

# SAE – EC JRC Joint International Conference

## (Particle) Emissions of 2-stroke Scooters – Science, Problems, Solutions & Perspectives

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Autodromo Nazionale Monza / Milano / Italy June 11<sup>th</sup> – 12<sup>th</sup>, 2009

Version 2

### Technical Program

#### Wednesday, June 10<sup>th</sup> 2009

19:00 Arrival - Welcome aperitif and registration in Grand Hotel Baron di Sassj 19:00.

#### Thursday, June 11<sup>th</sup>, 2009

08:00 – 08:30 Opening of registration “Autodromo di Monza”

08:30 – 09:00 NN opening & welcome address: IES Director and/or EC-IE Director,  
Air Quality Regione Lombardia / Milano

#### General Projects on Emissions [Chairman: G. De Santi]

09:00 – 09:30 [Physical and Chemical Characterization of Emissions from 2-Stroke Motorcycles](#)

T. Adam, C. Astorga, G. Martini, A. Farfaletti, U. Manfredi, L. Montero, A. Krasenbrink,  
B. Larsen and G. De Santi, *EC-JRC, Transport and Air Quality Unit*

09:30 – 10:00 [Study on Possible New Measures Concerning Motorcycle Emissions](#)

Savas Geivanidis, Leonidas Ntziachristos, Zissis Samaras, *Laboratory of Applied Thermodynamics, Aristotle University of Thessaloniki*; Anastasios Xanthopoulos' *Laboratory of Quantitative Analysis, Logistics and Supply Chain Management, Aristotle University of Thessaloniki*; Heinz Steven, *TÜV Nord Mobilität GmbH & Co. KG*; Bernd Bugsel, *BAST Federal Highway Research Institute of Germany*

10:00 – 10:30 [Emission Performance and Evolution over Mileage of Modern Low-Displacement Two-stroke Scooters in Statutory and Real-world Cycles](#)

Robert Alvarez, Christian Bach, Martin Weilenmann, *Empa, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for Internal Combustion Engines*

10:30 – 11:00 **Coffee break and poster session**

#### Research & Reduction of Emissions [Chairman: Z. Samaras]

11:00 – 11:30 [The Solid-Volatile Challenge of Nanoparticle Emissions from 2-Stroke Scooters](#)

M. Kasper, T. Mosimann, *Matter Engineering AG*; P. Comte, *AFHB, University of Applied Sciences*

- 11:30 – 12:00 [Low Pressure Fuel Injection Strategies for Low Emission Two-stroke Scooter Engines](#)  
Franz Winkler, Roland Kirchberger, *Graz University of Technology Institute for Internal Combustion Engines and Thermodynamics Engine Research*
- 12:00 – 12:30 [Regulated and Unregulated Emissions of Mopeds](#)  
M.V. Prati, *Istituto Motori of National Research Council*; A. Unich, *Second University of Naples*; M.A. Costagliola *University of Naples "Federico II"*
- 12:30 – 13:00 [Recent Research Activities on Particle Emissions from Two-stroke Mopeds Performed at ENEA](#)  
P. Spezzano, P. Picini, D. Cataldi, F. Messale, C. Manni, E. Donato  
*ENEA- ACS PROTANT. Municipality of Rome, Department of Environmental Policies, Air Quality and Environmental Noise.*
- 13:00 – 15:00 **Lunch break and poster session**  
**Lunch speech about knowledge transfer and networking**

### **Reduction potentials [Chairman: J. Czerwinski]**

(by oils, fuels, catalysts)

- 15:00 – 15:30 [Combinations of Technical Measures for Reduction of Particle Emissions and Toxicity of 2-S Scooters](#)  
Jan Czerwinski, Pierre Comte, *University of Applied Sciences*; Maria C. Astorga, Thomas Adam, *EU Joint Research Center*; Andreas Mayer, *Technik Thermische Maschinen*, Felix Reutimann, *Federal Office of Environment*
- 15:30 – 16:00 [The Effect of \(Hydrous\) Ethanol on the Emission and Performances of 2- and 4-stroke Scooters](#)  
Michiel Makkee, *Catalysis Engineering, Faculty Applied Sciences, Technical University Delft*; Jan Czerwinski, Pierre Comte, *Laboratory for IC-Engines and Exhaust Emission Control (AFHB)*, *University of Applied Sciences*
- 16:00 – 16:30 **Coffee break and poster session**
- 16:30 – 17:00 [Effects of Ethanol-gasoline Blends on Exhaust Emissions for a Two-stroke Motorcycle](#)  
Jiun-Horng Tsai, Yung-Chen Yao, Wei-Ting Chang, Ting-Hsien Yan  
*Department of Environmental Engineering, National Cheng Kung University*

### **Alternative Propulsion [Chairman: G. Martini]**

- 17:00 – 17:30 [Electric Scooters: Technologies and Markets](#)  
Urs Schwegler, *NewRide*

### **Regional Inventory Lombardy [Chairman: G. Martini]**

- 17:30 – 18:00 [Emissions from 2-wheels Vehicles in Lombardy: Results and Uncertainties in the Regional Emission Inventory](#)  
Stefano Caserini, *ARPA Lombardia, Regional Agency for Environment Protection*
- 20:00 **Social Dinner**  
**Transportation to hotels**

# Friday, June 12<sup>th</sup>, 2009

## Health Effects [Chairman: A. Krasenbrink]

- 08:30 – 09:00 [Prevalidation of In Vitro Continuous Flow Exposure Systems as Alternatives to In Vivo Inhalation Engine Emission Safety Evaluation Experimentations - Outcome from MAAPHRI-PCRD5 Research Program](#)  
Jean-Paul Morin, *INSERM U644 – Université de Rouen*; Virginie Hasson, *INSERM U644 – Université de Rouen – France, CERTAM*; Mamadou Fall, *INSERM U644 – Université de Rouen – France*; Eleni Papaioanou, *APTL – CERTH*; David Preterre, *Frantz Gouriou, Veronika Keravec, CERTAM, Athanasios Konstandopoulos, APTL – CERTH, Frédéric Dionnet, CERTAM*
- 09:00 – 09:30 [Cytotoxicity and Inflammatory Potential of Two Stroke Scooter Exhaust in Lung Cells \*in vitro\*](#)  
Loretta Müller, Peter Gehr, *Institute of Anatomy, University of Bern*; Pierre Comte, Jan Czerwinski, *AFHB, University of Applied Sciences*, Markus Kasper, *Matter Engineering AG, Nanoparticle Measurement*; Andreas C.R. Mayer, *Technik Thermische Maschinen (TTM)*; Barbara Rothen-Rutishauser, *Institute of Anatomy, University of Bern*
- 09:30 – 10:00 [Analysis of Exposure Levels to Particle Matter of Cyclists and Car Drivers in 11 Dutch Cities](#)  
Frank Borgman, *Miriam van Bree, Fietsersbond (Dutch Cyclists Union)*
- 10:00 – 10:30 [Characterization of Submicron Particles in Scooter Parking Garage](#)  
Jie-Ming Shih, Dai-Hua Tsai, Chang-Chuan Chan  
*Institute of Occupational Medicine and Industrial Hygiene, College of Public Health, National Taiwan University*
- 10:30 – 11:00 **Coffee break and poster session**
- 11:00 – 12:00 **Panel discussion (Legislation EC-JRC / Industry / New Technologies / Authorities / Environment- & Health / others)**
- 12:00- 12:15 **Closing remarks & Good-bye**
- 12:15- 13:30 **Lunch**

## Visiting Autodromo Monza” and “Aria Nuova”

- a) Guided tour around historical and Formula 1 tracks
- b) Visit to racing control room, F1 winner podium, etc.
- c) Eco-driving school
- d) Mopeds emissions tests and visit to boxes