

FINAL PROGRAMME



UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA



GENERALITAT
VALENCIANA



WELCOME BY THE RECTOR OF UPV

It is a great honour to welcome you to the **12th Edition of the THIESEL Conference on Thermo-and Fluid Dynamics of Clean Propulsion Powerplants**. As our longing for a return to normality makes its way through steadily, this is the first post-pandemic edition of one of the most renowned conferences on this subject, a proof of how science and human ingenuity can turn the perspectives even in the most challenging situations.

Not only the pandemic, but the risks and threats that geo-political events pose, have speeded up the pace of a steady change towards more sustainable propulsion systems, and not deepening our dependence on fossil fuels will make our societies more sustainable and more resilient, bringing, in the long term, a higher level of wellbeing and freedom. Results from this conference, and its shift towards topics like decarbonisation, hydrogen, and electric mobility, will show the road map to follow, where an entrenched ecosystem of universities, research institutions and companies will make the change we all crave to achieve a sustainable future.

CMT is not only a reference in its field, but one of the most productive institutes, in terms of research and industry cooperation, in our university. Therefore, I can only thank them, and the THIESEL 2022 organisers for taking the responsibility of making possible a new edition of this event.

I wish you the highest success for this conference and that you make the most of your visit to our university, an institution where technology, engineering, arts and business meet, and the highest standards of research and industry collaboration are in place.

José E. Capilla
Rector

OVERVIEW AND OBJECTIVES

THIESEL 2022, the twelfth edition of this biennial conference, will mark a turning point in its history. Throughout the years, the conference has gained in visibility because it has adapted its topics to the changing conditions imposed by pollutant regulations, with a first significant change in 2012 to include DI gasoline engines. However, it has become clear that the electrification of automobiles is displacing the thermal engine from its primary role, as this is one more component of hybridized powertrains. And this major change will be reflected in the new direction taken for THIESEL 2022, first through a totally renewed Steering and Organizing Committee and, second, with a renewed name to include the complete propulsion system. However, the first part of the conference title does not change, thereby bringing continuity to the conference topics.

The focus of THIESEL 2022 will still be on the thermo-and fluid dynamic processes but adapted to include thermal and noise challenges in electric components, energy optimization in the global electrified propulsion system, new injection/combustion concepts based on hydrogen, ammonia, renewable-fuels and not excluding any other clean propulsion approach.

Since research in all these areas is in full swing, the aim of the THIESEL 2022 Conference is to facilitate the exchange of ideas and experiences between Industry, Universities and Research Centres, as well as to create a discussion forum for the most recent advances and for the identification of future lines of research.

LIST OF CONTENTS

- 4 Committees
- 5 Session matrix
- 6 Tuesday 13th September
- 6 Wednesday 14th September
- 8 Thursday 15th September
- 10 Friday 16th September
- 11 Poster sessions
- 12 Conference exhibition
- 13 Conference location
- 14 Registration to conference
- 14 Accommodation
- 15 How to reach Valencia
- 15 About Valencia

COMMITTEES

STEERING COMMITTEE

Prof. Raúl Payri

CMT. Universitat Politècnica de València - SPAIN

Prof. José Ramón Serrano

CMT. Universitat Politècnica de València - SPAIN

Prof. Choongsik Bae

KAIST - KOREA

Prof. Thomas Koch

IFKM. Karlsruher Institut für Technologie - GERMANY

Prof. Jiro Senda

Doshisha University - JAPAN

Dr. Christian Angelberger

IFP Energies Nouvelles - FRANCE

Dr. Paul Miles

Sandia National Laboratories - USA

Dr. Jim Szybist

Oak Ridge National Laboratory - USA

CONFERENCE COORDINATOR

Dr. Xandra Margot

CMT. Universitat Politècnica de València - SPAIN

LOCAL ORGANISING COMMITTEE

CMT. Universitat Politècnica de València - SPAIN

Prof. Alberto Broatch

Dr. Antonio García

Dr. Xandra Margot

Dr. Ricardo Novella

Dr. Pedro Piqueras

Dr. Benjamín Plá

ADVISORY AND SCIENTIFIC COMMITTEE

Dr. Philipp Adomeit. FEV - Germany

Dr. Rosario Ballesteros. UCLM Ciudad Real - Spain

Dr. Chris Bitsis. Southwest Research Institute - USA

Dr. Tristan Burton - Convergent Science - USA

Dr. Aaron Costall. University of Bath - UK

Dr. Gabin Dober. BorgWarner - Luxembourg

Prof. Pilar Dorado. Universidad de Córdoba - Spain

Dr. Georgios Fontaras. European Commission Joint Research Centre - Italy

Prof. Jinwu Gao. Jilin University - China

Dr. M. Reyes García Contreras. UCLM Toledo - Spain

Prof. Avelina García García. Universidad de Alicante - Spain

Mr. Victor Gordillo. Aramco Overseas Company - France

Dr. Stéphane Guilain. Renault - France

Prof. Viktor Hacker. T.U. Graz - Austria

Dr. Takeshi Hashizume. Toyota - Japan

Dr. Ameya Joshi. Corning Inc. - USA

Prof. Grigoris Koltsakis. Aristotle University Thessaloniki - Greece

Prof. Federico Millo. Politecnico di Torino - Italy

Prof. Eiichi Murase. Kyushu University - Japan

Dr. Omar Noshin. ABEE Group - Belgium

Prof. Hideyuki Ogawa. Hokkaido University - Japan

Prof. Angelo Onorati. Politecnico di Milano - Italy

Dr. Robert Plank. Horiba Europe - Germany

Mr. Alain Raposo. Hyundai Motor Company - France

Prof. Guillermo Rein. Imperial College London - UK

Prof. Giorgio Rizzoni. Ohio State University - USA

Prof. Christine Rousselle. Université d'Orléans - France

Dr. Antonio Sciarretta. IFP Energies Nouvelles - France

Dr. P. Kelly Senecal. Convergent Science - USA

Prof. Tielong Shen. Sophia University - Japan

Prof. Athanasios Tsolakis. University of Birmingham - UK

Dr. Bianca Vaglieco. CNR-STEMS - Italy

Dr. Olivier Varnier. Jaguar Land Rover - UK

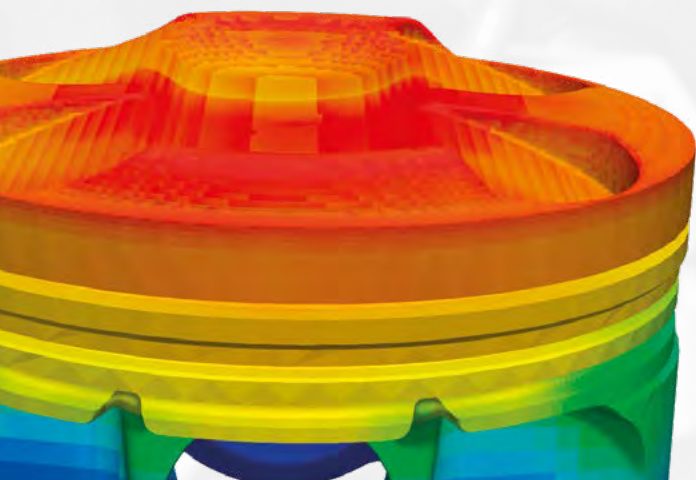
Dr. Alberto Vassallo. Punch Torino - Italy

Dr. Timothy Watling. Johnson Matthey - UK

Prof. Margaret Wooldridge. University of Michigan - USA

Dr. Yahui Zhang. Yanshan University - China

Dr. Peng Zhao. University of Tennessee - USA



SESSION MATRIX

TUESDAY, 13 TH SEPT.	WEDNESDAY, 14 TH SEPT.	THURSDAY, 15 TH SEPT.	FRIDAY, 16 TH SEPT.
	7:30- 8:30 CONFERENCE REGISTRATION	8:00- 8:30 CONFERENCE REGISTRATION	8:00- 8:30 CONFERENCE REGISTRATION
	8:30-10:15 SESSION S1.1 ECOFUELS: NH ₃ -BASED FUELS	8:30-10:15 SESSION S2.1 THERMAL MANAGEMENT	8:30-10:15 SESSION S3.1 ADVANCED POWERTRAIN
	10:15-10:45 COFFEE BREAK		
	10:45-12:50 SESSION S1.2 ECOFUELS: BIOFUELS	10:45-12:50 SESSION S2.2 FUEL INJECTION AND SPRAYS	10:45-12:50 SESSION S3.2 ADVANCES FOR ULTRA-EFFICIENT ICEs
	12:50-15:30 LUNCH		
	14:00-15:30 POSTER SESSION (1)	14:00-15:30 POSTER SESSION (2)	14:00-15:30 POSTER SESSION (3)
	14:00-15:30 VISITS to CMT LABS + EXHIBITION PRESENTATIONS		
	15:30-16:50 SESSION S1.3 H ₂ - FUNDAMENTAL STUDIES	15:30-17:15 SESSION S2.3 ADVANCES TOWARDS ICE EMISSION REDUCTION	15:30-17:15 SESSION S3.3 ADVANCED POWERTRAIN CONTROL
	16:50-17:20 COFFEE BREAK		
	17:20-18:35	17:15-17:45 COFFEE BREAK	17:15-17:30 CONFERENCE CLOSURE
18:00-19:30 CONFERENCE REGISTRATION	SESSION S1.4 H ₂ - ICE EMISSIONS	17:45-19:00 SESSION S2.4 NEW CONCEPTS FOR ULTRA-EFFICIENT & CLEAN ICEs	
19:30-20:00 WELCOME ADDRESS			
20:00-21:30 WELCOME COCKTAIL			20:00 GALA DINNER

PROGRAMME

TUESDAY 13TH SEPTEMBER 2022

19:30-21:30 **Welcome address and cocktail**

José E. Capilla, UPV Rector
R. Payri, CMT-UPV, THIESEL 2022 Steering Committee
A. Orejas, Repsol Technology Lab: **Keynote 'Renewable fuels and its potentiality for transport decarbonization'**

WEDNESDAY 14TH SEPTEMBER 2022

S1.1 ECOFUELS: NH₃-BASED FUELS

Chair: Maximilian Brauer, IAV, Germany

8:30-9:00 **KEYNOTE LECTURE: Energizing mobility transition with low carbon synthetic fuels.**

Pierre-Olivier Calendini. Saudi Aramco, Saudi Arabia

9:00-9:25 **Performances and pollutant emissions of spark ignition engine using direct injection for blends of ethanol/ammonia and pure ammonia**

R. Pelé¹, P. Brequigny¹, J. Bellettre², C. Mounaïm-Rousselle¹

¹Université d'Orléans, France

²UMR Université de Nantes, France

9:25-9:50 **Effect of compression ratio and ignition energy on ammonia premixed combustion process in a single cylinder engine**

H. Won¹, D. Kumar¹, V. Morel¹, A. Mercier², C. Mounaïm-Rousselle², J. Bouriot³, S. Houille³, C. Dumand³

¹Aramco Overseas Company B.V. Rueil-Malmaison, France

²Université d'Orléans, France

³Stellantis – Centre Technique Velizy, France

9:50-10:15 **A study of flame dynamics and structure in premixed turbulent planar NH₃/H₂/air flames**

P. Tamadonfar, S. Karimkashi, O. Kaario, V. Vuorinen

Aalto University, Finland

10:15-10:45 **Coffee break**

S1.2 ECOFUELS: BIOFUELS

Chair: Timothy Shipp, Cummins, USA

10:45-11:10 **Performance and exhaust emissions of a Diesel engine fueled with pyrolytic oil from plastic wastes**

J. Tejada-Hernández, M. Carmona-Cabello, J.A. Serrano, S. Pinzi, M^a P. Dorado-Pérez

Universidad de Córdoba, Spain

11:10-11:35 **Design, vehicle testing and Life Cycle Analysis (LCA) of 100% renewable EN228 gasoline formulation**

C. Esarte, M.D. Cárdenas, R. Miravalles, J. Ariztegui

Repsol Technology Lab., Spain

11:35-12:00 **Numerical analysis of the combustion of Diesel, dimethyl ether, and polyoxymethylene dimethyl ethers (OMEn, n=1-3) using detailed chemistry**

T. Franken¹, V. Srivastava², S.Y. Lee², B. Heuser³, K.P. Shrestha¹, L. Seidel⁴, F. Mauß¹

¹BTU Cottbus-Senftenberg, Germany ³FEV Europe GmbH, Aachen, Germany

²RWTH Aachen University, Germany ⁴LOGE Deutschland GmbH, Germany

12:00-12:25 **Influence of fuel bound oxygen on soot mass and polyaromatic hydrocarbons during pyrolysis of ethanol, methyl acetate, acetone and diethyl ether**

Z.A. Khan¹, P. Hellier¹, N. Ladommatos¹, A.A. Almaleki²

¹University College London, UK

²King Abdulaziz City for Science and Technology, Saudi Arabia

12:25-12:50 **Characterization of waste cooking oil biodiesel as a low carbon fuel for direct injection Diesel engine**

O.A. Kuti¹, S. Bahmanisangesari¹, R. Gilmour¹, A. Albarbari¹, L. Qian¹, K. Nishida²

¹Manchester Metropolitan University, UK

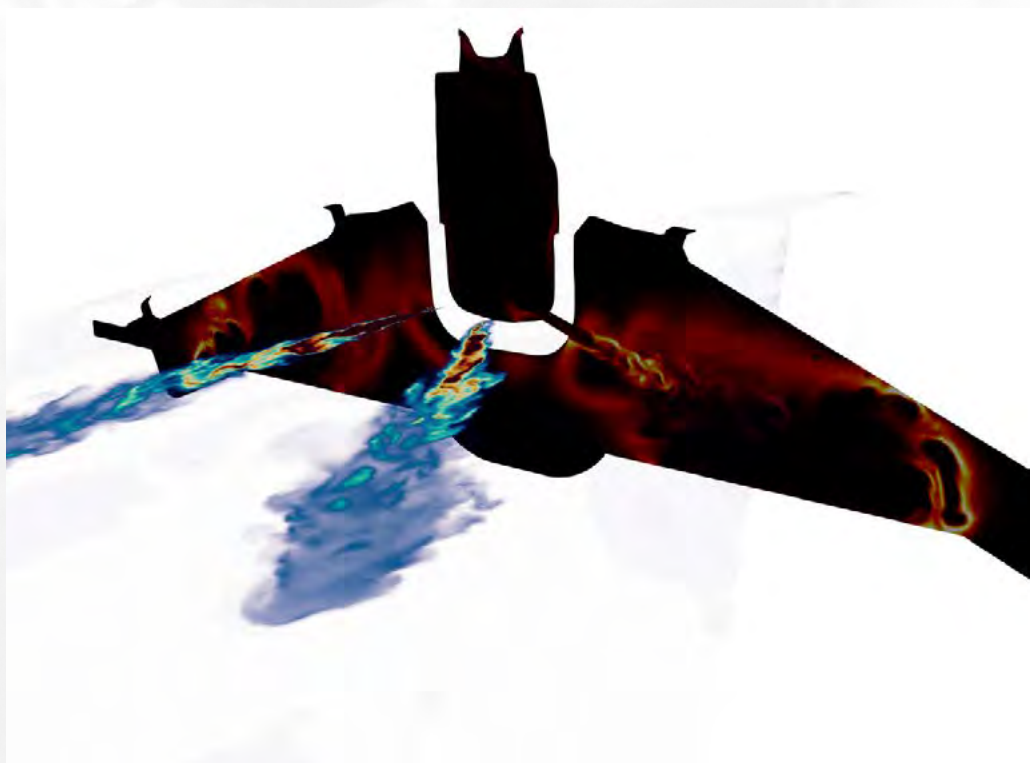
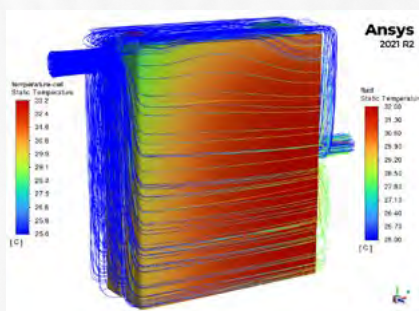
²Hiroshima University, Japan

WEDNESDAY 14TH SEPTEMBER 2022

12:50-15:30	Lunch	
14:00-15:30	Poster session / Commercial exhibition / Visit to CMT laboratories	
S1.3	H2 - FUNDAMENTAL STUDIES	Chair: Virginie Morel, Aramco Fuel Research Center, France
15:30-16:00	KEYNOTE LECTURE: Hydrogen as a new energy carrier – what does this mean for the future mobility? Robert Plank, Horiba Europe, Germany	
16:00-16:25	A fundamental investigation of premixed hydrogen oxycombustion in carbon dioxide N. Nasim, B. Nawaz, S.K. Das, A. SubLaban, J.H. Mack University of Massachusetts Lowell, USA	
16:25-16:50	Experimental investigation of hydrogen combustion in a single cylinder PFI engine L. Buzzi, V. Biasin, A. Galante, D. Gessaroli, F. Pesce, D. Tartarini, A. Vassallo, S. Scalabrini, N. Sacco, R. Rossi PUNCH Torino, Italy	
16:50-17:20	Coffee break	
S1.4	H2 - ICE EMISSIONS	Chair: Pascal Tribotté, Renault, France
17:20-17:45	Examining trade-offs between NO_x emissions and hydrogen slip for hydrogen combustion engines P. Atkins ¹ , N. Fox ¹ , A. Saroop ² , J. Hughes ² , Nicolas Coles ² , Trevor Downes ² , A. Thurston ³ ¹ University of Brighton, UK ² Ricardo Ltd., UK ³ Horiba United Kingdom, UK	
17:45-18:10	Emission behavior and aftertreatment of stationary and transient operated hydrogen engines S. Roiser, P. Christoforetti, E. Schutting, H. Eichlseder Technical University of Graz, Austria	
18:10-18:35	Hydrogen internal combustion engine: viable technology for carbon neutral mobility Y. H. Chi ¹ , B. S. Shin ¹ , S. Hoffmann ² , J. Ullrich ² , P. Adomeit ³ , J. Fryjan ³ , R. Drevet ⁴ ¹ Hyundai Motor Company, Korea ² Hyundai Motor Europe Technical Center GmbH, Germany ³ FEV Europe GmbH, Germany ⁴ BorgWarner France SAS, France	

IJER SPECIAL ISSUE

A selection of papers from THIESEL2022 will be published by the International Journal of Engine Research (IJER) in a special issue.



S2.1 THERMAL MANAGEMENT

Chair: Steven Pierson, Jaguar Land Rover, UK

8:30-9:00 **KEYNOTE LECTURE: Battery storage technology in future electrified vehicles.**

Noshin Omar. ABEE, Belgium

9:00- 9:25 **Computational investigation on radiation induced Li-ion battery thermal runaway**

L. Zhang¹, Y. Chen², H. Ge³, P. Zhao¹

¹University of Tennessee, USA

²A123 Systems, USA

³Texas Tech University, USA

9:25-9:50 **Battery system lumped thermal model for efficient temperature prediction**

H. Jang, B. Park, T. Kang, J. Yi, W. Kim

Hyundai Motor Company, Korea

9:50h-10:15 **Energy consumption of mobile air-conditioning systems in electrified vehicles under different ambient temperatures**

S. Gil-Sayas¹, G. Di Pierro², A. Tansini², S. Serra², D. Currò³, A. Broatch¹, G. Fontaras²

¹Universitat Politècnica de València, Spain

²European Commission's Joint Research Centre, Italy

³Piksel s.r.l. Milano, Italy

10:15-10:45 **Coffee break**

S2.2 FUEL INJECTION AND SPRAYS

Chair: Paul Miles, Sandia National Laboratories, USA

10:45-11:10 **Characterization of end of injection events for a high-pressure gasoline direct injection system in a constant volume chamber**

V. Chakrapani¹, J.E. Stolzman¹, E.S. Simoes², M. Medina², M. Wooldridge¹

¹University of Michigan, USA

²California State University, USA

11:10-11:35 **Measurement of needle and armature dynamics in a gasoline direct injector by high-speed neutron imaging**

M.L. Wissink, T.J. Toops, D.A. Splitter, E.J. Nafziger, C.E.A. Finney, H.Z. Bilheux, Y. Zhang

Oak Ridge National Laboratory, USA

11:35-12:00 **Investigation on effect of nozzle diameter and inclusion angle to combustion and emissions under high compression ratio heavy-duty Diesel engine**

K. Cung, C. Bitsis, M. Smith, T. Briggs

Southwest Research Institute San Antonio, USA

12:00-12:25 **Parametric evaluation of ducted fuel injection in an optically accessible mixing-controlled compression-ignition engine with two- and four-duct assemblies**

B.F. Yraguen¹, A.M. Steinberg¹, C.W. Nilsen², D.E. Biles², C.J. Mueller²

¹Georgia Institute of Technology, USA

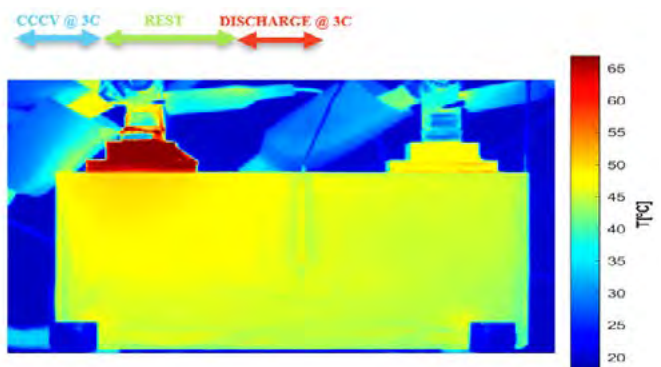
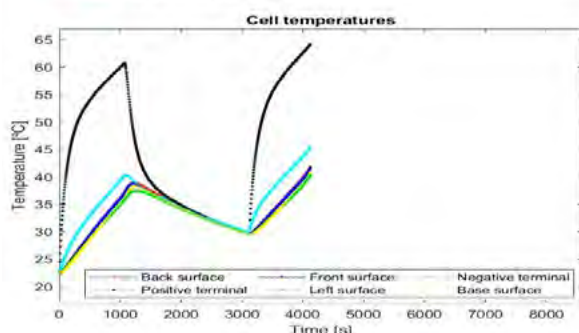
²Sandia National Laboratories, USA

12:25-12:50 **Computational analysis of ducted fuel injection at high-pressure transcritical conditions using large-eddy simulations**

J. Guo, W. T. Chung, M. Ihme

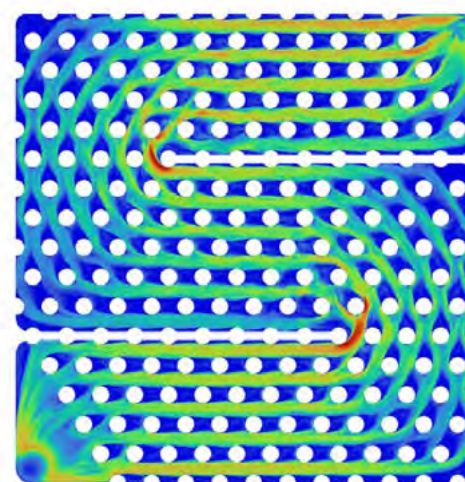
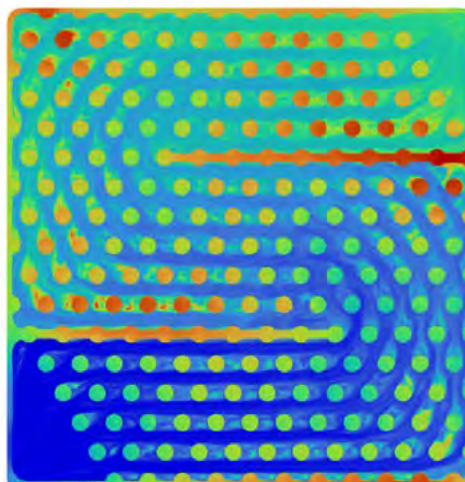
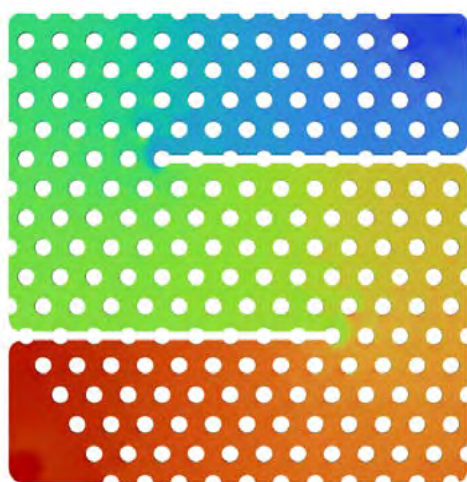
Stanford University, USA

3C capacity test



THURSDAY 15TH SEPTEMBER 2022

12:50-15:30	Lunch	
14:00-15:30	Poster session / Commercial exhibition / Visit to CMT laboratories	
S2.3	ADVANCES TOWARDS ICE EMISSION REDUCTION	Chair: Simon Edwards, Ricardo, Germany
15:30-16:00	KEYNOTE LECTURE: Pathways for near-zero emissions from the transportation sector – an overview of challenges and opportunities. Ameya Joshi. Corning Incorporated, USA.	
16:00-16:25	Experimental validation of laminar flame model for CH₄/Diesel dual fuel engine applied to H₂/Diesel combustion R. De Robbio ¹ , E. Mancaruso ¹ , B.M. Vaglieco ¹ , S. Artham ² , J. Martin ² ¹ STEMS – CNR, Italy ² Universitat Politècnica de València, Spain	
16:25-16:50	The impact of Diesel-hythane dual-fuel combustion on engine performance and emissions in a heavy-duty engine at low-load condition K. Longo, X. Wang, H. Zhao Brunel University London, UK	
16:50-17:15	Innovative Diesel piston geometries for soot emissions reduction and cleaner combustion: an optical investigation J.V. Pastor ¹ , C. Micó ¹ , F. Lewiski ¹ , F.J. Tejada ¹ , A. Vassallo ² , F.C. Pesce ² , G. Belgiojorno ² ¹ Universitat Politècnica de València, Spain ² PUNCH Torino, Italy	
17:15-17:45	Coffee break	
S2.4	NEW CONCEPTS FOR ULTRA EFFICIENT & CLEAN ICEs	Chair: Bianca Vaglieco, CNR-STEMS, Italy
17:45-18:10	Developing an accelerated procedure for assessing the injector fouling abatement of different fuel additives G. Brinklow ¹ , J.M. Herreros ¹ , S. Zeraati-Rezaei ¹ , A. Tsolakis ¹ , F. Oliva ² ¹ The University of Birmingham, UK ² Repsol Technology Lab., Spain	
18:10-18:35	A three-stage Arrhenius approach with a coupled 0D-Model to predict ignition delays in a Premixed Charge Compression Ignition (PCCI) Diesel engine M. Wahl ¹ , M. Bargende ¹ , A. Casal Kulzer ¹ , H.-J. Berner ² , S. Schneider ³ ¹ University of Stuttgart, Germany ² Forschungsinstitut für Kraftfahrwesen und Fahrzeugmotoren Stuttgart (FKFS), Germany ³ MAHLE International GmbH, Germany	
18:35-19:00	CFD modeling of ducted fuel injection compression-ignition combustion T. Lucchini, L. Sforza, Q. Zhou, G. D'Errico, D. Severgnini, A. Onorati Politecnico di Milano, Italy	



FRIDAY 16TH SEPTEMBER 2022

S3.1	ADVANCED POWERTRAIN	Chair: Alberto Broatch, UPV, Spain
8:30-9:00	KEYNOTE LECTURE: Propulsion system contribution to Hyundai Carbon neutrality Road Map. Alain Raposo. Hyundai, Korea.	
9:00-9:25	Understanding the fuel consumption of plug-in hybrid electric vehicles: a real-world case study M.A. Ktistakis, A. Tansini, A. Laverde, D. Komnos, J. Suarez, G. Fontaras European Commission's Joint Research Centre, Italy	
9:25-9:50	Development of hybrid electric vehicles in the context of life cycle assessment P. Weber, O. Toedter, T. Koch, T. Weyhing Karlsruhe Institute of Technology, Germany	
9:50-10:15	Horiba Intelligent Lab – Digitalisation of propulsion system development for emissions compliance P. Roberts, K. Tabata, L. Bates, A. Headley, S. Whelan Horiba Mira, UK	
10:15-10:45	Coffee break	
S3.2	ADVANCES FOR ULTRAEFFICIENT ICEs	Chair: Alain Delage, Stellantis, France
10:45-11:10	Optical imaging for understanding of thermal barrier coated piston engine performance C. Koci ¹ , K. Svensson ¹ , G. Martin ¹ , C. Kim ¹ , P. Seiler ¹ , F. Caliar ² , J. Saputo ² , S. Sampath ² ¹ Caterpillar Inc. – Technical Center, USA ² Stony Brook University, USA	
11:10-11:35	A novel combustion control to achieve higher thermal efficiency for a heavy-duty Diesel engine with high compression ratio N. Uchida ¹ , K. Watanabe ² ¹ New ACE Institute Co., Japan ² Denso Corporation, Japan	
11:35h-12:00h	Experimental optimization of a medium speed dual fuel engine towards RCCI operation M. Merts ^{1,2} , J. Hyvönen ³ , M. Lundgren ¹ , P.A. Veenhuizen ² , S. Verhelst ¹ ¹ Lund University, Sweden ² HAN Automotive Research, The Netherlands ³ Wärtsilä Finland Oy, Finland	
12:00h-12:25h	Advances in pre-chamber combustion technology for fuel-flexible high efficiency engines H.G. Im ¹ , M. Ben Houidi ¹ , P. Hlaing ¹ , F. Almatrafi ¹ , Q. Tang ¹ , M.M. Silva ¹ , H. Aljabri ¹ , X. Liu ¹ , K. Hakimov ¹ , W. Tang ¹ , I. Gorbatenko ¹ , J. Turner ¹ , G. Magnotti ¹ , A. Farooq ¹ , S.M. Sarathy ¹ , B. Mohan ² , A. AlRamadan ² , A. Nicolle ³ , E. Cenker ² , A. Amer ² , W.L. Roberts ¹ ¹ King Abdullah University of Science and Technology, Saudi Arabia ² Aramco Research and Development Center, Saudi Arabia ³ Aramco Fuel Research Center, France	
12:25h-12:50h	A numerical study of fuel stratification, heat transfer loss, combustion, and emissions characteristics of a heavy-duty RCCI engine fueled by E85/Diesel A. Willems ¹ , P. Rahnama ^{1,2} , B. Somers ¹ , R. Novella ² ¹ Technical University of Eindhoven, The Netherlands ² Universitat Politècnica de València, Spain	
12:50h-15:30h	Lunch	
14:00h-15:30h	Poster session / Commercial exhibition / Visit to CMT laboratories	
S3.3	ADVANCED POWERTRAIN CONTROL	Chair: Benjamin Plá, UPV, Spain
15:30h-16:00h	KEYNOTE LECTURE: Sustainable powertrains for commercial vehicles. Nicolas Tourteaux. Volvo GTT Lyon, France.	
16:00h-16:25h	V2X-based engine management and transient control in HEVs with planetary gear unit Z. Xu ¹ , B. Zhang ¹ , S. Narita ¹ , F. Xu ² , T. Shen ¹ ¹ Sophia University, Tokyo, Japan ² Tokyo City University, Japan	
16:25h-16:50h	Economical predictive cruise control-based real-time energy management strategy for connected HEVs Y. Zhang ^{1,2} , X. You ¹ , Z. Wei ¹ , X. Jiao ¹ ¹ Yanshan University, China ² Tsinghua University, China	
16:50h-17:15h	Assessment of driving patterns influence on a BEV supercar range using system simulation M. Montesinos, M. Rivas, E. Elípe AVL Ibérica, Spain	
17:15h-17:30h	CLOSURE	
20:00h	GALA DINNER	

POSTER SESSIONS

Three poster sessions are planned to enable the presentation of interesting work that could not be included in the Conference regular sessions. Extended abstracts of these works are included in the Conference Proceedings.

The poster sessions are planned after lunch every day, between 2:00 pm and 3:30 pm. The exact timetable for the poster presentations will be established once all posters are confirmed.

Conference participants are invited to visit the poster sessions and discuss the issues with their authors.

LIST OF POSTERS TO BE PRESENTED

OH* and NL measurements of two HD Diesel Injectors with identical cetane number fuels, RME and Diesel

H. Fajri, S. Rieß, R. Clemente, M. Wensing
FAU Erlangen-Nürnberg, Germany

Very low soot combustion with modulated liquid length and lift-off length of Diesel spray flame

C. Zhai, K. Nishida, Y. Ogata
Hiroshima University, Japan

Numerical and experimental investigations on the ignition behavior of OME

F. Wiesmann¹, L. Straus², S. Rieß², T. Lauer¹
¹Technische Universität Wien, Austria
²FAU Erlangen-Nürnberg, Germany

Effect of injection mass ratio of flat-wall impinging spray on fuel adhesion characteristics

F. Chang¹, H. Luo¹, Y. Hagino¹, T. Tashima¹, K. Nishida¹, Y. Ogata¹, R. Hara², K. Uchida², W. Zhang²
¹Hiroshima University, Japan
²Mazda Motor Corporation, Japan

A simulation and experimental study of the feasibility of a hydrogen fuelled split cycle engine

R.E. Morgan¹, E. Wylie¹, A. Panesar¹, A. Atkins², N.J. Owen², R. Pickett², A. Harvey²
¹University of Brighton, UK
²Dolphin N2, UK

Modeling of dual-fuel combustion under different fuel ratios and injection timing conditions

S. Moon, K. Min
Seoul National University, South Korea

Preliminary numerical study of hydrogen combustion in Wankel rotary engines

K. Moreno-Cabezas, G. Vorraro, X. Liu, J. Turner, H. Im
King Abdullah University of Science and Technology, Saudi Arabia

Numerical analysis of emissions and operating range of acetone fuel in an homogenous charge compression ignition at different engine speeds

J.M. Garcia¹, J.M. Riesco², J.P. Perez¹, A. E. Mendoza¹, O. Rodriguez¹, R. Hernandez¹
¹Polytechnic University of Queretaro, Mexico
²University of Guanajuato, Mexico

Towards the integration of heavy-duty vehicles in the hydrogen sector: development of a spark ignition engine using hydrogen as fuel

B. Walter¹, D. Serrano¹, F. Foucher², J.-M. Neveu³, F. Duffour¹
¹IFP Energies nouvelles, France
²Prisme, France
³Volvo Group Trucks Technology, France

High performance and near zero emissions H₂ engine

S. Caprioli, F. Scignoli, A. Volza, C.A. Rinaldini, E. Mattarelli
Università degli studi di Modena e Reggio Emilia, Italy

The Argon power cycle: characterization of hydrogen injections

M.M.E. Peters, N.C.J. Maes, N.J. Dam, J.A. van Oijen
University of Technology Eindhoven, The Netherlands

The Argon power cycle: Exploring DI-H₂ and DI-O₂ injection strategies using CFD

N. Diepstraten, L.M.T. Somers, J.A. van Oijen
University of Technology Eindhoven, The Netherlands

Spray combustion of fast pyrolysis bio-oil in a constant-volume combustion chamber

Y. Wang, N. Maes, B. Somers
Eindhoven University of Technology, The Netherlands

The influence of hydrogen direct injection on the combustion characteristics of a compression ignition engine

M. Aghahasani¹, A. Gharehghani¹, A. Mahmoudzadeh Andwari², J. Könnö²
¹Iran University of Science and Technology, Iran
²University of Oulu, Finland

Numerical analysis of the effect of pre-injection strategy on performance and emissions of an opposed-piston two-stroke engine

R. Menaca, G. Vorraro, M. Silva, H.G. Im, J.W.G. Turner
King Abdullah University of Science and Technology, Saudi Arabia

Large eddy simulations (LES) towards a comprehensive understanding of ducted fuel injection concept in non-reacting conditions

F. Millo¹, C. Segatori¹, A. Piano¹, B. Peiretti Paradisi¹, A. Bianco²
¹Politecnico di Torino, Italy
²Powertech Engineering, Italy

CONFERENCE EXHIBITION

As in previous years, an exhibition will be held with a selection of stands representing high-profile companies connected to the development of powertrains. Each company will be able to give a talk after lunch in the break period between 2:00 pm and 3:30 pm either Wednesday 14th or Thursday 15th September 2022. The exact schedule for these talks is shown below.

The Horiba logo consists of the word "HORIBA" in a bold, blue, sans-serif font.

Horiba Europe GmbH

Hans-Mess-Straße 6
61440 Oberursel (Germany)
Tel: +49 (0) 6172 137385
E-mail: Dennis.klenk@horiba.com
Website: www.horiba.com

The AVL logo features the letters "AVL" in a white, bold, sans-serif font, followed by a stylized white icon of a four-leaf clover or a four-pointed star.

AVL Ibérica SA

Paseo Arco de Ladrillo 68 planta 5
47007 Valladolid (Spain)
Tel: +34 983 548 073
E-mail: iberica@avl.com
Website: www.avl.com

The Kistler logo features the word "KISTLER" in a bold, blue, sans-serif font, with a stylized blue "K" that incorporates a white dot. Below the name is the tagline "measure. analyze. innovate." in a smaller, blue, sans-serif font.

- > You are invited to attend the talk by **Mr. Flavio Rosa** on 14th September at 2:30 pm in the Conference room: *'Exhaust optimization with uncooled high temperature sensors: a simplified solution'*

Kistler Ibérica SLU

Pallars 6
08402 Granollers (Spain)
Tel: +34 938 60 33 24
E-mail: info.es@kistler.com
Website: www.kistler.com

CONFERENCE LOCATION

The conference will take place in the **Nexus Auditorium** of the Universitat Politècnica de València, Valencia (Spain) on September 13th – 16th, 2022.

UNIVERSITAT POLITÈCNICA DE VALÈNCIA



CONTACT DETAILS

CONFERENCE SECRETARIAT

CMT
Universitat Politècnica de València
Camino de Vera s/n
46022 Valencia. Spain
Tel: +34 96 387 76 50
E-mail: secrecon@mot.upv.es
<https://www.cmt.upv.es/#/thiesel2022>

REGISTRATION ISSUES

CFP
Universitat Politècnica de València
Camino de Vera s/n
46022 Valencia. Spain
Tel: +34 96 387 77 51 (9:00 am – 2:00 pm)
E-mail: congresos@cfp.upv.es

CONFERENCE HOTELS BOOKING

Valencia TUREVENTS
Santa Teresa 12, Pta. 3
46001 Valencia. SPAIN
Tel: +34 96 352 81 81
E-mail: thiesel22@valenciatur.com
<http://www.tureventsandgo.com/>

REGISTRATION TO CONFERENCE

Registration should be made through the Conference website:

<https://www.cmt.upv.es/#/thiesel2022/registration>

The registration fee is:

- **€ 700** (payment in national currencies will also be accepted).
- **€ 850** for late registrations received after 15th July 2022.

The fee will include:

- Attendance to the Conference sessions.
- Conference Proceedings (electronic format).
- Coffee breaks and lunches during the Conference.
- Welcome reception and closure gala dinner.
- Transport by special bus to and from Conference hotels (see below) and Conference centre.

Would-be participants are encouraged to register to the conference as soon as possible via the registration facility provided on the Conference website.

The Conference organisation in collaboration with the Congress Agency Valencia Turevents proposes a short list of hotels located within walking distance of main touristic locations. Agreed special rates will be applied if you book your hotel via the hotel landing, using the on-line facility provided on the website:

There will be free bus transport to and from these proposed hotels to the conference location.

ACCOMMODATION

Hotels recommended by the Conference Organisation are:

Hotel name	Location	Double room for single use	Double room	Description
Hotel Valencia Oceanic by Meliá **** https://events.melia.com/en/events/hotel-valencia-oceanic-by-melia/THIESEL-2022-Conference--VALENCIA-TUREVENTS-SEPT2022.html	Carrer Pintor Maella, 35 46023 Valencia	Discount with respect to available price at time of booking	Discount with respect to available price at time of booking	Close to City of Arts and Science and commercial centre
Hotel NH Ciudad de Valencia *** https://www.nh-hotels.com/event/thiesel-congress	Av. del Port, 214 46023 Valencia	99 €	110 €	Close to Marina
Hotel Olympia Universidades *** https://www.hotelolympiauniversidades.com/	Carrer Dr. Vicente Zaragozá, 13 46020 València	92 €	98 €	Direct connection of metro line to city centre and conference
Hotel Olympia Events and Spa **** https://www.olympiahotelvalencia.com/es/	Carrer Mestre Serrano, 5 46120 Alboraya	80 €	88 €	At the heart of Alboraya, the origin of the famous Horchata drink 3 km from the beach Close to metro Palmaret Easy connection to Conference centre

Prices are per room and night and include breakfast and taxes. Early booking is highly recommended to ensure availability of a room in the hotel of your choice. Indeed, there are several events in Valencia in the same dates, especially the Davis Cup.

The special rates are available for arrivals and departures within the dates 13th September 2022 (earliest arrival) and 16th September 2022 (latest departure). To check availability at different dates please contact our congress agency Valencia Turevents at thiesel22@valenciatur.com.

HOW TO REACH VALENCIA

By plane

Valencia has an international airport, Manises, located at approximately 4 kms. from the city centre. There are regular scheduled national and international flights from several European airlines. A regular bus line links the airport to the Central train station of Valencia, located in the heart of the city. In addition, two metro lines link the airport to all major city points in Valencia.

By road

The city of Valencia also offers excellent communication by road. The A-7 Mediterranean Motorway that runs north to south provides easy connection to Catalonia and France in the north and to Alicante, Murcia and Andalucía in the south. There are also good road connections to the rest of Spain, in particular the A-3 dual motorway to Madrid.

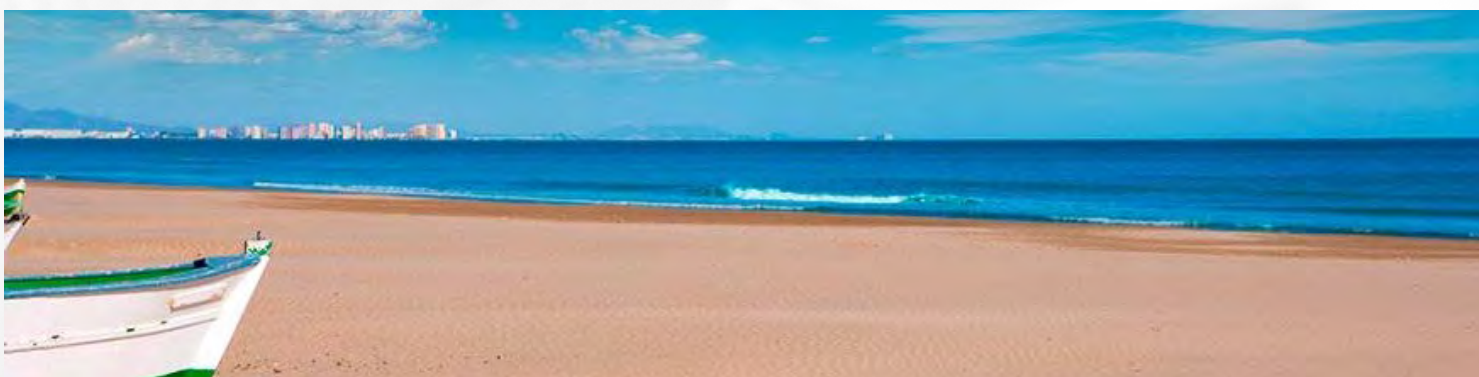
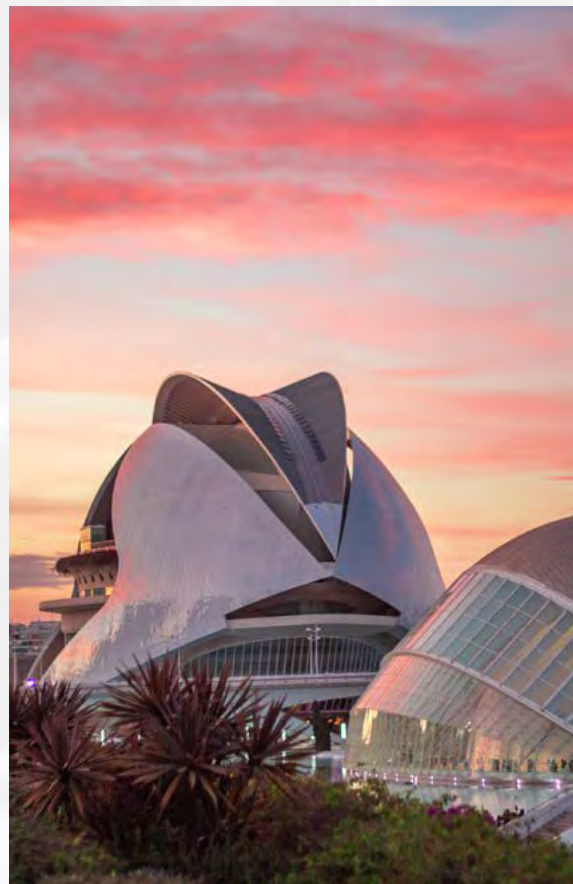
By rail

Valencia has also very good train connections. The high speed train Euromed links several times a day Barcelona to Valencia in approximately 3 hours. The journey between Madrid and Valencia by the regular high speed link AVE takes about 1 hour and 40 min.

ABOUT VALENCIA

Valencia is a cosmopolitan and lively city on the East Coast of Spain, within easy access to some splendid holiday resorts such as those on the Costa Blanca and Costa de Azahar, and not far from the Balearic Islands. Valencia itself is a fascinating place, with a characteristic blend of historical tradition –with interesting examples of Middle Age and Renaissance architecture and modern architecture– the City of Arts and Science. It has a varied cultural offer (Oceanographic museum, museum of Modern Arts...) and an exciting nightlife, excellent weather and world-renowned festivals and regional cuisine. Taste some of the typical ‘tapas’ in one of the numerous restaurants outside tables and the traditional ‘Paella Valenciana’ or one of the dozen rice dishes that Valencian people have invented.

Valencia’s beach is an ideal place to spend time sunbathing and swimming. You may also enjoy a nice walk in the shadow of the palm trees of the ‘Paseo Marítimo’ that lines the sea, or along the new harbour, built for the 32nd America’s Cup. We hope that you will enjoy your stay in this sunny Mediterranean city.



CMT-MOTORES TÉRMICOS

Universitat Politècnica de València · Camino de Vera s/n . 46022 Valencia. Spain

Tel.: +34 96 387 76 50 · E-mail: secrecon@mot.upv.es

For updated information about the Conference please visit the web site:

<https://www.cmt.upv.es/#/thiesel2022>



ORGANISED BY



UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA



SPONSORED BY



GENERALITAT
VALENCIANA