

## CO<sub>2</sub> Reduction for Transportation Systems Conference *Digital* Preliminary Programme

Tuesday - July 7, 2020			
Opening Welcome Address			
14.00 – 14.10	Federico Millo, <i>Sae International Torino Section</i>  Marco Stella, <i>ANFIA</i>		
Plenary Opening Keynotes			
14.10 – 14.30	• Negative Emission Vehicles – Regulatory and Technical Drivers for Near-Zero Tailpipe Emissions, <b>A. Joshi – Corning Inc.</b>		
14.30 – 14.50	• The EU Green Deal: opportunities and challenges, <b>P. Dolejsi – ACEA</b>		
14.50 – 15.10	• RenewableEnergy Vectors in Transportation, <b>C. Schernus – FEV EARPA</b>		
15.10 – 15.25	• Q&A – Round Table		
Break and Sponsored Virtual Corner			
Parallel Sessions			
15.40 – 16.00	New Powertrain Developments	Hybridization & Electrification	Aero & Thermal Management
	• Heavy Duty Alternative Fuels Engines: Challenges & Technologies Trends, <b>S. Giordana - FTP Industrial SpA</b>	• A Reverse Engineering Method for Powertrain Parameters Characterization Applied to a P2 Plug-In Hybrid Electric Vehicle with Automatic Transmission, (2020-37-0021)* <b>G. DiPierro, E. Galvagno , G. Mari , F. Millo and M. Velardocchia - Politecnico di Torino</b> <b>Alessandro Perazzo - FEV Group GmbH</b>	• Heat Pumps for BEVs: Architectures and Performance Analysis, (2020-37-0030)* W. Ferraris, <b>F. Bettoja</b> , M. Casella, M. Rostagno and A. Tancredi - <b>Centro Ricerche Fiat SCpA</b>
	16.00 – 16.20	• Investigation on the Dynamic Behaviour of a Torque Transmission Chain for an Innovative Hybrid Power Unit Architecture, (2020-37-0013)* <b>V. Mangeruga , M. Giacomini, S. Barbieri and M. Russo - Università degli Studi di Modena</b>	• Thermal Management Systems Comparison for Optimization of Battery Electric Vehicle Driving Range Related to Use Case and Region, <b>C. Massano, A. Fucà, L. Sorrentino and D. Vitali - DENSO Thermal Systems SpA</b>
16.20 – 16.40	• Application of a Passive Pre-Chamber Ignition System as an Enabler for Increased Efficiency Across a Range of Hybrid and Conventional Powertrains, <b>M. Bassett, A. Cooper , A. Harrington , B. Hibberd and S. Reader - Mahle Powertrain Ltd</b>	• A Power Split Hybrid Propulsion System for Vehicles with Gearbox, (2020-37-0014)* <b>L. De Simio , M. Gambino and S. Iannaccone - Istituto Motori CNR</b>	• Next-Generation Refrigerant and Air Conditioner System Choice for Internal Combustion, Hybrid and Electric Vehicles, (2020-37-0029)* <b>K. Taddonio</b> , S. O. Andersen and N. Sherman - <b>IGSD</b> S. Kapoor and P. V Nagarhalli - <b>Tata Motors Ltd</b> J. Chen - <b>Jiaotong University</b> S. Chowdhury and T. Craig - <b>Mahle Behr Troy Inc</b> C. Malvicino - <b>FCA ITALY S.p.A.</b> W. Ferraris - Centro Ricerche Fiat SCpA J. Hu - <b>Peking University</b>
• Effect of Prechamber on Exhaust Emission and Efficiency of a SI Small Engine Fuelled with Gaseous and Liquid Fuels, (2020-37-0035)* <b>P. Sementa, F. Catapano, S. Di Iorio, M. Todino and B.M. Vaglieco - Istituto Motori CNR</b>			
Break and Sponsored Virtual Corner			
Parallel Sessions			
16.50 – 17.10	New Powertrain Developments	Hybridization & Electrification	Aero & Thermal Management
	• Numerical and Experimental Assessment of Knock Mitigation Potential of Port Water Injection In a Turbocharged Spark Ignition Engine, <b>F. Gullino, F. Millo and L. Rolando - Politecnico di Torino</b>	• Turbocharger Electrification: a Technology Enabler for CO2 Emission Reductionn <b>G. Iosifidis - IHI Charging Systems International GmbH</b>	• Identification of Automotive Cabin Design Parameters to Increase Electric Vehicles Range, Coupling CFD-Thermal Analyses with Design for Six Sigma Approach, (2020-37-0032)* <b>A. A. Piovano, G. Scantamburlo, M. Quaglino and M. Gautero - FCA ITALY S.p.A.</b>
	17.10 – 17.30	• Experimental Evaluation of Steady State Performance of an Automotive Electric Supercharger, (2020-37-0008)* <b>S. Marelli and V. Usai - Università Degli Studi di Genova</b>	• Robust Design Adjoint Optimization of Automotive Components, G. Karpouzas, <b>P. Geremia</b> , E. De Villiers and T. Schumacher - <b>ENGYS</b>
17.230 – 17.50	• The Virtual Engine Development for Enhancing the Compression Ratio of DISI-Engines Combining Water Injection, Turbulence Increase and Miller Strategy, (2020-37-0010) * <b>A. Vacca, F. Cupo, Marco Chiodi and Michael Bargende - FKFS</b> M. Khosravi and O. Berkemeier - <b>Ford Werke GmbH</b>	• Comprehensive Virtual Assessment of a 48 V Mild-Hybrid Diesel Passenger Car, <b>A. Zanelli, F. Millo and L. Rolando - Politecnico di Torino</b>	• Energy Management for Electric Vehicle Application: Energy Demand for Cabin Comfort, (2020-37-0031)* <b>Antonio Tarzia - FCA Italy S.p.A.</b>
• A CFD Model of Supercritical Water Injection for ICEs as Energy Recovery System, (2020-37-0001)* <b>A. Cantiani, A. Viggiano and Vinicio Magi - University of Basilicata</b>			
Sponsored Virtual Corner			

## Wednesday - July 8, 2020

### Plenary Opening Keynotes

14.00 – 14.20	• The Role of CFD in the Development of Future Propulsion Systems, <b>K. Senecal – Convergent Science</b>
14.20 – 14.40	• Future propulsion systems suitable for the mass market, <b>M. Bargende - FKFS</b>
14.40 – 15.00	• Improving fuel economy through connectivity and automation - the NEXTCAR project, <b>G.Rizzoni – OHIO STATE UNIVERSITY</b>
15.00 – 15.15	• Q&A – Round Table

### Break and Sponsored Virtual Corner

#### Parallel Sessions

	Alternative & E-Fuels	New Powertrain Developments	Aero & Rolling Resistance
15.30 – 15.50	• Hydrogen: The Ultimate Choice for a Real Green Environment, <b>N.Cavedagna – Landi Renzo S.p.A.</b>	• Numerical Study of the Maximum Impact on Engine Efficiency When Insulating the Engine Exhaust Manifold and Ports During Steady and Transient Conditions, (2020-37-0002)* <b>A. Broatch, P. Olmeda J. Martin and A. Dreif - Universitat Politècnica de València</b>	• Development of an Innovative Method for CFD-based WLPT Tire Modelling, <b>P. Alexias, P. Geremia, E. De Villiers, T. Schumacher – ENGYS</b>
15.50 – 16.10	• The Value Chain of LNG Applied on Commercial Vehicles, <b>M. Ferrera – Landi Renzo S.p.A.</b>	• A Novel Option for direct waste heat recovery from exhaust gases of Internal Combustion Engines, (2020-37-0004)* <b>D. Di Battista, R. Cipollone and R. Carapellucci - Università degli Studi dell'Aquila</b>	• Aerodynamic Optimization of Rim Design Ensuring Brake Cooling Performance: a CFD Approach, <b>A. Cucca, G. Scantamburlo and L. Loreface - FCA Italy S.p.A.</b> Luca Miretti – CRF
16.10 – 16.30	• Autogas: A Low-Emission Mobility Solution for the Future, <b>F. Rio - Liquid Gas Europe</b>	• A Numerical Investigation on VVA Influence on the Combustion Phase for Premixed Combustion Engine Under Partial Load Conditions, (2020-37-0005)* <b>F. Fornarelli - DMMM - Politecnico di Bari, GNFM INDAM S. Camporeale - DMMM - Politecnico di Bari V. Magi - Univ. Basilicata, San Diego State Univ.</b>	• Multidisciplinary Investigation of Truck Platooning, 2020-37-0028)* <b>B. Schnepf, C. Kehrer and C. Maeurer - Altair</b>

### Break and Sponsored Virtual Corner

#### Parallel Sessions

	Alternative & E-Fuels	Legislation Framework & Future Scenarios	From Well to Wheels to Life Cycle Assessment
16.40 – 17.00	• The Influence of Fuel Composition and Renewable Fuel Components on the Emissions of a GDI Engine, (2020-37-0025)* <b>M. Albrecht, P. Elits - Technical University of Braunschweig</b> H. P. Deeg, D. Schwarzenenthal - <b>Porsche AG</b>	• Pathway to Global 2025 CO2 Compliance and Cost Benefit Outlook, <b>V. Subramanian - IHS Automotive</b>	• G-Mobility, A Quick Win to Carbon Neutrality, <b>A. Gerini - NGVA Europe</b>
17.00 – 17.20	• Natural Gas: Meeting CO2 Emission Targets Here and Now, (2020-37-0024)* <b>David Mumford - Westport Fuel Systems</b>	• A Methodology for Monitoring Real-World CO2 Emissions Compliance in Passenger Vehicles, (2020-37-0034)* <b>N. Zacharof, S. Doulgeris, I. Myrsinias, Z. Toumasatos, A. Dimaratos, Z. Samaras Aristotle - University of Thessaloniki</b> J. Dornoff and P. Mock - <b>International Council On Clean Transport</b> G. Fontaras - <b>European Commission Joint Research</b> D.Kolokotronis - <b>University of Western Macedonia</b>	• Potential Contribution of Reuse of Key Components to the Environmental Life-Cycle Performances of Vehicles, <b>S. Bobba, T. Maury, F. Mathieux, F. Ardente, F. Marque dos Santos and F. Pekar - EC - Joint Research Centre (JRC)</b>
17.20 – 17.40	• Fuel Molecular Structure Detection Using Smart On Board MicroIR Sensor For Combustion Control and CO2 Reduction, <b>Alain Lunati - SP3H</b>	<div>Lightweighting</div> <div>• Design and Sustainability Assessment of Lightweight Concept for an Automotive Car Module, (2020-37-0033)* <b>F. Del Pero, M. Delogu and M. Pierini - University of Florence</b> M. Kerschbaum - <b>Toyota Motor Europe</b> J. Toelle - <b>Benteler Automotive</b></div>	• <i>Future Trends for Sustainability Practice Into Formula E: A Methodological Approach for the LCA of an Electric Motor</i> , <b>M. Pierini - University of Florence</b>
17.40 – 18.00	• CFD Investigation of HVO Sprays and Assessment of its Surrogate Compositions, <b>P. Goel, M. Baratta, S. Chiriches and D. Misul - Politecnico di Torino</b>	• Suspension arm with a polymer-metal hybrid structure, <b>G. Belingardi, A. Scattina - Politecnico di Torino</b> , A. Bernasconi, G. Mastinu and G. Prevati - <b>Politecnico di Milano</b>	

### Sponsored Virtual Corner

## Thursday – July 9, 2020

### Plenary Opening Keynotes

14.00 – 14.20	<ul style="list-style-type: none"> <li>Powertrain Concepts on the path to CO2 neutral Mobility, <b>M. Sens - IAV</b></li> </ul>
14.20 – 14.40	<ul style="list-style-type: none"> <li><i>OEM presentation - TBC</i></li> </ul>
14.40 – 15.00	<ul style="list-style-type: none"> <li>Title TBC, <b>G. Boretto - PUNCH Torino</b></li> </ul>
15.00 – 15.15	<ul style="list-style-type: none"> <li>Q&amp;A – Round Table</li> </ul>

### Break and Sponsored Virtual Corner

#### Parallel Sessions

	New Powertrain Developments	Hybridization & Electrification	Miscellaneous
15.30 – 15.50	<ul style="list-style-type: none"> <li>Commercial Vehicle System Approach Towards Future Exhaust Emissions and CO2 Regulation Demands, <b>O. Herrmann - DENSO Automotive Deutschland GmbH</b></li> </ul>	<ul style="list-style-type: none"> <li>Fuel Consumption and Emission Reduction for Hybrid Electric Vehicles with electrically heated Catalysts, (2020-37-0017)* <b>J. Hofstetter</b> and P. Boucharel - <b>Vitesco Technologies</b> F. Atzler - <b>TU Dresden</b> G. Wachtmeister - <b>TU Muenchen</b></li> </ul>	<ul style="list-style-type: none"> <li>Simulation of Driving Cycles by Means of a Co-Simulation Framework for the Prediction of IC Engine Tailpipe Emissions, (2020-37-0011) * <b>G. Montenegro</b>, A. Onorati, G. D'Errico, T. Cerri and Andrea Marinoni - <b>Politecnico di Milano</b> V. Tziolas and N. Zingopis - <b>Exothermia SA</b></li> </ul>
15.50 – 16.10	<ul style="list-style-type: none"> <li>Experimental Study of Additive-Manufacturing-Enabled Innovative Diesel Combustion Bowl Features for Achieving Ultra-low Emissions and High Efficiency, (2020-37-0003)* <b>G. Belgiorio</b>, A. Boscolo, G. Dileo, F. Numidi, F. C. Pesce and A. Vassallo - <b>GM Global Propulsion Systems</b> R. Ianniello, C. Beatrice and G. Di Blasio - <b>Istituto Motori CNR</b></li> </ul>	<ul style="list-style-type: none"> <li>Simplified Cost-effective Aftertreatment System for Electrified Diesel Applications, (2020-37-0023)* <b>D. Karamitro</b>, C. Avgerinos, S. Skarlis and G. Koltsakis - <b>Exothermia S.A.</b> G. Previtero and F. Bechis - <b>GM Global Propulsion Systems Torino</b></li> </ul>	<ul style="list-style-type: none"> <li>Cost-effective Zeolite for CO2 Capture from Flue Gases, <b>E. Davarpanah</b>, S. Bensaid, D. Fino and M. Armandi - <b>Politecnico di Torino</b></li> </ul>
16.10 – 16.30	<ul style="list-style-type: none"> <li>Study of Friction Reduction Potential in Light- Duty Diesel Engines by Lightweight Crankshaft Design Coupled with Low Viscosity Oil, (2020-37-0006)* <b>S. Mafrici - GM Global Propulsion Systems Torino</b></li> </ul>	<ul style="list-style-type: none"> <li>Impact of Thermal Management of the Three-Way Catalyst on the Energy Efficiency of a P2 Gasoline FHEV, (2020-37-0019)* <b>M. Benegiamo</b>, A.Valletta and A. Carlucci - <b>Università del Salento</b> V. Mulone - <b>Università di Roma Tor Vergata</b></li> </ul>	<ul style="list-style-type: none"> <li>Pixelated-LEDs Car Headlight Design for Smart Driving and CO2 Reduced Emissions, (2020-37-0018)* <b>S. Beddar</b>, J.-B. Millet and Y. Alayli - <b>University of Versailles</b></li> </ul>

### Break and Sponsored Virtual Corner

#### Parallel Sessions

	New Powertrain Developments	Hybridization & Electrification	
16.40 – 17.00	<ul style="list-style-type: none"> <li>Physical Modeling of the ICE for Virtual Calibration and Validation on Real Time Platforms forHIL and SIL Environments, (20CO-0070)* <b>F. Valesano</b> and D. Schimmel - <b>Gamma Technologies LLC</b></li> </ul>	<ul style="list-style-type: none"> <li>Multitarget Evaluation of Hybrid Electric Vehicle Powertrain Architectures considering Fuel Economy and Battery Lifetime, (2020-37-0015)* <b>P. G. Anselma</b>, G. Belingardi - <b>Politecnico di Torino</b> P. Kollmeyer, A. Emadi - <b>McMaster University</b></li> </ul>	
17.00 – 17.20	<ul style="list-style-type: none"> <li>An Innovative Approach to Engine Virtual Calibration Using Real Time Models Integrating Physical and Machine Learning Solutions, (20CO-0043)* <b>G. Boccardo</b> and E. Servetto - <b>POWERTECH Engineering S.r.l.</b> I. Gerlero and M. Bonansone - <b>Modelway S.r.l.</b></li> </ul>	<ul style="list-style-type: none"> <li>Plug-in Electric Vehicles fueled with Green Fuels in LTC mode, (2020-37-0026)* <b>J. Benajes</b>, A. Garcia, J. Monsalve-Serrano and S. Martinez - <b>Universitat Politècnica de Valencia</b></li> </ul>	
17.20 – 17.40	<ul style="list-style-type: none"> <li>A hybrid vehicle Hardware-in-the-Loop system with integrated connectivity and cloud computing <b>N. Cavina</b>, L. Brunelli and A. Capancioni - <b>University of Bologna</b> M. Caggiano, R. Casadio and P. Gonnella - <b>FEV Italia S.r.l.</b></li> </ul>	<ul style="list-style-type: none"> <li>A Theoretical and Experimental Analysis of the Coulomb Counting Method and Estimation of the Electrified-Vehicles Electricity Balance Over the WLTP, (2020-37-0020)* <b>A. Tansini</b> and G. Fontaras - <b>European Commission's Joint Research Centre</b> F. Millo - <b>Politecnico di Torino</b></li> </ul>	
17.40 – 18.00	Conference Closing Remarks		