

PRESS RELEASE



9 April 2018

Ricardo to share insights on low emissions and hybrid research projects at TRA, Vienna

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In a total of six papers co-authored with its research partners, Ricardo will share some of the results of four key automotive powertrain research projects at the forthcoming Transport Research Arena Vienna 2018, to be hosted from 16th to 19th April

Transport Research Arena (TRA) 2018 is a European forum for researchers, companies and public authorities active in the field of transport, as well as policy makers and stakeholders framing research and transport strategy. In TRA's scientific and technical sessions, a broad spectrum of research and innovation activities will be discussed, ranging from basic research findings on application-oriented engineering to the socio-economic impacts of policies and standards.

In the paper *Particle Reduced, Efficient Gasoline Engines: A First-Year Report on the PaREGEEn Project*, Ricardo will share the mid-term results of this important European research initiative. The seventeen-partner PaREGEEn project is committed to achieve a 15 percent CO₂ reduction along with real driving emissions targets, and aims to assess the emissions of particles as small as 10 nm, based on mid- to premium-sized gasoline powered passenger cars. Through the use of state-of-the-art development techniques, such as optically accessed single cylinder engines, a range of modelling and simulation tools and the application of novel engine componentry, the optimal trade-offs between cleanliness and efficiency are being identified for such next-generation gasoline engines.

In the second paper, *IMPERIUM – Implementation of Powertrain Control for Economic and Clean Real driving emission and fuel Consumption*, opportunities are identified for powertrain optimization from the control strategy point of view; specifically, through modelling the physical behaviour of the truck and identifying the opportunities for control optimisation using additional, look-ahead mission-related information. The

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IMPERIUM consortium consists of major European actors to provide a 100 percent European value chain for the development of future powertrain control strategies for trucks: they are committed to achieve a fuel consumption reduction of 20 percent, while keeping the vehicle within the legal limits for pollutant emissions.

A further three papers co-authored by Ricardo to be presented at TRA 2018, relate to the twenty-five partner European COmpetitiveness in Commercial Hybrid and AutoMotive PowertrainS (ECOCHAMPS) project. The project has developed efficient, compact, low weight, robust and cost-effective hybrid powertrains for both passenger cars and commercial vehicles. The improvements are an increased functionality, improved performance, comfort and safety, and emissions levels better than Euro 6/VI.

The paper *ECOCHAMPS – Project Targets, their Tracking and the Evaluation of the Demonstrator Vehicles* presents the results of the final evaluation of the five demonstrator vehicles built to date. The paper also looks towards the development of current and future CO₂ declaration methods for hybrid heavy-duty commercial vehicles, supporting the deployment of next-generation propulsion technologies for decarbonizing freight transport.

The paper, *European Competitiveness in Commercial Hybrid and Automotive Powertrains (ECOCHAMPS): A Modular System and Standardization Framework (MSF) and the Development of MSF-conform Components*, presents work relating to the pre-standard Modular System and Standardization Framework (MSF), which is also a focus of ECOCHAMPS. While there are existing standards for drivetrain components and electrically driven auxiliaries of light-duty vehicles such as hybrid passenger cars, no such similar standards exist for heavy-duty vehicles. This paper focuses on the MSF approach, the development of MSF-conforming drivetrain components and auxiliaries, the results from the component integration into the demonstrator vehicles and the outlook for the final demonstrator vehicle assessment.

The penultimate paper, *European Competitiveness in Commercial Hybrid and Automotive Powertrains (ECOCHAMPS): Effective Passenger Car Hybridisation via a 48V DCT*, gives results from the overall development and testing of the demonstrator vehicle and advanced electrical system. In this vehicle, the powertrain is fitted with an electrical machine directly coupled to a double clutch transmission (DCT). As such, the



powertrain configuration gives the possibility to achieve hybrid vehicle functionality, such as regenerative braking, acceleration assistance and limited EV operations, while not detracting from the vehicle packaging and being a lower cost solution appropriate for rapid market uptake. Initially the powertrain has been developed with a state of the art electrical machine, rated at up to 15kW when running at 48V. However, an advanced electrical machine and power electronics have been developed, which demonstrate almost a 25kW rating within the same practical package.

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The final paper co-authored by Ricardo, together with Concawe and Shell Global Solutions, is entitled *Comparison of real driving emissions and chassis dynamometer tests on emissions of two fuels in three Euro 6 diesel cars*. This paper documents recent research work commissioned by Concawe to build understanding of the emissions performance of late Euro 6 diesel passenger cars with different aftertreatment systems over various regulatory chassis dyno cycles and RDE on-road testing. The project compares emissions of these vehicles on two extreme fuels when run under comparable road load conditions, and also aimed to ascertain if there were any detectable fuel effects.

Ends



NOTES TO EDITORS:

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The **PaREGE**n project has received funding from the European Union's Horizon 2020 Programme for research, technological development and demonstration under Grant Agreement no. 723954.



The **IMPERIUM** project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 713783, and from the Swiss State Secretariat for Education, Research and Innovation (SERI) under contract no. 16.0063 for the Swiss consortium members.



The **ECOCHAMPS** project has received funding from the European Commission's Horizon 2020 research and innovation programme under grant agreement no. 653468.

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