

# CSM 2019

# 1<sup>st</sup> Conference on Sustainable Mobility

## Catania

**OCTOBER 14TH, 2019**

### Opening Ceremony

9:00-9:20

**Gino Bella**, *University of Rome Tor Vergata* & **Giorgio Rizzoni**, *CAR - The Ohio State University*

### Alternative Powertrains

**Chairmen: Luciano Rolando**, *Politecnico di Torino* & **Roberto Bruno Bossio**, *Ricardo*

### Keynote - Giorgio Rizzoni, CAR - The Ohio State University

9:20-10:00

Future Mobility: Connectivity, Autonomy, Energy Efficiency and the Smart City

10:00-10:20 **Daniele Chiappini**,  
*University of Rome Niccolò Cusano*

**2019-24-0242** A Coupled Lattice Boltzmann-Finite Volume Method for the Thermal Transient Analysis of an Air-Cooled Li-ion Battery Module for Electric Vehicles with Porous Media Insert Modeled at REV Scales

10:20-10:40 **Gabriele Caramia**,  
*University of Bologna*

**2019-24-0249** Combined Optimization of Energy and Battery Thermal Management control for a Plug-in HEV

10:40-11:00 **Francesco Mocera**,  
*Politecnico di Torino*

**Oral Only** The Role of Energy Storage in Electric and Hybrid Working Vehicles

11:00-11:20 **Manfredi Villani**,  
*University of Rome Niccolò Cusano*

**Oral Only** Performance evaluation of a heavy-duty Diesel truck retrofitted with waste heat recovery and hybrid-electric systems

11:20-11:40

### Coffee Break

11:40-12:00 **Paolo Iora**,  
*University of Brescia*

**2019-24-0244** Assessment of Energy Consumption and Range in Electric Vehicles with High Efficiency HVAC Systems Based on the Tesla Expander

12:00-12:20 **Laura Tribioli**,  
*University of Rome Niccolò Cusano*

**2019-24-0247** Performance Evaluation of an Electric Vehicle with Multiple Electric Machines for Increased Overall Drive Train Efficiency

12:20-12:40 **Daniele Chiappini**,  
*SCIRE*

**Oral Only** DRIVEMODE (Horizon2020 European Project)

12:40-13:00 **Walter Vinciotti**,  
*Privé srl*

**Oral Only** ReFreeDrive Project: advanced Rare Earth Free e-motor solutions for mass production

13:00-13:20 **Francesco Antonio Tiano**,  
*University of Salerno*

**Oral Only** LIVE-SAVE: a European project for the ecological conversion of conventional cars to hybrid-solar vehicles

13:20-14:20

### Lunch

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### Smart Mobility & Alternative Powertrains

Chairmen: **Stefano Ubertini**, *University of Tuscia* & **Giorgio Rizzoni**, *CAR - The Ohio State University*

### Keynote - Mircea Gradu, *Velodyne LiDAR*

14:20-15:00		Revolutionary Lidar System Technology for Safety-First Advanced Driver-Assistance Solutions
15:00-15:20	<b>Luca Andreassi</b> , <i>University of Roma Tor Vergata</i>	<b>2019-24-0250</b> Environmental and Health Impact of Electric and Hydrogen Light Vehicles: The Case of an Italian Small City
15:20-15:40	<b>David Heeren</b> , <i>Velodyne LiDAR</i>	<b>2019-24-0251</b> An ADAS Feature Rating System: Proposing a New Industry Standard
15:40-16:00	<b>Paolo Delle Site</b> , <i>University of Rome Niccolò Cusano</i>	<b>2019-24-0252</b> Estimation of Fuel Consumption and CO2 Emissions of Car Travel in Transportation Planning: the Lazio Region Case Study
16:00-16:20	<b>Luca Silvestri</b> , <i>University of Rome Niccolò Cusano</i>	<b>2019-24-0245</b> Environmental Analysis Based on Life Cycle Assessment: An Empirical Investigation on the Conventional and Hybrid Powertrain
16:20-16:40		<b>Coffee Break</b>
16:40-17:00	<b>Carlo Villante</b> , <i>University of L'Aquila</i>	<b>2019-24-0246</b> A New Parallel Hybrid Concept for Microcars, Propulsion System Design, Modeling and Control
17:00-17:20	<b>Francesco Piraino</b> , <i>Università della Calabria</i>	<b>2019-24-0248</b> Fuel Cell Based Powertrain Analysis for Tramway Systems
17:20-17:40	<b>Emiliano Pipitone</b> , <i>University of Palermo</i>	<b>2019-24-0241</b> A Feasibility Analysis of an Electric KERS for Internal Combustion Engine Vehicles
17:40-18:00	<b>Pierpaolo Polverino</b> , <i>University of Salerno</i>	<b>Oral Only</b> Novel Performance Index Formulation Based on Integral Approach for XEVs Benchmarking and Optimal Energy Management
20:00		<b>Gala Dinner</b>

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**OCTOBER 15TH, 2019**

**Conventional Vehicles & IC Engines**

**Chairmen: Rosario Lanzafame, *University of Catania* & Angelo Onorati, *Politecnico di Milano***

9:20-10:00

**Keynote - Roberto Bruno Bossio, *Ricardo***

Future Vehicle Architecture Concept – An Alternative and Cost Effective Approach to Future Vehicle Architectures

10:00-10:20

**Federico Ricci,**  
*Università degli Studi di Perugia*

**2019-24-0231** Experimental and Numerical Investigations of the Early Flame Development Produced by a Corona Igniter

10:20-10:40

**Guillaume Goumy,**  
*Ecole Centrale De Nantes*

**2019-24-0232** Turbocharger Thermal Transfer Model Initialization: Quasi-Adiabatic Map Calculation

10:40-11:00

**Francesco Catapano,**  
*Istituto Motori CNR*

**2019-24-0233** Knock Onset Detection Methods Evaluation by In-Cylinder Direct Observation

11:00-11:20

**Silvana Di Iorio,**  
*Istituto Motori CNR*

**Oral Only** Impact of Ethanol Fuel and Blend on Sub-23 nm Particles and Their Measure

11:20-11:40

**Coffee Break**

11:40-12:00

**Charles Lhuillier,**  
*Université D'Orleans*

**2019-24-0237** Combustion Characteristics of Ammonia in a Modern Spark-Ignition Engine

12:00-12:20

**Christian Honecker,**  
*RWTH Aachen University*

**2019-24-0234** Optical Spray Investigations on OME3-5 in a Constant Volume High Pressure Chamber

12:20-12:40

**Marco Piumetti,**  
*Politecnico di Torino*

**Oral Only** Nanostructured Ceria-Praseodymia for NOx-Assisted Soot Oxidation

12:40-13:00

**Giovanni Di Ilio,**  
*University of Rome Niccolò Cusano*

**Oral Only** Numerical modeling and shape optimization of high performance SCR systems

13:00-14:00

**Lunch**

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### Conventional Vehicles & IC Engines

Chairmen: **Gino Bella**, *University of Rome Tor Vergata* & **Daniele Chiappini**, *University of Rome Niccolò Cusano*

14:00-14:20	<b>Antonio Cantiani</b> , <i>University of Basilicata</i>	<b>2019-24-0235</b> How to Improve SI Engine Performances by Means of Supercritical Water Injection
14:20-14:40	<b>Paolo Sementa</b> , <i>Istituto Motori CNR</i>	<b>2019-24-0236</b> Effects of Prechamber on Efficiency Improvement and Emissions Reduction of a SI Engine Fuelled with Gasoline
14:40-15:00	<b>Emiliano Costa</b> , <i>RINA</i> <b>Mikel Lucas Garcia de Albeniz</b> , <i>Bionic Surface Technologies GMBH</i>	<b>2019-24-0239</b> Increase of Compressor Performance through the Use of Microstructures
15:00-15:20	<b>Giuseppe di Pierro</b> , <i>Politecnico di Torino</i>	<b>2019-24-0240</b> Analysis of the Impact of the WLTP Procedure on CO2 Emissions of Passenger Cars

15:20-15:45

### Closing Ceremony

**Gino Bella**, *University of Rome Tor Vergata* & **Giorgio Rizzoni**, *CAR - The Ohio State University*