

Application form for the International Mathematical Union (IMU) Membership (GROUP 1) of SENEGAL

Senegal is located in west Africa. The population of Senegal is about 13,508 715 million (2013) and estimated around 15, 41 million in 2016, with a big ratio of young people. The beginning of the academic mathematics history in Senegal goes back to the year 1957, when the first University Cheikh Anta Diop of Dakar (UCAD) was founded by the French colonial administration. It is one of the oldest francophone universities in West Africa and it is among the most prestigious. Its initial academic activities (teaching and academic program) were coordinated by the French administration until the year 1970.

The Senegalese Mathematical Society (SMS) was formed in December 19, 1987. Originally, the main goal of the SMS was the improvement of the quality of education in mathematics at all levels in the whole country and to provide an environment in which Senegalese mathematicians can exchange ideas and devise concrete actions aiming at the enhancement of the general background conditions for both research and education in mathematics in Senegal.

Currently, Senegal counts six (6) universities with seven (7) Mathematics departments and two (2) institutes with branches in mathematics. The oldest after UCAD is the “Université Gaston Berger” (UGB) of Saint-Louis founded in 1990. Originally, it was reserved to the best students in Senegal and was intended to boost applied sciences. The three (3) other universities founded in 2007 are in their beginning and right now running master and PhD programs in pure and applied mathematics. Two other universities (Université Amadou Makhtar Mbow, Université El Hadji Ibrahima Niass) and a network of Institutes for professional training (ISEP) are under construction. Since 2014, a National World Bank Excellence Center in Mathematics, Computer Sciences and Intelligence Technology, CEA-MITIC is created for five years in UGB supported by the Senegalese Government.

The number of permanent members in mathematics faculty department at the Senegalese universities and institutions are around 100 and forty among them are professors in Mathematics (57 in UCAD, 14 in UGB, 12 in University Assane Seck of Ziguinchor (UASZ), 11 in University Alioune Diop of Bambey (UADB), 9 in Thiès univer-

sity (UT) and polytechnic school of Thiès (EPT), 2 in African Institute for Mathematical Sciences- Senegal (AIMS-Senegal), 2 in UVS and 2 in National Institute of Statistics and Economic Analysis (ENSAE).

In Senegal, PhD studies had been managed and organized into the departments of Mathematics. Since 2008, there were a new organization: there are one doctoral school in Mathematics and Computer Sciences in UCAD (since 2008), and four doctoral trainings in Mathematics and Computer Sciences in UGB (since 2012), UASZ (since 2013), UT (2012), UADB (since 2016) created by Senegalese nationals with more than 100 PhD students in Mathematics in total. Each doctoral school is constituted by several research laboratories in mathematics and their applications, 5 in UCAD, 2 in UGB, 1 in UASZ, 1 in UADB. And from 2015 to 2017 more than 60 PhD theses (in PDE, Functional Analysis, Optimization, Algebra, Cryptography, Coding theory, Geometrical Analysis, Dynamical Geometry, Complex Geometry, Complex Analysis, Probability Theory and Random Analysis, Statistics, Biomathematics) have been defended in the five doctoral schools in Mathematics.

The universities UCAD, UGB and UASZ are very active in Mathematical research while the younger universities of Bambey (UADB) and Thiès (UT) are on promising tracts and are expected to join the top group very soon.

Since 2013, the Nonlinear Analysis, Geometry and Applications (NLAGA) Project, gathering mathematicians from Burkina Faso, Chad Mali, Niger, Senegal (from five universities) with headquarter UCAD, is funded by the Simons Foundation for five years to train PhD students and organize events (workshops, schools and conferences) in Mathematics. This project is refunded for five years more because of its satisfactory results with additional new members from Benin, Congo, Gabon, Ivory Coast, and Togo.

Over the last 5 years several international workshops, schools and conferences in mathematics were organized in the country, 7 in 2017, 6 in 2016, 6 in 2015, 8 in 2014, 5 in 2013 and 6 in 2012. **In the last Senegalese Mathematical Days Conference, which was held Saint-Louis (UGB) in December 2017, more than one hundred presentations have been given with three parallel sessions each afternoon from Monday to Tuesday. This was a clear sign of vitality of the community.**

Research in pure and applied mathematics in Senegal has increased significantly during the recent years and the Senegalese researchers published papers in leading journals with high impact factors. According to the MathScinet databases mathematicians

from Senegal have published approximately 544 papers from 2008 to 2014 and at least 150 papers from 2015 to 2017.

In the last 15 years strong research partnerships have been initiated. Many of the above laboratories share their master programs and sandwich PhD programs with western laboratories: Canada, France, Germany, Spain, United States, Italy, Sweden, Switzerland, etc. The impact of the Senegalese mathematical school in the sub-Saharan region is immense. In fact several countries in sub-Saharan Africa do not have doctoral programs and many researchers in the sub-Saharan region did their doctoral studies in Senegal (UCAD due to its age and the fact that Dakar was the capital of the French West Africa until the year 1960). For instance, there are agreements between Senegal and each country Chad and the Comoros (without doctoral schools) in which the students from these countries are considered as Senegalese students therefore they can benefit on low registration and subsistence fees.

As other noticeable examples, UGB is running Master programs (Applied Mathematics, Statistics) in Gambia and some master programs, in West Africa (Mali, IMPS in Benin, Burkina Faso), are running with a major participation of members of the Mathematical Senegalese community, both in teaching and in supervising.

Adhering Organization:

As required by the statute of IMU the Senegalese Adhering Organization is as follows:
Name « Société de Mathématiques du Sénégal », Université Cheikh Anta Diop de Dakar, BP 5005, Dakar Fann Sénégal

President: Prof. Mamadou Sangharé, Département de Mathématiques et d'Informatique, Université Cheikh Anta Diop, Dakar, Sénégal,

email: mamadou.sanghare@ucad.edu.sn

General Secretary: Prof. Diaraf Seck, Département de Mathématiques de la Décision, Université Cheikh Anta Diop, Dakar, Sénégal,

email: diaraf.seck@ucad.edu.sn