

ASSOCIAZIONE TECNICA DELL'AUTOMOBILE

Powertrain Technologies for CO₂ Reduction

17-18 November 2010
Centro Congressi
Torino Incontra
TORINO

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Foreword



Road transport is considered to be one of the major causes of global warming due to CO₂ emissions. It is estimated that today more than 12% of the annual CO₂ production is due to the circulating vehicles, estimated to be 820 million tonnes and, if present trends continue, this is set to increase over the coming years.

Therefore, the future road transport challenge can be only addressed by adopting a systematic integrated approach in which new alternative fuels, power-train technologies and, above all, the electrification of the power-train play a fundamental role in order to achieve a significant technology jump.

Advanced internal combustion engines, taking up various hybrid configurations and running on clean fuels will continue to provide the 'backbone' propulsion system for passenger cars, light commercial and heavy duty vehicles, well beyond 2020.

The major driving force for future research and development strategies will be the progressive reduction of CO₂ emissions within stringent pollutant limitations.

In this scenario, the short-to-medium term priority for OEMs is the development of clean and highly efficient power-trains, characterized by advanced combustion concepts and hybrid-electric technologies, and the exploitation of the potential for using clean fuels, e.g. bio-fuels and natural gas.

Nevertheless, the basic technologies for pure electric vehicles are undergoing rapid evolution for potential application to vehicles for both individual and collective urban transport over the coming years.

The ATA 2010 Power-train Technologies Conference aim is to provide a forum, where participants can update and discuss this evolving scenario with respect to alternative solutions and technologies for fuels and power-trains.

17 november

- 09.00 Registration
- 09.30 **Welcome and general address**
- Nevio Di Giusto – ATA President
 - Guido Bolatto – Torino Chamber of Commerce Secretary General
 - Francesco Profumo – Politecnico di Torino Rector
- 09.45 **Key notes**
- Future Power-train Technologies
Rinaldo Rinolfi - Fiat Powertrain Technologies
 - Corrado Clini – General Director Italian Ministry of Environment
 - Mario Alì - General Director Italian Ministry of Education, University and Research
- 11.20 Coffee break
- 11.40 Session 1: **FUELS**
Chairman: Pier Franco Ciselli (Fiat Powertrain Technologies)
- How innovation and sustainability walk together in the transportation industry
Alessio Carbone (DuPont)
 - Bio fuel: which opportunities in automotive applications
Toshizaemom Noce (Fiasa), Massimo Ferrera (Fiat Powertrain Technologies)
 - Challenges of future mobility
Dorothea Liebig, Wolfgang Warnecke, Karsten Wilbrand (Shell Global Solutions)
 - Operability above and below cloud point with biodiesel blends
Graham Balfour (Infineum)
 - The role of fuel additives in reducing fuel and vehicle carbon intensity
Dennis Poon, Robert Quigley, Robert Barbour (Lubrizol)
- 13.10 General discussion coordinated by the Chairman
- 13.30 Lunch
- 14.45 Session 2: **INTERNAL COMBUSTION ENGINE & TRANSMISSION TECHNOLOGIES**
Chairman: Giovanni Cipolla (GM Powertrain Europe)
- Technology road map in the next decade for gasoline engines
Michele Caggiano (FEV Motorentechnik)
 - Technology road map in the next decade for diesel engines
Adrian Greaney, Philip Hore, Brian Cooper (Ricardo)
 - System portfolios for flexible powertrain solutions and CO₂ reductions
Andreas Greff (Continental Automotive)
 - Efficient emission reduction at reasonable cost – w/focus on passenger cars and commercial vehicles
Jürgen Gerhardt (Robert Bosch)
- 16.00 - 16.20 Coffee break
- Valve train layout as an enabler for CO₂ reductions
Kurt Kirsten (Schaeffler)
 - MultiAir application on a small gasoline engine: the TwinAir experience
Damiano Micelli, Marco Cuniberti, Carlo Ricca, Gianluca Morra (Fiat Powertrain Technologies)
 - Catalyst technologies for low CO₂ engines
James Wylie (Johnson Matthey)
 - Advanced ceramic technology for CO₂ reduction and future emission standards
Claus-Dieter Vogt, T. Kuki (NGK Europe)
 - Application of nano-technology to the development of automotive lubricants for the reduction of friction
Pietro Salino, Elisa Turcato (Petronas)
- 18.00 General discussion coordinated by the Chairman
- 20.00 Conference dinner

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18 november

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- 09.00 **Key notes**
Battery electric and plug-in hybrid vehicles - scenario and perspectives
Tom De Vleeschauwer (IHS)
- 09.30 Session 3: **ELECTRIC POWER-TRAIN TECHNOLOGIES – part 1**
Chairman: Roberto Bruno-Bossio (Ricardo)
- The future in the electrification power-train
Gianluca Zuccaro, Maurizio Cisternino, Joel Maguire, Giovanni Cipolla (GM Powertrain Europe)
 - The future of BEVs: the technological challenge of Renault
Gonzalo Hennequet (Renault)
 - Future trends and virtual vehicle energy management of hybrid architectures
Marco Brunelli, Marco Silvestri (Bsim Engineering), Nicolas Sabatier (LMS International), Gianluca Zuccaro (GM Powertrain Europe)
- 10.30 General discussion coordinated by the Chairman
- 10.50 Coffee break
- 11.10 Session 4: **ELECTRIC POWER-TRAIN TECHNOLOGIES – part 2**
Chairman: Hans Kemper (FEV Motorenteknik)
- Battery system technology
Juergen C. Gerl (A123 Systems)
 - Wide temperature and high power li-ion technology for utility and vehicle applications
Hisashi Tsukamoto, Michael R Tomcsi, Jian Dong, Tao Zhang, Mikito Nagata (Quallion LLC)
 - Large format SCiB™ rechargeable battery and safety technology for electric vehicle
Shinichiro Kosugi, Haruchika Ishii, Hirotaka Hayashida, Norio Takami (Toshiba Corporation)
 - JCI experience in hybrid battery technology
Uwe Köhler (Johnson Controls)
 - Range extender technology
Frank Beste (AVL List)
 - Electric drive system for Hybrid and EV applications
Daniel Prix, Markus Bichler, René Scheucher, Katharina Burkart, Manfred Speiser (Magna Powertrain); Stephan Bouvier (Magna Steyr)
 - The air conditioning approach for electric vehicles
Matteo Biglia, Domenico Vitali (Denso Thermal Systems)
- 13.30 General discussion coordinated by the Chairman
- 13.50 Lunch
- 15.00 **ROUND TABLE DISCUSSION – INTERNAL COMBUSTION ENGINES versus ELECTRIFICATION**
Chairman: Rinaldo Rinolfi (Fiat Powertrain Technologies)
- 16.10 Closing remarks