

Inside this issue:

PGD essay submissions	1
Student updates	1
German delegation visit	1
AIMS Research Centre updates	2
Workshop on Discrete Geometry	2
AIMS Journal Club	2
Visiting researcher	2
Angolan Delegation visit	3
Meetings attended	3
AIMS Public Lecture Series	3
Tutor outing	3
Announcements	4

PGD essay submissions



January intake students with AIMS Tutors

The January 2012 intake of Post-graduate Diploma students submitted their final essays by noon on Friday 26 October. Oral presentations are set to take place from 6 to 8 November. The students were supervised by academics from UCT, the AIMS Research Centre and AGH Krakow.

German delegation visits AIMS



Kai Gehring. Other delegates were Andreas Meyer, Mr Helge Mayer, the translator and a representative of the German Consulate in Cape Town.

A German delegation, led by Ms Maja Clausen, Head of Research, Science and Innovation at the German Embassy in Pretoria visited AIMS on Wednesday 10 October 2012. Delegates were members of a Trade Mission to South Africa and included the following Members of Parliament: Ulla Burchardt, the Committee Chairman, Tankred Schipanski, Sylvia Canel, Michael Gerdes,

The visitors joined students and staff for afternoon tea. Prof Barry Green welcomed the guests and this was followed by a short speech by Ms Burchardt. Members of the delegation then had a discussion with Prof Green and Prof Konrad Polthier (head of the Mathematical Geometry Processing group at the Institute of Mathematics at Freie University Berlin) who was running a workshop at AIMS at the time (see page 2).

Student updates

The first African-theme dinner, short presentation and farewell party was held on Thursday 4 October. Students, staff and lecturers were treated to a Nigerian-style dinner followed by a fun 'taste' of student entertainment.



Students also gave farewell speeches to Prof Alan Beardon, Cambridge and Prof David Spielgelhalter, Cambridge. This was followed with dancing and snacks.

The August 2012 intake of students will be completing the following skills courses this week: Experimental Mathematics with SAGE (Marcin Kostur, Silesia), Differential Equations (Kesh Govinder, KwaZulu-Natal) and SEED - Skills for employability, entrepreneurship and development (Arun Sharma, AIMS-NEI). Students will now move into the review course phase of the programme.



AIMS Research Centre updates

MSc Defence



On Thursday 18 October Mr Michael Kateregga presented his MSc dissertation entitled, 'Perturbation Methods in Derivatives Pricing under Stochastic Volatility'. Abstract: This thesis gives account of the pricing and hedging of financial derivatives under stochastic volatility in equity market. Based on the

seminal work of Fouque and co-authors, we present, discuss and analyse multiscale stochastic volatility models. First order price approximations to standard vanilla (as well as path-dependent exotic) options are obtained by means of asymptotic approximations techniques and perturbation method.

Workshop on Discrete Geometry



Faniry Razafindrazaka, Konstantin Poelke and Prof Konrad Polthier

The Joint AIMS - Berlin Mathematical School Workshop on "Discrete Geometry and Visualization" took place at AIMS from 8 - 12 October 2012 and formed part of the German-South African Year of Science 2012/13 programme of activities.

Delegates, made up of students from AIMS and South African universities, were introduced to the recent developments in discrete (differential) geometry with applications to computer graphics and mathematical visualization. The courses and hands-on exercises provided

interesting material for delegates. The workshop included software tutorials, mathematical visualizations and animated film sequences.

The coordinator and one of the speakers at the workshop was [Prof Konrad Polthier](#), head of the Mathematical Geometry Processing group at the Institute of Mathematics at Freie University Berlin.

Other speakers included [Faniry Razafindrazaka](#) and [Konstantin Poelke](#), (PhD students from the Institute of Mathematics at Freie University Berlin).

AIMS Journal Club



On Tuesday 2 October, Dr Lafras Uys (AIMS) gave a talk titled: "The Meaning of Liff or: Constraints on Biological Models Using Category Theory and Haskell".

On Tuesday 9 October, Dr Semu Mitiku Kassa (Department of Mathematics, Addis Ababa University (AAU), Ethiopia) gave a talk titled: "Solving Multilevel Optimization Problems Using Evolutionary Strategy, Inspired by Natural Adaptation"



On Tuesday 16 October, Prof Ronnie Becker (AIMS & UCT) gave a talk titled: "Modelling Volatility Regimes in Finance using Hidden Markov Models."

On Tuesday 23 October Dr Paul Taylor (University of Medicine and Dentistry of New Jersey) gave a talk in our Journal Club titled "An introduction to magnetic resonance imaging methods for studying structure and function in the brain."



Above: Students creating geometric models as part of the activities in the Discrete Geometry and Visualization workshop

Visiting researcher



Rafal Lochowski, Professor in the Department of Mathematics and Mathematical

Economics, Warsaw School of Economics arrived on 2 October and will be at AIMS till mid December 2012.

Talks

Dr Nima Khosravi, a postdoc in the Research Centre gave a talk on "Effective Field Theory of Multi-Field Inflation" in the UCT ACGC weekly seminars on 9 October.

Angolan delegation visit AIMS



Prof Green addresses visitors from Angola

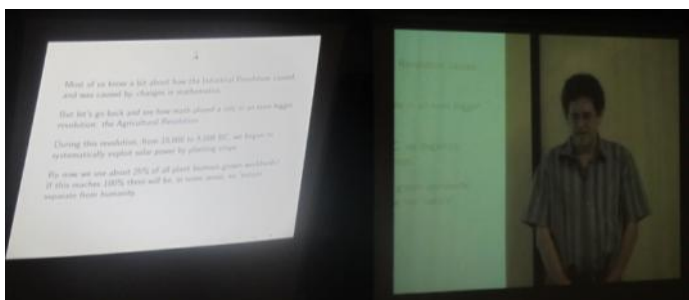
Representatives of the Department of Science and Technology together with an Angolan delegation of representatives from their consulate, and the corporate sector and universities in Angola visited AIMS on Tuesday 23 October.

The DST together with their counterpart in Angola have signed a bilateral agreement for funding of joint research projects. The visit to AIMS was arranged to help expand the network for Angolan researchers and to facilitate collaboration on joint projects with South Africans.



Guests were taken on a tour of the AIMS facilities and then had tea with staff and students. This was followed by a presentation by Prof Barry Green on AIMS. Further discussions were held around future collaboration and interaction between AIMS and Angolan institutions.

Public Lecture Series



The International Mathematical Union has declared the theme for the year 2013 "The Mathematics of Planet Earth." The AIMS Public Lecture Series and the South African Mathematical Society, kicked off this theme a few months early by inviting the popular mathematician John Baez (University of California, Riverside), to deliver a live streaming video public

lecture on this theme from California on Tuesday 30 October on the eve of the SAMS conference at Stellenbosch University.

The event was open to members of the public as well as SAMS delegates. The evening began with an opening address by Professor Mark Swilling, head of the Sustainability Institute at Stellenbosch.

Head Tutor Farewell

A farewell tea was held for Dr Emma Coutts, who joined as a tutor in August 2011 and was appointed head tutor at AIMS from April this year. She has returned to the United Kingdom where she will

take up teaching post at the university of Durham.

Marcus Kruger, who completed his Master's at Stellenbosch University has been appointed as the new head tutor.



Meetings attended

Prof Barry Green attended the Selection Committee meeting and interviews for the Endowed Chair in "Mathematics and its Applications" to be awarded by the Alexander von Humboldt Foundation in cooperation with the German Federal Ministry for Education and

Research at AIMS-Senegal, from 1 to 3 October 2012.

He also attended a meeting of the Ministerial Task Team on Mathematics and Science Foundation Programme, at the ministerial office in Pretoria on 17 October 2012.

Advisory Board Meeting

The AIMS-South Africa Advisory Board meeting took place on Thursday 25 October. New members appointed to the Board are: Prof

Eugene Cloete from Stellenbosch University and Prof Louis Labschagne, President of the South African Mathematical Society.

Tutors go whale-watching



Jan Groenwald, AIMS IT Manager, declared October 9 as the official "Tutor Appreciation Day." To celebrate this Jan together with the tutors went on a trip to Hermanus to "see whales, eat, drink and be merry". It rained for most

of the day but the tutors managed to brave the weather and spot a lot of whales. On their way back the weather improved and they made a pit-stop to take in the view from Sir Lowry's Pass.

Announcements

January 2013 intake for the AIMS Master's in Mathematical Sciences:

The AIMS Postgraduate Diploma in Mathematical Sciences has been realigned from the August 2012 intake onwards to be offered as a structured coursework Master's degree in Mathematical Sciences. This degree will be awarded by the Universities of Stellenbosch, Cape Town and the Western Cape. The January intake is for South African students only who follow the usual academic calendar and it is intended that this intake will also include a small group of prospective mathematics and science teachers, an area of dire need in South Africa.

For more information and to apply please visit <http://www.aims.ac.za/en/programmes/aims-masters-in-mathematical-sciences>.

Late applications are still being considered. Applicants are encouraged to apply as soon as possible.

DAAD Scholarships for PhD studies

DAAD (the German Academic Exchange Service) in association with the African Institute for Mathematical Sciences (AIMS) is providing 5 in-region scholarships for a PhD programme in Mathematical Sciences. These scholarships are available to students wishing to commence a PhD programme at a South African University in 2013. The scholarships will cover the tuition fees, living costs and other related costs of the programme. Prospective applicants must be African nationals from Sub-Saharan countries (excluding South African nationals), and not older than 36 years of age on the date of nomination. Women are particularly encouraged to apply.

Closing date for applications is 14 November 2012.

For more information and to apply:

<http://www.aims.ac.za/en/apply/daad-scholarships/scholarships-for-a-phd-programme-in-mathematical-sciences>

The 6th Summer School in Mathematical Finance

This Summer School is being held at AIMS from 21 to 23 February 2013. This workshop forms part of the [MPE2013](#) initiative and presents a unique opportunity for local practitioners, academics and students to interact with international leaders in research on topics and modelling techniques current in the South African and international financial markets.

Please visit the [workshop website](#) for further information.

AIMS Public Lecture Series

Title: "Renewal in basic science education in France and worldwide"

By **Pierre Lena**, Emeritus Professor, Université Paris Diderot & Délégation à l'éducation, Académie des sciences, France

The lecture will focus on how "La main à la pa" - a movement started in 1996 by Nobel Prize winner Georges Charpak, has transformed basic science education in France and worldwide.

Date: Thursday 22 November 2012

Time: 18:45 for 19:00

Venue: African Institute for
Mathematical Sciences

6 Melrose Road, Muizenberg

Cost: Free

For more information [22 November 2012 Pierre Lena](#)