



VIII INTERNATIONAL

CONGRESS ON COMBUSTION ENGINES

POLISH SCIENTIFIC SOCIETY
OF COMBUSTION ENGINES

17th-18th June 2019

HONORARY PATRONAGE



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FINAL PROGRAMME

CRACOW University of Technology

31-155 CRACOW, Warszawska 24 Street, POLAND

PTNSS – 2019

CONGRESS SCHEDULE

17.06.2019 Monday		18.06.2019 Tuesday	
8.00 – 9.00	REGISTRATION Congress Center („Działownia”), Conference Hall	9.00 – 11.30	PLENARY SESSION IV Fuel development and its impact on engine technology Congress Center („Działownia”), Congress Room 1/7 – 1/9
9.00 – 9.10	OPENING CEREMONY Congress Center („Działownia”), Congress Room 1/7 – 1/9		
9.10 – 11.10	PLENARY SESSION I Global LDV/HD exhaust emissions development Congress Center („Działownia”), Congress Room 1/7 – 1/9		
11.10 – 11.50	Coffee break	11.30 – 12.00	Coffee break
11.50 – 14.40	PLENARY SESSION II Powertrain technology development (light duty) Congress Center („Działownia”), Congress Room 1/7 – 1/9	12.00 – 14.30	PLENARY SESSION V Testing requirements/methodologies – impact on powertrain development Congress Center („Działownia”), Congress Room 1/7 – 1/9
14.40 – 15.30	LUNCH Catering tent	14.30 – 14.40	CLOSING CEREMONY Congress Center („Działownia”), Congress Room 1/7 – 1/9
15.30 – 18.30	PLENARY SESSION III Powertrain technology development (heavy duty & NRMM) Congress Center („Działownia”), Congress Room 1/7 – 1/9	14.40 – 15.30	LUNCH Catering tent
		For people who confirmed participation:	
20.00	Gala dinner Restaurant "Pałac Czeczotka" – Main Square (St. Anna 2 Str.)	16.00	Travel by bus from Congress Center
		17.00	A cruise to Tyniec on the Vistula from Bulwar Czerwieski
		19.00	Dinner in Restaurant “Tarasy Tynieckie” (Promowa 8 Str.)
		21.00 – 24.00	Return by bus to the city center

17th June 2019

Dear Friends and Colleagues,



On behalf of Polish Scientific Society of Combustion Engines (PTNSS) it is my pleasure to welcome you to the 8th INTERNATIONAL CONGRESS ON COMBUSTION ENGINES which will be held in Cracow, Poland on the 17th–18th of June 2019 and also it is my great privilege to act as PRESIDENT of the Congress.

I have the honor to offer you an exceptional technical programme including over 150 papers presented by top international experts. The Congress covers a wide range of topics in research fields such as design, manufacture, operation and ecological effects of internal combustion engines in the opinion of specialists from all over the world. The Congress also covers varied applications of combustion engines, including aviation and marine engines. This will be a great meeting, with expert engineers and researchers sharing their new ideas, inventions, and experience.

The attendees will gain knowledge in a wide variety of subjects related to combustion engines and will be able to enjoy, along with friends and family, the hospitality of the city of Cracow. There are plenty of comfortable hotels, restaurants and points of entertainment. The attendees will have the opportunity of visiting the country with a multitude of historical monuments and religious sites.

I hope you will enjoy the Congress while meeting old friends and making new ones.

Yours sincerely,

Prof. Jerzy Merkisz

A handwritten signature in dark ink, consisting of a stylized 'J' and 'M' followed by a long, sweeping horizontal stroke.

*President of PTNSS
President of 2019 PTNSS Congress*

HONORARY COMMITTEE OF THE CONFERENCE

Jan Kazior	Rector of Cracow University of Technology, Poland
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Piotr	Bielaczyc	Congress Vice-Chairman for Foreign Participants
Zdzisław	Stelmasiak	Congress Vice-Chairman for Science
Antoni	Świątek	Congress Vice-Chairman for Industry Exhibition
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Dariusz	Pietras	Secretary for Organisation and Science
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SESSIONS SCHEDULE

Monday – 17th June 2019

9.00 – 9.10 Opening Ceremony

9.10 – 11.10 Plenary Session I
Global LDV/HD exhaust emissions development

Chairman: Les Hill (Horiba, UK) & Piotr Bielaczyc (BOSMAL, Poland)

9.10-9.40	Les HILL Horiba, UK	GLOBAL TRENDS IN EMISSIONS LEGISLATION
9.40-10.10	Piotr BIELACZYC BOSMAL Automotive R&D Institute Ltd, Poland	GLOBAL TRENDS IN VEHICULAR EMISSIONS REGULATIONS, CURRENT “HOT TOPICS” AND THEIR IMPACT ON POWERTRAIN TECHNOLOGY – INTRODUCTION TO THE SUBJECT
10.10-10.40	Victor VALVERDE- MORALES European Commission, JRC, Italy	OVERVIEW OF THE LIGHT-DUTY VEHICLES TAILPIPE EMISSIONS REGULATIONS IN THE EU: CURRENT STATUS AND UPCOMING TYPE-APPROVAL AND MARKET SURVEILLANCE SCHEMA
10.40-11.10	Ameya JOSHI Corning, USA	OVERVIEW OF TECHNOLOGIES FOR NEAR-ZERO TAILPIPE EMISSIONS FROM LIGHT- AND HEAVY-DUTY VEHICLES

11.10 – 11.50 Coffee Break

11.50 – 14.40 Plenary Session II
Powertrain technology development (light duty)

Chairman: Luciano Rolando (Politecnico Torino, Italy) & Andrzej Teodorczyk (WUT, Poland)

11.50-12.10	Jerzy MERKISZ Poznan University of Technology, Poland	DEVELOPMENT TRENDS IN ROAD TRANSPORT POWERTRAINS
12.10-12.40	Hubert FRIEDL AVL, Austria	HIGHEST EFFICIENCY AND ULTRA-LOW EMISSION – INTERNAL COMBUSTION ENGINE 4.0 FOR NEXT DECADE
12.40-13.10	Marcos Alonso BAEZ Nissan Technical Centre, Spain	INVESTIGATION OF THE MECHANISM OF THE SOOT IN OIL CONTAMINATION: OVERTAKING THE LIMITS OF THE COMBUSTION
13.10-13.40	Kurt ENGELJEHRINGER AVL, Austria	LIGHT DUTY VEHICLE POLLUTANT AND CO ₂ EMISSION CHALLENGE – FROM LEGISLATION REQUIREMENTS TO TESTBED REALITY
13.40-14.10	Steve WHELAN Phil ROBERTS Horiba Mira Ltd, UK	MEETING THE DEMANDS OF FUTURE POWERTRAIN TEST & DEVELOPMENT WITH AN INTEGRATED RDE+ ROAD-TO- RIG APPROACH
14.10-14.40	Luciano ROLANDO Alessandro ZANELLI Federico MILLO Politecnico di Torino, Italy	POTENTIAL OF ELECTRIC SUPERCHARGING FOR PERFORMANCE AND FUEL ECONOMY ENHANCEMENT OF PASSENGER CAR GASOLINE ENGINES

14.40 – 15.30 Lunch

15.30 – 18.30 Plenary Session III
Powertrain technology development (heavy duty & NRMM)

Chairman: Adolfo Perujo (JRC, Italy) & Mirosław Wendeker (LUT, Poland)

15.30-16.00	Adolfo PERUJO Pierre BONNEL Roberto GIORIA Barouch GIECHASKIEL <i>European Commission,</i> <i>JRC, Italy</i>	LARGE AND SMALL ENGINES: OVERVIEW OF THE HEAVY-DUTY VEHICLES AND NON-ROAD MOBILE MACHINERY TAILPIPE EMISSIONS REGULATIONS IN THE EU
16.00-16.30	Yuzo AOYAGI <i>Okayama</i> <i>University/New A.C.E.</i> <i>Institute Co., Ltd., Japan</i>	EFFECTIVE NO_x AND PM REDUCTION BY MEANS OF FLAME TEMPERATURE MEASUREMENT IN A SINGLE CYLINDER DIESEL ENGINE
16.30-17.00	Kohei NAKASHIMA Yosuke UCHIYAMA <i>Meijo University, Japan</i>	EXPERIMENTAL DEVELOPMENT OF APPARATUS TO MEASURE PISTON ASSEMBLY FRICTION IN AN ECO-MILEAGE VEHICLE ENGINE
17.00-17.30	Stefano GOLINI <i>CNH Industrial, Italy</i>	NG ENGINES AS A MEANS FOR AN INCREASINGLY SUSTAINABLE POWERTRAIN
17.30-18.00	Toni KINNUNEN <i>Proventia, Finland</i>	ENGINE-INTEGRATED OFF-ROAD STAGE-V AFTERTREATMENT SYSTEM
18.00-18.30	Joachim DEPPE <i>LaVision GmbH,</i> <i>Germany</i>	TURN-KEY „INSPEX” SYSTEMS FOR INDUSTRIES TO QUANTIFY OPTICALLY SPRAY & COMBUSTION PHENOMENA AND TO ANALYZE MATERIAL CHARACTERISTICS BY DIC

Tuesday – 18th June 2019

9.00 – 11.30 Plenary Session IV
Fuel development and its impact on engine technology

Chairman: Chris Kolodziej (ANL, USA) & Krzysztof Wislocki (PUT, Poland)

9.00-9.30	Christopher KOŁODZIEJ Toby ROCKSTROH Alexander HOTH Jorge PULPEIRO Ashish SHAH Stephan SCHNEIDER <i>Argonne National Laboratory, USA</i>	GASOLINE COMPOSITION EFFECTS ON KNOCKING CHARACTERISTICS BETWEEN THE CFR RON TEST ENGINE AND A MODERN GDI ENGINE
9.30-10.00	Tadeu Cordeiro de MELO Heleneia Oliveira GOMES Marcia Figueiredo MOREIRA Pedro Caffaro VICENTINI <i>Petrobras, Brazil</i>	INFLUENCE OF BIODIESEL BLENDS ON THE EMISSIONS OF DIFFERENT ENGINE TECHNOLOGIES
10.00-10.30	Cecile PERA <i>Convergent Science, Austria</i>	HOW ENGINE TECHNOLOGY AND FUEL PROPERTIES CAN BE OPTIMISED THANKS TO CFD
10.30-11.00	Hu LI Yanlong WU Gordon ANDREWS <i>University of Leeds, UK</i>	COMBUSTION AND EMISSIONS OF ALTERNATIVE FUELS IN A DIESEL ENGINE
11.00-11.30	Yuri KROYAN Michal WOJCIESZYK Martti LARMI Ossi KAARIO <i>Aalto University, Finland</i>	MODELING THE EFFECT OF FUEL PROPERTIES ON END-USE ENGINE PERFORMANCE

11.30 – 12.00 Coffee Break

12.00 – 14.30 Plenary Session V
Testing requirements/methodologies – impact on powertrain development

Chairman: David Miller (3DATX, USA) & Pawel Fuc (PUT, Poland)

12.00-12.30	Matthew BERRY, David MILLER <i>3DATX, USA</i>	THE DEMOCRATIZATION OF VEHICLE EMISSIONS TESTING
12.30-13.00	Xin WANG <i>Beijing Institute of Technology, China</i>	RDE REGULATION AND PRACTICE IN CHINA
13.00-13.30	Daisy THOMAS, Hu LI Xin WANG, Karl ROPKINS Chris BANNISTER, Allen COX Alison TOMLIN <i>University of Leeds, UK</i>	TAILPIPE EXHAUST PARTICLE SIZE DISTRIBUTION FROM A HYBRID CAR
13.30-14.00	Maciej JASKIERNIK Konrad BUCZEK Jędrzej WALKOWIAK <i>FEV, Poland/Germany</i>	SIMULATION OF THE OIL SUPPLY THROUGH THE CONNECTING ROD TO THE PISTON COOLING CHANNELS IN MEDIUM SPEED ENGINES
14.00-14.30	Lucia BUSTIN <i>TSI, Germany</i>	VARIABLE PARTIAL FLOW DILUTION AND CONDITIONING SYSTEM FOR TSI ENGINE EXHAUST PARTICLE SIZER

14.30 – 14.40 Closing Remarks

14.40 – 15.30 Lunch

CONGRESS LOCATION AND TRAVEL DETAILS

The proceedings of the Congress will be held in the Cracow University of Technology.

Address location: **Warszawska 24 Str., 31-155 Cracow, POLAND.**

The campus of Cracow University of Technology (Congress Centre) is located at a distance of 800 m from the railway station (passage by Cracow Gallery – Pawia Str. – Warszawska Str.) – **fig. 1.**

Details of the travel:

- **Train communication to Cracow:**

- direct links are available from various cities of Poland,
- for more detailed information on train connection please visit: <http://www.pkp.com.pl>.

- **Taxi in Cracow:**

- | | | |
|-----------------------|--------|--------------|
| – Radio Taxi Barbakan | 196 61 | 609 400 400 |
| – Mega Taxi | 196 25 | 124 000 000 |
| – Radio Taxi 919 | 191 91 | 12 419 00 00 |
| – Radio Taxi Krak | 196 65 | 12 267 67 67 |
| – Radio Taxi Wawel | 196 66 | 12 266 66 66 |
| – iCar Taxi | | 12 653 55 55 |

- **How to get to the Congress Center:**

From the Airport Balice to Congress Center:

- Bus line 208 (bus stop Kraków Główny),
- Koleje Małopolskie KLM (Kraków Główny).

From the Railway station to:

- Congress Center: tram lines 5, 19, 50 (tram stop Politechnika).

From the selected hotels:

- Hotel Ibis Stare Miasto and Ibis Budget: on foot (170 m distance),
- Old Time Hotel: on foot (600 m distance),
- Hotel Atrium: on foot (750 m distance),
- Hotel Delta: bus lines 179, 192, 501, 511 (bus stop Politechnika),
- Hotel Lavender: on foot (750 m distance),
- Corner Hotel: on foot (650 m distance),
- Art & Garden Residence: bus lines 179, 192, 501, 511 (bus stop Politechnika),
- Dizzy Daisy Downtown Hostel: on foot (600 m distance),
- Aparthotel W Pałacu: on foot (450 m distance),
- Leo Aparthotel Old Town: bus lines 130, 179, 192, 501, 511 (bus stop Politechnika),
- Aparthotel Pergamin: on foot (800 m distance).

- **Gala dinner on 17th June 2019:**

The event will be located at the Restaurant “Pałac Czeczotki” (St. Anna 2 Str.) – **fig. 3.**

- **Dinner on 18th June 2019:**

The event will be located at the Restaurant “Tarasy Tynieckie” (Promowa 8 Str.).

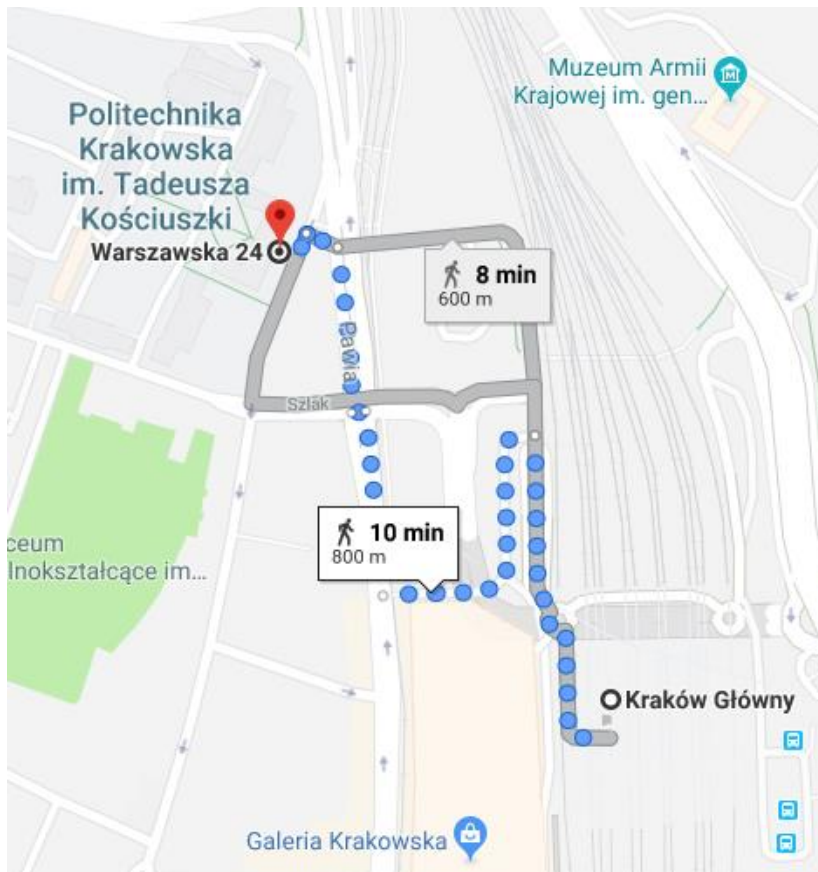


Fig. 1. Way to the Congress Centre from the railway station



Fig. 2. The situation plan of the Congress Centre.

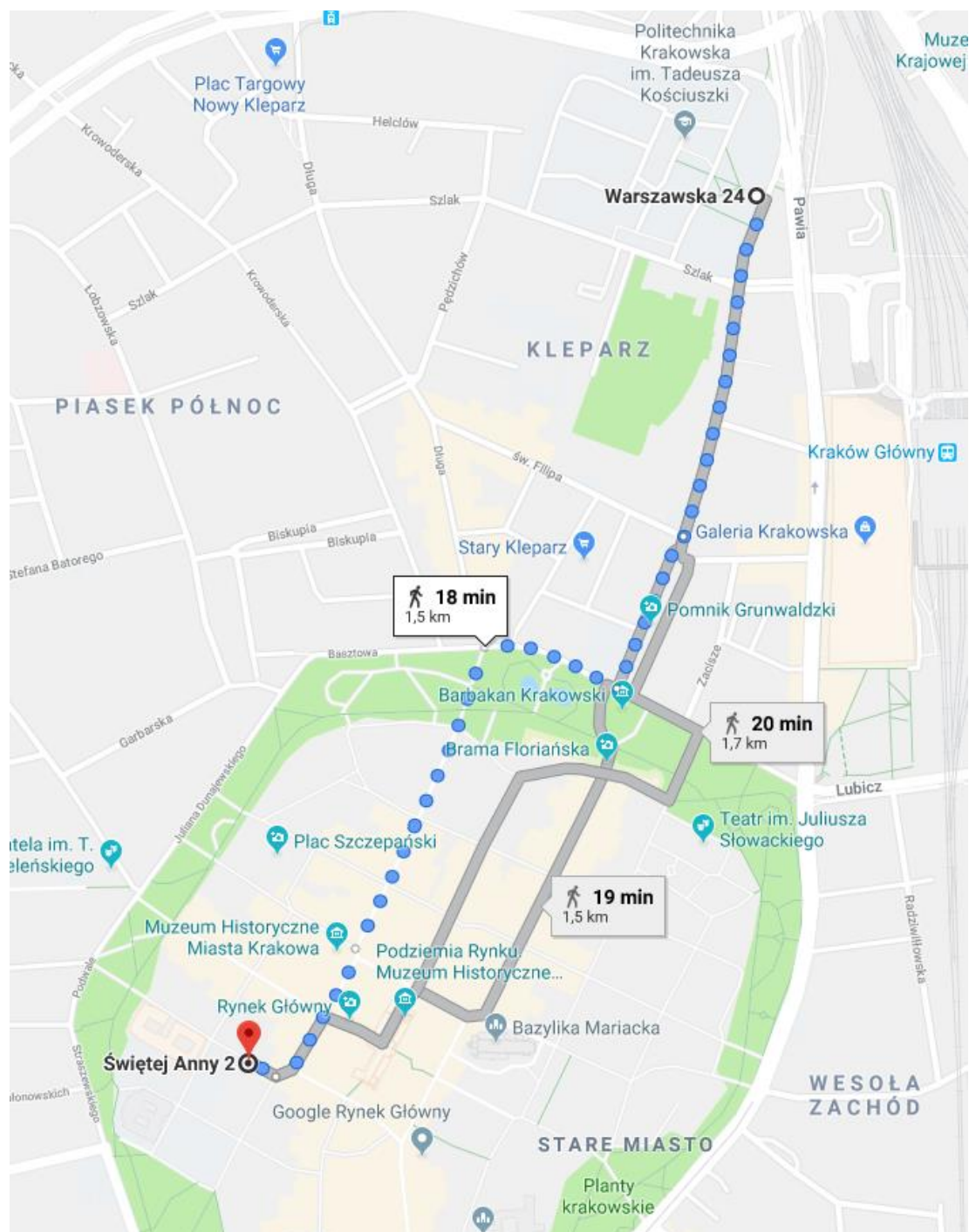


Fig. 3. Way to Restaurant “Palac Czeczotki” from the Congress Centre

