



## Scientific Seminar / Seminario Scientifico SIDT

PROVISIONAL PROGRAM – CHANGES MAY BE APPLIED ACCORDING TO THE AVAILABILITY OF PAPERS

POLITECNICO DI TORINO – *Conference Room* / Sala Consiglio di Facoltà  
c.so Duca degli Abruzzi, 24  
*Monday and Tuesday* / Lunedì e martedì, 14-15.09.2015

### TRANSPORT SYSTEMS METHODS AND TECHNOLOGIES

In this historical phase, **methods and technologies** can contribute to innovate **transport systems** by providing some good solutions which are in line with **actual needs**. Main issues are the improvement of vehicles and traffic flows efficiency, fostering a systems engineering approach and allowing the diffusion of hybrid and electric solutions for the propulsion, even rationalising travels and their energy consumption by using ITS (Intelligent Transport Systems), by developing transport systems which can be sustainable through their whole *life-cycle* (LCC).

**Scientific seminar:** 14.09, 8<sup>30</sup>-13h and 14<sup>15</sup>-17<sup>30</sup>h

**General assembly:** 18<sup>00</sup>-19<sup>00</sup>h

**Social dinner:** 14.09 at 20<sup>30</sup>h

**Scientific seminar:** 15.09, 9-17<sup>50</sup>h, with conclusions and prize

### Aims and main contents

On the grounds of the international scenario, transport systems are pursuing higher levels of **safety, security, quality and efficiency**, mainly as far as **energy** is concerned; mobility of people and freight transport have been showing, in the last years, an important change in the increasing trend typical of the last century, by conserving their levels of traffic. In most industrially advanced countries the increase of infrastructures seems not anymore a main concern in these first two decades of the century, as it was in the last one.

Besides, the economic system in the European countries tends to migrate from a context prevalingly based on *production and construction* of goods or structures - both industrial and civil - to another one more oriented to *maintenance and services*, based upon abovementioned goals. Amongst them, one of the main challenges our society is facing - having also high economic implications besides possibly those on *health and quality of life* - is the procurement and management of the *energy flows*. The consequences of their use in transport systems, on both people and the environment, are relevant as well.

*The main issues of this congress can be synthesised* in pursuing **innovative transport systems, services and solutions**, taking into particular account the subjects related to a gradual independence from the main energy source transport systems are based on, in a nearly-monopoly condition, and use of lower energy per unit mass in motorised mobility in order to reduce the energy consumption per person or per ton and - consequently - the greenhouse gas emissions. This aim can be pursued typically through higher capacity transport modes (e.g. trains, metros, automated people movers), when they are justified by an adequate demand in order to guarantee as far as possible fully loaded vehicles, or with a low level of black-oil energy used for vehicles: e.g., FEV, PHEV, natural gas for heavy-duty vehicles. An *overall energy analysis* applied to any transport system may synthesise most of mentioned approach, considering both motorised and non-motorised alternatives. The following **Sessions** gather the submitted subjects into the following titles: ITS modelling and applications, including safety issues; Methods, models and technologies on energy issues, motorised electric and hybrid mobility; Freight rail and intermodal transport; Railway and metro systems operation, control and maintenance; Methods and models for data analysis on transport demand and supply.

## Preliminary program

I DAY, Monday 14 SEPTEMBER 2015

8:30 Registration of participants

9:00 Opening of the scientific seminar, SIDT President, Prof. A. Musso

- Magnifico Rettore del Politecnico di Torino, Prof. M. Gilli
- Regione Piemonte, *Assessorato ai Trasporti, Infrastrutture, Opere pubbliche e Difesa del suolo*, Assessore Francesco Balocco
- Città di Torino, *Assessorato alla Viabilità, Infrastrutture, Trasporti e Mobilità del Comune di Torino*, Ass. Claudio Lubatti
- Ordine degli Ingegneri della Provincia di Torino – Professional association of the Engineers, President Remo Giulio Vaudano

10:10 Start of activities

SESSION 1: ITS modelling and applications, including safety issues

Chair: Prof. Agostino Nuzzolo (Università degli studi di Roma - Tor Vergata), Dr. Rossella Panero (5T, TTS Italia)

Time	Authors	Title	Institute
10:15	A. Comi, A. Nuzzolo, L. Rosati	Real-time management of urban freight loading and unloading areas	Università degli Studi di Roma – Tor Vergata
10:30	G. Musolino, G. Chilà, A. Polimeni, C. Rindone, F. Russo, A. Vitetta	Transport models and ITS to support urban planning process in evacuations	Università degli Studi Mediterranea
10:45	V. Astarita, D.C. Festa, G. Guido, D. Rogano, A. Vitale	M4EM - Mobile For Emergencies	Università della Calabria
11:00	E. Cangialosi, A. Di Febbraro, N. Sacco	On designing a multimodal generalized ride-sharing system	Università degli Studi di Genova
11:15	COFFEE BREAK		
11:30	I. Meloni, B. Sanjust	The development of a technology platform for implementing VTBC programs on large scale	Università degli Studi di Cagliari
11:45	L. Comelli	Calibration issues in traffic simulation for ITS applications: some analysis and comparisons	Università degli Studi di Roma - La Sapienza
12:00	R. Rossi, M. Gastaldi, G. Gecchele, V. Barbaro	Fuzzy Logic-Based Accidents Detection System Using Traffic Sensors Data	Università degli Studi di Padova
12:15	G. Fancello, S. Soddu, P. Fadda	<i>An accident prediction model for urban road network</i>	Università degli Studi di Cagliari
12:30	M.V. Corazza, K. Finikopoulos, A. Musso, V. Sgarra	A Methodology of Evaluation of Road Accident Health Care Costs for Powered Two-Wheelers: the Rome Case Study	Università degli Studi di Roma - La Sapienza
12:45	M. Bottero, F. Deflorio	Integrated model for control strategy in automated energy optimisation of motorway traffic flows	Politecnico di Torino, Mizar

13:00 - 14:15 Lunch

SESSION 2: Methods, models and technologies on energy issues, motorised electric and hybrid mobility

Chair: Prof. Bruno Dalla Chiara (Politecnico di Torino), Eng. Eugenio Morello (CNH – CSST Iveco)

Time	Authors	Title	Institute
14:30	E. Cascetta, A. Carteni, I. Henke	<i>A cape and price road-pricing scheme based on transport equity indicators</i>	Università degli Studi di Napoli – Federico II
14:45	R. Gerboni, D. Grosso, A. Carpignano, B. Dalla Chiara	Soft link between energy, technology and transport models at different scales	Politecnico di Torino
15:00	S. Cristiano	Testing energy and emissions assessment models: a highway case study in virtual reality	Università IUAV di Venezia
15:15	F. Deflorio, I. Pinna, L. Castello, V. Cantello	“Charge While Driving” for Fully Electric Vehicles: simulation for a possible motorway business model	Politecnico di Torino, Energrid
15:30	G. D’Ovidio, C. Masciovecchio	Hydrogen fuel cell and KERS technologies for powering urban bus within zero emission energy cycle	Università degli Studi dell’Aquila
15:45	S. de Luca, R. Di Pace, G. Avallone	The adoption intention and the installation choice of an automotive after-market mild-solar-hybridization kit: psychological and attitudinal determinants	Università degli Studi di Salerno
16:10	COFFEE BREAK		

### SESSION 3: Freight rail and intermodal transport

Chair: Prof. Antonio Musso (Università degli Studi di Roma - La Sapienza), Eng. Eugenio Muzio

Time	Authors	Title	Institute
16:30	F. Palotto, N. Coviello	A capacity assessment of the lines serving the port of Savona: solutions for setting up effective freight services	Politecnico di Torino
16:45	P. Guglielminetti, C. Piccioni, G. Fusco, R. Licciardello, A. Musso	Single Wagonload Traffic in Europe: challenges, prospects and policy options	La Sapienza, PwC
17:00	D. Gattuso, G.C. Cassone, D.S. Pellicanò	Experimentation of ITS applications in freight interchange node	Università degli Studi Mediterranea
17:15	P. Fadda, G. Fancello, A. Medda, M. Meloni, M. Pau, C. Pinna	<i>The correlation between fatigue and performance for quay crane operators</i>	Università degli Studi di Cagliari

18:00	Prof. Giovanni Corona	Collana di <b>Ingegneria dei Trasporti</b> : stato d'avanzamento
18:15	Presidente della SIDT, Prof. A. Musso	<b>SIDT: Assemblea dei soci, inclusa illustrazione dell'offerta didattica nazionale</b>

20:30 Social dinner

## II DAY, Tuesday 15 SEPTEMBER 2015

### SESSION 4: Freight rail and intermodal transport

Chair: Prof. Antonio Musso (Università degli Studi di Roma - La Sapienza), Eng. Eugenio Muzio

Time	Authors	Title	Institute
9:00	I. Pitruzzella, F. Bruno, A. Botello, E. Muzio	Rolling stock's critical elements for freight transport: a method of analysis for diagnostics and maintenance	Politecnico di Torino
9:15	M. Lupi, A. Farina	A quantitative study on the competitiveness of motorways of the sea compared with road transport	Università degli Studi di Pisa
9:30	E. M. Cepolina, A. Farina	A multi-UDC freight transport system involving electric vehicles: an optimization methodology for the vehicle routing	Università degli Studi di Pisa

### SESSION 5: Railway and metro systems operation, control and maintenance

Chair: Prof. Gabriele Malvasi (Università degli Studi di Roma - La Sapienza), Eng. Pier Galileo La Scala (GTT)

Time	Authors	Title	Institute
10:00	G. De Luca, V. De Martinis, M. Gallo, F. Simonelli	The optimisation of railway driving profiles for reducing energy consumptions	Università degli Studi del Sannio
10:15	N. Coviello, B. Dalla Chiara, S. Ricci	Scheduling algorithms for timetable-dependent railway capacity evaluation: automatic timetabling, simulation of perturbation and resiliency assessment	Politecnico di Torino
10:30	M. Affatato, B. Dalla Chiara, S. Blengini, E. Vair	Automated People Movers with rope traction: modelling of an innovative engineering for optimising energy use	Politecnico di Torino
10:45	A. Carteni	<i>Underground and ground-level particulate matter (PM) concentrations in metro systems</i>	Università degli Studi di Napoli – Federico II
11:00	COFFEE BREAK		

## SESSION 6: Methods and models for data analysis on transport demand and supply

Chairman: Prof. G.E. Cantarella (Università degli Studi di Salerno), Dr. D. Inaudi

Time	Authors	Title	Institute
11:15	A. Carteni, L. Pariota, I. Henke	<i>The High Speed Rail accessibility of the main Italian cities: comparisons and indicators estimation</i>	Università degli Studi di Napoli – Federico II
11:30	A. Nuzzolo, A. Comi	Developing new generation of real-time multimodal trip planners	Università degli Studi di Roma – Tor Vergata
11:45	R. Camporeale, L. Caggiani, M. Ottomanelli	A Transportation Network Design Model with Equity Constraints	Politecnico di Bari
12:00	P. Delle Site	Traffic assignment processes with temporally-correlated route choice	Università degli Studi di Roma - La Sapienza
12:15	A. Nuzzolo, U. Crisalli, L. Rosati	Real-time dynamic modelling of transit system evolution	Università degli Studi di Roma – Tor Vergata
12:30	G. Maternini, F. Ferrari	Variable parking pricing techniques to innovate parking strategies	Università degli Studi di Brescia
12:45	E. Cipriani, A. Del Giudice, M. Nigro	Exploiting floating car data for time-dependent O-D matrices estimation	Università degli Studi Roma Tre

13:00 - 14:15 Lunch

## SESSION 7: Methods and models for data analysis on transport demand and supply

Chairman: Prof. Giulio Erberto Cantarella (Università degli Studi di Salerno), Dr. Domenico Inaudi

Time	Authors	Title	Institute
14:30	M. Pirra, M. Diana, A. Castro, A. Duarte, D. Herrero, R. Hrin, C. Severini, V. Tolio	An in-depth assessment of the underlying dimensions of the perceived quality of transport services: the METPEX project	Politecnico di Torino
14:45	A. Vitale, G. Guido, V. Astarita, V. Giofrè	The employment of smartphone technology in the calibration and validation of microsimulation models for road safety analysis.	Università della Calabria
15:00	G.Fusco, C.Colombaroni, N.Isaenko	A comparative analysis of implicit models for real-time short-term traffic predictions	Università degli Studi di Roma - La Sapienza
15:15	V. Marzano, F. Simonelli, A. Papola, E. Cascetta	Formulation and performance analysis of Kalman filters for online quasi-dynamic O-D flows estimation	Università degli Studi di Napoli – Federico II
15:30	A. Vacca, C.G. Prato, I. Meloni	Correcting for unequal sampling probability when estimating route choice models from stochastic generated choice sets on large-scale networks	Università degli Studi di Cagliari
15:45	COFFEE BREAK		
16:00	E. Sottile, E. Cherchi, I. Meloni	Hybrid choice model to disentangle the effect of awareness from attitudes after implementation of soft measures	Università degli Studi di Cagliari
16:15	A. Pompigna, F. Rupi	Capacity and Lane Distributional Effects on a Three - Lane Carriageway - Section: a Case Study on the Italian Freeway Network	Università degli Studi di Bologna
16:30	I. Henke, E. Cascetta, A. Carteni	<i>The surprising role of accessibility in the choice of university studies</i>	Università degli Studi di Napoli – Federico II
16:45	S. Bernardi, A. Mantuano, F. Rupi	Cyclists' gaze behavior in urban space: an eye-tracking experiment on bicycle facilities	Università degli Studi di Bologna
17:00	S. Bernardi, J. Schweizer, F. Rupi	An analysis of cyclists' GPS traces in the urban area of Bologna	Università degli Studi di Bologna

17:40 Award for the presentations by the youngest authors, Prof. Agostino Cappelli (University IUAV, Venice)  
Conclusion of activities

## IMPORTANT DEADLINES AND FEES FOR SIDT MEMBERS

**April 30, 2015 (passed):** submission of accepted papers, maximum extension of approx. 15 pages (A4, all margins 2.5 cm, TNR, line 1, including the abstract, introduction, conclusion and references), sending a pdf to [sidt2015@polito.it](mailto:sidt2015@polito.it). **Please specify after the title if the subject has been submitted, selected, accepted or published on an ISI journal or a journal indexed by Scopus.**

**July 10, 2015:** peer-review feedback for the scientific seminar.

**July 20, 2015:** payment due at reduced cost, 200 € for senior members (professors and researchers) and 50 € for junior members. After this date, regular fees will be applied (300 € and 80 €, respectively). These payments include CFP (professional credits) for those who are interested.

Non-members of the Association can participate to the Social event as accompanying person of a member of the SIDT (rate 50€).

## Notes

Each paper **submitted on time** and **positively evaluated** is assigned a **15 minutes** slot at the Scientific Seminar (12' for presentation and 2-3' for questions and answers). A specific attention will be devoted to Ph.D. students and their researches, with a prize considering contents, applicability and presentation.

**After the 30<sup>th</sup> of April, authors of selected papers not yet submitted to any journal, might be asked to address their work to Special Issues of ISI journals or to journals indexed by Scopus, following the proper format instructions.**

University credits (CFU) could be obtained by PhD students if their universities recognise them.

## Collaboration with the Professional association of the Engineers

The event is organised in collaboration with the Commission "Transport: mobility, infrastructures and systems" of the Professional association of the Engineers of the Province area of Turin (*Commissione "Trasporti: mobilità, infrastrutture e sistemi" dell'Ordine degli Ingegneri della Provincia di Torino*), which recognises the following professional credits (CFP), achievable all over Italy:

	<i>Time</i>	<i>Sessions</i>	<i>Credits</i>	<i>Fee</i>
Day I, Monday 14.09	10:15-13:00	<b>SESSION 1</b>	3 CFP	60 €
	14:15-17:30	<b>SESSION 2, SESSION 3</b>	3 CFP	60 €
Day II, Tuesday 15.09	9:00-13:00	<b>SESSION 4, SESSION 5, SESSION 6</b>	4 CFP	60 €
	14:15-17:30	<b>SESSION 7</b>	3 CFP	60 €

As an overall, **13 CFP** can be recognised; signatures will be collected at the entrance and exit of the seminar room for the recognition of CFP. The registration to a full day of Scientific Seminar allows the participation to the lunch.

Subscription for the CFP is required before the **20<sup>th</sup> July 2015 by filling in the compilation form** (*just select this page with your mouse*) also for those Engineers members of the "Ordine degli Ingegneri" of any Province of Italy. Academicians who need CFP credits do not need to pay more than their regular fee.



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