

# Scientific Initiation with emphasis in mathematics for Young Talents

*A door to the scientific and technological careers*



## Multidisciplinary Organization for support of Teachers and Students

was created in 1989 for a group of young and teachers, passionate for the mathematics..

Nowadays it is an independent entity, non-governmental, nonprofit, that mainly administer wills.





## + Mission

Help students from Paraguay to the higher development in their intellectual capabilities and the application of these skills to the problem solving.

Promote activities of research, culture and education, through programs - specially of national coverage- with emphasis in the area of the sciences and the technologies.

Keep up the opportunities to access to the benefits of our programs for students from disadvantaged social sectors from across the country.

## + Vision

It's the one of a country with leader young skilled to take decisions based in the logical reasoning, the context analysis and able to consider the variables.

The background is a blue gradient, transitioning from a lighter blue at the top to a darker blue at the bottom. A faint grid pattern is visible, and there are some wavy, light-colored lines on the left side.

# *Scientific Careers in Paraguay*

## + Current Situation

Low mathematical level of the applicants and, as a result, big difficulties to access.

Notable differences of level among students from private schools and public schools which causes social exclusion.

Aggravated economic difficulties for full-time careers.

## + Consequences

Discouragement and self discrimination

Low interest in scientific and technological careers

Deterioration of the scientific and technological careers

## + Comparative Charts Numbers CyT 2008

	University Graduated	Qty.
1	Natural and Exact Sciences	283
2	Engineering and Technologies	430
3	Medical Sciences	724
4	Agricultural Sciences	282
5	Social Sciences	3.625
6	Humanities	565
TOTAL		5.909

**Font:** Statistics of numbers in Science and Technology in Paraguay, year 2008, p.38. [www.conacyt.gov.py](http://www.conacyt.gov.py)

## + Phases and Activities

Phases	Activities
Motivation and Catchment	<ul style="list-style-type: none"> <li>• National Mathematical Olympiads</li> </ul>
Training and Scientific Initiation for Young Talents	<ul style="list-style-type: none"> <li>• Summer courses</li> <li>• Annual course of Mathematics</li> <li>• Forum to discuss problems in Internet</li> <li>• Several courses of specialization and the EMALCA</li> <li>• Scholarships</li> </ul>
Incentive to excellence	<ul style="list-style-type: none"> <li>• International Olympiads</li> </ul>

## National Mathematical Olympiads

it infiltrates and reaches immediately to students, and creates networks among teachers and pioneer institutions.

**And the students always  
get motivated!**

**It helps Paraguayan students:**

- + to think,
- + to acquire skills in excellence,
- + to develop their imagination and creativity,
- + to persevere in the effort.

**It helps teachers:**

- + to develop challenging activities in the classroom throughout the year.



## Program's Objectives

To train elite groups, since early years, in the scientific research and the study of sciences, using mathematics as a tool, taking advantage of its playful character and its permeability and interdisciplinary integration in all the areas of human performance.



# Scientific Initiation for Young Talents



## LEVELS

- + BEGINNERS
- + UPPER BEGINNERS
- + INTERMEDIATE
- + UPPER INTERMEDIATE 1
- + UPPER INTERMEDIATE 2
- + ADVANCE 1
- + ADVANCE 2

## ANNUAL COURSE

### *Contents*

- + NUMBER THEORY
- + COMBINATORY
- + GEOMETRY
- + ALGEBRA
- + STRATEGY

## SUMMER INTENSIVE COURSES

### *Some courses*

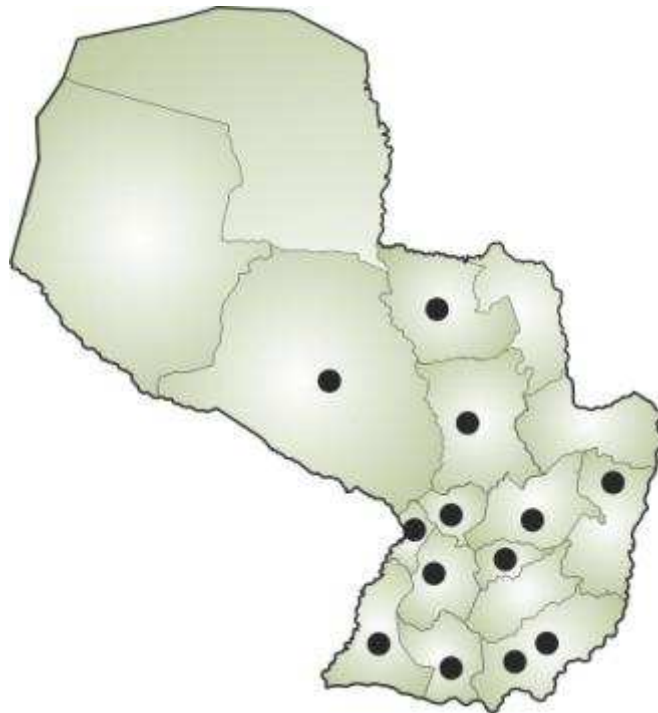
- + Problem Solving Methodology
- + Geometry Constructions
- + Geometry Proof
- + Dirichlet Distribution
- + Logic
- + Problem Solving Workshops
- + Divisibility

## Courses and workshops in Asunción and 5 Scientific Initiation Centers in the countryside (year 2012).

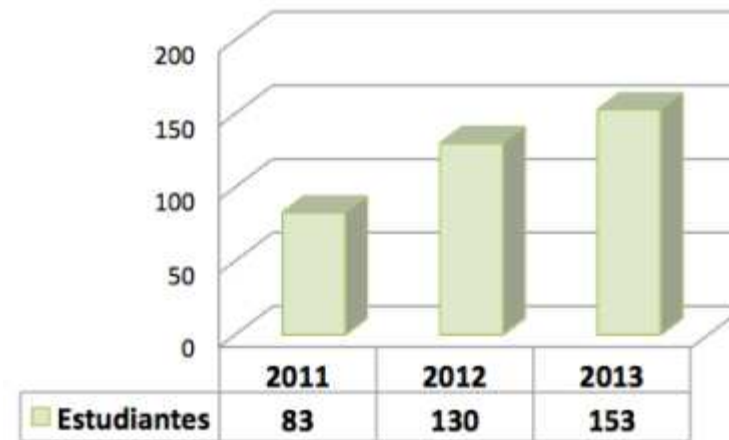
- + Summer intensive course in December  
350 students
- + Summer intensive course in February  
350 students
- + Annual Course of Mathematic for Young Talents. From March to September  
120 students



# Scientific Initiation for Young Talents



YEAR 2013

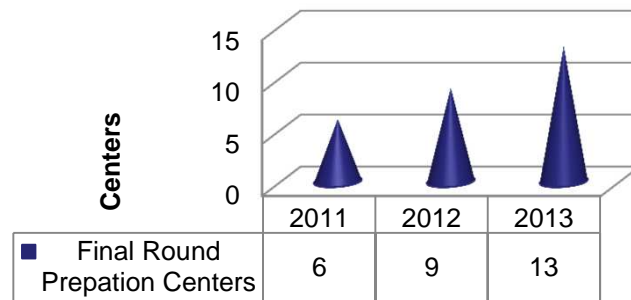


+ 13 Centers of Scientific Initiation  
with Emphasis in Mathematics for  
Young Talents

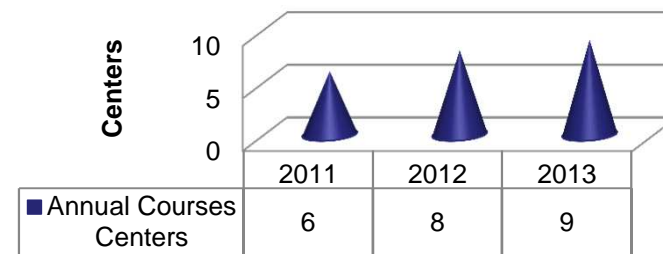
+ 153 Young Talents

## Evolution 2011 to 2013

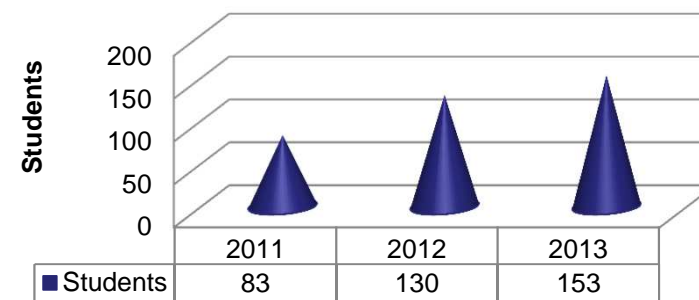
**Scientific Initiation Centers  
Final Round preparation course**



**Scientific Initiation Centers for Young Talents  
Annual Course**



**Participating students  
Annual course**



## International Olympiads



### Cono Sur Mathematical Olympiad

12 Bronze Medals (one in 2013)  
19 Honorable Mentions (two in 2013)



### Iberoamerican Mathematical Olympiad

3 Silver Medals (one in 2013)  
13 Bronze Medals (one in 2013)  
15 Honorable Mentions (two in 2013)  
2 Puerto Rico Cups, 2006 and 2010

## International Olympiads



### International Mathematical Olympiad (IMO)

- 1 Silver Medal
- 3 Bronze Medals (two in 2013)
- 11 Honorable Mentions (one in 2013)



### Latin American Astronomy and Astronautic Olympiad

- 5 Silver Medals (one in 2013)
- 11 Bronze Medals (two in 2013)
- 7 Honorable Mentions (one in 2013)



# EMALCA

Mathematical School of Latin American and the Caribbean

## Organized by

Board for the Strengthening of Mathematic in Paraguay (FACEN, FIUNA y UMALCA)

## Main Goal

Contribute to the development of Mathematic in Latin America by contacting young people with relevant topics of current interest and encouraging to the most outstanding students to continue postgraduate studies.





## Oriented to

students of last courses of grade education  
and starting postgraduate studies

## It covers

Courses of two weeks, taught by renown  
specialists in their areas.  
Teachers' reports about the students and  
their possibilities for future studies.





# Available Scholarship

In alliance with the Higher Education Sector

<u>Institution</u>	<u>Description</u>
College of Engineering U.N.A.	Scholarships for the admission course and admission test
Polytechnic College U.N.A.	Scholarships for the admission course and the admission test
College of Exact and Natural Sciences U.N.A.	Scholarships for the admission course
College of Agriculture Sciences U.N.A.	Scholarships for the admission course

### **In process**

Scholarships for economic support to cover the costs of transportation and general expenses for students from the countryside and disadvantaged social sectors from the capital and the districts where a Scientific Initiation Center works.

# Program's Impact

## On the students

Improve their skills to think and reason

Find a space to develop their skills

Initiate their scientific training  
Encourage the excellence, the effort and dedication

An space for socialize,  
participate and collaborate

Develop the character training  
and the frustration handling



## For the country

Encourage the development of young with specific skills

Produce students of top level, ready to participate in university programs of excellence

Stimulate the work of volunteers

In 2001 we were in the position number 83 among 83 countries (IMO).  
 In 2006 we won the cup to the country that advanced the most in Mathematics.  
 In 2010, we won the Puerto Rico cup again (Iberoamerican Olympiad).



# Puerto Rico Cup

In 2006 Paraguay got the  
Puerto Rico Cup!

**It is given to the country with the higher  
relative advance in the last 3 year**



In 2010 Paraguay won the  
Puerto Rico Cup again!

# SCIENTIFIC INITIATION

## Some Former-Olympians... Where in the world are now?



### **Nilda Chamorro**

Civil Engineer by the National University of Asunción (Paraguay) with a minor in Environmental Engineering in Palermo University (Italy).



### **Diego Segovia**

Bachelor in Sociology by the Pontifical Gregorian University in Rome (Italy). He was the former Director of public policies and strategies at the Public TV of Paraguay.



### **Carlos Alberto Jara**

Civil Engineer by the National University of Asunción (Paraguay), he is currently studying a Master's degree in sanitary engineering in Polytechnic University in Valencia (Spain).



### **Carlos Sauer**

Electronic Engineer by the National University of Asunción (Paraguay) with a master's degree in Computer Science by the IMPA (Brazil), currently studying a PhD in applied Mathematics at the MIT (Massachusetts, USA) with a scholarship MIT – Fulbright – Itaipú.

# SCIENTIFIC INITIATION

## Some Former-Olympians... Where in the world are now?



### Joel Prieto

Electronic Engineer by the Catholic University of Asunción (Paraguay) with a master's degree in engines from Sevilla University (Spain). He is currently studying a PhD in engines in Sevilla University (Spain).



### Guillermo Cabral

Economist by the National University of Asunción (Paraguay), Master in Economy by Tocuato di Tella University (Buenos Aires, Argentina).



### Carlos Jara de Marco

Economist by the Catholic University of Asunción (Paraguay), Master in International Political Economy and Development by Fordham University (USA).



### Mattias Hiebert

Food Processing student at University of British Columbia (Canada)



# SCIENTIFIC INITIATION

## Some Ex-Olympians... ¿Where in the world are now?



### Andrés Codas

Automation and Control Engineer and M.Sc. in Optimization applied to the oil industry in the Federal University of Santa Catarina. He is currently a researcher at the Norwegian University of Science and Technology (Norway).



### Maurizio Caló

Master in Computer Science and Applied Mathematics student at Stanford University, California (USA) with a Stanford scholarship



### Michael Chan

Aeronautical Engineering student at the University of Cordoba (Argentina)



### Ezequiel Gamarra

Electromechanical Engineering student at the University of La Plata (Argentina)



# SCIENTIFIC INITIATION

## Some Ex-Olympians... Where in the world are now?



### **Mauricio Maluff**

Physics and Mathematics student at Northwestern University, Illinois (USA)



### **Marcos Martínez Sugastti**

Mathematics and Economy student at Columbia University, New York (USA), with a scholarship of his University



### **Ariel Schwartzman**

Computer Science student at the MIT (USA), with a scholarship of MIT



### **Enrique Díaz**

Engineering student at Cornell University, New York (USA) with scholarship of Cornell University



### **Edgar Elizeche**

Mathematics student at the University of New Delhi (India) with a scholarship of his University

# ¡Thanks!



Stay in touch....

[www.omapa.org.py](http://www.omapa.org.py)  
[facebook.com/omapa.org.py](https://facebook.com/omapa.org.py)  
twitter @omapa  
[omapa@omapa.org.py](mailto:omapa@omapa.org.py)  
+59521 605154