

Various programs for mathematical research in (sub)saharian Africa

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« Supporting mathematics research in Africa »

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Supporting mathematics research in Africa

Bring together mathematicians
interested in helping to build
a critical mass of research capacity
in the mathematical sciences in Africa

Mathematicians from within and from outside Africa

- 1 Some initiatives
- 2 What to do

Committee for Women in Mathematics

<http://www.mathunion.org/cwm/>

Created by IMU in 2015

Main initiatives

Support regional networks of women in mathematics

Financial support in developing countries

Africa : African Women in Mathematics Association

Website, booklet of role models

Meetings in Kenya, Tunisia, Senegal,

Morocco (WPACOM), Nigeria, Ethiopia

Organise the World Meeting for Women in Mathematics,

One day, Satellite to ICM

See Film Journeys of Women in Mathematics

<https://youtu.be/uNJ7riiPHOY>

One portrait from Cameroon

CIMPA

**Centre International
de Mathématiques Pures et Appliquées**

Has existed for over 35 years

Since 30 years

all activities take place in developing countries

France+Spain+Norway+Switzerland+... funded

CIMPA

Organizes about 20 research schools every year
in developing countries

Two weeks, for Ph D and colleagues, 40 students at least
5 mini courses+ some lectures

One african director

+one from one of the 4 funding countries

Professors international or local

Global competition

Few in subsaharian Africa (1 to 4 per year)

Initially « francophone Africa »

but MOU with Aims South Africa

AIMS Centers very adapted to organize research schools
(South Africa, Senegal, Cameroon etc ...)

CIMPA

Other tools

African Mathematical schools

Two weeks , for master students

About 8 per year

Joint AMU and CIMPA committee

Now all over Africa

Support for training in research

(North-South or South-South support)

Invite colleagues « from the south » to semesters (IHP)

Competition (other regions benefit more)

SARIMA

Support to Research Activities in Computer Science and Mathematics in Africa

French club of more than 20 organizations
CNRS, INRIA, CIMPA, Ecole Polytechnique,
Universities of Marseille, Rennes etc etc ...

For three years (2007-2010) significant support
from the french Foreign Affairs

- Ph D training
- Organisation of schools and workshops

SARIMA

More recently

- support from INRIA to research projects
- very small support from CNRS concentrated on co-advising (meeting of Ph D student+ african advisor+international advisor)
- a website <http://sarima.edu-math.org/> with lists of Ph D from Africa

Scientific advisory board
Composed of African colleagues

Ibni Prize

Ibni Oumar Mahamet Saleh

Mathematician and political leader

Ph D in Mathematics in Orleans

Promoted a cooperation program

between N'Djamena and Orleans

Leader of democratic opposition in Tchad

Disappeared (killed by Tchadian army forces) in 2007

Ibni Prize

Keep Ibni's memory alive

Based on a subscription

Scientific committee appointed by CIMPA

2010-2015

support to a Ph D student from subsaharian Africa

2017- ..

Every other year, support to two young researchers

Based in Africa

Having finished their Ph D in the preceding five years

Recognition of quality of scientific contribution

APSA

Associaton for Science in Africa

Created by physicists close to math

Interesting initiative :

Every other year

Two days meeting of Ph D students or young researchers

In math, computer science and physics, from Africa

- either studying in France

-or present in France for an internship

and a few colleagues from Africa and France

IMU CDC

Various programs

Visits south north and north south

Little support to meetings (CIMPA research schools etc ..)

ICTP

Activities taking place mostly in Trieste

- little group of local mathematicians
 - diploma (kind of master)
- program of visits for associate researchers
- three week schools organized in Trieste
 - « tricontinental » flavour

Some external activities

- support to meetings

More initiatives

IHES (Bures sur Yvette)

MFO (Oberwolfach)

Invitations of african researchers

Heard several times that it is not necessarily optimal
(in some cases, african colleagues say they were isolated
and had noone to talk to)

Some times true at ICTP too

AIMS

African Institutes for Mathematical Sciences

Rapidly developing
Help building capacities in Africa
Provides places with correct infrastructures

Role of one year at AIMS in mathematical studies
Short three weeks modules do not provide a consistent
training leading to Ph D level
Issues : coordination with african universities

Support from Simons Foundation

Four African Mathematical Projects,
three (Senegal, Gabon, Botswana) from 2013, renewed,
one starting in Ethiopia (f
inally canceled because leader moved)

Based on a call for proposal

African leadership

Research projects

Training of Ph D students

With scientific links to the international community

Support from Simons Foundation

Support to EMS Committee for Developing Countries

Research visits (one month or more)

Ph D visits (three months or more)

Top up for women (children care)

Top up for attending a conference withn a visit

Support to IMU Committee for Developing Countries
(research visits)

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What to discuss

Specific needs

- master degree level training

No local critical mass most of the time
African Mathematical Schools are good
but do not impact regular curriculae

- Ph D training

Improve working conditons of students based in Africa

Improve real (and not formal) co-advising

- Continuation in research for colleagues with a position

What to discuss

**Needed to take into account
African colleagues opinions and projects**

**Integrate African mathematical research
in international community research**

**Have a strategical approach
Emerging countries/Africa
Need of specific programs for Africa
(or specific attention to applications from Africa)**