

## Wednesday, 18 July 2007

16:00-20:00

Registration desk is open

## Thursday, 19 July 2007

8:15-9:45 Registration desk is open  
Welcome Cocktail

9:45-10:00 OPENING

10:00-11:00 **Plenary Lecture: Theme 2 - *Introducing a historical dimension in the teaching and learning of Mathematics***

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| Puig Luis | Researching the history of algebraic ideas from an educational point of view |
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11:00-11:15 Coffee Break

11:15-13:15 **2-hours Workshops** (based on didactical and pedagogical material)

**Theme 2: *Introducing a historical dimension in the teaching and learning of Mathematics***

| room | Name                                     | Title  |
|------|--|--|
| 1    | Ballieu Michel,<br>Guissard Marie-France | Pour une culture mathématique accessible à tous  |
| 2    | Caianiello Eva                           | Le problème d'oiseaux : procédés de résolution dans l'histoire des mathématiques   |
| 3    | Dematté Adriano                          | Historical documents in everyday classroom work  |
| 4    | Dias Isabel                              | From the original texts of Pedro Nunes to the mathematics classroom activities   |
| 5    | Katz Victor                              | Historical Modules for the Teaching and Learning of Mathematics  |
| 6    | Paschos Theodorus,<br>Farmaki Vasiliki   | The integration of genetic moments in the History of Mathematics and Physics in the designing of didactic activities to introduce first-year University students to concepts of Calculus |
| 7    | van Maanen Jan                           | The work of Euler and the current discussion about skills  |

13:15-15:00 LUNCH BREAK

15:00-18:00 **3-hours Workshops** (based on historical and epistemological material)

**Theme 2: *Introducing a historical dimension in the teaching and learning of Mathematics***

| room | Name                           | Title  |
|------|--------------------------------|--|
| 1    | Bastos Rita, Veloso<br>Eduardo | Episodes of the History of Geometry: their interpretation through models in dynamic geometry |

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|---|------------------------------------|---|
| 3 | Burn Robert                        | Towards a definition of limit   |
| 4 | Chorlay Renaud & Brin Philippe     | Using historical texts in the classroom : examples in statistics and probability                    |
| 5 | Correia de Sá (Carlos)             | Cinq Courbes avec Histoire: la Quadratrice, la Spirale, la Conchoïde, la Cissoïde et la Cycloïde    |
| 6 | González-Martín Alejandro Santiago | Historical-epistemological dimension of the improper integral as a guide for new teaching practices |

### 18:00-18:15 Coffee Break

### 18:15-19:45 Oral presentations

#### **Theme 2: *Introducing a historical dimension in the teaching and learning of Mathematics***

| room | Name                | Title   |
|------|---------------------|---|
| 1    | Clark Kathleen      | Reflection and revision: A first experience with a “Using History in the Teaching of Mathematics” course  |
| 1    | De Klerk Johan      | History and epistemology as tools in teaching Mathematics   |
| 1    | Hitchcock Gavin A.  | Analysis with the Help of its History (short presentation)  |
| 2    | Demetriadou Helen   | Didactical and epistemological issues related to the concept of proof. Some mathematics teachers’ ideas about the role of proof in Greek secondary curriculum |
| 2    | Durand Viviane      | La théorie du syllogisme formel d’Aristote : une première rencontre avec les concepts fondamentaux de la sémantique logique.                                  |
| 3    | Glaubitz Michael R. | The use of original sources in the classroom. Reading Al-Chwarizmi’s ‘al-jabr’ with 9th-graders. An empirical study.  |
| 3    | Liu Po-Hung         | Investigation Of Student Perceptions Of The Infinity—A Historical Dimension   |
| 3    | Poulos Andreas      | A multidimensional approach of “de L’ Hospital’s rule”  |
| 4    | Silva Maria do Céu  | Bento Fernandes’ <i>Tratado da arte de arismetica</i> (Porto, 1555)   |
| 4    | Swetz Frank         | Historical Problems: A Valuable Resource for Mathematics Classroom Instruction  |
| 4    | Windsor Will        | Analysing the Historical Development of Division May Provide Insights for Improved Teaching of the Concept and Algorithm                                      |

### 18:15-19:45 Short oral presentations

#### **Theme 2: *Introducing a historical dimension in the teaching and learning of Mathematics***

| room | Name                 | Title   |
|------|----------------------|---|
| 5    | Abdounur Oscar João  | An exhibition as a tool to approach didactical and historical aspects of the relationship between mathematics and music |
| 5    | Bertato Fábio Maia   | A Classroom Experience: Using a Computer Role-Playing Game to teach Mathematics   |
| 5    | Gonulates Funda      | Mathematics theater - Mathematicians on stage   |
| 5    | Jankvist Uffe Thomas | A teaching module on the early history of error correcting codes  |
| 5    | Tattersall Jim       | Ramanujan Revisited   |

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| 5 | Zuccheri Luciana,<br>Gallopín Paola | A teaching experience with a high-level group of students about the history of mathematical methods in approaching the concepts of area and volume |
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#### **Theme 4: Cultures and Mathematics**

| room | Name   | Title   |
|------|--|---|
| 6    | Costa Cecília,<br>Catarino Paula, da<br>Silva Nascimento<br>Maria Manuel | Could mathematics transform my land in the capital of universe?   |
| 6    | da Graça Alves Maria   | The first Portuguese Mathematical Journal: "The "Jornal das Ciências Mathematicas e Astronomicas" de Francisco Gomes Teixeira |
| 6    | Marikyan Gohar   | Anania Shirakatsi's 6 <sup>th</sup> Century Methodology of Teaching Arithmetics Across the Centuries and Divers Cultures      |
| 6    | Ralha Elfrida, Lopes<br>Ângela   | On the Portuguese mathematical readings about the Gregorian Calendar reform   |
| 6    | Vilar Carlos   | Sur l'étude des crépuscules pour Pedro Nunes  |
| 6    | Saidkarimov Utkur  | Exhibition of didactical material, relevant to the ESU-5 main themes  |

#### **Theme 5: History of Mathematics Education in Europe**

| room | Name                              | Title   |
|------|-----------------------------------|---|
| 7    | Auvinet Jérôme                    | C. A. Laisant viewed through his book "La mathématique, Philosophie, Enseignement"                                  |
| 7    | Bjarnadóttir Kristín              | The Number Concept and the Role of Zero in European Arithmetic Textbooks from the Twelfth to the Nineteenth Century |
| 7    | Costa Cecília                     | Introducing a historical dimension into teaching: A Portuguese example – J. Vicente Gonçalves                       |
| 7    | Gomes Alexandra,<br>Ralha Elfrida | Mathematical training and primary school teachers: where are we coming from and where are we going to, in Portugal? |
| 7    | Hamon Gérard, Le<br>Corre Looc    | Evidence and culture, rigor and pedagogy: Euclid and Arnauld  |
| 7    | Ramírez Díaz Mario<br>H.          | The evolution in the introduction of learning style in the teaching of calculus in Mexico                           |

## Friday 20, July 2007

**9:00-10:00 Plenary Lecture: Theme 4 - *Cultures and Mathematics***

|                 |   |
|-----------------|---|
| Rebstock Ulrich | Mathematics in the service of the Islamic community |
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**10:00-10:30 Coffee Break**

**10:30-12:30 2-hours Workshops (based on didactical and pedagogical material)**

**Theme 2 - *Introducing a historical dimension in the teaching and learning of Mathematics***

| room | Name   | Title  |
|------|--|--|
| 1    | Maschietto Michela,<br>Martignone Francesca  | Activités avec les <i>machines mathématiques</i>   |
| 2    | Kourkoulos Michael,<br>Tzanakis Constantinos | A didactical approach to the introduction of Statistics, inspired by epistemological and historical considerations |
| 3    | Weeks Chris                                  | Condorcet's paradox: a little history and some school activities   |
| 4    | Wilson Robin                                 | Solving Dotty Problems   |
| 5    | Winicki Landman<br>Greicy                    | Playing with fractions a la Leibnitz   |

**Theme 4- *Cultures and Mathematics***

| room | Name            | Title   |
|------|-----------------|---|
| 6    | FitzSimons Gail | Mathematics and the Personal Cultures of Students |

**Theme 5 - *History of Mathematics Education in Europe***

| room | Name      | Title   |
|------|-----------|---|
| 7    | Smid H.J. | Heuristic math education in the 19 <sup>th</sup> century: a dead end or preparing the ground? |

**12:30-14:30 LUNCH BREAK**

**14:30-17:30 3-hours Workshops (based on historical and epistemological material)**

**Theme 4 - *Cultures and Mathematics***

| room | Name                | Title   |
|------|---------------------|---|
| 1    | Delire Jean-Michel  | Kerala mathematics and astronomy; prelude to European developments. |
| 2    | Proust Christine    | Histories of zeros  |
| 3    | Racine Marie-Noelle | Histoires de mathématiciennes / women mathematicians' history       |

**Theme 5 - *History of Mathematics Education in Europe***

| room | Name | Title |
|------|------|-------|
|------|------|-------|

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| 4 | Estrada Maria<br>Fernanda, Ralha<br>Maria Elfrida | Reflexions upon a "Method for Studying Maths", by José Monteiro da Rocha (1734-1819)                                 |
| 5 | Matos Jose Manuel                                 | Variations in mathematical knowledge occurring in the Modern Mathematics reform movement                             |
| 6 | Menghini Marta                                    | The "Eléments de Géométrie" of A. M. Legendre: an analysis of some proofs from yesterday's and today's point of view |

**17:30-18:00 Coffee Break**

**18:00-19:30 Oral presentations**

***Theme 4- Cultures and Mathematics***

| room | Name                               | Title  |
|------|------------------------------------|--|
| 1    | Cesar de Mattos<br>Marafon Adriana | Process of recognition in the History of Mathematics   |
| 1    | Gropp Harald                       | The relations between mathematics and music in different regions and periods of world history. |
| 1    | Rogers Leo                         | Leonard and Thomas Digges, Sixteenth Century Mathematical Practitioners                        |
| 2    | Sebastiani Ferreira<br>Eduardo     | Ethnomathematic's use in Indian teacher's formation  |
| 2    | Wilson Robin                       | Lewis Carroll In Numberland  |

***Theme 5 - History of Mathematics Education in Europe***

| room | Name                              | Title   |
|------|-----------------------------------|---|
| 3    | Barbazo Eric                      | Le rôle de l'Association des Professeurs de Mathématiques de l'Enseignement Public (APMEP) et en son sein de Gilbert WALUSINSKI, dans la création des Instituts de Recherche sur l'Enseignement des Mathématiques (IREM). 1955-1975 : 20 années de transformation de l'enseignement des mathématiques en France |
| 3    | Blanco Abellán<br>Mónica          | The Teaching of Differential Calculus at Military and Engineering Schools in 18th Europe  |
| 4    | Crilly Tony                       | Teaching or Research? Cambridge University in the nineteenth century  |
| 4    | Docampo Rey Javier                | Manuscripts and teachers of commercial arithmetic in Catalonia (1400-1521)  |
| 4    | D'Enfert Renaud                   | Du calcul aux mathématiques? L'enseignement mathématique à l'école primaire en France, 1960-1985  |
| 5    | Giacardi Livia                    | The Italian School of Algebraic Geometry and the Formative Role of Mathematics in secondary teaching  |
| 5    | Kastanis Andreas                  | The Teaching of Descriptive Geometry in the Greek Military Academy during 19th Century  |
| 5    | Lawrence Snezana                  | Alternatives to Descriptive Geometry – Search for a Perfect Technique of Visualising, Communicating and Teaching Space  |
| 6    | March Robert,<br>Sakarovitch Joël | L'enseignement de la géométrie descriptive dans les Ecoles d'ingénieurs en Europe au XIXe siècle  |
| 6    | Sisma Pavel                       | Teaching at the technical universities in retrospect  |

## Saturday 21, July 2007

**9:00-10:00 Plenary Lecture: Theme 3 - *History and Epistemology in Mathematics teachers' education***

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| Schweiger Fritz | The implicit grammar of mathematical symbolism |
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**10:00-10:30 Coffee Break**

**10:30-12:30 Panel: Theme 2 - *Introducing a historical dimension in the teaching and learning of Mathematics***

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| Arcavi Abraham, Barbin Evelyne (coordinator), Radford Luis, Schweiger Fritz | Mathematics of yesterday and teaching of today |
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**12:30-14:00 LUNCH BREAK**

**14:00-17:00 3-hours Workshops (based on historical and epistemological material)**

**Theme 3 - *History and Epistemology in Mathematics teachers' education***

| room | Name                              | Title  |
|------|-----------------------------------|--|
| 1    | Bagni Giorgio, Vicentini Caterina | History and Epistemology of Calculus and Algebra, 300 years since Leonhard Euler's birth: cooperative learning and effectiveness of perspective teacher training |
| 2    | Radford Luis                      | Generality and Mathematical Indeterminacy: Variables, Unknowns and Parameters, and their Symbolisation in History and in the Classroom                           |
| 3    | Boyé Anne                         | When they taught high school students the Chasles' "superior geometry",  |
| 4    | El Idrissi Abdellah               | La trigonométrie dans l'œuvre d'Al Biruni  |
| 5    | Fried Michael, Bernard Alain      | Reading and Doing Mathematics: Ancient and Modern Issues.  |
| 6    | Guichard Jean-Paul                | Viète et l'avènement du calcul littéral  |

**17:00-17:30 Coffee Break**

**17:30-19:00 Oral presentations**

**Theme 3- *History and Epistemology in Mathematics teachers' education***

| room | Name              | Title   |
|------|-------------------|---|
| 1    | Bečvářová Martina | History of Mathematics as a Part of Mathematical Education  |
| 1    | Bernard Alain     | History of science and technology in the French system for teacher training: about a recent initiative. |
| 1    | Horng Wann-Sheng  | Studying Indicators of Professional Development: An HPM dimension                                       |
| 2    | Jancarik Antonin  | The Influence of IT on the Development of Mathematics and on the Education of Future Teachers           |

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| 2 | Kiernan James F.                | How much history of mathematics must an Early Childhood math teacher know?  |
| 2 | Morey Bernadete Barbosa         | Instruments of navigation and teacher training  |
| 3 | Petrakis Sifis                  | The Role of the Fifth Postulate in the Euclidean Construction of Parallels  |
| 3 | Tisseron Claude                 | Enseignements d'histoire, épistémologie et didactique des mathématiques orientés sur l'étude des phénomènes de construction des connaissances |
| 3 | Volkert Klaus                   | The Problem of Space in Geometry  |
| 4 | Yevdokimov Oleksiy              | Investigation of high order curves: the way, when history and mathematics come together   |
| 4 | Zorbala Konstantina             | Prospective mathematics teachers' research work on historical records as part of their initial training: A case study in Greece               |
| 4 | Zuccheri Luciana, Zudini Verena | The question of changing mathematics secondary school curricula in Venezia Giulia after the First World War (1918-1923)                       |

### **Theme 6- Mathematics in Central Europe**

| <b>room</b> | <b>Name</b>                   | <b>Title</b>  |
|-------------|-------------------------------|---|
| 5           | Chocholová Michaela           | Wilhelm Matzka (1798 – 1891) and his algebraical works                            |
| 5           | Lepka Karel                   | C. and K. Mathematicians Olympics   |
| 5           | Métin Frédéric, Guyot Patrick | Erasmus Habermel's geometrical square   |
| 6           | Siegmund-Schultze Reinhard    | Nazi Rule and Teaching of Mathematics in the Third Reich                          |
| 6           | Trkovská Dana                 | Algebra and Geometry in our countries after the Erlangen and the Merano Programme |
| 7           | Venegas Leonardo              | Prague et l'infini  |
| 7           | Russ Steve                    | Bernard Bolzano and the Making of Meaning in Mathematics                          |

**20:00 DINNER**

## **Sunday 22, July 2007**

### **9:00-10:00 Plenary Lecture: Theme 5 - *History of Mathematics Education in Europe***

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| Gispert Hélène, Schubring Gert | The History of Mathematics Education and its contexts in 20th century France and Germany |
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### **10:00-10:30 Coffee Break**

### **10:30-12:30 Panel: Theme 5 - *History of Mathematics Education in Europe***

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| Giacardi Livia, Gispert Hélène, Kastanis Nikos, Schubring Gert (coordinator) | The emergence of mathematics as a major teaching subject in secondary schools |
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### **12:30 EXCURSION - FREE DAY**



## Monday 23, July 2007

**9:00-10:00 Plenary Lecture: Theme 1 - *History and Epistemology as tools for an interdisciplinary approach in the teaching and learning of Mathematics and the Sciences***

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| Corry Leo | Axiomatics between Hilbert and R.L. Moore: Two Views on Mathematical Research and their Consequences on Education |
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**10:00-10:30 Coffee Break**

**10:30-12:30 2-hours Workshops (based on didactical and pedagogical material)**

**Theme 1- *History and Epistemology as tools for an interdisciplinary approach in the teaching and learning of Mathematics and the Sciences***

| room | Name            | Title   |
|------|-----------------|---|
| 1    | Dlab Vlastimil  | Knowing, Teaching and Learning Algebra  |
| 2    | Roelens Michel  | Le volume d'une pyramide à travers les siècles: des tranches ou pas de tranches, voilà la question!         |
| 3    | Yamalidou Maria | Mathematics as a way of "reading" the world: Thoughts about the underpinnings of interdisciplinary teaching |

**Theme 3- *History and Epistemology in Mathematics teachers' education***

| room | Name                            | Title   |
|------|---------------------------------|---|
| 4    | Hejny Milan,<br>Stehlikova Nada | Didactic simulation of historical discoveries in mathematics                            |
| 5    | Movshovitz-Hadar<br>Nitsa       | Incorporating mathematical news in teaching high school math and in teacher preparation |
| 6    | Rogers Leo                      | Early Methods for Solving Real Problems   |
| 7    | Smestad Bjørn                   | Various material for primary school teacher training                                    |

**12:30-14:30 LUNCH BREAK**

**14:30-17:30 3-hours Workshops (based on historical and epistemological material)**

**Theme 1- *History and Epistemology as tools for an interdisciplinary approach in the teaching and learning of Mathematics and the Sciences***

| room | Name   | Title  |
|------|--|--|
| 1    | Bessot Didier                                  | Calculus by Augustin Fresnel (1788-1827) to improve the efficiency of parabolic reflectors |
| 2    | Kurina Frantisek,<br>Siebeneicher<br>Christian | Algebra and Geometry in Elementary and Secondary School                                    |
| 3    | Métin Frédéric                                 | Adam Freitag's New Fortification   |

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| 4 | Thomaidis Yannis,<br>Tzanakis<br>Constantinos | Ancient Greek Mathematics in the Classroom |
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### **Theme 6 - Mathematics in Central Europe**

| room | Name       | Title  |
|------|------------|--|
| 5    | Lakoma Ewa | From Vitellonis' geometry to unravelling the secret of Enigma – on millennium of the Polish mathematical thought |

**17:30-18:00 Coffee Break**

**18:00-19:30 Oral presentations**

### **Theme 1- History and Epistemology as tools for an interdisciplinary approach in the teaching and learning of Mathematics and the Sciences**

| room | Name                                 | Title   |
|------|--------------------------------------|---|
| 1    | Gerini Christian                     | Les Annales de Mathématiques de Gergonne : un journal du 19 <sup>ème</sup> siècle numérisé et médiatisé au bénéfice d'une interdisciplinarité entre mathématiques, histoire, didactique et philosophie. |
| 1    | Godard Roger                         | La programmation linéaire et ses racines  |
| 1    | Boettcher Frauke                     | The "Apollonius' Problem"- the History of its Solutions as Tool for Instruction of Geometrical Methods  |
| 2    | Jahnke Niels                         | Students working on their own ideas. Bernoulli's lectures on the differential calculus (1692) in grade 11   |
| 2    | Kastanis Nikos,<br>Verykaki Katerina | The Conceptual Change Theory as a New Didactical Trend for the History of Mathematics   |
| 2    | Kvasz Ladislav                       | Historical and epistemological aspects of teaching algebra  |
| 3    | Nikolantonakis<br>Constantin         | Did we have "Revolutions" in Mathematics? Examples from the History of Mathematics on the light of T. S Kuhn's historical philosophy of science   |
| 3    | Provost Sylvie                       | Pourquoi " faire Histoire " dans l'Industrie, la Recherche et l'Enseignement ?  |
| 3    | Rowbottom Darrell                    | Gambling Scenarios and the Foundations of Probability   |
| 4    | Siu Man-Keung                        | Harmonies in Nature : A Dialogue Between Mathematics and Physics  |
| 4    | Strantzalos<br>Athanasios            | Geometric Transformations as a means for the introduction of interdisciplinarity and of educational elements in High School   |

**18:00-19:30 Short oral presentations****Theme 1- *History and Epistemology as tools for an interdisciplinary approach in the teaching and learning of Mathematics and the Sciences***

| room | Name  | Title  |
|------|---|--|
| 5    | Cihlar Jiri,<br>Eisenmann, Petr,<br>Kratka Magdalena,<br>Vopenka Petr | A coherence of ontogeny and phylogeny within the context of a problem of a point distribution on a segment |
| 5    | Isaias Miranda  | Linear movement of objects: Differences between Aristotle's and high school students' analysis             |
| 5    | Sevgi Sevim   | Harmonograph application into our lessons  |
| 5    | Tournès Dominique   | Geometrical approach of differential equations: from history to mathematics education                      |
| 6    | Spyrou Panayotis,<br>Lappas Dionyssios,<br>Keisoglou Stefanos         | Embodied Mathematics in a Historical Perspectives  |
| 6    | Mercurio Anna<br>Maria, Palladino<br>Nicla                            | On the resolution of algebraic equations   |
| 6    | Pisano Raffaele,<br>Palladino Nicla                                   | Évariste Galois' algebraic theory, epistemological reflections and educational elements                    |
| 6    | Sabena Cristina,<br>Radford Luis                                      | Texts, Textuality and Mathematical Symbols   |

**Theme 3- History and Epistemology in Mathematics teachers' education**

| room | Name                           | Title   |
|------|--------------------------------|---|
| 7    | Ozkan E. Mehmet,<br>Unal Hasan | □nfluence of mathematicians in history on pre-service mathematics teachers' beliefs about the nature of mathematics |
| 7    | Stein David                    | Some questions regarding the historical role of constructivism in mathematics education reform                      |
| 7    | Cmejrkova Kamila               | Solving logical problems and Commutative skills for the groups of pupils  |

## Tuesday 24, July 2007

### 9:00-10:00 **Plenary Lecture: Theme 6 - Mathematics in Central Europe**

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|-------------------|--|
| Hyksova Magdalena | Contribution of Czech Mathematicians to Probability Theory |
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### 10:00-10:30 **Coffee Break**

### 10:30-12:30 **3-hours Workshops (based on historical and epistemological material)**

#### **Theme 2: *Introducing a historical dimension in the teaching and learning of Mathematics***

| room | Name               | Title  |
|------|--------------------|--|
| 1    | Kouteynikoff Odile | About Leonardo of Pisa's book of squares: How elementary tools can solve quite elaborate problems. |

#### **Theme 3 - *History and Epistemology in Mathematics teachers' education***

| room | Name  | Title  |
|------|---|--|
| 2    | Becvar Jindrich,<br>Dlab Vlastimil,<br>Hruby Dag, Kurina<br>Frantisek | Education of Mathematics Teachers (in Algebra and Geometry, in particular)             |
| 3    | Michel-Pajus Anne   | About Different Kinds Of Proofs Encountered Specifically In Arithmetic                 |
| 4    | Negrepontis Stelios,<br>Lambrinidis<br>Dionysios                      | The anthyphairetic interpretation of the mathematical method of analysis and synthesis |
| 5    | Polo-Blanco Irene   | Alicia Boole and regular polytopes   |
| 6    | Bkouche Rudolf  | Les aspects expérimentation des mathématiques et leur intervention dans l'enseignement |

### 12:30-14:30 **LUNCH BREAK**

### 14:30-15:30 **3-hours Workshops (continued)**

### 15:30-16:00 **CLOSING**