

AIMS

Annual Report

2007 / 2008





Acknowledgements

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Executive Summary

1. Introduction	Page 2
2. AIMS Postgraduate Diploma in the Mathematical Sciences	Page 3
2.1 Progress to date	
2.2 The academic programme	
2.3 Graduation	
2.4 Extra curricular activities	
2.5 Alumni	
3. Bursaries for study at South African Universities	Page 11
3.1 Bursaries for Masters study	
3.2 Bursaries for PhD study	
4. Research at AIMS	Page 13
5. Conference and networking	Page 15
5.1 Networking	
5.2 Short courses held at AIMS	
5.3 Seminars held at AIMS	
5.4 Visitors to AIMS	
6. African Mathematical Institutes Network (AMI-Net)	Page 17
7. AIMS Schools Enrichment Centre (AIMSSEC)	Page 19
7.1 AIMSSEC training courses	
7.2 Sponsors of AIMSSEC	
8. Governance and Infrastructure	Page 21
8.1 AIMS Council	
8.2 AIMS Advisory Board	
8.3 AIMS Executive Team	
8.4 Staff	
8.5 Tutors	
8.6 Facilities	
8.7 Information Technology	
9. Financial report	Page 23
9.1 AIMS financial statement	
9.2 Notes on the financial statement	
9.3 AIMSSEC financial statement	
10. Sponsors of AIMS	Page 25
11. Future plans and funding	Page 26

Executive Summary

This report covers the period August 2007 to July 2008, the fifth year of the operation of AIMS. The year saw the consolidation of the successful post graduate diploma programme in which 53 students from 19 different countries were enrolled, and 52 of them graduated.

Graduation, which took place on the 24th of June, was held for the first time at the Muizenberg Pavilion. The Minister of Education, Naledi Pandor, gave the main address which contained an inspiring message for the students.

AIMS underwent considerable change and expansion during this period. In May 2008, AIMS officially launched its new Research Centre housed in two beautifully refurbished historical houses in close proximity to the main AIMS building. This launch coincided with that of the Next Einstein Initiative - through which financial and other support is to be generated for a network of AIMS-like institutions throughout Africa (www.nexteinstein.org). This initiative, driven by Neil Turok, gives greater impetus to the AMI-Net concept described in previous reports.

Both launches were very high profile events widely reported on in the press. The participation of international figures, including Stephen Hawking, Michael Griffin (NASA Administrator) and two recent winners of the Nobel prize in physics, David Gross and George Smoot, and South

African leaders from government (the Minister of Science and Technology, and Deputy Minister of Education) and academia, all contributed to a memorable event that focused attention on the urgency of developing science in Africa.

AIMS staff has also expanded: Gudrun Schirge moved from the National Research Foundation to join the AIMS administration and AIMS is presently seeking the service of a part-time accountant. In view of the outreach plan to expand support for science teachers in more formal programmes, a position for an academic manager for AIMSSEC has also been advertised.

Once again, AIMS has hosted workshops on mathematical finance (18-23 February 2008), on Biomathematics (30 June - 11 July 2008), and a School on Electronic Structure Methods (an international IETP winter school from 14-25 July 2008). Several visitors have come to AIMS to conduct research and this trend will increase in the following year with the establishment of the AIMS Research Centre.

1. Introduction

This report covers the activities of the African Institute for Mathematical Sciences for the academic year 2007/8. The financial report covers the calendar year 2007 - the financial year of Stellenbosch University, which administers AIMS finances.

The African Institute of Mathematical Sciences was established in 2003 as a collaborative effort of the following universities:

University of Cambridge
University of Cape Town
University of Oxford
Université de Paris Sud XI
Stellenbosch University
The University of the Western Cape

The main programme of AIMS is the Postgraduate Diploma in Mathematical Sciences. This is a nine month programme which is accredited by the three universities of the Western Cape. It focuses on developing mathematical skills learnt in the undergraduate degree, as well as an introduction to mathematics as it is used in different fields (through the review courses). To date, 210 students have graduated from this programme.

Other programmes at AIMS have undergone significant expansion in the last few years. The AIMS Research Centre was launched in May of this year and the first postdoctoral appointment in this centre has been made. Selections were made for the new nodes of AMI-Net which seeks to establish an Africa - wide network of AIMS - like institutions. The recently launched Next Einstein Initiative will take this work further. The groundwork for a new honours course in Biomathematics for South African students was completed this year. This expansion of programmes and activities required new facilities and much work went into securing additional buildings to house the enlarged staff and student complement.

2. AIMS Postgraduate Diploma in Mathematical Sciences

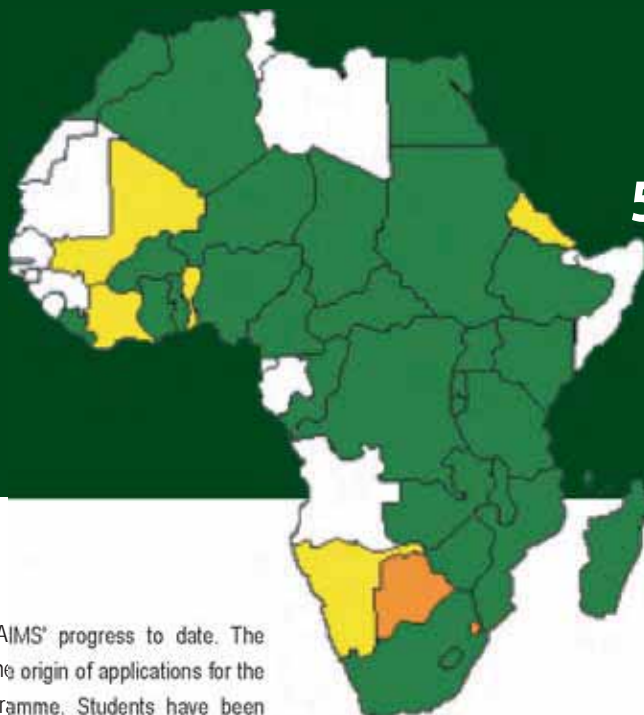
2.1 Progress to date

The 2007/8 student group included 33 men and 20 women from 19 different countries. Each of the 53 students was enrolled at one of the three local universities (University of Cape Town, University of Stellenbosch, and the University of the Western Cape). A breakdown of the number of students by country of origin follows:

Burkina Faso 1 · Cameroon 4 · Central African Republic 2 · Democratic Republic of Congo 3 · Egypt 1 · Ethiopia 5
 Ghana 2 · Kenya 1 · Lesotho 1 · Madagascar 5 · Malawi 1 · Nigeria 7 · Republic of Congo 3 · Rwanda 3 · Sudan 7
 Tanzania 1 · Togo 1 · Uganda 3 · Zimbabwe 2

19 Countries

53 Students

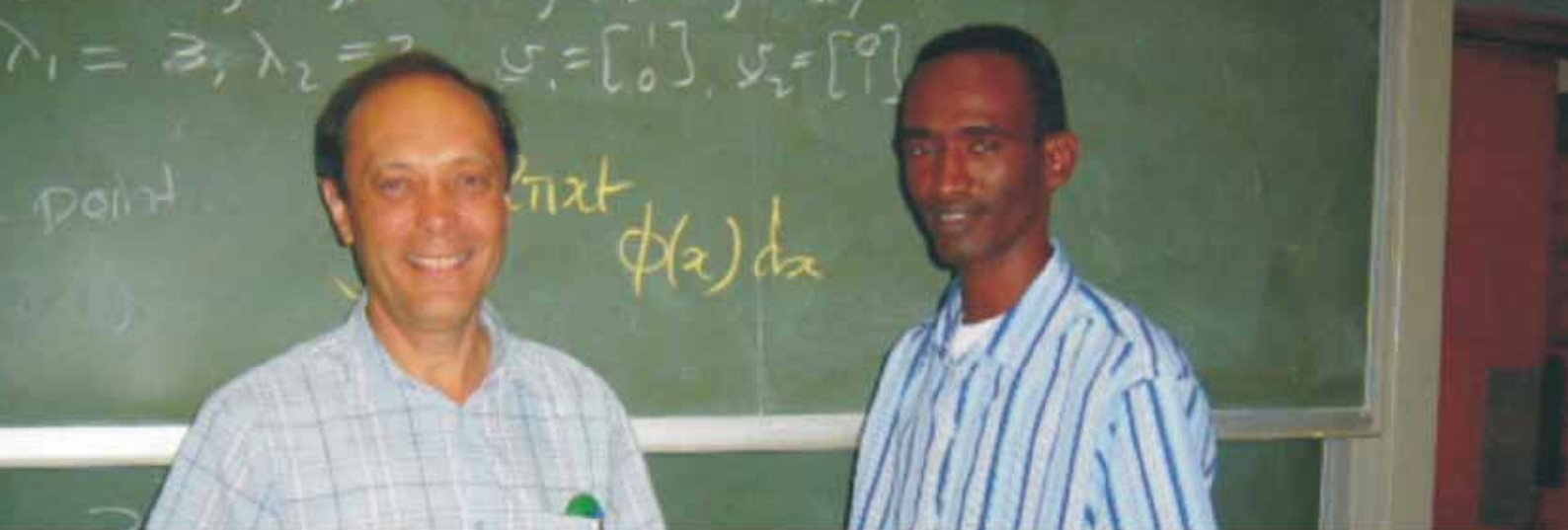


The map above indicates AIMS' progress to date. The countries in yellow indicate the origin of applications for the Postgraduate Diploma Programme. Students have been admitted from countries coloured orange, and AIMS has graduated students from countries coloured green.

ACADEMIC YEAR	GRADUATES	COUNTRIES	MEN	WOMEN
2003 - 2004	29	11	22	7
2004 - 2005	41	16	28	13
2005 - 2006	40	14	33	7
2006 - 2007	48	19	36	12
2007 - 2008	52	19	33	19

AIMS graduates by year.

At the start of this academic year, AIMS accepted the first student from Mauritius on to the course. However, he left soon after his arrival to take up another opportunity. 2007/8 was the first year in which applicants from Burkina Faso and Rwanda were enrolled onto the diploma programme and all of these students graduated.



2.2 The academic programme

The Postgraduate Diploma Programme runs over 3 semesters and is comprised of the skills courses, the review courses and the essay phase. International and local lecturers are invited to register on to a database, and then to submit proposals for courses each year when they are called for via the AIMS announcements and newsletters.

A. Skills courses

The skills courses, which run in the first semester, provide students with general skills in mathematical problem-solving and strengthen the students' computer programming and communication skills. The skills courses offered during the 2007/8 year were as follows:

TIME PERIOD	No. of Lectures	LECTURER(s)	COURSE TITLE
27 August - 31 August	10	J Groenewald - AIMS	Introduction to AIMS computing facilities & LaTeX
27 August - 31 August	10	F Aron - AIMS	English Essentials
3 September - 12 October	18	F Aron - AIMS	Communication Skills
3 September - 12 October	18	C Scheffler - CSIR and J Campos Miralles - Barcelona	Software development using Python
13 September - 28 September	18	Alan Beardon - Cambridge	Mathematical Problem Solving
24 September - 12 October	18	M Bucher - Paris and K Moodley - UKZN	Probability and Statistics
15 October - 2 November	18	A MacFarlane - Cambridge	Mathematical Methods
15 October - 2 November	18	D Aschman and R Fearick - UCT	Physical Problem Solving
12 November - 30 November	18	B Schoers - Herriot Watt	Ordinary Differential Equations
12 November - 30 November	18	R De Mello Koch - WITS	Electromagnetism

B. Review courses

Review courses are presented over the second semester. Students are required to select a minimum number of nine courses from the list below. In this way, they are able to focus their diploma more on physics, pure mathematics or applied mathematics. The review courses were as follows:

TIME PERIOD	No. of Lectures	LECTURER(s)	COURSE TITLE
3 December - 21 December	18	T Tadie - Makerere	Real Analysis
3 December - 21 December	18	D Reddy - UCT, C Carstensen - Berlin, R Hoppe - Houston	Mathematics of Computations for PDE's
3 December - 21 December	18	K Mueller - Nedebock - Stellenbosch, T B Liverpool - Leeds	From Random Walks to Biopolymers
7 January - 25 January	18	P Dorey - Durham	Solitons
7 January - 25 January	18	A K McIver - Sydney, J Sanders - Oxford, I Rewitzky - Stellenbosch	Functional Programming
7 January - 25 January	18	A C Davis - Cambridge	Quantum Physics
28 January - 15 February	18	T J Zastawniak - York, M Capinski - Krakow	Stochastic Calculus and Black-Scholes Theory
28 January - 15 February	18	J Govaerts, Louvain-la-Neuve	Quantum Physics and Field Theory
28 January - 15 February	18	H G Worster - Cambridge	Fluid Dynamics
25 February - 14 March	18	V Rivasseau - Paris Sud XI	Advanced Real and Complex Analysis
25 February - 14 March	18	W A Hereman - Colorado, K S Govinder - UKZN	Non - Linear Dynamical Systems with applications In Biology
25 February - 14 March	18	M Kleber - Munich	New Mathematical Tools for Nanosciences
17 March - 4 April	18	B A Oluwade - Ibadan	Bioinformatics
17 March - 4 April	18	J Weiner - Toulouse	Interaction of Light and Matter at Atomic and Nano Scale

C. Essays and Oral Examinations

During the third semester, which ran from mid-April till the end of June, the students compiled an essay on a topic of their choice. AIMS called for topic proposals from a wide range of international and local academics. A total of 93 topics were submitted and the students selected their topics as follows:

Table of essay topics and students:

TITLE	SUPERVISOR	INSTITUTION	STUDENT
Van der Pauw measurements of the Hall effect in nanoparticulate silicon layers	Margit Harting David Britton	University of Cape Town	Abass, Sara Abdelazeem Hassan Abass
On the cost analysis of human papillomavirus via mathematical modelling	Kailash Padidar	University of Western Cape	Abdula'uf Bello, Bilkisu
Membrane computing	Jeff Sanders Ingrid, Rewitzky	United Nations University Stellenbosch University	Ahmed, Eltayeb Elbushra Eltayeb Mohammed
Construction of optimal stopping times for Bermudan Options	Tomasz Zastawniak	University of York	Ali, Zakaria
Option Pricing with the variance Gamma model	Peter Ouwehand	Stellenbosch University	Amadi, Blessing
Classification of surfaces and maps between surfaces	David Gay	University of Cape Town	Ayivor, Audry Fafa Abla
Optimal Investment Strategies	Ekkehard Kopp Maciej Capinski	Stellenbosch University AGH Krakow	Chibawara, Trust
Gaussian Process models for machine learning applied to biomedical classification using microarray data	Cathal Seoighe Jonathan Blackburn	University of Cape Town	Chimusa Rugamika, Emile
Shears mechanism and magnetic rotation	David Ashman Simon Mullins	University of Cape Town Ithemba Labs	Degaga, Eleni Kinfe
An introduction to credibility theory	Raouf Ghomrasni	University of the Witwatersrand	Djeundje Biatat, Viani Aime
Non - cancellation in the category of groups	Peter Witbooi	University of Western Cape	Djoufedie, George Noel
Exercise of American options for Insider traders	Peter Ouwehand	Stellenbosch University	Dushimimana, Jean Claude
The dynamics of Multi - Strain systems	Brandon Van der Ventel	Stellenbosch University	Egwu, Nathaniel
Bayesian models in genome wide case - control association studies	Cathal Seoighe	University of Cape Town	Ejigu, Amsalework Ayele
Modified theories of gravity: a solution to the dark energy Problem?	Peter Dunsby	University of Cape Town	Elmardi, Maye Yassin Ahmed
How model checking works	Jeff Sanders	United Nations University	Fasan, Oluwasola Mary Fasan
Financial Risk measures	Raouf Ghomrasni	The University of the Witwatersrand	Gamado, Kokouvi Mawuli
Game contingent claims in discrete markets	Tomasz Zastawniak	University of York	Gbenro, Sunday Oluwaseun Gbenro
Physics of and from exotic ion beam accelerators	David Aschman Simon Mullins	University of Cape Town Ithemba Labs	Hassan, Maisson Mohamed Zeinelabdien
Synthetic aperture radar processing	Michael Inggs	University of Cape Town	Kazadi Badiambile, Adolphe
Superheavy elements	David Aschman Simon Mullins	University of Cape Town Ithemba Labs	Khaleel, Esra Ahmed Mohammed Adam
Finite element analysis of convection - dominated	Daya Reddy	University of Cape Town	Ezeldin, Azza Ali Sharaf Eldin

TITLE	SUPERVISOR	INSTITUTION	STUDENT
Options on volatility	Ekkehard Kopp	Stellenbosch University	Kentia Tonleu, Klebert
Codes and complementation in triangular graphs	Eric Mwambe & W Fish	University of the Western Cape	Kumwenda, Kumbo
Optimal risk management using options	Maciej Capinski	AGH Krakow	Mamoade, Lydia Flore
Population dynamic type models of HIV infection	Rachid Ouifki	Stellenbosch University	Mbabazi, Doreen
Spectroscopic characterisation of metallic matrix nanocomposites	David Britton	University of Cape Town	Michel Nzikou, Mamboukou
The law of one price and CAPM	Peter Ekkehard Kopp Tomasz Zastawniak	Stellenbosch University University of York	Mudzimbabwe, Walter
Probabilistic models of evolution	Konrad Scheffler	Stellenbosch University	Namayanja, Proscovia
Soliton - like humps on the surface magnetic fluids	Nora Alexeeva	University of Cape Town	Nchejane, Ngaka John
An investigation into the anomalous large angle scattering of alpha particles from light nuclear systems	Shaun M Wyngaardt Sandro Perez	Stellenbosch University	Ndayishmye, Joram
Propagation of laser beams	Erich Rohwer	Stellenbosch University	Nganga, Davy Vilfranc Leonce
On mathematical modelling of emerging infections diseases	Kailash Patidar	University of the Western Cape	Banagaaya, Nicodemus
A theory of transactions	Jeff Sanders	United Nations University	Njima, Mercy Njeri
Metastable states for atomic nuclei	David Aschman Simon Mullins	University of Cape Town. Ithemba Labs	Nsanzineza, Ibrahim
Liquidity effects in discrete time	Tomas Zastawniak	University of York	Numapau, Gyamfi Emmanuel
A comparison of resistivity and electromagnetics as geophysical techniques	George Smith	University of Cape Town.	Oghenekohwo, Felix Onovughe
Uniform spaces	Hans - Peter Kunzi	University of Cape Town	Razafinralcoto, Ando
Mathematical foundations of Kleene algebra	Annabelle Mciver, Ingrid Rewitzky	Macquarie University Stellenbosch University	Rabehaja, Mananjanahary Tahiry
K - connectivity and clustering	Antoine Bagula	University of Cape Town	Ramanandraitsiory, Voarisoa Irina
Linear logic	Jeff Sanders Ingrid Rewitzky	University of Cape Town United Nations University	Ranaivomanana, Andriatahina Mika Sidonie
Particles mass generation in the electroweak sector of the standard model of particle physics	Cesareo A. Dominguez	University of Cape Town	Rashed, Ahmed Mohammed Mostafa
Riemann surfaces and hyperbolic geometry	David Gay	University of Cape Town	Ravelomanana, Huygens Christian
Functionally generated portfolios	Raouf Ghomrasni	University of the Witwatersrand	Mpika Massoukou, Rodrigues Yves
Wire sensor networks layout optimization	Antoine Bagula	University of Cape Town	Safari Serufuri, Jean Michel
Modelling the role of diagnosis and treatment on TB dynamics	Farai Nyabandza	Stellenbosch University	Sanga, Geomira
Analysis of observed reservoir sedimentation rates in South Africa	G Basson	Stellenbosch University	Sawadogo, Ousmane
Early stage clustering of point defects under spherical Symmetry	David Britton Margit Harting	University of Cape Town	Suleiman, Mohammed Suleiman Hussein
Modelling the role of latent reservoirs and IPT on TB Dynamics	Farai Nyabandza	Stellenbosch University	Teshale Bekele, Bewketu
The structural model based pricing of debt and loan Quarantees	Maciej Capinski	AGH Krakow	Teudjou, Kemajou Elisabeth
Elemental compositional analysis of silicon nanopowders	Margit Harting David Britton	University of Cape Town	Unuigbe, Moweme David
Applications of alternative statistical distributions in high energy physics	Jean Cleymans	University of Cape Town	Worku, Dawit Solomon
Numerical solution of state constrained parabolic optimal control systems	Ronald Hoppe	University of Houston	Zelege, Kidist Terefe

The students wrote and completed their essays over a seven - week period working closely with their supervisors and the AIMS English teacher, Frances Aron, who assisted them with aspects of scientific writing. After completing and submitting their essays, the students prepared to defend their essays in front of a panel of examiners.

Examinations were heard during late May and early June. Each student presented their essay to the panel who assessed their presentation and determined an overall mark for the student.

The panel consisted of :

- The student's essay supervisor
- An external examiner
- The student's tutor
- The AIMS director, Fritz Hahne.

The external examiners were :

- Prof Erich Friedland, retired Professor in Physics (University of Pretoria),
- Prof Gerhard Geldenhuys, retired Professor in Applied Mathematics (Stellenbosch University)
- Prof Wesley Kotze, retired Professor of Mathematics (Rhodes University),
- Dr Gerard Razafimanantsoa, Department of Mathematics (University of Antananarivo, Madagascar).

2.3 Graduation

Graduation took place on the 24th of June 2008 at the Muizenberg Pavilion. Graduates and academics met at the AIMS building from where they proceeded to the Pavilion. Of the 53 students, 52 graduated and eight of these did so with distinction.

The Minister of Education, Naledi Pandor, gave the main address at the ceremony. She congratulated AIMS on the achievement of producing another cohort of graduates.

She challenged the students "...to make Africa visible in your work give attention to your own development, but also keep the continent's development squarely in your mind."

The other speakers who addressed the gathering were: Dr Phil Mjwara (Director General, Department of Science and Technology), and Ms Piyushi Kotecha (CEO of Southern African Universities Association). The ceremony was followed by a buffet luncheon for graduates, staff and friends of AIMS.



2.4 Extra Curricular Activities

In order to introduce students to the wider academic environment in South Africa, opportunities were created for students to attend meetings, seminars and conferences. The following meetings were attended:

- The SANUM conference held in Stellenbosch on the 26th, 27th and 28th March 2008 was attended by 20 AIMS students and tutors.
- SAWISE (The South African Association of Women in Science and Engineering) held a workshop on early career adjustment at AIMS on the 22nd April 2008.
- 15 students and tutors attended the lectures as part of the Theoretical Physics Programme at STIAS on Wednesday 14 November.
- On Saturday 8th September, almost all the students took part in the Africa Genome Project which involved DNA testing.
- A number of students attended a workshop and summer school on mathematical finance held at AIMS in February 2008.
- A number of students attended the School on Electronic Structure Methods held at AIMS from 14th to 25th July 2008.



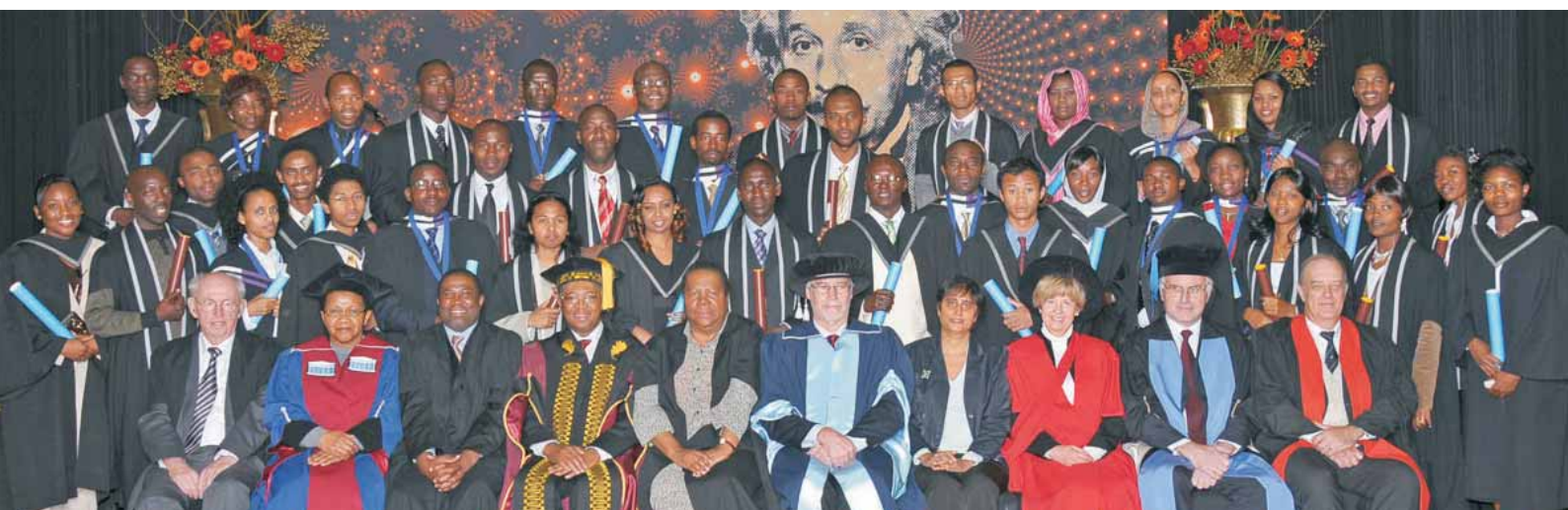
African Institute for Mathematical Sciences

Other cultural events and excursions included:

- a visit to Cape Town castle and Company Gardens
- swimming at Long Street Baths
- a trip to the City Hall to hear Faure's Requiem
- an outing to the Planetarium for environmental talks
- a trip to Cape Point and Boulders' beach to see the penguins
- a trip to Robben Island by ferry
- various hikes up Table Mountain and surrounds
- a trip to Cavendish Mall to see a film
- cultural dinners with African themes
- friendly football matches.

2.5 Alumni

2007 - 08 STUDENTS	GENDER	COUNTRY	CURRENT INSTITUTION	PROGRAMME
Abass, Sara Abdelazeem Hassan	Female	Sudan	University of Cape Town	Masters
Abdu Ira'uf Bello, Bilkiu	Female	Nigeria	SACEMA	Masters
Ahmed, Eltayeb Elbushra	Male	Sudan		
Ali, Zakaria	Male	Chad	University of Pretoria	Masters
Amadi, Blessing	Female	Nigeria	Erasmus Mundus	Masters
Ayivor, Audry Fafa Abla	Female	Ghana	University of Cape Town	Masters
Banagaaya, Nicodemus	Male	Uganda	Johannes Kepler University Linz, Austria	Masters
Biatat, Viani Aime	Male	Cameroon	Herriot Watt University, Edinburgh	PhD
Chibawara, Trust	Male	Zimbabwe	University of Stellenbosch	Masters
Chimusa, Rukamika Emile	Male	Democratic Republic of Congo	University of the Cape Town	Masters
Degaga, Eleni Kinfe	Female	Ethiopia	Syracuse University, New York	Masters
Djoufedie, George Noel	Male	Cameroon	Erasmus Mundus	Masters
Dushimimana, Jean Claude	Male	Rwanda	Stellenbosch University	Masters
Egwu, Nathaniel	Male	Nigeria	Erasmus Mundus	Masters
Ejigu, Amsalework Ayele	Female	Ethiopia	SACEMA	Masters
Elmardi, Maye Yassin Ahmed	Female	Sudan	University of Cape Town	Masters
Ezeldin, Azza Ali Sharaf Eldin	Female	Sudan	University of Khartoum	Lecturer
Fasan, Mary Oluwasola	Female	Nigeria	Stellenbosch University	Masters
Gamado, Kokouvi Mawuli	Male	Togo	University of the Witwatersrand	Masters
Gbenro, Sunday Oluwaseun	Male	Nigeria	Erasmus Mundus	Masters
Hassan, Maïsson Mohamed Zeinelabdien	Female	Sudan	University of Cape Town	Masters
Kazadi Badiambile, Adolphe	Male	Democratic Republic of Congo	Syracuse University, New York	Masters
Kentia Tonleu, Klebert	Male	Cameroon	Humboldt University of Berlin	Masters
Khaleel, Esra Ahmed Mohammed Adam	Female	Sudan	University of Cape Town	Masters
Kumwenda, Khumbo	Male	Malawi	University of the Western Cape	PhD
Mamoade, Lydia Flore	Female	Central African Republic	AIMS Abuja, Nigeria	Masters
Mbabazi, Doreen	Male	Uganda	SACEMA	Masters
Mpika Massoukou, Rodrigue Yves	Female	Republic of Congo	University of KwaZulu Natal	Masters
Mudzimbabwe, Walter	Male	Zimbabwe	University of the Western Cape	Masters
Namayanja, Proscovia	Female	Uganda	University of KwaZulu Natal	Masters
Nchejane, John Ngaka	Male	Lesotho	Erasmus Mundus	Masters
Ndayishimye, Joram	Male	Rwanda	Stellenbosch University	Masters
Njima, Mercy Njeri	Female	Kenya	UNU-IIST	Masters
Nganga, Davy Wilfranc Leone	Male	Republic of Congo	University of KwaZulu Natal	Masters
Nsanzeze, Ibrahim	Male	Rwanda	Syracuse University, New York	Masters
Numapau, Gyamfi Emmanuel	Male	Ghana	University of Warwick, UK	Masters
Nzikou Mamboukou, Michel	Male	Republic of Congo	University of Cape Town	Masters
Oghenekohwo, Felix Onovughe	Male	Nigeria	University of Cape Town	Masters
Ramanandraitsiory, Voarisoa Irina	Female	Madagascar	University of Cape Town	Masters
Ramanjanahary, Tahiry Rabehaja	Female	Madagascar	UNU-IIST	Masters
Rashed, Ahmed Mohammed Mostafa	Male	Egypt	Ain Shams Uni, Uni. of Mississippi	PhD
Ravelomanana, Huygens Christian	Male	Madagascar	University of Cape Town	Masters
Razafindrakoto, Ando Desire	Male	Madagascar	Stellenbosch University	Masters
Safari Serufuri, Jean Michel	Male	Democratic Republic of Congo	University of Cape Town	Masters
Sanga, Geomira George	Female	Tanzania	SACEMA	Masters
Sawadogo, Ousmane	Male	Burkina Faso	Stellenbosch University	Masters
Suleiman, Mohammed Hussein Suleiman	Male	Sudan	University of the Witwatersrand	Masters
Teshale Bekele, Bewketu	Male	Ethiopia	Stellenbosch University	Masters
Teudjeu, Kemajou Elisabeth	Female	Cameroon	Southern Illinois University	PhD
Unuigbe, David Moweme	Male	Nigeria	University of Cape Town	Masters
Worku, Dawit Solomon	Male	Ethiopia	University of Cape Town	PhD
Zelege, Terefe Kidist	Female	Ethiopia	University of Houston	PhD



Each year, at least 90 % of the AIMS graduates proceed to study further at South African or international universities. Some students return to their home countries to teach in local university departments, utilising the skills they have gained at AIMS to develop the capacity of African universities. A few AIMS students move directly into employment in the corporate world, and AIMS has had favourable feedback from these companies.

2006 - 07 STUDENTS

COUNTRY

CURRENT INSTITUTION

PROGRAMME

2006 - 07 STUDENTS	COUNTRY	CURRENT INSTITUTION	PROGRAMME
Abuelddahab, Sheima Mohammed Eldirdiri	Sudan	University of the Western Cape	PhD
Adam, Buthaina Suleiman	Sudan	University of Cape Town	Masters
Adera, Gashaw Bekele	Ethiopia	Stellenbosch University	Masters
Ahiati, Veronica Sitsofe	Ghana	University of Cape Town	Masters
Akindeinde, Saheed Ojo	Nigeria	Erasmus Mundus	Masters
Alfedeel, Alnadhief Hamed Ahmed	Sudan	University of Cape Town	Masters
Andriamaro, Miangaly Gaelle	Madagascar	Stellenbosch University	Masters
Banda, Adson	Zambia	KwaZulu Natal University	Masters
Boulkaibet, Ilyes	Algeria	Stellenbosch University	Masters
Chama, Abdoukadi	Niger	KwaZulu Natal University	Masters
Elamin, Dalal Salah Mohammed Ali	Sudan	Computer company in Sudan	Employed
Gelaw, Balew Getahun	Ethiopia	University of Cape Town	Masters
Johah, Emmanuel Ohieku	Nigeria	University of Cape Town	Masters
Kajotoni, Margaret Modupe	Nigeria	KwaZulu Natal University	Masters
Kajunguri, Damian	Uganda	Stellenbosch University	Masters
Kalala Mutombo, Franck	DRC	Université Paris Sud XI	Masters
Karambal, Issa	Chad	KwaZulu Natal University	Masters
Khabir, Mohmed Hassan Mohmed	Sudan	University of the Western Cape	PhD
Kimba Phongi, Eddy	DRC	KwaZulu Natal University	Masters
Kpanzou, Tchilabalo Abozou	Togo	Stellenbosch University	Masters
Loufouma Makala, Narcisse Roland	Republic of Congo	KwaZulu Natal University	Masters
Mabiala, Justin	Republic of Congo	Stellenbosch University	Masters
Mahlangu, Alfred Tswinyane	South Africa	Computer Programme in UCT	Masters
Melesse, Dessalegn Yizengaw	Ethiopia	University of Manitoba	Masters
Mohamed, Hisham Anwer Saleh	Egypt	Cambridge University	Part 3 Maths
Montshiwa, Mosimanegape Irvin	South Africa	Campaign Manager at Clicks2Customers	Employed
Musonda, Ededias	Zambia	KwaZulu Natal University	Masters
Nartey, Samuel	Ghana	Cambridge University	Part 3 Maths
Nourain, Sarrah Mirghani Billal	Sudan	Accepted for Masters at UCT	Masters
Nwosu, Victoria Onyeka	Nigeria	Stellenbosch University	Masters
Okokonwo, Joy Ukamaka	Nigeria	Stellenbosch University	Masters
Okyere, Eric	Ghana	Eindhoven University of Technology/Johannes Kepler University Linz	Masters
Olatayo, Lois	Nigeria	University of Leiden	Masters
Omaghali, Ndubuisi Emmanuel Jude	Nigeria	Erasmus Mundus	Masters
Pougaza, Doriano-Boris	Central African Rep.	Université Paris Sud XI	Masters
Rararison, Andrianarivo Fabien	Madagascar	Stellenbosch University	Masters
Ralaivaosaona, Dimbinaina	Madagascar	Cambridge University	Part 3 Maths
Ramarimbahoaka, Dimbinirina	Madagascar	Stellenbosch University	Masters
Ranaribona, Hajanirina Natacha	Madagascar	Strathclyde University	PhD
Sali, Wolobah B	Liberia	Witwatersrand University	Masters
Solana, Oluwole David	Nigeria	University of Cape Town	Masters
Ssebiliba, Joseph	Uganda	Stellenbosch University	Masters
Sunzu, Jefta Mvukaye	Tanzania	KwaZulu Natal University	Masters
Takam Takougang, Eric-Martial	Cameroon	Simon Fraser University,Canada	PhD
Tambue, Antoine	Cameroon	University of Edinburgh	PhD
Tchoukouegno Ngotchouye, Jean Medard	Cameroon	KwaZulu Natal University	PhD
Urgessa, Zelalem Nigussa	Ethiopia	-	-
Zafack Takadong, Thibaut	Cameroon	Witwatersrand University	Masters





3. Bursaries for Study at South African Universities

3.1 Bursaries for Masters study

AIMS awarded bursaries for study towards a Masters at South African universities to 26 of the graduates from the 2007 - 8 academic year. The table below lists the students and the universities at which they will be studying. Half bursaries are awarded on condition that the chosen topic is approved by AIMS, and that the host university contributes the other half of the bursary. The AIMS half bursaries were made possible through grants by Arcadia, the Ford Foundation and the Isle of Man Overseas Aid Committee.

UNIVERSITY	MALE	FEMALE
University of Cape Town	Emile Chimusa Rugamika Michel Nzikou Mamboukou Felix Oghenekohwo Huygens Ravelomanana David Unuigbo Jean Michel Safari Serufuri	Sara Abass Audry Ayivor Maye Elmardi Maisson Hassan Voarisa Ramanandraitsiory
Stellenbosch University	Trust Chibawara Jean Claude Dushimimana Joram Ndayishimye Ando Razafindrakoto Ousmane Sawadogo Bewketu Teshale Bekele	Oluwasola Mary Fasan
SACEMA (South African Centre for Epidemiological Modelling and Analysis)		Bilkusu Abdula'uf Bello Doreen Mbabazi Amsalework Ejigu Geomira Sanga
University of the Witwatersrand	Kokouvi Mawuli Gamado	
University of KwaZulu Natal	Rodrigues Mpika Massoukou	Proscovia Namayanja
The University of the Western Cape	Walter Mudzimbabwe	
University of Pretoria	Zakaria Ali	

Bursaries for Masters study

3.2 Bursaries for PhD study The German Academic Exchange Service (DAAD) and AIMS reached an agreement in September 2007 that five in-region scholarships would be awarded to AIMS for PhD studies in Mathematics from 2008 onwards. Twenty-two applications were received of which 12 were short listed and sent to the DAAD for final selection. The table below lists the students who were selected by DAAD for scholarships, their institutions, and the period for which DAAD will support them in their studies.

Unfortunately, Atumbe Jules Baruani was not in a position to take up the scholarship during 2008. The other students are all registered, with Jean Yves Semegni and Veronica Sitsofe Ahiati well positioned to complete their Doctoral and Master's degrees by the end of 2008, respectively.

NAME	INSTITUTION	PERIOD OF DAAD SUPPORT
Veronica Sitsofe Ahiati	Stellenbosch University	One year at Master's level
Atumbe Jules Baruani	University of Cape Town	Three years
Jules Clement Mba	University of the Western Cape	Two years
Farai Julius Mhlanga	University of Cape Town	Two years
Tony Nsio Nzundu	University of KwaZulu-Natal	Three years
Jean Yves Semegni	Stellenbosch University	One year
Tunde Tajudeen Yusuf	University of the Western Cape	Three years



4. Research at AIMS

During May 2008, a major milestone was achieved with the opening of the new AIMS Research Centre. AIMS received grants from Arcadia, Jussi Westergren (a leading Finnish software entrepreneur and philanthropist) and the Anglo American Chairman's Fund for the purchase and refurbishment of two historical double-storey houses across the road from AIMS. Work on these buildings commenced in December and was completed on schedule during late April 2008.

A number of very distinguished scientists and guests attended the launch of the Research Centre. Among them were the Rt. Hon. Minister Mosibudi Mangena, Minister of Science and Technology, Michael Griffin, 11th Administrator of the National Aeronautics and Space Administration (NASA) in the USA, Stephen Hawking, renowned theoretical physicist at Cambridge University, Nobel Laureates David Gross and George Smoot, and Anthea Case, Principal Adviser of the Arcadia Trust. Part of the festivities included a public lecture by Griffin, Hawking, Smoot and Gross. The lecture, entitled Universe, was sold out very soon after tickets went on sale.

The research focus of the AIMS Research Centre has mathematical modelling in a multi-disciplinary context as a common theme, with special focus on data analysis and computation. Three focus areas have been selected, namely mathematics in biology, mathematics in finance, and astrophysics and cosmology. Posts for researchers and postdoctoral positions have been advertised, and the first postdoctoral fellow has been appointed to commence

research on 1 August 2008. However, some research activity in mathematical finance preceded the establishment of the Research Centre. From 18 to 23 February 2008, a summer school and research workshop in mathematical finance were held at AIMS. Several important international figures were invited as speakers during this week. These included Professors Marek Capinski (AGH University of Science and Technology, Krakau), Monique Jeanblanc (Universite d'Evry), Dilip Madan (University of Maryland), Eckhard Platen (University of Technology, Sydney), Marek Rutkowski (University of New South Wales), John van der Hoek (University of South Australia) and Dr Alet Roux (University of York). The prime motivation for this event was the planned establishment of the AIMS Research Centre.

The summer school and research workshop were co-sponsored by ABSA Capital Markets, Brait SA, Cadiz, Standard Bank Global and AIMS. Seventy-two participants, including 13 AIMS students, took part in either the summer school or the research workshop, or both. Several prospective participants had to be turned away due to a lack of capacity. Participants regarded the workshop as being highly successful, and it is anticipated that a similar event will take place on an annual basis.

In addition to the more focused research work of the AIMS Research Centre, AIMS also hosted several researchers on short-term visits and



fellowships. Fellowships were funded by either the Victor Rothschild Memorial Fund or the Ford Foundation.

The following persons were invited to AIMS on short-term research fellowships:

Olaniyi Sadik Maliki from the Science Ebonyi State University in Nigeria visited AIMS from 22 October to 2 November 2008.

Robert Elliot, a leading figure in financial mathematics from the University of Calgary in Canada and University of Adelaide in Australia, was invited to AIMS on a three-week research visit in November 2007. He gave talks at AIMS, Stellenbosch University and the University of Cape Town, and interacted with a number of students. This was followed by a six-week visit from Tomasz Zastawniak (University of York), who also presented a three-week lecture module on asset-pricing culminating in the Black-Scholes model in February 2008. Maciej Capinski from Krakau and York Universities, was appointed as a visiting academic from 14th January to 20th May 2008. His responsibilities during his stay included teaching specialised courses in stochastic analysis and mathematical finance, Assisting with the building of a research group in mathematical finance and risk management, supervising students doing research projects in the field of stochastic analysis and mathematical finance,

and research in the field of mathematical finance.

Mr Calvin Matondo Bwayi from the University of Kinshasa, Democratic Republic of Congo visited AIMS during February and March 2008 to spend some time with his supervisor, Jan Govaerts and to pursue his PhD to study, through non-perturbative techniques, the solitonic sector of the quantised $U(1)$ Higgs model in $1+1$ spacetime dimensions and its stability, or lack thereof.

Dr Adam Jerzy Maria Kirrander from the Department of Chemistry, University College London, United Kingdom came to AIMS from February to April 2008 to pursue his research on theoretical and computational aspects of quantum dynamics and coherent control in atoms and small molecules.

Dr Aziz Ouhinou from the Department of Mathematics, Cadi-Ayyad University in Morocco, visited AIMS from late February to April 2008. His research focused on partial functional differential equations and dynamical systems.

Prof Khalil Ezzinbi from the Department of Mathematics, Université Cadi-Ayyad University in Morocco, was at AIMS from the beginning of March to the beginning of April 2008 to pursue his research in differential equations and applications. He presented talks on topics such as differential equations with delay.

5. Conferences and Networking

5.1 Networking

Professor Fritz Hahne attended the Department of Science and Technology's "Science Technology and Innovation Opportunities in Africa," on 23rd May 2008. He also attended a MITACS meeting in Kampala, Uganda from 11th to 13th November 2007.

5.2 Short courses held at AIMS

As part of an initiative to extend links with South African industry, AIMS initiated and coordinated the Financial Mathematics Summer School and Research Workshop which was held at AIMS from 18 to 23 February 2008. These highly successful events were attended by 72 people including 13 AIMS students (see the earlier section on Research at AIMS).

A short course on Biomathematics for South African students was run at AIMS from 30th June to the 11th July 2008. This course was run in partnership with SACEMA.

An international IETP Winter School entitled "The School on Electronic Structure Methods", was held at AIMS from 14th to the 25th July 2008.

5.3 Seminars held at AIMS

DATE	SPEAKER	SEMINAR TITLE
17 September 2007	Neil Turok (Cambridge)	Cosmology
25 October 2007	Ben Turok (Economist)	Proposal for African Government Unity
29 October 2007	Nigel Bishop (Research Centre in Computational Relativity and Astrophysics and Cosmology, UNISA)	Gravitational Radiation
30 October 2007	A.E Krzesinski (Stellenbosch University)	Mapping the African Internet
01 November 2007	Olaniyi Maliki (Department of Mathematics and Computer Science, University Abakaliki, Nigeria)	A Gentle Introduction to Quantum Geometry.
07 November 2007	Robert J. Elliott (RBC Financial Group Professor of Finance)	Mathematical Modelling in Finance.
21 November 2007	Tahina Rakotoniana (Stellenbosch University)	Explicit Class Field Theory for Rational Function Field.
22 November 2007	Ekkehard Kopp (Stellenbosch University)	What do Martingales have to do with financial markets?
12 December 2007	Tanie Liverpool (Leeds, United Kingdom)	Random walks in Biology
13 December 2007	Kevin Govender (SALT Collateral Benefits Programme, SAAO)	IYA2009 and Astronomy in Africa
17 December 2007	Tadie (Makerere University, Uganda)	Some inequalities in Real Analysis
08 January 2008	Corinne Squire (University of East London, United Kingdom)	HIV/AIDS: keeping the promise
09 January 2008	Jan Engelbrecht (Boston College, USA)	Many body physics of brain
18 January 2008	Jeff Sanders (UNU-IIST, Macoa)	Quantum Programming
23 January 2008	David Gay (University of Cape Town)	Four dimensional space
11 February 2008	George Philander (Princeton University and University of Cape Town)	Why is the ocean so cold (more so at Blaauberg than at Muizenberg)?
06 March 2008	Margeret Symington (Mercer University)	Exploiting symmetry: the geometry of linkages and the spherical pendulum
11 March 2008	Vincent Rivasseau (Universite Paris Sud XI)	A short story of space
25 March 2008	Adam D. Hicks (Princeton University)	Probing the History of the Universe with Atacama Cosmology Telescope
31 March 2008	Khalil Ezzinbi (Cadi Ayyad Universite, Morocco)	Differential Equations with Delay, Presentations and Problems.



5.4 Visitors to AIMS	August 2007	Wilmot James, Ford Foundation.
	September 2007	Professor Sir David King; Elizabeth E. Lyons, ANESA National Science Foundation, USA; Dr Kunle Olukoton, Stanford; Micheline Ntiru, Nokia.
	November 2007	Megan Lindow, journalist; Justin Jonas, Kim de Boer (SKA and the MeerKAT) and international visitors; Prof Jacek Dobaczewski from Warsaw; Kevin Govender, SAAO.
	February 2008	Pierrot Musumbu, a previous AIMS student; Dr Karl Voltaire CEO, AUST Abuja, Nigeria; A delegation representing Science and Technology in Tanzania; President Postlep and his delegation from University of Kassel; Sean MacLean, IBM RSA & Dr Mark Dean, IBM New York, Hasim A. O. Ahmed, Faculty of Mathematical Sciences University of Khartoum, attended one of the review courses at AIMS from 24 February to 15 March 2008.
	March 2008	Prof Gerhard Frey
	April 2008	Jean-Pierre Banâtre, INRIA; Bernard Philippe, INRIA; Rob Koenig, Africa Contributing Correspondent, Science.
	May 2008	Many visitors attended the launch of the AIMS Research Centre
	June 2008	Delegation led by Prof. Kwasi Kwafo Adarkwa, Vice-Chancellor of Kwame Nkrumah University of Science and Technology (Ghana); Professor Lorna Casselton and Dr Hans Hagen of the Royal Society, London.

6. African Mathematical Institutes Network - AMI-Net

Full proposals and business plans for nodes at Makerere University in Uganda, Cape Coast in Ghana, the University of Khartoum in Sudan, and at the University of Antananarivo in Madagascar, have been received. These have been discussed and refined with the respective proposers. An application for funding for the node in Uganda was submitted to a funding agency, but this was not successful. In subsequent discussions, it seemed unlikely that it would be successful if resubmitted.

In February 2008, AIMS signed a memorandum of understanding with the African University of Science and Technology in Abuja, Nigeria. The organisations agreed to collaborate on the development of ICT facilities, policies, lecturer and student recruitment, as well as the procedure of AIMS students to AUST after completing the AIMS Diploma.

In June 2008, Andy Rabagliati from the AIMS IT department spent two months on the AUST campus assisting with setting up their IT facilities and the appointment and training of staff.

Developments around AMI-Net took a new turn when Neil Turok won the TED prize in February 2008. In his acceptance speech, he expressed the wish that opportunities be created for the Next Einstein to be an African. This idea caught the imagination of several new supporters of the AIMS and AMI-Net programmes, and a new organisation called the Next Einstein Initiative was formed to facilitate fundraising for the establishment of AIMS-like institutions across Africa (see www.nexteinstein.org).



This new concept was discussed at AIMS on the 10th May with representatives of the institutions who were preparing AMI-Net business plans. At the meeting it was agreed that the vision of creating 15 AMI-Net nodes be retained. However, there will be shifts in the approach to funding, and the way the AIMS-like institutions are to be governed. The following members attended this all-day meeting:

Dr M Abdelrahman (Sudan),
Dr L Abrahamson (ISP),
Prof F Benyah standing in for Prof F Allotey (Ghana),
Mr J Groenewald (AIMS),
Prof A Gumel (Nigeria and currently in Canada),
Prof F Hahne (AIMS Director),
Dr M Hashim (Sudan),
Prof E Lungu (Botswana),
Dr J Mango (Uganda),
Dr P Mawoko (NEPAD),
Dr N Mensah (Ghana),
Prof J Mugisha (Uganda),
Dr G Razafimanantsoa (Madagascar),
Prof A Ratiarison (Madagascar),
Prof V Rivasseau (AIMS Council),
Prof N Turok (AIMS Council),
Dr K Voltaire (AUST and AIMS Abuja, Nigeria).



7. AIMS Schools Enrichment Centre

The AIMSSEC (The African Institute for Mathematical Sciences Schools Enrichment Centre) programme has as its objectives: the introduction of new skills to the teaching of mathematics in South African schools, and the raising of standards. It does so by providing professional development courses for teachers, and resources for the enrichment of teaching and learning mathematics; by using the internet; by training subject leaders; by expanding its network of clusters of schools; and by working in partnership with other organisations. The website <http://aimssec.aims.ac.za/> offers details of AIMSSEC courses and events, as well as a problems' page.

In July 2008, AIMSSEC conducted its eighth and ninth 10-day residential professional development courses for mathematics teachers from historically-disadvantaged communities. These courses are taught by a team of visiting lecturers from around the world. They are held in the school holidays and followed by three months of distance learning. The teachers take away a large collection of resources for teaching mathematics. All the teachers receive full bursaries provided by The British and Foreign Schools' Society, The Western Cape and KwaZulu Natal Education Departments, or donations from Oxford and Cambridge

7.1 AIMSSEC training courses



7.2 . Sponsors for AIMSSEC

British & Foreign Schools Society
Victor Rothschild Memorial Fund
Trinity Hall, Cambridge
Magdalene College, Cambridge
St John's College, Cambridge
Millennium Mathematics Project,
University of Cambridge
Soroptimists, Edinburgh
Weoley Hill United Reform
Church, Birmingham



8. Governance & Infrastructure

8.1 AIMS Council

The annual meeting of the AIMS Council took place on the 10th January 2008. It reviewed the 2006/7 Annual Report, academic progress and all other activities at AIMS. Its membership comprises representatives of the six participating universities, currently Jan van Bever Donker (University of the Western Cape), Hendrik Geyer (Stellenbosch University), Daya Reddy (University of Cape Town), Keith Moffat (University of Cambridge), Graham Richards (Oxford University), and Vincent Rivasseau (Universite de Paris Sud XI). Neil Turok (University of Cambridge) is Chair of the Council and Fritz Hahne is also a member.

The following council members are also trustees of the AIMS Trust, a registered charitable trust:
Jan van Bever Donker, Neil Turok, Fritz Hahne, Daya Reddy and Keith Moffat.

8.2 AIMS Advisory Board

The AIMS Advisory Board, which advises on all academic aspects of the AIMS programme, in particular its integration with existing courses and research projects in South African and other African universities, met on 13th May 2008.

Its current members are:

Edward Lungu - University of Botswana (Chair) Jacek Banasiak - University of KwaZulu-Natal, Kathy Driver - University of Cape Town
Barry Green - Stellenbosch University, Sizwe Mabizela - Rhodes University, Harm Moraal - North-West University
David Sherwell - University of the Witwatersrand, Sibusiso Sibisi - Council for Scientific and Industrial Research
Hlengani Siweya - South African Mathematical Society, Patricia Whitelock - South African Astronomical Observatory

8.3 AIMS Executive Team

Membership of the AIMS Executive Team (AET) remained unchanged:

Francis Benyah (University of the Western Cape), Kristian Müller-Nedebock (Stellenbosch University) and Vasco Brattka (University of Cape Town) assisted the Chair of the AET, Fritz Hahne, with the selection of students for the postgraduate diploma programme, DAAD applications etc. The AET's role is also to facilitate the relationship between AIMS and the three participating South African universities.

8.4 Staff

Three new appointments were made in the period under review. Frances Aron, was appointed in mid-August 2007 to assist in the teaching programme by taking responsibility for English and Communication. A'eeda Mpfu joined the AIMS staff in January 2008 to replace Theresa Phokolo Popiel who resigned at the end of October 2007. Gudrun Schirge was appointed as Senior Project Coordinator in Administration at the beginning of November 2007. Fritz Hahne continued as Director of the Institute with Igsaan Kamalie and Emmanuel Kongolo in Logistics and Facilities, Lynne Teixeira in Administration and Jan Groenewald and Andy Rabagliati in Information Technology.

8.5 Tutors

Seven tutors were appointed as teaching assistants for the whole or part of the diploma course during the 2007/8 academic year. They were Laure Gouba (Post-doctoral Fellow and Head Tutor, Burkina Faso), Gideon Akinwumi Fareo (Nigeria), Herman Mambili Mamboundou (Gabon), Kelvin Muzundu (Zambia), Tahina Rakotoniana (Madagascar), Yves Semegni (Cameroon), and Matteo Smerlak (France).



8.6 Facilities

The recent expansion of AIMS has required additional and upgraded facilities. After a lengthy search for suitable properties in the vicinity of the main AIMS building, the Trust decided to purchase the two Italian villas on the opposite side of the road. With the help of generous funding from The Avery Foundation, Anglo American and Arcadia, the two properties were acquired, renovated and upgraded. The refurbished houses will be used to house at least 30 researchers (who will form part of the AIMS Research Centre of Excellence), AIMSSEC and AMI-Net staff, and the AIMS administration department.

Improvements to the main AIMS building in Melrose Road this year included upgrading and maintenance of the communal bathrooms and the kitchen, as well as the conversion of some of the larger student rooms into two single rooms.

The large ground floor flat in the Watson Street property has been partitioned to be able to accommodate more lecturing and research staff. Although this will initially meet the growing demand for more accommodation, AIMS is currently looking to purchase another building to accommodate the researchers who will be working in the Research Centre.

8.7 Information Technology

AIMS has remained committed to Free and Open Source software in order to build the capacity to support African initiatives in technology. The Ubuntu Linux (www.ubuntu.org) software allows alumni to easily acquire user skills and the software itself at no additional cost. A course 'Ubuntu Linux installation for Scientists', was offered to the departing students by the ICT Manager, Jan Groenewald.



AIMS is expanding the teaching of the popular programming language Python as a base skill in modelling, and as a front end to various Free Software scientific tools. It allows for exceptionally clean and fast development and is a good tool for teaching as well. Visiting lecturers are also introduced to Python. We provide the latest stable packaged version of the scipy (www.scipy.org) library on all desktops. In addition, AIMS is researching SAGE (www.sagemath.org), a python-based front-end to various mathematical software packages, and has invited lecturers to use this programme.

Research was conducted in lecture-recording systems which may also prove useful for replacing the proprietary security camera system, which is poorly supported by the original vendor. The new Research Centre is being linked up with a fibre connection under the road, and a Linux-based IP PBX is being set up to expand the telephone system. AIMS is also negotiating with various potential donors to replace the desktops at AIMS.

AIMS bandwidth will increase in accordance with the new 2M minimum access circuit available from TENET via the new GEN3 agreement under which Neotel and IS will provide bandwidth. The international bandwidth will remain at 400kbps, but an increase to 600kbps is planned over the next year. The wireless access of the ground and first floor of AIMS, as well as the Research Centre will be expanded before the new academic year starts.

Over the last year a new application database was developed to keep applications from prospective students, tutors, researchers, workshop and conference participants, lecturers, and some vacancies. In addition, the database will be able to hold visitors', funders', and other contact details. The IT department is considering hiring a number of new junior staff to cope with the expansion of the new Research Centre.

9.1 AIMS Financial Statement

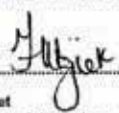


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AIMS – R028

Financial Statement for the year ended

	31/12/2007	31/12/2006
	R	R
INCOME	9,842,837.87	9,892,436.67
AMMSI	-	21,191.76
Cambridge University Press	353,851.00	275,000.00
Charities Aid Foundation / Arcadia	1,671,636.00	-
Canon Collins Educational	-	88,000.00
Department of Education	3,000,000.00	-
Department of Science and Technology	1,000,000.00	2,747,200.00
Development Bank of SA	225,234.00	-
Ford Foundation	1,181,197.50	1,290,215.00
Friends of US Foundation	895,348.84	-
Gatsby Charitable Foundation	-	1,617,856.08
IC Volunteers	278,128.62	-
Interest Received	687,407.60	398,410.96
Institute of Physics	-	271,637.50
Inst Des Htes Etudes Tech	-	124,067.00
International Union for Pure and Applied Physics	-	81,254.00
London Mathematical Society	208,586.00	-
Miscellaneous Income	159,374.11	57,280.76
SACEMA	121,550.00	-
Standard Bank of SA	30,000.00	-
Stellenbosch University	-	450,000.00
Tenet	-	64,188.58
University of Cape Town	-	900,000.00
University of Kwazulu-Natal	50,214.00	-
University of the Western Cape	-	900,000.00
Vodafone Group	-	636,135.00
EXPENDITURE	8,023,928.50	8,012,813.21
Administration Fees	34,440.00	-
Advertising	16,650.07	4,288.91
Affiliation and Registration	5,525.00	8,650.00
Audiovisual Expenditure	9,290.19	-
Books	200.00	7,846.22
Building, Building Refurbishment Costs, Equipment and Furniture	474,802.50	236,755.90
Bursaries	853,680.00	832,880.42
Catering	1,361,397.72	1,081,045.48
Cleaning and Sanitation	10,080.40	-
Computer Materials	35,386.67	-
Consultation Fees and Services	92,700.00	125,298.53
Consumables	117,734.19	50,476.00
Copying and Printing	75,462.15	35,543.75
Courses	65,767.33	100,349.68
Flowers and Gifts	1,863.75	-
Foreign Exchange Loss	1,724.00	3,375.74
Photographic Materials	1,069.90	-
General Office Expenses	41,917.75	34,696.68
Insurance	41,358.67	42,824.43
Internet Expenses	199,465.82	183,326.21
Maintenance of Equipment	53,063.57	74,307.77
Medical Expenses	198,339.67	212,618.28
Municipal Expenses	245,761.36	182,696.61
Postage	2,665.21	2,578.43
Remuneration	1,707,243.96	1,430,178.15
Rent of Equipment	250.00	3,694.68
Rent of Rooms	1,485.20	-
Security Services	7,431.96	-
Stationery	29,734.67	23,063.27
Student Stipends	451,325.00	372,073.40
Telephone and Cell Phone Costs	53,952.55	37,033.79
Travel Expenses	1,720,279.74	826,661.71
NET SURPLUS FOR THE YEAR	1,818,909.37	3,879,623.46
ACCUMULATED FUNDS AT 1 JANUARY 2007	9,784,075.93	4,904,452.47
ACCUMULATED FUNDS AT 31 DECEMBER 2007	10,602,985.30	8,784,075.93
LESS: EARMARKED FUNDS	3,454,991.00	3,352,321.00
Researchers	986,390.00	1,096,186.00
AMI-Net	1,307,404.00	1,836,135.00
AIMS Diploma and Post AIMS Bursaries	1,161,197.00	420,000.00
FUNDS AVAILABLE AT 31 DECEMBER 2007	7,147,994.30	5,431,754.93

SIGNED 

Ms F Mujjet
Head: Financial Services

9.2 Notes to the Financial Statement

These financial statements are official documents of Stellenbosch University which provides financial administration services to AIMS.


- 1 The donation from Cambridge University Press is for 6 diploma student bursaries.
- 2 Funding from Arcadia (Charity Aid Foundation) is for 15 diploma student bursaries and 15 half-bursaries for Post AIMS studies.
- 3 The funds received from the Department of Science and Technology cover:
 - 3.1 A grant for African tutors and researchers
 - 3.2 A contribution to core funding.
- 4 Funding received from the Department of Education is in lieu of state subsidies for the 2007 Financial Year.
- 5 The grant from the Ford Foundation covers the cost of 18 students studying at AIMS and 10 Post AIMS students. This is the second and final payment of the current grant.
- 6 Funds received from the Development Bank of SA were granted as a contribution for the development of AMI-Net.
- 7 Income received from IC Volunteers, Standard Bank of SA, SACEMA and the University of Kwazulu Natal are in support of specific workshops, conferences and seminars held at AIMS.
- 8 Funding received from the London Mathematical Society contributed towards payment of student travel costs.
- 9 Income received from Friends of US (Stellenbosch University) Foundation represents funds donated in the U.S.A. by the Avery Tsui foundation and transmitted to the Stellenbosch Foundation.
- 10 Expenses
 - 10.1 Bursaries and stipendia, staff remuneration, meals for students, conferences and visitors, and travel costs (students and lecturers) comprise the largest portion of the expenses.
 - 10.2 Administration Fees refer to costs for delivering administrative support to AIMS by Stellenbosch University.
 - 10.3 Building, Building Refurbishment Costs, Equipment and Furniture include costs for repair and maintenance of existing buildings and initial costs relating to the expansion, upgrade and purchase of new property.
- 11 Accumulated Funds

As per the Financial Statement for the year ended 31 December 2007, accumulated funds include earmarked funds as listed. The balance available is for the continuation of the AIMS Diploma Programme.

9.3 AIMSSEC Financial Statement

STELLENBOSCH UNIVERSITY			
AIMSSEC – R288			
Financial Statement for the year ended:			
	31/12/2007	31/12/2006	
	R	R	
INCOME	304 390.68	303 984.01	
Donations			
Ad Scais College, Oxford	13 743.10	-	
Balfour College, Oxford	1 231.28	-	
Christ Church, Oxford	2 695.48	-	
Christall College, Cambridge	1 996.17	-	
Clare College, Cambridge	6 122.56	-	
Clare Hall, Cambridge	2 662.30	-	
Emmanuel College, Oxford	8 545.75	-	
Emmanuel College, Cambridge	2 052.96	-	
Jesus College, Cambridge	3 022.62	-	
Kings College, Cambridge	2 983.06	-	
Mrs P.R. Ledger	1 329.33	-	
Maggies College, Cambridge	568.32	-	
Nuffield College, Oxford	4 012.50	-	
Oriel College, Oxford	785.72	-	
London Mathematical Association	-	6 096.88	
Mrs S.M. Pringle	963.41	-	
Robley Scais College, Cambridge	1 266.85	-	
St Hughes College, Oxford	2 066.44	-	
St John's College, Cambridge	13 829.80	-	
St John's College, Oxford	3 262.88	-	
Mrs B.E. Townsend	314 328.87	-	
Trinity College, Cambridge	20 981.86	-	
Trinity Hall, Cambridge	5 503.83	-	
IMA ¹ , University of Cambridge	13 753.43	-	
University of Cambridge Local Examinations Syndicate	-	79 521.00	
Victor Hoffmeyer Memorial Fund	128 890.00	-	
Wolfeen College, Oxford	3 377.21	-	
Western Cape Education Department	-	306 890.00	
Foreign Exchange Profit	889.64	614.56	
Interest Received	26 494.63	4 746.30	
EXPENDITURE	316 116.06	303 791.25	
Accommodation and Catering	105 532.06	112 972.41	
Contribution Fees and Services	4 390.00	3 090.00	
Foreign Exchange Loss	393.64	687.50	
General Office Expenses	290.00	4 253.70	
Postage	887.08	1 387.01	
Services	12 685.00	8 584.26	
Stationery	3 134.00	6 160.42	
Sundry Expenses	-	167.84	
Travel Expenses	188 663.62	194 168.30	
NET SURPLUS FOR THE YEAR	398 274.62	31 192.76	
ACCUMULATED FUNDS AT 1 JANUARY 2007	146 662.80	124 561.15	
FUNDS AVAILABLE AT 31 DECEMBER 2007	344 144.81	145 753.91	

* Certain figures in the 2006 Financial Year have been restated.

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Ms P Majed
Head Financial Services

10. Sponsors of AIMS

- Department of Education, South Africa
- Department of Science and Technology, South Africa
- Arcadia
- Anglo American Chairman's Fund
- Jussi Westergren
- Barclays
- The Ford Foundation
- The Avery-Tsui Foundation
- Nokia
- Cambridge University Press
- The Vodafone Group Foundation, UK
- Vodacom Foundation, South Africa
- Institute of Physics
- The London Mathematical Society
- Canon Collins Educational Trust for Southern Africa
- Isle of Man Overseas Aid Committee
- DAAD
- Africa Science Program, Institut des Hautes Etudes Scientifiques, France
- The Andrew W. Mellon Foundation
- The Gatsby Charitable Foundation, UK
- Trinity College, Cambridge
- PetroSA, South Africa
- The David and Elaine Potter Charitable Foundation
- The International Council of Scientific Unions (ICSU), with UNESCO and the US State Department
- ICIAM
- The International Union of Theoretical and Applied Mechanics (IUTAM)
- New Star
- Sheridan Lorenz
- Seardel Investment Corporation Limited, South Africa
- Cheryl Grunbock and Martin King
- National Research Foundation
- The University of Stellenbosch
- The University of Cambridge Local Examinations Syndicate
- The Daniel Iagolnitzer Foundation (Fondation De France)
- The Muizenberg Millenium Education Trust
- The Go Open Source Campaign
- SUN Microsystems
- Hyper-Interactive Teaching Technology
- The Victor Rothschild Memorial Fund
- The Ellison Medical Foundation
- Fred Turok
- Stella Innes, for the donation of her late husband's remarkable mathematical research library
- British Airways, South Africa Office
- Chicago State University
- European Mathematical Society Committee for Developing Countries
- Jonathan Leake, Sunday Times.





11. Future plans and funding

During its first five years of existence, AIMS has established itself and gained recognition as the leading postgraduate educational centre devoted to mathematical sciences on the African continent. During the past year, AIMS has embarked on an ambitious expansion of several programmes. The AIMS Research Centre, housed in newly acquired and beautifully refurbished houses opposite the main building, will be filled with academic content sufficiently focused to attract high-level international researchers and to lead young African scientists into cutting-edge fields. For each focus area, expert researchers in the field will be invited to form a steering group which will advise on appointments of researchers and post-doctorates to the Research Centre, as well as on workshops and courses which are required to develop the field. This process is already under way for the first three fields chosen, namely Biomathematics, Mathematical Finance, and Astrophysics and Cosmology.

The staff at the Research Centre is envisaged to consist of:

- A few long-term researchers who will be required to coordinate the research and to build collaborations with local and international researchers and research teams, and to assist in preparing the diploma students for entry into research.
- An expert international scientist who will spend a few months at AIMS to enrich the research culture.
- Post-doctoral, doctoral and masters students who will conduct research in the chosen areas in order to develop capacity.

An attempt will be made to jointly employ some of the longer term researchers with one of the local universities. The research programme will be phased in at a rate dependent on the availability of funds.

AIMSSEC is another programme that will soon be expanded. In the past five years, it has successfully enhanced the teaching of South African schools through the running of short courses for teachers by volunteers from abroad. The interest in this intervention has grown substantially and formal qualifications will now be offered to the teachers. Funds have also been obtained, and more will be sought, to appoint staff at AIMS with the intention of structuring the activities more effectively.

In addition, AIMS will be offering South African students the opportunity to do postgraduate courses specifically focused on niche areas in South Africa. The first of these will be a BSc Honours course in Biomathematics to be offered in collaboration with Stellenbosch University. This course will commence in January 2009. The students will study at AIMS until June at which point they will transfer to Stellenbosch to complete the second half of the Honours course.

Once again, we have reached a point where the capacity of accommodation for researchers and students is becoming a constraint on the expansion of the various programmes of AIMS. Rooms for rent at affordable rates are not easy to come by in the Muizenberg area. AIMS is therefore seeking to purchase another large house in which researchers could reside whilst working at AIMS.

Fund-raising for the bursaries of AIMS students calls for continuous attention. It is therefore with pleasure and with gratitude that AIMS can report the sponsorship of several named endowed bursaries. Details are to be given in the next annual report by which stage the bursaries will have been formally installed.



AIMS

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