



6th International Exhaust Emissions Symposium 14-15 June 2018



Final Programme

Trends in automotive emissions legislation: impact on LD engine development, fuels, lubricants, and test methods – a global view, with a focus on WLTP and RDE regulations

Media patronage:

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Poland

Polish Scientific Society of Combustion Engines (PTNSS)
93 Sarni Stok
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Poland

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BUS TRANSPORT

Thursday, 14th June 2018

from

07:30 – Parkhotel Vienna
18:15 – BOSMAL

to

BOSMAL
Parkhotel Vienna

Friday, 15th June 2018

from

08:30 – Parkhotel Vienna

to

BOSMAL

OUR BUSES WILL BE MARKED AS FOLLOWS

BOSMAL

**PARKHOTEL
VIENNA**

BOSMAL

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Notwithstanding decades of improvement in the industry, concern over the impact of vehicles on air quality remains high. Emissions of greenhouse gases from road vehicles remain very high on the political agenda; emissions of particulate matter (PM and especially PN) remain under scrutiny. Certain as-yet unregulated gaseous emissions also represent potential air quality risks. The issue of emissions (and fuel consumption) occurring under real driving conditions (RDE) has risen to become a top priority for the automotive sector, particularly in the EU and the USA. Furthermore, real driving emissions have increased in importance to the point where RDE-PEMS measurements are now an integral part of the emissions testing process, yet these procedures are not static and will continue to evolve. Another important step ahead in emissions regulation tightening is the introduction of the new world-wide harmonised test procedure (WLTP). Both new regulations: WLTP and RDE and their impact on vehicle engine technology are the hottest topics in the emissions reduction field.

Continuing scrutiny of particulate emissions from engine types other than Diesel represents a somewhat new and challenging direction in emissions testing and control. The roll-out of GPFs has begun and these devices have their own associated research needs. These factors exert massive pressure on vehicle and engine manufacturers (both light duty and heavy duty), their suppliers and the oil and fuel industries. Other, allied fields such as R&D and fuel additive and lubricant suppliers also find themselves subject to the same forces. Many of the aforementioned problems are shared by the various stands of the industry – passenger car and light commercial vehicle/heavy duty/off road/marine – and many of the proposed strategies and technical solutions have multi-segment applicability.

However, the market is dictated not only by political and technical factors, but also by consumer demands, which are themselves also evolving. Technical developments in one region rarely occur in isolation, due to the omnipresence of the internet and the resulting ease of information-sharing – in many senses, the world is becoming a smaller place. Many lower-income countries are closely watching developments in the EU and USA, eager to solve their own problems with urban air quality in a cost-effective manner. Both legislators and the general public have the goal of reducing fuel consumption, without any sacrifices in terms of durability or safety. The fuel consumption/emissions trade-off is of paramount importance in such discussions.

Increased media focus on the emissions performance of modern vehicles (particularly – but not exclusively – Diesels) is also increasing public pressure. While most human activities contribute to emissions of greenhouse gases and harmful emissions, the automotive sector is a highly visible contributor and an obvious target for legislators.

Responding to this, a broad range of advanced engine technologies, catalytic aftertreatment systems, revised fuel types, bespoke lubricants and friction inhibitors, etc. have been introduced. These strategies are often interrelated: low sulphur fuel is required for aftertreatment system compatibility; advanced engine design has impacts on required lubricant properties, etc. Fundamental changes to the propulsion strategy for road vehicles (e.g. alternative fuels; the implementation of advanced electromechanical systems – hybrids; the gradual convergence of gasoline and Diesel engines) represent an ongoing revolution in the industry. Requirements that regulated emissions are below a certain level under virtually all operating conditions may yet force certain technologies off the market, or at least require significant modifications. All these new or revised technologies must be developed, tested, approved and certified – and not only in the laboratory.

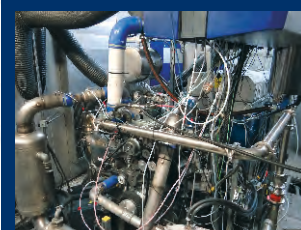
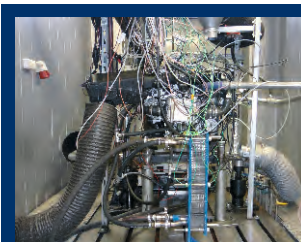
Mindful of the above points, and with a proven track record of organising scientific meetings, BOSMAL & PTNSS are pleased to announce their 6th International Exhaust Emissions Symposium, to be held on 14-15 June 2018 in Bielsko-Biała (Poland). The event shall build upon the successes of previous symposia, but will include the very latest developments in the aforementioned fields and their implications for industry, the environment and beyond. Through the formation of business and personal relationships – and the potential for information sharing and collaboration that results – the various branches of the industry can advance together towards their goals.

Dr. Piotr Bielaczyc
Chairman of the International Organising Committee

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International Organising Committee

- **Dr. Piotr Bielaczyc** – Chairman – BOSMAL, Poland
- **Wolfgang Thiel** – Vice-Chairman – TRT, Germany
- **Arkadiusz Wacławek** – Coordinator – BOSMAL, Poland
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- **Dr. Amanda Lea-Langton** – University of Manchester, UK
- **Prof. Federico Millo** – Politecnico di Torino, Italy
- **Dr. Piotr Pajdowski** – BOSMAL, Poland
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- **Dr. Andrzej Suchecki** – BOSMAL, Poland
- **Dr. Andrzej Szczotka** – BOSMAL, Poland
- **Dr. Katarzyna Szramowiat** – AGH University of Sci. & Tech., Poland
- **Dr. Thomas Wallner** – Argonne National Lab, USA
- **Klaudiusz Waniółka** – BOSMAL, Poland
- **Joseph Woodburn** – BOSMAL, Poland

Main topics of the Symposium

- Emissions legislation – for all jurisdictions
- WLTP – and RDE-focused R&D test methods
- Fuel economy in light of Euro 6d, WLTP and RDE
- New methods of PM testing
- Compounds which are potential candidates for emissions regulation
- Emissions test equipment (including PEMS)
- Emissions reduction technology
- Aftertreatment systems, technologies and strategies
- Emissions simulation
- Powertrain development and electrification
- IC Engine test method development
- Vehicular fuel development
- Alternative fuels, fuel additives and fuel blends
- Gaseous fuels: CNG & LPG
- Engine oil development
- Commercial vehicles, discussion of other automotive sectors: synergies and shared challenges/solutions

Please address any organisational questions to:

Dr. Piotr Bielaczyc, piotr.bielaczyc@bosmal.com.pl, tel.: +48 33 8 130 598

Klaudiusz Waniółka, symposium@bosmal.com.pl, tel.: +48 33 8 130 545

Joseph Woodburn, joseph.woodburn@bosmal.com.pl, tel.: +48 33 8 130 497

Venue

BOSMAL Automotive Research and Development Institute Ltd
93 Sarni Stok
43-300 Bielsko-Biała
Poland

Symposium language

English

Accommodation, recommended hotel

Parkhotel Vienna
48 Bystrzańska
43-309 Bielsko-Biała
tel.: +48 33 496 62 67
mobile: +48 608 075 004
e-mail: marketing@vienna.pl
www.vienna.pl

Symposium Dinner

Parkhotel Vienna
48 Bystrzańska
43-309 Bielsko-Biała
tel.: +48 33 496 62 00
www.vienna.pl

DieselNet will include a detailed report of the Symposium and Combustion Engines Journal will publish a symposium summary, the abstracts and the full Symposium Proceedings on CDROM, together with movie reportage on DVD.

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We are hosting guests from the following countries:



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Map legend:

- route



- stairs

Level 0

- registration

Level - 1

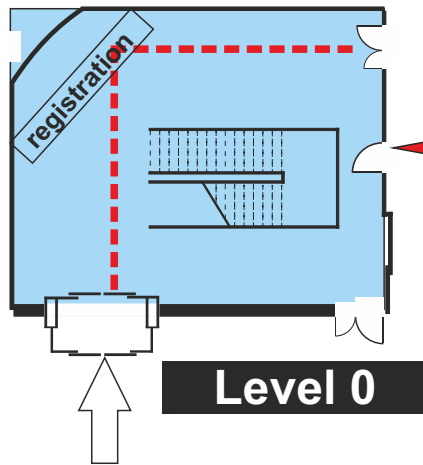
- conference room

- lunch

Level - 2

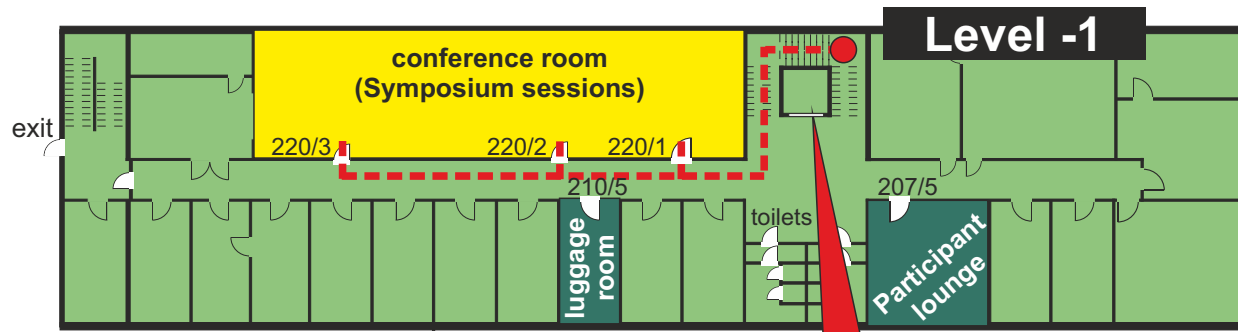
- coffee

- exhibition & poster session

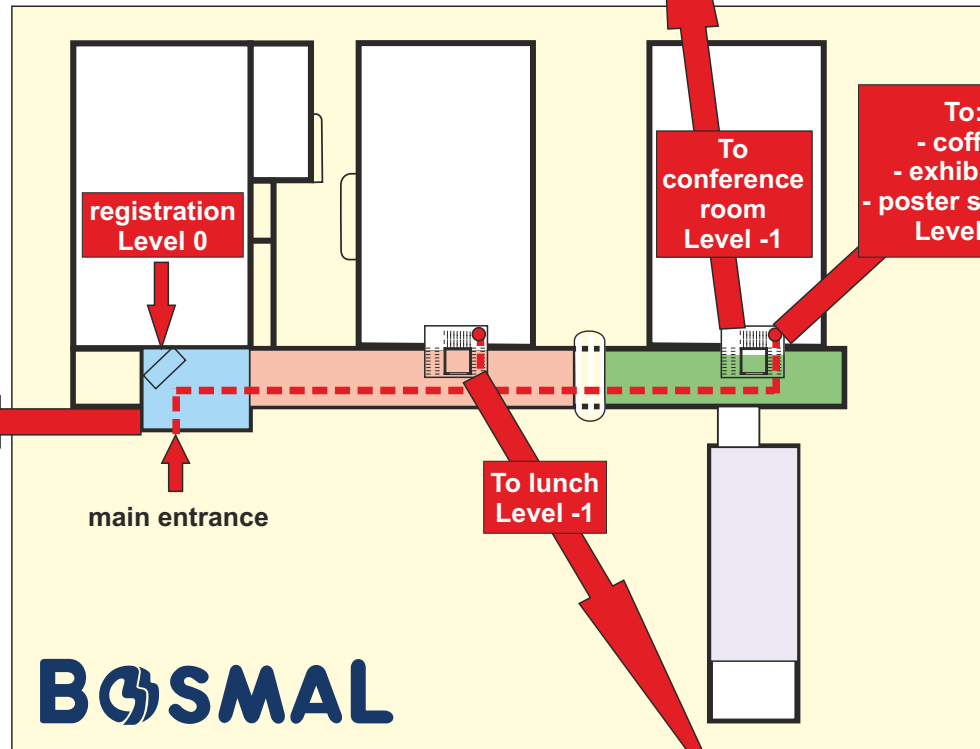


Level 0

main entrance



Level -1



registration
Level 0

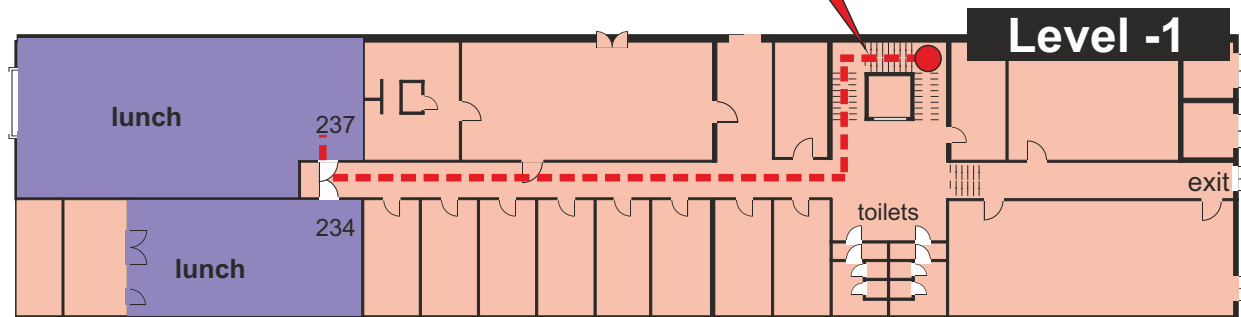
To
conference room
Level -1

To lunch
Level -1

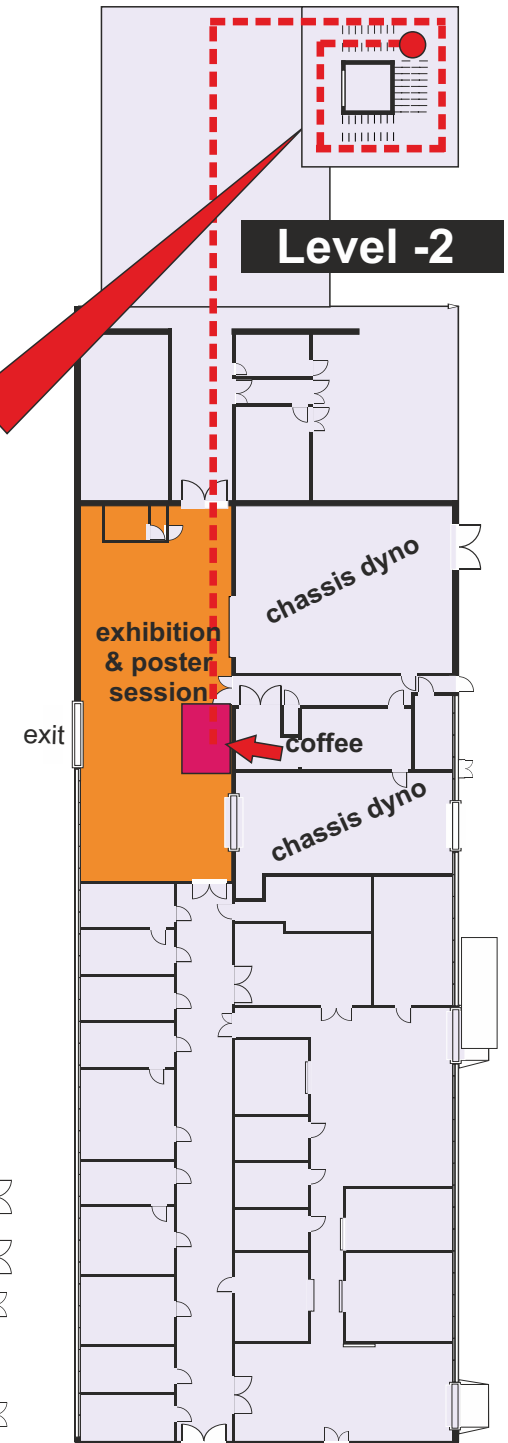
To:
- coffee
- exhibition
- poster session
Level -2

main entrance

BOSMAL



Level -1



Level -2

6th International Exhaust Emissions Symposium 14-15 June 2018

Day 1: Thursday 14th June 2018

08:00-08:40 – Registration

08:45-09:00 – Opening

Session 1: General automotive exhaust emissions – Chairs: Wolfgang Thiel & Piotr Bielaczyc

- 09:00-09:30 – Dr. Piotr Bielaczyc (BOSMAL, Poland) – Global trends in exhaust emissions and impact on engine technology and fuels: an introduction to the topic
- 09:30-10:00 – Dr. Vicente Franco (European Commission, Belgium) – An update on recent regulatory developments in EU Clean Air policy
- 10:00-10:40 – Les Hill (Horiba, UK) – A global emissions legislation overview

10:40-11:20 – Coffee break

Session 2: CO₂, GHG & air quality (including particulate matter) – Chairs: Wolfgang Thiel & Piotr Bielaczyc

- 11:20-11:40 – Dr. Jelica Pavlovic, Dr. Giorgios Fontaras, Dr. Kostis Anagnostopoulos, Dr. Michael Clairotte, Dr. Victor Valverde, Dr. Iker Prado, Dr. Biagio Ciuffo, Dr. Barouch Giechaskiel (EC Joint Research Centre, Italy) – Dealing with the gap between type-approval and in-use light duty vehicles fuel consumption and CO₂ emissions
- 11:40-12:10 – Prof. Federico Millo, Dr. Luciano Rolando (PoliTo, Italy) – Impact of the WLTP procedure on CO₂ emissions from conventional passenger cars
- 12:10-12:30 – Dr. James Allan, Prof. Gordon McFiggans, Dr. Hugh Coe, Dr. Amanda Lea-Langton, Dr. Dantong Liu (University of Manchester, UK) – The optical properties of vehicle generated particulates
- 12:30-13:00 – Dr. Barouch Giechaskiel, Dr. Tero Lahde, Dr. Roberto Suarez, Dr. Michael Clairotte, Dr. Theodoros Grigoratos, Dr. Adolfo Perujo, Dr. Giorgio Martini (EC Joint Research Centre, Italy) – Particle number measurements in the European legislation and future JRC activities

13:00-14:00 – Lunch

Session 3: Emissions reduction technologies & aftertreatment – Chairs: Les Hill & Piotr Bielaczyc

- 14:00-14:30 – Dr. Ameya Joshi (Corning, USA) – Aftertreatment technologies to meet the latest global emissions standards
- 14:30-15:00 – Kurt Engeljehringer (AVL, Austria) – RDE development on testbeds
- 15:00-15:30 – Dr. Marcos Alonso Baez (Nissan Technical Centre Europe, Spain) – Model-based calibration: a challenge for optimal emissions
- 15:30-16:00 – Jon Andersson (Ricardo, UK), Rod Williams, Dr. Heather Hamje (Concawe, Belgium) – Euro 6 Diesel emissions control system approaches & impacts on dyno and real-world emissions: latest results from the Concawe Diesel Emissions Project

16:00-16:30 - Coffee break

- 16:30-17:00 – Dr. Katarzyna Matusik, Dr. Alan Kastengren, Dr. Brandon Sforzo, Dr. Christopher Powell (Argonne National Laboratory, USA) – Using X-ray diagnostics to investigate the internal and near-nozzle flow in gasoline and Diesel fuel injectors
- 17:00-17:30 – Dr. Tue Johannessen (Amminex, Denmark) – Solid ammonia SCR technology for near-zero polluting diesel vehicles
- 17:30-17:50 – Dr. Johannes Villinger (V&F, Austria) – Combustion characteristics of oxymethylenether (OME) in a compression ignition engine
- 17:50-18:05 – Maciej Hadrys (Mahle Powertrain, Poland) – Piston evolution in spark ignition engines

19:30 onwards – Symposium Dinner & Musical Soirée (Parkhotel Vienna)

Presenting authors underlined for presentations with multiple authors

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Day 2: Friday 15th June 2018

Session 3: Emissions reduction technologies & aftertreatment (continued) – Chairs: Wolfgang Thiel & Les Hill

- 09:00-09:30 – Prof. Savas Geivanidis (Aristotle University, University of Applied Sciences of Central Macedonia, Greece), Prof. Zissis Samaras (Aristotle University, Greece), Dimitrios Kontses, Pavlos Fragkiadoulakis (Aristotle University, Greece) – Operation and implementation of a resistive soot sensor for DPF health diagnostics
- 09:30-09:50 – Dr. Toni Kinnunen (Proventia, Finland) – Solving air quality problems in cities by retrofitting? Our keys to success
- 09:50-10:20 – Paolo Patroncini, Paolo Santarelli (4e Consulting, Italy), Davide Lusignani (eDriveLAB, Italy) – Hybrid P2 architecture powertrain: an overview about integration on off-highway vehicles toward Stage V emission level
- 10:20-10:50 – Alexander Terres, (BMW Group, Germany/PTB, Germany), Heinz Bacher (BMW Group, Germany), Dr. Barouch Giechaskiel (EC Joint Research Centre, Italy), Dr. Andreas Nowak, Prof. Volker Ebert (PTB, Germany) – Automotive particle number measurements: calibration, comparability and metrological traceability

10:50-11:20 – Coffee break

Session 4: Test methods: laboratory-based & RDE-PEMS – Chairs: Wolfgang Thiel & Piotr Bielaczyc

- 11:20-11:50 – Dr. Sophie Kinnear (Jaguar Land Rover, UK) – Full vehicle chassis dynamometer to powertrain test bed correlation of a modern gasoline and a Diesel powertrain configuration
- 11:50-12:10 – Sam van Goethem (TNO, the Netherlands) – Smart Emission Measurement System: a flexible system for real-world driving emission tests
- 12:10-12:30 – Prof. Jerzy Merksiz (Poznan University of Technology, Poland) – Observations from PEMS testing of combustion engines of different applications
- 12:30-13:00 – Prof. Gordon Andrews, Dr. H. Li, Dr. A. Khalfan (University of Leeds, UK) – Real World Driving Emissions in Congested Traffic
- 13:00-13:20 – Matthew Duckhouse, Mark Peckham, Harry Bradley, Matthew Hammond (Cambustion, UK) – Fast measurement of transient gaseous pollutants for real-world driving emissions

Session 5: Fuel & alternative powertrains – Chairs: Amanda Lea-Langton & Piotr Bielaczyc

- 13:20-13:40 – Dr. Marek Rylko (SMA Magnetics, Poland), Dr. Piotr Bielaczyc (BOSMAL, Poland) – Electric vehicles: challenges and opportunities
- 13:40-14:00 – Dr. Marek Sutkowski (Horus Energia, Poland) – Electric vehicles: solution for lower emissions and better driving economy

14:00-14:10 – Symposium Summary & Closing

14:10-15:10 – Lunch

15:10-16:30 – Tour of BOSMAL's Laboratories

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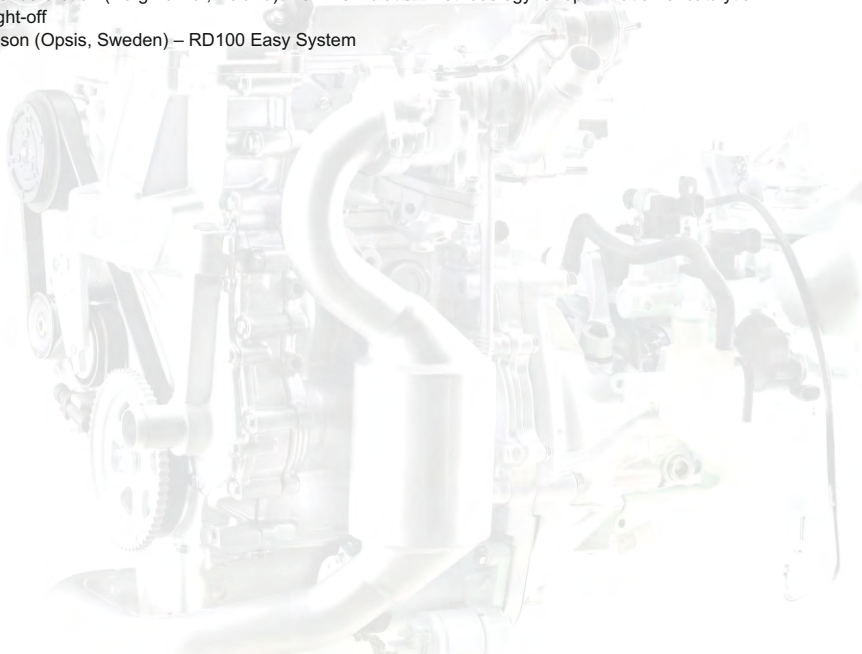
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Poster session

- Prof. Jan Czerwinski et al. (AFHB/BAFU/TFZ, Switzerland) – Testing and evaluating real driving emissions with PEMS
- Dr. Katarzyna Szramowiat et al. (AGH/BOSMAL, Poland) – The meaning of bio- and chemomarkers in emission inventories
- Dr. Katarzyna Szramowiat et al. (AGH/BOSMAL, Poland) – New challenges in research on engine-generated solid particles
- Dr. Katarzyna Matusik et al. (Argonne National Laboratory, USA) – Synchrotron X-Ray Diagnostics of Automotive Fuel Injectors
- Tomasz Meinicke et al. (BOSMAL, Poland) – Key parameters of Li-Ion cells and batteries ensuring the proper operation of energy storage for electric vehicle propulsion
- Dr. Piotr Bielaczyc et al. (BOSMAL, Poland) – Gaseous emissions from a hybrid vehicle and a non-hybrid vehicle measured under real urban driving conditions
- Bartosz Hejny et al. (BOSMAL, Poland) – Methodology of electric motors testing on the dynamic engine test bench
- Grzegorz Kondora et al. (BorgWarner, Poland) – CFD simulation methodology for optimization of catalytic converter light-off
- Ulf Gustavsson (Opsis, Sweden) – RD100 Easy System



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Our guests



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 AGH University of Science and Technology in Krakow, Poland
 Air Liquide Polska, Poland
 Amminex Emissions Technology, Denmark
 Argonne National Laboratory, USA
 Aristotle University and University of Applied Sciences of Central Macedonia, Greece
 AVL List, Austria
 BMW Group, Germany
 Borg Warner Poland, Poland
 BOSMAL Automotive Research and Development Institute, Poland
 Cambustion, UK
 CATAGEN LIMITED, UK
 CNH Industrial, Italy
 Corning Incorporated, USA
 Cracow University of Technology, Poland
 ECOCAT ITALIA, Italy
 European Commission – DG Environment, Belgium
 European Commission – Joint Research Centre, Italy
 FCA Italy, Italy
 FCA Poland, Poland
 FCA POWERTRAIN POLAND, Poland
 Federal-Mogul Powertrain Italy, Italy
 General Motors Global Propulsion System, Italy
 HORIBA, Germany
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 Horiba-MIRA, UK
 Horus-Energia, Poland
 Hyundai Motor Manufacturing, Czech Republic
 Innospec Deutschland, Germany
 Innospec Limited, UK
 Institute of Mechanical Engineers and University of Warwick, UK
 IPS TABOR, Poland
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 NGK Ceramics Polska, Poland
 NGV GAS, Italy
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 NITROERG SA, Poland
 OIL AND GAS INSTITUTE, Poland
 OPSIS, Sweden
 Petronas Lubricants International, Italy
 PKN ORLEN, Poland
 Poznan University of Technology, Poland
 Politecnico di Torino, Italy
 Proventia, Finland
 Ricardo, UK
 Robert Bosch, Germany
 Rzeszow University of Technology, Poland
 Solaris Bus & Coach, Poland
 TDT – Transportation Technical Supervision, Poland
 TNO – Netherlands Organisation for Applied Scientific Research, Netherlands
 Treibacher Industrie, Austria
 TRT Engineering, Germany
 TSI, Germany
 Umicore, Germany
 University of Manchester, UK
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 VANSTAR, Poland
 Warsaw University of Technology, Poland
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