

# **International cooperation in mathematics:**

**some examples, including  
CIMPA, EMS - CDC, IMU - CDC,  
ICTP, TWAS, OWSD, Simons Foundation,  
ISP, RNTA, SEAMS, EMALCA,  
APSA, SARIMA, AFRIMath**

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# CIMPA

CIMPA  
Centre International de  
Mathématiques Pures et  
Appliquées



<https://www.cimpa.info/index.php>

## Funding Opportunities

We give below a list of international institutions, organisations or foundations which work for the promotion of education and research and are likely to open calls and provide funding for the development of mathematics with a special emphasis on developing and emerging countries.

- [Agence Universitaire de la Francophonie \(AUF\)](#)
- [CNRS](#)
- [European Mathematical Society - Committee for Developing Countries \(EMS-CDC\)](#)
- [International Centre for Theoretical Physics \(ICTP\)](#)
- [International Mathematical Union - Commission for Developing Countries \(IMU-CDC\)](#)
- [International Science Program \(ISP\)](#)
- [Organization for Women in Science for the Developing World \(OWSD\)](#)
- [Schlumberger Foundation](#)
- [Simons Foundation](#)
- [The World Academy of Sciences \(TWAS\)](#)
- [Volkswagen Foundation](#)

Please let us know your suggestions to extend the above list by sending an email to [director@cimpa.info](mailto:director@cimpa.info).

# CIMPA schools in 2023



Centre International de Mathématiques Pures et Appliquées  
PROMOTING MATHEMATICS RESEARCH IN DEVELOPING COUNTRIES



## CIMPA SCHOOLS 2023 ECOLES CIMPA

<b>SOUTH AFRICA - Johannesburg</b> 02.01 - 21.01 Specialised Foundations of Algebra, Combinatorics and Topology	<b>TURKEY - Ankara</b> 04.01 - 20.01 Graphs, Structures and Complex Networks Analysis	<b>MEXICO - Mexico</b> 23.01 - 04.02 Algebraic Foundations of the Mathematics of Probability
<b>CHINA - Beijing</b> 02.01 - 15.01 Mathematical and Statistical Modeling of Complex Systems	<b>CHINA - Xi'an</b> 04.01 - 17.01 Mathematical Modeling and Numerical Simulation in Medicine	<b>MOROCCO - Marrakech</b> 28.01 - 04.02 New Elementary and Group Theory
<b>EGYPT - Heliopolis</b> 15.01 - 21.01 Combinatorial Geometry	<b>EGYPT - Heliopolis</b> 05.01 - 20.01 Combinatorics and University	<b>NETHERLANDS - Groningen</b> 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory
<b>DOMINICAN REPUBLIC - Santo Domingo</b> 12.02 - 25.02 Fundamental Group Theory and Applications to Mechanics	<b>MEXICO - Mexico</b> 11.01 - 21.01 Algebraic and Topological Methods in Quantum Field Theory	<b>NETHERLANDS - Groningen</b> 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory
<b>ARGENTINA - Puerto Madryn</b> 14.01 - 24.01 Classification of Representations Theory, Algebra and Higher Algebra	<b>COLOMBIA - Bogotá</b> 13.07 - 04.08 Combinatorial, Algebraic and Topological Methods in Quantum Field Theory	<b>NETHERLANDS - Groningen</b> 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory
<b>GABON - Libreville</b> 15.01 - 20.01 Mathematical Foundations of Probability	<b>COLOMBIA - Bogotá</b> 14.07 - 04.08 Progress of Finite Groups and Their Applications in Combinatorics	<b>NETHERLANDS - Groningen</b> 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory
<b>NETAL - Johannesburg</b> 13.02 - 20.02 Mathematical Modeling and Statistical Tools	<b>MOROCCO - Marrakech</b> 04.01 - 20.01 Combinatorial Geometry and Applications	<b>NETHERLANDS - Groningen</b> 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory

**NETHERLANDS - Groningen**  
23.01 - 04.02  
Algebraic Foundations of the  
Mathematics of Probability **MOROCCO - Marrakech** 28.01 - 04.02 New Elementary and Group Theory | **NETHERLANDS - Groningen** 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory || **NETHERLANDS - Groningen** 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory | **NETHERLANDS - Groningen** 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory | **NETHERLANDS - Groningen** 24.01 - 28.01 Algebraic and Topological Methods in Quantum Field Theory |

**LIST OF 2023 SCHOOLS REGISTERED TO 2023 ON OUR WEBSITE.**  
**LISTE DES ECOLES 2023 INSCRITES EN 2023 SUR NOTRE SITE INTERNET.**

[www.cimpa.info](http://www.cimpa.info)



[https://www.cimpa.info/en/schools\\_list\\_with\\_map/2023](https://www.cimpa.info/en/schools_list_with_map/2023)

# CIMPA: International Center of Pure and Applied Mathematics

**Mission:** promote research cooperation in mathematics with developing countries



Founded in  
1978



Unesco 2  
center



Non profit  
French Association



[www.cimpa.info](http://www.cimpa.info)



Campus of Université Côte d'Azur

## Employees:

- Executive director
- Executive secretary
- Communication officer

**Budget:** ~700k€

~150 individual members and 28 institutional members

**State members:** France, Germany, Norway, Spain and Switzerland



Governing board  
(7 individual + 8 institutional)



Steering Council  
(7 individuals + 18 institutional)



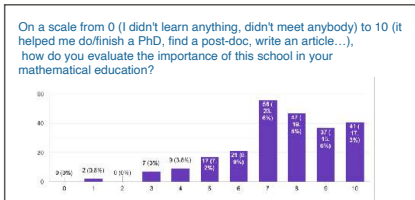
Scientific Council  
(~12 members)

## General principles

- **No isolated action:** make a difference by coordinating activities and building long term programs.
- **No brain drain:** encourage local activities and colleagues who chose to work in their country
- Take into account **ethical**, **gender** and **environmental** issues

## For which results?

### Useful events for our participants



### Useful events for our partners

- **Increase their international visibility;**
- **Confort their position** in their institution;
- **Explore and deepen collaborations** with colleagues from developed countries and from the region;
- **Create long-term institutional projects**



- 340 schools in 62 countries
- ~10 professors/school
- Local and State member coordinators



- ~30 courses every year
- 1 professor for ~30 participants



- Support ~20 schools/year
- Collaboration with 4 continental organizations



- ~10 young mathematicians participate to long terms thematic programs each year
- 3 centers: IHP, CIRM, CRM



- Long term (> 6 weeks) collaborations
- Record/broadcast a mini-course
- Visit a research center (CIRM, CRM, ICTP, MFO)



- Record a Master level course in a professional environment
- Nice or Math Village near Izmir

## LES COLLECTIONS DE CIMPA

VOIR +



PUBLIÉE LE 12 AVRIL 2021

Difference Galois theory

4 vidéos



PUBLIÉE LE 12 AVRIL 2021

Diophantine Geometry

6 vidéos



PUBLIÉE LE 12 AVRIL 2021

Introduction to Transcendental Number Theory

7 vidéos



PUBLIÉE LE 10 MARS 2021

Geometric and Numerical Methods in Optimal Control I

4 vidéos



PUBLIÉE LE 11 MARS 2021

Complex Analysis

25 vidéos



PUBLIÉE LE 21 FÉVRIER 2021

Complex abelian varieties

7 vidéos



PUBLIÉE LE 20 FÉVRIER 2021

Ideal Class Monoid and Computing Abelian Varieties over Finite Fields

4 vidéos



PUBLIÉE LE 15 FÉVRIER 2021

Geometry and arithmetic of curves of low genus

6 vidéos



PUBLIÉE LE 13 DÉCEMBRE 2020

Introduction à la méthode des éléments finis pour les équations elliptiques

2 vidéos



PUBLIÉE LE 13 DÉCEMBRE 2020

Introduction aux méthodes volumes finis en 1D

2 vidéos

### COLLECTION Diophantine Geometry



In this video we present a short introduction to Diophantine Geometry. The main subject of study are heights: we study their properties, their constructions and their applications. We start by introducing absolute values and valuations to define heights in an algebraic context and later on we use heights, mainly together with adelic machinery like the Weil heights machinery. We recall the Mordell-Weil theorem on the group of rational points on curves of genus greater or equal than 1. We finish the course by discussing some open problems on Diophantine Geometry, as the abc conjecture.

### TOUTES LES VIDÉOS DE LA COLLECTION (6)



Published on 08/04/2021  
**Absolute Values on Number Fields and the Product Formula (part 1/6)**  
 Dr. Elías Lerares García



Published on 08/04/2021  
**Heights in Projective Spaces (part 2/6)**  
 Dr. Elías Lerares García



Published on 08/04/2021  
**Some Results on the Geometry of Curves and Abelian Varieties (part 3/6)**  
 Dr. Elías Lerares García



Published on 08/04/2021  
**The Néron-Tate height on Abelian Varieties (part 4/6)**  
 Dr. Elías Lerares García



Published on 08/04/2021  
**The (weak) Mordell-Weil Theorem (part 5/6)**  
 Dr. Elías Lerares García

Online Course # 1 - "Introduction to Transcendental Number Theory (part 1/8)"

Dr. Michel Waldschmidt

DIOPHANTINE APPROXIMATION HEIGHT TRANSCENDENTAL NUMBER THEORY



## A DUO



An external coordinator (France, Germany, Norway, Spain, Switzerland)



A local coordinator (in a developing country)

## CONTACT A SCIENTIFIC OFFICER TO DISCUSS THE PROJECT



- ▶ the relevance of the school for the country and the region



- ▶ local impact of the project and construction of a long term project
- ▶ budget well prepared and seeking for external funding

## TEAM UP WITH COLLEAGUES AND BUILD A SCIENTIFIC PROGRAM

- ▶ scientific and pedagogical qualities of the format



- ▶ gender balance: at least 30% of men and 30% of women



- ▶ local engagement of professors



## SUBMIT YOUR PROPOSAL ONLINE

Official language of the authors \*

Admin

The official language of this content (English, French or Spanish is the language used in the title and the main abstract/keywords submission)

CINEMA NUMBER (if any) \*

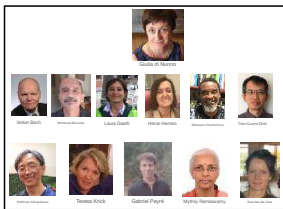
Yes, I wish to participate in an event/panel/the scientific discussion of the above set courses that is/are relevant

Country \*

Italy

Please select a country from this list of participating countries (the word "all" priority)

## REVIEW BY THE SCIENTIFIC COUNCIL



## VALIDATION AT THE STEERING COUNCIL

Budget: between  
8,000 and 15,000€



**YEAR X**

**Between  
March  
and October**

**November**

**YEAR X+1**

**February**

YEAR X+2!



GRHA SABHA PRAMANA  
AUDITORIUM

ICTP  
The Abdus Salam  
International Centre  
for Theoretical Physics

INTERNATIONAL MATHEMATICAL UNION  
Commission for  
Developing Countries

ROMAN  
NUMBER THEORY  
ASSOCIATION

# 2023 CIMPA African Mathematical Schools (AMS)

## African Mathematical Schools (AMS)

### List of African Mathematical Schools

#### Mathematical Modeling in Biology

Venue: North West University (South Africa)

Dates: March 20-29

Coordinator: Patrick Mimphe Tchepmo Djamegré ([ptchepmo@gmail.com](mailto:ptchepmo@gmail.com))

Website: <https://natural-sciences.nwu.ac.za/paa/20M-CSchool-084>

#### Geometry, Analysis and Applications (G3A)

Venue: Université Abdou Diop de Bambey (Senegal)

Dates: March 20-31

Coordinators: Abdoul Salam Diallo ([abdoul.salam.diallo@uodf.edu.sn](mailto:abdoul.salam.diallo@uodf.edu.sn)) and Mouhamadou Ngom ([mouhamadou.ngom@uodf.edu.sn](mailto:mouhamadou.ngom@uodf.edu.sn))

[Link to the poster](#)

#### Mathematical Modeling: Where ecology and infectious diseases intersect

Venue: University of Ghana (Ghana)

Dates: June 12-23

Coordinator: Kenneth Dadrezi ([kdadrezi@uog.edu.gh](mailto:kdadrezi@uog.edu.gh))

#### Mathematics Decision Sciences and Artificial Intelligence in Digital Economy: Contributions of Women in Mathematics

Venue: NES-Ruhengeri-Institute of Applied Sciences (Rwanda)

Dates: June 19-30

Coordinator: Charlee Uwilingiyimana ([ccharline@ines.ac.rw](mailto:ccharline@ines.ac.rw))

#### Enumerative Combinatorics

Venue: Arusha Technical College (Tanzania)

Dates: July 10-28

Coordinator: Bakanz Seendroi ([bakanz.seendroi@univie.ac.at](mailto:bakanz.seendroi@univie.ac.at))

#### Mathematical Modeling of Chemical Reaction Networks: Basic Tools, Applications, and Open Challenges

Venue: University of Nairobi (Kenya)

Dates: July

Coordinator: Josephine Wairimu Kagunda ([jwairimu@uonbi.ac.ke](mailto:jwairimu@uonbi.ac.ke))

#### Modélisation et contrôle du monde vivant

Venue: Université Thomas Sankara (Burkina Faso)

Dates: August 21 - September 2

Coordinators: Oumar Traore ([joumar.traore@uts.lbftraore@gmail.com](mailto:joumar.traore@uts.lbftraore@gmail.com)) and Marie Françoise Ouedraogo ([mfrao@univ-bf.net](mailto:mfrao@univ-bf.net))

Website: <http://vmabujumbura2022.ecoledoctorale.ub.edu.tz>

# AESIM 2023

## Asian and European Schools In Mathematics (AESIM)

In 2023, the CIMPA supports the organization of 3 AESIM Schools in Partnerships (previously WAMS).

### Directed Reading Program Türkiye 2023 (online program)

Dates: August 28 - September 1

Coordinators: Bengier Ülgen Kılıç ([bengieru@buffalo.edu](mailto:bengieru@buffalo.edu)) and Eda Kırımlı ([eda.kirimli@bristol.ac.uk](mailto:eda.kirimli@bristol.ac.uk))

Website: <https://sites.google.com/view/drp-turkey/homepage?authuser=0>

### Mathematical Foundations of Explainable Artificial Intelligence

Venue: Nesin Mathematics Village (Turkey)

Dates: September 11-16

Coordinator: Mustafa Topkara ([mustafa.topkara@msgsu.edu.tr](mailto:mustafa.topkara@msgsu.edu.tr))

### Mathematics for Health Sciences

Venue: Birla Institute of Technology & Science Pilani (India)

Dates: December 28 - January 6, 2024

Coordinators: Rajesh Kumar ([rajesh.kumar@pilani.bits-pilani.ac.in](mailto:rajesh.kumar@pilani.bits-pilani.ac.in)), Nabil Bedjaoui ([nabil.bedjaoui@u-picardie.fr](mailto:nabil.bedjaoui@u-picardie.fr)), Joaquim M C Correia ([jmcorreia@uevora.pt](mailto:jmcorreia@uevora.pt))

<https://www.cimpa.info/en/node/6676>

## Emalca

Escuela Latinoamericana de Matemática

La Escuela de Matemática de América Latina y del Caribe (EMALCA) es una iniciativa de la **Unión Matemática de América Latina y el Caribe** (UMALCA).

Su objetivo principal es contribuir al desarrollo de la Matemática en todo el continente, poniendo en contacto a los más prestigiosos matemáticos e investigadores del continente junto a estudiantes de pre y postgrado, además es una de las actividades con mayor número de eventos por parte de las instituciones que integran a **UMALCA**. También cuenta con la importante colaboración y apoyo del **Centre International de Mathématiques Pures et Appliquées, CIMPA**.



<https://www.umalca.org/eventos/omalca/>

## Escuelas de Matemática de América Latina y del Caribe (EMALCA)

### List of EMALCA in 2023

#### EMALCA México

Venue: Centro de Ciencias Matemáticas

Dates : June 26-30

Coordinator: Ferrán Valdez ([ferran@matmor.unam.mx](mailto:ferran@matmor.unam.mx))

#### EMALCA El Salvador

Venue: Universidad de El Salvador

Dates: July 10-21

Coordinator: Oscar Armando Hernández Morales ([oscararmandohm@gmail.com](mailto:oscararmandohm@gmail.com))

#### Emalca Brasil

Venue: Universidade Federal de Mato Grosso do Sul and Centro de Convenções de Bonito

Dates: September 11-22

Coordinator: Leandro Bezerra de Lima ([leandro.lima@ufms.br](mailto:leandro.lima@ufms.br))

#### EMALCA Paraguay

Venue: Universidad Nacional de Itapua

Dates: October 2-13

Coordinator: Christian E. Schaerer ([chris.schaerer@gmail.com](mailto:chris.schaerer@gmail.com))

#### Emalca Colombia

Venue: Universidad Industrial de Santander

Dates: December 11-22

Coordinator: Federico Castillo ([efecastillo.math@gmail.com](mailto:efecastillo.math@gmail.com) )

<https://www.cimpa.info/en/node/6671>

# EMS Committee for Developing Countries

EMS  
European Mathematical  
Society



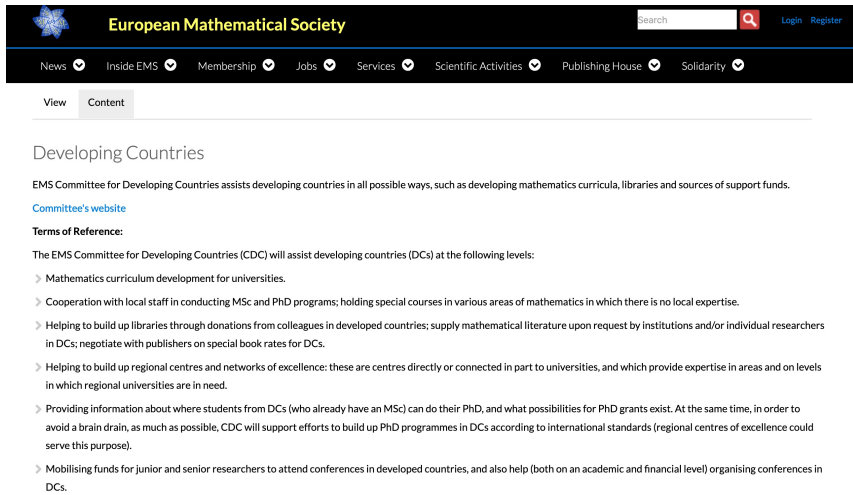
EMS Committee for Developing Countries assists developing countries in all possible ways, such as developing mathematics curricula, libraries and sources of support funds.

<https://euromathsoc.org/>

<https://euromathsoc.org/committee-developing-countries>



# EMS CDC (Committee for Developing Countries)



The screenshot shows the top navigation bar of the European Mathematical Society website. The header includes the EMS logo, the text "European Mathematical Society", a search bar, and links for "Login" and "Register". Below the header is a horizontal menu with items: "News", "Inside EMS", "Membership", "Jobs", "Services", "Scientific Activities", "Publishing House", and "Solidarity", each with a dropdown arrow. Underneath the menu, there are two tabs: "View" and "Content", with "Content" being the active tab. The main content area is titled "Developing Countries" and contains a paragraph about the committee's mission, a link to the committee's website, and a section titled "Terms of Reference:" which lists seven bullet points detailing the committee's activities.

**European Mathematical Society** Search  [Login](#) [Register](#)

[News](#) [Inside EMS](#) [Membership](#) [Jobs](#) [Services](#) [Scientific Activities](#) [Publishing House](#) [Solidarity](#)

[View](#) [Content](#)

## Developing Countries

EMS Committee for Developing Countries assists developing countries in all possible ways, such as developing mathematics curricula, libraries and sources of support funds.

[Committee's website](#)

**Terms of Reference:**

The EMS Committee for Developing Countries (CDC) will assist developing countries (DCs) at the following levels:

- ▶ Mathematics curriculum development for universities.
- ▶ Cooperation with local staff in conducting MSc and PhD programs; holding special courses in various areas of mathematics in which there is no local expertise.
- ▶ Helping to build up libraries through donations from colleagues in developed countries; supply mathematical literature upon request by institutions and/or individual researchers in DCs; negotiate with publishers on special book rates for DCs.
- ▶ Helping to build up regional centres and networks of excellence: these are centres directly or connected in part to universities, and which provide expertise in areas and on levels in which regional universities are in need.
- ▶ Providing information about where students from DCs (who already have an MSc) can do their PhD, and what possibilities for PhD grants exist. At the same time, in order to avoid a brain drain, as much as possible, CDC will support efforts to build up PhD programmes in DCs according to international standards (regional centres of excellence could serve this purpose).
- ▶ Mobilising funds for junior and senior researchers to attend conferences in developed countries, and also help (both on an academic and financial level) organising conferences in DCs.

<https://nickpgill.github.io/emscdc/about>

The Committee for Developing Countries is a committee of the European Mathematical Society

## Aims and Objectives

We aim to assist developing countries in all possible ways. Some examples:

- the development of mathematics curricula;
- cooperation with local staff in conducting M.Sc. and Ph.D. programs;
- helping to build up libraries;
- helping to build up regional centres and networks;
- providing information about further studies for students from developing regions;
- sourcing funds for junior and senior researchers to attend conferences.

<https://nickpgill.github.io/emscdc/about>

# ERCE (Emerging Regional Centres of Excellence)

2019-23 : VIASM (Vietnam) ;

2022-25 : AUST (Nigeria), ZLAM (Iran), IMSP (Benin), UCA (Morocco), ITB (Indonesia), INSPEM (Malaysia).

About

Advantages

Criteria

How to apply

ERCE is a label of quality awarding those institutes that show an outstanding level in their own area of influence in research and education, being an attractor of students from other regions and countries. The label is granted for a period of 4 years with possibility of being renewed. The focus of this project is the education of students in the developed world to the Masters level and possibly PhD.

<https://nickpgill.github.io/emscdc/erce>

Previous holders of the ERCE label : ASSMS (Pakistan), UB (Botswana), CIMAT (Mexico).

# African University of Science and Technology, Mathematics Institute, Abuja, Nigeria



The African University of Science and Technology (AUST) is a Pan-African institution, established in 2007. AUST in Abuja was the first of these Centers of Excellence to be established. It currently only offers Graduate level programs by a combination of course work and cutting edge research.

More information on the department of mathematics can be found [at their webpage](#).

[https://nickpgill.github.io/emscdc/erce\\_aust](https://nickpgill.github.io/emscdc/erce_aust)

# Probability and Statistics, Université Cadi Ayyad



Based in Marrakech, Morocco, this department received the ERCE label in 2016.

More information on the department of mathematics can be found [at their webpage](#).

[https://nickpgill.github.io/emscdc/erce\\_uca](https://nickpgill.github.io/emscdc/erce_uca)

# Institut de Mathématiques et de Sciences Physiques, Dangbo, Benin (IMSP)



A l'IMSP, vous étudiez aussi dans un cadre agréable tout au long de votre formation

Based in Dangbo, Benin, IMSP received the ERCE label in 2016.

More information on IMSP can be found [at their webpage](#).

[https://nickpgill.github.io/emscdc/erce\\_imsp](https://nickpgill.github.io/emscdc/erce_imsp)

# Call for Applications

# ERCE 2022-2026

## Emerging Regional Centre of Excellence

ERCE (Emerging Regional Centre of Excellence) is a label awarded by the EMS-CDC (European Mathematical Society-Committee of Developing Countries) to centres which have achieved an outstanding level in their area of influence in research and education, thus attracting students from other regions and countries. Indeed, the education of master and PhD students is an asset for raising the quality and diffusion of mathematics worldwide. ERCE centres are among those which play an important role in training students in their region, particularly more students from less developed areas. With the global proliferation of emerging economies worldwide, there are varying degrees of development among developing countries, just as there are within the developed world.

<https://ems.press/journals/mag/articles/16601>

# Call for Applications ERCE 2022-2026

Very good centres exist in emerging economies where students from the least developed regions can be trained to the master level and beyond. Indeed, the most talented students may wish to pursue further education after the master's degree and be eligible for a PhD. A higher number of masters and PhDs is an enrichment for any country in terms of human resources with specialised high competence. A full education obtained in one of the outstanding centres in the region is a better guarantee for returning to the original country and as such is an effective way of fighting brain drain, whilst also being cost effective. In this spirit, the first ERCE centre label was awarded in 2011. Since then, several other centres obtained this prestigious recognition.

With the success of this scheme the EMS-CDC is now opening a new call for applications.

<https://ems.press/journals/mag/articles/16601>



# EMS Simons For Africa



News Magazine Membership  $\vee$  Services  $\vee$  Activities  $\wedge$   
Scientific Activities Regional Conferences ECM Pr

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## EMS-Simons for Africa

A program for scientific visits of young and established researchers from the African Continent administered by the EMS Committee for Developing Countries.



<https://euromathsoc.org/ems-simons-africa>

# EMS Simons For Africa

The African Continent is very diversified and the development of a career in mathematics faces different and sometimes difficult progression. The Committee for Developing Countries of the EMS, with the support of the Simons Foundation, opens a program of research visits to foster research opportunities for young and established researchers.

The aim is to promote individual career possibilities with consequence of an improved global capacity in African academic institutions. The program is open to all areas of pure and applied mathematics and statistics and it is directed to fellows based in Africa.

<https://euromathsoc.org/ems-simons-africa>



## Commission for Developing Countries (CDC)

The CDC has the mandate to manage all initiatives of the IMU in support of mathematics in developing and economically disadvantaged countries.

Besides administering the Grants Programs for Mathematicians as well as the Volunteer Lecture Program, the CDC takes part in the following types of activities in accord with various aspects of its mission :

<https://www.mathunion.org/activities/commission-developing-countries-cdc>

- Research
- Support of local initiatives
- Support of Educational and Local Capacity Building Programs
- Implementation of IMU member contribution programs destined for support of mathematics and mathematics teaching in developing countries.
- Exploration of funding and grant opportunities of new and existing sponsors.
- Development of proposals and joint activities with partner organizations.
- Identification of inexpensive and free online mathematics research resources and advertise these to mathematicians in the developing world.
- Service as a "clearing-house" for the activities of individual countries and mathematics societies in support of mathematicians in the developing world.
- Encouragement of proposals and support projects from mathematical organizations or individual mathematicians in the developing world

In order to pursue its mission CDC receives an annual grant from IMU.

## IMU Commission for Developing Countries (CDC)



<https://www.mathunion.org/activities/commission-developing-countries-cdc>

The CDC is charged with the following missions :

- to manage, strengthen and promote the programs of the IMU in developing and economically disadvantaged countries.
- to search for funding to support the corresponding activities.
- to establish institutional partnerships with scientific organizations with common goals.

- About CDC
- Definition for Developing Countries
- News and Events
- CDC Members
- Partners and Support

- Funding opportunities
- Research Travel Grants
- Online Application Form and Online Report Form
- Conference Support Grants
- Project Grants

- Introduction
- CANP
- Graduate Scholarships
- Library Assistance Scheme

- Reports About Mathematics in Developing Countries
- Online Resources
- Institutions Supporting CDC
- Non IMU Grants

<https://www.mathunion.org/cdc/>

# IMU CDC (Commission for Developing Countries)



International  
Mathematical  
Union

# IMU

Organization ▾ Membership ▾ IMU Awards ▾ ICM ▾ Activities ▾ Outreach ▾

Activities | Developing Countries (CDC)

## Commission for Developing Countries (CDC)

The CDC has the mandate to manage all IMU initiatives in support of mathematics in the developing world and, in particular, to continue the successful work previously carried out by CDE and DSCG.

<https://www.mathunion.org/cdc>



The banner features the IMU CDC logo on the left, which consists of a blue knot-like symbol with the text "INTERNATIONAL MATHEMATICAL UNION" and "CDC" around it. To the right of the logo is the text "Commission for Developing Countries" and "CDC" in large white letters. The background of the banner is a dark blue with faint mathematical sketches, including a circle with points A, B, C, D, E and angles  $\theta$ ,  $\rho$ ,  $\sigma$ .

Navigation menu items: About CDC ▾, Grants ▾, Lecturing ▾, Scholarships ▾, ICM ▾, Resources ▾

Search bar: Your search  

**The CDC has the mandate to manage all initiatives of the IMU in support of mathematics in developing and economically disadvantaged countries. The CDC is charged with the following missions:**

**to manage, strengthen** and **promote** the programs of the IMU in developing and economically disadvantaged countries.

**to search** for funding to support the corresponding activities.

**to establish** institutional partnerships with scientific organizations with common goals.

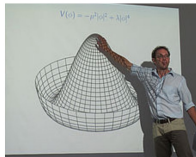
<https://www.mathunion.org/cdc>





## Graduate Scholarships

- IMU Breakout Graduate Fellowship Program
- GRAID Program



## Grants for Mathematicians

- Conference Support Program
- Research Travel Grants
- Project Grants



## CDC Activities during ICMs

- ICM Travel Grants
- CDC Panel and Poster Session during the ICM 2018
- MENAO 2014



## Lecturing and Mentoring

- Volunteer Lecturer Program
- ADMP
- MARM

<https://www.mathunion.org/cdc>

# IMU Volunteer Lecturer Program

<https://www.mathunion.org/cdc/lecturing/volunteer-lecturer-program>

Two main objectives of the Volunteer Lecturer Program are :

1. to build capacity in mathematics and mathematics education in developing countries, and
2. to increase mathematical interaction between the mathematical community in the developed world and the vast, mostly untapped reservoir of mathematical talent in the developing world.

The Volunteer Lecturer Program offers universities in the developing world lecturers for intensive 3-4 week courses in mathematics at the advanced undergraduate or master's level. The funds for all living expenses, including travel (up to USD 5000 paid in EUR) are provided by IMU/ CDC or its supporting organizations (AMS, USNCM and Abel Board).

The course given by the volunteer should be part of a regular mathematics undergraduate or master degree program at the hosting university.

## Volunteer Lecturer Program

Volunteer Lecturer Program of the IMU Commission for Developing Countries

The goal of this program is to foster research and international cooperation between mathematicians in developing countries and the international mathematical community, offering to the universities in the developing countries the economical support to host volunteer lecturers for intensive 3-4 week courses in mathematics. The course given by the volunteer should be part of a regular mathematics undergraduate or master degree program at the hosting university, in subjects where the applicant university could have a lack of expertise. The program is partially funded by the American Mathematical Society and the Niels Henrik Abel Board (Norway).

<https://www.mathunion.org/cdc/lecturing/volunteer-lecturer-program>



## Volunteer Lecturer Program

[www.mathunion.org/cdc](http://www.mathunion.org/cdc) > [Volunteer Lecturer](#) > [Information for Lecturers](#)

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Related Links

Further CDC Activities

Useful Links

### Program Outline and Requirements for Lecturers

We seek mathematicians interested to lecture for intensive 3-4 week courses at universities in the developing world, at the advanced undergraduate or master level in topics such as statistics, differential equations, numerical analysis, etc., the capacity for which is lacking at many universities in developing nations.

The lecturer would be assisted by a local mathematics professor who prepares the students beforehand, assists when necessary during the course, and takes care of any necessary follow-up. These courses should have a student audience of 15-20 or more, be controlled, with examinations, and be part of a regular degree program at the university at which they are offered.

Past experience in the developing world is desirable but not necessary. However what is required is tolerance for working in circumstances of modest resources, unexplained inefficiencies, and limited physical comforts.



Martha Byrne (USA) in 2010 at Obafemi Awolowo University in Ile-Ife, Nigeria.



Fadmanabhan Seshayer (USA) in 2011 at NM AIST-Arusha in Tanzania.

# IMU Volunteer Lecturer Program (VLP): Mathematics Education as a Tool for International Development



# Goals of the IMU VLP

- To build capacity in mathematics and mathematics education in developing countries
- To increase interaction between the mathematical community in the developed world and the mostly untapped mathematical talent in the developing world

# Structure

- 3-4 week intensive courses at the upper undergraduate or master's level
- Substantial course enrollment (~ 20 students)
- Support in recruitment of students, scheduling and living arrangements for the volunteer from local host
- All financial costs of the volunteer are covered by the IMU

# Breakout Graduate Fellowships

Support for postgraduate studies in a developing country, leading to a PhD degree in the mathematical sciences with duration of up to four years, for excellent students from developing countries.

Donation by the winners of the Breakthrough Prizes in Mathematics (Ian Agol, Jean Bourgain, Simon Donaldson, Christopher Hacon, Maxim Kontsevich, Vincent Lafforgue, Jacob Lurie, James McKernan, Terence Tao and Richard Taylor), IMU - with the assistance of FIMU ([www.friends-imu.org](http://www.friends-imu.org)) and TWAS (<https://twas.org>) - has now raised \$ 900,000.

<https://www.mathunion.org/cdc/scholarshipsgraduate-scholarships/imu-breakout-graduate-fellowship-program>



# Graduate Assistantships in Developing Countries (GRAID)



From L-R Angel Pineda, Wandera Ogana, David Ssevviiri, Ingrid Daubechies, Edgar Tchoundja



**The deadline for the current round of applications is  
April 15, 2023.**

[https://www.mathunion.org/cdc/scholarships/graduate-scholarships/  
graduate-assistantships-developing-countries](https://www.mathunion.org/cdc/scholarships/graduate-scholarships/graduate-assistantships-developing-countries)

# Structure of GRAID

- The Principal Investigator (PI) and International Partner (IP) should be in regular contact and have an active collaboration.
- The PI is responsible for ensuring smooth sustained communication in the Team between, the graduate research assistants and the IP.

## Requirements

- PI should live and work in a developing country listed in Priority 1 or 2 of the IMU CDC Definition of Developing Countries.
- IP should not live and work in a developing country listed in Priority 1 or 2 of the IMU CDC Definition of Developing Countries.

# GRAID Support

## Amount of Support:

- Up to USD 3,500 per student per year.
- Up to 3 graduate research assistantships per team.

## Duration of the Support

- Up to 4 years for PhD students
- Up to 2 years for master's students

<https://www.mathunion.org/cdc/scholarshipsgraduate-scholarships/graduate-assistantships-developing-countries>

# Supported Teams

## Cohort 1 (2017):

- Cameroon + USA (PI: Edgar Tchoundja, IP: Brett Wick)
- Morocco + Spain (PI: Driss Bennis, IP: Luis Oyonarte)

## Cohort 2 (2018):

- Uganda + UK (PI: David Ssevviiri, IP: Michael Wemyss)

## Cohort 3 (2019):

- Burkina Faso + France (PI: Idrissa Kabore, IP: Nicolas Bedaride)
- Pakistan + Germany (PI: Sarfraz Ahmad, IP: Volkmar Welke)



From L-R Keumo Adriel (student), Edgar Tchoundja (PI), Defo Hugues (student)

# Graid cohorts 4 and 5

## Cohort 4 (2020)

- Ivory Coast + France (PI : Modeste Nzi, IP : Etienne Pardoux)
- Benin + USA (PI : Romain Giele Kakai, IP : Calistus Ngonghala)
- Nepal + USA (P.I. Kedar Nath Uprety, IP : Naveen K. Vaidya)
- Cameroon + USA (PI : Ngwa Gideon Akumah, IP : Ijang Teboh-Ewungken)

## Cohort 5 (2021)

- Congo + France (PI : Basile Bossoto, IP : Christian Maire)
- Philippines + Canada (IP : Aurelio de Los Reyes, IP : Stacey Smith ?)
- Ghana + UK (PI Jefferey Ezearn, IP : Ihechukwu Chinyere)



From L-R : Anjana Pokharel, Naveen K. Vaidya, Uprety Kedar Nath, Khagendra Adhikari, Ramesh Gautam.

# Fundraising (Friends of the IMU)

- International Congress of Women Mathematicians (ICWM) 2014
- Donations from members of the American Mathematical Society (AMS) during membership renewals.
- One-time or recurring donations from individual mathematicians.
- Grassroots fundraising activities (i.e. RunForGRAID)

<http://friends-imu.org/graid-donation/>



# IMU– CWM

## Committee for Women in Mathematics

The remit of CWM is to promote international contacts between national and regional organisations for women and mathematics and to undertake other related activities

The central goal from now until ICM Rio 2018 is to help to establish networks of women mathematicians especially in Asia, Latin America and Africa.

<https://www.mathunion.org/activities/committee-women-mathematics-cwm>

# ICTP

ICTP  
International Centre for  
Theoretical Physics



<https://www.ictp.it/research/math.aspx>



# ICTP

Since 1986 the Mathematics section at ICTP has played an important role in fostering mathematics research and education in developing countries. Research is carried out in various fields of Mathematics by the permanent staff, postdocs, and graduate students, as well as by scientific visitors from all over the world.

Typically, the section organizes from 5 to 10 focused activities a year involving an average of 100 participants. These activities are the core of the section's activities and are crucial for disseminating current mathematics knowledge of the highest level as widely as possible.

<https://www.ictp.it/research/math.aspx>

In addition the Mathematics section, like all the other sections at ICTP, participates in the **Diploma program**. Since 2011 Diploma students can apply to stay on to work on a PhD in Mathematics in a joint program with **SISSA**.

The Mathematics section also offers opportunities for postdocs and research fellows; **click here for latest announcements**.

Once a month, the section organises **The Basic Notions Seminar Series** to broaden the understanding of some mathematical concepts.

<https://www.ictp.it/research/math.aspx>

## OPPORTUNITIES



### Fellowships

PhD and postdoctoral research fellowships are crucial for building scientific strength in developing countries



### Research Grants

Funding helps researchers in the developing world to purchase lab equipment and supplies.



### Prizes and Awards

TWAS honours are among the most prestigious given for research in the developing world



### Visiting Scientists

Share your projects and your expertise in developing nations as a visiting researcher or professor.

### Scientific Meetings

Grants support high-level international and regional scientific meetings in developing countries.

#### EVENTS AND DEADLINES

**30 NOVEMBER 2021**

UNTB-TWAS-ICGEB: North-South Biotechnology Policy and Reg...

**15 DECEMBER 2021**

TWAS-UNESCO Associateship Scheme

<https://twas.org/>

# Organization for Women in Science for the Developing World (OWSD)

## OWSD PhD Fellowships

*This information is also available in:* **French** **Spanish**

The Fellowship is offered to women scientists from **science- and technology-lagging countries (STLCs)** to undertake PhD research in the natural, engineering and information technology sciences at a host institute in another developing country in the Global South.

*The call for applications is closed.*


*The next call for applications will open in early 2023.*

<https://owsd.net/>

## Program Areas

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### Grants to Individuals

- Simons Investigators
- Simons Fellows
- Collaboration Grants for Mathematicians
- Targeted Grants in MPS
- AMS-Simons Travel Grants 




<https://www.simonsfoundation.org/mathematics-physical-sciences/>

# Simons Foundation

The logo for Mathematics and Physical Sciences features the text "Mathematics and Physical Sciences" in white, sans-serif font, centered on a dark blue rectangular background. To the right of the text, there is a faint, light blue grid pattern that resembles a wireframe sphere or a complex mathematical structure.

## Mathematics and Physical Sciences

### Grants to Institutions

- Simons Institute for the Theory of Computing 
- Targeted Grants to Institutes
- Africa Mathematics Project
- Simons Observatory 
- Simons Array 

### MPS-NSF Joint Programs

- NSF-Simons Collaboration on a National Institute for Theory and Mathematics in Biology (NITMB)
- NSF-Simons MathBioSys Research Centers
- NSF-Simons Research Collaborations on the Mathematical and Scientific Foundations of Deep Learning

<https://www.simonsfoundation.org/mathematics-physical-sciences/>

# ISP

International Science Programme (ISP) - Uppsala University, Sweden.

The ISP collaboration in different countries can be described as follows :

In the ISP core programs (Chemistry, Mathematics and Physics) through direct collaboration with individual research groups and networks of research groups,

Collaboration through coordination of Sida bilateral research programs with different countries,

Collaboration through separate agreements, with full cost cover from the collaborating partner.

<https://www.isp.uu.se/>

# Sida Bilateral Research Cooperation

ISP is assigned by Sida as the coordinating entity for the Swedish activities in all Sida bilateral research programs, namely in Bolivia, Cambodia, Ethiopia, Mozambique, Rwanda, Tanzania and Uganda.

- More about [Sida's research cooperation](#).



SWEDISH INTERNATIONAL  
DEVELOPMENT COOPERATION AGENCY

## **BOLIVIA**

Sida bilateral research cooperation with UMSA and UMSS



## **CAMBODIA**

Sida Bilateral Research Cooperation with Royal University of Phnom Penh (RUPP)



## **ETHIOPIA**

Sida Bilateral Research Cooperation with Armauer Hansen Research Institute (AHRI) and Addis Ababa University (AAU)



## **MOZAMBIQUE**

Sida Bilateral Research Cooperation with Universidade Eduardo Mondlane (UEM)



## **RWANDA**

Sida Bilateral Research Cooperation with University of Rwanda



## **TANZANIA**

Sida Bilateral Research Cooperation with ARU, COSTECH, MUHAS and UDSM



## **UGANDA**

Sida Bilateral Cooperation with Makerere University - PROGRAM CONCLUDED



<https://www.isp.uu.se/what-we-do/bilateral-coordination/>



# Eastern Africa Universities Mathematics Programme (EAUMP)

The network EAUMP was constituted in 2002 by the Department of Mathematics at Makerere University (Uganda), University of Dar es Salaam (UDSM, Tanzania) and University of Nairobi (UoN, Kenya). A few years later the Departments of Mathematics at University of Rwanda (UR) and University of Zambia (UNZA) also joined the network.

<https://www.isp.uu.se/what-we-do/mathematics/networks/eaump/>

# PDE, Modeling and Control

The network was created in 1999 by researchers from the Departments of Mathematics at University Joseph Ki-Zerbo (Burkina Faso), University of Gaston Berger (Senegal) and University of Nouakchott (Mauritania). In 2012 researchers from the Department of Mathematics at University of Science, Techniques and Technology of Bamako (USTTB ; Mali) joined the network. Researchers from the University of Cocody-Abidjan (Ivory Coast) are also members of the network. The network is coordinated by Professor Hamidou Toure, University Joseph Ki-Zerbo.

<https://www.isp.uu.se/what-we-do/mathematics/networks/pde/>

## Ethiopia

The Department of Mathematics at Addis Ababa University receives support from the mathematics program to the project Capacity Building in Mathematics

## Niger

A research group at Université Abdou Moumouni is a member of the ISP supported network PDE, Modeling and Control.



## ROMAN NUMBER THEORY ASSOCIATION



Research  
Schools

Nepal  
Algebra  
Project

Mini Symposia

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News & photos

<http://www.rnta.eu/>



## Research Schools

- A CIMPA research school on  
**Isogenies of elliptic curves and their applications to cryptography**  
Universidad del Cauca  
July 24th - August 4th, 2023
- A CIMPA research school on  
**Introduction to Galois representations and modular forms and their computational aspects**  
University of the Philippines Diliman  
January 2023
- WAMS School  
**Topics in commutative algebra**  
University of Sulaimani, Sulaimani, Kurdistan Region, Iraq  
September 3rd - 7th 2022
- WAMS School  
**Topics in algebraic number theory**  
Salahaddin University, Erbil, Kurdistan Region, Iraq  
August 22nd - 28th 2022
- A CIMPA research school on  
**Algebra, arithmetic and applications**  
Institut de Mathématiques et de Sciences Physiques, Dangbo, Bénin  
June, 12-24 2022
- WAMS School  
**Lattices, Diophantine Approximation and Heights**  
Urgench State University, Urgench, Uzbekistan  
June 6-10, 2022

# NAP — Nepal Algebra Project



*Fields and Galois Theory “multiple hands” course in Nepal*

**2016 - 2021**

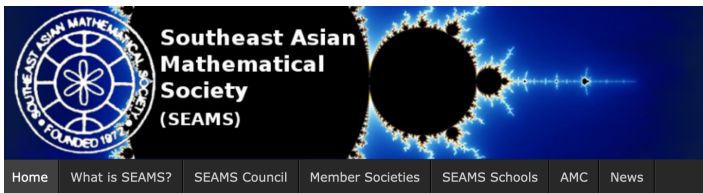
2020 Edition

2019 Edition

2018 Edition

2017 Edition

2016 Edition



**IACR - VIASM SUMMER SCHOOL on CRYPTOGRAPHY**  
 Time: August 24-30, 2022  
 Venue: Vietnam Institute for Advanced Study in Mathematics, Hanoi

**LECTURERS**

**ORGANIZING AND PROGRAM COMMITTEE**

**CONTENT**

**GRANTS**

**INDUSTRIAL TALKS**

**HOW TO APPLY**

Registration deadline: 02 September 2022  
 Notification of accepted participants: 30 September 2022

**SEAMS SCHOOL 2022**

**Modern Trends in Signal and Data Processing**

**05-13 December 2022**  
 Institute of Mathematics  
 University of the Philippines Diliman  
 Quezon City, Philippines

<https://math.upd.edu.ph/seamsschoolmanila2022/>

Registration deadline: 02 September 2022  
 Notification of accepted participants: 30 September 2022

APPLICATIONS FOR SEAMS SCHOOLS 2023 IS NOW OPEN

<https://seams-math.org/>

## APSA Awards

The **Association for the Scientific Promotion of Africa** (APSA) is issuing a call for proposals to finance four research stays for African doctoral students or already confirmed researchers working in Africa in the fields of mathematical, physical or computer sciences.

The winners will spend one to three months in a foreign laboratory of their choice. The programme will be open to researchers from all over Africa but priority will be given to sub-Saharan Africa compared to North or South Africa. It will attach particular importance to gender-balanced recruitment.

APSA will cover, up to a maximum of Euros 5,000 per winner, in complement with the laboratories and host institution, all travel expenses (economy class), visa and subsistence expenses (health insurance, accommodation, per diem) for the winners

<http://www.scienceafrique.fr/apsaawards/>





*Groupement d'Intérêt Scientifique – Soutien aux Activités de Recherche en Informatique et Mathématique en Afrique*

SARIMA signifie Soutien aux Activités de Recherche en Informatique et Mathématique en Afrique.

SARIMA est un groupement d'intérêt scientifique qui regroupe 20 partenaires.

Son principal objectif est de coordonner les activités de ses membres visant à soutenir la formation et la recherche en informatique et en mathématique en Afrique sub-saharienne.

<http://sarima.edu-math.org/>



## *Afrique France Réseau International en Mathématiques*

**AFRIMath** est un Réseau International de Recherche du **CNRS** regroupant des mathématiciennes et mathématiciens localisés principalement en Afrique subsaharienne et en France. Ce réseau s'organise autour de quatre thèmes principaux:

- Théorie des nombres et théorie de l'information
- Géométrie et Topologie
- Analyse des EDP, Analyse Numérique
- Probabilités et Statistiques

**AFRIMath** s'inscrit dans la continuité d'actions entreprises depuis plusieurs décennies, en particulier via le Groupement d'Intérêt Scientifique **SARIMA**.

<http://www.afrimath.math.cnrs.fr/>

## The CNRS opens three calls for projects to reinforce its scientific cooperation with Africa

Publié le 23 novembre 2022



Le CNRS lance une série d'appels à projets pour promouvoir la coopération scientifique avec et sur le continent africain. // The CNRS is launching a series of calls for projects to promote scientific cooperation with and on the African continent.

These three calls for projects are open until **February 20th 2023**

Residential research schools



Visiting fellowships



Joint Research Programme in Africa





## L'Agence Universitaire de la Francophonie

Association mondiale d'établissements d'enseignement supérieur et de recherche francophones, l'AUF regroupe plus de 1000 établissements universitaires sur tous les continents dans 119 pays.



<https://www.auf.org/>



<https://www.campusfrance.org/en>

# Some advices for applicants

You need to browse the internet where you will find a lot of other opportunities.

Write carefully your application ; check that there is no misprint ; correct the spelling.

Write a strong and convincing letter of motivation.

# **International cooperation in mathematics:**

**some examples, including  
CIMPA, EMS - CDC, IMU - CDC,  
ICTP, TWAS, OWSD, Simons Foundation,  
ISP, RNTA, SEAMS, EMALCA,  
APSA, SARIMA, AFRIMath**

*Michel Waldschmidt*

Professeur Émérite, Sorbonne Université,  
Institut de Mathématiques de Jussieu, Paris

<http://www.imj-prg.fr/~michel.waldschmidt/>