

FINAL PROGRAM



15-17 June 2006



UNIVERSITY OF NAPLES FEDERICO II

Organized by



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Contents

Contents

General Information	4
Conference Location.....	4
How to get there	4
Badges	4
Tickets	4
Registration	5
Conference Proceedings	5
Meeting Room.....	5
Need Help?.....	5
Social Event and Lunches	5
Best Paper Award.....	6
Quick Program Overview.....	7
Scientific Program	11
Thursday, June 15.....	11
Friday, June 16	15
Saturday, June 17.....	19
Hotel Information.....	21
Conference Locations	22
EUROSIS Info	24

General Information

1. Conference Location

The Conference is held at

The University of Naples Federico II Conference Centre
<http://www.centrocongressi.unina.it/>
Via Partenope, 36 - 80121 Napoli
Tel +39.081 2537395 - +39.081 2535706
Fax: +39.081 2535729

The registration desk will be placed in the hallway of the conference centre from Thursday June 15th morning onwards, where registration will start at 08.00 and will end at 17.30. On Friday June 16th registration will be from 8.30 a.m. - 17.00 p.m. with Saturday registration only from 8.30 a.m.- 9.00. a.m.

ALL MAPS ARE AT THE BACK OF THIS PROGRAMME

How to get to the Conference Centre:

Naples International Airport

Domestic reservations: Tel.: 39 - 08488-65641. From Rome and mobile phones: 06-65641

International reservations: Tel.39 - 08488-65642. From Rome and mobile phones: 06-65642

Information:- Tel.39 - 8488-65643. From Rome and mobile phones: 06-65643

Distance from the airport to the city centre: 5 km

The **Italian Railways** offer daily connections with the European railway network, and provides daily connections with all the Italian major cities from Naples' central rail station.

2. Badges

Each registrant will receive a name badge upon registration. The badge must be worn, in order to be admitted to the technical sessions, lunches and social event. **One day participants will receive a one day designated badge. One day participants are admitted to the technical sessions and lunches of the day in which they participate.**

3. Tickets

Extra tickets for the social event and lunches are available from the registration desk. Price: (or equivalent in another currency) for extra tickets

General Information

Extra conference dinner	€60
Extra lunch ticket	€25

4. Registration

The FOODSIM'2006 Registration Desk will be open for information and registration:

Thursday, June 158.00 a.m. to 5.00 p. m.
Friday, June 16.....8.30 a.m. to 5.00 p. m.
Saturday, June 178.30 a.m. to 9.00 a.m.

The conference desk will be placed in the hallway of the conference centre.

5. Conference Proceedings

Each fully paid registrant will be provided with a copy of the Conference Proceedings (printed format). **This is NOT applicable to students who are not authors.**

(Extra copies are available on a cash and carry basis at special rates during **FOODSIM'2006**)

Price: (or equivalent in another currency) for an extra copy

FOODSIM'2006 Proceedings CASH AND CARRY	€40
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6. Meeting Room

The meeting room of the FOODSIM conference is on the first floor of the conference centre. The way to the room will be signposted

7. Need Help?

Please see the conference desk for your questions

8. Social Event and Lunches

All full paying registrants are invited to
All lunches are served at the Conference Centre

General Information

The Conference Dinner

All full paying participants are invited to the conference dinner on **FRIDAY the 16th of June**. As we need to give an exact number of participants we would appreciate **your confirmation at the desk before Thursday evening**. The location of the conference dinner will be announced and posted at the conference.

9. Best Paper Award

During the conference the papers, which were accepted as extended papers will be judged by the committee in order to choose the best paper of the **FOODSIM'2006** conference.

ALL SESSION CHAIRPERSONS IN THIS PROGRAM ARE PROVISIONAL

THE NUMBERS NEXT TO THE PRESENTATIONS DENOTE THE PAGE-NUMBERS IN THE PROCEEDINGS. IF NO NUMBERS ARE MENTIONED THEN THIS PAPER IS NOT PUBLISHED IN THE PROCEEDINGS

THE AUTHORS WHO ARE UNDERLINED ARE NORMALLY THE PRESENTERS

PAPERS IN GREY BOXES ARE THE EXTENDED PAPERS ELIGIBLE FOR THE BEST PAPER AWARD

CHECK OUT THE OTHER EUROSIS EVENTS ON OUR WEBSITE:

<http://www.eurosis.org>

THURSDAY, 15th JUNE 2006

08.00-17.00	REGISTRATION
09.00-09.15	OPENING SESSION
09.15-10.00	KEYNOTE ADDRESS BY ASHIM K. DATTA
10.00-10.30	COFFEE BREAK
10.30-12.30	SESSION I
	INDUSTRIAL SIMULATION PROCESS MODELS I
12.30-13.30	LUNCH BREAK
13.30-14.30	SESSION II
	INDUSTRIAL SIMULATION PROCESS MODELS II
14.30-15.00	COFFEE BREAK
15.00-16.30	SESSION III
	FOOD PRODUCTION SIMULATION
16.30-18.45	SESSION IV
	DIFFUSION, DISPERSION AND SPRAY DRYING SIMULATION
18.45 FREE EVENING	

FRIDAY, 16th JUNE 2006

08.30-17.00	REGISTRATION	
09.00-10.00	KEYNOTE ADDRESS BY PANOS M. PARDALOS	
10.00-10.30	COFFEE BREAK	
10.30-12.30	SESSION V	
	LIQUIDS PRODUCTION SIMULATION AND SIMULATION TRAINING	
12.30-13.30	LUNCH BREAK	
13.30-15.00	SESSION VI AND COST MEETING	
	PACKAGED FOODS SIMULATION I	COST MEETING
15.00-15.30	COFFEE BREAK	
15.30-16.30	SESSION VII	
	PACKAGED FOODS SIMULATION II	
16.30- 18.30	SESSION VIII	
	COMPLEX FOOD PRODUCTS AND HEAT TRANSFER I	
20.00 – 23.00	CONFERENCE DINNER	

SATURDAY, 17th JUNE 2006

08.30- 09.00	REGISTRATION
08.30 09.30	SESSION IX
	HEAT TRANSFER SIMULATION II
09.30-10.00	COFFEE BREAK
10.00 13.00	SESSION X
	FOOD QUALITY SIMULATION
13.00-13.15	CLOSING SESSION AND BEST PAPER AWARD

NOTES

Thursday, 15th June 2006

HALLWAY

Registration

08.00 - 17.00

MAIN HALL

09.00 – 10.00

Opening FOODSIM'2006 and Welcome

Welcome Address

Professor Paolo Masi
University of Naples Federico II
FOODSIM'2006, General Conference Chair

09.15 – 10.00

KEYNOTE SPEECH

Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

Modeling as a Design Tool in Food Process Engineering: Are We There Yet?

Ashim K. Datta

Professor, Cornell University
Dept. of Biological and Environmental Engineering
Riley-Robb Hall, Ithaca, NY 14853, USA
Tel: (607)255-2482; Fax: (607)255-4080
<http://www.bee.cornell.edu/datta>

Abstract

Unlike other manufacturing, food processing is lagging behind in using engineering models as part of the design process. The complexities of food processes and the changes that food materials undergo during processing are novel and not shared by many other manufacturing. These physics are neither known accurately nor are they implementable in existing modeling software. Current effort in this area will be shared

Thursday, 15th June 2006

10.00 - 10.30
COFFEE BREAK

10.30 – 12.30

SESSION I **PROCESS**
INDUSTRIAL SIMULATION PROCESS MODELS I
Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

F_TOOLS_01
A Dynamic Model Library for Simulation of Liquid Food Processes
Tomas Skoglund and Petr Dejmek 5

F_TOOLS_NEW
On Data Modeling for Batch Processes with an Application to Wine-making
Luigi Glielmo, Francesco Vasca and Oreste Riccardo Natale 220

F_ENG_01
A New Model to Predict Residence Time Distribution in Extrusion Process
Peggy Vauchel, Régis Baron, Raymond Kaas, Abdellah Arhaliass and
Jack Legrand 13

F_BIO_08
Mild Homogenization and Vorticity Control
Sarghini F. and Masi P 187

12.30 - 13.30
LUNCH BREAK

13.30 – 14.30

SESSION II **PROCESS**
INDUSTRIAL SIMULATION PROCESS MODELS II
Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

F_ENG_08
Analysis of Mashing with Tucker3 Model
Martin Mitzscherling and Thomas Becker 21

Thursday, 15th June 2006

F_TOOLS_03

**Identifiability of Time Varying Parameters in a Grey Box Neural Model:
Application to a Biotechnological Process**

Gonzalo Acuña, Francisco Cruz and Vicente Moreno 26

14.30 - 15.00

COFFEE BREAK

15.00 - 16.30

SESSION III

PRODUCTION

FOOD PRODUCTION SIMULATION

Chair: Jean-Yves Monteau, ENITIAA, Nantes, France

F_BIO_01

**A model based on factorial Design to predict the Evolution of
Brettanomyces sp. Population as function of environmental Conditions
in Winemaking**

Claudia Castro Martínez, Cédric Brandam, Felipe Ramón Portugal and
Pierre Strehaiano..... 35

F_BIO_05

**Improved Ventilation inside A Large Meat Carcass Chiller following
CFD Modelling**

Laurent Picgirard and Pierre-Sylvain Mirade 40

F_POSTER_03

**Computational Fluid Dynamics Analysis for Design Optimisation of
a Continuous Oven for Convenience Meat Products**

Siegfried Denys and Jan G. Pieters..... 48

16.30 – 19.00

SESSION III

PROCESS

DIFFUSION, DISPERSION AND SPRAY DRYING SIMULATION

Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

F_TOOLS_02

Estimation of the Effective Diffusion Coefficient of Water in Fresh Vegetables

Maria Aversa, Stefano Curcio, Vincenza Calabrò and Gabriele Iorio 127

Thursday, 15th June 2006

F_NEW

An Innovative Mathematical Model for the Thermal Diffusivity Estimation and Thermal Process Modelling

Massimiliano Rinaldi, Giampaolo Betta and Roberto Massini..... 227

F_PROD_02

Simulation of the Dietary Exposure to Acrylamide from French Fries for Irish Consumers

Enda Cummins, Francis Butler, Ronan Gormley and Nigel Brunton 137

F_ENG_13

Modelling Agglomeration in Spray Dryers

Maykel Verschueren, Ruud Verdurmen, Han Straatsma, Michiel Gunsing, Ruud van Ommen, John Nijenhuis and Ton Backx 95

F_ENG_10

Modelling Spray Drying Losses in Batch, Top Spray Fluidised Bed Coating Processes

Frederik Ronsse, Jan G. Pieters and Koen Dewettinck..... 100

FREE EVENING

Friday, 16th June 2006

HALLWAY

Registration

08.30 - 17.00

09.00 – 10.00

KEYNOTE SPEECH

Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

Data mining and optimization issues in the food industry

Panos M. Pardalos

Distinguished Professor and Co-Director, Center for Applied Optimization

Industrial and Systems Engineering Department

Biomedical Engineering Department, McKnight Brain Institute

303 Weil Hall, University of Florida, PO Box 116595

Gainesville, FL 32611-6595

Email: pardalos@ufl.edu

web address: <http://www.ise.ufl.edu/pardalos>

Abstract

Data mining techniques are very important for customer relationship management of firms to gain a competitive advantage. Data mining can help to extract hidden predictive information from large databases, identify valuable customers and predict future behaviors, and enable firms to make proactive, knowledge-driven decisions. In this talk, we review some data mining techniques including clustering, decision trees and related optimization techniques, and discuss their applications to food industries. Web mining and e-commerce issues related to food industry will also be discussed

10.00 - 10.30

COFFEE BREAK

10.30 – 12.30

SESSION V

PRODUCTION

LIQUIDS PRODUCTION SIMULATION AND SIMULATION TRAINING

Chair: Panos Pardalos, University of Florida, Gainesville, USA

F_ENG_03

Flexibility Study of a Liquid Food Production Process

Hongyuan Chen and Alan Friis57

Friday, 16th June 2006

F_ENG_06 Artificial Neural Networks for Prediction of Beer's Preference Ravipim Chaveesuk and Amarin Saravane 62
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F_BIO_03 Microfluidics Modelling of a High Throughput Microcalorimetric Biosensor for Ascorbic Acid Quantification Pieter Verboven, S. Vermeir, B.M. Nicolai, J. Lammertyn, V. Vulsteke, L. Hoflack, B. Baeten and P. Van Gerwen..... 67
--

F_TRAIN_02 A methodological guideline for the expert-operator knowledge management in the food industry Nathalie Perrot, Irene Allais, Roch-Boris Edoura-Gaena, Irina Ioannou, Gilles Trystram and Gilles Mauris..... 195

12.30 - 13.30
LUNCH BREAK

13.30 – 15.00

SESSION VI **FOOD**
PACKAGED FOODS SIMULATION I
Chair: Ashim Data, Cornell University, Ithaca, USA

F_ENG_11 Multiscale Determination of Diffuse Properties in Polymers: Application to the Prediction of Desorption Packaging Constituents into Foodstuffs Jérôme Lézervant, <u>Olivier Vitrac</u> and Alexandre Feigenbaum..... 75
--

F_ENG_12 A Thermodynamically Consistent Description of the Desorption of Packaging Constituents into Foodstuffs Ali Mougahrbel, <u>Olivier Vitrac</u> and Alexandre Feigenbaum 80

F_PROD_01 Food Packaging Optimization by means of Integrated CAD/CAE and Statistical Techniques <u>Mario Antonio Francese</u> and Domenico Livio Francese 85
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Friday, 16th June 2006

13.30 – 14.30

COST INFORMATION MEETING IN DESIGNATED ROOM

CHAIR: Jean-Yves Monteau, ENITIAA, Nantes, France

15.00 - 15.30

COFFEE BREAK

15.30 – 16.30

SESSION VII

FOOD

PACKAGED FOODS SIMULATION II

Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

F_PROD_03

General Quality and Red Discoloration of modified Atmosphere packaged, fresh-cut Endive as affected by Temperature and Oxygen Fraction

Hajo Rijgersberg and Jan L. Top 88

F_ENG_15

Combined Transfer Phenomena in 3D Modelling of Packaged Foods

Maria Valeria De Bonis, Giuseppe Altieri, Maria Cefola and

Gianpaolo Ruocco 211

16.30 – 18.30

SESSION VIII

COMPLEX/HEAT

COMPLEX FOOD PRODUCTS AND HEAT TRANSFER I

Chair: Paolo Masi, University of Naples Federico II, Naples, Italy

F_BIO_02

How Statistical Physics can help to predict Mass Transport Properties in Complex Food Products

Olivier Vitrac and Murielle Hayert 145

F_COMPLEX_NEW

Mathematical Modeling the Effect of Lipids on Dough Development during Leavening

Annalisa Romano, Gerardo Toraldo, Silvana Cavella and Paolo Masi 152

Friday, 16th June 2006

F_ENG_09

**Numerical Simulation of the multi extrusion Pet Food with rheologically
Complex Behavior**

Thierry Marchal, Antoine Dozolme and Benoit Marchal..... **216**

F_ENG_04

**Modelling of Heat Transfer in Glass Jars with Particulated Foods Immersed in a
Liquid medium**

Alejandro R. Lespinard, Pablo R. Salgado, Luis A. Roche and

Rodolfo H. Mascheroni **109**

CONFERENCE DINNER – 20.00 -23.00

More information will be available at the conference

Saturday, 17th June 2006

HALLWAY

Registration

08.30 - 09.00

08.30 – 09.30

SESSION IX

HEAT II

HEAT TRANSFER SIMULATION II

Chair: Gerardo Toraldo, Univ. of Naples Federico II, Naples, Italy

F_ENG_16

Fouling of Heat Exchangers in the Dairy Industry by Coupling Flow and Kinetics Modelling

Maria Valeria De Bonis, Caterina Calamello and Gianpaolo Ruocco 114

F_ENG_07

Effect of Reduced Temperature during Evaporation and Crystallisation on Sugar Quality and Energy Demand at Sugar Production – Model Based Simulations

Quido Smejkal, Arash Bagherzadeh, Rudolf Schick, Lutz-Günther Fleischer and Tomas Kurz 486

09.30 - 10.00

COFFEE BREAK

10.00 - 13.00

SESSION X

QUALITY

FOOD QUALITY SIMULATION

Chair: Gerardo Toraldo, Univ. of Naples Federico II, Naples, Italy

F_ENG_05

A COMSOL Simulation of the Osmotic Dehydration of Mango

Juliane Floury, Q. Tuan Pham and Alain Le Bail 159

F_BIO_04

A Comprehensive Modelling Approach for Yeast Growth and Physiology

Tomas Kurz 164

Saturday, 17th June 2006

F_BIO_06

Thermal conductivity Estimation of Sandwich Bread Using Inverse Method

Jean-Yves Monteau..... 172

TRAIN_01

Determination of Thermal Conductivity of Frozen Meat by Finite Element Modelling

Q.T. Pham, M.R. Sutjiadi, Y. Sagara and G.-S. Do 175

F_BIO_07

Substrate and Metabolite Diffusion within Solid Medium in relation to Growth of *Geotrichum Candidum*

Abdeltif Amrane, Mazen Aldarf, Florence Fourcade and Yves Prigent..... 179

F_ENG_02

Applicable Models of Industrial Processes based on Process understanding: Acrylamide Prediction

Bo Boye Busk Jensen, Alan Friis and Jens Adler-Nissen..... 18

MAIN HALL 13.00 - 13.15

BEST PAPER

CLOSING SESSION AND BEST PAPER AWARD

Chair: Paolo Masi and Philippe Geril

POSTERS (to be viewed during the conference)

F_POSTER_01

Mycotoxin Transfer along the Feed to Food Chain: A Simulation Approach

Enda Cummins, Rory Coffey and Shane Ward 203

F_POSTER_02

An Integrated European Approach to TSE Risk Assessment

Enda Cummins, Larry Paisley, Aline de Koeijer, Thomas Hagenaars,

Franck Guarnieri, Deirdre Murray, Amie Adkin and Christine Jacob 207

F_PROD_01

Food Packaging Optimization by means of Integrated CAD/CAE and Statistical Techniques

Mario Antonio Francese and Domenico Livio Francese 85

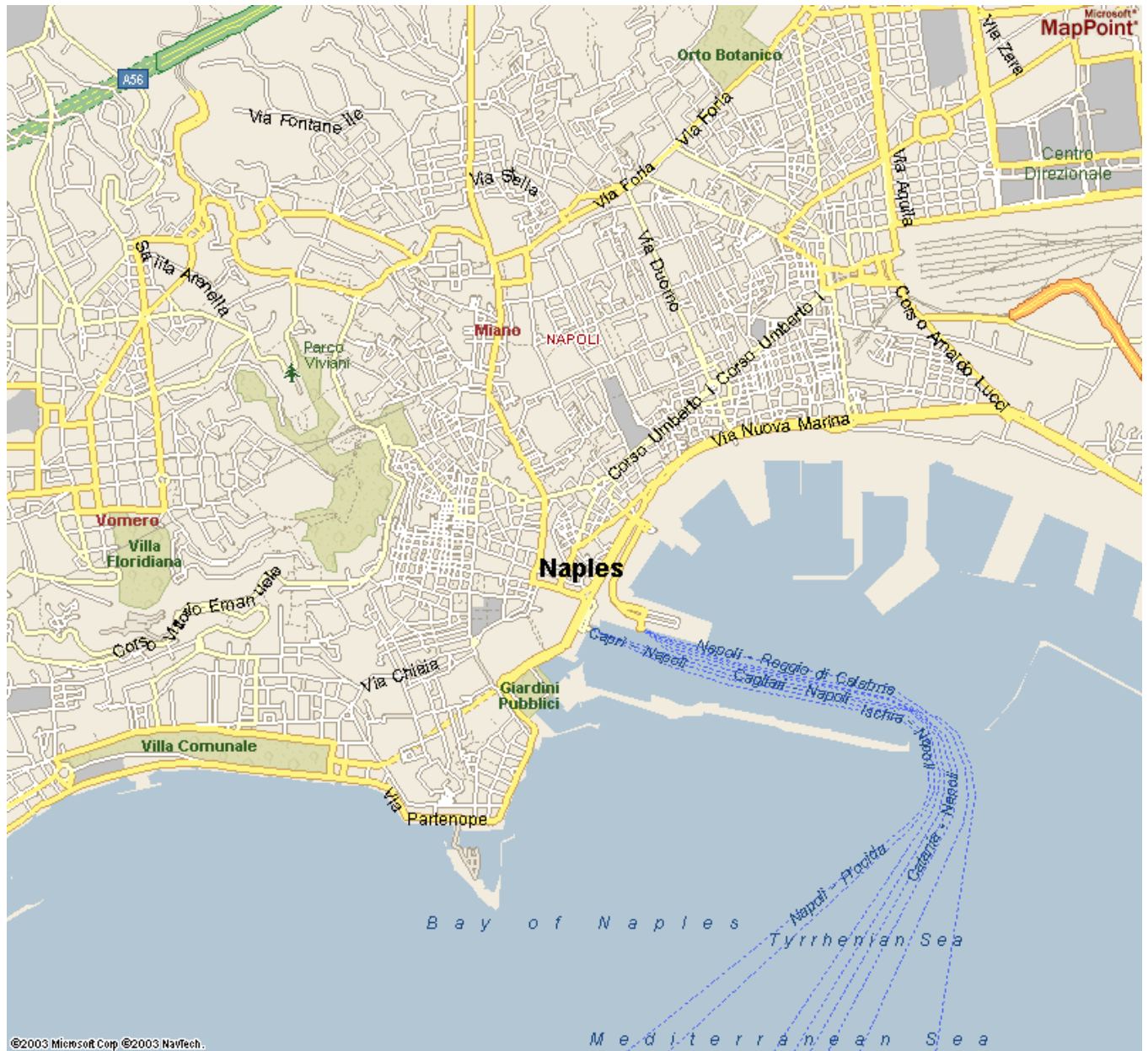
**SEE YOU ALL
AT FOODSIM 2008**

CONFERENCE HOTELS

The following hotels are being used by the conference participants

Name	Single Room	Double Room	Room with shower
B&B Platamon Via Chiatamone 55 80121 Naples Tel:+39.081.661.042 Fax:+39.081.406.370	€ 40	€ 50	
Hotel Excelsior Via Partenope 48 Tel:+39.081.764.0111/180 Fax:+39.081.764.9743/4230	€ 200	€ 250	€ 220
Hotel Majestic Largo Vasto a Chiaia 68 Tel:+39.081.746.3180 Tel:+39.081.746.3194	€ 130	€ 175	€ 155
Hotel Mediterraneo Via N.Ponte di Tappia 25 Tel:+39.081.551.2240 Fax:+39.081.552.5868	N.A.	€ 150	€ 126
Hotel Mercure Angionino Napoli Centro Via Depretis 123 Tel:+39.081.552.9500 Fax:+39.081.552.9509	€ 114	€ 137	€ 124
Hotel Rex Via Palepoli 12 Tel:+39.081.764.9389 Tel:+39.081.764.9227	N.A.	€ 110	€ 90
Hotel Royal Continental Via Partenope 38/44 Tel:+39.081.245.2068 Tel:+39.081.764.5707	N.A.	€ 160	€ 145
Grand Hotel Vesuvio Via Partenope 45 Tel:+39.081.764.0044 Fax:+39.081.764.4483	€ 207 € 380	€ 259 € 336	€ 233 € 310
Jolly Hotel Via Medina 70 Tel:+39.081.410.511 Fax:+39.081.551.8010	€ 109 € 129	€ 129 € 150	

Conference Site Maps



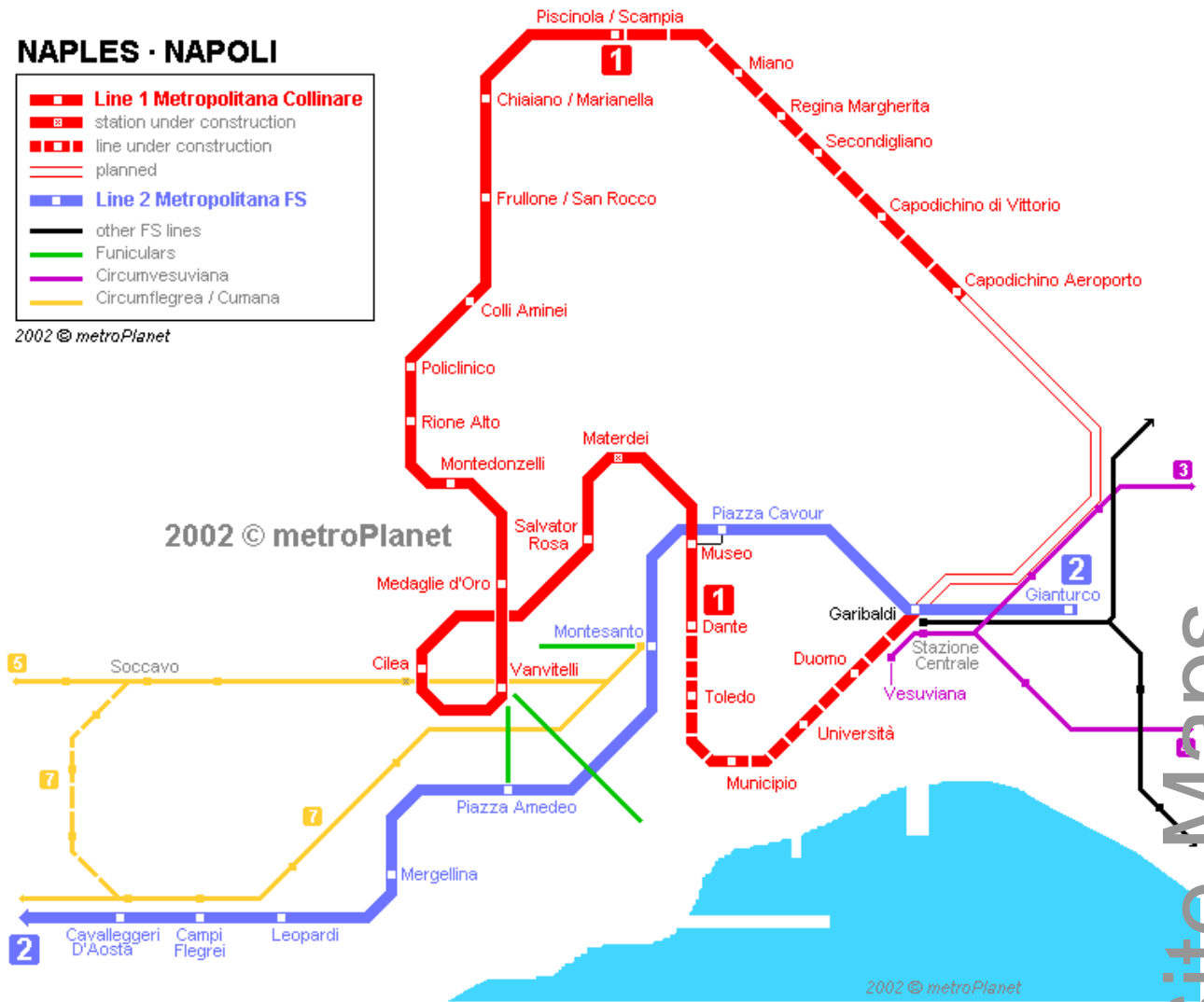
**The conference centre is located
On the Via Partenope 36 (at the bottom of the
map). More info is given at the beginning of the
final program**

Conference Site Maps

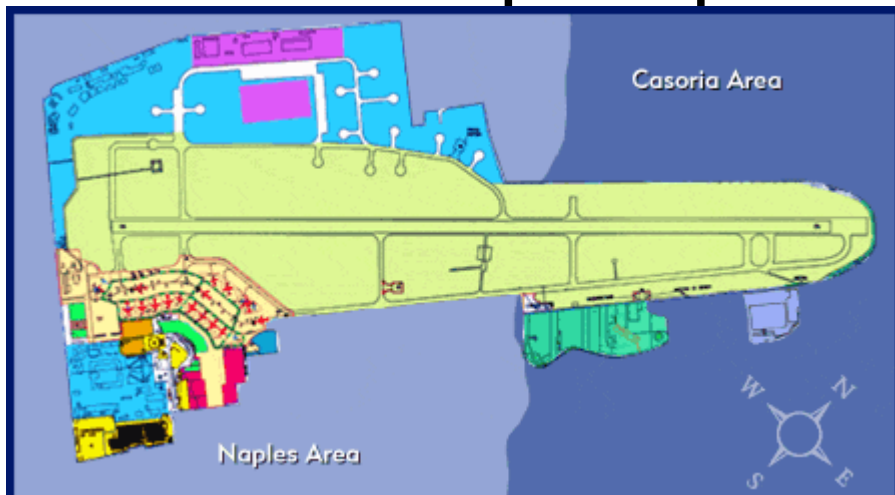
NAPLES · NAPOLI

- **Line 1 Metropolitana Collinare**
- station under construction
- line under construction
- planned
- **Line 2 Metropolitana FS**
- other FS lines
- Funiculars
- Circumvesuviana
- Circumflegrea / Cumana

2002 © metroPlanet



Metro and Airport Maps



Conference Site Maps



EUROSIS was borne out of discussions with the European Community to set up a new kind of Society, which would be project driven instead of driven by pure membership and conferences.

The aim of the new Society will be to set up topic related Technical Committees which will link directly to European Projects in the field of computer simulation and related areas and to act as a knowledge pool for future European Networks of Excellence, like MOSAIC. A first general information meeting is scheduled for ESM2007 in Toulouse in October 2007.

If you would like to receive more information about EUROSIS, please contact

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Philippe.geril@eurosis.org (from June 15th onwards)

Please send me info on EUROSIS:

Name:

Address:

.....

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Telephone

Fax:

Email: