reduction for CO_2 Transportation Systems Conference

6-7-8 JUNE 2018, TURIN – ITALY

Preliminary Programme

Morning

6 June 2018 - Wednesday

9.00 - 9.15 Plenary Welcome Address

- **M. Gradu** - *SAE International 2018 President*

9.15 - 11.00 Plenary Opening Keynotes

- Outlook for Future Powertrains for Significant CO_2 Reductions
  T. Johnson - *Corning Inc.*
- Powertrains of the Future – in the Crossfire between Desire and Reality
  M. Bargende - *Universitat Stuttgart*
- Vision 2050: how low carbon liquid fuels and efficient vehicles will contribute to the low emission mobility
  J. Cooper - *FuelsEurope*
- Title TBD
  R. Vavassori - *CLEPA*
- Title TBD
  A. Nervo - *SKF*

11.00 - 11.40 Networking Break

11.40 - 13.00 Parallel Sessions

New Powertrain Developments

- Improvement of Diesel Engine Emissions and Fuel Consumption by Thermal Management
  D. Queck, S. Visser, B. Van Moergastel - *DENSO Automotive Deutschland GmbH*
  C. Massano, M. Harada - *DENSO Thermal Systems SpA*
- The Key Role of Advanced, Flexible Fuel Injection Systems to Match the Future CO_2 Targets in an Ultra-light Mid-size Diesel Engine
  A. Vassallo, F. Pesce - *GM Global Propulsion Systems*
  C. Beatrice, G. Di Blasio, G. Belgiorno - *Istituto Motori*
  G. Avolio - *Continental Corp.*
- Model-based combustion control for mission-dependent optimization of emissions and fuel consumption in diesel engines
  S. d'Ambrosio, R. Finesso, O. Marello, E. Spessa - *Politecnico di Torino*
  P. Biffali, G. Dellora, G. Hardy, A. Schoni – *FPT Industrial*
- Fundamental Investigations, Potentials and Operating Strategies for Pre-Chamber Spark Plugs in SI Engines
  M. Sens - *IAV GmbH*

Aero & Rolling Resistance

- Potential of Porsche reference cars for aerodynamic development
  F. Cogotti, M. Pfadenhauer, T. Wiegand – *Porsche AG*
- Effects on the Aerodynamic Characteristics of Vehicles in Longitudinal Proximity Due to Changes in Style
  G. Le Good, M. Resnick, P. Boardman, B. Clough - *Coventry University*
- Numerical analysis of aerodynamic impact on passenger vehicles during cornering
  E. Josefsson, R. Hagvall, M. Urquhart, S. Sebben - *Chalmers University*
- Robust Optimization for Real World CO_2 Reduction
  J. Gargoloff, B. Duncan, E. Tate, A. Alajbegovic, A. Belanger, B. Paul - *Exa Corporation*

Hybridization & Electrification

- 3D Simulation and design space exploration for battery pack weight reduction
  M. Buonfiglioli – *Siemens*
- Concept design of a scalable fully integrated electric power unit
  M. Pennese, A. Lega – *Mecaprom*
  L. Malafronte – *Università di Salerno*
- Battery Stack Monitor Enhance Performances of Li-Ion Batteries in Hybrid and Electric Vehicles
  C. Carriero, R. Zambon - *Analog Devices*
- Structural Performance Analysis of vehicle equipment for the FABRIC dynamic power transfer system
  D. Parena, D. Muscogiuri - *AMET*
  V. Cirimele - *Politecnico di Torino*

13.00 - 14.30 Networking Lunch

reduction for CO_2 Transportation Systems Conference

6-7-8 JUNE 2018, TURIN – ITALY

Preliminary Programme

Afternoon

14.30 – 15.50 Parallel Sessions

New Powertrain Developments	Aero & Thermal Management	Alternative & E-Fuels
• Techniques for CO_2 Emission Reduction over a WLTC. A Numerical Comparison of Increased Compression Ratio, Cooled EGR and Water Injection **F. Bozza, V. De Bellis, L. Teodosio, D. Tufano, E. Malfi -** *Università di Napoli Federico II*	• Underhood Airflow Management **T. Yasuda -** *DENSO Corporation*	• Methanol, From Electrons to Engines **G. Dolan, E. Dekker -** *Methanol Institute*
• Fundamental Investigations about Heated Fuel Injection on SI Engines **M. Sens -** *IAV GmbH*	• Thermal Management of High Voltage Batteries **J. Tissot, K. Azzouz, I. Traore, P. Leblay -** *Valeo Thermal Systems*	• Autogas LPG: A Low-Carbon Solution, Available Today and Ready for Tomorrow **C. Nourigat -** *European LPG Association (AEGPL)*
• Real-World Fuel Saving Potential of VVA Functionalities for Light-Duty Diesel Engines **T. Koerfer -** *FEV Group GmbH*	• Maximizing Coasting of 48V Vehicles with Cold-Storage Evaporator **M. Özbek, S. Nishida, M. Biglia, V. Kohli, A. Inaba, T. Györög, M. Nishikawa -** *DENSO Corporation*	• Influence of combustion efficiency on quasi-dimensional simulation of spark ignition engines fueled with methane and hydrogen **A. Irimescu, F. Catapano, S. Di Iorio, P. Sementa -** *Istituto Motori*
• The New FCA Generation of SI Engine **M. Ferrera -** *FCA ITALY S.p.A.*	• A Comprehensive Approach for Estimation of Automotive Component Life Due To Thermal Effects **A. El-Sharkawy -** *FCA US LLC*	• Proposing an Innovative Real-Time Strategy for Controlling Emissions and Performance of Modern Natural Gas Engines **R. Amirante, E. Distaso, P. Tamburrano -** *Politecnico di Bari* **S. Di Iorio, P. Sementa -** *Istituto Motori* **R. Reitz -** *University of Wisconsin*

15.50 – 16.30 Networking Break

16.30 – 17.30 Plenary Session - Legislation Framework & Future Scenarios

- A Model Based Definition of a Reference CO_2 Emissions Value for Passenger Cars under Real World Conditions
  Z. C. Samaras, D. Tsokolis, A. Dimaratos, L. Ntziachristos, S. Doulgeris - *Aristotle University of Thessaloniki*
  N. Ligterink, W. Vonk, R. Cuelenaere - *TNO Automotive*
- New WLTP CO_2 Regulation Impact on Electrified Powertrain Components Characteristics and Vehicle Road Load Parameter Optimization
  L. Orofino - *FCA ITALY S.p.A.*
  A. Piu - *Centro Ricerche Fiat SCpA*
- An integrated framework to deal with the gap between type-approval and in-use vehicle fuel consumption and CO_2 emissions
  A. Tansini, B. Ciuffo, G. Fontaras, N. Zacharof - *EU Commission Joint Research Centre*

17.30 – 18.15 Plenary Closing Keynotes

- Title TBD
  P. Dolejsi - *ACEA*
- Title TBD
  G. Cornacchia - *Centro Ricerche Fiat SCpA*

reduction for CO_2 Transportation Systems Conference

6-7-8 JUNE 2018, TURIN – ITALY

Preliminary Programme

Morning

7 June 2018 - Thursday

8.30 – 9.30 Plenary Session - From Well to Wheels to Life Cycle Assessment

- Zero-CO_2 Powertrains and their Different Shades of Green
  C. Schernus - *FEV Europe GmbH*
- Economic and Climate Advantages of Secondary-Loop Motor Vehicle Air Conditioners (MACs)
  S. Andersen, K. Taddonio, **M. Soffer, N. Sherman -** *Institute for Governance & Sustainable Development*
  T. Craig, L. Leitzel – *Mahle*
  J. Baker, **S. Chowdhury -** *Mahle Behr Troy Inc*
  S. Kapoor, **P.V. Nagarhalli**, **J. Meena -** *Tata Motors Ltd*
- Take-home Messages from the Applications of Life Cycle Assessment on Lightweight Automotive Components
  M. Delogu, L. Zanchi, **C. A. Dattilo -** *Università di Firenze*
  S. Maltese - *Università di Bologna*
  R. Riccomagno - *Magneti Marelli SpA*
  M. Pierini - *Università di Trento*

9.30 – 10.50 Parallel Sessions

Alternative & E-Fuels

- The Eni approach to eco-sustainable solutions for mobility and environmental protection
  G. Tannoia - *ENI*
- Natural gas: a global answer to the transport system challenges
  A. Gerini - *NVGA*
- CO_2 mitigation through on-board capture from vehicle exhausts
  T. A. Hatton - *Massachusetts Institute of Technology (MIT)*
- A Lean CNG Combustion for Highest Engine Efficiencies Above 43% Utilising an Ignition Chamber
  M. Weissner - *Volkswagen AG*

Aero & Thermal Management

- Thermal management architectures virtual evaluation for HEV/PHEV
  W. Ferraris, M. Rostagno, F. Bettoja - *Centro Ricerche Fiat SCpA*
- Reduced Model of a Vehicle Cabin for transient thermal Simulation
  D. Klemm, N. Widdecke, J. Wiedemann – *FKFS*
  W. Roessner - *Daimler AG*
- A dynamic test bench for the cooling water pump characterization under real operating conditions
  R. Cipollone, D Di Battista - *Università dell'Aquila*
  M. Borasso, M. Benincasa - *Meccanotecnica Umbra S.p.A*
- Virtual simulation for clutch thermal behavior prediction
  F. Tosi - *Politecnico di Torino*
  M. Gautero, L. Lorefice, N. Paola - *FCA ITALY S.p.A*

Lightweighting

- Sustainable composites for lightweight car interior components
  P. Russo – *CNR*
- Lightweight plastic technologies to support weight saving for the automotive industry
  M. Terragni - *ENGEL Italy*
- Affordable Lightweight Automobiles ALLIANCE project: first results of environmental and economic assessment from a Life-Cycle perspective
  M. Delogu, F. Del Pero, L. Zanchi - *Università di Firenze*
  M. Ierides, V. Fernandez - *Bax Innovation Consulting*
  K. Seidel - *FKA mbH*
  D. Thirunavukkarasu - *RWTH Aachen University*
  T. Bein - *Fraunhofer LBF*
- Challenges and opportunities in design of new lightweight vehicle components at the age of Industry 4.0 and Automotive 4.0
  G. Belingardi - *Politecnico di Torino*
  G. Mastinu - *Politecnico di Milano*

reduction for CO_2 Transportation Systems Conference

6-7-8 JUNE 2018, TURIN – ITALY

Preliminary Programme

Morning

10.50 - 11.20 Networking Break

11.20 - 12.20 Parallel Sessions

Hybridization & Electrification

- Conventional and Electrically Heated Diesel Oxidation Catalyst Physical Based Modeling
  P. Ferreri, G. Cerrelli, Y. Miao, S. Pellegrino - *GM Global Propulsion Systems*
  L. Bianchi - *Powertech Engineering S.r.l.*
- Eco-driving Optimization Tool for Hybrid Vehicles with Low CO_2 Emissions
  J. Macek, P. Steinbauer, P. Denk, Z. Sika, J. Morkus - *Czech Technical University in Prague*
- Using a Traffic Simulator to Evaluate and Minimize Carbon Dioxide Emissions in Conventional and Hybrid Electric Vehicles over Real World Emissions Tests
  T. Donateo, M. Giovinazzi, A. Tamborino - *Università del Salento*

Aero & Thermal Management

- The Evolution of the Comfort Experience and its Impact on the Consumption & EV Range
  G. De Pelsemaeker - *Valeo*
- Powertrain Thermal Management for CO_2 Reduction
  T. Castiglione, F. Rovense, S.G. Bova - *Università della Calabria*
- Total Thermal Management of Battery Electric Vehicles (BEVs)
  S. Chowdhury, L. Leitzel, M. Zima, M. Santacesaria - *Mahle Behr Troy Inc.*
  G. Titov, J. Lustbader, J. Rugh, J. Winkler - *National Renewable Energy Laboratory*
  A. Khawaja, M. Govindarajalu - *FCA US LLC*

Lightweighting

- Research and development of a light-weighted cross member for commercial vehicles
  S. Cecchel, D. Ferrario – *Streparava SpA*
  G. Cornacchia, A. Panvini - *Università di Brescia*
- Application of Continuously Galvanized Steel in Europe: driving forces and game changers
  S. Koellerer – *Voestalpine Steel Division*
- Extended Target Weighing Approach – Balancing CO_2-Emissions, Costs and Mass during Product Development
  A. Albers, S. Revfi, M. Spadinger - *Karlsruhe Institute of Technology (KIT)*

12.20 - 13.10 Plenary Keynotes

- Title TBD
  M. G. Lisbona - *FCA ITALY S.p.A.*
- Title TBD
  P. Antonioli - *GM Global Propulsion Systems*

13.10 - 14.30 Networking Lunch

reduction for CO_2 Transportation Systems Conference

6-7-8 JUNE 2018, TURIN – ITALY

Preliminary Programme

Afternoon

14.30 - 15.50 Parallel Sessions

Hybridization & Electrification	Aero & Rolling Resistance	New Powertrain Developments
• Transient EGR control with 48V E-boost simulation using integrated model based development **J. Dalby** – *Ricardo UK Ltd*	• FCA Full Scale Wind Tunnel : WLTP and coast down test performed with wind tunnel method **M. Stellato, L. Betti** - *FCA ITALY S.p.A.*	• Virtual Engine Development Toward CO_2 Emission Reduction: Downsized Turbocharged Engine with focus on Post-Oxidation and use of Alternative Fuels **F. Cupo, M. Chiodi, H. J. Berner** – *FKFS* **M. Bargende** - *Universitat Stuttgart*
• Supercar Hybridization: A Synergic Path to Reduce Fuel Consumption and Improve Performance **L. Rolando, F. Millo** - *Politecnico di Torino* **F. Pulvirenti, M. Medda** – *Ferrari SpA*	• Experimental and Computational Study of the Flow around a Stationary and Rotating Isolated Wheel without the use of a Moving Ground Plane **L. E. Rajaratnam, A. D. Walker** - *Loughborough University*	• Potentials of variable cross section compressor regarding surge line and compressor efficiency using engine test bench measurements and engine process simulation **J. Flinte, P. Eilts** - *Technische Universität Braunschweig* **T. Sextro, J. Seume** - *Leibnitz Universität Hannover*
• 48V hybrid system technologies to develop the most efficient and cleanest Diesel **R. Romanato, F. Duma, R. Fuso, F. Acquaviva, A. Tripodi** – *GM Global Propulsion Systems* **L. Passilly, M. Vieracker** - *Continental Automotive GmbH*	• Application of adjoint methods on drag reduction of current production cars **G. Francesconi** - *Politecnico di Torino* **L. Miretti** - *Centro Ricerche Fiat SCpA* **L. Lorefice, F. Pitillo, N. Paola** - *FCA ITALY S.p.A.*	• Experimental investigation and modelling of a 1.5 kW axial turbine designed for waste heat recovery through a Rankine cycle **O. Dumont, V. Lemort** - *University of Liège* **M. Diny** – *PSA Peugeot Citroen*
• Hybrid turbocharging as a technology to reduce CO_2 from internal combustion engines investigated by 1D numerical model **F. Ortenzi** – *ENEA* **P. Venturini, F. Rispoli** - *Università Sapienza di Roma*	• Motorsport and CO_2 Reduction: The Link Between Two Distant Worlds **D. Zinelli** - *Dallara*	• Numerical Assessment of the CO_2 Reduction Potential of Variable Valve Actuation on a Light Duty Diesel Engine **A. Piano, F. Millo** - *Politecnico di Torino* **D. Di Nunno, A. Gallone** – *GM Global Propulsion Systems*

15.50 - 16.10 Conference Closing Plenary Keynotes

- Title TBD
  K. C. Scheel – *VDA*

16.10 - 16.30 Conference Closing Remarks

16.30 End of Conference