AGENDA FOR THE AFRICA REGIONAL NETWORKING EVENT DURING ICM2014
COEX, SEOUL, KOREA, 14TH AUGUST 2014, 5.00 – 6.30 PM

MODERATOR:

- Nkem Khumbah (University of Michigan, USA)

RAPPORTEURS:

- Josephine Kagunda (University of Nairobi, Kenya)
- Nobert Hounkonnou (ICMPA-UNESCO Chair, Benin)

1. INTRODUCTION (15 Minutes)

Brief welcoming remarks::

- Wandera Ogana (African Member - CDC and AMU Vice-President, East Africa))
- Aderemi Kuku (President, African Academy of Sciences)
- C. Herbert Clemens (CDC Secretary for Policy)
- Chair, Regional Evaluation Committee for NANUM
- IMU Representative: László Lovász, Past IMU President and ex officio IMU EC

2. NANUM (10 minutes)

Brief remarks on NANUM

- Dongsu Kim (Chair IEC)

3. AFRICAN MATHEMATICAL UNION (AMU) (10 Minutes)

- Adewale R. T. Solarin (President, African Mathematical Union)

4. NETWORKS, COLLABORATIONS AND PROJECTS (5 Minutes)

Brief remarks:

- Joseph Y. T. Mugisha (Makerere University, Uganda)

Brief descriptions of networks and collaborations are in Appendix A
Project descriptions can be found in: www.mathunion.org/cdc/research-and-useful-links/

5. GET-TOGETHER (50 minutes)

- Introduction of participating organizations
- An opportunity to meet one another
- Closing Remarks

Appendix A: Networks and Collaborations

1. AFRICAN MATHEMATICS MILLENNIUM SCIENCE INITIATIVE (AMMSI)

Prepared by: Wandera Ogana, (AMMSI Programme Director)

The ***African Mathematics Millennium Science Initiative (AMMSI)*** is a distributed network of mathematics research, training and promotion in Africa. Overall coordination of AMMSI is by the Programme Director, in the Programme Office, currently located in Nairobi, Kenya. Initially the network operated only in Sub-Saharan Africa but, in August 2013, it was extended to North Africa. Hence there are now six AMMSI regions, namely:

Central Africa	-	Regional Office in Brazzaville, Congo
Eastern Africa	-	Regional Office in Dar es Salaam, Tanzania
North Africa	-	Regional Office in Rabat, Morocco
Southern Africa	-	Regional Office in Gaborone, Botswana
Western Africa Zone 1	-	Regional Office in Ibadan, Nigeria
Western Africa Zone 2	-	Regional Office in Ouagadougou, Burkina Faso

Each region is made up of a number of countries and the Regional Office promotes AMMSI activities in the constituent countries, under the direction of a Regional Coordinator.

The main objectives of AMMSI include strengthening mathematics teaching, research and applications, and raising general awareness in the importance of mathematics for modern science and modern nations. Since its inception in 2005, AMMSI has made a number of accomplishments in fulfilment of its mandate, namely: awarded 23 Research/Visiting Fellowships to enable mathematicians visit other universities in Africa; awarded 288 partial postgraduate scholarships; supported the organization of regional conferences and workshops in mathematics; and facilitated 158 postgraduate students to attend mathematics conferences. In collaboration with other organizations, AMMSI is also involved in implementing a project called ***Mentoring African Research in Mathematics (MARM)*** whose main objective is to promote a mentoring relationship between mathematicians in countries with a strong mathematical infrastructure and their African colleagues, together with their students. To date nine universities in Africa are participating in the MARM project. For more details of the activities of AMMSI, please visit http://www.ammsi.org.

2. CIMPA INITIATIVES IN AFRICA

Prepared by: Marie Francoise Roy (CIMPA

Main CIMPA activities

•Organization of CIMPA Research Schools (RS)

•Support to the African Mathematical Schools (AMS) of the African Mathematical Union (AMU).
•Support for training in research and development of mathematical research (support for master courses and tutorials).

CIMPA financial support to RS and AMS goes mainly to help young people to attend.

Call for projects

•The call for projects for Research Schools in 2016 is open until the **end of september 2014.**
•The call for projects for African Mathematical Schools in 2015 is open until the **end of september 2014**
•The request for support for training in research by a teaching project in 2015 have to be proposesd before **10 décember 2014.**
The details of these call for projects appear on **www.cimpa-icpam.org/**

Activités since july 2013 in subsaharan Africa

•RS *Evolutionary equations with applications in natural sciences*, AIMS, South frica 22 july-2 august 2013
•RS *Numerical methods in fluid mechanics, mathematical epidemiology and reaction-diffusion systems,* in common with ICTP, Saint-Louis, Senegal, 2-13 september 2013
•RS *Analysis and Probability*, Abidjan, Ivory Coast, 17-28 march 2014
•*RS Algorithmic Methods and Applications to Real Algebraic Geometry and Number theory,* AIMS, M'bour, Senegal, 16-29 june 2014
•RS *Algebraic number theory and applications,* in common with ICTP, IMSP, Dangbo, Bénin, 7-19 july 2014
•RS Algebraic Representation Theory 2015, Muizenberg, South Africa, 19-31 july 2015
•RS *Mathematical Modeling and analysis of complex systems* Mombasa, Kenya,20-31 july 2015
•RS Probabilistic models in epidemiology, Ziguinchor, Senegal, 5-16 décember 2015

•*2nd Workshop Wiomen in Mathematiques*, AIMS, South Africa 17-19 july 2013.
•*3nd Worsshop Wiomen in Mathematiques*, Monbasa, Kenya, 17-19 july 2015.

•AMS *Applied algebraic geometry*, Bandari College, Mombasa Kenya, 6-28 july 2013
•AMS Representation Theory Arusha, Tanzania, july 7-26, 2014
•AMS *Mathematical tool for finance, Douala, Cameroun,* November 17-24, 2014

Several reseaarch schools (6 in 2014-2015) are also organized in northern Africa. The participation of young mathematicians from subsaharan Africa to CIMPA RS in Maghreb receives a special support.

Partnerships

• CIMPA develops a strong partnership with the African Mathematical Union.
•CIMPA is a member of a group of universities and research institutions supporting mathematical research activites in Africa (SARIMA).

•Several CIMPA members participate to the European Mathematical Society Committee for Developing Countries.
•The winner of the prize « Ibni Oumar Mahamat Saleh » is decided every year by a scientific committee sorganized by CIMPA.

3. COPROMAPH INTERNATIONAL CONFERENCES AND SCHOOLS

Prepared by: Nobert Hounkonnou (ICMPA-UNESCO Chair, Benin)

The International Workshops and Schools on Contemporary Problems in Mathematical Physics, have now become a scientific tradition in Africa. The workshops has taken place on a regular basis every second year since 1999. The school has been held every year since 2005. Both events are held in the Republic of Benin usually in October. These **COPROMAPH International Conferences and Schools**, the acronyms by which they have now become known, are organised under the auspices of the International Chair in Mathematical Physics and Applications (ICMPA) located in Cotonou, which is part of the University of Abomey-Calavi and its Faculty of Sciences and Technologies. The ICMPA presently enjoys the status of a UNESCO International Scientific Chair. The Proceedings of each of the COPROMAPH meetings, produced under stringent standards for the quality of presentation using a strong refereeing process, are available as a series of volumes published by World Scientific Publishing, Singapore, (except for the last edition, which is posted online). Scientific meetings such as the COPROMAPH International Conferences and Schools provide a unique opportunity for researchers in mathematics and mathematical physics of the African continent to meet and initiate stimulating collaborations, within Africa as well as with scientists from other parts of the world attending these events. In particular, the greatest benefits go to the younger generations of African mathematicians, whose responsibility it is to build the basis for scientific and technological traditions and expertise in Africa extending into the new millennium. These researchers will be capable of addressing the challenges specific to the African environment, with the appropriate state-of-the-art scientific methods and technological tools.

4. EAUMP/ISP,SIDA,CIMO and HEI-ICI Collaborations in the Eastern African Region.

Prepared by: : John Mango Magero (Makerere University, Uganda)

The region has many initiatives/collaborations at local, regional and international levels supporting mathematics at all levels of education. EAUMP/ISP, SIDA and CIMO have largely supported and collaborated in the area of research and capacity building through Msc, Ph.D and of resent PostDoc training. The HEI-ICI Collaboration is geared towards linking academia with the industry. EAUMP/ISP support/collaboration to Mathematics in the region dates back to year 2002. The network currently operates in five regional countries i.e Kenya, Uganda, Tanzania, Rwanda and Zambia. SIDA support to Mathematics has concentrated mostly where the Swedish Government has bilateral programs with the respective countries/Universities in the region. Most prominent in the region, we have SIDA support to Mathematics in Rwanda, Uganda, Tanzania and Ethiopia. SIDA

collaborations in some of these countries date back to as early as year 2000. The CIMO and HEI-ICI are resent developments in the region. CIMO collaboration started in the late years of 2000, HEI-ICI was launched in June/July 2013 in Arusha Tanzania. The HEI-ICI and CIMO are operating in Tanzania, Uganda, Rwanda, Kenya and Ethiopia.
Key:
SIDA: Swedish International Agency for Development Cooperation.
EAUMP: Eastern Africa Universities Mathematics Program
CIMO: Centre for International Mobility
HEI-ICI: Higher Education Institutions Institutional Cooperation Instrument Program

5. GIRAGA: SEMINARS OF THE PAN-AFRICAN RESEARCH GROUP ON ANALYSIS, GEOMETRY AND APPLICATIONS

Prepared by: Nobert Hounkonnou (ICMPA-UNESCO Chair, Benin)

The series of seminars of the African Research Group in Analysis, Geometry and Applications, known as *Séminaires GIRAGA : Groupe Interafricain de Recherche en Analyse, Géométrie et Applications*, was initiated by the analysts and geometers from the University of Yaounde (Cameroon) and the National University of Benin (Benin) following the recommendations of a CIMPA colloquium organized in Yaounde in 1983. The main objectives were to strengthen the mathematics background of young researchers, to develop scientific and research activities in the fields considered, and to overcome the isolation of mathematicians living and working in Africa. The first seminar held in Yaounde in 1986 focused on a series of intense postgraduate lectures, with short communications given by the participants. The second GIRAGA, organized in Cotonou in 1988, was
devoted to launching the Institut de Mathématiques et de Sciences Physiques de Porto-Novo (Benin), created under the auspices of the International Centre for Theoretical Physics (ICTP), Trieste, Italy. The subsequent seminars continue to be organized every two years alternately in Cotonou and Yaounde. The seminars GIRAGA are open to all African countries, but most participants come from French speaking countries, which explains why the lectures are given in French, although communications can also be presented in English. The greatest number of participants, estimated at 70, was attained in 2006. The lectures at the seminars GIRAGA are delivered by invited renown scientists. The main sponsors are the Ministère français de la coopération, CIMPA and ICTP.

6. INITIATIVES FOR AFRICAN WOMEN IN MATHEMATICS

Prepared by: Marie Francoise Ouedraogo (Chair, AMU Commission for Women in Mathematics)

A series of workshops held in different regions of Africa were initiated by the Commission for Women in Mathematics of AMU (African Mathematical Union) in collaboration with CIMPA. A first consequence was the constitution of AWMA (African Women in Mathematics Association) with aim to promote mathematics among African women and African women mathematicians. For details, please see:

http://www.europeanwomeninmaths.org/sites/default/files/documents/news/african_women_in_mathematics_association_constitution.pdf

•*1st Worksho: Women in Mathematiques*, Ouagadougou, Burkina Faso 26-127 October 2012, where plans for creating AWMA were made. http://www.europeanwomeninmaths.org/sites/default/files/documents/news/reortworkshopwomeninmathouaga.pdf

•2nd *Workshop: Women in Mathematiques*, AIMS, South Africa 17-19 july 2013. At this workshop, the association AWMA (African Women in Mathematics Association) was created. http://www.europeanwomeninmaths.org/sites/default/files/documents/news/report_on_the_2nd_african_women_mathematics_workshop.pdf

•*3nd Workshop: Women in Mathematiques*, Mombasa, Kenya, 17-19 July 2015. This workshop will be also the first congress of AWMA.

7. MENTORING AFRICAN RESEARCH IN MATHEMATICS (MARM)

Prepared by: Frank Neumann (University of Leicester, UK)

Mentoring African Research in Mathematics **(MARM)** is a programme which is designed to promote mentoring relationships between mathematicians in other continents and postgraduate students in African universities. It also creates joint research partnerships involving the visiting mathematicians and researchers in the host universities in Africa. MARM is jointly run by AMMSI, the London Mathematical Society (LMS) (www.lms.ac.uk) and the International Mathematical Union (IMU) (www.mathunion.org). The aim of MARM is to enable all mathematicians in Africa to pursue academic careers of the highest standard. MARM links African academics with their UK and European counterparts via professional mentoring partnerships. In doing so, MARM provides the means and opportunities for African mathematicians to develop international working relationships while also improving the quality of academic provision within their home institutions. It is believed that enhancing and developing academic research and research institutions in Africa will help ensure that pursuing world-class mathematical careers within Africa (rather than moving permanently to the developed world) will be both achievable and an attractive option. Over time, the strengthening of the mathematical community across Africa will benefit not only the African community itself, but worldwide mathematics as a whole.

A total of 17 MARM partnerships have been awarded to date in: Cameroon, Ethiopia, Ghana, Ivory Coast, Kenya, Morocco, Nigeria, Republic of the Congo, Rwanda, South Africa, Tanzania and Uganda. Each partnership has collaboratively defined its own objectives and priorities specific to the needs of the African institution and its own targeted methods of accomplishing these.

Activities undertaken have included:

- Exchange visits
- Lectures, seminars and workshop series at African institutions

- Joint PhD supervision
- Improvements in library and IT resources at African institutions
- Support for conference attendance (in Africa and internationally)
- Consultancy and advice on developing postgraduate programmes
- Mentoring and support for African postgraduate students with respect to wider academic and life skills
- Mentoring African early careers staff in research and other skills
- Working with African university administrators to improve recruitment
- Improving African departmental structuring
- Working with African institutions to ensure the maintenance of resources for mathematics departments
- Developing of research contacts and networking

For more information please visit www.lms.ac.uk/grants/marm-projects

8. NETWORK PDE MODELING AND CONTROL

Prepared by**:** Hamidou Toure (Université de Ouagadougou, Burkina Faso)

The Network, "PDE, Modeling and Control» was constituted in May 1999. It gathers researchers in mathematics from Senegal, Mauritania and Burkina Faso. These researchers belong to Computer Science and Numerical Analysis Laboratory (LANI) of Saint-Louis in Senegal, the Laboratory of Mathematics and Computer Sciences (LAMI) Ouagadougou in Burkina and the Group of Research on Differential Equations (GRED) of Nouakchott in Mauritania. Pr AdouKablan Jerome Research Group on fluid mechanics of University of Cocody-Abidjan in Ivory Cost and PrOuateni DIALLO Laboratory of Applied Mathematics (LAMA) of Bamako University of Sciences joined the network.

The network was made up in order to promote a sub-regional critical mass of active mathematics researchers, in the field of the PDE, Modeling and Control, and maintains a very good joint links with the international scientific community. It contributes to intensify the doctoral program in applied mathematics, which still exists now, in universities of Saint-Louis, Ouagadougou, Cocody-Abidjan and Bamako. It maintains a very good management of young researchers in that area. Our aim is also to maintain in that Sub-Saharan region, very active scientists, to overcome their isolation and to fight again brain-drain, instead off to develop, a regional tradition of research in mathematics in the universities part of this program.

We may organize for that, PhD sandwich program south-south and south-north, schools and annual meetings (workshops). Each year we may organize workshops, regional meetings, conferences and doctoral school of researchers within the region.

We intend to train more students in PhD program in Saint Louis (Senegal), in Ouagadougou (Burkina Faso), in Cocody- Abidjan (Côte d'Ivoire), in Nouakchott (Mauretania) and Bamako (Mali). For that purpose, we need to support postgraduate students, and involve them in research training program in activities of the network,

throughout the region. Our aim is to arrange short visits of scientist's part of the network or outside it, in the laboratories members of the network and abroad. The visiting scientists will have to give doctoral course, seminar and to contribute in training of researchers.
For more information please contact :

9. SOUTHERN AFRICA MATHEMATICAL SCIENCES ASSOCIATION (SAMSA) PARTNERS

Prepared by**:** Levis Eneya (SAMSA President & University of Malawi, Chancellor College)

The Southern Africa Mathematical Sciences Association (SAMSA) was established in 1981 to further the mathematical sciences in the Southern African region and beyond. The Association holds a one week annual conference in November/December that is hosted by universities in the region on a rotational basis. Internationally well known scholars are invited to give keynote lectures with a large number of international and local research mathematicians presenting their research work.

SAMSA has collaborative research partnerships with European and American institutions including Centre of Mathematics for Applications (CMA), and Innovation in Stochastic Analysis and Applications with Emphasis on Stochastic Control and Information (INNOSTOCH) in Norway; University of Sussex, UK; and Auburn University in USA, with whom the Association is implementing MASAMU (masamu means mathematics in Southern Africa) Program. Funded by National Science Foundation (NSF) and Auburn University, the primary goal of the Program is to enhance research in mathematical sciences in the SAMSA institutions through Advanced Study Institute and Workshop Series in mathematical sciences, among other activities. SAMSA has also received support from CIMPA, London Mathematical Society (LMS) through AMMSI, and Africa Society for Biomathematics, among other organisations. For more information, one may visit http://samsa-math.org/ and https://masamu.auburn.edu/ .