



AIMS

African Institute for
Mathematical Sciences
NEXT EINSTEIN INITIATIVE

September 2015

Network News

Note from the President & CEO

The pace of Africa's development continues unabated

The recent ground-breaking announcement of the opening of the first rapid-transit system in sub-Saharan Africa, in the Ethiopian capital of Addis Ababa, signals a new era for the continent and major improvement in the quality of life for residents who currently rely on overcrowded and slow buses.

According to reports, "Ethiopia is one of Africa's fastest-growing economies, and the government has embarked on a crash program of transportation projects that will also add 5,000 km of new intercity rail lines by 2020 and triple the size of the national highway network by next year to accelerate that growth." Important in the implementation of this vision is the need for more investment in engineers and scientists, a point that I have emphasized on various platforms over the course of the year.

“AIMS is very proud to be an active participant in the development of Africa, both by providing much needed scientific and technological human resources but also by calling stakeholders in public and private sectors to action.”

The last quarter of the year always promises a buzz of activity and renewed energy at AIMS. This year has been no different. From graduations to meetings in various parts of the continent, AIMS is staying true to its vision and mission, while breaking new ground in ensuring our students, alumni, and colleagues across the network contribute to shaping the landscape of mathematical sciences and education in a way that will spearhead Africa's scientific renaissance.

I am delighted to announce that 212 students graduated from the AIMS network, including 51 women. Our graduates, I have no doubt, will go on to mould the continent for the better, in academia, research, industry and the public sector, influencing policy and creating an enabling environment for future African Einsteins over the next generations. We could not be happier to be a part of their journey and we wish them nothing but the best.

As we bid farewell to a cohort of graduates, we welcomed new students. AIMS Cameroon welcomed 48 students, including 16 women, from 11 countries; AIMS Sénégal welcomed 57 students from 12 African countries, including 12 women; AIMS Tanzania

welcomed 48 students, including 14 women, from 13 different countries; AIMS South Africa welcomed 54 students, including 21 women, from 24 African countries, and AIMS Ghana welcomed 48 students, including 18 women, from 16 African countries. The diversity of our students continues to support our pan-Africanist vision. We wish our new students success and trust that they will make the most of their time at AIMS.

In July, we signed an important partnership with the University of Chicago that will see collaboration with AIMS in training, research and public engagement activities. We are excited to work with the University and their affiliated laboratories: Argonne National Laboratory, Fermi National Accelerator Laboratory, and the Marine Biological Laboratory.

In addition to very productive International Board meetings in London in July and AIMS Canada Board meetings in August, we held the first set of steering committee meetings for the MasterCard Foundation Scholars Program at AIMS. The co-op program's steering committee meeting took place in Dakar in August and the teacher training program held its steering committee meeting in Cameroon in September. A heartfelt thanks to all who participated. We look forward to the implementation of the important outcomes of these meetings. We are also excited to bring on board Program Officers and Managers, and Student Development Officers who began their duties at all AIMS centres after the orientation meetings in Cameroon.

The Next Einstein Forum (NEF)'s momentum continues. The NEF team held a successful national steering committee meeting in Dakar, attended by key players in both the private and public sector in Sénégal. Following the meeting and various advocacy discussions, the government of Sénégal has pledged an additional 100 million FCFA to the NEF. We are encouraged by such progressive action and the commitment of the government of Sénégal, and we look forward to a great Global Gathering next year, even as fundraising efforts continue.

Finally, thanks to all colleagues across the network who took part in the IDRC mid-term evaluation. This is an important milestone in our life as a network and our relationship with the IDRC. Your support throughout the process was very much appreciated.

Thank you for your continued enthusiasm and support of our mandate to drive Africa's transformation through STEM education and research. Let us make the most of the few remaining months of 2015.

Sincerely,
Thierry Zomahoun
President & CEO



Thierry Zomahoun, President & CEO of AIMS with Eric D. Isaacs, Provost of the University of Chicago at the announcement of the new partnership. See page 3 for more on this story.

Graduations!

Over the summer, AIMS centres held their various graduation ceremonies including the inaugural graduation ceremony at AIMS Tanzania. With encouraging and inspiring guest speakers and excited graduates, the AIMS network is proud to announce that the total number of AIMS graduates across the network is 960, including 297 women, from 42 countries.

Sénégal

52 students (including 16 women) from 21 countries graduated from AIMS Sénégal on 13 June 2015.



Cameroon

AIMS Cameroon held its second graduation ceremony on 26 June 2015. 40 students (including 8 women) from 12 African countries graduated.



Ghana

AIMS Ghana held its third graduation ceremony on 20 June 2015. The 40 graduates (including 12 women) came from 16 African countries.

Tanzania

In its inaugural graduation held on 1 August 2015 in Arusha, AIMS Tanzania graduated 37 students (including 12 women).



Ghana: At the graduation ceremony eight of the graduates received the FKA Meritorious Award of Excellence for their exceptional performance during their year of study. "Mathematics underlies every modern technology and its applications are found everywhere. The success of many high achievers are underlined by the fact that they started as mathematics students; be

bold enough to move to another field because you will excel," said the guest speaker, Mr Prince Kofi Amoabeng, Chief Executive Officer and President of UT Holdings.

Tanzania: In the colourful ceremony a Master's degree in Mathematical Sciences was conferred to them by the Rector Prof. Mark Roberts. Representing the Minister for Education and Vocational Training, Mr Chacha Musabi said, "Most students fear to take science and math subjects under the stigma that they are hard subjects and that they also offer no job opportunities after. But this is a very wrong perception. Science subjects including mathematics play an imperative role towards scaling-up development in our countries." Local partner universities were also well represented at the graduation with Deputy Vice chancellors of the University of Dar Es Salaam, Zanzibar State University, and Nelson Mandela attending. The AIMS-NEI Secretariat was represented by Dr Dorothy Nyambi who said, "We are scientists in our minds, social activists in our hearts."

AIMS-NEI VISION: Leading the transformation of Africa through innovative scientific training, technical advances and breakthrough discoveries that benefit the whole of society.

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South Africa: Guest speaker at the graduation, Prof. Brian O'Connell, AIMS South Africa Trustee and former Rector and Vice-Chancellor of the University of the Western Cape said, "It is great to see the potential here. Every generation has the burden of making sense of their environment to understand the past and project the future. For the first time humanity is up against an environmental change of incredible proportions, unprecedented in human history. It will take knowledgeable people who are strong enough and brave enough to deal with hard questions and hard answers and the AIMS graduates are a wonderful example of this." ●

South Africa

At the AIMS South Africa Graduation which took place at the Muizenberg Pavilion on 23 June 2015, 43 students (including 19 women) from 18 African countries received a Master's Degrees in Mathematical Sciences.



AIMS and the University of Chicago announce new partnership

On 21 July 2015, the University of Chicago and AIMS announced a new partnership to educate and train talented African students at AIMS centres across Africa.

Thierry Zomahoun, President and CEO of AIMS and Eric D. Isaacs, Provost of the University of Chicago and Professor in the Department of Physics made the announcement at the AIMS South Africa Centre. "Global programs that connect educational institutions and produce entrepreneurial, innovative graduates will create jobs and opportunities for investment and can propel Africa into the quantum age," said Mr Zomahoun.

"The University of Chicago will join AIMS as an institutional collaborator across the whole network of AIMS centres and we are excited to work with the University and their affiliated laboratories: Argonne National Laboratory, Fermi National Accelerator Laboratory, and the Marine Biological Laboratory," said Mr Zomahoun.

At the event, Provost Eric Isaacs announced that he will form a faculty-working group to discuss the possible ways the University of Chicago can work with AIMS to help strengthen teaching curriculum and to identify other avenues of engagement. "The partnership between AIMS and the University of Chicago is designed to facilitate and develop a genuine and mutually beneficial

collaboration for education, training, research and public engagement activities," said Isaacs. "We feel it is critical to bring outstanding scholars from the University of Chicago and from across Africa together to address great teaching and research."

Following the announcement, Isaacs and Zomahoun were joined by Paul Wiegmann, the University of Chicago Robert W. Reneker Distinguished Service Professor in the department of Physics, the James Franke Institute, and the Enrico Fermi Institute; Dr Thifhelimbilu Daphney Bucher, AIMS alumnus, and Prof. Barry Green, AIMS Chief Academic & Research Officer for a panel discussion entitled "Innovating Curricula for the Transformation of a Continent through Maths and Sciences: Gaps and Opportunities for Quality Post-Graduate Education for Africa's Brightest Minds." The panellists discussed the current math and science curricula offered to mathematical sciences students at post-graduate level at most African universities and explored innovative ways to transform educational training and research to better meet the expectations of industry, academia, and the public sector. ●

AIMS International Board meets in London

On 16 July 2015, the International Board (IBOD) met in London, UK, along with AIMS Executive Team. Mr Arun Sharma and Ms Mimi Kalinda made special presentations on NEF and network-wide communications respectively. Other items of discussion included governance matters, network updates, annual financials and new fiscal year budget submission, new centre/partnership developments, and the AIMS sustainability model review. Members of the IBOD present included Chair Prof. Neil Turok, Prof. Keith Moffatt, Dr Howard Alper and Mr Mohammed Gharbi. ●



Dr Martial De-Paul Ikounga the African Union Commissioner for Human Resources, Science and Technology and Dr Dorothy Nyambi, AIMS Executive Vice-President, sign the MoU.

The African Union Commission and AIMS join efforts to strengthen STEM education and research

On 30 June 2015, AIMS and the African Union Commission (AUC) signed a Memorandum of Understanding aimed at strengthening the teaching and learning of Science, Technology, Engineering and Mathematics (STEM) on the African continent.

The signing took place at the headquarters of the African Union in Addis Ababa, Ethiopia. The AUC-AIMS MoU will serve as a critical tool for the implementation of the ten-year Science, Technology and Innovation Strategy for Africa (STISA-2024), adopted by the Assembly of Heads of State and Government of the African Union in June 2014. Among the areas of collaboration are strengthening linkages between STEM education and research with Industry; and working together on the Next Einstein Forum (NEF).

Read more about the AUC-AIMS partnership:

www.nexteinstein.org/the-auc-and-aims-sign-agreement-to-strengthen-the-teaching-and-learning-of-science-technology-engineering-and-mathematics-stem-in-africa



1: From left to right: NEF Deputy Managing Director, Katy Wone; Sénégal Minister of Higher Education and Research, Dr Mary Teuw Niane; AIMS President & CEO and NEF Chair Thierry Zomahoun; and AIMS Sénégal President Prof. Aboubaker Chedikh Beye speaking to press after the meeting of the national steering committee of the NEF Global Gathering 2016 to be held in Sénégal.

The Next Einstein Forum expands its footprint

This summer has been an exciting one for the Next Einstein Forum (NEF), starting with the first meeting of the National Steering Committee of the NEF Global Gathering 2016 (GG2016) held in Dakar, Sénégal on 8 September 2015.

The meeting brought together key local stakeholders in research and academia, the private sector and government to discuss supporting the NEF and the GG2016 more specifically. The day culminated in the signing of an MoU with the Government of Sénégal to host the NEF Global Gathering 2016. Sénégal's Minister of Higher Education and Research, Prof. Mary Teuw Niane said: "Africa needs strong advocates to advance the cause of science; to realize Sénégal's economic and cultural future, science and technology must take its place." NEF Chair Mr Thierry Zomahoun thanked the Government of Sénégal for delivering on their financial commitments to the NEF. Mrs Katy Wone Cisse, NEF Deputy Managing Director, encouraged local stakeholders to take ownership of the NEF initiative. "If we say this is an African led initiative, we must invest in it."

In another important milestone, while attending the World Economic Forum's Annual Meeting of the New Champions in Dalian, China, NEF Chair Thierry Zomahoun signed an agreement with Anthony Gazagne, Chief Executive Officer of PublicisLive, to produce the NEF GG1016 in Dakar, as well as NEF GG2018 and NEF GG2020. PublicisLive produce the World Economic Forum meetings as well as other important summits and conferences. In Dalian, Mr. Zomahoun was accompanied by NEF Fellows Dr Tolu Oni, Dr Komminist Weldemariam, Dr Jackson Marakalala and Dr Noble Banadda who were honoured among the 2015 Young Scientists Community. The NEF Fellows, in their report of the meeting, agreed on the need for more African voices at conferences that discuss Africa's and the world's future. In other news related to the NEF Fellows, the second call of the NEF Fellows process closed on 15 June with a great turnout from all over the world. The selected NEF Fellows will be announced in October 2015.

In July 2015, the NEF bilingual website was launched receiving over 7000 page views in the first month. Also in July, the NEF launched the search for Africa's 54 young country NEF Ambassadors. These are young science and technology enthusiasts who are passionate about raising Africa's science and technology



2: Group photo of the Young Scientists at the WEF Annual Meeting of the New Champions 2015 held in Dalian, China. Four NEF Fellows attended.



3: NEF Managing Director Arun Sharma chatting with participants at the Heidelberg Laureate Forum.

profile starting in their own countries. The deadline was 31 August 2015 and the NEF received over 200 applications. The competition is still open for 17 countries on a rolling basis. If you know a bright young science and tech enthusiast, encourage them to apply at nef.org/ambassadors.

In a sign of growing awareness around the NEF and its vision, NEF Managing Director Arun Sharma attended the Heidelberg Laureate Forum and introduced the

NEF to various attendees. NEF Executive Curator Dr Nkem Khumbah has been attending various stakeholder conferences to get buy in for the NEF vision. In early June, Dr Khumbah attended the Association of African Universities' Conference of Rectors, Vice Chancellors and Presidents of African Universities (COREVIP) in Kigali, Rwanda. At the conference, Dr Khumbah shared how the NEF will strengthen focus and investment in research and STEM enrolment at the tertiary level. In September, Dr Khumbah attended the launch of Africa's African Academy of Sciences (AAS) launch of the Alliance for Accelerating Excellence in Science in Africa (AESAA) and the launch of two initiatives (including Africa's grand challenges) worth over USD\$70 million. The AAS is a NEF member and the

NEF believes it is important to partner with other initiatives working to strengthen Africa's scientific community.

The NEF is also happy to announce the opening of its GG2016 office in Dakar. Joining the NEF team are Momar Dieng, Communications Officer, Youssoupha Aidara, Administrative and Finance Assistant, Moustapha Cisse, Logistics Assistant and Sylvie Amani Charée, Events Officer. ●



4: NEF Chair Thierry Zomahoun with NEF Fellows (left to right) Jackson Marakalala, Noble Banadda, Tolu Oni and Komminist Weldemariam.

Co-op Training Program launched at AIMS Sénégal

This academic year, fourteen students at AIMS Sénégal are enrolled in the pilot co-op training program within the regular Structured Master's Program.



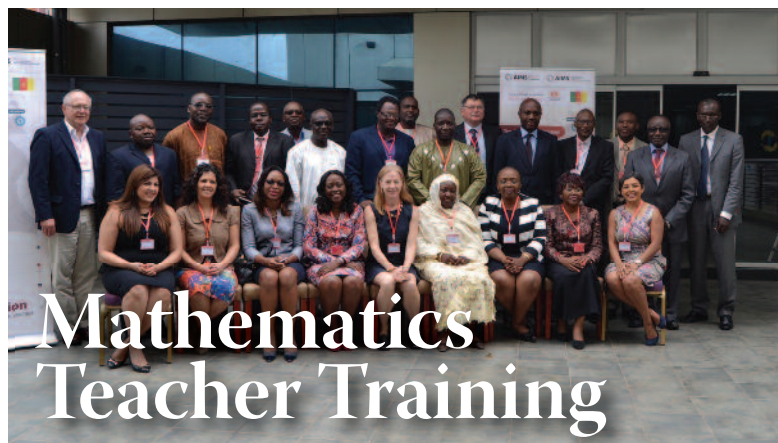
Attendees at the Co-op steering committee meeting.

The 18-month co-op program includes two periods of industry internships. These periods will follow the course work and review phases. The program, which is supported by The MasterCard Foundation, is designed to prepare students for careers in industry. This pilot targets two industry sectors for student internships: Big data and computer security. Partnerships are currently being developed to secure opportunities for students. To prepare the co-op students for their internships, review courses that give a theoretical and applied background to big data and computer security have been specially developed. Like all review courses offered, these will be open to all students at AIMS Sénégal. The first co-op cohort includes 10 Sénégalaise, three Cameroonians and one Rwandan student.

Still on the co-op program, the first co-op steering committee meeting took place in Dakar, Sénégal, on 26 August 2015. The meeting included local and international partners, members of the international co-op community, local industry in IT and AIMS Management. Chaired by Dr Dorothy Nyambi, AIMS Executive Vice President, the meeting was focused on four key discussion points: Steering Committee Membership, the structure of the program, the annual workplan of the program and communications for the program. Members identified the need to diversify membership by bringing on board the Sénégalaise Employers Union, finance and banking sectors, health sector, government agencies and regional institutions in Africa, i.e. ECOWAS.

The meeting ended with specific conclusions and recommendations:

1. Accreditation: Co-op program will be awarded the same degree as the main AIMS Master's program so there will be no need for any additional accreditation.
2. Structure: Community service will be integrated in the co-op program and the duration of the co-op program will be re-assessed.
3. Partners: AIMS will include financial institutions and health sectors organisation in the list of partners to receive the co-op students. As well, AIMS will further develop the collaboration with the University of Ottawa, University of Victoria, WACE, etc.
4. Communication: AIMS will identify the best communication channels to publicize the program. ●



Mathematics Teacher Training

The first Teacher Training steering committee took place in Yaoundé, Cameroon on 21 September 2015.



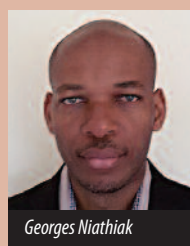
It was chaired by Prof. Barry Green. The program is supported by The MasterCard Foundation. Twenty six participants including representatives from government, the private sector, civil society and AIMS actively took part focusing on the following main objectives:

1. Review and approve the roles and responsibilities of the Steering Committee and Sub-committees.
2. Develop and refine a common understanding of the Maths Teacher Training Program (TTP).
3. Review and adopt the annual work plan.
4. The committee appointed Mr Patrick Kogolla, from CEMESTEA and ADEA (Association for the Development of Education in Africa) as Chair and Ms Christelle Affa'a Song from Cameroon Telecommunications, as Vice-Chair.

A sub-curriculum committee meeting also took place on 21 and 22 September with the main objective being to review, debate, modify and approve the training programs for the 5 groups of trainees i.e. Master Trainers, Inspectors, Principals, Pre-Service Teachers and In-service Teachers.

Dr Barrie Barnard and Ms Sinobia Kenny represented AIMSSEC at these meetings. AIMSSEC will provide valuable input into the program by "Training the master trainers", contribute towards sharing the success criteria of a high quality program and identify indicators to measure the impact of the program. ●

Mathematics Teacher Training Program welcomes new IT team members



Georges Niathiak



Ndjiki Nelie Patricia

On 1 September 2015, the Mathematics Teacher Training Program led by Prof. Daniel Tieudjo welcomed newly recruited IT team members to ENS Yaoundé I in Cameroon. The team is composed of Mr Georges Niathiak, IT Coordinator and Ms Ndjiki Nelie Patricia, IT assistant. They will provide critical technical support related to distance learning and simulation labs. ●



Network workshop

The AIMS Program Manager and Student Development Officer Training workshop which was held in Limbe, Cameroon from 24 to 29 September 2015, was attended by staff at centre, chapter and secretariat level and donor representatives.

Topics discussed at the meeting included grant compliance, gender mainstreaming in the network, preliminary recommendations of the mid-term evaluation of AIMS, the Teacher Training Program and implementation of the AIMS Industry Initiative.

AIMS Alumni



Alice Ikuzwe

AIMS South Africa 2012

"I am using my skills and knowledge in mathematical sciences to develop energy efficient lighting solutions and help increase access to energy among the poor and disadvantaged in Africa."

Using mathematical sciences to develop solar energy solutions for Africa

Since graduating from AIMS South Africa in 2012, Alice Ikuzwe, from Rwanda, went on to obtain a Research Master's in Mechanical Engineering (Mechatronic) from Stellenbosch University where her thesis in "Modelling,

Design, Construction and Installation of a Daylighting System for Classroom in Rural South Africa" served to lay the foundation for her PhD. Alice is currently pursuing a PhD in Mechanical Engineering specialising in solar energy systems and renewable energy

at the University of Pretoria, South Africa.

Alice's research interests are in solar energy and how it can be harnessed for lighting systems. As a result of her research in this field, Alice has secured a patent in solar light reflectors. Together with Prof. A.B Sebitosi at Stellenbosch University, Alice has developed an innovative light collimator designed to enhance the amount of light captured and transported through tubular skylights. This improved light tube design offers more

illumination in buildings for substantial energy savings while increasing occupants' productivity and comfort. The innovation is currently installed in one classroom at the Sustainability Institute in Lynedoch, South Africa.

The International Energy Agency estimates that 585 million people in Sub-Saharan Africa lack access to electricity, with the electrification rate as low as 14% in rural areas. This is despite an abundance of solar energy in the continent, which has huge potential as a valuable source of untapped energy. "I am using my skills and knowledge in mathematical sciences to develop energy efficient lighting solutions and help increase access to energy among the poor and disadvantaged in Africa." ●



Kwabena Owusu

AIMS Ghana 2014

"My time at AIMS prepared me very well for the world of work and study. I developed a strong aptitude for problem solving, analytical thinking for tackling complex problems, presentation, computing and research skills, and the ability to work independently."

Food security and sustainability: Applying mathematical modelling in the fisheries sector

With a Bachelor of Science in Mathematics from the University of Mines and Technology, Ghana, Kwabena Owusu joined AIMS

with a passion to use mathematics to better understand known events and predict future trends, particularly in the management of natural resources. This

motivated him to obtain a PhD in Systems Ecology following his graduation from AIMS in 2014.

Kwabena is currently pursuing a PhD under the Chair of Mathematics and its Applications at AIMS Sénégal and Leibniz Centre for Tropical Marine Ecology in Germany, funded by DAAD. His research is investigating the harvesting behaviour of humans by conducting a series of time continuous common

pool resource experiments with artisanal fishermen in Mbour, Sénégal. The study will model solutions for sustainable management of fisheries.

Not only is fish a major source of protein in the Sénégalaise diet, but the fisheries sector is responsible for 8% of Sénégal's GDP and employs over 200,000 people. Ensuring sustainable fishing practices would significantly lead to improved livelihoods for many Sénégalaise." My time at AIMS prepared me very well for the world of work and study. I developed a strong aptitude for problem solving, analytical thinking for tackling complex problems, presentation, computing and research skills, and the ability to work independently." ●

Two alumni awarded Kofi Annan Fellowship to attend ESMT

AIMS is delighted to announce that two AIMS Alumni, Rebecca Juma (AIMS Ghana 2014) and Katiso Seeiso Letsi (AIMS Sénégal 2014) have been awarded the Kofi Annan Fellowship to attend the ESMT (European School of Management and Technology) located in Berlin, Germany.

This Fellowship covers full tuition, air fares and provides a monthly stipend to cover living expenses. Rebecca and Katiso will be studying the two-year Master's in Management (MIM) program starting in September 2015. The ESMT MIM is designed to teach students how to enhance the analytical and technological skills developed during their undergraduate studies, and use them in an applied business management setting.

ESMT, is a private business school focused on the development of entrepreneurial leaders with a global focus on social responsibility and the management of technology. ESMT and AIMS continue to build their relationship and are exploring introducing joint postgraduate business programs in 2016. ●

AIMS Centre News

2015/2016 Academic year starts at all centres

AIMS Cameroon welcomed 48 students, including 16 women, from 11 countries (18 are from Cameroon). AIMS Sénégal welcomed 57 students from 12 African countries, including 12 women. Classes for the 2015/2016 cohort at AIMS Tanzania began in earnest with 48 students, including 14 women, from 13 different countries. AIMS South Africa welcomed 54 students, including 21 women, from 24 African countries. At AIMS Ghana 48 students (including 18 women) from 16 African countries started the new academic year. ●



AIMS South Africa



AIMS Ghana



AIMS Cameroon



AIMS Tanzania



AIMS Sénégal

AIMSSEC delivers MT24 course to 134 teachers

AIMSSEC held a successful Mathematical Thinking residential course from 29 June to 8 July 2015 at Stellenbosch High School for teachers from as far as Limpopo, Eastern Cape and KwaZulu-Natal provinces; all of them eager to learn.



The teachers were excited to work alongside the local and international team as well as AIMSSEC alumni. Mpumi Kolisile and Sagree Pillay returned to the course as lecturers while Zikona Ntlontli, Andiswa Mpuhlu, Mondli Mkhwana, Stephen Basvi, Cecelia Perring and Hermie Kraak returned as teaching assistants. Participating in the course provides our alumni with professional development opportunities and at the same time grows the AIMSSEC teacher training network. Teachers were shown how to deliver learner-centred practical activities in their mathematics lessons. ●

AIMSSEC attends “Women in Mathematics for Social Change & Sustainable Livelihoods” workshop

This workshop organised by the African Mathematical Union Commission on Women in Mathematics in Africa (AMUCWMA) / African Women in Mathematics Association (AWMA), was held in Naivasha, Kenya from 16 to 18 July 2015.

The main purpose of the workshop was to bring together women in mathematical sciences from African countries, to provide a platform for research and trends, and to share initiatives that address social change and create sustainable livelihoods. Sinobia Kenny, on behalf of AIMSSEC, attended the workshop to share a presentation on “Improving the quality of teaching and learning mathematics in disadvantaged schools in South Africa”. AIMSSEC would like to thank Dr Marie Francoise Ouedraogo, the Chair of AWMA for the invitation. ●

Workshops and Conferences

The **CIMPA-AIMS South Africa Research School 2015** with themes in Algebraic Representation Theory and Applications was hosted by AIMS South Africa from 19 to 31 July 2015. The school was attended by 58 participants from 18 countries. The workshop was organised by Director Claude Cibils, CIMPA, Dr Bernado Rodrigues (University of KwaZulu-Natal), Prof. Barry Green (AIMS South Africa) and Prof. Jamshid Moori (North West University). This is the fourth workshop hosted at AIMS South Africa which forms part of the MOU signed with CIMPA (Centre International de Mathématiques Pures et Appliquées).

The Mauritian Machine Learning JEDI took place from 16 to 27 July 2015. Attended by 22 undergraduate and graduate students, it was organised by Prof. Bruce Bassett, head of the Cosmology Group at AIMS South Africa and Dr Nadeem Oozeer (SKA, AIMS and NWU). The JEDI uses interactive group work on real problems to teach research skills. The workshop was funded by the Royal Society Newton Fund and the Square Kilometre Array (SKA) and saw two problems tackled using machine learning algorithms: (1) Identification of extended sources in radio images and (2) Classification of diabetes using images of the eye (diabetic retinopathy). The research workshop was very successful with one of the students describing it as the most important educational experience of their life.

The Computing the Quantified Self Workshop for senior undergraduates or honours students in Mathematical Sciences’ was held at AIMS South Africa from 6 to 10 July 2015. There were 25 participants, 13 AIMS South Africa students and 12 from other national universities. The workshop was organised by AIMS South Africa researcher Dr Simukai Utete and Prof. Jeff Sanders, AIMS South Africa Academic Director. Attendees were taught programming and related software for modelling, analysing and interpreting data. They attended lectures and viewed demonstrations from experts. They then worked on their own projects and presented these at the end of the workshop. Participants also visited the Biomedical Engineering Lab in Newlands and the MRI Lab in Observatory. ●



AIMS TANZANIA

AIMS Tanzania moves to Bagamoyo

The second cohort of students at AIMS Tanzania will be studying in the coastal town of Bagamoyo which is 70 kilometres north of the capital city of Dar Es Salaam.

The campus is now operating in a private premises known as Alpha Zulu Villa on the beach. The Alpha Zulu Villa is a temporary location pending the finalization of the transfer of the Prehistoric Old Boma to AIMS Tanzania by the government of Tanzania. ●

AIMS Tanzania to house Africa Data Initiative developers

AIMS Tanzania is currently participating in the African Data Initiative, a project to develop an easy to use open source statistics software package led by James Musyoka (Maseno) and David Stern (Reading). The package will be a front end to R, which is already widely used within AIMS and beyond. The project responds to a real need within Africa, so it is appropriate that Africa takes the lead in developing it. The role of AIMS Tanzania will be to host AIMS graduates developing the software. Funding for the initiative is being collected through a crowd-sourcing campaign please visit <https://www.chuffed.org/project/africandatainitiative> for more information.

AIMS GHANA

Computing in Applied Mathematical Sciences (CAMS) student workshop

AIMS Ghana organized its first Computing in Applied Mathematical Sciences (CAMS) workshop, from 29 June to 10 July 2015, for 20 participants, including eight women, from five African countries. This was done in partnership with the Government of Canada's International Development Research Centre (IDRC) and the American Government's Office of Naval Research (ONR), Global Division. This workshop brought together individuals interested in applying both computing and mathematical thinking to solve specific problems with relevance to Africa's development challenges. Under the guidance of five expert coaches, from the universities of Florida and Austin, participants worked on problems of their own choosing whose solutions required sophisticated computer



algorithms and/or software development principles. Topics included "How to define a programming project in research, Mathematical Modelling, Modelling in Code, Performance Theory and Practice," among others. The main organizers for the workshop were Dr Wilfred Ndifon (AIMS), Dr Carl Pearson (ONR), Augustus Vogel (Associate Director, ONR), and Prof. Francis Allotey (AIMS). ●

AIMS Chapter News



Martin Doble Global Managing Director Hatch, Naser Faruqi Director Science and Innovation IDRC, Gisele Gedeon, Manager AIMS-NEI UK Chapter and Arthur C Heidebrecht, Director of the School of Engineering McMaster University. (Photo compliments of youradonline.ca)

AIMS CANADA

AIMS Canada attends 14th Annual Mining Indaba in Toronto

On 10 September 2015, Gisele Gedeon, Manager of the AIMS-NEI Canada Chapter attended the 14th Mining Indaba that took place in Toronto. The event hosted by the South African Chamber of Commerce fulfils its mandate of promoting trade and investment between Canada and Southern Africa and offering its members and guests networking opportunities.

"The event was a great opportunity to network with Canadian companies investing in Africa and to promote AIMS as a partner through which these companies can take an active part in the transformation of Africa," she said. ●

AIMS Canada Board holds bi-annual meeting

On 10 August 2015, AIMS Canada held its board meeting in Waterloo, Ontario. Along with the AIMS Executive Team, Board Directors present included Chair Prof. Neil Turok, Mr Michael Duschene, and Mr Cosimo Fiorenza. The main topics of discussion were the annual financial report and the new fiscal budget presentation, governance matters, and network updates. ●

AIMS UK

AIMS UK attends Cambridge African Society's "Africa Together" event

AIMS UK Director Irene Tamajong was honored to represent AIMS at the Cambridge African Society's "Africa Together" event, held on 5 June 2015.

AIMS UK was on the education systems panel, joined by other organizations striving to enhance the higher education systems in Africa. AIMS mission and vision was communicated to a diverse audience including professionals, media representatives, academics and students at the renowned and historic Cambridge Union Society. ●



AIMS UK Director Irene Tamajong (second from left) representing AIMS at the "Africa Together" event.



AIMS alumni, current students, and staff, who volunteered at the event, together with Ms Elna Taljaard, a representative from the DST (pictured centre left).

Over 1500 scholars attend National Science Week activities at AIMS South Africa

AIMS South Africa hosted one of the National Science Week Western Cape events from 3 to 8 August 2015 at its centre in Muizenberg and at the Muizenberg Pavilion.

The event reached learners, educators and the public within the township and urban areas of the Overberg and City of Cape Town municipalities. All learners were sponsored to attend the event, with the costs of bus trips and lunch covered by the organisers.

National Science Week, is an initiative of the Department of Science and Technology (DST), and is a country-wide celebration of science involving various stakeholders and/or role players conducting science-based activities during the week. "AIMS is proud to be part of this initiative by the Department of Science and Technology as we support the government's drive to help increase the pipeline of students progressing into secondary and tertiary mathematics education. Events like these help educate scholars in a fun and exciting way about the opportunities available to them if they continue with maths and science," said Prof. Barry Green, Director of AIMS South Africa.

National Science Week is run in all nine provinces simultaneously at multiple sites per province. The aim of the week is to showcase local innovations in science and technology, make these areas of study appealing to learners, so that they consider Science, Engineering and Technology as a preferable career option, and, to make science popular to the broader South African society. The year's theme was the



Scholars listen to a talk by Georgina Rakotonirainy, an AIMS alumnus and currently a Research Master's student in the AIMS South Africa Research Centre.

“Events like these help educate scholars in a fun and exciting way about the opportunities available to them if they continue with maths and science.”

International Year of Light and Light-Based Technologies.

The program for scholars from 3 to 7 August 2015 consisted of scientific experimentation and expos, an applied mathematics lecture series, mathematics and science shows, career guidance and role modelling. Current AIMS students and alumni facilitated most of the activities. A workshop for educators, facilitated by AIMSSEC, was held on Saturday 8 August 2015. It focussed on GeoGebra, teaching vocabulary in mathematics classrooms, planning for learning, geometry, trigonometry, number, data handling and probability.

Two public lectures were held during the week:

- Prof. Romeel Davé SARChI Chair in Cosmology with Multi-wavelength Data spoke on "Computing the Universe." This session can be viewed at <https://youtu.be/liaWws0UdN4>
- Dr Rembu Magoba, Head of Research and Development Section, Scientific Service, City of Cape Town spoke on "The Role of Science in Water & Sanitation within the Municipal Environment." This session can be viewed at <https://youtu.be/QZAPZHxG8> ●

AIMS model discussed at the MasterCard Foundation President's Meeting

AIMS President and CEO Thierry Zomahoun attended the MasterCard Foundation President's Meeting in New York on 21 September 2015 to discuss transitioning MasterCard Foundation Scholars to employment, entrepreneurship or higher education.

Mr Zomahoun spoke on the panel on transforming secondary education. He emphasized the AIMS teacher training initiative launched this year in Cameroon as a concrete initiative to develop a pipeline of mathematics and science students, particularly from low income communities. The teacher training initiative will focus on learning outcomes and pedagogy and particularly how to make science fun and relevant to daily life. The ultimate goal being to retain the interest of students in mathematics and science. ●

Mathematical sciences investments could change Africa

Munyaradzi Makoni/universityworldnews.com/ 12 June 2015

EXCERPT: Africa largely missed the analogue technology revolution 50 years ago. Experts say the digital age will come to an end faster. There is a need to position Africa to catch up with information and communication technology and be viewed as a global player, said Thierry Zomahoun, president and CEO of the African Institute for Mathematical Sciences, or AIMS.

www.universityworldnews.com/article.php?story=20150611182618236

Un centre d'excellence pour l'émergence de Scientifiques Africains Institut Africain de Sciences Mathématiques de Mbour

Samba Oumar Fall et Amath Sigui Ndiaye/ senepplus.com/23 June 2015

EXCERPT: Le Sénégal abrite le premier centre AIMS (African institute for Mathematical Sciences) en Afrique francophone et le deuxième du réseau panafricain de centres d'excellence innovants. Logé à Mbour, sur le site de l'Institut de recherche pour le développement (IRD), ce centre qui a réussi à se faire une place dans le paysage académique du Sénégal accueille les plus brillants diplômés africains en mathématiques et en sciences aspirant à devenir de grands savants au service du développement du continent.

www.senepplus.com/article/un-centre-d%E2%80%99excellence-pour-l%E2%80%99C3%A9mergence-de-scientifiques-africains-0

AIMS Ghana graduates mathematical science students

Emmanuel Onyango/ghanaweb.com/ 29 June 2015

EXCERPT: The African Institute for Mathematical Sciences Ghana has held its 3rd graduation ceremony to award 40 students with master's degrees in Mathematical Science in Cape Coast.

www.ghanaweb.com/GhanaHomePage/regional/Aims-Ghana-graduates-mathematical-science-students-365179

AU, AIMS partner to strengthen Science, Technology, Engineering and Mathematics (STEM) in Africa

pctechmag.com/ 30 June 2015

EXCERPT: The African Union Commission (AUC) and the African Institute for Mathematical Sciences (AIMS) have signed a Memorandum of Understanding aimed at strengthening the teaching and learning of Science, Technology, Engineering and Mathematics (STEM) on the African continent.

pctechmag.com/2015/06/au-aims-partner-to-strengthen-science-technology-engineering-and-mathematics-stem-in-africa

Sciences et technologies : Construire l'avenir de l'Intérieur

afriquejet.com/1 July 2015

EXCERPT: Adapter l'enseignement supérieur aux enjeux du XXI^{ème} siècle. Former les futurs professionnels pour leur permettre d'apporter, in situ, des solutions opérationnelles, adaptées et spécifiques à leur pays. Toutes les nations s'y emploient. En Afrique, de tels objectifs représentent même l'une des principales clés de développement pour le continent.

www.afriquejet.com/societe/543-sciences-et-technologies-construire-l-avenir-de-l-interieur.html

UChicago and African Institute for Mathematical Sciences announce new partnership to educate and train talented African students

news.uchicago.edu/ 21 July 2015

EXCERPT: The University of Chicago and the African Institute for Mathematical Sciences announced a new partnership to educate and train talented African students at AIMS centers across Africa.

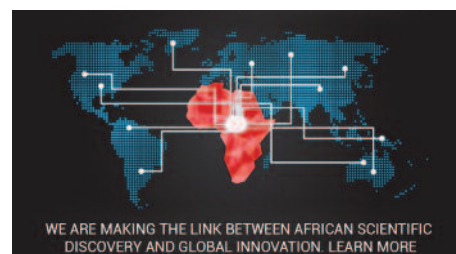
news.uchicago.edu/article/2015/07/21/uchicago-and-african-institute-mathematical-sciences-announce-new-partnership-edu

Next Einstein Forum on the search for 54 of Africa's top young science and technology ambassadors

memeburn.com/ 21 July 2015

EXCERPT: If you're a young African with a passion for community engagement and a strong track record in the science and technology spaces, then this might pique your interest. The Next Einstein Forum (NEF) has launched the search for fifty-four of Africa's top young science and technology ambassadors, one from each African country.

memeburn.com/2015/07/competition-on-the-search-for-54-of-africas-top-young-science-and-technology-ambassadors/



L'Institut Africain des Sciences Mathématiques de nouveau en quête du « Einstein africain »

agenceecofin.com/23 July 2015

EXCERPT: La Next Einstein Forum (NEF), initiative pilotée par l'Institut Africain des Sciences Mathématiques (AIMS) et Robert Bosch Stiftung, s'est mise en quête des 54 jeunes ambassadeurs TIC africains qui représenteront chacun leur pays lors de la Rencontre internationale du NEF prévue en mars 2016, à Dakar au Sénégal. Le rassemblement, organisé tous les deux ans, mettra cette fois l'accent sur la façon dont la science et la technologie peuvent résoudre les défis mondiaux et accélérer le développement humain.

www.agenceecofin.com/technologie/2307-30950-l-l-institut-africain-des-sciences-mathematiques-de-nouveau-en-quete-du-einstein-africain

Solving the funding conundrum: A state-university partnership may be the fix that's needed

Johann Barnard/mgafrica.com/ 30 July 2015

EXCERPT: In answering the question of how to establish a balance between the developmental agenda and educational objectives, Barry Green of the African Institute for Mathematical Sciences (AIMS), suggested a more robust engagement was needed with political leaders.

mgafrica.com/article/2015-07-30-state-university-partnership-is-needed-to-resolve-funding-conundrum

African nations urged to invest much more in mathematical study

Coastweek.com/3 August 2015

EXCERPT: "The current situation is appalling as large number of students in our schools across the region is running away from studying mathematics," said Musabi Chacha, Tanzania's Assistant Director in the Ministry of Education and Vocational Training. "It's high time for our government to allocate enough resources in this area," he said when addressing graduates of the African Institute for Mathematical Sciences (AIMS) and mathematics' gurus from Africa.

www.coastweek.com/3831-African-nations-urged-to-invest-heavily-in-mathematical-studies.htm

More efforts required in science, mathematics subjects – ministry

The Guardian/4 August 2015

EXCERPT: "Students and teachers in both primary and secondary schools are encouraged to place more effort in science and mathematics as the basis of socio-economic development of the country." Assistant Director in the Ministry of Education and Vocational Training, Dr Chacha Musabi made the call here over the weekend when addressing the African Institute for Mathematical Sciences (AIMS) graduation held at the Arusha International Conference Centre (AICC).

www.ippmedia.com/frontend/index.php?l=82981

Sciences et technologies : L'Afrique évalue ses progrès

lesoleil.sn/ 9 September 2015

EXCERPT: Le Sénégal abritera, du 8 au 10 mars 2016, le Next Einstein forum (Nef). Cette réunion, organisée par la Fondation Robert Bosch et le gouvernement du Sénégal, verra la participation de jeunes scientifiques. Le continent évaluera les avancées réalisées en matière de sciences et de technologies.

www.lesoleil.sn/index.php?option=com_content&view=article&id=42478:sciences-et-technologies--lafrrique-evalue-ses-progres&catid=140:actualites

Plus de 500 scientifiques et décideurs attendus

sudonline.sn/9 September 2015

EXCERPT: Dakar abritera, à partir du 08 et ce jusqu'au 10 mars 2016, le Forum mondial pour la science en Afrique. Un événement majeur qui va regrouper d'éminents chercheurs dans divers domaines de la science mais aussi des jeunes capables de transformer le continent. Hier, mardi 8 septembre, le ministre de l'Enseignement supérieur et de la Recherche du Sénégal, Mary Tew Niane et Thierry Zomahoun, président directeur général de l'Institut africain pour les sciences mathématiques, ont fait face à la presse.

www.sudonline.sn/plus-de-500-scientifiques-et-decideurs-attendus_a_26292.html

Innovation : L'Afrique veut produire des Einstein

Yaye Awa Ly Ngoné SARR et Babacar Guèye DIOP/ lequotidien.sn/9 September 2015

EXCERPT: Quasiment absente de la scène scientifique mondiale, l'Afrique veut renverser la tendance. Ainsi, les Etats espèrent l'émergence dans ce domaine de nouveaux jeunes lors de la première édition du Next Einstein forum (NEF) qui se déroulera à Dakar du 8 au 10 mars 2016.

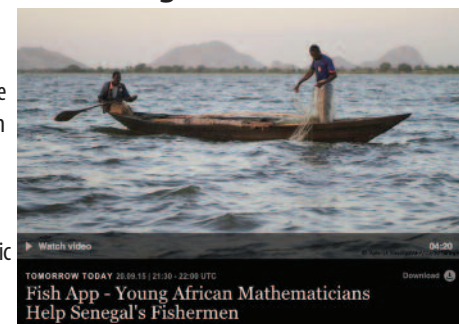
www.lequotidien.sn/index.php/component/k2/innovation-l-afrique-veut-produire-des-einstein

Fish App – Young African Mathematicians Help Sénégal's Fishermen

Tomorrow Today The Science Magazine/ 20 September 2015

EXCERPT: In the future, Sénégalese fishermen might be able to use an app to calculate how much they can catch today without devastating the fish stocks of tomorrow. That's vital as stocks are shrinking along the country's Atlantic coast, while the population just keeps growing. The app is being tested and developed by researchers at the African Institute for Mathematical Sciences (AIMS) in Sénégal.

www.dw.com/en/tomorrow-today-the-science-magazine-2015-09-20/e-18674394-9798



Développement des sciences : L'Afrique en quête du futur Einstein

leconomistebenin.info/ 25 September 2015

EXCERPT: Dakar sera, du 8 au 10 mars 2016, la capitale africaine et mondiale de la science avec la tenue du « Next Einstein Forum » (Nef) en présence de plusieurs chefs d'Etat et d'une quinzaine de Prix Nobel. Les organisateurs l'assurent, ce ne sera pas un événement de plus, sans lendemain... Comment trouver une vraie place dans le gotha scientifique lorsque l'on est dépositaire que de 1% des contributions scientifiques mondiales et que, dans le même temps, la part des investissements en recherche et développement dans le produit intérieur brut (Pib) des pays africains relève de l'anecdote ?

leconomistebenin.info/index.php/eco-inter/item/947-developpe



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