PROGRAM

Wednesday, April 3rd, 2024

12:00-14:00	Registration and lunch
14:00-14:15	Welcome address by Alessandro Parente
	Session chair: Véronique Dias (UCLouvain)
14:15-15:15	**Invited lecture: Katharina Kohse-Höinghaus (Bielefeld University) - Combustion and chemistry towards a low-carbon future**
15:15-15:45	Coffee break
	Session chair: Aurélie Bellemans (VUB)
	Oral presentations: Reduced order modeling and machine learning
15:45-16:00	T. Larsson, S. Verhelst – Fuel property prediction methods: blending laws versus machine learning.
16:00-16:15	A. Özden, M. Savarese, L. Giuntini, A. Procacci, R. Malpica Galassi, A. Coussement, F. Contino, A. Parente - Implementation of Multi-Fidelity Digital Twins for Combustion Systems Using Heterogeneous Data: An Ammonia Combustion Case Study.
16:15-16:30	P. Pagani, R. Malpica Galassi, A. Parente, F. Contino - Jacobian-Informed Clustering for Sample-Partitioning Adaptive Chemistry Simulations.
16:30-16:45	A. Péquin, E. Quadarella, R. Malpica Galassi, S. Iavarone, H.G. Im, A. Parente – A modal decomposition-based partially stirred reactor model for turbulent combustion closure: an a posteriori study.
16:45-17:00	L. Piu, A. Péquin, R. Freitas, S. Iavarone, H. Pitsch, A. Parente - A data-driven approach to correct the cell reacting fraction in the partially stirred reactor closure for LES of premixed flames.
17:00-18:30	**Posters session** N. Jouret, J. Lacey, A. Ba - Experimental and Numerical Investigation of a Diffusion Burner with CO_2 Dilute Oxy-Combustion of Natural Gas and Hydrogen. Y. Moorthamers, A. Snegirev, G. Maragkos, J. At Thabari, B. Merci - Extinction of weakly turbulent diffusion flames in a co-flow with reduced oxygen concentration. E. Muñoz, M.R. Malik, A. Parente - An enhanced framework for Principal Components transport for reacting flow simulations. L. Giuntini, C. Novelli, M. Jamshidiha, A. Piscopo, M. Remacle, A. Coussement, A. Parente - Robust design of a stagnation-point reverse-flow combustor for NH_3 oxidation with low-NO_x emissions. C. Vankelekom, D. Laera, W. De Paepe, F.G. Schiavone - Analysis of thermoacoustic instabilities in micro gas turbine combustor. J. Jojomon, D. Rehman, M. Delanaye – Numerical study of MILD combustor design for hydrogen and flare gas applications. M. Cafiero, S. Sharma, M.M. Kamal, A. Coussement, A. Parente – Optimizing NH3 combustion via O2 enrichment in a 20-kW semi-industrial furnace under MILD conditions: an experimental study.

19:00	Drink

Thursday, April 4th, 2024

	Session chair: Sebastian Verhelst (Ghent University)
09:00-10:00	**Invited lecture: Benedetta Franzelli (EM2C, CNRS, Universté Paris Saclay) - Igniting 'Green' Aerosol Technology: how combustion knowledge can optimize metal-oxide flame synthesis**
10:00-10:30	Coffee break
	Session chair: Francesco Contino (UCLouvain)
	Oral presentations: Low-emission combustion technologies
10:30-10:45	L. Donato, M.M. Kamal, A. Procacci, M. Cafiero, S. Sharma, C. Galletti, A. Coussement, A. Parente - Probabilistic Framework for Data Assimilation of Reacting Dynamical Systems using a Gaussian Process Regression-based Reduced-Order Model and Sparse Measurements.
10:45-11:00	G.R. Ventiris, P. Sabia, G. Sorrentino, A. Bellemans - Exploring plasma-assisted ammonia combustion in the MILD regime.
11:00-11:15	J. Bompas, W. De Paepe - Study on high water vapour content syngas combustion in a micro gas turbine combustor: Analysis of combustion performance and impact on pollutant emissions.
11:15-11:30	M.A. Hafeez, A. Procacci, A. Coussement, A. Parente - Constrained Gaussian Process Regression for Reduced-Order Modelling of Reacting Flows.
11:30-11:45	C. Devriese, R. Bastiaans, W. De Paepe – Towards a high efficiency and fully H_2 capable micro gas turbine: The Hydrogen High Efficiency Turbine (HyHET) project.
11:45-12:00	F.Y. Farrokhi, A. Parente, W. De Paepe - Modeling the Impact of H_2 Addition and EGR on Emissions in a Micro Gas Turbine Combustor Using Chemical Reactor Network.
12:00-12:15	A. Pappa, L. Bricteux, W. De Paepe - Flashback prevention in a micro Gas Turbine fueled by hydrogen without any combustor redesign—a Large-Eddy Simulation study.
12:15-13:45	Lunch
	Session chair: Ward De Paepe (UMONS)
13:45-14:45	**Invited lecture: Alberto Cuoci (Politecnico di Milano) - Accelerating reactive flow simulations via adaptive chemistry and machine learning**
14:45-15:15	Coffee break
	Session chair: Joshua Lacey (KU Leuven)
	Oral presentations: Renewable fuels
15:15-15:30	C. Álvarez-Bermúdez, S. Chapela, M.A. Gómez, J. Porteiro – Validation of a 4MW biomass grate furnace CFD simulation and FGR analysis.
15:30-15:45	Z. Bruyr, L. Choisez, L. Thijs, X.C. Mi, P. Jacques, F. Contino – Towards iron-based impure powder combustion: a parametric analysis.

15:45-16:00	Y. Huo, V. Dias, B. Lefort, S. Erard, H. Jeanmart – Experimental and numerical kinetic study of OME_1 and OME_2 combustion in low-pressure laminar flame and shock-tube.
16:00-16:15	D. Kdouh, S. Gosselin, N. Lamoureux, K. Sood, L. Gasnot, L.-S. Tran - Investigating the Influence of Alcohols (Ethanol and Iso-butanol) on TRF Flame Chemistry.
16:15-16:30	A. Ponet, M.V. Papalexandris - Large Eddy Simulations of biodiesel spray flames using a cost-effective Flamelet Generated Manifold methodology.
16:30-16:45	A. Rouanet, H. Jeanmart - Modelling reverse smouldering in a fixed bed of biomass particles by coupling an Eulerian CFD model with a single particle model.
16:45-17:00	M. Saab, Y. Fenard, G. Vanhove, M. Döntgen, K.A. Heufer - From Solvation to Gas phase, ab-initio study on Alkyl Carbonates for a better understanding of Lithium Batteries.
18:00	Guided tour (Meeting point: Main entrance of the Central Station)
20.00	Conference Dinner at Victor Bozar Café

Friday, April 5th, 2024

	Session chair: Julien Blondeau (VUB)
09:00-10:00	**Invited lecture: Andrea Bertolino (Keppel Seghers) - Applying simulations tools to design waste-to-energy installations and capture its CO_2 emissions**
10:00-10:30	Coffee break
	Session chair: Ruggero Amaduzzi (ULB)
	Oral presentations: Propulsion and engines
10:30-10:45	A. Ballerini, G. D'Errico - Quasi-dimensional simulation of Reactivity Controlled Compression Ignition in dual-fuel applications.
10:45-11:00	M. Daese, F. Contino, J. Lacey - Comparative study of combustion of methane in air-fuel, CO2 diluted partial oxy-fuel, and oxy-fuel modes in an SI engine.
11:00-11:15	S. Spano, F. Contino, H. Jeanmart - Experimental investigation of CH_4 - H_2 blends combustion in HCCI engine under enriched oxygen conditions.
11:15-11:30	S. Parsa, S. Verhelst - Simulation of dual-fuel marine engines fueled by hydrogen or methanol.
11:30-11:45	V. Sileghem, S. Verhelst - Spark-ignited mixing-controlled combustion Research trajectory.
11:45-12:00	Q. Dejaegere, S. Verhelst - Pre-Chamber enabled Mixing-Controlled Combustion: a Mono-Fuel solution for Heavy-Duty Methanol Engines.
12:00-13:30	Lunch and farewell
13:30-14:30	General Assembly of the members of the Belgian Section of the Combustion Institute