

# TRISTAN II

## TRIennial Symposium on Transportation ANalysis

FINAL PROGRAMME



C.N.R.  
Progetto Finalizzato  
Trasporti Due



C.N.R.-I.A.S.I.  
Istituto di Analisi  
dei Sistemi ed Informatica

A.I.R.O. Associazione Italiana  
Ricerca Operativa

CAPRI, ITALY  
Congress Center  
June, 23-28 1994

## PROGRAMME COMMITTEE

**Lucio Bianco** *Chairman* University of Rome Tor Vergata, Italy  
**Paolo Toth** *Chairman* University of Bologna, Italy  
**Maurizio Bielli** I.A.S.I. - C.N.R., Italy  
**Ennio Cascetta** University of Naples, Italy  
**Teodor Gabriel Crainic** University of Montreal, Canada  
**Warren B. Powell** Princeton University, USA

## ADVISORY COMMITTEE

|                      |                       |
|----------------------|-----------------------|
| Michael O. Ball      | Toshihide Ibaraki     |
| Jaime Barcelo        | Martine Labbe'        |
| Alex Belenky         | Gilbert Laporte       |
| Carlos Daganzo       | Jan Karel Lenstra     |
| Mark S. Daskin       | Amedeo R. Odoni       |
| Pierre Dejax         | Jose' Paixao          |
| Jacques Desrosiers   | Markos Papageorgiou   |
| Awi Federgruen       | Harilaos N. Psarftis  |
| J. Enrique Fernandez | Donald H. Ratliff     |
| Michael Florian      | Alexander Rinnooy Kan |
| Terry L. Friesz      | Werner Rothengatter   |
| Giorgio Gallo        | Jean-Marc Rousseau    |
| Patrick T. Harker    | Francois Soumis       |

## ORGANIZING COMMITTEE

M. Bielli            G. E. Cantarella            A. Scognamiglio

## SECRETARIAT of TRISTAN II

- **Maurizio Bielli** I.A.S.I. - C.N.R.  
Viale Manzoni, 30 - 00185 - Rome - Italy  
Phone +39-6-77161 - Fax +39-6-7716461  
E-MAIL: BIANCO@IASI.RM.CNR.IT

Conference Location:

**Palazzo dei Congressi of Capri**  
Vicolo Sella Orta, 3 - 80073 Capri - Italy

**Secretariat during the Conference:**  
Phone + 39 - 81 - 8376926  
Fax +39 - 81 - 8378626

## INVITED LECTURERS

|                     |  |
|---------------------|--|
| <b>J. Barcelo</b>   | University of Barcelona, Spain                             |
| <b>M. Ben-Akiva</b> | Massachusetts Institute of Technology,<br>Cambridge, USA   |
| <b>E. Cascetta</b>  | University of Naples, Italy                                |
| <b>M. Florian</b>   | Centre for Research on Transportation,<br>Montreal, Canada |
| <b>W. Powell</b>    | Princeton University, USA                                  |
| <b>H.D. Ratliff</b> | Georgia Tech., Atlanta, USA                                |

## THEME

Following the success of the first Conference TRISTAN I, held in Montreal in 1991, in the second Conference TRISTAN II both theoretical and experimental papers which explore the science of transportation will be presented, as results of research into models and algorithms, the use of modern information technologies, and the emergence of new strategies in transportation and logistics. TRISTAN will again offer researchers the opportunity to meet and exchange ideas with the best in the field.

**Official Language:** English

## REGISTRATION FEE

|                    | Ordinary | PhD Students |
|--------------------|----------|--------------|
| Before May 1, 1994 | 400 US\$ | 200 US\$     |
| or Italian Lira    | 700.000  | 350.000      |
| After May 1, 1994  | 450 US\$ | 250 US\$     |
| or Italian Lira    | 787.500  | 437.500      |

## Accompanying person

|                    |                                  |
|--------------------|----------------------------------|
| Before May 1, 1994 | 100 US\$ or 175.000 Italian Lira |
| After May 1, 1994  | 150 US\$ or 262.500 Italian Lira |

**Hotel Booking deposit per person:** 100 US\$ or 175.000 Italian Lira

## CHARGES MODALITIES:

Bank Transfer: Banca Nazionale del Lavoro  
Via Bissolati, 2 - 00187 ROME - Italy

Account Number: 75504

Holder: STUDIO GIBI

or Personal Cheque payable to:

STUDIO GIBI - Piazza Istria 12 - Rome - Italy  
Phone +39 - 6 - 8074939 - Fax +39 - 6 - 8075506

WEDNESDAY JUNE 22, 1994

Congress Center

15.00 - 19.00 Arrivals  
19.00 Participants Registration  
19.00 Welcome Cocktail

THURSDAY JUNE 23, 1994

HALL A

9.00 - 10.00 *Opening Session*  
10.00 - 11.00 *Tutorial (Chairman: T.G. Crainic)*  
W. Powell  
*Dynamic Models in Transportation and Logistics*  
11.00 - 11.30 *Coffee break*  
11.30 - 13.00 *Parallel Sessions*

HALL A

**Heuristics for Vehicle Routing Problems (Chairman: J.M. Rousseau)**  
11.30 - 12.00 M. Gendreau, A. Hertz, G. Laporte, S. Mihnea  
*Efficient Heuristics for Travelling Salesman and Vehicle Routing Problems with Time Windows*  
12.00 - 12.30 I.H. Osman, S. Salhi  
*Heuristics for the Vehicle Fleet Mix Problem*  
12.30 - 13.00 C. Barnhart, D. Kim  
*Routing Models and Solution Procedures for Regional Less-Than-Truckload Operations*

HALL B

**Planning Models for Urban Traffic Systems (Chairman: M. Papageorgiou)**  
11.30 - 12.00 M.G.H. Bell, C. Shield, J. Henry, L. Breheret  
*A Stochastic User Equilibrium (SUE) path flow estimator for the DEDALE database in Lyon*  
12.00 - 12.30 S. Berka, D. Boyce  
*Implementation and Solution of a Large Asymmetric Network Equilibrium Model*  
12.30 - 13.00 N. Elloumi, H. Salem, M. Papageorgiou  
*Metacor: A Macroscopic Modelling Tool for Urban Corridor*

**HALL C**

**Production, Transportation and Logistics** (Chairman: H. Psaraftis)

- 11.30 - 12.00** M. Goetschalckx, G. Nemhauser, M.H. Cole, R. Wei, K. Dogan, X. Zang  
*Computer Aided Design of Industrial Logistics Systems*
- 12.00 - 12.30** A. Kolokolov  
*Decomposition Algorithms for Solving of some Production-Transportation Problems*
- 12.30 - 13.00** W. Powell, T. Carvalho, G. Godfrey, H. Simao  
*Optimal Control of Logistics Queueing Networks: a New Approach for Dynamic Fleet Management*
- 13.00 - 15.30** Lunch

**HALL A**

- 15.30 - 16.30** *Tutorial* (Chairman: L. Bianco)  
M. Florian  
*Recent Advances in Methods and Models in Urban Transportation Planning*
- 16.30 - 17.00** Coffee break
- 17.00 - 19.00** *Parallel Sessions*

**HALL A**

**Probabilistic Vehicle Routing Problems** (Chairman: A. S. Belenky)

- 17.00 - 17.30** J. Bramel, D. Simchi-Levi  
*Probabilistic Analyses and Practical Algorithms for the Vehicle Routing Problem*
- 17.30 - 18.00** G. Laporte, F. Louveaux, L. Van Hamme  
*An Exact Algorithm for the Vehicle Routing Problem with Stochastic Demands*
- 18.00 - 18.30** R. Seguin, M. Gendreau, G. Laporte  
*The Vehicle Routing Problem with Stochastic Customers and Demands*
- 18.30 - 19.00** A. Federgruen, G. Van Ryzin  
*Probabilistic Analysis of a Combined Partitioning and Math Programming Heuristic for a General Class of Vehicle Routing and Scheduling Problems*

**HALL B**

**Transport Economics** (Chairman: T. Ibaraki)

- 17.00 - 17.30** W.J. Hurley, E.R. Petersen  
*Optimal Freight Transport Pricing and the Freight Network Equilibrium Problem*
- 17.30 - 18.00** W.J. Hurley, E.R. Petersen  
*Why Regulate Prices in Freight Transportation Markets?*
- 18.00 - 18.30** H. Psaraftis, G. Nellas, V. Magirou, G. Nastos  
*Greek Coastal Shipping System: Impact of Market Deregulation and New Technologies on Modal Split*
- 18.30 - 19.00** P. Ferrari  
*A Theory of Road Pricing for Urban Transport Networks*

**HALL C**

**IVHS Applications** (Chairman: P. Mirchandani)

- 17.00 - 17.30** Y. Asakura  
*A Parking Simulation Model for Evaluating Availability Information Service*
- 17.30 - 18.00** M.G.H. Bell, C. Shield, H. Keller, T. Sachse  
*A Rerouting Algorithm for the Munich Outer Test Network*
- 18.00 - 18.30** N.H. Koutsopoulos, A. Farkas  
*Dynamic Shortest Path Algorithms and Construction of Routing Tables for IVHS Applications*
- 18.30 - 19.00** J. Barcelo, R. Martin  
*Assessment of Vehicle Guidance Systems and Strategies by Simulation*

**FRIDAY JUNE 24, 1994**

**HALL A**

- 9.00 - 10.00** *Tutorial* (Chairman: M. Ben-Akiva)  
E. Cascetta  
*Modelling Dynamics in Transportation Networks*
- 10.00 - 11.00** *Plenary Session* (Chairman: M. Florian)
- 10.00 - 10.30** T.L. Friesz, D. Bernstein  
*Infinite Dimensional Variational Inequalities and Dynamic Network Disequilibrium Modeling*
- 10.30 - 11.00** H.S. Mahmassani, S. Peeta, H. Ta-Yin  
*Real Time Assignment and Route Guidance in Congested Networks with Multiple User Information Availability Classes*
- 11.00 - 11.30** *Coffee break*
- 11.30 - 13.00** *Parallel Sessions*

**HALL A**

- Resource Management** (Chairman: G. Laporte)
- 11.30 - 12.00** R. Freling, J. Paixao, G. Boender  
*Integrating Vehicle and Crew scheduling*
- 12.00 - 12.30** W.B. Powell, D. Gittoes  
*A Dynamic Assignment Formulation of a Multiattribute Resource Scheduling Problem*
- 12.30 - 13.00** J. Desrosiers, Y. Dumas, M. Solomon, F. Soumis  
*A Unified Solution Approach to Time Constrained Vehicle Routing and Crew Scheduling Problems*

**HALL B**

- Dynamic Assignment** (Chairman: B. Sanso')
- 11.30 - 12.00** L. Brotcorne, D. De Wolfe, M. Labbe'  
*Dynamic Traffic Assignment in Congested Networks: an Iterative Algorithm*
- 12.00 - 12.30** E. Codina, J. Barcelo  
*A System Optimal Dynamic Traffic Assignment Model with Distributed Parameters*
- 12.30 - 13.00** G. Bellei, M. Bielli  
*Dynamic Assignment Modelling of Congested Networks*

FRIDAY JUNE 24, 1994

**HALL C**

- Transport Network Analysis** (Chairman: A. Federgruen)
- 11.30 - 12.00** A.S. Belenky  
*On a Game Theory Approach in Transportation Systems Analysis*
- 12.00 - 12.30** P. Jaillet  
*On-Line Searching of Graphs and Lattices*
- 12.30 - 13.00** A.M. Purtov, Y. Tokarev, V. Shaptsev, V.B. Shulman  
*Computer Tool for Designing and Analysis of Transport Networks (WTRANS)*
- 13.00 - 15.30** *Lunch*
- 15.30 - 17.00** *Parallel Sessions*

**HALL A**

- Modelling Dynamics in Traffic Assignment** (Chairman: M. Labbe')
- 15.30 - 16.00** G.E. Cantarella, E. Cascetta, M. Di Gangi  
*Control Strategies Simulation on Urban Networks: Evaluation Tools and Techniques*
- 16.00 - 16.30** J.H. Wu  
*Dynamic Network Equilibrium Problem Formulated as an Infinite Dimensional Variational Inequality Problem*
- 16.30 - 17.00** J.E. Fernandez, J. De Cea  
*Flow Propagation Description in Dynamic Network Assignment Models*

**HALL B**

- Nonlinear Networks** (Chairman: P. Jaillet)
- 15.30 - 16.00** L. Grandinetti, F. Guerriero, R. Musmanno  
*A Pilot Algorithm for Large-Scale Network Flow Optimization*
- 16.00 - 16.30** I. Chabini, M. Florian  
*A New Class of Primal-Dual Algorithms for Multicommodity Minimum Convex Cost Network Flow Problems: Serial and Parallel Implementations*
- 16.30 - 17.00** N. Christofides, H. Badra, Y. Sharaiha  
*Management of Data Structures for Large-Scale Transportation Networks*

FRIDAY JUNE 24, 1994

**HALL C**

- Design and Evaluation of Public Transport Routes**  
(Chairman: J.E. Fernandez)
- 15.30 - 16.00** M. Bielli, M. Gastaldi, P. Carotenuto  
*Multicriteria Evaluation Model of Public Transport Networks*
- 16.00 - 16.30** Y. Israeli, A. Ceder  
*Multi-Objective Approach for Designing Transit Routes and Frequencies*
- 16.30 - 17.00** P. Avella, A. Sforza  
*Path Location Models for Bus Network Design*
- 17.00 - 17.30** *Coffee Break*
- 17.30 - 18.00** *Parallel Sessions*

**HALL A**

- Crew Scheduling Problems** (Chairman: J. Desrosiers)
- 17.30 - 18.00** F. Catanas, J. Paixao  
*An Evolutionary Algorithm for the Crew Rostering Problem*
- 18.00 - 18.30** M. Fischetti, S. Martello, P. Toth  
*Exact and Approximate Algorithms for the Generalized Crew Scheduling Problem*
- 18.30 - 19.00** R.S.K. Kwan, A. Wren  
*Hybrid Genetic Algorithms for Bus Driver Scheduling*
- 19.00 - 19.30** S. Ceria, C. Mannino, P. Nobile, A. Sassano  
*Polyhedral methods for set-covering/partitioning problems*

**HALL B**

- Algorithms for IVHS** (Chairman: J. Barcelo)
- 17.30 - 18.00** S. Cohen  
*Calibrating Incident Detection Algorithms by Simulated Annealing*
- 18.00 - 18.30** A. Di Febraro, D. Di Noto, T. Parisini, V. Recagno, S. Sacone, R. Zoppoli  
*Neural Networks for Decongestion of Freeway Systems*
- 18.30 - 19.00** M. Ben-Akiva, E. Cascetta, H. Gunn  
*An On-line dynamic traffic prediction model for an interurban motorway network*
- 19.00 - 19.30** M. Ben-Akiva, A. De Palma, I. Kaysi  
*Impact of Predictive Information on Travel Behaviour*

FRIDAY JUNE 24, 1994

**HALL C**

- Urban Transportation Planning** (Chairman: C. Barnhart)
- 17.30 - 18.00** L. Bianco, P. Dell'Olmo, I. Ezhkova  
*Application of Contextual Technology for Supporting Decision Making in Urban Transportation Networks*
- 18.00 - 18.30** A. Di Febraro, V. Recagno, S. Sacone  
*Intermodality in Urban Transportation: Modelling and Analysis*
- 18.30 - 19.00** B. Sanso', L. Milot  
*A Reliability Model for Urban Transportation Planning*
- 19.00 - 19.30** S. Carrese, S. Gori  
*Relationship between Parking Localization and Traffic Flows in Urban Area*

**SATURDAY JUNE 25, 1994**

All-Day Organized Tour

**SUNDAY JUNE 26, 1994**

**Panel on Models Standardization**

- Excursions and Gala dinner
- Folk Show kindly offered by the Azienda Autonoma Cura, Soggiorno, Turismo of the Island of Capri

**MONDAY JUNE 27, 1994**

**HALL A**

- 9.00 - 10.00** **Tutorial** (Chairman: W. Powell)  
D.H. Ratliff  
*Intermodal Network Design*
- 10.00 - 11.00** **Plenary Session** (Chairman: M. Ball)
- 10.00 - 10.30** P. Toth, D. Vigo  
*An Exact Algorithm for the Vehicle Routing Problem with Backhauls*
- 10.30 - 11.00** M. Gendreau, A. Hertz, G. Laporte  
*A Tabu Search Heuristic for the Vehicle Routing Problem with Backhauls*
- 11.00 - 11.30** *Coffee Break*

MONDAY JUNE 27, 1994

**11.30 - 13.00 Parallel Sessions**

**HALL A**

**Methods for Vehicle Routing Problems (Chairman: A. Wren)**

- 11.30 - 12.00** I. Averbakh, O. Berman  
*Deterministic and Probabilistic Sales-Delivery Man Problems*
- 12.00 - 12.30** N. Christofides, E. Hadjiconstantinou, A. Mingozzi  
*An Exact Algorithm for the Vehicle Routing Problem Based on Set Partitioning*
- 12.30 - 13.00** Agha Iqbal Ali, S. Siimerling  
*Incorporating Facet-Inducing Inequalities into Graphical-Construct-Based Lagrangean Relaxation Methodologies*

**HALL B**

**Air Transportation (Chairman: M. Bielli)**

- 11.30 - 12.00** D. Bertsimas, A. Odoni  
*Flow Management In Air Traffic Control*
- 12.00 - 12.30** T. Mifflin, A. Assad, M. Ball, L. Stone, T. Thompson  
*Experiments with Complex Integer Programming Models for the Airport Ground Delay Problem*
- 12.30 - 13.00** V. Tasic, O. Basic, M. Cangalovic, D.J. Hohlacov  
*Some Models and Algorithms for En Route Air Traffic Flow Management*

**HALL C**

**Equilibrium and Assignment Models (Chairman: Y. Asakura)**

- 11.30 - 12.00** S. Saidi, M. Gendreau, F. Soumis  
*A Dynamic Assignment Model for Congested Radial Transit Networks*
- 12.00 - 12.30** A. Nuzzolo, F. Russo  
*An Equilibrium Assignment Model for Intercity Transit Networks*
- 12.30 - 13.00** J. Van den Bergh, P. Njikamp  
*Spatial Externalities and Networks*
- 13.00 - 15.30** Lunch

**HALL A**

**15.30 - 16.30 Tutorial (Chairman: P. Toth)**

- J. Barcelo  
*Information Technology Implications for Transport Operations Research*
- 16.30 - 17.00** Coffee Break

MONDAY JUNE 27, 1994

**17.00 - 19.00 Parallel Sessions**

**HALL A**

**Relaxation Methods for Vehicle Routing Problems (Chairman: F. Soumis)**

- 17.00 - 17.30** L. Bianco, V. Maniezzo, A. Mingozzi, S. Ricciardelli  
*A New Exact Algorithm for the Vehicle Scheduling Problem with Time Window and other Constraints*
- 17.30 - 18.00** M. Mesquita, J. Paixao  
*A Multiplier Adjustment Method for the Multi-Depot Vehicle Scheduling Problem*
- 18.00 - 18.30** N.Kohl, O.B.G. Madsen  
*An Optimization Algorithm for the Vehicle Routing Problem with Time Windows based on Lagrangean Relaxation*
- 18.30 - 19.00** C. Noon  
*Lower Bounds for the VRP via TSSP + 1 Decomposition*

**HALL B**

**Signal Control (Chairman: G.E. Cantarella)**

- 17.00 - 17.30** A. Ceder, I. Reshetnik  
*Queuing Optimization of a Signalized Intersection Operated within a Traffic Control Center*
- 17.30 - 18.00** P. Dell'Olmo, P. Mirchandani  
*REALBAND: An Approach for Real Time Coordination of Traffic Flows*
- 18.00 - 18.30** B. Friedrich  
*A Method for Integrated Demand Responsive Signal Control*
- 18.30 - 19.00** G. Rinaldi, K. Truemper  
*A Decentralized Traffic Control System Based on Logic Programming*

**HALL C**

**Network Design (Chairman: H.S. Mahmassani)**

- 17.00 - 17.30** T. Crainic, M. Gendreau, J. Farvolden  
*Simplex-based Tabu Search for the Multicommodity Capacitated Fixed Charge Network Design Problem*
- 17.30 - 18.00** B. Gendron, T.G. Crainic  
*Parallel Implementations of Bounding Procedures for Multicommodity Capacitated Network Design*
- 18.00 - 18.30** G.E. Cantarella, A. Vitetta  
*A Multicriteria Analysis for the Urban Network Design and Parking Location*
- 18.30 - 19.00** P. Jaillet, G. Yu, M. Song  
*Network Design Problems with Applications to Transportation Industries*

**HALL A**

- 9.00 - 10.00** *Tutorial* (Chairman: M. Florian)  
M. Ben-Akiva  
*Recent Development in Transportation Demand Modelling*
- 10.00 - 11.00** *Plenary Session* (Chairman: J. Paixao)
- 10.00 - 10.30** H. Hamacher, A. Schöbel  
*Zone Planning in Public Transportation Systems*
- 10.30 - 11.00** P. Carraresi, F. Malucelli, S. Pallottino  
*Passenger Assignment and Resource Management in a Commuter Transit System*
- 11.00 - 11.30** *Coffee break*
- 11.30 - 13.00** *Parallel Sessions*

**HALL A**

- Special Cases of Vehicle Routing Problem** (Chairman: A. Mingozzi)
- 11.30 - 12.00** S. Anily, G. Mosheiov  
*The Travelling Salesman and the Vehicle Routing Problems with Delivery and Backhauls*
- 12.00 - 12.30** J. Braca, J. Bramel, B. Postner, D. Simchi-Levi  
*A Computerized Approach to the New York City School Bus Routing Problems*
- 12.30 - 13.00** J.F. Campbell, A. Langevin  
*Managing Urban Snow Removal and Disposal Operations*

**HALL B**

- Traffic Planning Models** (Chairman: S. Pallottino)
- 11.30 - 12.00** M. Florian, Y. Chen  
*Study on O-D Demand Adjustment Problem: A Bilevel Programming Approach*
- 12.00 - 12.30** P. Marcotte, D. Zhu  
*An Efficient Algorithm for A Bicriterion Traffic Assignment Problem*
- 12.30 - 13.00** V. Velardi  
*MTU: A DSS for Urban Traffic Planning*

**HALL C**

- Public Transport** (Chairman: D.H. Ratliff)
- 11.30 - 12.00** M.C. Shin, H.S. Mahmassani  
*A Planning and Design Model for Transit Route Networks with Coordinated Operations*
- 12.00 - 12.30** A. Adamski  
*Distributed Dispatching Control in Public Transport Network*
- 12.30 - 13.00** J. Cerny  
*Rural Public Transport Optimization*
- 13.00 - 14.30** *Lunch*
- 14.30 - 16.00** *Parallel Sessions*

**HALL A**

- Algorithms for Vehicle Routing Problems** (Chairman: N. Christofides)
- 14.30 - 15.00** M. Ball, H. Gun  
*Algorithms for Special Classes of Sparse Directed Rural Postman Problems*
- 15.00 - 15.30** F. Semet  
*The Traveling Salesman Problem under Accessibility Constraints*

**HALL B**

- Transport Planning Models** (Chairman: J. Bramel)
- 14.30 - 15.00** V. Torrieri, V. Astarita, D. Gattuso, A. Vitetta  
*Initial Results of Theoretical and Experimental Research Concerning Road Traffic Flow Analysis and Models*
- 15.00 - 15.30** S. Bertocchi, A. Sciomachen  
*A DSS for the Urban Path Planning Integrating Parking Management, Public and Private Transportation Systems*
- 15.30 - 16.00** M. Bielli, P. Reverberi  
*Italian Research on Modelling Transport/Environment Interactions*
- 16.00 - 16.30** *Coffee Break*
- 16.30 - 17.30** *Closing Session*



## HOW TO REACH CAPRI

### HYDROFOILS

(40 minutes)

#### Mergellina Pier

SNAV lines

NAPOLI - CAPRI: 7.10\* - 9.10 - 10.10 - 11.10 - 12.10 - 13.10 - 14.10 - 15.10 - 16.10 - 17.10 - 18.10

CAPRI - NAPOLI: 8.10\* - 10.10 - 11.10 - 12.10 - 13.10 - 14.10 - 15.10 - 16.10 - 17.10 - 18.10 - 19.10

\* Week day

#### Beverello Pier

CAREMAR lines

NAPOLI - CAPRI: 7.55 - 8.55 - 10.10\* - 11.00# - 13.00 - 14.00 - 16.20 - 17.40

CAPRI - NAPOLI: 6.50 - 8.45 - 10.00 - 12.00 - 13.55 - 16.30 - 17.20

\* From Monday to Friday

# Saturday-Sunday and Holidays

#### Beverello Pier

NAVIGAZIONE LIBERA DEL GOLFO lines

NAPOLI - CAPRI: 8.45 - 9.30 - 10.35 - 11.40 - 12.30 - 14.30

CAPRI - NAPOLI: 9.30 - 10.30 - 11.35 - 13.35 - 16.20 - 17.00 - 17.40 - 18.20\*

\* Holidays

### FERRIES

(70 minutes)

#### Beverello Pier

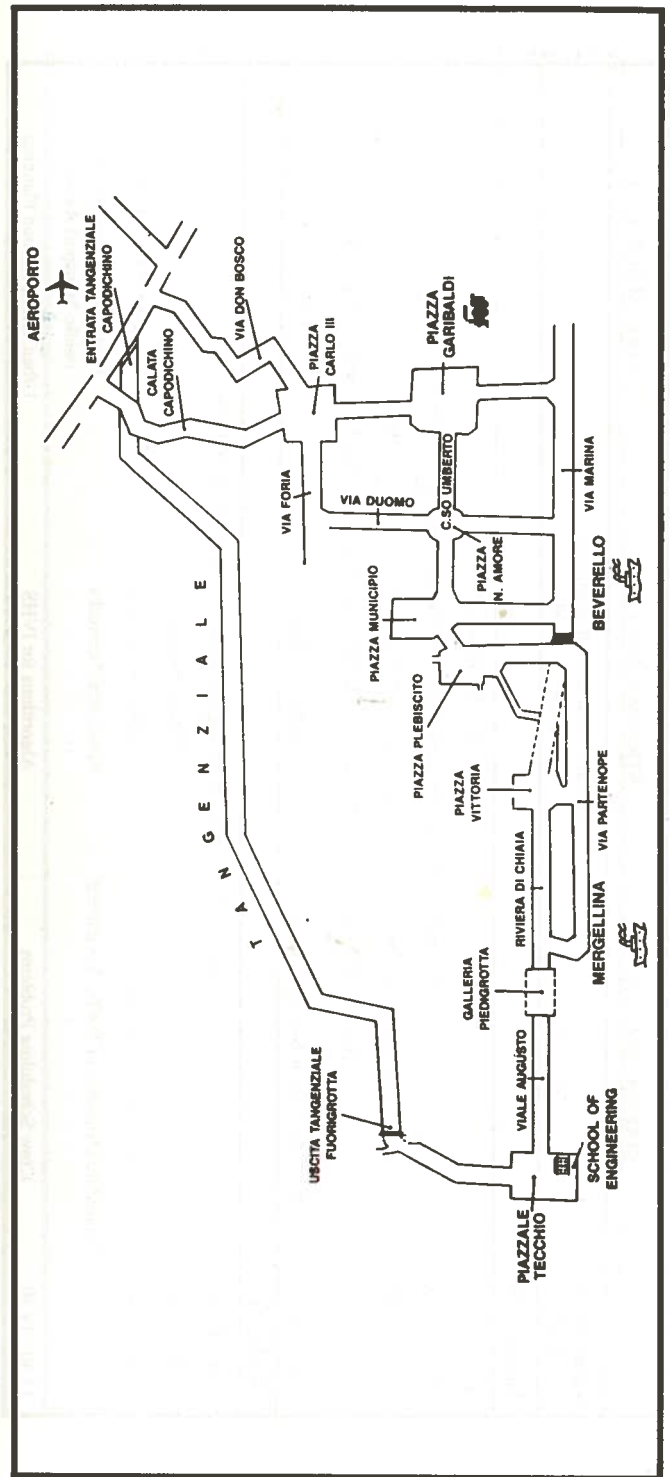
CAREMAR lines

NAPOLI - CAPRI: 6.30 - 10.10\* - 11.00# - 16.00 - 19.25

CAPRI - NAPOLI: 7.15 - 8.20 - 14.20 - 18.05

\* From Monday to Friday

# Saturdays-Sundays and Holidays



|                              | STREAM I (HALL A)   | STREAM II (HALL B)                        | STREAM III (HALL C)                              |
|------------------------------|---|---|--|
| <b>Wednesday 22</b><br>19.00 | Arrivals - Participant Registration<br>Welcome Cocktail                                       |   |  |
| <b>Thursday 23</b>           |   |   |  |
| 9.00 - 10.00                 | Opening Session   |   |  |
| 10.00 - 11.00                | Tutorial - W.Powell "Dynamic Models in Transportation and Logistics"                          |   |  |
| 11.30 - 13.00                | Heuristics for Vehicle Routing Problems   | Planning Models for Urban Traffic Systems | Production, Transportation and Logistics         |
| 15.30 - 16.30                | Tutorial - M.Florian "Recent Advances in Methods and Models in Urban Transportation Planning" |   |  |
| 17.00 - 19.00                | Probabilistic Vehicle Routing Problems  | Transport Economics                       | IVHS Applications                                |
| <b>Friday 24</b>             |   |   |  |
| 9.00 - 10.00                 | Tutorial - E.Cascetta "Modelling Dynamics in Transportation Networks"                         |   |  |
| 10.00 - 11.00                | Plenary Session   |   |  |
| 11.30 - 13.00                | Resource Management   | Dynamic Assignment                        | Transport Network Analysis                       |
| 15.30 - 17.00                | Modelling Dynamics in Traffic Assignment  | Non-Linear Networks                       | Design and Evaluation of Public Transport Routes |
| 17.30 - 19.30                | Crew Scheduling Problems  | Algorithms for IVHS                       | Urban Transportation Planning                    |

|                   | STREAM I (HALL A)  | STREAM II (HALL B)        | STREAM III (HALL C)               |
|-------------------|--|---------------------------|-----------------------------------|
| <b>Monday 27</b>  |  |                           |                                   |
| 9.00 - 10.00      | Tutorial - D.H.Ratliff "Intermodal Network Design"   |                           |                                   |
| 10.00 - 11.00     | Plenary Session  |                           |                                   |
| 11.30 - 13.00     | Methods for Vehicle Routing Problems   | Air Transportation        | Equilibrium and Assignment Models |
| 15.30 - 16.30     | Tutorial - J.Barcelo "Information Technology Implications for Transport Operations Research" |                           |                                   |
| 17.00 - 19.00     | Relaxation Methods for Vehicle Routing Problems  | Signal Control            | Network Design                    |
| <b>Tuesday 28</b> |  |                           |                                   |
| 9.00 - 10.00      | Tutorial - M.Ben-Akiva "Recent Development in Transportation Demand Modelling"               |                           |                                   |
| 10.00 - 11.00     | Plenary Session  |                           |                                   |
| 11.30 - 13.00     | Special Cases of Vehicle Routing Problem   | Traffic Planning Models   | Public Transport                  |
| 14.30 - 16.00     | Algorithms for Vehicle Routing Problems  | Transport Planning Models |                                   |
| 16.30 - 17.30     | Closing Session  |                           |                                   |

TRISTAN II is organized by:

- **Progetto Finalizzato Trasporti Due**
- **I.A.S.I. - C.N.R.**
- **Italian Society of Operations Research**

with the cooperation of

- **Azienda Autonoma Cura Soggiorno Turismo, Capri**
- **Alitalia - Official Carrier**
- **National Research Council, Committees of Engineering and Technology Research**
- **EURO Working Group on Urban Traffic and Transportation**