

# IMSA *Report Oct. 2022 - Aug. 2023*

IMSA is a cutting-edge research institution that was founded in 2018 with the general support of the Simons Foundation. In the fall of 2022, we were considered for a Frost type of institute by the provost's committee. Additionally, permanent space arrangements were discussed. During the last ten months we have brought our activities to much higher level. We will briefly report on this.

To streamline the collaboration with mathematical societies in Latin America, IMSA has established IMSA's Mathematical Societies Collaborative Group.

IMSA-MSCG is a new collaborative effort among leading mathematical societies in the Americas to advance and communicate knowledge in mathematics and the mathematical sciences.

To present the top achievement of leading mathematicians in Latin America, the institute has organized IMSA's Frontiers in Mathematics Lecture Series.

Among the speakers were:



Professor Carolina Araujo



Jacqueline Godoy Mesquita



Professor Maria Amelia Salazar



This Spring IMSA has organized several high impact conferences.



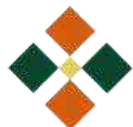
- Homological Mirror Symmetry  
January 23-27, 2023
- Periods, Shafarevich Maps and Applications  
January 20-February 3, 2023
- Higher Structures in Algebra, Geometry, Topology and Physics  
February 27-March 2, 2023
- Low Dimensional Topology and Circle-valued Morse Functions  
February 6-10, 2023
- Gauge Theory and Low Dimensional Topology Conference  
April 17-21, 2023

Conference: Quantum Toric Geometry, Generalized Geometries and O-Minimality, May 1-5, 2023

Conference: Higher Invariants in Equivariant and Geometric Topology, May 24-27, 2023







## IMSA has had Several Joint Events

### Higher Structures in Algebra, Geometry, Topology and Physics

February 27-March 2, 2023, Universidad del Norte, Barranquilla, Colombia

### Conference on Complex Geometry in Merida - Alberto 80

January 9 - 13, 2023, UADY Building, Merida, Yucatan, Mexico



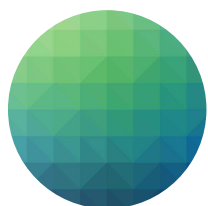
Consortium Distinguished Lecturer Series

Michael R. Douglas

June 29-30, 2023

Joint Event with ICMS, Sofia

## ◆ Future Events ◆



Geometry Conference 50 years  
of Hitchin Mathematics and  
the Americas

December 11-16, 2023



## Plan for Fall 2023

### Exploring Generalized Geometric Motifs: Semester Program at IMSA

The program, "Exploring Generalized Geometric Motifs," celebrates traditional mathematical concepts studied in the Americas, the US, and Europe, while exploring new research directions in the nascent quantum toric geometry and the classical field of birational geometry in search of solutions to classical problems.

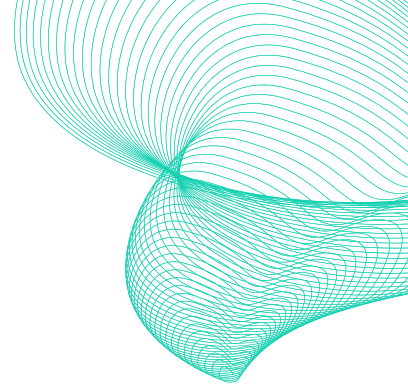
**Distinguished Lecture Series by Karen Uhlenbek**

**December 12, 2023 at 3:00 pm**

**and**

**December 14, 2023 at 3:00 pm.**





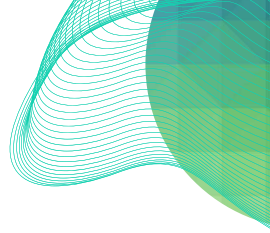
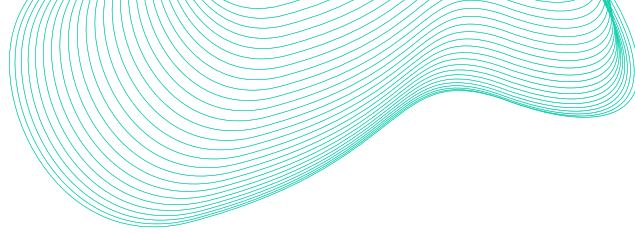
## Long Term Vision

The Institute of the Mathematical Sciences of the Americas (IMSA), established in 2019, results from a decade-long collaboration between the University of Miami, CINVESTAV, UNICAMPI, and Universidad del Norte. It reflects the recent outstanding progress and global recognition of Latin American mathematics.

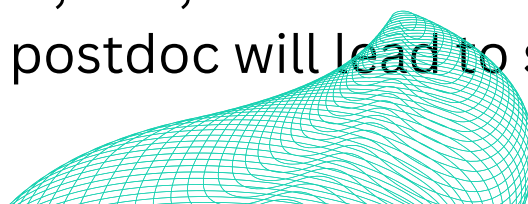
IMSA fosters advancing and communicating knowledge in mathematics and the mathematical sciences through interactive dialogues among Latin America, the US, and the global mathematical community. We will summarize our long term goals.







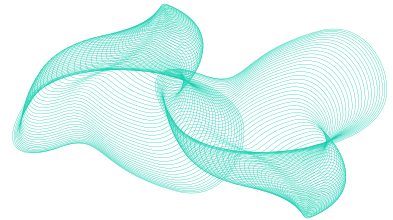
- Located in Miami, IMSA offers an unique opportunity for hemispheric leadership. The current modus operandi will successfully put UM on the map of cutting-edge intellectual hubs.
- It gives UM a massive advantage of attracting top American and international talent on researchers and students level.
- Several expected gifts and grants (20,000,000 USD plus) in the next 5 years will play a transformational role and bring IMSA at the forefront of contemporary mathematics. It will allow the hire of 3-4 leading mathematician, some of them from Latin America, who will serve as role models to current and future generations.
- New cutting edge directions e.g. AI and Computational Astronomy will make IMSA a MATH + institute of the 20 century leading to long-term collaboration with the industry.
- An additional 30,000,000 USD and ( 3-4 permanent positions) and postdoc will lead to sustainability





# Five years Plan

In the next five years we envision IMSA as a Simons Foundation and NSF supported institution with 3 or 4 permanent faculty, numerous post docs and graduate students. In addition to core areas in pure mathematics we plan developing new directions; artificial intelligence, computational applied mathematics with applications to astronomy, health and other sciences. We expect securing substantial support from other foundations and philanthropic gifts. This will be a major step to creating a Frost type of institution.





In addition to existing programs, we will add Miami Vice Lecture Series starting in January 2024. The new name and funding will be discussed.

This lecture series will feature the achievements of modern mathematics and will give prominence to many Latin America mathematicians.

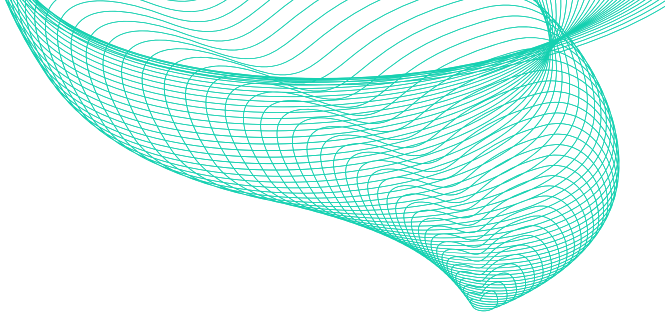


# Miami Vice Lecture Series

## Miami

## January 2024





In addition to the lectures we will publish proceedings using Simons foundation publishing options.

During the Miami Vice conference we will have a dinner with "Friends of IMSA" at UM.

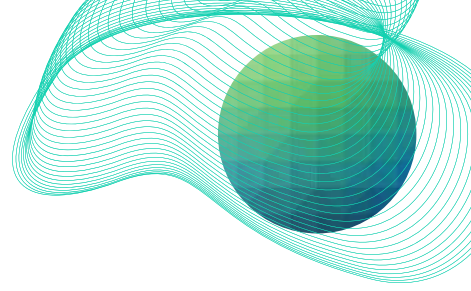
The following prizes will be awarded:

- 3 Prizes for best Young Researcher
- 1 Prize for best Female Researcher
- 2 Prizes for Advanced Researcher
- 2 Prizes for best Graduate Student work leading to a IMSA Post Doc positions. These prizes will be designated to US students with Latin American origin.

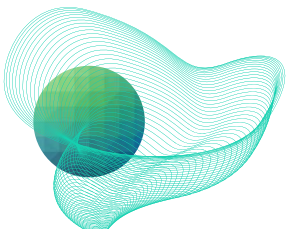


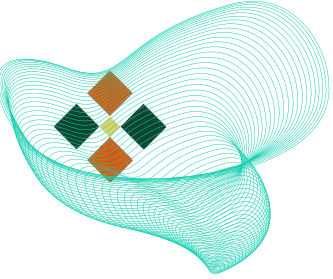


# Ten Years Plan

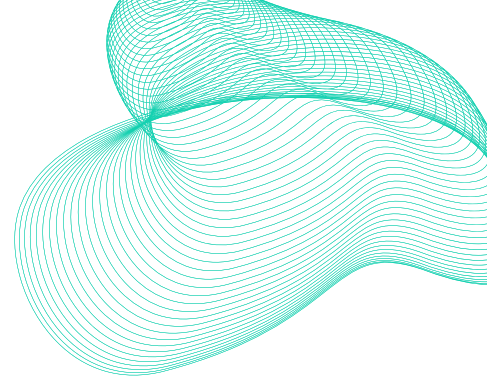


Ten years from now, we expect IMSA to be a very successful FROST type of an institute, employing six named chairs and six permanent professors. At least half of them will be leading scientist from Latin America. This is a transformational step bringing the institute to the next level. We expect to raise at least 30 million. IMSA will produce highly qualified experts in a variety of mathematical sciences, serving as a bridge between theoretical mathematics and its industry applications. IMSA will report directly to the Provost and achieve relative independence following IDSA model.





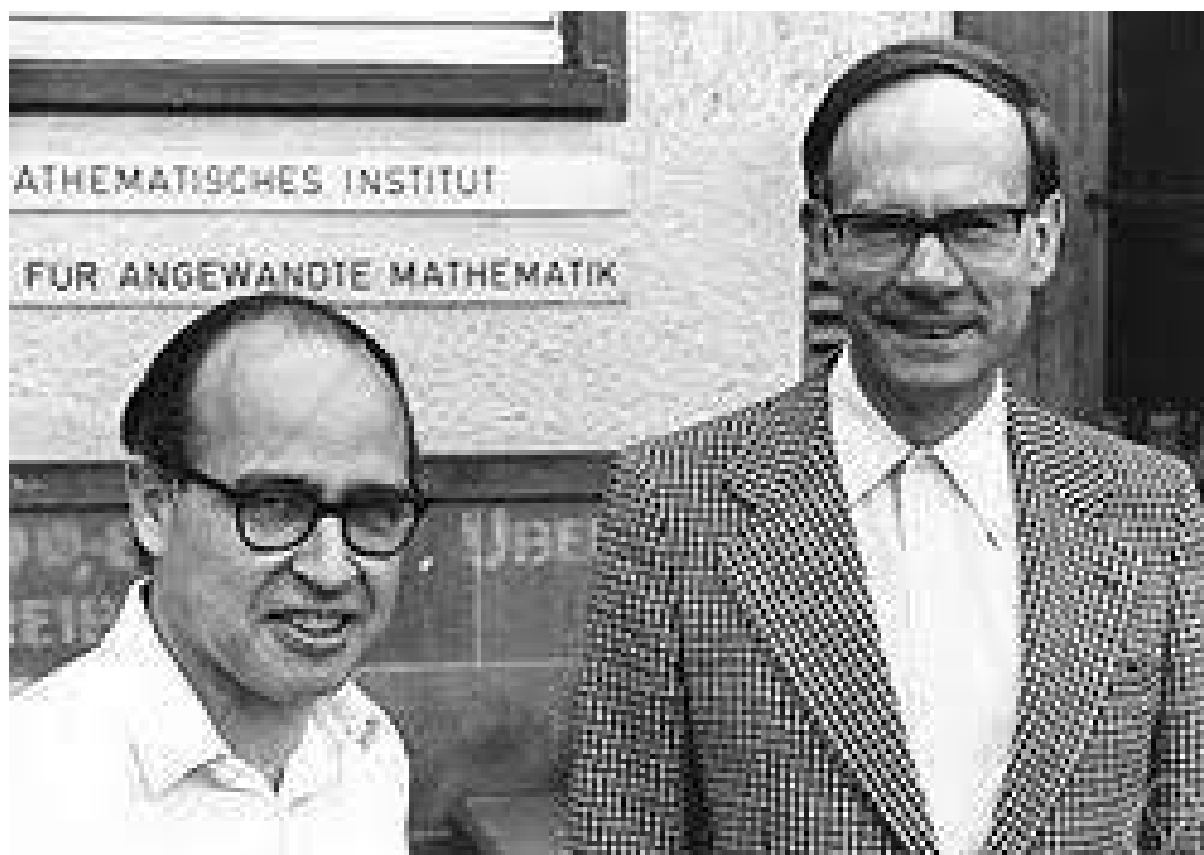
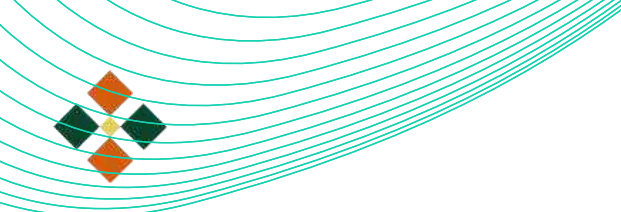
# IMSA 30 Years from Now



We expect that 30 years from now  
IMSA will be well established and a  
sustainable institute with a serious  
endowment. It will be the Institute of  
Advanced Studies in Latin America.







It took 20 years to F. Hirzebruch to create Max Plank Institute in Bonn with the help of Max Plank gesellschaft. In 1982 Sir Michael Atiyah proclaimed “And so Bonn became the center.” We hope 12-15 years from now Y. Tschinkel sums it up: “And so **IMSA** became the center.”

