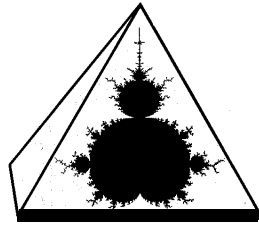


The Mathematics Education into the 21st Century Project



Conference Programme

The Humanistic Renaissance in Mathematics Education

**Hotel Città del Mare, Terrasini, Palermo, Italy
September 20-25 2002**

Major Sponsors

CASIO & AUTOGRAPH

Conference Programme

Friday 20th September, 2002

Palermo Airport Arrival & Transfer to **Hotel Città del Mare**

16.00 - 19.00 Conference Registration **Hotel Città del Mare Conference Centre**

19.00 - Welcome Reception in Hotel Città del Mare

Saturday 21st September, 2002

8.00 - 8.45 Breakfast

9.00 - 10.15 **Opening Welcome & Conference Issues**

Professor **Fayez Mina** & Dr **Alan Rogerson** (Project Coordinators)

Prof. G. Silvestri (Rettore Università di Palermo),

On. S. Cuffaro (Presidente Regione Siciliana)

On. F. Musotto (Presidente della Provincia Regionale di Palermo)

Prof.ssa Patrizia Lendinara (Preside Facoltà Scienze della Formazione, Università di Palermo),

Prof.ssa R.M. Sperandeo Mineo (Direttrice SISSIS Sicilia , Università di Palermo),

Prof. A. Rigoli (Presidente CCL Scienze della Formazione Primaria, Università di Palermo),

Prof. P. Vetro (Direttore Dipartimento di Matematica, Università di Palermo).

10.15 - 10.45 Morning Tea/Coffee

10.45 - 11.15 **Parallel Working Groups 1-7** Introductions/Discussions

11.15 - 13.00 **Parallel Working Groups 2,3,4,5** **Papers Session 1**

13.00 - 15.30 **Lunch & Siesta (or swim/run/read)**

15.30 - 16.00 **Plenary Session: What is the history of SuperCourse?**

Dr Alan Rogerson & Professor Fayez Mina

16.00 - 16.30 Afternoon Tea/Coffee

16.30 - 19.00 **Open Forum of Ideas**

This repeats the idea in Zajaczkowo last year when people brought as many ideas and as much material/software as possible for display, exhibition and discussion. It will therefore be a kind of open market where people may wander round looking at everything freely and also of course exhibiting their own materials, which may be in ANY language. Please bring everything you can!

19.30- **Dinner**

Special Evening Event "Sicily as a Possible Metaphor of The Mediterranean"
A Slide and Sound Presentation by Mario Ferreri

Sunday 22nd September, 2002

7.30 - 8.30 Breakfast

All-day Excursion to Monreale/Agrigento and lunch.

19.00 Return

19.30 **Dinner**

Monday 23rd September, 2002

- 8.00 - 8.45 Breakfast
- 9.00 - 10.15 Keynote Speech: **Can Technology Save Classroom Mathematics?**
Douglas Butler, Director, ICT Training Centre, Oundle School
(Peterborough, UK)
- 10.15 - 10.45 Morning Tea/Coffee
- 10.45 - 13.00 **Parallel Working Groups 1,4,6,7** **Papers Session 2**
- 13.00 - 15.30 **Lunch & Siesta**
- 15.30 - 17.00 **Parallel Working Groups 1-7** **Discussions**
- 17.00 - 17.30 Afternoon Tea/Coffee
- 17.30 - 18.00 **Plenary: What is the Philosophy of SuperCourse?**
A short introduction to follow the Open Forum and to introduce the Workshops
- 18.00 - 19.30 **Four Parallel SuperCourse Workshops**
- **Rudiger Vernay: Wrappings, carpenters and symmetries in everyday life – making flexible use of knowledge and supporting independent learning**
 - **Angela Pesci: Cooperative Learning and other useful ideas in teaching and learning**
 - **Gunter Graumann: Mathematics and Society, Values and Feelings**
 - **Gary Flewelling: Rich Learning Tasks**
- 19.30- **Dinner**

Tuesday 24th September, 2002

- 8.00 - 8.45 Breakfast
- 9.00 - 10.30 **Parallel Working Groups 1,3,5,7** **Papers Session 3**
- 10.30 - 11.00 Morning Tea/Coffee
- 11.00 - 13.00 **Parallel Working Groups 4, 5 ,6, 7** **Papers Session 4**
- 13.00 - 15.30 **Lunch & Siesta**
- 15.30 - 16.45 **Plenary Session: Mathematics teachers and students: how to improve the human side of their relationship?**
Angela Pesci
- 16.45 - 17.15 Afternoon Tea/Coffee
- 17.15 - 19.15 **Parallel Working Groups 1, 2, 3, 4** **Papers Session 5**
- 19.45- **Special Gala Dinner**

Wednesday 25th September, 2002

- 8.00 - 8.45 Breakfast
- 9.00 - 10.00 **Mathematics and its links with its History** **Aldo Brigaglia**
- 10.00 - 10.30 **Coffee Break**
- 10.30 - 12.00 **Parallel Working Groups 1- 7** **Final Discussions**
- 12.00 - 13.00 **Plenary: SuperCourse and the Future**
Closing Session
- 13.00 - **Lunch**

Working Groups Session 1: Saturday 21st September 11.15- 13.00

WG 2: STATISTICS AND PROBABILITY MAHER SHAWER, SILIO RIGATTI & GIANNA MANNO
Bizhan Shanbankhani

Sampling Study in Order to Determination of Parasite Disease

Lucette Carter

Multiple factor interactions. Role of effect modifier factors.

H. Edward Donley

Using XML to Share Statistics Education Materials in PAPIRIS

Maher Y. Shawer, Michael J. Bossé, Frederick W. Morgan, John D. Baker

Simple Linear Regression: A PAPIRIS Example

WG 3: RICH LEARNING TASKS AND THE GENERAL AIMS OF MATHEMATICS EDUCATION

GARY FLEWELLING, GUNTER GRAUMANN & CLAUDIA SORTINO

Nicoletta Sala

Art, Mathematics and Architecture for Humanistic Renaissance: the Platonic Solids

Marytė Striėkienė and Elmundas Palys

The Local "Super Course" and the National Experiment on the humanization of Mathematics Education

Bevan Penrose

Creating a Constructivist Mathematics Department from a Traditional Setting

Andy Begg

Challenging curriculum: process and product

WG 4: TECHNOLOGY IN THE CLASSROOM

ANGEL BALDERAS, MARIA REGGIANI, ENRICA LEMUT & MEDHAT RAHIM

Douglas Butler (55min)

AUTOGRAPH – Visualising is the icing on the cake - workshop.

Barry Kissane (50min)

Workshop 1: Introductory calculus and the graphics calculator

WG 5. EQUITY AND ETHNOMATHEMATICS

GILA HANNA, LIV SISSEL GRØNMO & FRANCO FAVILLI

Hayley Barnes

Effectively using new paradigms in the teaching and learning of mathematics: Action research in a multicultural South African classroom

Marjatta Näätänen

Five years experiences with the Finnish mathematics web magazine Solmu

Giovanna Virga

The spatial consciousness of the blind: a contribution to the research

Mahdi Abdeljaouad

Bi-laterality in mathematical language.

Working Groups Session 2: Monday 23rd September 10.45 - 13.00

WG1: POWERFUL LEARNING ENVIRONMENTS FOR MATHEMATICS PROBLEMSOLVING

ERIK DE CORTE, GEORGE MALATY & GRAZIA INDOVINA

N. Mahir

The Lack of Geometric Comprehension in Integral Instruction

Patricia Douville, David K. Pugalee, Josephine Wallace, Corey R. Lock

Investigating the Effectiveness of Mental Imagery Strategies in a Constructivist Approach to Mathematics Instruction

David K. Pugalee, Patricia Douville, Corey R. Lock, Josephine Wallace
Authentic Tasks and Mathematical Problem Solving

Christina Misailidou & Julian Williams

Facilitating Problem Solving: Children Argue their way to a Multiplicative Structure with the aid of Selected Cultural Tools

Medhat Rahim

Students' Constructivist Paradigm in a Spatial Problem-Solving Inquiry-Based Mathematics Classroom

Luk Hok Wing

A comparison of strategies adopted by primary students in four cities of China in solving mathematical problems

WG 4: TECHNOLOGY IN THE CLASSROOM

ANGEL BALDERAS, MARIA REGGIANI, ENRICA LEMUT & MEDHAT RAHIM

Yoko Ono and Yumi Asahi

On computer education in Japan

M.F. Abdul Karim & U. Ufuktepe

Pedagogical Issues in WebMathematica Applications in Distance Learning Mathematics

Patricia T. Eaton, Stranmillis University College, Belfast

Predicting the Future – Training Teachers for Tomorrow

Barry Kissane (60min)

Workshop 2 Equations and the graphics calculator

WG6. REAL WORLD APPLICATIONS OF MATHEMATICS

IVAN MEZNIK, AGATA HOFFMAN & ALDO SCIMONE

Gila Hanna, Ysbrand DeBruyn, Nathan Sidoli and Dennis Lomas

An application of concepts from statics to geometrical proofs

Bradford Hansen-Smith Workshop 45min

Wholemovement of the circle

Nicoletta Sala, Silvia Metzeltin, Massimo Sala

Applications of Mathematics in the Real World: Territory and Landscape

Fayez M. Mina

The Role of the Systemic Approach in the Humanistic Renaissance in Mathematics Education

Alexandre S. Mendes, Joni A. Amorim, Rosana G. S. Miskulin (10min) Connecting Mathematics and Biology in the Information Society Schools: A Brazilian Perspective on Technology Usage

Nazla H.A.Khedre (10min) On Humanizing Mathematics

WG7. CLASSROOM FOCUSED RESEARCH, HOW DO KIDS LEARN?

ANGELA PESCI, ANASTASIA EVANGELIDOU & GIANNA MANNO

Noel Geoghegan

Learning Mathematics: a SEARCH for meaning.

Lynnea C. Salvo, Lorraine Smith, Vickie Inge, John Staley, Johnna J. Bolyard, Patricia S. Moyer

Rabbit Ears to Slope to Derivatives: Longitudinal Development of an Algebraic Concept

Mihaela Singer

Developing mental abilities through structured teaching methodology

Stamatis Voulgaris & Anastasia Evangelidou

Understanding of three dimensional arrays of cubes - Children in transition

Nicolina A. Malara & Giancarlo Navarra

ArAl: a Project for an Early Approach to Algebraic Thinking

Working Groups Session 3: Tuesday 24th September 9.00 - 10.30

WG1: POWERFUL LEARNING ENVIRONMENTS FOR MATHEMATICS PROBLEMSOLVING

ERIK DE CORTE, GEORGE MALATY & GRAZIA INDOVINA

Erik De Corte & Peter Op 't Eynde

Unraveling students' belief systems relating to mathematics learning and problem solving

Shi-Pui Kwan

Farey Series and Ford Circles

Andry Marcou & Athanasios Gagatsis

Representations and Learning of Fractions

WG 3: RICH LEARNING TASKS AND THE GENERAL AIMS OF MATHEMATICS EDUCATION

GARY FLEWELLING, GUNTER GRAUMANN & CLAUDIA SORTINO

Agata Hoffmann

How one can use "The Super Farmer" game in teaching mathematical modelling and problem solving.

Rose Elaine Carbone

Forming Partnerships to Improve Mathematics Teaching

Marjorie Henningsen

Using Narrative Classroom Cases to Promote Inquiry and Reflection on Mathematics, Teaching, and Learning

WG 5. EQUITY AND ETHNOMATHEMATICS

GILA HANNA, LIV SISSEL GRØNMO & FRANCO FAVILLI

Beverly J. Ferrucci and Jack A. Carter

Humanistic Influences in Mathematics Achievement: Department Heads' Perceptions of Their Role

Thomas Hagspihl

Why is the teaching of Mathematics in such a crisis - a perspective from the tip of Africa.

Louisa Lam

Mathematics Education Reform in Hong Kong

WG7. CLASSROOM FOCUSED RESEARCH, HOW DO KIDS LEARN?

ANGELA PESCI, ANASTASIA EVANGELIDOU & GIANNA MANNO

Rosana Giaretta Sguerra Miskulin, Joni de Almeida Amorim, Fernando Massucheto Jorge

Interactivity in Mathematics Education: Collaborative Knowledge Generation in Internet Based Sharing Environments (10min)

N. Çetin

The Image of Rational Numbers in Students

Othman Nayef Alsawaie

Pre-service Mathematics Teachers Conducting Research to Enhance Their Knowledge of Children's Thinking

V.V. Afanasiev, E.I. Smirnov

Humanitarian role of mathematics in training of a teacher

Working Groups Session 4: Tuesday 24th September 11.00 - 13.00

WG 4: TECHNOLOGY IN THE CLASSROOM

ANGEL BALDERAS, MARIA REGGIANI, ENRICA LEMUT & MEDHAT RAHIM

Barry Kissane (30min)

Three roles for technology: Towards a humanistic renaissance in mathematics education.

Ercole Castagnola (45min)

The Use of Hand-Held Technology in the Learning and Teaching of Secondary School Mathematics. The functionality of CABRI and DERIVE in a graphic calculator.

Michael Hardiker (45min)

Computer Simulations and Modelling in Mathematics Education

WG 5. EQUITY AND ETHNOMATHEMATICS

GILA HANNA, LIV SISSEL GRØNMO & FRANCO FAVILLI

Sally I. Lipsey and Bernard S. Pasternack

Mathematics in Literature

CJ (Ina) Louw

Investigation and Alleviation concerning the Reasons for Poor Performance in Introductory Mathematics at Technikon Northern Gauteng (SA)

Isabel Cabrita

Mathematics and Technologies: Bridging Diverse Languages

Ma Yunpeng

The implementation of the new mathematics curriculum in China

Soledad Esteban, María P. Gonzalez, Carlos Romera and Luis Tejero

Training Course in the Use of technology for Secondary School Teachers in mathematics and Sciences

WG6. REAL WORLD APPLICATIONS OF MATHEMATICS

IVAN MEZNIK, AGATA HOFFMAN & ALDO SCIMONE

Luigi Borzacchini and Domenico Minunni

A MATHEMATICA Notebook about Ancient Greek Music and Mathematics

Thomas Hagspihl

It's not surprising that Euclid got excited about Geometry

Maria Ajello, Filippo Spagnolo

Some experimental observations on common sense and fuzzy logic

C. Fazio, R. M. Sperandeo-Mineo, G. Tarantino

Mathematical Representation of Real Systems: Two Modelling Environments Involving Different Learning Strategies

Nevin Orhun & Önder Orhun

Mathematical Mistakes of Solving Physics Problems

WG7. CLASSROOM FOCUSED RESEARCH, HOW DO KIDS LEARN?

ANGELA PESCI, ANASTASIA EVANGELIDOU & GIANNA MANNO

Palmina Cutugno & Filippo Spagnolo

Misconceptions about triangle in Elementary school (age 6-10)

Krystyna Dalek

Reasoning, Modelling and Communication in Classroom Mathematics

Claudia Giacalone- Filippo Spagnolo

The Systemic Thinking in the passage from language arithmetical to language algebraic with use of mediator software Excel (in the children of 9-10 years)

Madeleine J. Long

Concentrated Reinforcement Lessons (CoReL)

Elsa Malisani

The Notion of variable in Semiotic Contexts Different

Working Groups Session 5: Tuesday 24th September 17.15 - 19.15

WG1: POWERFUL LEARNING ENVIRONMENTS FOR MATHEMATICS PROBLEMSOLVING

GEORGE MALATY, BEVERLY FERRUCCI & GRAZIA INDOVINA

Jack Burrill

Teaching Algebra Concepts in the Early Grades

Aldo Scimone

Following Goldbach's tracks

Iliada Elia-Athanasios Gagatsis

Matching Unusual Word Problems with Given Answers

George Malaty

School Mathematics Geometric Problems: Past, Present and future

Nevin Orhun

Solution of Verbal Problems Using Concept of Least Common Multiplier (LCM) and Greatest Common Divisor (GCD) in primary School Mathematics and Misconceptions

WG 2: STATISTICS AND PROBABILITY GAIL BURRILL, MAHER SHAWER & SILIO RIGATTI

Ludwig Paditz (60min)

Simulation and Statistical Exploration of Data (e.g. Fair Die or Unfair Die)

Test of Hypothesis on Fair Die (Simulation of Chi Square Tests)

Gail Burrill

Making Decisions with Data

Robin Boyle

PaceXL: Statistics Add-in for Excel (50min)

WG 3: RICH LEARNING TASKS AND THE GENERAL AIMS OF MATHEMATICS EDUCATION

GARY FLEWELLING, GUNTER GRAUMANN & CLAUDIA SORTINO

Libby Krussel

What's the Difference? Teaching Mathematics to Standards in a Distance Learning Environment

Foong Pui Yee

Using Short Open-ended Mathematics Questions to Promote Thinking and Understanding.

Günter Graumann

General Aims of Mathematics Education Explained with Examples in Geometry Teaching

General Education in Mathematics Lessons An Introduction to Humanistic Holistic Education

Linda Jensen Sheffield

The Solution is Just the Beginning: Using Rich Learning Tasks to Develop Mathematical Creativity

Rüdiger Vernay

Wrappings, carpenters and symmetries in everyday life – making flexible use of knowledge and supporting independent learning

WG 4: TECHNOLOGY IN THE CLASSROOM

ANGEL BALDERAS, MARIA REGGIANI, ENRICA LEMUT & MEDHAT RAHIM

Maria Reggiani

Arithmetic, algebra and technology: a study on beginner pupils

Bob Mathews (10 min)

Publishing Math on the Web - What are the Best Solutions?

Monique C. Lynch, Patricia S. Moyer, Denise Frye, Jennifer M. Suh

Web-Based Learning: Using Telecollaboration Models to Enhance Mathematics Instruction

Anna Rybak

Why and How I Use Computer Programs During the Lessons of Mathematics

Valeria Facchini, Francesca Gialanella, Maria Talamo, Annalaura Trampetti

Drawing by Equations