CONFERENCES IN MATHEMATICS AND THEIR APPLICATIONS IN HONOR OF EMINENT
MATHEMATICIANS AT UNIVERSITY OF ANTANANARIVO, MADAGASCAR 2025

Host Institution: Principal Actor:	University of Antananarivo-Ecole Doctorale de Mathématiques et Applications (EDMA), Madagascar Princy Randriambololondrantomalala (University of Antananarivo, Madagascar)
Supporting Actors: Princy Randriambololondrantomalala	(Université of Antananarivo, Madagascar)
Organizing Comity: Fanilo Rajaofetra Randriamahaleo Fanja Rakotondrajao Ramamonjy Andriamifidisoa Christalin Razafindramahatsiaro	(Université of Antananarivo, Madagascar)
10/03/2025 – 13/03/2025	Dates of the project:

Abstract:

The goal of this project is to promote the development of mathematics in Madagascar, particularly at the University of Antananarivo. The conferences and guest speakers invited by this project cover various fields of mathematics. They aim to provide new research perspectives in mathematics and its applications for professors, doctoral students, and students in mathematics and computer science at the University of Antananarivo, as well as other universities in Madagascar. It also serves as an inspiration for mathematics students to see their seniors from the University of Antananarivo succeeding in mathematical careers both in Madagascar and abroad.

Keywords: Philosophy of Mathematics, Formal Calculus, Non-Associative Algebras, Number Theory, Probability and Statistics, Theoretical Computer Science, Graph Theory, Harmonic Analysis, Lie algebras computation, Learning Mathematics.

1 Conference Details

1.1 Conference Framework

The project involves organizing a series of lectures given by local and international speakers over the course of a week, from March 10 to March 13, 2025. This event is part of three celebrations: the first is the tenth anniversary of the Doctoral School of Mathematics and Applications (EDMA, 2015-2025); the second is an opportunity to thank the professors, associate professors, and assistants at EDMA and the Departments of Mathematics, Computer Science, and Technology who will be retiring this year; and the third is the celebration of the International Day of Mathematics on March 14, 2025, in collaboration with the Mathematics and Computer Science Student Association of the University of Antananarivo (AEMIA). The honorees include Professors Michel Rajoelina, Victor Harison, and Arthur Randrianarivony; Associate Professors Armand Ramamonjisoa, Alain Ralambo, Olivier Robinson, Joseph Rakotondralambo, Andriantsoa Sandrataniaina, Martial Razafimahaleo, Sylvain Ramaromanana, Alexis Célestin Rafalimanana, Arsène Ramamonjisoa; and Research Assistants Aimé Rajaonera, Jacqueline Floria Raveloarisoa, Robert Rabarison, and Emile Andrianjanahary. Remark that EDMA has organized with success one conference in honour of Emeritus Professor Frédéric Manelo Anona in March 2023 with support of IMU-CDC Project Grant Program 2022 (for the 2 speakers in the Conference) and local funding.

1-2 Project Objectives of the conferences

The objective of this project is to develop mathematics in Madagascar, particularly at the University of Antananarivo. It provides teachers and doctoral students in mathematics with new research opportunities, not only at the host institution, the University of Antananarivo, but also at other universities in Madagascar with mathematics departments. The selection of speakers is aimed at fostering scientific collaboration between researchers from foreign universities and those from the EDMA at the University of Antananarivo. Likewise, students and doctoral candidates will be encouraged to draw inspiration from the careers of these speakers, many of whom are alumni of the University of Antananarivo, now working at the university and approaching retirement, or at foreign universities, particularly in the United States.

1-3 Target audience

Professors, Associate Professors, Assistants, Doctoral Students, and Master's and Bachelor's students in Mathematics and Computer Science from the University of Antananarivo and other universities in Madagascar, such as the University of Fianarantsoa, the University of Toamasina, the University of Antsiranana, and the University of the Comoros.

1.4 Mathematicians Involved in the Conference

(i) Sania Asif (Nanjing University of Information Science & Technology, China)
(ii) François Ramaroson (Howard University, USA)
(iii) Narcisse Randrianantoanina (Miami University, USA)
(iv) Didier Pinchon (Institut de Mathématiques de Toulouse, France)
(v) Vlady Ravelomanana (Université de Paris Cité, France)
(vi) Teodor Knapik (Université de Nouvelle-Calédonie, Nouvelle-Calédonie)
(vii) Victor Harison (Université d'Antananarivo, Madagascar)
(viii) Michel Rajoelina (Université d'Antananarivo, Madagascar)
(ix) Lahcen Oukhtite (Sidi Mohamed Ben Abdellah University)

(x) Alain Ralambo (Université d'Antananarivo, Madagascar)
(xi) Kouok Law (Georgia State University, USA)
(xii) Njinasoa Randriampiry (East Carolina University, USA)
(xiii) El Hassan El Kinani (Université Moulay Ismail, Maroc)
(xiv) Zouhaïr Mouayn (Université Sultan Moulay Slimane, Maroc)
(xv) Nirina Albert Razafimandimby (University of Porto, Portugal)

(xvi) Dina Faneva Andriantsiory (Université d'Antananarivo, Madagascar)

2. Detailed Conference Plan

The conference will last for four consecutive days, from March 10 to 13, 2025, with two lectures each half-day. At the beginning of each session, there will be a brief overview of the work of each mathematician honored by the event. If the main speaker is present either online or in person, the substitute will serve as the moderator of the session. The topics covered are diverse but remain within the fields of mathematics and their applications:

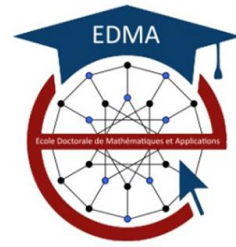| **L'univers des mathématiques**	
Duration Dates Speakers Substitute Description	30 to 45 minutes 10/03/2025 from 9 a.m to 10a.m Victor Harison Livasoa Andriamampionona (Substitute)
Non asoociative algebras and their applications	
Duration Dates Speakers Substitute Description	30 to 45 minutes 10/03/2025 from 10 a.m to 12 a.m Sania Asif Princy Randriambololondrantomalala (Substitute)
On the eigenvalues of Frobenius for a family of Holm elliptic curves	
Duration Dates Speakers Substitute Description	30 to 45 minutes 10/03/2025 from 2 p.m to 3 p.m François Ramaroson Patrick Rabarison (Substitute)
Analysis of Wavelet and Differential equations	
Duration Dates Speakers Substitute Description	30 to 45 minutes 10/03/2025 from 3 p.m 30 to 4 p.m 30 Njinasoa Randriampiry Jean Jolly Rakoto (Substitute)
Strong Poisson Dixmier-Moeglin equivalence	

Duration Dates Speakers Substitute Description:	30 to 45 minutes 11/03/2025 from 9 a.m to 10 a.m Nirina Albert Razafimandimby Mirana Rakotoarivelo (Substitute)

Calcul formel en Algèbre de Lie	
Duration Dates Speakers Substitute Description	30 to 45 minutes 11/03/2025 from 10 a.m 45 to 12 a.m Didier Pinchon Joseph Rakotondramavonirina (Substitute)

Topics on the theory of non-commutative martingales	
Duration Dates Speakers Substitute Description	30 to 45 minutes 11/03/2025 from 2 p.m to 3 p.m Narcisse Randrianantoanina Dina Miora Rakotonirina (Substitute)

Functional Identities on Rings, Applications on Banach algebras and some open problems	
Duration Dates Speakers Substitute Description: Let R be a prime ring. Various papers in literature are devoted to classify generalized derivations of R satisfying some functional identities locally on a suitable subset S of $R:$ After recalling some classical results relating to this research area, we will present some new and recent ones. Moreover, using a topological approach based on Baire's category theorem and some properties of functional analysis, our results have been extended to Banach algebras. We will also propose some open problems on the subject.	30 to 45 minutes 11/03/2025 from 3 p.m 30 to 4 p.m 30 Lahcen Oukhtite Fanja Rakotondrajao (Substitute)

Analyse Harmonique	
Duration Dates Speakers Substitute Description:	30 to 45 minutes 12/03/2025 from 9 a.m to 10 a.m Zouhaïr Mouayn Rado Abraham Randrianomenjanahary (Substitute)

L'indécidabilité : les frontières infranchissables en mathématiques	
	30 to 45 minutes

Duration Dates Speakers Substitute Description:	12/03/2025 from 10 a.m 45 to 12 a.m Teodor Knapik Dina Faneva Andriantsiory (Substitute)
Des Graphes aux Expanders et Graphons : Exploration via l'Algèbre, l'Algorithmique et les Probabilités Duration Dates Speakers Substitute Description:	30 to 45 minutes 12/03/2025 from 2 p.m to 3 p.m Vlady Ravelomanana Christalin Razafindramahatsiaro (Substitute)
Fifty Years in Mathematics Education Duration Dates Speakers Substitute Description:	30 to 45 minutes 12/03/2025 from 3 p.m 30 to 4 p.m 30 Kouok Law Fanomezana Andriampaniry (Substitute)
Enseignements des Mathématiques Duration Dates Speakers Substitute Description:	30 to 45 minutes 13/03/2025 from 9 a.m to 10 a.m Michel Rajoelina Fanilo Randriamahaleo (Substitute)
Survey on the Lie Symmetries : Application to the Fractional Partial Differential Equations. Duration Dates Speakers Substitute Description: The symmetry plays a fundamental role on the laws of nature. In fact the symmetry is everywhere in our life. The important implication of the symmetry in physics and in mathematics is the existence of conservation laws for any continuous symmetry. These connection between symmetry and conservation laws was establish by Emmy Noether. The study of symmetries of differential equations is an old subject. Thanks to Sophus Lie we today have available to us important information on the behaviour of differential equations. In fact, symmetries can be used to find exact solutions for some nonlinear differential equation. In this talk we give a survey on the Lie symmetry analysis for ordinary and fractional partial differential equations. The method is illustrated with some examples.	30 to 45 minutes 13/03/2025 from 10 a.m 45 to 12 a.m El Hassan El Kinani H.S.G. Ravelonirina (Substitute)

Paradoxe de sorite	
Duration Dates Speakers Substitute Description: Vagues divagations sur le thème du chapitre VIII, "Le sophisme des tas de blé", du livre "PROBABILITE ET CERTITUDE" de ´Emile Borel.	30 to 45 minutes 13/03/2025 from 2 p.m to 3 p.m Narcisse Alain Ralambo Ramamonjy Andriamifidisoa (Substitute)
Tensor Clustering through a Statistical Approach Duration Dates Speakers Substitute Description:	30 to 45 minutes 13/03/2025 de 3 p.m 30 to 4 p.m 30 Dina Faneva Andriantsiory Tahiry Andriamarozakaniaina (Substitute)

The special issue dedicated to the conference will be handled by Journal des Mathématiques, Mathématiques Fondamentales et Applications & Informatique (JMMAFI), whose Editor-in-Chief is Professor Emeritus Rabeherimanana Toussaint Joseph: http://madarevues.recherches.gov.mg/?-Journal-de-Mathematiques-Mathematiques-Applications-Fondamentales-et-.

The complete conference abstracts will be published in November 2024 on the website of the Department of Mathematics and Computer Science and the Doctoral School of Mathematics and Applications: https://www.mathinfo-univtana.mg/.

CELEBRATION CONJOINTE DU DIXIEME ANNIVERSAIRE DE L'EDMA ET LA JOURNEE INTERNATIONALE DES MATHEMATIQUES-UNIVERSITE D'ANTANANARIVO MADAGASCAR 2025

Institution hôte: Principal acteur:	Université d'Antananarivo-Ecole Doctorale de Mathématiques et Applications (EDMA) à Madagascar Princy Randriambololondrantomalala (Université d'Antananarivo, Madagascar)
Acteurs de Support: Princy Randriambololondrantomalala et Fanilo Rajaofetra Randriamahaleo	(Université d'Antananarivo, Madagascar)
Comité d'oganisation: Fanilo Rajaofetra Randriamahaleo, Fanja Rakotondrajao, Ramamonjy Andriamifidisoa, Christalin Razafindramahatsiaro, M. Lalaina Andriamananjara	(Université d'Antananarivo, Madagascar)
14/03/2025	Date du projet:

Résumé

Le but de ce projet est la célébration de la dixième anniversaire de l'EDMA dans la journée internationale des Mathématiques, "pi day" le 14 Mars 2025.

Mots clés: 10 ème anniversaire EDMA, Pi day.

1 Contexte de la célébration

L'EDMA ou Ecole Doctorale Mathématiques et Applications de l'Université d'Antananarivo aura dix ans en 2025, plus précisément, l'EDMA a été créé le 06 Février 2015 par l'arrêté

ministérielle n°10772/2015 du 06 Février 2015. Elle a succédé une partie mathématique de l'Ecole Doctorale Multidisciplinaire de l'Université d'Antananarivo, qui a délivré le diplôme de doctorat à l'Université d'Antananarivo avant cette date. Depuis sa création, elle a sorti plusieurs dizaines de docteurs et une dizaine de docteurs HDR. L'EDMA a opté et optera pour l'excellence des docteurs et docteurs HDR sortis au sein de sa formation doctorale et professorale. Une preuve est que depuis 2006, la majorité des choisis pour représenter Madagascar au plus prestigieux congrès international de Mathématiques ICM (International Congress of Mathematics) vient de l'EDMA. L'école a deux équipes d'Accueil, celle de Mathématiques et Structures, et Mathématiques Appliquées. Comme le proverbe Malagasy dit "Ny hazo no vanon-ko-lakana, ny tany naniriany no tsara", traduit en Français, "Un arbre devient un pirogue, c'est le terrain qui l'a nourrie qui est bon". C'est la qualité des formations obtenues auprès de ces membres que viennent cette qualité supérieure des diplômés de l'EDMA. Ainsi, on est fier d'appartenir à l'EDMA qui contient maintenant 24 membres Professeurs et Docteurs, deux Professeurs associés dans deux Universités étrangères (Toulouse et Paris). Cette célébration de la dixième anniversaire de l'EDMA en le jour du 14 Mars 2024, journée internationale des Mathématiques rend hommage à l'EDMA dans son travail dans le développement des mathématiques dans la scène nationale et internationale. C'est une grande occasion aussi pour les acteurs en Mathématiques, en particulier l'AEMIA et l'institution utilisant les Mathématiques comme le SAMIFIN de faire connaître leurs activités dans le public académique entrant dans le cadre de ce pi day. Pour rendre mémorable avec une signification affective, cette journée sera marquée par la remise de certificats de mérite aux mathématiciens honorés par la série de conférence ci-avant: il s'agit des Professeurs Michel Rajoelina, Victor Harison, Arthur Randrianarivony, Fréderic Manelo Anona, Toussaint Rabeherimanana des Maîtres de Conférences Armand Ramamonjisoa, Alain Ralambo, Olivier Robinson, Joseph Rakotondralambo, Sandrataniaina Andriantsoa, Martial Razafimahaleo, Sylvain Ramaromanana, Alexis Célestin Rafalimanana, Arsène Ramamonjisoa des Assistants de Recherches Aimé Rajaonera, Jacqueline Floria Raveloarisoa, Robert Rabarison, Emile Andrianjanahary. Souhaitant un travail continu avec excellence à l'EDMA à l'occasion de cette célébration.

2 Programme de la célébration

Jour et heure	Titre de l'intervention	Intervenant	Présentateur
14 Mars Vendredi 8h-9h	Arrivés des invités	Modérateur	Orateur
14 Mars Vendredi 9h	Arrivés des officiels	Modérateur	Orateur
14 Mars Vendredi 9h10	Prise de Paroles des divers officiels	Directeur de l'EDMA, Chef de Mention Mathématiques et Informatique, Doyen de domaine Sciences et Technologie, Président de l'Université	Orateur
14 Mars	Prise de parole	Journée Internationale des	Orateur

Vendredi 10h30	du Président de l'AEMIA	Mathématiques	
14 Mars Vendredi 10h45	Prise de parole du Président de SAMIFIN	SAMIFIN et lutte contre le blanchiment d'argent sale, les Mathématiques, un outil incontournable	Orateur
14 Mars Vendredi 11h20	Remise des certificats de reconnaissance aux diplômés de l'EDMA	Officiels	Orateur
14 Mars Vendredi 11h40	Remise des certificats d'honneur mathématiques	Officiels	Orateur
14 Mars Vendredi 12h	Visite des stands AEMIA au Jardin connecté	Officiels-AEMIA	Orateur
14 Mars Vendredi 12h30	Cocktail	Traiteurs	Orateur
14 Mars Vendredi à partir de 13h30	Activités Mathématiques	AEMIA et les Mathématiciens	Membres de l'AEMIA