SFMC23
Technical Programme

Sunday, 02/07/2023

Sun, 02/07/2023 17:00 - 21:00 — Claustre IEC
REG - Registration

Sun, 02/07/2023 19:30 - 20:30 — Sala Enric Prat de la Riba IEC (Institut d'Estudis Catalans)
OP - Congress Opening Session - Javier Jimenez
Chaired by: Prof. Francisco Marques

Sun, 02/07/2023 20:00 - 22:00 — Claustre IEC
WL - Congress Welcome Reception

Monday, 03/07/2023

Mon, 03/07/2023 08:00 - 09:00
MON R - Registration

Mon, 03/07/2023 09:00 - 10:00 — Sala d'Actes - Vèrtex
MON PL1 - Invited lecture: Transition to turbulence in pipe flow
Chaired by: Dr. Alvaro Meseguer (Universitat Politècnica de Catalunya)

Transition to turbulence in pipe flow
M. Ávila*

Mon, 03/07/2023 10:15 - 11:15 — Sala d'Actes - Vèrtex
MON 1.1 - Machine Learning I
Chaired by: Prof. Xavier Ruiz (Universitat Rovira i Virgili)

A Data-driven non-equilibrium wall model for LES of transitional flows
S. Radhakrishnan*, O. Lehmkuhl

Turbulent wake flow prediction of marine hydrokinetic turbine arrays in large-scale meandering river using physics-informed convolutional neural network
Z. Zhang, **A. Khosronejad***

Study of the dispersion of pollutant over fence a using DALES and High Order Dynamic Mode Descomposition (HODMD) analysis
J. Sanchez Martinez*, P. Costa, J. Tomas, S. Le Clainche, M. Pourquie

Turbulent Closure for Sediment Transport Using Symbolic Regression Based on DNS Data
Y. Stöcker*, C. Golla, R. Jain, J. Fröhlich, P. Cinnella

Mon, 03/07/2023 10:15 - 11:15 — Room 217
MON 1.2 - Aerodynamics I
Chaired by: Prof. Luis Parras (Universidad de Málaga)

Drag reduction in simplified geometries of blunt vehicles by means of different base blowing strategies
J. Camacho-Sánchez, **C. García-Baena***, M. Lorite-Díez, C. Gutiérrez-Montes, J. Jiménez-González, C. Martínez-Bazán

Aerodynamic forces and wake structure on a 2D model of a vehicle in ground effect
P. Solís-García*, K. Zerzeri, M. Nouailli, L. Parras, E. Durán-Venegas

Drag Reduction of a Squareback Ahmed Body Using Rear Flexible Devices
J. Muñoz Hervás*, J. Camacho Sánchez, M. Lorite Díez, J. Jiménez González, C. Martínez Bazán, O. Cadot

Automatic Parameter Selection for Model Predictive Control for Fluid Flows
L. Marra*, A. Meilán-Vila, S. Discetti

Mon, 03/07/2023 10:15 - 11:15 — Room 208
MON 1.3 - Active Matter
Chaired by: Prof. Jordi Ortín (Universitat de Barcelona)

Photocatalytic Janus Microswimmers as Micro-stirrers?
M. Bailey*, F. Grillo, F. Paratore, L. Isa

Brownian dynamics and spontaneous rotation of a Janus particle in a polymer solution
N. D'Auria, **P. Martínez Lera***, M. De Corato

Simulating Microswimmers under Confinement with Dissipative Particle (hydro)Dynamics
C. Barriuso Gutiérrez*, J. Martín Roca, V. Vianco, I. Pagonabarraga, C. Valeriani

Dynamic of a Microsphere inside an Spherical Cavity with Newtonian Fluid Subjected to Periodical Contractions
R. Castilla*

Mon, 03/07/2023 11:15 - 12:00
CB - Coffee Break

Mon, 03/07/2023 12:00 - 13:30 — Sala d'Actes - Vèrtex
MON 2.1 - Aerosols and Suspensions
Chaired by: Prof. José Manuel Gordillo Arias de Saavedra (Universidad de Sevilla)

Capture of airborne microparticles by an ultra fine electrospray
I. González Loscertales*, A. Hijano Reyes, F. Higuera, J. Rivero Rodríguez

Short and long term dispersion of airborne pathogen-laden aerosols expelled in a violent expiratory event
J. Pallares*, A. Lavrinenko, S. Cito, A. Vernet, A. Fabregat

Modeling Wildland Fire Spot Ignition by Metal Sparks: Fluid Mechanics Aspects
C. Fernandez-Pello*, J. Urban

The Fluid Mechanics of Splat Painting
D. Ávila García, L. Lacambra Asensio, J. Rodríguez Rodríguez, R. Zenit, **L. Champougny***

Influence of "fresh" fluid encounter on the settling of particles in the dilute regime
M. Moriche*, M. García-Villalba, M. Uhlmann

When Slower is Faster: Understanding the Striking Clogging of Suspensions Through Constrictions
A. Marin*, M. Souzy, E. Ortega-Roano, T. Weinhart, S. Luding, D. van der Meer

Mon, 03/07/2023 12:00 - 13:30 Room 217

MON 2.2 - Industrial Applications I

Chaired by: Phd. Robert Castilla (Universitat Politècnica de Catalunya)

Using CFD simulation to evaluate the passive odour emission from open-roof tanks
A. Macias*, F. Tagliaferri, M. Invernizzi, S. Vicent

Numerical and Experimental Evaluation of the Transmittance of an AHU
P. Torres*, R. Castilla, G. Raush, M. Morte, D. Moreno

Implementing Multi-Factor Design for Vacuum Ejector Improvement through Comprehensive Analysis of Construction Parameters
L. Macià*, R. Castilla, P. Gamez-Montero, G. Raush

Flow effects of the radial gap on a centrifugal pump using deterministic analysis and cavitation measurements
J. Fernández*, M. Galdo, R. Barrio, A. Vega, Á. Pardo, J. González

Design and optimization of an InFlow Radial (IFR) turbine for Oscillating Water Column (OWC) devices
A. Vega-Valladares*, B. Pereiras

On the Role of Electrolyte Mixing in Vanadium Redox Flow Battery Tanks: CFD and Experimental Approaches
P. Prieto-Díaz*, A. Trovò, M. Vera

Mon, 03/07/2023 12:00 - 13:30 Room 208

MON 2.3 - Fluid-structure interaction I

Chaired by: Prof. Carlos Martinez Bazan (Universidad de Granada)

Aerodynamic enhancement of spanwise-flexible flapping wings via fluid-structure resonance
C. Martinez-Muriel, M. Garcia-Villalba, **O. Flores***

Numerical simulation of flow around spanwise-flexible tandem flapping wings
C. Martinez-Muriel, **M. Garcia-Villalba***, O. Flores

Two-way fluid-structure interaction for the study of advanced turbine control systems
C. Santoni, X. Yang, P. Seiler, F. Sotiropoulos, **A. Khosronejad***

Cavity flow induced by a flexible membrane in an oscillatory channel flow: case study of syringomyelia
E. Duran-Venegas*, C. Gutiérrez-Montes, W. Coenen, A. Sánchez, C. Martínez-Bazán

An asymptotic analysis of cavity flow induced by a flexible membrane in an oscillatory channel flow: case study of syringomyelia
G. Lopez-Nozaleda*, J. Alaminos-Quesada, W. Coenen, A. Sanchez

CFD simulations of various heave plates using a lagrangian approach
J. Armañanzas*, J. Fuertes, A. Torres, J. León, M. Gil

Mon, 03/07/2023 13:30 - 15:00

LB - Lunch Break

Mon, 03/07/2023 15:00 - 16:30 Sala d'Actes - Vèrtex

MON 3.1 - Bubbles and Drop impact

Chaired by: Prof. Alvaro Marin (University of Twente)

On the purely inertial collapse of gas cavities: Bubble bursting jets
J. Gordillo Arias de Saavedra*, F. Blanco Rodríguez

Effect of a wall boundary on the dynamics of high-Bond bubbles rising in a still liquid at different regimes
C. Estepa-Cantero*, R. Bolaños-Jiménez, C. Martínez-Bazán

Merging theory-based cavitation model adaptable with non-condensable gas effects
E. Hasani Malekshah*, W. Wróblewski

Bubble velocities induced by interactions in polydisperse confined inertial swarms
J. Ruiz-Rus*, V. Roig, P. Ern, C. Martínez-Bazán

The skating of impacting drops over gas or vapor layers
G. Riboux*, P. García-Geijo, J. Gordillo

Absence of diffusion in pilot-wave hydrodynamics
P. Saenz*, A. Abraham, S. Malkov, F. Sazunic, M. Durey

Mon, 03/07/2023 15:00 - 16:30 Room 217

MON 3.2 - Computational Fluid Dynamics

Chaired by: Prof. Henar Herrero (Universidad de Castilla-La Mancha)

Lagrangian Approach for Studying Stratospheric Flows during Sudden Stratospheric Warming Events
A. Alcalde*, J. Curbelo

On the entropy-viscosity method for flux reconstruction
B. Font*, A. Miró, O. Lehmkuhl

GPU-Accelerated Direct Numerical Simulations with an Immersed Boundary Method
J. Catalán Gómez*, M. Guerrero Hurtado, M. García-Villalba, O. Flores Arias

Tree-based Adaptive Mesh Refinement strategy for High-Order Immersed Boundary Methods
H. Kessasra*, M. Cordero-Gracia, M. Gomez Lopez, E. Valero

Mon, 03/07/2023 15:00 - 16:30 Room 208

MON 3.3 - Vortex Dynamics and Vortex Flows I

Chaired by: Dr. Elena Martín (University of Vigo)

Frequency response of Batchelor vortex
C. del Pino*, F. Blanco-Rodríguez, M. Garrido-Martín, L. Parras

Numerical Investigation on the Effect of Active Injection Location on the Frequency Response of a Batchelor Vortex
M. Garrido-Martin*, F. Blanco-Rodríguez, P. Gutierrez-Castillo, C. del Pino

Experimental investigation of turbulent swirling jets
A. CUÉLLAR MARTÍN *, L. FRANCESCHELLI, C. MÁRQUEZ GARCÍA, S. DISCETTI, A. IANIRO

Exact coherent structures in a fully developed round jet
K. Deguchi*

Unraveling the Generation and Destruction Mechanisms of Arch Vortices in Urban Fluid Flows: A Comprehensive Analysis
E. Lazpita*, Á. Martínez-Sánchez, S. Hoyas, R. Vinuesa, S. Le Clainche

Mon, 03/07/2023 16:30 - 17:00
CB - Coffee Break

Mon, 03/07/2023 17:00 - 18:00 Sala d'Actes - Vèrtex
MON 4.1 - Machine Learning II
Chaired by: Dr. Oriol Lehmkuhl (Barcelona Supercomputing Center (BSC))

Fast urban flow predictions through Convolutional Neural Networks
J. Calafell*, J. Bustillo, S. Gómez, F. Ramírez, S. Radhakrishnan, O. Lehmkuhl

Machine learning adaptation for laminar and turbulent flows: applications to high order discontinuous Galerkin solvers
K. Tlales*, K. Otmani, G. Ntoukas, G. Rubio, E. Ferrer

Learning extrapolation in the reconstruction and forecasting of a turbulent velocity flow field using Autoencoders and Singular Value Decomposition
R. Abadía-Heredia*, M. Crialesi-Esposito, M. Lopez-Martin, L. Brandt, S. Le Clainche

Machine learning based Viscous-Inviscid coupling for high order solvers
K. Otmani*, G. Ntoukas, E. Ferrer

Mon, 03/07/2023 17:00 - 18:00 Room 217
MON 4.2 - Flow Instabilities I
Chaired by: Prof. Sebastian Altmeyer (Universitat Politecnica de Catalunya)

Regularized four-sided Cavity Flows: A spectral Bifurcation Benchmark implemented in Julia
M. Waldleben*, Á. Meseguer, O. Batiste, A. Alonso

Self-sustainment, Period Doubling and Boundary Crisis of Subcritical Rotating Waves in Taylor-Couette Flow
B. Wang*, R. Ayats, K. Deguchi, F. Mellibovsky, A. Meseguer

Edge states alternation and period doubling cascades in subcritical Taylor-Couette flow
R. Ayats*, B. Wang, K. Deguchi, F. Mellibovsky, A. Meseguer

Linear Rayleigh-Taylor instability of rotating viscous fluids
A. de Andrea*, J. Gandarias, L. González Gutiérrez

Mon, 03/07/2023 17:00 - 18:00 Room 208
MON 4.3 - Thin Films and Coating Flows
Chaired by: Prof. Sergio Chiva (Universitat Jaume I)

Thin films coating a solid cylindrical fibre: wetting and nonwetting scenarios
D. Moreno*, A. Sevilla

Dynamics of Dewetting Fronts: to Pinch or not to Pinch
M. Zürcher Guinea*, D. Moreno Boza, A. Sevilla Santiago

Evaluation and improvement of light transmittance for an optimal design of UV-C systems
D. Trifi*, Ó. Prades-Mateu, S. Chiva, R. Martínez-Cuenca

Capillary and non-linear damping mechanisms on 3D wavy thin liquid films
D. Barreiro-Villaverde*, A. Gosset, M. Lema, M. Mendez

Tuesday, 04/07/2023

Tue, 04/07/2023 08:00 - 09:00
TUE R - Registration

Tue, 04/07/2023 09:00 - 10:00 — Sala d'Actes - Vèrtex
TUE PL2 - Invited lecture: Schwarz Legendre collocation methods for a Rayleigh-Bénard problem
Chaired by: Phd. Jezabel Curbelo (Universitat Politècnica de Catalunya)

Schwarz Legendre collocation methods for a Rayleigh-Bénard problem - Prof. Henar Herrero
H. Herrero*

Tue, 04/07/2023 10:15 - 11:15 — Sala d'Actes - Vèrtex
TUE 5.1 - Industrial Applications II
Chaired by: Dr. Raul Martínez Cuenca (Universitat Jaume I)

Development of Local Capacitance Sensor for Two-Phase Measurements
O. Prades Mateu*, G. Monrós Andreu, R. Martínez Cuenca, S. Torro Cueco, S. Chiva Vicent

Shear stress measurements by Preston tubes
A. Vega*, C. Miguel, A. Rodríguez, B. Pereiras

Design and experimentation of a hydrokinetic turbine for electricity generation in closed pipes
J. Armañanzas*, M. Alcalá, J. Fuertes, J. León, A. Torres

Modelling the Catalytic Layer of a PEM Fuel Cell with Adsorption-Desorption Kinetics
S. MARTIN, L. GONZALEZ RODRIGUEZ, J. CASTILLO, **P. GARCIA-YBARRA***

Tue, 04/07/2023 10:15 - 11:15 — Room 217
TUE 5.2 - Fluid-structure interaction II
Chaired by: Prof. Oscar Flores (Universidad Carlos III de Madrid)

Wall shear stress on an elastic boundary or structure
S. Ohl*, H. Reese, C. Ohl

Suspended mooring line static analysis using internal XFlow capabilities
M. Gil*, A. Torres, J. Fuertes, J. Armañanzas, J. Leon

Calibration of a porous surface model for fishing nets
S. Roget, **M. Lema***, A. Gosset

Experimental Evidence of the Effect of Permeability on Falling Porous Plates
J. Sánchez Rodríguez*, F. Gallaire

Tue, 04/07/2023 10:15 - 11:15 — Room 208
TUE 5.3 - Convection and Bouyancy-Driven Flows
Chaired by: Dr. Paloma Gutierrez-Castillo (Universidad de Málaga)

P arametrically forced stably stratified flow
J. Lopez*

Bounding dissipation in Rayleigh-Benard convection
T. Alboussiere*

Temperature optimization in a gas reactor for the synthesis of carbon nanofibers: a numerical approach
M. Navarro*, J. Valverde, E. Castellanos

Tue, 04/07/2023 11:15 - 12:00
CB - Coffee Break

Tue, 04/07/2023 12:00 - 13:30 — Sala d'Actes - Vèrtex
TUE 6.1 - Turbulence I
Chaired by: Prof. Marc Avila Cañellas (ZARM, University of Bremen)

Fluidic Oscillators performance with shape modification and under incompressible and compressible flow
J. Bergadà Granyó*, M. Baghaei

Spectral analysis of the spatial evolution of energy-containing eddies
E. Kannadasan, C. Atkinson, **J. Soria***

Turbulent Statistics and Coherent Structures in an Asymmetrically Heated Channel Flow
M. Garcia-Berenguer*, L. Gasparino, O. Lehmkuhl, I. Rodriguez

Convergence of numerical simulations for pipe flow
S. Hoyas*, M. Piedrabuena, E. Kannadasan, H. NAgib, R. Vinuesa

Interventional Causality Analysis of Fully Developed Turbulent Channel Flow
K. Osawa*, J. Jiménez

Smallest Box Sizes Sustaining Short-Streak Channels
C. Martinez-Lopez*, O. Flores, J. Jiménez

Tue, 04/07/2023 12:00 - 13:30 Room 217

TUE 6.2 - Machine Learning III

Chaired by: Prof. Stefano Discetti (Universidad Carlos III de Madrid)

Inclusion of a biochemical model for leveraging data-driven real-time CFD simulations in reactors
P. Barreda*, S. Iserte Agut, R. Martínez-Cuenca, S. Chiva Vicent

Fluid Dynamic Tool for Cardiac Diseases Analysis
N. Groun*, M. Villalba-Orero, E. Lara-Pezzi, E. Valero, J. Garicano-Mena, S. Le Clainche

Control of Facility´s Humidity Using a Digital Twin Based on Deep Learning and CFD Simulations
J. Luis-Gómez*, R. Martínez-Cuenca, F. Martínez, J. Mascarós, Ó. Prades-Mateu, E. Borrás, S. Chiva

Optimisation of open-loop control of convective heat transfer with genetic algorithms
R. Castellanos*, J. Alfaro, I. Robledo, A. Ianiro, S. Discetti

Comparison of predictive models for influent parameters in the inflow of Water Resource Recovery Facilities
A. González Barberá*, S. Iserte Agut, L. Garcia Garcia, F. Piñuela Garcia, S. Chiva Vicent

Tue, 04/07/2023 12:00 - 13:30 Room 208

TUE 6.3 - Drops: formation and evaporation

Chaired by: Dr. Francisco José Blanco-Rodríguez (Universidad de Sevilla)

Stable production of liquid jets with vanishing diameters via tip streaming
J. Montanero*, M. Rubio, J. Eggers, M. Herrada

Response of a Drop of Eutectic Indium-Gallium to an Electric Current
J. Otero Martinez*, A. García Armada, J. Rodriguez Rodriguez

Challenges in Modeling Inkjet Printing: Physical and Numerical Aspects
A. Hashemi*, P. Ryzhakov, M. Hashemi, R. Rossi, N. Dialami, R. Zorrilla

Evaluation of Experimental Artifacts in the Evaporation of Droplets on Fibers
M. Asrardel, T. Poonawala, **Á. Muelas***, J. Ballester

Analysis of evaporating droplet dynamics using computational singular perturbation
L. Angelilli*, P. Ciottoli, F. Hernandez Perez, M. Valorani, H. Im

Tue, 04/07/2023 13:30 - 15:00

LB - Lunch Break

Tue, 04/07/2023 15:00 - 16:30 Sala d'Actes - Vèrtex

TUE 7.1 - Aerodynamics II

Chaired by: Prof. Carlos del Pino (Universidad de Málaga)

Numerical Study of the Flow Past a Three-Element High-Lift Airfoil at Different Angles of Attack
R. Montalà*, O. Lehmkuhl, I. Rodriguez

On the effect of deformation in a wing model on the correlation of the lift slope
P. Gutierrez-Castillo*, E. Durán-Venegas, N. Konovalov-Shishov, C. del Pino

Aerodynamic forces in deformed wings
L. Parras*, C. del Pino, P. Gutiérrez-Castillo, F. Blanco-Rodriguez

Generation of Free-stream Perturbations in Direct Numerical Simulation for Low-Reynolds Aerodynamics
S. Olivieri*, J. Catalán, O. Flores, M. García-Villalba

Towards data driven reduced order models for the automotive industry
B. Eiximeno*, A. Miró, I. Rodríguez, O. Lehmkuhl

Experimental Measurements of Particle Dispersion and Concentrations in the Turbulent Wake of Ahmed Body and Effects of Rear Slant angle
M. Kumar*, S. Veeravalli, M. Cholemari

Tue, 04/07/2023 15:00 - 16:30 Room 217

TUE 7.2 - Turbulence II

Chaired by: Prof. Julio Soria (Monash University)

Cardiac-cycle inspired turbulent drag reduction
J. López*, D. Scarselli, A. Varshney, B. Hof

The effect of modulated driving on turbulent plane Couette flows
R. Ostilla-Mónico, **W. Akhtar***

On the Aerodynamic Sound Generated by a Subsonic Flow Past a Circular Cylinder
C. Tur-Mongé*, B. Eiximeno, O. Lehmkuhl, I. Rodriguez

Turbulent puffs and slugs in pulsatile pipe flow
D. Morón Montesdeoca*, M. Avila

Spectral analysis of the spatial evolution of energy-containing eddies in turbulent boundary layers
A. Matas*, E. Kannadasan, C. Atkinson, J. Soria

Tue, 04/07/2023 15:00 - 16:30 Room 208

TUE 7.3 - Multiphase and Free Surface Flows

Chaired by: Dr. Javier Ruiz-Rus (Universidad de Jaén)

On the Numerical Simulation of Interfacial Rheology
A. Esteban*, J. Tajuelo, P. Sánchez-Puga, M. Rubio, J. Hernández

On the Limitations of the Level Set Method in the Simulation of Interfacial Flows Involving Contact Lines
P. Gómez*, A. Esteban, F. Berlanga, C. Zanzi, J. López, J. Hernández

The impact of the convection on the melting process for different g levels
D. Dubert, M. Simon, J. Massons, F. Gavaldà, **X. Ruiz***

Multicomponent Transport in OpenFoam (laminarSMOKE)
B. Naud*, A. Cuoci, M. Arias-Zugasti

Shear-Induced Phase Separation of Chemically-Responsive Polymer Solutions
M. De Corato*, M. Arroyo

Pattern selection during thermocapillary-driven melting in microgravity
P. Salgado Sánchez*, J. Porter, I. Tinao, A. Laveron Simavilla

Tue, 04/07/2023 16:30 - 17:00
CB - Coffee Break

Tue, 04/07/2023 17:00 - 18:00 — Sala d'Actes - Vèrtex
TUE 8.1 - Combustion I
Chaired by: Dr. Daniel Fernández Galisteo (CIEMAT)

Experimental evidence of the multiplicity of stationary solutions in ultra-lean hydrogen flames
R. Palomeque Santiago*, A. Dominguez, M. Rubio Rubio, D. Martínez-Ruiz, E. Fernández-Tarrazo, M. Sánchez-Sanz

Premixed flames in narrow heated circular channels: steady-state solutions, and linear stability analysis
V. Kurdyumov*, D. Fernández-Galisteo, C. Jiménez

Tue, 04/07/2023 17:00 - 18:00 — Room 217
TUE 8.2 - Industrial Applications III
Chaired by: Dr. Josep M Bergadà (Universitat Politècnica de Catalunya)

A Joule-Thomson Process of a Vapor with Condensation and Evaporation Through Anodic Alumina Membranes
T. Loimer*, J. Sodagar-Abardeh, D. Petukhov, S. Podgolin

Design of a Non-invasive Cardiovascular Assist Device based on Asymmetric Valveless Pump Technology
J. Anatol*, M. García-Díaz, C. Barrios-Colado, J. Moneo-Fernández, F. Castro-Ruiz, J. Sierra-Pallares

Numerical Modeling and Experimental Validation of a Liebau Effect-based Valveless Pump
C. Barrios-Collado*, J. Anatol, M. García-Díaz, J. Moneo-Fernández, F. Castro-Ruiz, J. Sierra-Pallares

Production of long micrometer jets of weakly viscoelastic liquids.
M. Cabezas*, A. Rubio, E. Vega, F. Galindo-Rosales, A. Gañán-Calvo, J. Montanero

Tue, 04/07/2023 17:00 - 18:00 — Room 208
TUE 8.3 - Flow Instabilities II
Chaired by: Dr. Kengo Deguchi (Monash University)

Ferrofluidic wavy Taylor vortices under alternating magnetic field
S. Altmeyer*

Stability of Magnetohydrodynamic Shock Waves
A. Calvo-Rivera*, C. Huete, F. García Rubio, A. Velikovich

Linear Stability Analysis of a Two-Layer Channel Flow with a Train of Solid Particles Flowing Parallel to the Interface
D. Ruiz-Martín*, J. Rivero-Rodríguez, M. Sánchez-Sanz

Floquet Stability Analysis of a Two-Layer Oscillatory Flow near a Flexible Wall
A. Barcenas-Luque*, C. Martinez-Bazan, C. Gutierrez-Montes, W. Coenen

Tue, 04/07/2023 20:00 - 22:00 — Hotel Casa Fuster
GD - Congress Gala Dinner

Wednesday, 05/07/2023

Wed, 05/07/2023 08:00 - 09:00
WED R - Registration

Wed, 05/07/2023 09:00 - 10:00 Sala d'Actes - Vèrtex
WED PL3 - Invited lecture: Transport and self-assembly of active particles with optimal fuel consumption
Chaired by: Dr. Arantxa Alonso (UPC)

Transport and self-assembly of active particles with optimal fuel consumption
. Rubí*

Wed, 05/07/2023 10:15 - 11:15 Sala d'Actes - Vèrtex
WED 9.1 - Microscale and Nanoscale Flows
Chaired by: Mr. Miguel Rubí (Universitat de Barcelona)

Beads, bubbles and drops in microchannels: stability of centred position and equilibrium velocity
J. Rivero-Rodriguez*, J. Capello, Y. Vitry, A. Dewandre, B. Sobac, B. Scheid

Analytical solutions for vanadium membraneless micro redox flow batteries operating under different current regimes
M. de las Heras*, S. Ibáñez, M. Vera, A. Quintero

Drainage–Imbibition Cycles in a Model Open Fracture: Capillary Jumps, Hysteresis, Memory, and Dissipation
J. Ortín*, R. Holtzman, R. Planet, M. Dentz

Use of nanofluids in energy applications
R. Mondragón Cazorla, **L. Hernandez Lopez***

Wed, 05/07/2023 10:15 - 11:15 Room 217
WED 9.2 - Combustion II
Chaired by: Dr. Vadim Kurdyumov (CIEMAT)

Influence of Preferential Diffusion on the Dynamics of Laminar Bidimensional Premixed Hydrogen Flames
P. Koumides, **E. Pérez-Sánchez***, D. Mira

Numerical study of propagation patterns of lean hydrogen-air flames under confinement
A. Dejoan, **D. Fernández-Galisteo***, V. Kurdyumov

A Hybrid Predictive Reduced Order Model for Laminar Flames
A. Corrochano*, R. Freitas, A. Parente, S. Le Clainche

Single-step chemistry validation in turbulent flame cases
A. Millan Merino*, S. Taileb, M. Tayyab, S. Zhao, P. Boivin

Wed, 05/07/2023 10:15 - 11:15 Room 208
WED 9.3 - Vortex Dynamics and Vortex Flows II
Chaired by: Prof. Juan Lopez (ASU)

Numerical Investigation of Cavitation Effects on the Vortex Shedding Behind a Wedge
J. CHEN*, X. ESCALER

Vortex-induced vibrations of a rigidly linked pair of circular cylinders
F. Huera-Huarte*

Experimental and numerical study of vortex induced vibrations on bluff bodies immersed in a water open-channel
E. Martin*, F. Sastre, A. Velazquez

Parametric instability analysis of the flow past a square cylinder in the interface of two different-velocity streams
R. Elmansy*, J. Bergadà Granyó, F. Mellibovsky

Wed, 05/07/2023 11:15 - 12:00
CB - Coffee Break

Wed, 05/07/2023 12:00 - 13:30 Sala d'Actes - Vèrtex
WED 10.1 - Turbulence III
Chaired by: Prof. Sergio Hoyas (Universitat Politècnica de València)

On the stability of wall-bounded flows at high-pressure transcritical fluid conditions
M. Bernades*, F. Capuano, L. Jofre

Heat transfer control in a turbulent boundary layer with Large-Eddy Breakup devices
Q. Li Hu*, F. Foroozan, S. Discetti, A. Ianiro

A dual-grid approach for dispersed-flow simulations in turbulence
M. Schenk*, G. Giamagas, F. Zonta, A. Soldati

Hydrogen Injection and Turbulent Mixing Processes Using a Porous Plate Injector
D. Rodríguez Gutiérrez*, A. Gruber, R. Gómez Miguel, M. Sánchez Sanz, E. Fernández Tarrazo

Prediction and modelling coherent structures and noise radiation of supersonic twin jets
D. Rodriguez*, I. Padilla-Montero

Coherent Structures in Twin Supersonic Jets Obtained From High-Speed Schlieren Measurements
I. Padilla-Montero*, D. Rodríguez, V. Jaunet, S. Girard, D. Eysseric, P. Jordan

Wed, 05/07/2023 12:00 - 13:30 Room 217

WED 10.2 - Biological Fluid Dynamics

Chaired by: Mr. Manuel Garcia-Villalba (TU Wien)

In-vitro Experimental Characterization of the Transmantle Pressure in the Cerebral Aqueduct
F. Moral-Pulido*, S. Sincomb, O. Campos, C. Martínez-Bazán, V. Haughton, A. Sánchez

Fluid Mechanics of saliva transport during human respiratory events: Insights gained using DNS
W. Oaks, H. Seyyedzadeh, M. Sanchez Sanz, **A. Khosronejad***

On the effect of trabeculae on steady streaming in the subarachnoid space
G. Lopez Nozaleda, J. Alaminos Quesada, **W. Coenen***, A. Sanchez Perez

A noninvasive method to determine intracranial pressure fluctuations from MR measurements of cerebrospinal fluid flow in the spinal canal
W. Coenen*, S. Sincomb, V. Haughton, A. Sánchez

Multi-Fidelity Models for Thrombosis Risk Evaluation in the Left Heart Using Patient-Specific Data
G. Manuel*, M. Garcia-Villalba, E. Duran, A. Gonzalo, P. Martinez-Legazpiz, A. Kahn, J. Bermejo, J. del Alamo, F. Oscar

Wed, 05/07/2023 12:00 - 13:30 Room 208

WED 10.3 - Compressible Flows

Chaired by: Dr. Fernando Mellibovsky (Universitat Politècnica de Catalunya)

Exploring the Artificial Compressibility Method in High-Pressure Transcritical Fluids
A. Abdellatif*, J. Ventosa-Molina, J. Grau, R. Torres, L. Jofre

Assessing the Accuracy of Immersed Boundary Methods for High-Fidelity Computational Aeroacoustics
A. Lazaro*, S. Madriñan, O. Carrasco, J. Grau, R. Torres, L. Jofre, F. Capuano

Scramjet oblique shock waves reflection via 2D and 3D CFD analysis
J. Gracia i Sanz*, D. Zurita Sánchez, J. Bergadà Granyó

A High-Order Lagrange--Galerkin Method for Compressible Flows
M. Colera*

On the wake dynamics of the flow past a subsonic and transonic circular cylinder
I. Rodriguez*, B. Eiximeno, L. Gasparino, C. Tur-Mongé, J. Muela, O. Lehmkuhl

Taylor-Maccoll Equations Modification Implemented to Double-Cone Configuration
D. Zurita Sánchez*, J. Gracia i Sanz, J. Bergadà Granyó

Wed, 05/07/2023 13:30 - 15:00

LB - Lunch Break and Closing Session