

**AUTO
MOTIVE**

Torino 15-16, June 2017

Politecnico di Torino,
rede del Lingotto, Via Nizza 230



International Conference of Electrical and Electronic Technologies for Automotive

Programme

Organized by

under the patronage



International Microelectronics
And Packaging Society
Italian Chapter



AEIT - Sezione Piemonte-Valle d'Aosta

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Collegio dei Periti Industriali
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Crediti Formativi

Il convegno è stato organizzato con l'Ordine degli Ingegneri della Provincia di Torino e con il Collegio dei Periti Industriali e dei Periti Industriali Laureati di Alessandria, Asti, Torino.

La partecipazione al convegno consentirà, agli iscritti all'Ordine degli Ingegneri, l'acquisizione di 6 CFP per la prima giornata e 6 CFP per la seconda giornata, secondo i criteri stabiliti dalla normativa vigente.

Ai sensi dell'art.7, comma 3 del DPR 137/2012 e del Regolamento per la Formazione Continua dei Periti Industriali e Periti Industriali Laureati, la partecipazione all'evento consentirà l'acquisizione di 6 CFP per la prima giornata e 6 CFP per la seconda giornata.

Overview

AUTOMOTIVE 2017

Conference, after its first 2016 successful edition, will be held on June 15/16 - 2017 to host regular papers in several areas of the multiform automotive field.

It aims to become the forum of the national community to present and discuss the most recent results of scientific and technological research for the automotive industry, with particular emphasis to applications and new trends. The Conference covers all aspects of the segment focusing on electrical vehicles, connected autonomous cars and related mobility.

AUTOMOTIVE 2017

will bring together in an annual national event, spread over two days, the electronic automotive community with the Information and Communication Technology one.

The Steering and the Technical Program Committees include experts from the Academic world, Associations, Key Industrial Stakeholders and Regulatory Authorities.

AUTOMOTIVE 2017

will be structured in two days with Scientific Sessions, including both presented papers and a poster session, Key-note Speeches, Round tables and Panel discussion, covering current automotive scenario with its national and international perspectives, development trends and the regulatory framework.

A Technical Exhibition with Industry attendance will be held.

AUTOMOTIVE 2017

is aimed at an academic and industrial audience, professionals active in automotive, including designers, manufacturers and users of technology, as well as analysts and investors interested in this sector in great development and of high social impact.

Special conditions will apply to encourage the participation of students of specific university courses.

Scientific Sessions Key Tracks are:

1. Hybrid and electric powertrains and emission regulations
2. Energy infrastructures and batteries
3. Assisted and autonomous driving, safety and connectivity
4. Mobility, smart cities and networks
5. Power Electronics, Active and Passive Components

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Registration Fees

AEIT, IEEE and IMAPS Members	Euro 150,00
Non Members (<i>this amount includes a reduced fee for enrollment in AEIT or IMAPS up to December 31, 2017</i>)	Euro 220,00
Single Day Fee AEIT, IEEE and IMAPS Members	Euro 100,00
Single Day Fee Non Members	Euro 150,00

Fees for AEIT/IEEE/IMAPS Members are VAT free (art. 1 e 4, comma 4 e comma 5 - lettera A) del D.P.R. n. 633 DF 26.10.1972. Other fees do not include 22% VAT

Students

Euro **20,00**

(access to a limited number, in order to register please send an email to automotive@aeit.it) Fee includes subscription to AEIT (up to December 31, 2017) as AEIT Young Member or as IMAPS Student Member (for young people born after 01/01/1989)

On Site Secretariat

The Conference Secretariat will be open on site as follows:

Thursday, July 15, 2017	ore 8,30 - 18,30
Friday, July 16, 2017	ore 8,30 - 18,30

Technical Exhibition

The Technical Exhibition will be open as follows:

Thursday, July 15, 2017	ore 8,30 - 18,30
Friday, July 16, 2017	ore 8,30 - 18,30

Conference Dinner

On the evening of July 15, at the end of the first day of the AUTOMOTIVE conference, a dinner is planned at the Circolo dell'Unione Industriale, Via Vincenzo Vela 13 - Turin.

Participation in the dinner of the conference requires the purchase of the invitation.

Secretariat

AEIT - Ufficio Centrale
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email: automotive@aeit.it • web site: www.aeit.it/automotive2017

Venue

Politecnico di Torino, sede del Lingotto
Via Nizza 230 - Torino

Technical Programme

Thursday, June 15, 2017

9,30 - 10,00 **Opening**

Enrico Macii • *Politecnico di Torino*

Andrea Camanzi • *Presidente Autorità Regolazione Trasporti*

Giuseppina De Santis • *Assessore alle Attività Produttive della Regione Piemonte*

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Luigi Calligarich • *Presidente IMAPS*

Roberto Bacci • *Direttore Generale CEI*

Tiziana Tambosso • *Presidente IEEE Italy Section*

10,00 - 10,30 **Keynote Speech:**

- **European scenario of electric vehicles**

Pietro Menga • *CEI/CIVES*

10,30 - 12,30 **PLENARY SESSION 1 • Automotive industry perspectives: technological, regulatory and social drivers**

Chair: Pierantonio Palermo • *Giornalista*

Keynote Speech:

- **The CO₂ Global Challenge**

C. Malvicino • *FCA*

Keynote Speech:

- **Technology shift and the Challenges for the Automotive Industry**

F. Galliano • *General Motors*

Panelists

R. Bacci • *CEI*

G. Grusso • *IEEE COM/VT Chapter*

E. Spessa • *Politecnico di Torino*

A. Tafuri • *MESAP*

F. Castelli Dezza • *Politecnico di Milano*

G. Brusaglino • *ATA*

12,30 - 13,30 **Lunch Break**

13,30 Keynote Speech:

- Energy Independent Electric Vehicles Land, Water, Air and Their Technology Roadmaps
P. Harrop • *Id TechEx*

14,00 SESSION A1 Powertrain I

ROOM A

Chair: Pietro Erratico • *AMES*

A1.1 Variable Speed Generating Unit for Vehicle On-Board Applications

A. Lidozzi • *C-PED, Center for Power Electronics and Drive, University Roma Tre* - F. Crescimbinì, L. Solero • *University Roma Tre* - S. Bifaretti, S. Pipolo, M. Di Benedetto • *C-PED, Center for Power Electronics and Drive, University of Rome Tor Vergata*

A1.2 Measurement of E-field Disturbances Generated by Automotive Components

C. Carobbi • *University of Florence* - D. Izzo • *Automotive Lighting Reutlingen GmbH*

A1.3 Synchronous motors for traction applications

Y. Wang, N. Bianchi, S. Bolognani • *University of Padova* - L. Alberti • *University of Bolzano*

A1.4 Normalized unified operating point analysis with of AC drives for traction system

C. Rossi, M. Bertoldi, D. Pontara, D. Casadei • *University of Bologna*

A1.5 Full Electric and Hybrid Series Vans: cost, performance and efficiency evaluation for different powertrain layout

G. Lutzemberger, M. Ceraolo, L. Sani, G. Valenti • *University of Pisa* - L. Pugi • *University of Florence* - A. Pretto • *Gruppo Pretto SRL*

A1.6 Magnetic Hysteresis Machines for Next-Generation Electric Turbochargers

R. Galluzzi, A. Tonoli, N. Amati • *Politecnico di Torino*

A1.7 Gearshift Control for Hybrid Powertrains with AMTs

G. Guercioni, A. Vigliani • *Politecnico di Torino* - M.M. Shawn • *The Ohio State University, USA* - E. Galvagno • *Politecnico di Torino*

14,00 SESSION B1 Batteries

ROOM B

Chair: Silvia Bodoardo • *Politecnico di Torino*

B1.1 Invited

Battery development and research in CEA Grenoble

P. Michallon • *CEA*

B1.2 Invited

Electric cars: batteries or fuel cells?

P. Mustarelli • *Università di Pavia*

B1.3 Invited

Lithops-SERI Li-ion batteries in Italy

C. Novarese • *Lithops-SERI***B1.4 Invited**

Evaluation of 5V LNMO Li-Ion cells for EV application: eCAIMAN European Project

M. Gosso • *CRF***B1.5 Nanostructured Lead Acid Battery for Electric Vehicles Applications**M. Caruso, V. Castiglia, F. Ganci, R. Inguanta, M. Insinga, R. Miceli, A. Moncada, C. Nevoloso, R. Oliveri, S. Piazza, P. Romano, G. Schettino, C. Sunseri, F. Viola • *Università degli Studi di Palermo***B1.6 Modeling Li-Ion Batteries for Automotive Application: a Trade-Off between Accuracy and Complexity**D. Cittanti, A. Ferraris, A. Airale • *Politecnico di Torino - S. Fiorot* • *Environment Park - S. Scavuzzo*, M. Carello • *Politecnico di Torino***15,45 - 16,15 Coffee Break****16,15 SESSION A2 Assisted and autonomous driving****ROOM A***Chair: Roberto Castelli* • *AICT***A2.1 Invited**

Product Liability in connected and autonomous cars

M. Maggi • *Studio Legale Maggi***A2.2 Innovation in Automotive: A Challenge for 5G and Beyond Network**M. Alberio, G. Parladori • *Sm Optics***A2.3 Decentralized fast-MPC path planner for automated vehicles**S. Arrigoni, F. Braghin, F. Cheli • *Politecnico di Milano***A2.4 Automatically adjustable rear mirror based on Computer Vision**F. La Rota, L. Di Stefano • *Università di Bologna***A2.5 Limits of sensing and storage electronic components for high-reliable and safety-critical automotive applications**F. Pieri • *University of Pisa* - C. Zambelli • *Università degli Studi di Ferrara* - A. Nannini • *University of Pisa* - P. Olivo • *Università degli Studi di Ferrara* - S. Saponara • *University of Pisa***A2.6 Smart integrated systems and circuits using flexible organic electronics for information display**N. Li Pira, L. Belforte, M. Dugand • *Centro Ricerche FIAT***A2.7 5G Wireless Dense Access Network for Automotive Applications: Opportunities and Costs**R. Giuliano • *Università di Roma Tor Vergata and RadioLabs, Consorzio Università Industria, Laboratori di Radiocomunicazioni* - F. Mazzenga, C. Lodovisi, I. Benedetti • *Università di Roma Tor Vergata*

16,15 B2 SPECIAL SESSION IMAPS

ROOM B

Chair: Luigi Calligarich • *IMAPS*

B2.1 Invited

Connected vehicles for safer roads

A. Steccanella, F. Visintainer • *CRF*

B2.2 Invited

Thriving in the face of the connected car revolution

B. McKinley • *Keysight*

B2.3 Invited

Studio sull'effetto delle sollecitazioni termiche sui giunti di saldatura

E. Galbiati • *Gestlabs* - A. Vailati • *Magneti Marelli*

B2.4 Invited

Development and evaluation of equipment enhancements for transient

Liquid phase bonding (TLPB) and sintering

V. Rangelov • *ATV*

B2.5 Invited

New processes and bonding activities in the field of applications in E
mobility area

S. Farina, K. Bitzler • *Delo Adhesives*

B2.6 Invited

Introduction of micro dispensing technology for automotive

K. Okuyama • *Musashi*

18,00 - 19,00 EXHIBITOR SHOWCASE

ROOM A

Chair: Giancarlo Forlanini • *AMES*

Soliani EMC

Micron Semiconductor Italia

Delo Instruments

Coilcraft

Friday, June 16, 2017

8,30 SESSION A3 Energy infrastructures

ROOM A

Chair: Giancarlo Forlanini • AMES

A3.1 Invited

Enabling energy transition: the role of storage and e-mobility

L. Marchisio • Terna

A3.2 Invited

Un piano per lo sviluppo della mobilità elettrica in Italia: la proposta di Enel e PoliMi

F. Caleno • Enel - D. Zaninelli • Politecnico di Milano

A3.3 A study of the Integration of Distributed Generation and EVs in Smart Cities

M. Brenna, F. Foiadelli, M. Longo, D. Zaninelli • Politecnico di Milano

A3.4 Interaction of Consumers, Photovoltaic Systems and Electric Vehicle Energy Demand in a Reference Network Model

M.G. Flammini, G. Prettico • Joint Research Centre Dir. C Energy, Transport and Climate C3 - G. Fulli • European Commission, Joint Research Centre, Institute for Energy and Transport, European Union - E. Bompard, G. Chicco • Politecnico Torino

A3.5 EMC and EMF Safety Issues in Wireless Charging System for an Electric Vehicle (EV)

T. Campi, S. Cruciani, V. De Santis • University of L'Aquila - F. Maradei • Sapienza University of Rome - M. Feliziani • University of L'Aquila

A3.6 Catenary-Free Electric Bus System and Distribution Networks: an Italian Case Study

C. Carlini, D. Moneta • RSE, Ricerca sul Sistema Energetico

A3.7 Invited

Insulation failures in infrastructure for EV charging devices

C. Gariboldi • Bender Italia

8,30 SESSION B3 Freight Electric Mobility

ROOM B

Chair: Alberto Colorni • Consorzio Poliedra, Politecnico di Milano

B3.1 Invited

Il progetto FREVUE (FREight Electric Vehicles in Urban Europe)

V. Sevino • AMAT

B3.2 Invited

Green last mile logistic and fresh goods delivery

D. Montagnese • Pony Zero

B3.3 Invited

GLS towards electric urban logistic

A. Poretta • GLS

B3.4 Invited

Bike delivery of fresh food

G. Galluccio • *Foodora Italia*

B3.5 Invited

The Malta National Electromobility Platform and the electric logistic in ports

V. Battistino • *Malta National Electromobility Platform*

B3.6 12V Battery modeling: model development, simulation and validation

D. Roiu, A. Primon, R. Marco, M. Ornato • *CRF*

B3.7 Aging model for high capacity LiFePo4 cells

M.L. Bacci, F. Cheli, E. Sabbioni, D. Tarsitano, M. Vignati • *Politecnico di Milano*

10,15 - 10,45 Coffee Break

10,45 - 12,45 PLENARY SESSION 2 • Powertrain and energy management

Session Chair: Riccardo Busetto • *Giornalista*

Keynote Speech:

- **Technology Overview for future Powertrains**

M. De Cesare • *Marelli*

Keynote Speech:

- **A smart EV recharging infrastructure to optimize grid energy flows and to provide grid services**

F. Caleno • *Enel*

Panelists

S. Coffa • *STM*

L. Marchisio • *Terna*

G. Mauri • *RSE*

O. Imberti • *ANIE Gruppo E-Mobility*

P. Ferrari • *Comoli&Ferrari*

F. Bonino • *FCA*

P. Butti • *Rockwell*

12,45 - 13,45 Lunch Break

13,45 SESSION A4 Mobility in Smart Cities

ROOM A

Chair: Andrea Penza • *AICT*

A4.1 Towards a "Smart Region" paradigm - Beyond Smart Cities borders: Piedmont Region experience

F. Arneodo, D. Botta, R. Castelli • *Telematic Technologies for Transport and Traffic in Turin*

A4.2 An innovative LEV for personal urban mobilityR. Groppo • *Ideas&Motion Srl* - R. John • *INFINEON Technology GmbH***A4.3 Emerging Business Models Fostering the Diffusion of E-mobility: Empirical Evidence from Italy**S. Franzò, D. Chiaroni, V. Chiesa, F. Frattini • *Politecnico di Milano***A4.4 3D SPAD camera for Advanced Driver Assistance**F. Villa, R. Lussana, D. Bronzi, F. Zappa • *Politecnico di Milano* - A. Giudice • *Micro Photon Devices***A4.5 Mobility management for Smart Sightseeing**M.C. Caruso • *Guglielmo Marconi University* - R. Giuliano • *Università di Roma Tor Vergata and RadioLabs, Consorzio Università Industria, Laboratori di Radiocomunicazioni* - F. Pompei • *Centro Europeo Studi Culturali* - F. Mazzenga • *Università di Roma Tor Vergata***A4.6 A Novel 3D Antenna for LTE MIMO systems**R. Parolari • *Calearo Antenne* - M. Gallo • *Calearo Antenne and Politecnico di Bari* - A. Polo Filisan, D. Zamberlan • *Calearo Antenne* - V. Franchina, A. Michel, P. Nepa • *University of Pisa***A4.7 GNSS Receiver Performance in Urban Environment: Challenges and Test Approaches for Automotive Applications**C. Cristodaro, F. Dovis • *Politecnico di Torino* - G. Falco, M. Pini • *Istituto Superiore Mario Boella***13,45 SESSION B4 Powertrain II & Car Body****ROOM B**Chair: Giuseppe Gattavari • *AMES***B4.1 A Hub Motors Choice Strategy for an Electric Four Independent Wheel Drive Vehicle**A. Cordopatri, G. Cocorullo • *Università della Calabria***B4.2 Comparison of Experimental Results with Simulation of a PEM Electrolyzer Powered by a Horizontal Wind Turbine**M. Albarghot • *Memorial University of Newfoundland, Canada* - L. Rolland • *LART Lenoir Automation Robots Technologies***B4.3 Energy Management in Parallel Hybrid Electric Vehicles Exploiting an Integrated Multi-Drives Topology**M. Cacciato, G. Nobile, A. Raciti, G. Scarcella, G. Scelba • *University of Catania***B4.4 Optimal Powertrain Design and Control of a 2IWD Electric Race Car**H. Yu, Castelli Dezza, F. Cheli • *Politecnico di Milano***B4.5 Modular P2-P3 Dedicated Hybrid Transmission for 48V and HV applications**J. Rossi, C. Cavallino • *Oerlikon Graziano*

B4.6 Electric powertrain layouts analysis for controlling vehicle lateral dynamics with Torque Vectoring

M. Vignati, E. Sabbioni, D. Tarsitano, F. Cheli • *Politecnico di Milano*

B4.7 *Invited*

Rear Lamp & Interior Lighting In automotive vehicles

A. Germanotta • *OLSA*

15,30 - 16,00 *Coffee Break*

16,00 - 18,00 **PLENARY SESSION 3 • Assisted and autonomous driving, connectivity and mobility**

Session Chair: Pierantonio Palermo • *Giornalista*

Keynote Speech:

- Technology shift and the Challenges for the Automotive Industry
M. Melis • *General Motors*

Keynote Speech:

- 5G e Automotive: gli standards tecnologici e le opportunità di Innovazione
P. Marchese • *TIM*

Panelists

L. Andreone • *FCA-CRF*

F. Arneodo • *5T*

A. Colorni • *Consorzio Poliedra*

M. Maggi • *Studio legale Maggi*

C. Iacovelli • *Leonardo*

IMQ

18,00 **Conclusion**

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