

INTERNATIONAL CONFERENCE ON TURBOCHARGERS AND TURBOCHARGING ASIA PACIFIC 2019

Institution of
**MECHANICAL
ENGINEERS**

12 PDUs approved by
Professional Engineers Board (PEB)

8–9 May 2019

PARKROYAL on Beach Road Singapore,
Singapore

Powertrain Systems and Fuels Group
Conference

KEY SPEAKERS INCLUDE:

Carl William Burrell, Chief Designer – Concept Engines
Geely Powertrain Research Institute

Peter Davies, Senior Director Powertrain
Garrett - Advancing Motion

Koen Kramer, Chief Engineer Turbocharger Department
Great Wall Motors Engine R&D

Azmi Osman, Head of Advanced Engineering
Proton

Calogero Avola, Senior Technology System Engineer
General Motors



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THE ASIA PACIFIC AUTOMOTIVE TURBOCHARGER MARKET WILL POSE OVER 8% CAGR BETWEEN 2017 AND 2024 OWING TO TIGHTENING FUEL ECONOMY TARGETS ACROSS ASIA

With this in mind, 2019 will see the Institution of Mechanical Engineers hold the inaugural conference on Turbochargers and Turbocharging Asia Pacific in Singapore. Attend to hear how leading OEMs in this region are preparing for the future of the turbocharging market, reflecting the growth of the hybrid and electric vehicle market and regulatory changes.

Featuring speakers from China, Japan, Malaysia, Singapore and Europe, this is a key forum to discuss the different technical developments and solutions to manage common engineering challenges.

Gain insight into the latest turbocharger design trends and research into turbocharger components, together with state-of-the-art performance testing and heat recovery systems to enhance your powertrain systems.

Network and discuss the future of the turbocharger including e-boosting with representatives from automotive and turbocharger manufacturers, research organisations and testing and design solution providers.

KEY PROGRAMME HIGHLIGHTS:

- **Garrett- Advancing Motion** provide a technical presentation of their electrified turbocharger and latest applications
- **Lloyd's Register** give a classification society view of turbochargers for the marine industry
- **IHI Corporation** outline the next generation of variable geometry turbochargers
- **IAVF Karlsruhe** share ways to improve turbocharger performance and durability when oil specification and duty cycles are changing
- **MHI Engine & Turbocharger Ltd.** cover their two-stage boosting system using a 48 volt electric compressor

WHAT TO EXPECT IN 2019:

- **17+ hours of technical presentations** with opportunities for questions to the speaker panel
- **20 presenting authors from 19 companies** including 4 keynote addresses
- **8 pioneering automotive OEMs** share latest developments, including **Geely, Great Wall Motors, Proton, Honda and General Motors**
- **Benefit from an international panel** of speakers across the region
- **9+ hours of networking time**
- **Peer reviewed** by industry experts and academic thought leaders
- **Build your network of contacts** and meet representatives and researchers

ORGANISING/ADVISORY COMMITTEE:

Powertrain Systems and Fuels Group
Institution of Mechanical Engineers

MEMBERS CREDITS:

Ricardo Martinez-
Botas
Imperial College

Kian Banisoleiman
**Lloyd's Register
EMEA**

Ennio Codan
ABB

Nathan McArdle
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Michael Dolton
**Cummins Turbo
Technologies**

Takashi Mori
IHI Corporation

Peter Davies
**Garrett-Advancing
Motion**

Takahiro Bamba
IHI Corporation

Dietmar Filsinger
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Engine Europe B.V.**

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**Shanghai Jiao Tong
University**

Takashi Otobe
Honda R&D

PROGRAMME

WEDNESDAY 8TH MAY 2019	
08:30	REGISTRATION AND REFRESHMENTS
09:00	CHAIR'S OPENING REMARKS Dietmar Filsinger, Engineering Division, IHI Charging Systems International GmbH
LATEST TURBOCHARGER DESIGNS FOR GREATER EFFICIENCY	
09:10 Keynote	ROLE OF TURBOCHARGERS WITHIN NEXT GENERATION PASSENGER CAR POWER GENERATION PRODUCTS Carl William Burrell, Chief Designer – Concept Engines, Geely Powertrain Research Institute
09:40	THE NEXT GENERATION OF VARIABLE GEOMETRY TURBOCHARGERS FROM IHI Kenichi Segawa, Manager, Product Development Group, IHI Corporation
10:05	HOW TO IMPROVE TURBOCHARGER PERFORMANCE AND DURABILITY WHEN OIL SPECIFICATION AND DUTY CYCLES ARE CHANGING Kurt Kirsten, Head of Advanced Engineering and Innovation, APL Group and Andreas Jäger, Officer, IAVF Karlsruhe
10:30	QUESTIONS AND ANSWERS SESSION
10:45	NETWORKING REFRESHMENT BREAK
CUTTING-EDGE TURBOCHARGER COMPONENT DESIGN	
11:15	OPTIMISATION OF RADIAL-INFLOW TURBOEXPANDERS FOR MOBILE ORGANIC RANKINE CYCLE (ORC) APPLICATIONS Miles Robertson, Research Associate in the Turbo Group, Imperial College London
11:40	AERODYNAMIC OPTIMISATION OF COMPRESSORS AND TURBINES FOR ENGINE BOOSTING Chris Robinson, Managing Director, PCA Engineers
12:05	UNSTEADY RESPONSE OF CENTRIFUGAL COMPRESSOR PERFORMANCE TO PULSATING BACKPRESSURE Mingyang Yang, Associate Professor in Mechanical Engineering School, Shanghai Jiao Tong University
12:30	GRADIENT-FREE AND GRADIENT-BASED OPTIMISATION FOR AUTOMOTIVE TURBOCHARGER Tadashi Kanzaka, Senior Researcher, MHI
12:55	QUESTIONS AND ANSWERS SESSION
13:15	NETWORKING LUNCH
14:15 Afternoon Keynote	OPPORTUNITIES IN TAILORED DESIGN OF DIESEL ENGINE CHARGING SYSTEMS Calogero Avola, Senior Technology System Engineer, General Motors
STATE-OF-THE-ART PERFORMANCE MEASUREMENT TESTING AND ANALYSIS	
14:45	RELIABILITY TRENDS, OPERATING ISSUES AND ACCEPTANCE CRITERIA RELATED TO EXHAUST GAS TURBOCHARGERS USED IN THE MARINE INDUSTRY: A CLASSIFICATION SOCIETY VIEW Kian Banisoleiman, Lead Specialist, Lloyd's Register
15:10	EXPERIMENTAL AND COMPUTATIONAL OUTLOOK FOR COMPONENT-TO-SYSTEM LEVEL TURBOCHARGER PERFORMANCE ASSESSMENTS Srithar Rajoo, Director, UTM Centre for Low Carbon Transport
15:35	QUESTIONS AND ANSWERS SESSION
15:50	NETWORKING REFRESHMENT BREAK
16:20	MECHANICAL DEVELOPMENT OF TURBOCHARGERS USING "VIRTUAL TURBOCHARGER" Mustafa Duyar, Product Manager, Virtual Dynamics, FEV Software and Testing Solutions
16:45	QUESTIONS AND ANSWERS SESSION
16:50 Panel discussion	THE CHALLENGE OF MEETING FUEL ECONOMY TARGETS AND HOW TO GET THERE <ul style="list-style-type: none"> How can the industry as a whole work together to meet the new fuel economy targets in Asia? How can turbochargers be designed to meet these targets? How can we manage the impact of China VI combining emissions and fuel consumption targets?
17:20	CHAIR'S CLOSING REMARKS
17:30	END OF DAY ONE

PROGRAMME

THURSDAY 9TH MAY 2019	
08:30	REGISTRATION AND REFRESHMENTS
	THE FUTURE OF THE TURBOCHARGER WITH THE GROWTH OF FUEL CELLS
09:10 Keynote	THE CHALLENGE OF FUEL CELL COMPRESSOR DEVELOPMENT Koen Kramer, Chief Engineer Turbocharger Department, Great Wall Motors Engine R&D
09:40	AIR SUPPLY SYSTEM FOR HONDA FUEL CELL VEHICLE Tatsuya Sugawara, Assistant Chief Engineer, Honda
10:05	RESEARCH ON KEY TECHNOLOGIES OF ELECTRIC TURBO COMPRESSOR FOR FUEL CELL ENGINES Weilin Zhuge, Associate Professor, Department of Automotive Engineering, Tsinghua University
10:30	QUESTION AND ANSWER SESSION
10:45	NETWORKING REFRESHMENT BREAK
	DEVELOPMENTS IN ELECTRICALLY ASSISTED TURBOCHARGING
11:15	TWO STAGE BOOSTING SYSTEM USING A 48 VOLT ELECTRIC COMPRESSOR Naomichi Shibata, Senior Engineer, Turbocharger Division, MHI Engine & Turbocharger Ltd.
11:40	ELECTRICALLY ASSISTED TURBOCHARGING AND HYBRID TURBOCHARGERS Peter Davies, Senior Director Powertrain, Garrett - Advancing Motion
12:05	QUESTION AND ANSWER SESSION
12:20	NETWORKING LUNCH
	METHODS TO IMPROVE THE DURABILITY AND PERFORMANCE OF THE TURBOCHARGER
13:20 Afternoon Keynote	RECENT PROGRESS IN SIMPLIFIED SPLIT COOLING WITH INTEGRATED HEAT RECOVERY AND REUSE Azmi Osman, Head of Advanced Engineering, Proton
13:45	MULTI-INJECTION TURBINE HOUSING: AN EXPERIMENTAL VALIDATION FOR A NOVEL TIP-LEAKAGE MITIGATION CONCEPT Alessandro Romagnoli, Assistant Professor, Nanyang Technological University
14:10	QUESTION AND ANSWER SESSION
14:20	NETWORKING REFRESHMENT BREAK
14:50	TURBINE RESEARCH UPDATE Tatsuya Kuboyama, Associate Professor, Chiba University
15:15 Panel Discussion	THE FUTURE OF BOOSTING SYSTEMS IN LIGHT OF THE ELECTRICAL REVOLUTION Panellists: Koen Kramer, Chief Engineer Turbocharger Department, Great Wall Motors Engine R&D Peter Davies, Senior Director Powertrain, Garrett - Advancing Motion Weilin Zhuge, Associate Professor, Department of Automotive Engineering, Tsinghua University <ul style="list-style-type: none"> • How can we manage the impact the future hybrid technologies will have on the adoption of the turbocharger? • What support is needed for the hybrid car market? • How can the turbocharger be incorporated into the electrical revolution?
16:25	CHAIR'S CLOSING REMARKS
16:30	END OF CONFERENCE

For the most up-to-date and detailed programme for the event, please visit:
www.imeche.org/turboasia

- This programme is subject to change.
- The Institution is not responsible for the views or opinions expressed by individual speakers.

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**TERMS AND
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APPLY**

FEEDBACK FROM 13TH INTERNATIONAL CONFERENCE ON TURBOCHARGERS AND TURBOCHARGING CONFERENCE:

"THANKS FOR THE GREAT EVENT!"

Chief Engineer, Great Wall Motors Engine R&D

"EXCELLENT ENVIRONMENT TO SEE THE TURBOCHARGING INDUSTRY AT WORK"

Technical Director, National Laboratory of Engine Turbocharging Technology, China

"THOROUGHLY ENJOYED THE EVENT, IT WAS VERY WELL PUT TOGETHER WITH A GOOD REPRESENTATION OF MANUFACTURERS, ACADEMICS, TECHNOLOGY COMPANIES. IT WAS TIME AND MONEY VERY WELL SPENT TO COME AWAY WITH GREAT IDEAS AND THE CONTACTS TO MAKE THEM HAPPEN."

Mazda Motor Corporation

WHO SHOULD ATTEND?

All engineers and professionals who are directly and indirectly involved with these technologies should attend, including:

- Research Associate
- Head of Design
- Applications Engineer
- Performance Engineer
- Components Engineer
- General Manager Engineering
- Sales and Marketing Manager
- Technical Specialist
- Development Engineer
- Simulation Engineer
- Powertrain specialist
- Powertrain Manager
- Principal Engineer
- Aerodynamics Engineer
- Mechanical Design Engineer
- Global Strategies Manager
- Turbocharging Development Engineer
- Programme Manager
- Performance Engineer
- Systems Engineer
- Aerodynamicist
- Data Systems Engineer
- Product Engineer
- Advanced Processing Engineer
- Research and Development Engineer

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HOW TO BOOK YOUR PLACE

FEES AND CHARGES

Registration fees include entry to the sessions, refreshments and a copy of the conference proceedings.

Delegate Type	STANDARD RATE
Member, IMechE/supporting organisation	£520 + VAT = £624
Non-member	£620 + VAT = £744
Student/Retired	£200 + VAT = £240
Networking Reception and Dinner	£30 + VAT = £36

THREE WAYS TO BOOK

- 1 Online:
www.imeche.org/turboasia
- 2 Email:
eventenquiries@imeche.org
- 3 Phone:
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Please read the information listed below as each booking is subject to the Institution's standard terms and conditions.

CONDITIONS OF BOOKING

Completed application forms should be returned to the address above, along with the correct payment. Attendance at the event will be confirmed on receipt of the full balance. All participants are advised to bring a copy of their confirmation with them on the day, to ensure the fastest possible entry.

SPECIAL REQUIREMENTS

Please inform us of any special requirements, ie dietary or access, on the relevant section of the booking form or email eventenquiries@imeche.org

Cancellation

For a refund (minus £25+VAT admin charge), cancellations must be received at least 30 days prior to the event. Replacement delegates are welcome at any time. The Institution reserves the right to cancel any event. In this case, the full fee will be refunded unless a mutually convenient transfer can be arranged. In the event that the Institution postpones an event for any reason and the delegate is unable or unwilling to attend

on the rescheduled date, they will receive a full refund of the fee paid. The Institution is not responsible for any loss or damage as a result of a substitution, alteration or cancellation/postponement of an event. The Institution shall assume no liability whatsoever if this event is cancelled, rescheduled or postponed due to a fortuitous event, Act of God, unforeseen occurrence or any other event that renders performance of this conference impracticable, illegal or impossible. For the purposes of this clause, a fortuitous event shall include, but not be limited to: war, fire, labour strike, extreme weather or other emergency.

Please note that while speakers and topics were confirmed at the time of publishing, circumstances beyond the control of the organisers may necessitate substitutions, alterations or cancellations of the speakers and/or topics. The Institution reserves the right to alter or modify the advertised speakers and/or topics if necessary without any liability to you whatsoever. Any substitutions or alterations will be updated on the event's webpage as soon as possible.

LIABILITY

The organisers do not accept liability for any injuries or losses of any nature incurred by delegates and/or accompanying persons, nor for loss or damage to their luggage and/or personal belongings.

CONFERENCE VENUE

PARKROYAL on Beach Road Singapore
7500 Beach Rd
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VEHICLE THERMAL MANAGEMENT SYSTEMS CONFERENCE AND EXHIBITION - VTMS 14

5-6 June 2019, London

The latest research and technological advances in the field of heat transfer, energy management, thermal comfort and the integration of all thermal systems within the vehicle.

www.imeche.org/vtms



INTERNAL COMBUSTION ENGINE AND POWERTRAIN SYSTEMS FOR FUTURE TRANSPORT

11 -12 December 2018, West Midlands

The 2019 conference will cover the key issues for the internal combustion engine market and reflect the impact of alternative powertrains on the propulsion industry.

www.imeche.org/icengines

The Institution of Mechanical Engineers organises over 120 events a year, including free-to-attend lectures as well as conferences, seminars, annual luncheons and dinners. Please visit www.imeche.org/events for the complete list of events.

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