.

The event was initiated two years ago by the two departments at the U of A and the U of C, with the support of the Deans of Science on both campuses. The first meeting was held last year in Calgary,

with participation mainly from Edmonton and Calgary. This year, our Chair, Tony Lau, has instructed the organizers to expand the scope of the meeting to include other campuses. We will have participation from Lethbridge, Camrose (Augustana), Grand Prairie, Red Deer, and other colleges around Edmonton.

The full meeting schedule is posted on our website under Conferences, and will be posted in the 6th floor lounge. This will be a lively get-together of mathematicians and statisticians from around Alberta.

The event has received financial support from the Dean of Science (U of A), the Department, the PIMS U of A site, and the Applied Mathematics Institute.

b. 4th Annual PIMS Fluid Dynamics Summer School

Bruce Sutherland:

This year, the Fourth Annual PIMS Fluid Dynamics Summer School will be from July 28 to August 9, 2002. As in previous years, we expect the summer school to be attended by eighteen participants from Canada, the United States and abroad. Invited lectures will be given by John Allen of Oregon State University, Jean-Luc Guermond of LIMSI, Paris, and Peter Rhines of the University of Washington.

The participants will be given hands-on experience running research-level numerical codes and performing laboratory experiments. Both the simulations and the experiments are designed to complement the lectures and so help students develop an intuition for fluid dynamics phenomena, how they are mathematically modelled, and how reliable approximate solutions can be.

Only two other institutions in the world run an annual summer school in fluid dynamics, namely the University of Cambridge and the Woods Hole Oceanographic Institution. The PIMS Fluid Dynamics Summer School emphasizes modern experimental and numerical methods and provides high quality lectures on fundamentals and on subjects of current research interest.

The PIMS Fluid Dynamics Summer School is an annual event sponsored by the Pacific Institute for the Mathematical Sciences, with additional support from the Institute for Geophysical Research, the Applied Mathematics Institute and the Environmental and Industrial Fluid Dynamics Laboratory.

Summer school information is available on the web at fdss.math.ualberta.ca/.

c. The 5th Americas Conference on Differential Equations and Nonlinear Dynamics

Michael Li & Jim Muldowney:

The 5th Americas Conference on Differential Equations and Nonlinear Dynamics will be held
July 7-12, 2002 at the University of Alberta.

The biennial Americas Conference series has served as a major venue for developing and maintaining communication and scholarly exchange among research groups in the field of differential equations and nonlinear dynamics in South and North America. The previous four meetings were held in Taxco, Mexico (1994), Aguas de Lindoa, Brazil (1996), Atlanta, USA (1998) and Mérida, Venezuela (2000). The third meeting in Atlanta was held in honour of Professor Jack K. Hale on the occasion of his 70th birthday. While the first two meetings saw a concentration of participants from the U.S., Brazil, Mexico, and Venezuela, the recent two meetings have seen active participation from other American countries such as Canada, Colombia, Chile, and Peru. This year, we expect more than one hundred mathematicians from thirteen countries.

The 5th Americas conference will be dedicated to Professor Shui-Nee Chow, one of the founders and a driving force of the Americas Conferences series. On the occasion of his 60th birthday, we will recognize his fundamental contributions and leadership in the field of nonlinear dynamics and differential equations, and acknowledge his outstanding service to the international mathematical community.

A special feature of the Americas V is a web-based Poster Session, sponsored by a grant from PIMS. The posters will be displayed online and will be permanently hosted at the PIMS website. There will be a cash prize for the best poster by a graduate students. For information on registration and contributed talks and posters, please go to the Americas V website at www.math.ualberta.ca/~americas, or www.math.ualberta.ca/~mli/americas.htm

Major sponsors of the conference are: NSERC, NSF, PIMS, NPC, AMI, and theVP for Research at the U of A.

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d. Mathematical Biology Summer Workshop

Jim Muldowney

The Mathematical Biology Summer Workshop will take place from May 11 - 19 at the University of Alberta. The aim of this workshop is to introduce students to mathematical modelling and analysis applied to real biological systems. Students are expected to have completed 2 - 3 years of undergraduate study (or equivalent) in mathematics or in a similar quantitative science. University of Alberta lecturers include Mark Lewis, Gerda de Vries, Michael Li, and Thomas Hillen. Additional information may be located at http://pims.math.ualberta.ca/mathematics_of_biological_system.htm.

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e. Filtering Theory and Applications 2002

Jim Muldowney

The Filtering Theory and Applications 2002 workshop will be held in Edmonton and Jasper from July 25 - July 30. This meeting will help to advance scientific development of filtering theory and its

applications and offer benefits to industry. In particular, the meeting will encourage local research activity in this field and identify additional industrially motivated filtering problems. Both national and international delegates have been invited to lecture at this workshop. Keynote speakers include Nick Duffield (AT&T), T. Duncan (University of Kansas), G. Kallianpur (University of North Carolina), and Nicole El Karoui (Ecole Polytechnique). Additional information may be found at
http://www.math.ualberta.ca/pints/events.htm.

XIV. PI IN THE SKY

Wieslaw Krawcewicz

The fifth issue of "Pi in the Sky" will soon be ready for publication. I would like to express my disappointment in the falling support for the magazine. We do not get many new submissions for the magazine and, in fact, it is getting harder and harder to convince people to write such articles. I know that I am an annoyance to some people in the Department, but, frankly speaking, there is no other way to get these articles written than constantly asking people to contribute. I am sure that we are all very busy and there is hardly any spare time for additional activities like this one. However, I would like to point out that in contrast to our research papers, which are of interest maybe to several people in the world, these articles are reaching many thousands of students. This is a worthy cause that could bring direct benefits for our undergraduate math. programs. Therefore, I would like to ask you to consider writing an article for "Pi in the Sky". If you are not able to write one, could you please talk to somebody about the magazine and encourage that person to contribute an article.

XV. DEPARTMENTAL WEBSITE

Michael Li

A new webmaster and a new look:

Rachel Schofield came in January as our new webmaster in place of Sandra. Her presence has had an immediate impact: now our website is sporting a fresh new look.

Rachel's talent in web design is indeed fortunate for us. Under a rather stringent set of unwritten rules for our website, such as no flashing and moving objects (cartoons are out of the question), no heavy graphics and frames, no scripts (though we bent this no-script rule a little this time), no colours other than green and gold (I made this one up), she has came up, within two months and while doing many of her other duties, with a refreshing, elegant and professionally looking front page, and has updated all the content pages. Our page now has more U of A colour than the official U of A page. I hope everyone will like the new look and join me in congratulating Rachel for a job well-done.

Three major changes in content:

1. The people directory now has a Faculty page which includes all teaching staff, except graduate students and postdocs.

2. Under research, we added research expertise and groups.

3. A new Intranet link, which is still under construction. When it is done, it will contain internal documents and a form cabinet, and anything that is for internal use only, since this link will be protected by a login.

As we keep improving the content of the website, all suggestions and comments are welcome and appreciated.

XVI. DEVELOPMENT OF A DATABASE FOR WEBCT AND OTHER WEB-BASED COURSES

Wieslaw Krawcewicz

I would like to bring to the attention of all members of our Department the following project that was undertaken by Eric Woolgar and myself.

As we all know from experience, placing teaching material for math. courses on the web, in particular assignment/practise exercises with solutions, constitutes a significant problem from the technical point of view. It is the main obstacle for an effective use of the WebCT by math. instructors. The main goal of this project is to develop collections of math/stats. problems which could be easily accessed by math. instructors using the WebCT. We intend to create a database of collections of problems and solutions for all the basic undergraduate course sequences in Calculus, Linear Algebra, and Statistics etc.

Right now, the standard procedure for placing problems and solutions on the web consists of several steps involving (1) copying solutions, (2) cutting and pasting solutions on separate solution sheets, (3) scanning the solution sheets, (4) converting the files to appropriate picture format (GIF or JPG format), (5) composing an HTML-document into which the pictures with the solutions are inserted, (6) downloading the HTML document and all the picture files (one by one or in a zipped form) to a WebCT course site, (7) installing the downloaded files on the WebCT site. This process, which is time consuming and technically challenging, discourages many instructors from using WebCT sites for their courses.

Our main objective is to reduce this procedure to one single step: COMPOSING AN ASSIGNMENT by choosing problems from the available collections in the database, where all the other tasks will be done automatically, including (1) creation of an assignment with all the selected problems, (2) automatic placement of the assignment on the course web site, (3) automatic creation of the solution set, which will be produced in a high quality format (GIF or PDF) and will be released to students on the due date. For this purpose, a special interface will be developed. All instructors will be provided

with a hard copy of everything related to their course collections of problems. The simplicity and effectiveness of this system will encourage more instructors to use the WebCT for their courses, will provide students with an easy and direct access to good-quality solutions (usually the scanned solutions are of very poor quality), will allow for a better use of the instructor's time instead of wasting hours on preparation of the web material, the instructor will be able to concentrate on teaching and provide students with additional help, if necessary.

Moreover, this system will also solve the problems related to the copyrights and frequent change of the textbooks. In fact, there is an important issue related to the use of the copyrighted material on the web. The textbooks used for the undergraduate math. courses usually provide instructors with the solution manuals for all the problems included in the textbook. However, these solutions are copyrighted and should not be published (without proper permission) on the web. Consequently, it creates a serious obstacle to an effective use of the web sites. The proposed system will solve all the copyright problems. All the collections of problems will be developed at the University of Alberta, and will be the property of the University of Alberta. The database will be constantly enlarged by adding new problems and new collections, so there will be no need for the use of the publishers' solution manuals, which could be made available to the students. In fact, many of such solution manuals already circulate among students, which creates additional problems of plagiarism.

I would like to use this opportunity, kindly given to me by the editor, to make an appeal to everybody for help in preparation of new problems. We need your original problems (possibly with solutions) to be included in the new collections. We can use old examination problems as well. If you have your own collections, we would be grateful for letting us include them in our database. Your cooperation will be greatly appreciated.

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XVII. HONOURS AND AWARDS

Razvan Anisca and **Liping Liu** are 2002 NSERC PDF recipients.

To Professor **Peter Antonelli** has been conferred the title of Honorary Professor of the Alexandru Ioan Cuza University of IASI, Romania. In the ceremony held in August 2001, the *laudatio* refers to his important scientific achievements in topology, differential geometry, differential equations, and mathematical biology, as well as to his constant support of and collaboration with Romanian mathematicians over the years.

Abel Cadenillas is currently doing research at the Institut für Mathematik, Humboldt Universität zu Berlin, Germany, thanks to a Humboldt Research Fellowship.

Kathleen Beth Dohan and **Cristina Adela Popescu** are 2002 Izaak Walton Killam Memorial Scholarship Winners.

Lynn Diana Dover, **Monica Alina Ilie**, **Stephen Patrick Sullivan** and **Cynthia Yik Shi Yau** have been chosen by the Faculty of Science to receive the 2002 Graduate Student Teaching Award.

Andrew Hammerlindl, Sam Hillier, Remkes Koiistra, Richard Kublick, Julia Renouf, Steven Semenjuk, Richard VanWeelden, Stephen Wasylishen and Kerianne Yewchuk have been awarded NSERC Student Research Grants for the summer of 2002.

Jeong Yup Lee has been awarded a 2002 Province of Alberta Graduate Fellowship.

Dr. James D. Lewis has been honoured by the Delta Chi Fraternity, Alberta Chapter, for his contribution to the education of their members. The reception took place March 9 at the Faculty Club with the Lieutenant Governor, The Honourable Lois Hole, giving the keynote address.

The Pacific North West Section of the Mathematical Association of America has awarded **Andy Liu** a 2002 Distinguished Teacher Award. The nomination for this award came from Byron Schmuland when he was still with the Teaching Committee. It was unsuccessful. Nothing was done about it by the current Teaching Committee, of which Andy is the Chair. Apparently, this is a nomination that does not need to be refreshed, and out of the blue it hatches!

Shuqing Ma and **Ross Thomas Stokke** have been awarded Dissertation Fellowships.

Professor Robert V. Moody has won the 2002 $100,000 Killam Prize in the Natural Sciences.

Dr. Sam Shen's research work was on the NASA Goddard Space Flight Center's top story press release on January 15, 2002. Sam and his collaborators developed a new method that greatly improves U.S. seasonal forecasts.

Dr. Gordon Swaters has been selected to be part of an "Area of Established Research Excellence" at the University of Alberta. He is a member of the "Catylitic, Interfacial and Transport Engineering" group.

Marjorie Wonham has been awarded a Killam Postdoctoral Fellowship to study mathematical models for aquatic invasions in the Great Lakes ecosystem.

Congratulations to all recipients!

XVIII. STUDYING MATHEMATICS IN ITALIAN UNIVERSITIES

Stefano Ferri

During the last couple of years I have visited several foreign countries and studied in many universities and any place I went to and whenever I met other foreign students, one of my favourite topics of conversation was to compare the place I came from with the place in which I found myself. I guess that this is a very natural thing to do. I always enjoyed these conversations and I found that most people tend to make these comparisons when travelling.

However, when the editor of this Newsletter asked me to write something about Italian universities and to compare the way I studied mathematics with the way it is taught here, I did not quite know what to write. Should I just present raw data about Italian universities and compare it with similar data regarding Canadian universities? Or should I just talk about my experience and my opinions? Am I really in a position to make comparisons, other than those arising from a direct confrontation of the data regarding the two systems? Or should I just describe my experience in Italy?

After a short attempt to search the Internet for more information about Italian universities I decided to go the second route. Not only is the amount of data incredibly large and quite difficult to access in the short time I have, but it seems to me that even if I could match point by point data about Italian and Canadian universities, this would not really give any picture of the way I studied and of how it compares to the way Canadian students get their degree here. I also decided to avoid getting into a direct comparison of the two systems. Not just because this would have turned the writing of this little note into an exercise in diplomacy, but for the simple reason that I am not in a position to make such comparisons. I experienced the Italian university in the role of a student of pure mathematics and I am now experiencing this university as a post-doctoral fellow teaching mathematics to students in general science.

In what follows I shall give a short description of the curriculum in mathematics, how it was when I was a student, and I shall make some personal remarks about what I believe to be its good and bad points.

In recent years Italian universities, together with the program in mathematics I graduated in, also have been offering a shorter curriculum designed to meet the demands of those who just need some general knowledge of the subject in order to get more highly specialized jobs. Students decide which program to follow and get different degrees according to their choice. Of course, the introduction of the new curriculum has also affected the teaching of mathematics in the "traditional curriculum" since the typical student of the latter is now supposed to be one who wants to make a career in mathematics.

At first I wanted also to speak briefly about the new program and its effects on the teaching of mathematics. However, after asking some of my former teachers about it, I came to the conclusion that it is better not yet to try to analyze too deeply this new curriculum. This is a transition time for the Italian departments of mathematics and I think that comments on the new system will be more appropriate when this transition is completed and when the new programs have been tried for a few years and have been adjusted to the needs of students and teachers. The reader should be warned that my remarks are very personal and based on my own experience as a student at the University of Rome ("La Sapienza"). This does not pretend to be a complete description of Italian universities.

Italian universities are mostly public. There are a few private ones but they do not offer courses in mathematics as far as I know. A young Italian who wants to study mathematics has only to choose the university on the basis of the place she wants to live in and on the basis of the professors she wants to study with. University fees are very similar in all universities (and very cheap compared to Canadian ones) and the program of studies is usually also very similar in all places, at least for the first two years. Except in a few special institutes, there are no exams to pass nor special requirements to meet in order to be admitted as a student (except, of course, to have completed a course of studies in a grammar school or an equivalent institution). Most students just pick the university that is closest to their hometown.

The curriculum in mathematics takes, on paper (I shall explain about this comment later), four years, and it consists of 15 courses to attend with the respective examinations to be passed and a final thesis to be written and defended. Most of the examinations are made up of two parts: a written examination and an oral one. In a few cases there are examinations that are only written or only oral. In order to take the oral examination it is usually necessary to have passed the written one (or, sometimes, to have a mark not too far from the "pass-mark"). During the final thesis defence the candidate must usually also present a talk about a topic different from that chosen for the thesis. Students can attempt any examination as many times as they want. Even when a student passes an examination she may decide that the mark is too low and take the same examination again at the next opportunity. This decision must be taken at the end of the oral session and if a student decides to take the examination again she loses any right to claim at a later stage the mark she got, even if in the following session the mark is lower than the one she decided to refuse, or if she does not pass the examination. Usually, for any course there are five examination sessions for every academic year. The marks of the examinations are given on a scale from 0 to 30 (with the possibility of receiving a *cum laude)*, 18 being the lowest "pass-mark". The final degree is marked using a scale from 0 to 110 (with the possibility of a *cum laude)*, with 66 being the lowest possible mark for a successful graduation.

The first two years are common to all students and include two courses in analysis, two courses in geometry, two in physics, a course in modern algebra and one in mechanics. The following two years are different depending on the area of mathematics the student wants to study. There are three main lines. A student can study pure mathematics, applied mathematics or study mathematics in order to become a teacher. Each specialization is then further divided into sub-categories. I do not know all the details of all the specializations and I am not even sure whether this way of dividing into categories is the same in every university. However, whatever the specialization, a student will still have four compulsory examinations and three examinations that can be chosen from a list that varies from university to university and from specialization to specialization.

As an example, I can recount what kind of things are taught to students of algebra and geometry (the specialization I took) at the University of Rome. Compulsory courses are one in *measure theory*, one in *advanced algebra* (the content of the course can be different depending on the teacher, I studied representation theory of the unitary group, friends of mine have studied number theory or commutative algebra), one in *advanced geometry* (again the content varies from year to year and ranges from the study of Riemann manifolds to that of finite geometries) and one course on differential equations in mathematical physics. The other examinations can be chosen to be essentially anything as long as they are in pure mathematics, but usually they are expected to be in algebra or geometry with one possible exception.

As I wrote, there are no special requirements in order to be admitted to the university. For this reason, all the selection needs to be done at the time of examinations. This is probably the main strength as well as the main weakness of Italian universities. It is the main strength because students are evaluated according to some sort of absolute scale decided solely by the professor. This means that every student must meet a certain standard in order to pass a course and that the performances of her fellow students do not affect in any way her mark. A course could have all the candidates passing the examination or none of them succeeding in doing so. It is also the main weakness of the system because of the complete freedom professors have when organizing courses and setting examinations; this sometimes causes quite bizarre situations.

Because of the lack of selection of students and the very low fees, it is quite understandable that the results of a typical examination do not follow a Gaussian distribution and that the number of students not passing the examination is, usually, quite high when compared to other countries. However, it is more difficult to understand how one can find second or third year examinations (i.e. examinations taken by experienced and already "selected" students) with a pass-rate of less than 2%! Examinations with such rates are relatively common and they are probably the cause for one of the main characteristics of the departments of mathematics of Italian universities: the fact that most of the students need more (sometimes much more) time to get their degree than would be expected from reading the official programs. A friend of mine, who is still in Italy, told me that this has now partially changed. Nevertheless, I can think only of four fellow students who studied during the same period I did and who finished their studies in four years. (In case you are wondering I did not.) I am probably forgetting someone but, for sure, they were a tiny minority among the students. This has as a side effect that most students are unable to make precise plans of what to do after their studies since it is often very difficult to predict exactly when they will be able to graduate.

This being a short description of the main layout of the curriculum in pure mathematics in Italy, I shall conclude this note with a few personal remarks on the way most teachers in Italy present the subject to their students. Of course, mathematics is the same all over the world, but I found several differences between the way things were taught to me and the way I must now present them to my students. I imagine that what I am going to write is not a universal thing and that it varies a lot from university to university and from teacher to teacher, and when I started writing I said that I did not want to make comparisons. Still, I shall conclude this way because this is perhaps the only real comparison I feel I can make and it is something which leaves me wondering which way (or perhaps a compromise of the two) is the most appropriate.

A typical Italian course in mathematics is nearly always designed to be as formal as possible and only in exceptional circumstances is something introduced without a proof or without a precise and formal

definition. This is so even when the audience is made up only of first year students of general science or engineering. Of course, it often happens that the absolute rigour confuses the average student more than it clarifies things for her, but still, the general idea is that eventually one needs to get used to this and that it is therefore better to do things this way from the very beginning.

Most of the time the books used have a kind of "Bourbaki approach" of just presenting definitions in the highest possible generality and leaving the task of understanding the motivations which are at the base of these definitions to the students. Coming here, I found myself a bit surprised when I discovered that most of what I had to teach was meant to be without any proof. However, after a while I started finding this system quite intriguing since it gives a general picture of the subject that seems to speed up the following stages of study. I am now wondering whether one system is better than the other and whether a deeper study of techniques used when teaching could produce better mathematicians both here and in Italy. Of course, a deep analysis of this is much beyond the scope of this note.

I ended up falling into the trap of comparing the two systems despite my intention of avoiding it. However, this was not the reason why I wanted to mention this point. I just wanted to say this so that next time you meet an Italian undergraduate who is very concerned with some obscure aspect of the theory of sets when speaking of topological spaces you will not be too surprised. And you will also not be too surprised when you will be told that, despite her deep knowledge of abstract mathematics, she is not quite sure in which year she will get her degree because she still has to take an exam she has already taken eight times...

XIX. COLLOQUIA AND SEMINARS

i.   *Colloquium (Edith Gombay)*

In the second term the Colloquium series continued to have a lot of interesting talks on a great variety of topics:

1) Arthur Dempster of Harvard University, visiting Professor Shen, talked on "Statistical reasoning and the climate change debate".
2) Joel Smoller of the University of Michigan, visiting Professor Künzle, spoke on "The interaction of gravity with other forces".
3) Karl Hadeler of the University of Tübingen, Germany, visiting Professor Hillen, spoke on "Mathematical models for granular material".
4) Ernst Albrecht of the University of the Saarland, Germany, visiting Professor Runde, spoke on "Local spectral properties for systems of linear differential operators on L^p-spaces".
5) Pranab K. Sen of the University of North Carolina, visiting Professor Misera, spoke on "Bioinformatics: some challenging stochastic problems".
6) Jana Jureckova of Charles University, Prague, visiting Professor Misera, spoke on "Two-step regression quantiles".
7) Shahar Mendelson of the Australian National University, visiting Professor Litvak, spoke on "Gaussian and Rademacher averages and their connection to learning theory".

8) Annie Qu of Oregon State University, visiting Professor Lele, spoke on "Inference functions and quadratic score tests".
9) Professor Melnikov of the University of Alberta, invited to speak by Professor Choulli, spoke on "Stochastic regression analysis: a martingale approach".

The term is not over yet, and we have already scheduled talks by visitors of Professors J. Lewis, B. Moody, K.C. Carrière, and A. Lau. The titles of their talks will be advertised, as usual, by e-mail and on posters.

ii.   *Algebra seminar (Mazi Shirvani)*

In the second term the Algebra Seminar concentrated on the study of perverse sheaves and p-adic cohomology, with talks being given by algebraists from the Department. Our guest speakers attended and spoke at the algebra conference held over Reading Week in Jasper. Our most recent speaker was Professor David Burns (King's College, London) who gave a talk entitled "Nearly Perfect Complexes and the Weil-Etale Cohomology".

iii.   *Analysis Seminar (Eric Talvila)*

Patrick Muldowney (Jim's brother!) from Ulster, gave three talks on Henstock/Kurzweil integration: Probability theory and non-absolute integration, A theory of infinitely many random variables using non-absolute integration, Continuous-time stochastic processes without Ito calculus.

iv.   *Approximation and wavelet theory seminar (Bin Han)*

This seminar is held every Wednesday, 1:00pm--2:00pm, in CAB 657. Its scope is wavelet and its applications, approximation theory, or any related topic including lectures on approximation theory. Most lectures concentrate on wavelet theory and its various applications such as image/signal processing, sampling theory, wavelet-based methods for numerical solutions to solve ODE/PDE, computer graphics and CAGD, etc.

The following is a list of speakers and titles of their talks.

1) January 23, Dr. Wen Chen
   "On simple oversampled A/D conversion in shift invariant spaces".
2) January 30, Prof. Rong-Qing Jia
   "Approximation with shift-invariant spaces by means of quasi-projection operators".

3) Feb. 13, Songtao Liu
   "wavelet methods for elliptic problems"

4) March 6, Qun Mo
   "Symmetric tight wavelet frames with minimal generators"

5) March 20, Dr.Wen Chen
   "Accuracy analysis for single-bit A/D conversion in shift in variant spaces".

6) March 27, Prof. Z. Ditzian
   "Kolmogorov and Wirtinger type inequalities".

7) April 3, Bin Han
   "Symmetric Hermite subdivision schemes".

    v.   Differential equations and dynamical systems seminar (Michael Li)

This semester's weekly DE seminar has been very active and has seen a variety of research topics being presented, by local people as well as by outside visitors. The following is a list of speakers and titles of their talks.

1) Jan. 18, James Muldowney, University of Alberta
   "Stability implications of Bendixson's conditions for difference equations".

2) Feb. 1, Laurent Pujo-Menjouet, McGill
   "Global stability of cellular populations with unequal division".

3) Feb. 8, Dr. Nancy Sundell, Cornell University
   "Dynamics of a Two Patch Herbivory System: Herbivore Enhancement, Adaptive Behavior and Trophic Cascades".

4) Feb, 15, Frithjof Luncher, University of Alberta
   "Emerging patterns in a hyperbolic model for locally interacting cell systems".

5) March 1, Joel Brown, University of Tübingen, Germany
   "A mathematical model for segregation of granular material".

6) March 15, Hassan Safouhi, Faculté Saint-Jean, University of Alberta
   "Analytical development of molecular electronic integrals over exponential type functions (Part I)".

7) March 22, Hassan Safouhi, Faculté Saint-Jean, University of Alberta
   "Nonlinear transformations for rapid and accurate numerical evaluation of molecular electronic integrals (Part II)".

8) April 5, Michael Li, University of Alberta
   "Relaxation oscillation in a predator-prey model, part I".

9) April 12, Michael Li, University of Alberta
   "Relaxation oscillation in a predator-prey model, part II".

The seminar is held on Fridays at 2:00 pm in CAB 457.

    vi.   *Differential geometry seminar (Peter Antonelli)*

As in the previous five years, the geometry seminar 2001-2001 consisted of weekly talks. There were several talks on Pure and Applied Finsler geometry. Brazilian post-doctoral fellow Dr. S. F. Rutz gave three lectures on her computer algebra package FINSLER based on MAPLE. She talked about her own (well–received) work in gravitational theory and about some models from biology (KCC-theory applied to well-known models like Tyson's for the cell-cycle).

Dr. I. Bucaturu, after a year and a half here with me and a year with Professor Marcello Epstein at the University of Calgary, spoke twice on his joint Finsler work in continuum mechanics. He has taken another post-doc now, at Memorial University in St. John's, Newfoundland. He will be writing a monograph on the Finsler Revolution in Seismology with M. Slawinski, the chair in Seismology at Memorial. Incidentally, I shall be speaking about this revolution at the June 2-7 meeting in Berkeley. This movement got started with some joint work I did with Dr. M. Slawinski.

There are two other Finsler meetings this summer, one in Japan in early August, the other in Romania in late August. Let me know if you are interested.

Dr. L. Koszma, in Indianapolis on sabbatical from Debrecen, visited us for five days and spoke in my seminar on some Finsler problems of the late Herbert Busemann. At that point, I called a meeting of the Finsler Handbook Project (Kluwer Academic Publishers). I am currently under contract with Kluwer to produce a 2000 page tome by the end of June. Fortunately, I have eleven collaborators.

Last year, there was a Finsler meeting in Iasi, Romania, in honour of my 60th birthday. This year, they asked me to edit the proceedings (350 pages!).

Georg Peschke gave three lectures and James Lewis talked about Chow.

    vii.   *Functional analysis seminar (Volker Runde)*

The schedule of talks for the winter term 2002 was as follows:

1) January 22: Vladimir G. Troitsky (University of Texas at Austin, USA)
   "The invariant subspace problem in Banach spaces: some recent advances".

2) January 24: Laurent W. Marcoux
   *"*On the linear spans of projections in certain C^{*}-algebras".

3) January 24: William G. Bade
   "Splittings of extensions of commutative Banach algebras".

4) January 31: Roman Vershynin
   "Combinatorial aspects of dimension".

5) February 7: Mahmoud Filali (University of Oul, Finnland)
   "On the dimension of right ideals in $L^1(G)^{**}$".

6) February 28: Günter Schlichting (Technische Universität München, Germany)
   " Some remarks on neutral subgroups".

7) March 5: Ernst Albrecht (Universität des Saarlandes, Germany)
   "Local spectral properties for systems of linear differential operators on L^p-spaces".
    (Not a seminar, but an interesting colloquium).

8) March 7: Ernst Albrecht (Universität des Saarlandes, Germany)
   "Local spectral theory for operators with thin spectra".

9) March 12: Carsten Schütt (Christian Albrechts Universität zu Kiel, Germany)
   "Best and random approximation of convex dodies by polytopes".

10) March 21: Martin Mathieu (Queen's University Belfast, Northern Ireland)
   "Central bimodule homomorphisms of C^*-algebras".

11) March 28: Shahar Mendelson (Australian National University)
   "Geometric parameters in learning theory".

12) April 4: Stefano Ferri
   "Covering numbers and universal semigroup compactifications".

13) April 11: Vincente Montesinos (Polytechnical University of Valencia, Spain). *Title*: TBA.

   viii.   *Mathematical biology seminar (Gerda de Vries)*

We're wrapping up a busy seminar schedule, with seminars almost every Monday afternoon. Talks were given by visitors to the Department, as well as by current and potential postdocs.

We thank PIMS for the financial support to bring in Dr. Brian Dennis from the Department of Fish and Wildlife Resources and Division of Statistics at the University of Idaho, Dr. Roseanne M. Ford from the Department of Chemical Engineering at the University of Virginia, and Dr. Jim Powell from the Department of Mathematics and Statistics at Utah State University.

We also thank the Endowment Fund for the Future for partial support of Dr. K. P. Hadeler's long-term visit. Dr. Hadeler is from the Department of Biomathematics at the University of Tübingen, Germany. Dr. Hadeler contributed two talks to the mathbio seminar, as well as several others (a Town & Gown Public Lecture at the Faculté Saint-Jean, a presentation in the BIO-X Distinguished Lecture series, and a presentation in the Differential Equations & Dynamical Systems Seminar series).

The following is a list of speakers and the titles of their talks. For more details including abstracts point your browser to

1) January 14: Dr. Paul Moorcroft, Harvard University
   "Scaling vegetation dynamics: how population and community level processes affect ecosystem structure and function".

2) January 21: Dr. Kevin Hall, Entelos, Inc.
   "What happens when type 2 diabetics are given insulin therapy?
   A surprising prediction of a mathematical model".

3) January 28: Dr. Brian Dennis, University of Idaho
   "Nonlinear dynamics in ecological time series".

4) February 1: Dr. Laurent Pujo-Menjouet, McGill University
   "Global stability of cellular populations with unequal division".

5) February 8: Nancy Sundell, Cornell University
   "Dynamics of a two-patch herbivory system: Herbivore enhancement, adaptive behavior and trophic cascades".

6) February 11: Dr. Suani T.R. Pinho, Universidade Federal da Bahia, Brazil
   "Applications of Cellular Automata to physical and biological systems".

7) February 15: Dr. Frithjof Lutscher
   "Emerging patterns in a hyperbolic model for locally interacting cell systems".

8) February 25: Dr. Roseanne M. Ford, University of Virginia
   "Transport phenomena of chemotactic bacteria in porous media".

9) March 4: Dr. K.P. Hadeler, University of Tübingen. Germany
   "Control of infectious diseases".

10) March 11: Dr. James Bullock, Winfrith Technology Centre, Dorset, UK
    "Dispersal & colonisation in plants: measuring and modeling rare events".

11) March 18: Dr. Jim Powell, Utah State University
    "The mathematical basis for modelling insect seasonality and potential climate change-induced bark beetle invasions".

12) March 25: Dr. K.P. Hadeler, University of Tübingen, Germany
    "A Langevin or Kramers approach to spatial spread of populations".

ix.   *Math. of Finance seminar (Tahir Chouilli)*

The seminar on Mathematical Finance and Stochastics was held every two weeks during the fall and winter terms.

Our main target is the area of Mathematical Finance and the stochastic analysis behind the most rapidly developing field of modern finance in particular and/or other economic areas in general.

Almost fifty per cent of the talks in this seminar were given by visitors. Our future policy for the seminar will focus more on the issue of inviting well-known and/or promising researchers. This will support our research activities and graduate program tremendously. Indeed, while colleagues can share their research experiences with visitors, our graduate students will have opportunities to

(i)Have an idea on what is going on outside our Department.

(ii) Understand, via a variety of talks, the motivation of creating other mathematical/statistical technologies to respond to real-life problems (mostly from finance in our case). Furthemore, the students can understand how finance and stochastics are made to fit each other and/or the limitation of some areas.

(iii) simply exchange ideas with visitors...etc.

Some of our speakers in the seminar were:

1) Dr. Alexei Filinkov, Adelaide University, Australia
   " Fractional Black-Scholes Market with stochastic volatility".

2) Dr. Ali Lari-Lavassani, University of Calgary
   "Monte Carlo similuation Method for Large number of Assets".

3) Prof. Alexander Melnikov
   "On quantile hedging in Framework of a jump-diffusion model".

4) Prof. Alexander Melnikov
   " Stochastic regression: a Martingale approach"
   (talk for Colloqium and seminar jointly).
5) Dr. Tahir Choulli
   "The Excess-of-Loss reinsurance for a company with constraints on risk control and dividend rate".

x.   *Statistics seminar (Peter Hooper)*

There were seven statistics talks this term, including several colloquium talks:

1) January 16, Dr. Arthur P. Dempster, Harvard University
   "Statistical Reasoning and the Climate Change Debate" (Colloquium).

2) February 14, Dr. Rong Zhu, University of British Columbia
   "The generalized AR(1) process and its application to non-normal time series".

3) March 11, Dr. P. K. Sen, University of North Carolina
   "Statistics and Bioinformatics" (Colloquium).

4) March 14, Dr. Jana Jureckova, Charles University, Prague
   "Two-step regression quantiles" (Colloquium).

5) March 14, Dr. Hee-seok Oh, National Centre for Atmospheric Research
   "Robust methods for estimating the periodicity of pulsating stars".

6) March 28, Dr. Annie Qu, Oregon State University
   "Inference Functions and Quadratic Score Tests".

7) April 5, Dr. Peter Hooper, University of Alberta
   "Relating patterns of fetal growth to health outcomes at birth".

The Statistics Seminar normally meets on Fridays at 3:00 pm in CAB 657. Anyone interested in giving a talk in this seminar is asked to contact Peter Hooper.

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XX. PEOPLE

Alex de Leon (Ph.D. anticipated in June 2002 under the supervision of **K.C. Carrière**) got an assistant professorship with the Department of Mathematics and Statistics at the University of Calgary, beginning in July 2002.

Saumen Mandal (PDF under the supervision of **K.C. Carrière**) got an assistant professorship with the Department of Statistics at the University of Manitoba, beginning in July 2002.

Xiaoming Sheng (Ph.D. anticipated in April 2002 under the supervision of **K.C. Carrière**) was offered a Methodologist position with Statistics Canada.

A former student of **Walter Allegretto**'s and **Yanping Lin**'s, **Dr. Hongtao Yang**, who finished his thesis in November 2001, is now working as a visiting assistant professor at the University of North Carolina at Charlotte.

Laura Heiland will leave the Department at the end of June and move to Calgary. We wish her the very best for the future.

Dana McCallum returned from her maternity leave at the end of January to take up her old place in the General Office. Welcome back!

Vivian Spak has been with the Department as a technical typist for 35 years this month, first as a full-time secretary, later part-time. Although she moved to Lethbridge at one point, the Department could not do without her services and sent her urgent manuscripts to be typed by her there. Thank you, Vivian, for such long-term devoted service.

Doug Wiens is a happy grandfather. Steven Christopher Wiktorski IV was born March 9. Congratulations!

XXI. CORRECTIONS

Garry Ludwig

- Contrary to claims in the hard copy of the last newsletter, **Sandra and Wayne**'s baby weighed 8 lb.10 oz., not 81 lb 10 oz. This must come as a great relief to the proud parents.
- In some versions of the last two issues of the newsletter, one of the authors of the MITACS-PINTS report was incorrectly identified as Victor (Xing Ja) Ma. His name should have been given as **Victor (Xinjian) Ma**. Apologies from the proof-reader/editor.
- In the October 2001 issue, the Report from Graduate Studies incorrectly identified the M.Sc. thesis of **Luc Leger** as having been supervised jointly by Abel Cadenillas and Robert Elliott. In fact, **Abel Cadenillas** was the sole supervisor. We apologize for this error.

XXII. HUMOUR

Samples of mathematical humour found on the internet:

A mathematician gives a talk intended for a general audience. The talk is announced in the local newspaper, but he expects few people to show up because nobody who is not a mathematician will be able to make any sense of the title: *Convex sets and inequalities*.

To his surprise, the auditorium is crammed when his talk begins. After he has finished, someone in the audience raises his hand.

"But you said nothing about the actual topic of your talk!"
"What topic to you mean?"
"Well, the one that was announced in the paper: *Convicts, sex, and inequality*."

Q: What's the contour integral around Western Europe?
A: Zero, because all the Poles are in Eastern Europe!
Addendum: Actually, there ARE some Poles in Western Europe, but they are removable!

The mother of already three is pregnant with her fourth child.
One evening, the eldest daughter says to her dad: "Do you know, daddy, what I've found out?"
"No."
"The new baby will be Chinese!"
"What?!"
"Yes. I've read in the paper that statistics shows that every fourth child born nowadays is Chinese..."

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But don't think about math when you kiss me!

Courtesy of *W. Krawcewicz*