

National Institute for Advanced Mathematics

“Francesco Severi” (acronym: INdAM) www.altamatematica.it

INdAM

Istituto Nazionale di Alta Matematica

Francesco Severi



Principal Officers

President: Vincenzo Ancona

Vice President: Elisabetta Strickland

Administration Manager:

About INdAM

- ❖ INdAM is the Italian mathematics Research Institute, it is a self-governing state research institute (similar to CNR, the National Research Council and INFN, the National Institute for Nuclear Physics) legally constituted and supervised by MIUR, the Ministry responsible for Education University and Research.
- ❖ First founded in 1939 by the noted mathematician Francesco Severi, it was subsequently given legal status L.11/2/1992, no.153.

Reform of the Research Centres

- Two years ago the Italian Government organized the reform of the Italian Research (Decreto legislativo 213/2009). The Board of Administration, that was composed of the President, the two Vice-presidents and of four experts nominated by the competent Ministries was integrated by five experts nominated by Minister of Education and Research. They were:
 - Dott.ssa Cinzia Barisano
 - Prof. Giorgio Israel
 - Prof. Vincenzo Nesi
 - Prof. Eugenio Picozza
 - Prof. Edoardo Vesentini.
- The Board of Administration adopted a new Statute for INdAM on 31/3/2011 that was approved on 11/4/2011 by Minister (bill no. 581 MIUR 11A05241 issued to the Gazzetta Ufficiale 19/4/2011 no. 90)

Aims (Mission Statement)

- *To promote the training of researchers in mathematics, at national, international and European community level, in particular to supplement the training potential of the Italian universities.*
- *To develop research in pure and applied mathematics, especially in the emerging branches, and to foster the transfer of knowledge to technological applications.*
- *To further close and sustained contact between Italian and international mathematical research, in particular by participating in programs within the framework of the European Union.*

Governing Body

- The governing body of INdAM is organized as follows:
- The President, elected by the Scientific Community
- The Scientific Council (Consiglio Scientifico) is composed of seven members elected for four-year terms from the community of university mathematicians.
- The Board of Administration, composed of the President, of a professor elected by the community of university mathematicians and of an expert nominated by the Ministry of the Research.
- The Board of Auditors of Accounts.



The Scientific Council
is composed as follows:

Prof. PIERMARCO CANNARSA

Prof. CLAUDIO CANUTO

Prof.ssa GIULIANELLA COLETTI

Prof. PAOLO MARCELLINI

Prof. GIORGIO PATRIZIO

Prof. TOMMASO ANTONIO RUGGERI

Prof. ALESSANDRO VERRA

• From 2001 to 2011, INdAM had established the **Internal Evaluation Committee** with the mandate of assessing the state of INdAM's activities and to advise both INdAM itself and the competent authorities on its future orientations.

• The Internal Evaluation Committee was composed as follows:

- Francesco Guerra, Università di Roma La Sapienza (chairman)
- Francis Clarke, Université de Lyon I
- Gianluigi Galeotti, Università di Roma La Sapienza
- Victor Kac, Massachusetts Institute of Technology

CIVR - ANVUR

- **The scientific rating of CIVR:**
The CIVR (Committee for Evaluation of Research) was a body nominated by the government. The fundamental task of CIVR was to promote research evaluation activities for optimal utilization of national scientific and technological research resources.
To the scientific production of INdAM, CIVR had conferred a rating of 94/100, the highest rating of Italian Research.
By 2010 this Agency is changed in the National Agency for the Evaluation of Universities and Research Institutes

The role of INdAM in research

•INdAM has no permanent research staff. Most of the research activities of INdAM are carried out by the 4 National Research Groups, drawing researchers, including both early stage and advanced fellows, from Universities, public and private Research Centres and the INdAM advanced fellows. The Groups carry out the following activities:

- 1. Invitation of foreign scientists to develop research and also for consultation and high-level training.**
- 2. Payment of missions abroad for their members.**
- 3. Organization of and participation in, meetings prepared by their members.**
- 4. Financing of travel abroad for research or meetings of doctorate and research fellows.**
- 5. Research projects.**

Group constitution

- ◇ Each Group is governed by a Scientific Committee composed of four elected members and three members appointed by INdAM.
- ◇ The Director of each Group is chosen by INdAM itself from among the four elected members. They report their activities and expenditures to INdAM on a yearly basis; INdAM having given mandatory guidelines regulating a number of issues (visiting professors, sabbatical years, etc.).
- ◇ Each Group is subdivided into a number of thematic sections and composed of Research Units at the level of the various universities.

S1

INdAM

National
Research
Groups

Activities
in
education

Activities
in
Research

International
Activities

GNAMPA

GNSAGA

GNFM

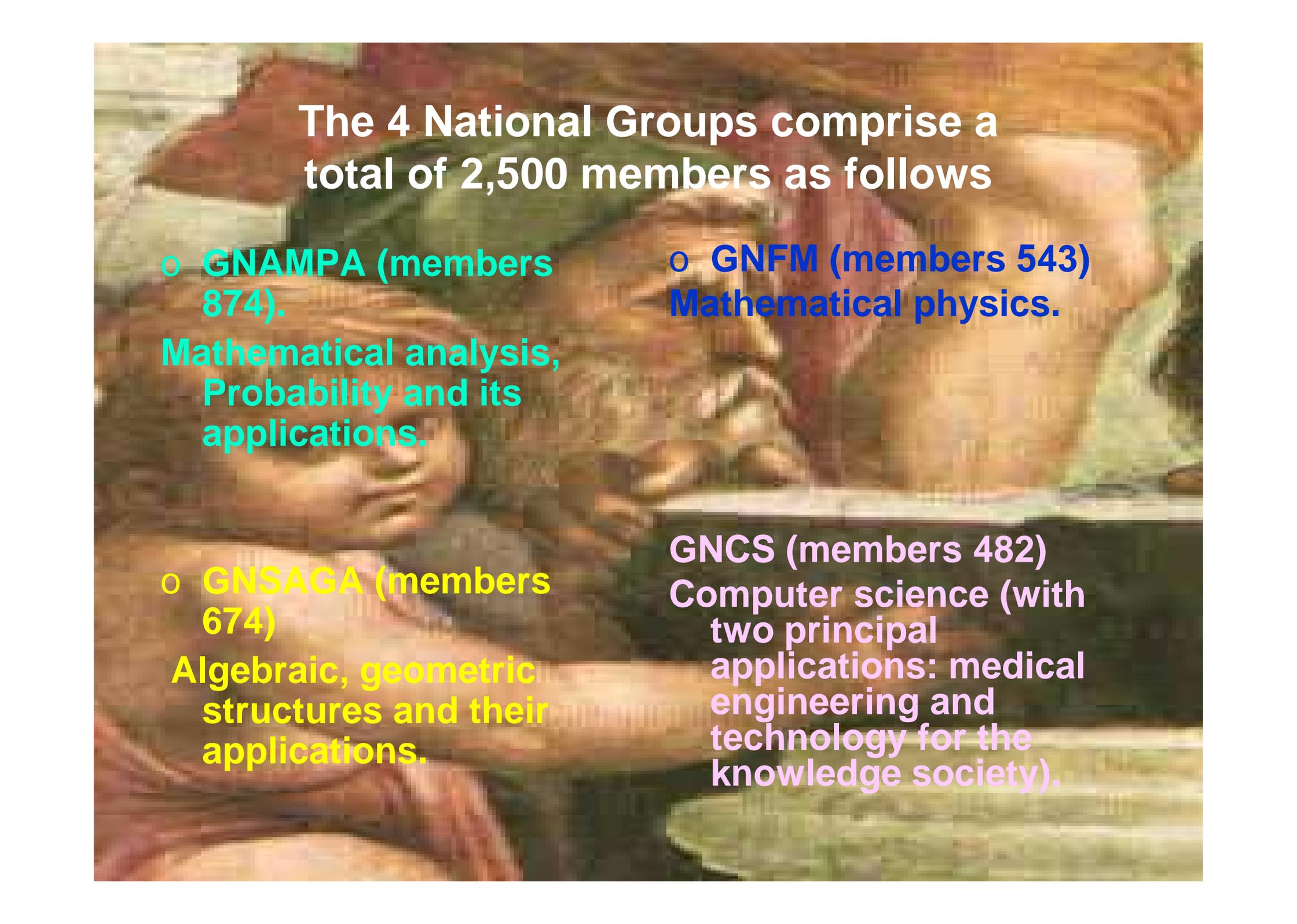
GNCS

Diapositiva 12

S1

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Dott.ssa Esposito; 18/03/2008



The 4 National Groups comprise a total of 2,500 members as follows

o **GNAMPA (members 874).**

Mathematical analysis, Probability and its applications.

o **GNSAGA (members 674)**

Algebraic, geometric structures and their applications.

o **GNFM (members 543)**
Mathematical physics.

GNCS (members 482)
Computer science (with two principal applications: medical engineering and technology for the knowledge society).

International Relationship

- INdAM has joined with the Program of MSRI (of Berkeley) Academic Sponsor: INdAM is part of the MSRI Governance (the Committee).
- INdAM is a Member of ERCOM (European Research Centres on Mathematics), the Committee of the European Mathematical Society, consisting of Directors of different European Mathematical Research Centres. Only European centres, predominantly research oriented, with a large international visiting programme, and covering a broad area of the Mathematical Sciences are eligible for representation in ERCOM. ERCOM aims to contribute to the unity of Mathematics, from fundamentals to applications.
- INdAM is a Member of International Mathematical Sciences Institutes (IMSI), the international pool of research Institutes in the mathematical sciences that run thematic research programs and have large visitors programs
- On February 2010, the Executive Committee of IMU held his annual meeting in Rome, at the Casa dell'Aviatore, organized by INdAM. From 2008 the OECD's Global Science Forum for the actions about mathematics and Industry.

SEVENTH FRAMEWORK PROGRAMME

FP7 Marie Curie Actions - People

**Co-funding of Regional, National and
International programmes**

**INdAM FELLOWSHIPS IN MATHEMATICS
AND/OR APPLICATIONS FOR EXPERIENCED
RESEARCHERS COFUNDED BY MARIE CURIE
ACTIONS**

Project Acronym: “INdAM-COFUND”

The INdAM-COFUND Programme plans to open to transnational mobility the existing INdAM national programme, increasing the trans-national mobility of researchers and improving their working and employment conditions, in particular the amount of their salaries.

The fellowships awarded are of three types:

- (1) Outgoing fellowships (with return phase), intended for Italian nationals or "assimilated" : 4-5 per year
- (2) Incoming fellowships, intended for Italy non-national from a EU Member State (MS) different from Italy, or Associated Country (AC) or a Third Country, 3-4 per year.
- (3) Re-integration fellowships, intended for Italian nationals who have carried out research in a Third Country for at least 3 years in the last 4 years prior to the deadline. 1 per year.

As to the choice of the research programs, the expression "mathematics and/or its applications" has a very broad meaning. It includes all the fields of mathematics, applications of mathematics to the natural and social sciences, e.g. physics, biology, chemistry, finance and economics, to computer science, to engineering, to industry and technology and so on.

There is a **complete freedom for the fellow of choosing the research institution** (provided it is in the Italian territory for incoming and reintegration, and outgoing –out of the Italian land-for the return phase) (either public or private or when applicable a combination of both) and of the supervisors and/or collaborators most suitable to conduct successfully his/her project. In the Programme it will be fully implemented INdAM policy for fellowships that is based on supporting researchers, selected only on the base of scientific quality, so that they can choose their host institutions, their supervisors, their programs (rather than support institutions or senior researchers so that they can choose their fellows).

The duration of the Programme is 48 months. The total number of fellowships: 27. The total number of fellow-year: 54.

The first Call, consisting of 5 outgoing, 3 incoming, 1 reintegration fellowships was started this year (on 2011).

The fellowships.

Duration

The outgoing fellowships consist of an outgoing phase of 18 months and a return phase of 6 months.

The incoming and re-integration fellowships last 24 months.

Eligibility criteria for Researchers

On the date of the relevant deadline for submission of proposals, applicants to INdAM-COFUND fellowship programme must be experienced researchers, that is

- (i) be in possession of a doctoral degree, independently of the time taken to acquire it or
- (ii) have at least four years of full-time equivalent research experience

Selection process for the fellows under the programme

The calls for the fellowships of the programme are announced on the INdAM website

The selection committee in charge of the final decision is a Panel appointed by the Comitato Direttivo of INdAM (INdAM Scientific Council)

The evaluation of proposals is carried out by the Panel with the assistance of independent experts (referees).

The Panel allocates each proposal to two referees from the list, taking account of the fields of expertise of them, and avoiding conflicts of interest. Each proposal is assessed independently by the two referees. The proposal will be evaluated against pre-determined evaluation criteria.

Appointment conditions of selected fellows

Fellows are recruited under a status equivalent to a fixed amount fellowship, with social security coverage and social benefits.

The contract consists of:

- an amount to be paid directly to the fellow (the sum of the living allowance and the mobility allowance);
- a travel allowance, to be paid to the fellow as reimbursement of travel tickets;
- insurance costs to be paid by INdAM in favour of the fellow, to provide coverage for work accidents, occupational diseases and invalidity benefits;
- a research cost contribution (RCC1) to be paid by INdAM to the host Institution(s) either by a direct transfer, or as a payment of invoices, in the interest of the fellow;
- a research cost contribution (RCC2) to be paid by INdAM directly to the fellow as reimbursement of expenses for the direct purchase of any material (excluding hardware) or consumable goods needed for his/her research, and of travel and living expenses for participation to scientific events.

Mobility type	Outgoing	Incoming	Re-integration	
Living allowance (EUR/year)	28.500	28.500	28.500	
Mobility Allowance (average) (EUR/year)	5.400	7.200	5.400	
Travel allowance (average) (EUR/year)	1.000	1.500	750	
Insurance costs (EUR/year)	1.000	1.000	1.000	
Research cost contribution 1 (average) (EUR/year)	5.100	4.200	4.200	
Research cost contribution 2 (EUR/year)	1.500	1.500	1.500	
Total	42.500	43.900	41.350	
Number of eligible				
Fellows	14	10	3	27
Duration of fellowships (months)	24	24	24	
	(18 outgoing+ 6 return)			
Total budget of the Programme (EUR)	1.400.616	1.033.400	292.008	2.726.024
Community Contribution (EUR)	560.246	413.360	116.803	1.090.410

Agreements

- INdAM supported many others activities through specific agreements :
- - with **C.I.M.E.** (International Mathematical Summer Center) for summer advanced courses;
- - with **Giardino di Archimede** (the Garden of Archimedes a Museum for Mathematics);
- - with **Casa dell'Aviatore** for the accommodation and the public relations of the Institute;
- - with **Centro de Giorgi**, a center of the Scuola Normale Superiore, with the character of an inter-university center, for particular Intensive periods;
- - with **CIRM** for the organization at Trento of scientific events, research activities and advanced formation.



*70° Anniversario della Fondazione
dell'Istituto Nazionale
di Alta Matematica
"Francesco Severi"*

- The National Institute of Advanced Mathematics "Francesco Severi" had celebrated the seventieth Anniversary of the INdAM foundation April 3rd, 2009 during a Meeting organized in the town Council Hall of the Comune di Arezzo, where Francesco Severi was born. A lot of most important mathematicians, scientists and high personality participated at the meeting.

Reform of the Research Centres

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GDRE

- The European Groups of Researches (GDRE) work together to develop the scientific cooperation.
- There are 4 GDRE :
- “GREFI – MEFI” in Mathematics and Physic, coordinated by Prof. Liverani, was created in May, 9 2005.
- “GREFI – GENCO” in non commutative geometry coordinated by Prof. Guido, was created in July, 25 2007.
- “GRIFGA” in Algebraic Geometry coordinated by Prof. Caporaso, was created in March, 14 2008
- “CONEDP” in the control of the partial differential equations, coordinated by Prof. Cannarsa, was created in June, 25 2010



School for the Applications of Mathematics in Industry

- This school incorporated about 15 courses of thirty hours each and include seminars given by persons from industry. The School was co-financed by the Cariplo bank, and runned for three years (2006-2008) in collaboration with the University of Milano Bicocca.

Foreign doctoral fellowships

- With the aim of encouraging foreign graduates to undertake Italian doctorate (Ph.D level) studies, the sum of € 12,000 per year was put on offer, renewable for maximum three times. The application deadlines were subsequently modified to be consistent with other such awards, and the number of qualified applicants has greatly increased.
- In the context of a new program beginning in 2006, 11 awards were made in all 33 months of support, to Italian doctor's degree students to help financing visits to foreign universities.

Summer school

- INdAM participates in the Mathematics Summer Schools of Perugia and Cortona organized by the SMI. (Scuola Matematica Interuniversitaria).
- Perugia runs for five weeks, and targets Masters students intending to prepare a doctorate in Italy or abroad; Cortona is intended for a higher pre- or postdoctoral level of students.
- Since 2004, INdAM has formed a **consortium** with the SNS (Scuola Normale Superiore di Pisa), The International School for Advanced Studies, SISSA (Trieste area) and the University of Perugia which has also become the centre for educational activities at the undergraduate level.
- The administration of the two SMI Summer Schools is based in Perugia University.

Visiting professors for doctorate courses

- The visiting professors stay at least two months, during which time they do 24 hours of teaching in different universities.
- The aim is to foster the internationalization of scientific research.
- *During 2011 the visitings were seven.*
- *For 2012 are planning 6 visitings*

Postdoctoral support

- There have traditionally been a number of relatively small postdoctoral grants awarded by INdAM each year.
- Since 2004, however, a new program of prestigious 'Francesco Severi postdoctoral -fellowships' has been launched, the aim being to compete with the Marie Curie fellowships. They are renewable once or twice, and have involved a yearly salary of up to EUR 40,000. In 2004 three fellowships were awarded. Two such awards were made in 2006 -7.
- In 2006, an experiment was carried out in which two such fellowships were co-financed with University of Rome 3 and the University of Trento).
- From 2005 INdAM launched a further program at the post-doctoral level, in which young Italian researchers receive grants for visits to foreign research centers of up to 6 months duration. Since 2005 ninety three such months were financed.

INdAM Day

- A new initiative was launched on June 18th 2004, when the first INdAM Day took place in Roma. There were four high-level expository lectures.
- In 2005, INdAM Day took place in Napoli.
- In 2006 in Milano.
- In 2007 in Pisa.
- In 2008 in Padova.
- In 2009 in Torino.
- In 2010 in Catania.
- In 2011 in L'Aquila.

The background of the slide is a photograph of a city street. In the foreground, there are several people walking. In the background, there are large, multi-story buildings with windows. A prominent feature is a large dome on the left side of the image. The sky is clear and blue.

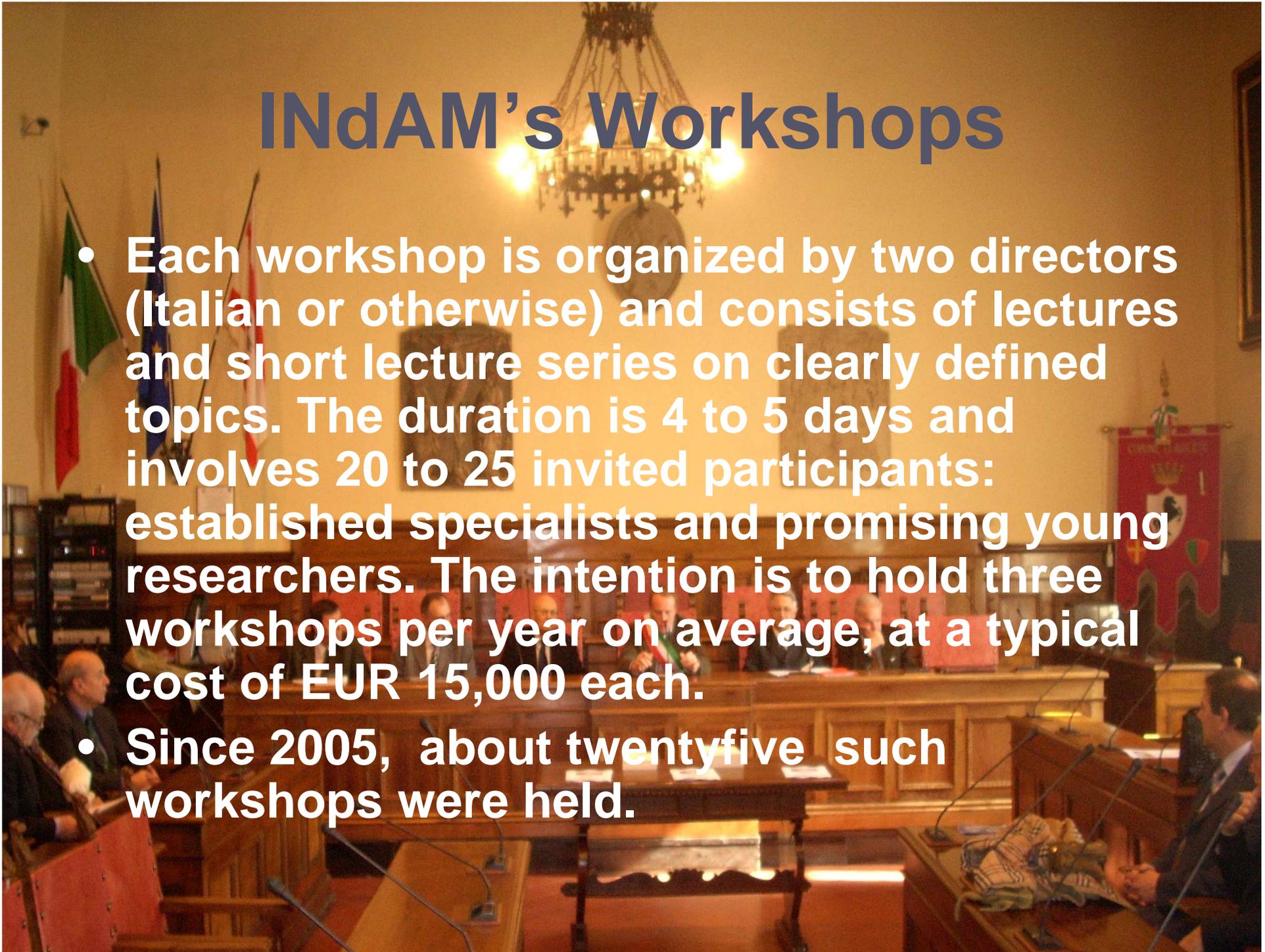
INdAM POST-DOCTORAL SCHOLARSHIPS

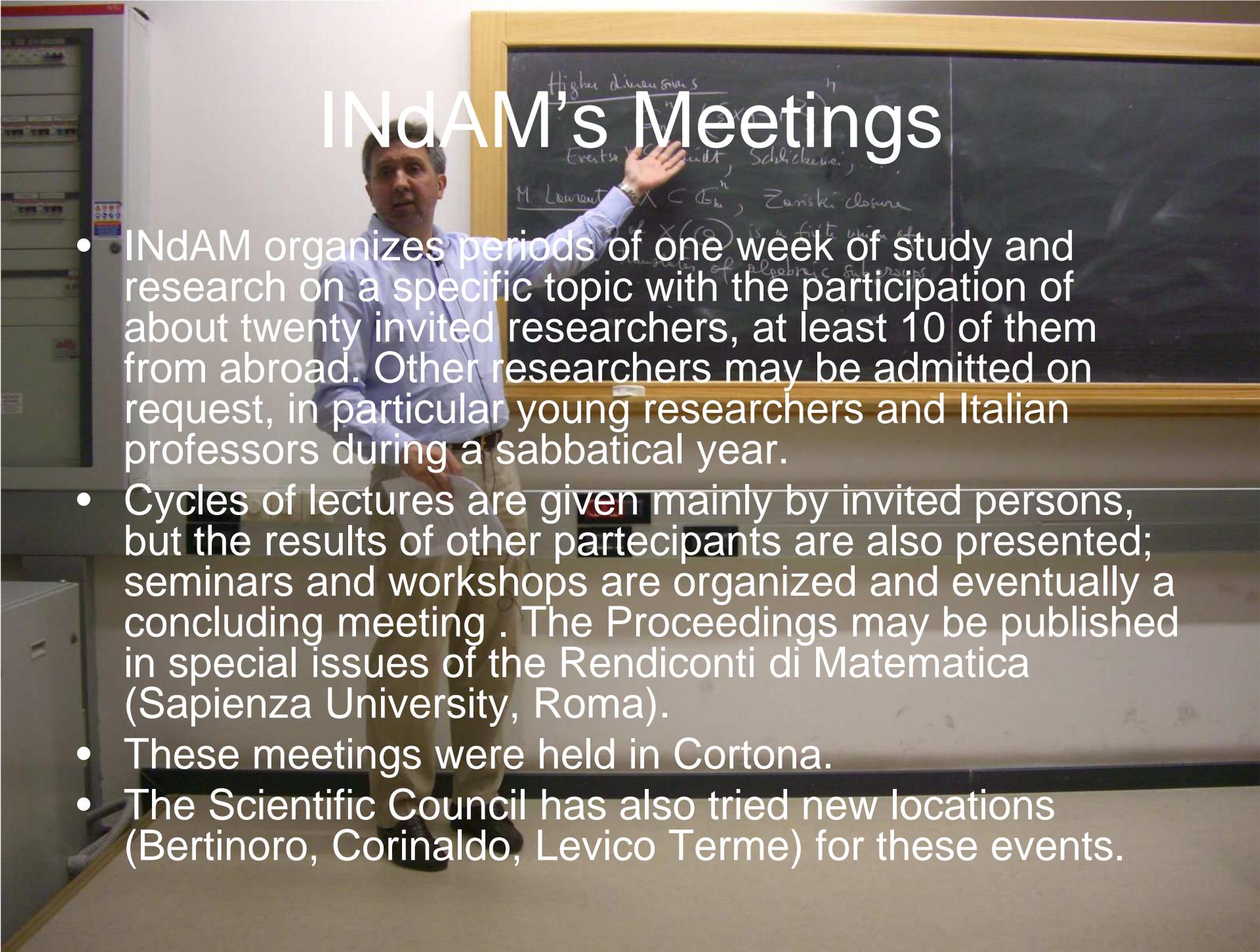
funded by the Company of San Paolo

- **Recently the INdAM has received a support by the Company of San Paolo for post-doc scholarships awarded on the basis of research projects in one of the following fields: biomathematics, bio computer-sciences, nano-sciences, image processing with applications in medical field, methods and mathematical models for genetics and genomics.**

INdAM's Workshops

- Each workshop is organized by two directors (Italian or otherwise) and consists of lectures and short lecture series on clearly defined topics. The duration is 4 to 5 days and involves 20 to 25 invited participants: established specialists and promising young researchers. The intention is to hold three workshops per year on average, at a typical cost of EUR 15,000 each.
- Since 2005, about twentyfive such workshops were held.





INdAM's Meetings

- INdAM organizes periods of one week of study and research on a specific topic with the participation of about twenty invited researchers, at least 10 of them from abroad. Other researchers may be admitted on request, in particular young researchers and Italian professors during a sabbatical year.
- Cycles of lectures are given mainly by invited persons, but the results of other participants are also presented; seminars and workshops are organized and eventually a concluding meeting. The Proceedings may be published in special issues of the Rendiconti di Matematica (Sapienza University, Roma).
- These meetings were held in Cortona.
- The Scientific Council has also tried new locations (Bertinoro, Corinaldo, Levico Terme) for these events.

INdAM Research Grants

- **In 2005 INdAM launched a new program of Strategic Research Grants.**
- **A feature of this program was the definition of three interdisciplinary areas to which priority would be assigned.**
- **The call for proposals resulted in a large number of applications (68).**
- **The budget of 250.000 EUR for these grants was divided among the nine proposals that were accepted for funding, after an extensive peer review process.**

University grants

- **These bursaries are awarded to students at the Licence (Bachelor's) level of study in the new LMD System, with the aim of nurturing vocations for mathematics among the young.**
- **This program is co-financed by the Scientific Degree Project of the Ministry of Education University and Research (“Progetto Lauree Scientifiche” of MiUR).**
- **This Year (2011) the amount of the grant is € 4000 per year for 15 students.**

Fellowships

- To further the attainment of its objectives in training of researchers, INdAM promotes fellowship programmes for undergraduate students (Licence (L) or Master (M) in the new LMD System), graduate (PhD) students, post-graduate and experienced researchers; some of these programmes are intended for foreign researchers.
- Since 1992 the Institute has awarded more than 1000 fellowships, 270 of which for experienced researchers. At present there are 150 fellows of the Institute

Research Units

- In recent years, INdAM has entered into conventions with Italian Universities to constitute Research Units of the Institute inside these Universities.
- The Units are coordinated by the Institute.
- Their purpose is to organize activities on a local level (administration, international relations).

- 1) University of **L'Aquila**
Director: Carlo Scoppola
- 2) University of **Bari**
Director: Francesca Mazzia
- 3) University of **Basilicata**
Director: Vito Antonio Cimmelli
- 4) University of **Cagliari**
Director: Sebastiano Seatzu
- 5) University of **Camerino**
Director: Stefano Isola
- 6) University of **Catania**
Director: Mario Marino
- 7) University of **Chieti-Pescara**
Director: Cristina Caroli Costantini
- 8) University of **Ferrara**
Director: Luisa Zanghirati
- 9) University of **Firenze**
Director: Luigi Brugnano
- 10) University of **Genova**
DIMA Director: Mario Bertero
DISI Director: Giancarlo Mauceri

11) IAC (*Istituto per le Applicazioni del Calcolo "Mauro Picone"*)

Director: Benedetto Piccoli

12) University of Messina

Director: Domenico Fusco

13) University of Milano I

Director: Alfredo Lorenzi

14) Polytechnic of Milano

Director: Vittorino Pata

15) University of Modena e Reggio Emilia

Director: Emanuele Galligani.

16) University of Napoli I

Director: Paolo de Lucia

17) University of Padova

Director: Wolfgang Runggaldier

18) University of Parma

Director: Gianmario Tessitore

19) University of Pavia

Director: Piero Colli Franzone



20) University of Perugia

Director: Giulianella Coletti

21) University of Pisa

Director: Ferruccio Colombini

22) University of Roma Tor Vergata

Director: Carlangelo Liverani

23) University of Roma Tre

Director: Fabio Martinelli

24) University of Salerno

Director: Maria Transirico

25) University of Siena

Director: Paolo Costantini

26) University of Torino

Director: Luigi Rodino

27) Polytechnic of Torino

Director: Anita Tabacco

28) University of Trento

Director: Marco Andreatta

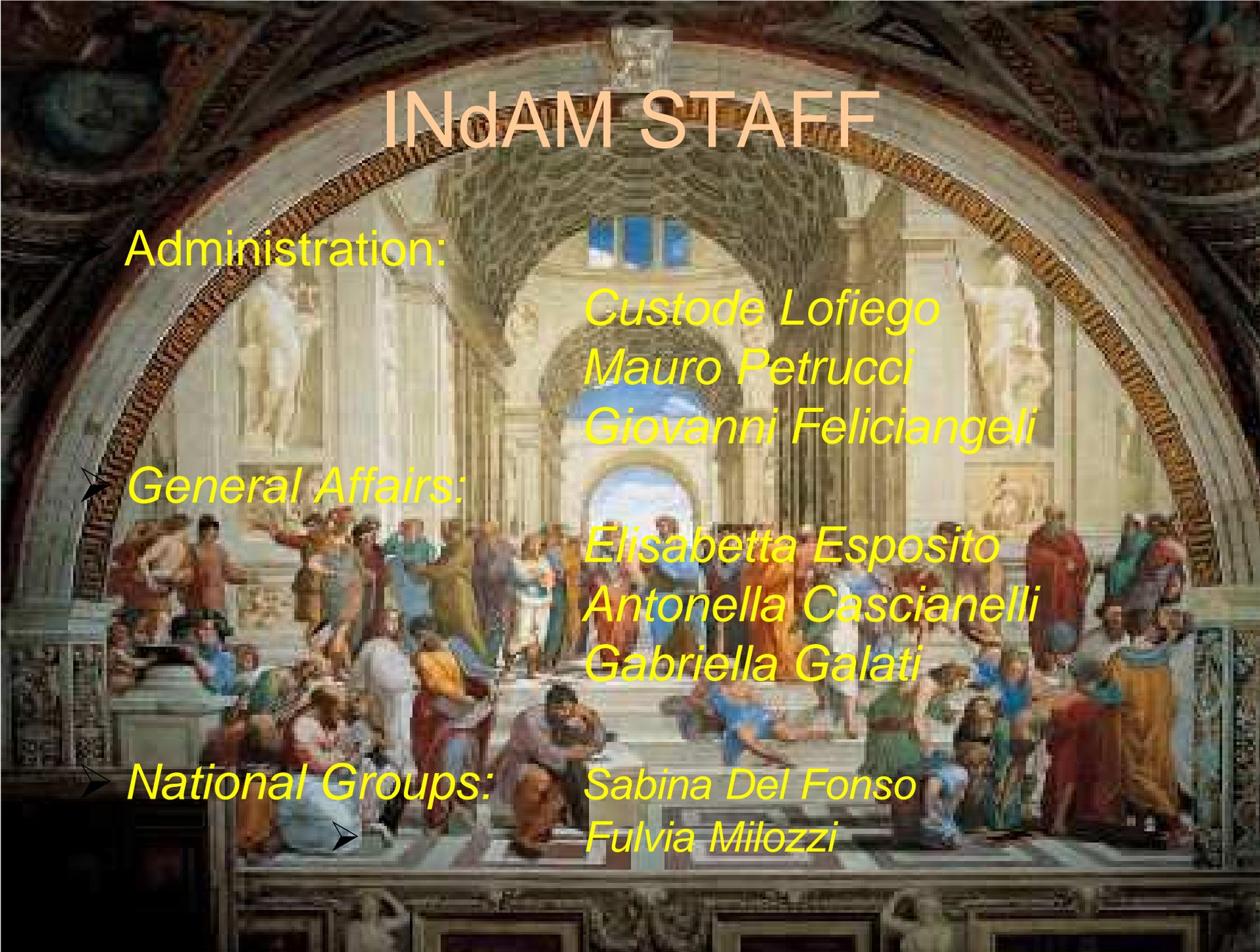
29) University of Trieste

Director: Alfredo Bellen

30) SISSA- Trieste

Director: Antonio De Simone

INdAM STAFF



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