Preliminary program

AEROVEHICLES 5
POITIERS 12-14 JUNE 2023

Monday, June 12	
09:00	**Welcome + Opening adress** Jacques Borée - Chairman Majdi Khoudeir - Director ISAE-ENSMA Virginie Laval - President University of poitiers Fabien Godeferd - DAS CNRS INSIS Gérard Blanchard - Vice-President Research Région Nouvelle Aquitaine Karl Joulain - Director P' Institut
09:20	**Invited Talk : Unsteady aerodynamics of Trains and vehicles. Presentation of the DLR test bench and discussion of some recent findings** *Dr Daniela Heine, German Aerospace Center (DLR)*
Session 1: Train 1 ***(Chair: D. Soper)***	
10:00	Aerodynamic of TGV M *Tewfik Benazzouz, Arnaud Latouche-Halle, Eliane Allain*
10:20	Investigation of aerodynamic characteristics of a high-speed train in turbulent flow conditions *Chao Xia, Ting Guo , Lei Yu , Zhigang Yang*
10:40	Aerodynamic drag analysis of high-speed transportation system using OpenFOAM *Nan Meng, Jonathan Tschepe , Denes Fischer , Christian Navid Nayeri*
11:00	Coffee Break
Session 2: Vehicles Platooning ***(Chair: A. Kourta)***	
11:20	Towards Sustainable Transportation: An Analysis of the Aerodynamic Benefits of Vehicle Platooning Using CFD Simulations *Thomas Schumacher*
11:40	Prediction Model for Drag Reduction of Truck Platoons *Brian Mcauliffe*
12:00	The aerodynamic interaction of platooning and overtaking vehicles *Sam Marshall, David Soper, Simon Wiggins*
12:20	Lunch Break
Session 3: Train 2 ***(Chair: C. Somaschini)***	
14:00	Energy based algorithms to compute the running resistance of trains taking into account the wind velocity. Itziar Bueno Tintoré , Steve Cochard
14:20	Unlocking future rail freight transport capability through vehicle aerodynamics *David Soper, Chris Baker, Terry Johnson, Aaron Barrett*
14:40	Crosswind studies of high-speed train aerodynamics by large-eddy simulations *Matteo Montecchia, Carlos Pérez Arroyo , Jérôme Dombard, Florent Duchaine , Etienne Grappein, Salwa Bouachrine*
15:00	SPH simulation of a passenger train plowing through snow *Uroš Cvelbar, Jan Viher, Enrique Solano Andres, Sanjin Šarić*
15:20	Coffee Break

Session 4: Real Driving conditions *(Chair: J. Borée)*	
15:40	On the influence of free-stream turbulence on the aerodynamics of a realistic road vehicle *Nicolas Mazellier, Stéphane Loyer, Azeddine Kourta*
16:00	On the effect of free-stream turbulence on the wake dynamics of an Ahmed body *Pierre-Yves Passaggia, Nicolas Mazellier, Azeddine Kourta*
16:20	Ahmed Body Wake and related Performances under Unsteady Flow Conditions *Giorgio Moscato, Giampaolo Romano*
16:40	Aerodynamics of the square-back Ahmed body under rainfall conditions *Nicolas Mazellier, Martin Obligado*
17:00	Impact of wind exposure on the traffic of the St Nazaire bridge *Sylvain Aguinaga, Michel Aumoitte , Julien Lahaie*
17:20	**End of first day**
Visit of FUTUROSCOPE	

Tuesday, June 13	
09:00	**Invited Talk : Simulation and active control of wake bi-modal switching** Professor Aimee S. Morgans, Engineering, Imperial College London
Session 5a: Wake dynamics *(Chair: O. Cadot)*	
09:40	Topological Analysis of the DrivAer Fastback Wake Bi-Stability *Matt Aultman, Lian Duan*
10:00	Near wake of an Ahmed body: analysis of switches and base pressure-velocity relationship *Stéphanie Pellerin, Berengere Podvin*
10:20	Investigation of wake bi-stability behind a more realistic squareback vehicle *Sinisa Krajnovic, Xinchao Su*
10:40	Effects of upstream turbulence on the bi-stable wake switching behind a square-back Ahmed body *Lei Yu , Chao Xia, Yajun Fan, Zhigang Yang*
Session 5b: Trains 3 *(Chair: E. Allain)*	
09:40	Numerical Modelling of Freight Trains in Tunnels: A Redeveloped 1D Model and Separation Bubble Parameterisation *Zhen Liu, David Soper*
10:00	Experimental analysis of train slipstream in confined spaces *Stefano Negri , Gisella Tomasini, Paolo Schito, Daniele Rocchi*
10:20	Analysis of the energy demand of HVAC systems on trains depending on the driving speed *Jonathan Tschepe, Christian Navid Nayeri*
10:40	Mild crosswind effect on train slipstream *Elia Brambilla, Claudio Somaschini, Paolo Schito, Gisella Tomasini , Daniele Rocchi*
11:00	Coffee Break
Session 6: Wheels *(Chair: S. Sebben)*	
11:20	Investigation of tyre rim protectors on the aerodynamics of a passenger vehicle *Erik Josefsson, Francesco Fabio Semeraro , Magnus Urquhart, Simone Sebben*
11:40	Model study of wheel-vehicle interactions for fast- and square-back bluff bodies *Di Bao , Jacques Borée, Christophe Sicot, Côme Roebroeck*
12:00	Numerical study of cars wheels aerodynamics: focus on rims increments. *Charles Ribes, Matthias Ullrich*
12:20	Lunch Break
Session 7: Flow fields and loads *(Chair: C. Nayeri)*	
14:00	Aerodynamic Side Loads on Cyclists induced by Vehicles in Overtaking Maneuvers *Christof Gromke, Bodo Ruck*
14:20	Spatio temporal characteristics of turbulent separation around a simplified on-road vehicle with different leading edge shapes *Amir Sagharichi , Mark Francis Tachie*
14:40	Influence of ground clearance and Reynolds number in the near-wake of a square-back Ahmed body through hot-wire anemometry. *Edwin Duran Garcia, Frédéric Murzyn , Karthik Depuru Mohan , Mark Finnis, Kevin Knowles*

15:00	Effect of the ground floor on the flow separation around a vehicle model *Amir Teimourian, Nico Pohlan, Philippe Gilotte , Hatem Touil, Navid Nayeri*
15:20	Tomographic PIV in the Wake of a Bi-stable Bluff Body with Zero Ground Clearance *Simran Singh Panesar , Hao Xia, Martin Passmore, Daniel Butcher*
15:40	Aerodynamic development of the New Generation DAF XG+, XG, XF and XD *Date Rentema, Rob Heijkant*
16:00	Coffee Break
Session 8: Two phase flows and aeroacoustics *(Chair: V.Valeau)*	
16:20	Developing Predictions of ADAS Sensor Impairment Using Computational Simulations of Tyre Spray *Conor Crickmore, Andrew Garmory, Daniel Butcher*
16:40	The Influence of Forebody Topology on Aerodynamic Drag and Aeroacoustics Characteristics of Squareback Vehicles using CAA *Harish Viswanathan, Kushal Kumar Chode*
17:00	Automotive Grille Fin Tonal Noise Induced by Parting Line Step: Simulation and Correlation Testing *Leon Brown, Hang Li, Kevin Disotell, Lian Duan*
17:20	Fluid dynamic and aeroacoustic study of a generic side mirror using the STRUCT-e turbulence model *Jorge Munoz-Paniagua, Javier García, Eduardo Latorre Iglesias*
17:40	Reynolds number as a concept for aeroacoustic design *Florent MARGNAT, Wagner Pinto, Camille Noûs*
18:00	**End of second day**
Banquet	

Wednesday, June 14	
09:00	**Invited Talk : Coupling physics-based and data-driven models for the simulation of fluid/structure interaction: application to tire/liquid interactions modelling** *Dr T. Dairay Manufacture Française des Pneumatiques Michelin, France*
Session 9: CFD and modelling 1 *(Chair: S. Krajnovic)*	
09:40	Automatic grid refinement and DDES-SST: The right tool for automotive flows *Emmanuel Guilmineau*
10:00	A Comparison of Hybrid RANS-LES and WFLES Solutions for the DrivAer Test Case *Florian Menter, Ashwini Dalvi, David Flad, Andreas Hueppe, Alexey Matyushenko*
10:20	Sensitivity of scale-resolving automotive simulations to turbulence modelling, convection scheme and solver *Louis Fliessbach, Marian Fuchs, Hendrik Hetmann, Charles Mockett*
10:40	Multi-fidelity Reduced Order Models for efficient aerodynamic design *Fausto Dicech, Konstantinos Gkaragkounis, Lucia Parussini, Anna Spagnolo, Haysam Telib*
11:00	Coffee Break
Session 10: CFD and modelling 2 *(Chair: E. Guilmineau)*	
11:20	Embedded Body - Efficient Immersed Boundary Method for Predictive Aerodynamic Simulations *Sanjin Šarić, Branislav Basara, Clemens Müller, Zoran Pavlovic, Zoran Zunic, Peter Sampl*
11:40	CFD Prediction of Windsor Squareback Model at Yaw *Page Gary*
12:00	Open source tools for CFD automation *Wouter Remmerie*
12:20	Lunch Break
Session 11: Flow control 1 *(Chair: V. Parezanovic)*	
14:00	Active skin-friction reduction in the turbulent boundary layer of high speed vehicles *Xin Zhang, Xiao Hui Wei, Han Feng Wang, Yu Zhou*
14:20	Aerodynamic brake for high-speed trains considering lift force *Suzuki Masahiro, Nobuyuki Okura*
14:40	Drag reduction of a high-speed maglev train model based on steady jets *Genhe Chang, Bingfu Zhang, Jiali Liu, Lu Shen, Shunlin Tang, Yu Zhou*
15:00	On the design and test of enhanced flaps for drag reduction of blunt vehicles at different scales *José Carlos Muñoz-Hervás, José Manuel Camacho Sánchez, Manuel Lorite-Diez, Jose Ignacio Jimenez-Gonzalez, Olivier Cadot, Carlos Martínez Bazán*
15:20	Road test of an aerodynamic drag-reducing device connected to the rear-end of a small trailer *N. Mizrahi, O. Katz, M. Fromm, Y. Turgeman, B. Mizrahi, O. Drori, Z. Sudarskis, A. Seifert*
15:40	The Aerodynamics of Pick-up / Utility Vehicles *David Burton, Mark Thompson*
16:00	Coffee Break

Session 12: Flow control 2 *(Chair: Y. Zhou)*	
16:20	Ahmed body drag reduction by means of different base blowing symmetric configurations *José Manuel Camacho Sánchez, Carlos García Baena, Manuel Lorite-Diez, Cándido Gutiérrez Montes, José Ignacio Jiménez-González, Carlos Martínez Bazán*
16:40	AI-based optimization for efficient drag reduction of an Ahmed body *Dewei Fan, Bingfu Zhang, Yu Zhou*
17:00	Analysis of the 3D turbulent wake behind a flat-back Ahmed body with base bleed using Stacked Stereoscopic Particle Image Velocimetry *Tauha Irfan Khan, Vladimir Parezanovic, Luc Pastur, Olivier Cadot*
17:20	On the potential of drag reduction using morphing bluff-bodies for ground vehicle application *Yajun Fan, Olivier Cadot, Sebastiano Fichera, Vladimir Parezanovic*
17:40	From on-road experiments to closed loop control of base drag variations for varying upstream flow conditions *Agostino Cembalo, Jacques Borée, Patrick Coirault, Clément Dumand*
18:00	**End of the conference**