

Wednesday 14 October 2009

HIGH-PERFORMANCE ENGINES AND CARS: A CHALLENGE FOR RESEARCH AND INNOVATION

In collaboration with Modena Reggio Emilia University, Faculty of Mechanical Engineering, and Democenter Sipe - **Coordinator: Prof. Giuseppe Cantore, Director**

H. 9.30 am – 06.00 pm

- Design of engines with high specific functional threshold power - *FPT Racing*
- Study of high performance engines through thermo-structural simulation – *Ferrari Auto*
- Modelling of the structural performance of engine components for sports motorbikes – *Ducati Corse*
- Optimisation with a view to reducing the chassis weight of sport cars – *Ferrari Auto*
- High-performance motorbike chassis design at Ducati – *Ducati Motori*
- Aprilia RSV4 Factory/Superbike: peculiarities of the project/development of the high-performance narrow V engine – *Aprilia*
- 2-stroke competition engine machined from the solid – *CRP Racing*
- Virtual prototyping of a robotized gluing line for a car chassis - *Università di Modena*
- Effect of heat treatment on the mechanical properties of Al-Si-Mg foundry alloys - *Università di Bologna/Ferrari Auto*
- Measurement and analysis of the motor-driven valve in high-performance motorbike and car engines - *Università di Bologna/Università di Ferrara*
- Correlations between the microstructure and the mechanical properties in castings for Al-Si-Mg alloy engine components - *Università Bologna/Ducati Corse/Ferrari Auto*

All these topics were also developed in collaboration with university research centres, which will equally attend the convention and present reports discussing the research carried out.

MAGNESIUM AND MOTORSPORT

In collaboration with SINERGITEC CONSORTIUM - Technological Synergies

h. 10 am - 13 am

- Magnesium and its alloys: a material for the XXI century engineering industry - *Gualtiero Valeri, Valeri Consulenza Industriale*

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Modena Fiere S.r.l.
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**2nd
edition**

ModenaFiere

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- Thixomolding: state of the art and future prospects - *Maurizio Nordio, Consorzio Sinergitec*
- Magnesium in safety components ... - *Luca Meneghetti, Seido De*
- MIM - Metal Injection Molding ... a new era for powders? - *Matteo Mantovani, NCS*
- Special Magnesium alloys... a new frontier - *Gualtiero Valeri, Valeri Consulenza Industriale*

LAB. INTERMECH

Laboratory dedicated to industrial research and technological transfer to companies in the advanced engineering field

H. 02.30 pm - 6.00 pm

- Design criteria for low-noise gear transmissions - *Lab. Simech*
- Surface coatings to improve the performance of ferrous materials - *Lab. Super&man*
- Surface texturing of mechanical components to control friction and wear - *Lab. Super&man*
- The MECTRON car simulator for the study and design of automotive components - *Lab. Mectron*
- Problems relating to maintenance management of mechatronic systems - *Lab. Mectron*
- Simulation of hydraulic components for mobile applications - *Lab. Mectron*
- Characterisation of porous materials and SEA modelling of soundproofing systems in the automotive industry - *Lab. LAV, MateriAcusticA srl/Adler Evo srl, Lab. LAV*

Thursday 15 October 2009

Materials, surface treatments/finishing - coatings in the automotive and high performance sector

In collaboration with Modena and Reggio Emilia University - Faculty of Materials Engineering and the Environment, with the support of A.I.M. and A.I.F.M.

H. 9.30-13.00 am/02.00 - 06.00 pm

- Innovative coatings for cylinder liner surfaces in high performance engines materials, processing, surface characterization and field test results – *Università di Stoccarda*
- *AUDI*
- PVD-CVD coating and surface engineering techniques applied to racing and high-performance components - *Lafer Rivestimenti PVD-CVD Spa*
- The topic will be communicated. Topics: Innovative stainless steel surface treatment and hot isostatic pressing - *Bodycote*

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- *Peen Service*
- Metal matrix composite materials for hard-wearing applications in the automotive sector - *Politecnico di Milano Dipartimento di Chimica, Materiali e ingegneria Chimica "G. Natta"*.
- Matching materials and technologies in the construction of a F1 racing car – *CRP Technology*
- AM60B magnesium alloy anodic oxidation in electrolytic bath containing titania nanoparticles - *Politecnico di Milano Dipartimento di Chimica, Materiali e ingegneria Chimica "G. Natta"*

ENGINE, DRIVELINE AND VEHICLE: THE CONTRIBUTION OF ELECTRONIC

In collaboration with Bologna University - DIEM

H 9.30am - 13.00 am

- Application of engine control and diagnosis based on measurement of the ionization current – *Ferrari Automobili/Università di Bologna*
- Torques and Force Sensing in Motorsport Applications - *NCTEngineering GmbH*
- The Multi-air system - *Magneti Marelli Powertrain*
- Methodologies and models for "real-time" simulation of car engine boosting units - *Università degli Studi di Parma*
- Fully-developed advance mapping - *Ducati/Alma Automotive*
- Engine development in the Motorsport. A process between handicraft work and scientific challenge - *University of Stuttgart/Volkswagen Motorsport*
- Future Motorsport Powertrain, converging on road relevance - *Ricardo*
- Applications in X-by-Wire technology: the case of Steer-by-Wire by MECTRON - *Intermech - Lab. Mectron*
- Calculation and Optimization of a V8 Crankshaft of a Racing Engine - *VKA, RWTH Aachen University/FEV, Aachen*

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