

AEROVEHICLES 3

Third International Conference
in Numerical and Experimental
Aerodynamics of Road Vehicles
and Trains

13-15 June 2018 / Politecnico di Milano / Milan - Italy

Campus Bovisa-La Masa, Energy Department
Building BL 25, Ground floor, Conference room
Via Lambruschini, 4

WEDNESDAY, JUNE 13, 2018

8:00 – 8:45 | **Registration**

8:45 – 9:00 | **Welcome**

9:00 – 9:40 | **Invited Speaker - Guangjun Gao**, Central South University

9:40 – 11: 00 | Chairman: Daniele Rocchi, Politecnico di Milano

Numerical investigation of high-speed train drag using partially-averaged navier-stokes simulations, **Denes Fischer**, Technische Universität Berlin

Numerical investigation of snow accumulation on the bogies of head car of high-speed trains, **Jiabin Wang**, Central South University

Different aerodynamic performances between single and double unit trains, **Zi-Jian Guo**, Central South University

Numerical simulation study of snow and ice issue on high-speed EMU bogie based on multiphase flow models using STAR-CCM+, **Yan Zhang**, Central South University

11:00 – 11:20 | **Coffee break**

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Vehicles and Trains

11:20 – 13:00 | Chairman: Sinisa Krajnovic, Chalmers University of Technology

Numerical investigation of the flow around a simplified estate car using hybrid RANS/LES method, **François Delassaux**, Groupe PSA

Computational investigation into the sensitivity of a simplified vehicle wake to small base geometry changes, **Sophie Luckhurst**, Loughborough University

Analysis and control of the symmetry breaking wakes behind an Ahmed body by Large Eddy Simulation, **Stéphanie Pellerin**, Université Paris Sud (LIMSI)

Numerical simulation of separation flow control on the ahmed body using steady micro-jets, **Emmanuel Guilmineau**, École Centrale de Nantes

Computational study of a car aerodynamics using the partially-averaged navier-stokes approach, **Jan Viher**, AVL List

13:00 – 14:00 | Lunch Break

14:00 – 16:00 | Chairman: Christophe Sicot, ISAE-ENSMA

Reduction of overturning moment of a heavy truck in cross-wind conditions, **Luigi Salati**, Politecnico di Milano

Forcing three-dimensional large-scale flow asymmetries in the wake of blunt body: wake equilibrium and drag reduction, **Yann Haffner**, Université de Poitiers (ISAE-ENSMA)

Aerodynamic design for advanced vehicle platooning concepts, **Geoffrey Le Good**, Coventry University

Characterisation of the low-frequency wake dynamics for a square-back vehicle equipped with side trailing edge tapers, **Giancarlo Pavia**, Loughborough University

Aerodynamic Shape Optimization of Double-Deck Trucks, **Kairui Wang**, University of Cambridge

Minivan car wake stability vs. ahmed body, **Olivier Cadot**, University of Liverpool

16:00 – 16:20 | Coffee Break

16:20 – 18:00 | Chairman: Emmanuel Guilmineau, École centrale de Nantes

Aerodynamic simulation of a wheel and tyre with deformation and flow through contact patch, **Diamantis Tournas**, Loughborough University

Investigation into the dynamics of wheel spray released from a rotating tyre of a simplified vehicle model, **Anton Kabanovs**, Loughborough University

Experimental study of wheel-vehicle aerodynamic interactions, **Yifei Wang**, Université de Poitiers (ISAE-ENSMA)

Influence of the underfloor geometry of a "hatchback" type ground vehicle in its drag coefficient, **Matheo Lopez Pachon**, University of los Andes

Numerical simulation of airflow in and around an open window bus with passengers, **Pawan Pant**, Indian Institute of Technology Delhi

18:00 – 20:00 | Wind Tunnel visit and cocktail

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THURSDAY, JUNE 14, 2018

9:00 – 9:40 | **Invited Speaker - Simona Invernizzi**, Dallara Automobili

9:40 – 11:00 | **Chairman: Charles-Henri Bruneau**, University of Bordeaux

Numerical simulations of a 2017 F1 car: influence of setup and slipstreaming on aerodynamic performance, **Umberto Ravelli**, University of Bergamo

Numerical and experimental flow analysis and control of a realistic SUV model, **Christian Navid Nayeri**, TU Berlin

Adjoint Optimization for External Aerodynamics, **Paolo Geremia**, Engys

Large-eddy simulation of a turbulent flow over the DrivAer fastback vehicle model, **Donghyun You**, Pohang University of Science and Technology

11:00 – 11:20 | **Coffee Break**

11:20 – 13:00 | **Chairman: Avraham Seifert**, Tel Aviv University

The development of $\frac{1}{4}$ model test capabilities for heavy road vehicles drag reduction studies, **Tamar Domb**, Tel Aviv University

Drag reduction of a yawed car model by combining fluidic flaps and turbulence control, **Ruiying Li**, Université de Poitiers (ISAE-ENSMA)

Experimental investigations on windscreen-pilot aerodynamic interactions on a race motorbike, **Giampaolo Romano**, Sapienza University of Rome

Boat-tailing effects on wake dynamics and force fluctuations, **Guillaume Bonnavion**, ENSTA ParisTech

An investigation into the influence of reduced Reynolds number in experiments on the wake of a realistic passenger vehicle, **Terence Avadiar**, Monash University

13:00 – 14:00 | **Lunch Break**

14:00 – 16:00 | **Chairman: Mikael Sima**, MSiCo AB

Study on the formation process of entry compression waves generated by a high-speed train entering tunnel, **Rohit Sankaran Iyer**, Andong National University

Prediction of micro-pressure waves phenomena in long train tunnels using 3D-CFD, **Martin Morén**, ÅF

Numerical study of the influence of synthetic turbulent inflow conditions on the aerodynamics and pressure distribution of a train, **Guang Chen**, Central South University

URANS simulation of the slip stream of a high speed train, **Alessandro Zampieri**, Politecnico di Milano

Numerical prediction of the slipstream caused by the trains with different marshalling forms entering a tunnel, **Zhenhua Jiang**, Central South University

Numerical simulation of the flow around a train model with uniform and non-uniform crosswinds, **Mohammad Mehdi Rashidi**, University of Birmingham

16:00 – 16:20 | **Coffee Break**

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16:20 – 18:00 | Chairman: Gisella Tomasini, Politecnico di Milano

Pressure transients caused by trains passing, **Stefanie Gillmeier**, University of Birmingham

Surface pressure on trains under tornado-like wind field, **Frederick Bourriez**, University of Birmingham

Boundary layer measurements of full-scale operational freight trains, **James Bell**, German Aerospace Center (DLR)

Cross-wind; from wind tunnel model to full-scale train, **Steve Cochard**, Stadler Rail

Influence of cavities on pressure waves inside of high-speed railway tunnels, **Daniela Heine**, German Aerospace Center (DLR)

19:15 – 20:30 | **Visit to the Milano Castle**

20:30 – 22:30 | **Conference Dinner**

FRIDAY, JUNE 15, 2018

9:00 – 9:40 | **Invited Speaker - Sinisa Krajnovic**, Chalmers University of Technology

9:40 – 11:40 | Chairman: Daniela Heine, German Aerospace Center (DLR)

Unsteady-pressure measurements of a high-speed train in a transient crosswind moving-model experiment, **Klaus Ehrenfried**, German Aerospace Center (DLR)

Comparison between train-tunnel pressure signatures: single unit vs double unit, **Elia Brambilla**, Politecnico di Milano

Infrastructure scenario effect on train aerodynamic coefficients, **Gisella Tomasini**, Politecnico di Milano

The influence of ground simulation and reynolds-number on the flow around high-speed trains, **Jonathan Tschepe**, BIT

The Effect of boundary layer control with roughness elements on the wake flow of moving train models, **Alexander Buhr**, German Aerospace Center (DLR)

Full scale investigation of train aerodynamic flows, **David Soper**, University of Birmingham

11:40 -12:00 | **Coffee Break**

12:00 – 13:40 | Chairman: Stéphanie Pellerin, Université Paris Sud (LIMSI)

Numerical simulations of flow around lorries in platoon, **Mingzhe He**, University of Birmingham

Fuel economy improvement by means of two European tractor semi-trailer combinations in a platooning formation, **Roy Veldhuizen**, WABCO Optiflow

An experimental investigation of slipstream and static pressure around a platoon of lorries, **Francis Robertson**, University of Birmingham

Numerical simulation of trucks platooning, **Charles-Henri Bruneau**, University of Bordeaux

Aerodynamic shape optimization through mesh morphing and model order reduction, **Angela Scardigli**, OPTIMAD Engineering

13:40 13:45 | **Cheers and concluding remarks**

13:45 - 14:30 | **Lunch Break**

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