European-African Conference on Wind Engineering 2017

4-7 July 2017

Conference Programme

Tuesday, July 4 (Day 1) – Keynote Lecture – 9:40-10:40

Prof. Christopher Letchford

Rensselaer Polytechnic Institute (USA)

"My Liege: Wind serving Engineering"

Moderator: Christopher Baker, University of Birmingham, UK

[1] Tuesday, July 4 (Day 1) – 11:10-12:30

Room 1: Bluff body aerodynamics - Square sections

(Chair: Claudio Mannini, University of Florence, Italy)

11:10-11:30 **#166 -** *Experimental wind tunnel tests and numerical analysis of the aerodynamic behaviour of a high tapered obelisk*
Luca Amerio, Tommaso Argentini, Luca Bernini, Federico Perotti, Alberto Zasso

11:30-11:50 **#233 -** *Unsteady pressure distributions on a 4:1 rectangular cylinder: comparison of numerical and experimental results using decomposition methods*
Amandine Guissart, Thomas Andrianne, G. Dimitriadis, V.E. Terrapon

11:50-12:10 **#129 -** *Computational studies of vortex-induced vibration of a bending 5:1 rectangular cylinder*
Dinh Tung Nguyen, David Hargreaves, John Owen

12:10-12:30 **#157 -** *Characterization of the shear layer instability on the 2D square prism*
Daniel Moore, Daniel Lander, Chris Letchford, Michael Amitay

Room 2: Wind energy

(Chair: Olivier Flamand, CSTB, France)

11:10-11:30 **#27 -** *Towards accurate performance prediction of a vertical axis wind turbine operating at different tip speed ratios*
Abdolrahim Rezaeiha, Ivo Kalkman, Bert Blocken

11:30-11:50 **#59 -** *On the influence of the shape of buildings in urban wind energy harvesting*
Giulio Vita, Hassan Hemida, Charalampos Baniotopoulos

11:50-12:10 **#243 -** *Wind flow potential above noise barriers for urban wind turbine applications near highways*
Nikolaos Chrysochoidis-Antsos, Ad van Wijk ⋆ PhD Award Candidate ⋆

12:10-12:30 **#242 -** *A new wind turbine full of innovative features dedicated to the African wind energy market*
Jacques Mambour, Patrick Hendrick, Michaël Nahant

Room 3: Wind codes and Equivalent static loads

(Chair: Hrvoje Kozmar, University of Zagreb, Croatia)

11:10-11:30 **#220 -** *Method of determining characteristic values of average and maximum wind pressure from the Carpathians zoning transcarpathian region*
Roman Kinasz, Yaroslav Huk

11:30-11:50 **#156 -** *A 100 years of along-wind loading provisions for chimneys*
Jerzy Antoni Zurański, Mariusz Gaczek

11:50-12:10 **#183 -** *The New Hong Kong wind code*
Andrew Allsop

12:10-12:30 **#250 -** *Adjustment of regulatory documents of the Russian Federation in the field of wind loads on building structures on the basis of learning and adaptation of the Eurocodes requirements*
Olga Poddaeva, Pavel Churin, Anastasia Fedosova, Oleg Egorychev

Lunch Break

[2] Tuesday, July 4 (Day 1) – 14:00-15:40

Room 1: Natural ventilation

(Chair: Shuyang Cao, Tongji University, China)

14:00-14:20 **#71 -** *Natural ventilation energy saving potential by CFD*
Theodore Stathopoulos, Leon (Liangzhu) Wang, Jun Cheng

14:20-14:40 **#122 -** *Numerical analysis of forced convective heat transfer coefficients at the facades of a low-rise building: influence of wind direction*
Samy Iousef, Hamid Montazeri, Bert Blocken, Pieter van Wesemael

14:40-15:00 **#227 -** *Large eddy simulation of a cross-ventilated building: validation and impact of inflow generators*
Raffaele Vasaturo, Ivo Kalkman, Bert Blocken, Pieter van Wesemael ⋆ PhD Award Candidate ⋆

15:00-15:20 **#139 -** *Wind tunnel experiments of cross-ventilative cooling in a generic isolated building with heated wall*
Katarina Kosutova, Christina Vanderwel, Twan van Hooff, Bert Blocken, Jan Hensen

Room 2: Wind energy - Harvesting

(Chair: Xavier Amondolèse, Ecole Polytechnique, France)

14:00-14:20 **#167 -** *Turbulence effects on the post-critical response of flutter-based generators*
Luca Pigolotti, Claudio Mannini, Gianni Bartoli

14:20-14:40 **#169 -** *Aerodynamic modification on slender structures for enhancing wind energy harvesting*
Gang Hu, K.T. Tse, K.C.S. Kwok

14:40-15:00 **#17 -** *A comparative wind tunnel study of energy harvesting from galloping and wake galloping of square prisms*
Pascal Hémon

15:00-15:20 **#73 -** *Aerodynamic design of a wind turbine diffuser with openfoam*
Félix Sorribes-Palmer, Angel Sanz-Andres, Sebastián Franchini, Mikel Ogueta

Room 3: Wind codes and Equivalent static loads

(Chair: Benoit Parmentier, CSTC, Belgium)

14:00-14:20 **#82** - *Wind tunnel measurements and comparisons with coding for a coke warehouse*
Mikel Ogueta-Gutiérrez, David González-Montecino, Félix Sorribes-Palmer, Sebastián Franchini, Ana Malo

14:20-14:40 **#204** - *Recent advancement in the extraction of Equivalent Static Wind Loads*
Luca Patruno, Mattia Ricci, Stefano de Miranda

14:40-15:00 **#67** - *A non-Gaussian probabilistic approach for estimating the equivalent static wind load on structures from unsteady pressure measurements in wind tunnel*
Wafaa Kassir, Christian Soize, Jean Vivien Heck, Fabrice De Oliveira

15:00-15:20 **#239** - *Extensive wind tunnel measurements to explore the conditional expected load method*
Nicolas Blaise, Thomas Andrianne, Vincent Denoël

Room 4: Cables and transmission lines

(Chair: Ashraf El Damatty, University of Western Ontario, Canada)

14:00-14:20 **#42** - *Role of low-frequency vortices on dry galloping of inclined stay cable*
Hiroshi Katsuchi, Hung Vo Duy, Hitoshi Yamada

14:20-14:40 **#165** - *Experimental study on multi-mode rain-wind induced vibrations of a flexible cable*
Dong-Lai Gao, Wen-Li Chen, Hui Li

14:40-15:00 **#103** - *Indoor tests for the aeolian vibration of transmission lines*
Tian Peng, Qiang Xie, Jian Zhang

15:00-15:20 **#178** - *Galloping instability of a stay cable attached with a viscous damper*
Cung Nguyen, John Macdonald

15:20-15:40 **#255** - *Similarity criteria for the sectional model of three conductors bundle of power lines at their aeroelastic vibrations*
Andrzej Flaga

Coffee Break

[3] Tuesday, July 4 (Day 1) – 16:10-17:50

Room 1: Extreme values

(Chair: Luca Patruno, University of Bologna, Italy)

16:10-16:30 **#229 -** *Problems and challenges when estimating extreme wind speeds*
Arvid Naess

16:30-16:50 **#79 -** *A method for estimating extreme wind pressure on independent blocks with short-term time history samples*
Qingshan Yang, Danyu Li

16:50-17:10 **#251 -** *Methods of increasing the accuracy of the simulation of wind effects based on preliminary statistical analysis of the frequency of occurrence of different wind forces in the directions*
Olga Poddaeva, Pavel Churin, Anastasia Fedosova, Oleg Egorychev

17:10-17:30 **#202 -** *Peak response of HAWTs to wind and seismic actions*
Alberto Maria Avossa, Cristoforo Demartino, Francesco Ricciardelli

Room 2: Pollutant dispersion - Street canyon flows

(Chair: Eric Savory, University of Western Ontario, Canada)

16:10-16:30 **#184 -** *CFD simulations of near-field pollutant dispersion with different plume buoyancies*
Yoshihide Tominaga, Ted Stathopoulos

16:30-16:50 **#56 -** *Dispersion within and above an array pf blocks in a spatially developing boundary layer*
Vincenzo Sessa, Xie Zheng-Tong ⋆ PhD Award Candidate ⋆

16:50-17:10 **#195 -** *The effect of the span-wise width of diffusion in the wind tunnel measurement for evaluating the effective stack height*
Hiroki Ono, Koichi Sada

17:10-17:30 **#248 -** *A street canyon vertical mass-exchange model including the influence of upstream flow regime and canyon geometry*
Eric Savory, Laurent Perret, Karin Blackman, Royston Fernandes

17:30-17:50 **#228 -** *Evaluation of computational domain on CFD simulation of flow in a long street canyon under a perpendicular wind direction*
Zhengtao Ai, Cheuk Ming Mak

Room 3: Probabilistic approaches

(Chair: Luca Caracoglia, Northeastern University, USA)

16:10-16:30 **#113** - *Wind-driven reliability analysis of temporary structures using full-probabilistic method*
Timothée Lonfils, Benoit Parmentier

16:30-16:50 **#244** - *Preliminary investigation to assess the application of ductility-based design approach for high rise buildings under extreme wind loads*
Fouad Elezaby, Ashraf El Damatty

16:50-17:10 **#237** - *Wind-induced damage loss estimation in tall buildings accounting for directionality effects*
Laura Ierimonti, Luca Caracoglia, Ilaria Venanzi

17:10-17:30 **#88** - *Investigation on damage and intervention costs induced by thunderstorm-like winds on tall buildings*
Luca Caracoglia

17:30-17:50 **#8** - *Probabilistic optimization of a suspension bridge deck considering correlation among wind related random variables*
Ibuki Kusano, Aitor Baldomir, José Angel Jurado, Santiago Hernandez

Room 4: Cables and transmission lines

(Chair: Luigi Carassale, University of Genova, Italy)

16:10-16:30 **#218** - *A corotational finite element formulation to model galloping vibrations of iced conductors*
Francesco Foti, Luca Martinelli

16:30-16:50 **#197** - *3DOF galloping analysis based on quasi-steady theory with reference to the aerodynamic stiffness*
John Macdonald, Mingzhe He

16:50-17:10 **#253** - *Wind tunnel tests of aerodynamic and aeroelastic interference phenomena of overhead electrical conductors bundle for different cases of their ice / frost / snow covers*
Andrzej Flaga, Lukasz Flaga, Piotr Krajewski

17:10-17:50 **#246** - *Analysis of transmission line structures under moving downburst*
Ahmed Shehata, Ashraf El Damatty

Welcome reception 18:00-19:30

Cocktail in the Entrance Hall of the Conference Center

Wednesday, July 5 (Day 2) – Keynote Lecture – 8:30-9:30

Arch. Paul Vincent

Paul Vincent Architecture (France)

"In search of common sense. A virtuous duality between natural ventilation and working practices"

Moderator: Olivier Flamand, CSTB, France

[4] Wednesday, July 5 (Day 2) – 09:40-10:40

Room 2: Computational Wind Engineering - atmospheric flows

(Chair: Rüdiger Höffer, Ruhr-Universitaet Bochum, Germany)

09:40-10:00 **#54 -** *Precursor simulation for LES validation study of the Michelstadt case*
Jörg Franke, Thanh Ha Pham

10:00-10:20 **#66 -** *Inflow uncertainty definition for atmospheric flows in rural and urban environments*
Clara García-Sánchez, Catherine Gorlé

10:20-10:40 **#118 -** *Sensitivity test of different inflow conditions for CFD simulations of wind flow in urban areas*
Alessio Ricci, Massimiliano Burlando, Andrea Freda, Maria Pia Repetto, Ivo Kalkman, Bert Blocken ⋆ PhD Award Candidate ⋆

Room 3: Vegetation and bio-inspired aerodynamics

(Chair: Emmanuel de Langre, Ecole Polytechnique, France)

09:40-10:00 **#106 -** *Wind-induced foliage dynamics*
Loïc Tadrist, Marc Saudreau, Pascal Hémon, Xavier Amandolèse, André Marquier, Tristan Leclercq, Emmanuel de Langre

10:00-10:20 **#51 -** *On the fluid dynamics of circular cylinders with span-wise waviness*
Kai Zhang, Hiroshi Katsuchi, Hitoshi Yamada, Dai Zhou

10:20-10:40 **#6 -** *Reducing losses due to crop lodging*
Christopher Baker, Mark Sterling

Room 4: Damping and vibration mitigation

(Chair: Kazutoshi Matsuda, Kyushu Institute of Technology, Japan)

09:40-10:00 **#187 -** *Evaluation of damping and natural period of tall RC buildings using full-scale data*
Hongjin Kim, Seung-Hoon Shin, Kyung-Jae Shin, Whajung Kim

10:00-10:20 **#23 -** *A force action based interpretation of damping*
Robert McNamara

10:20-10:40 **#259 -** *Method for preliminary design of a viscous damper system, applied to a tall building*
Philippe Duflot, Giovanni Vigano, Vincent Denoël

Coffee Break

[5] Wednesday, July 5 (Day 2) – 11:10-12:30

Room 1: Bluff body aerodynamics - Interferences

(Chair: Mingshui Li, Beijing Jiaotong University, China)

11:10-11:30 **#74 -** *In-line oscillation characteristics of two square cylinders in a tandem arrangement*
Kazutoshi Matsuda, Kusuo Kato, Kentaro Suda, Yuta Nakamura

11:30-11:50 **#141 -** *Experimental and numerical aerodynamic optimization of a post-tensioned concrete railway bridge in tandem arrangement with a truss road bridge*
Luca Amerio, Tommaso Argentini, Daniele Rocchi, Alberto Zasso

11:50-12:10 **#164 -** *A low Re flow around four side-by-side circular cylinders*
MD Mahbub Alam, Qinmin Zheng, Kerry Hourigan

12:10-12:30 **#19 -** *Dynamic properties of wind-excited linked tall buildings considering both intra- and inter-building structural couplings*
Jie Song, Shuguo Liang, Gang Hu

Room 2: Wind-driven rain

(Chair: Yoshihide Tominaga, Niigata Institute of Technology, Japan)

11:10-11:30 **#215 -** *Application of CFD simulations of Wind-driven rain (WDR) on the new roof extension for San Mames New Football Stadium*
Javier Llarena, Lourdes Cabezuelo, Armando Bilbao

11:30-11:50 **#96 -** *Field measurements of wind-driven rain: verification and expansion of site wind conditions*
Vincent Chiu, Hua Ge, Ted Stathopoulos

11:50-12:10 **#15 -** *Numerical modelling of wind-blown rain on railway station platforms and mitigation through canopy design*
Dominic Flynn, Hassan Hemida, Chris Baker

12:10-12:30 **#77 -** *Calculation of the driving rain wall factor using ray-tracing*
Stella Tsoka, Thomas K. Thiis

Room 3: Measuring Techniques

(Chair: Daniele Rocchi, Politecnico di Milano, Italy)

11:10-11:30 **#44 -** *Measuring wind with micro planes*
Simon Watkins, Abdulghani Mohamed, Samuel Prudden, Matthew Marino, Reece Clothier, Alex Fisher

11:30-11:50 **#186 -** *On the use of Irwin probes to measure wall shear stress in rectangular ducts of variable section using Openfoam*
Raquel Faria, Almerindo Ferreira, A.M.G. Lopes, Antonio C. M. Sousa

11:50-12:10 **#192 -** *Experimental and numerical appraisal of wind-induced noise*
Sergey Mijorski, Magnus Lysfjord, Stefano Cammelli, Ganesh Krishnan, Richard Jackett

Room 4: Damping and vibration mitigation

(Chair: Hongjin Kim, Kyungpook National University, Republic of Korea)

11:10-11:30 **#121 -** *A novel fully-coupled computational wind-structure interaction approach for the design of added mass dampers*
Mate Pentek, Roland Wuchner, Kai-Uwe Bletzinger ⋆ PhD Award Candidate ⋆

11:30-11:50 **#53 -** *Amplitude-dependent damping ratio of a cable-suspended roof identified from full-scale data*
Bo Chen, Xiaohong Wang, Qingshan Yang

11:50-12:10 **#94 -** *Dynamic response of an RC high-rise building under wind load, and energy dissipation systems effect*
Aboubaker Gherbi, Mourad Belgasmia

12:10-12:30 **#203 -** *Flutter suppression using a magnetic vibration absorber*
Arnaud Malher, Xavier Amandolèse, Cyril Touzé, Olivier Doaré, Giuseppe Habib, Gaëtan Kerschen

Lunch Break

[6] Wednesday, July 5 (Day 2) – 14:00-15:40

Room 1: Non-stationary winds

(Chair: Giovanni Solari, University of Genova, Italy)

14:00-14:20 **#142** - *Pressure distribution over a typical low-rise building under laboratory simulated tornado vortices*
Maryam Refan, Ahmed Elatar, Horia Hangan

14:20-14:40 **#90** - *Effect of steady stationary laboratory simulated downburst flow on a standard tall building*
Chowdhury Jubayer, Horia Hangan

14:40-15:00 **#35** - *Threats to people and infrastructure in Poland caused by tornadoes based on the past observations*
Tadeusz Chmielewski

15:00-15:20 **#249** - *A parametric study of downbursts using a full-scale cooling source model*
Eric Savory, Christopher Oreskovic, Leigh Orf

15:20-15:40 **#86** - *Statistical analysis of extreme wind speed due to thunderstorm outflows*
Shi Zhang, Maria Pia Repetto, Giovanni Solari, Qingshan Yang ⋆ PhD Award Candidate ⋆

Room 2: Computational wind engineering - atmospheric flows

(Chair: Hamid Montazeri, Leuven University, Belgium)

14:00-14:20 **#245** - *Numerical simulation of WINDEEE dome downburst for open terrain using physical roughness elements*
Ibrahim Ibrahim, Ashraf El Damatty, H. Aboshosha

14:20-14:40 **#78** - *A new urban test campaign for numerical uncertainty quantification*
Jorge Sousa, Catherine Gorlé

14:40-15:00 **#104** - *Study of RANS simulation of ABL flow over complex terrains - comparison with LIDAR monitoring at Xiao-Ping-Ding*
Yi-Chao Li, Cheng-Hsin Chang, Tsung-Chin Yang

15:00-15:20 **#111** - *Numerical modeling of urban microclimate in a real compact area in the Mediterranean region: impact of urban morphology*
Olga Palusci, Hamid Montazeri, Bert Blocken, Paolo Monti, Carlo Cecere

Room 3: Façades and cladding

(Chair: Alberto Zasso, Politecnico di Milano, Italy)

14:00-14:20 **#38** - *Controlling of sun protecting systems at outside glass facades by wind characteristic method*
Hans Ruscheweyh, Reiner Windhövel

14:20-14:40 **#257** - *Forces and pressure distributions on building facades with a screen: experimental twodimensional studies.*
Andrea Giachetti, Claudio Mannini, Gianni Bartoli ⋆ PhD Award Candidate ⋆

14:40-15:00 **#47** - *Wind loads on external sun blinds: a case study*
Chris Geurts, Okke Bronkhorst, Carine van Bentum

15:00-15:20 **#126** - *Experimental investigation on the spatial distribution of wind pressure on building facades. Comparison between time-filtering and area-filtering of wind tunnel data.*
Andrew Allsop, Luca Amerio, Daniele Rocchi, Alberto Zasso

15:20-15:40 **#115** - *Overall wind loads on large duo-pitch multi-span greenhouses*
Okke Bronkhorst, Carine van Bentum, Chris Geurts, Leo van der Knaap

Room 4: Structural analysis and design

(Chair: Claudio Borri, BBP Engineering, Italy)

14:00-14:20 **#117** - *Wind force coefficients for H.P.-shaped solid and porous canopy roofs*
Yasushi Uematsu, Yukari Miyamoto, Eri Gavanski

14:20-14:40 **#230** - *CFD and PIV study of the airflow in and around a saddle-shaped double-roofed stadium*
Rubina Ramponi, Giulia Matteoni, Paul Lynch, Mutlu Ucuncu, Steve Walker

14:40-15:00 **#234** - *Wind-induced vibrations of torsionally coupled systems with soil-foundation-structure interaction*
Ming-Yi Liu, Sheng-Yin Huang

15:00-15:20 **#26** - *Experimental investigation on the wind force of a scaffolding system*
Fuh-Min Fang, Shi-Xian Chang, Chen-Yang Chung, Yi-Chao Li, Chern-Hwa Chen

Coffee Break

[7] Wednesday, July 5 (Day 2) – 16:10-17:50

Room 1: Non-stationary winds

(Chair: Eric Savory, University of Western Ontario, Canada)

16:10-16:30 **#28** - *Analysis of the duration of high winds during hurricanes*
Gregory Kopp, Sihan Li, Hanping Hong

16:30-16:50 **#235** - *A probabilistic framework for risk assessment of electric power transmission lines subjected to hurricanes*
Abdullahi Salman, Yue Li

16:50-17:10 **#176** - *Influence of background winds and storm motion on downburst outflow*
Djordje Romanic, Dan Parvu, Horia Hangan

17:10-17:30 **#247** - *Lessons learned from testing of a transmission line model at the WindEEE dome under simulated downbursts*
Amal Elawady, Ashraf El Damatty ⋆ PhD Award Candidate ⋆

17:30-17:50 **#3** - *A paramedic study of the effect of a tornado generator's geometric design on the flow field*
Stefanie Gillmeier, Mark Sterling, Hassan Hemida ⋆ PhD Award Candidate ⋆

Room 2: Computational Wind Engineering - loads on structures

(Chair: Luca Patruno, University of Bologna, Italy)

16:10-16:30 **#225** - *Large eddy simulations for wind loads assessment: benchmark on a high-rise building*
Mattia Ricci, Luca Patruno, Ivo Kalkman, Bert Blocken, Stefano de Miranda ⋆ PhD Award Candidate ⋆

16:30-16:50 **#72** - *Large-eddy simulations of the atmospheric boundary layer for calculating wind loads on buildings*
Giacomo Lamberti, Clara García-Sánchez, Catherine Gorlé

16:50-17:10 **#50** - *Comparison of CFD simulations with a benchmark wind tunnel test for wind loads*
Okke Bronkhorst, Carine van Bentum, Chris Geurts, Corina Hulsbosch-Dam

17:10-17:30 **#174** - *CFD study towards a solution for wind speed gradient reduction by large wind screens near a car carrier port*
Wendy Janssen, Bert Blocken, Herm Jan van Wijhe

17:30-17:50 **#125** - *Vortex induced vibrations on circular structures: Numerical modeling of aerodynamic loads.*
Ulf Winkelmann, Anina Šarkić Glumac, Francesca Lupi, Ruediger Hoeffer

Room 3: Photovoltaic and solar arrays

(Chair:)

16:10-16:30 **#58** - *Peak negative pressure coefficients on low-tilted solar arrays mounted on flat roofs: The effects of building size and model scale*
Thorsten Kray, Jantje Paul

16:30-16:50 **#34** - *Wind tunnel tests to study the wind loads on and reduce the ballast needed for solar energy systems on flat roofs*
Marcel van Uffelen

16:50-17:10 **#45** - *Wind loads on solar arrays mounted on flat roofs*
Jingxue Wang, Qingshan Yang, Yukio Tamura

17:10-17:30 **#177** - *Comparison between wind tunnel and computational predictions of the shear velocity distribution along a flat roof with solar panels*
Almerindo Ferreira, Thomas Thiis

17:30-17:50 **#48** - *Full scale investigation of wind loads on a light weight building-integrated photovoltaic system*
Chris Geurts, Okke Bronkhorst, Carine van Bentum

Room 4: Structural analysis and design

(Chair: Jonas Snæbjörnsson, Reykjavik University, Iceland)

16:10-16:30 **#232** - *Quantification of effect of inclined webs on flutter performance of box girders*
Qi Wang, Haili Liao, Mingshui Li

16:30-16:50 **#119** - *Experimental verification of a generic buffeting load model for high-rise and long-span structures*
Robin George Srouji, Kristoffer Hoffmann, Svend Ole Hansen

16:50-17:10 **#205** - *The Third Bosphorus Bridge: the aerodynamic stability of the steel segments during lifting operations*
Vincent de Ville de Goyet, Yves Duchene, Thomas Andrianne

17:10-17:30 **#208** - *The Third Bosphorus Bridge: its behavior under wind during different erections stages and the final configuration*
Vincent de Ville de Goyet, Yves Duchene, Arnaud Propson, Christophe Peigneux

17:30-17:50 #**95** - *Nonlinear behavior of high-rise steel building under wind effect taking into account soil-structure interaction*
Souhaib Bougherra, Mourad Belgasmia

Gala Diner 19:00-23:00

at the Ferme du Banneway

Bus leaving from the Guillemins station at 19:00

[8] Thursday, July 6 (Day 3) – 08:40-09:40

Room 1: Fluid Structure Interaction - Bridges

(Chair: Pascal Hémon, Ecole Polytechnique, France)

08:40-09:00 **#83 -** *Flutter and galloping of bridge decks with roadway wind barriers*
Andrija Buljac, Hrvoje Kozmar, Stanislav Pospíšil, Michael Macháček

09:00-09:20 **#92 -** *Tacoma Narrows Bridge flutter - Theory, experiment and full-scale observation*
Maja Rønne, Marlene Grundvig Malthe, Allan Larsen ⋆ PhD Award Candidate ⋆

09:20-09:40 **#206 -** *The Third Bosphorus Bridge: from a cardboard model to reality by the way of the wind tunnel laboratory*
Vincent de Ville de Goyet, Thomas Andrianne

Room 2: Optimization and advanced tools

(Chair: Casimir Katz, SOFiSTiK AG, Germany)

08:40-09:00 **#154 -** *Application of surrogate models in the characterization of the aerodynamic response of streamlined bridge decks*
Miguel Cid Montoya, Felix Nieto, Ibuki Kusano, Antonio J. Á lvarez, Santiago Hernandez, José Á ngel Jurado

09:00-09:20 **#93 -** *A multi-fidelity shape optimization via surrogate modeling for civil structures*
Fei Ding, Ahsan Kareem, Seymour Spence

09:20-09:40 **#13 -** *Optimum design of cable stayed bridges with single box deck considering aeroelastic and structural constraints*
Miguel Cid Montoya, Santiago Hernández, Félix Nieto ⋆ PhD Award Candidate ⋆

Room 4: Human comfort

(Chair: Hassan Hemida, University of Birmingham, UK)

08:40-09:00 **#7 -** *The safety of pedestrians, cyclists and high sided vehicles in urban areas in windy conditions*
Christopher Baker, Andrew Quinn, Hassan Hemida, Mark Serling, Mike Jesson, Dominic Flynn

09:00-09:20 **#41 -** *The effect of urban geometry of London on pedestrian level wind speeds - A quantitative analysis*
Leonidas Tsichritzis, Marialena Nikolopoulou ⋆ PhD Award Candidate ⋆

09:20-09:40 **#175 -** *The effects of lift-up design of high-rise buildings on the pedestrian-level wind environment*
Xuelin Zhang, Asiri Weerasuriya, K.T. Tse, K.C.S. Kwok, Cheuk Ming Mak, Jianlei Niu

Thursday, July 6 (Day 3) – Keynote Lecture – 8:50-9:50

Prof. Luigi Carassale

Università degli Studi di Genova (Italy)

"Processing wind pressure data: from art towards an industrial standard"

Moderator: Ahsan Kareem, University of Notre-Dame, USA

[9] Thursday, July 6 (Day 3) – 11:10-12:30

Room 1: Fluid Structure Interaction

(Chair: Thomas Andrianne, University of Liège, Belgium)

11:10-11:30 **#231 -** *Wind tunnel tests and performance improvement of a conveyor suspension bridge*
Francesco Dorigatti, Christopher Scollard, Guy Larose, Pierre-Olivier Dallaire

11:30-11:50 **#143 -** *Numerical simulation of the torsional stall flutter of a parabolic trough solar collector*
Michael Andre, Roland Wuchner, Kai-Uwe Bletzinger

11:50-12:10 **#198 -** *Unsteady forces on flat-plate and panel due to a sudden variation of the wind direction*
Xavier Amandolèse, Yuelong Yu, Yingzheng Liu

12:10-12:30 **#128 -** *2D URANS simulation of aerodynamic loads on a pitching airfoil: Impact of computational parameters*
Feiyu Geng, Ivo Kalkman, Akke Suiker, Bert Blocken

Room 2: Special structures and methods

(Chair: Chris Geurts, TNO, Netherlands)

11:10-11:30 **#108 -** *Wind tunnel tests and numerical investigation in order to optimize the system of demolition of a nuclear power plant chimney*
Maria Esposito, Maurizio Arena, Leandro Maio, Antonio Dimatteo, Stefano Castelli, Leonardo Lecce

11:30-11:50 **#209 -** *The Louis Vuitton Foundation and its design under turbulent wind*
Vincent de Ville de Goyet, Amaury Leroy

11:50-12:10 **#87 -** *Proper orthogonal decomposition of random pressure fields acting on tall buildings*
Luca Vacca, Stefano Cammelli, Yin Fai Li

12:10-12:30 **#116 -** *A solid-fluid coupling simulation for wind borne debris: autorotating flat plate and flying flat plate*
Kazuaki Uchibori, Tetsuro Tamura

Room 3: Full-scale measurements

(Chair: Elsa Caetano, University of Porto, Portugal)

11:10-11:30 **#65** - *Evaluation of Wind-induced response predictions of a long-span suspension bridge using full-scale measurements*
Aksel Fenerci, Ole Øiseth ⋆ PhD Award Candidate ⋆

11:30-11:50 **#222** - *Identification of a slight vortex induced vibration episode at the Grande Ravine Viaduct*
Fernando Bastos, Elsa Caetano, Á lvaro Cunha, Xavier Cespedes, Olivier Flamand

11:50-12:10 **#150** - *Measurements of low-frequency wind spectral properties relevant to design of long-span bridges*
Etienne Cheynet, Jasna Bogunović Jakobsen, Jónas Thór Snaebjörnsson

12:10-12:30 **#55** - *Quantitative relationship between surface roughness parameters obtained from building information database and wind turbulence near the ground surface*
Ryoji Sasaki, Yasushi Uematsu

Room 4: Wind and structures: special stochastic analysis

(Chair: Jiri Naprstek, Inst. Theoretical and Applied Mechanics, Czech Republic)

11:10-11:30 **#226** - *Closed-form prediction of the wind-induced fatigue of structures*
Maria Pia Repetto, Michela Damele

11:30-11:50 **#163** - *Coupled aerodynamic and hydrodynamic response of a long span bridge suspended from floating towers*
Jungao Wang, Jónas Thór Snaebjörnsson, Jasna Bogunović Jakobsen, Etienne Cheynet

11:50-12:10 **#172** - *Aeroelastic stability of a two-degrees of freedom system with additive and multiplicative narrow band random noises*
Jiri Naprstek, Stanislav Pospíšil

12:10-12:30 **#240** - *rotational stability of a stochastic oscillator*
Hélène Vanvinckenroye, Vincent Denoël

Lunch Break

[10] Thursday, July 6 (Day 3) – 14:00-15:40

Room 1: Fluid Structure Interaction - VIV

(Chair: Francesca Lupi, Ruhr-Universität Bochum, Germany)

14:00-14:20 **#170 -** *Modeling of vortex-induced vibrations of an elongated rectangular cylinder through wake-oscillator models*
Antonino Maria Marra, Claudio Mannini, Gianni Bartoli

14:20-14:40 **#144 -** *Aeroelastic forces in vortex-induced vibrations: critical analysis based on wind tunnel experiments*
Francesca Lupi, Hans-Juergen Niemann, Ruediger Hoeffer

14:40-15:00 **#214 -** *Interference of vortex-induced vibration and galloping of a rectangular cylinder in turbulent flow*
Claudio Mannini, Antonino Maria Marra, Tommaso Massai, Gianni Bartoli

Room 2: Computational Wind Engineering - atmospheric flows

(Chair: Hamid Montazeri, Leuven University, Belgium)

14:00-14:20 **#110 -** *Steady RANS simulation of the homogeneous neutrally stratified atmospheric boundary layer*
Mihael Cindori, Franjo Juretić, Hrvoje Kozmar, Ivo Dzijan

14:20-14:40 **#80 -** *RANS turbulence model form uncertainty quantification for the flow around a wall-mounted cube*
Stéphanie Zeoli, Laurent Bricteux, Catherine Gorlé

14:40-15:00 **#182 -** *Large eddy simulation of pressure fluctuations on a surface-mounted cube*
Romain Guichard

15:00-15:20 **#210 -** *Large-eddy simulations of flow around a high-rise building: Validation and sensitivity analysis on turbulent statistics*
Tsubasa Okaze, Hideki Kikumoto, Hiroki Ono, Masashi Imano, Takamasa Hasama, Takeshi Kishida, Keisuke Nakao, Naoki Ikegaya, Yuichi Tabata, Yoshihide Tominaga

Room 3: Wind tunnel testing

(Chair: Thorsten Kray, I.F.I. Institut für Industrieaerodynamik GmbH, Germany)

14:00-14:20 **#24** - *Wind tunnel testing of bridge deck section models with a new forced vibration rig*
Bartosz Siedziako, Ole Øiseth, Anders Rønnquist

14:20-14:40 **#60** - *Identifying aerodynamic derivatives of a slotted box girder in a forces vibration set up using a harmonic and arbitrary motion*
Henrik Skyvulstad, Bartosz Siedziako, Ole Øiseth

14:40-15:00 **#112** - *Time domain modelling of self-excited aerodynamic forces for bridge decks. An experimental study*
Ole Øiseth, Bartosz Siedziako, Yuwang Xu

15:00-15:20 **#238** - *Experimental and numerical studies on suppression of vortex-induced vibrations of twin box girders by central grids*
Qiang Zhou, Junxin Wang, Haili Liao, Hongmiao Jing, Mingshui Li

15:20-15:40 **#131** - *Study on extraction parameters of flutter derivatives for the development of a time-domain formulation of self-excited forces*
Sébastien Maheux, Sébastien Langlois, Fédéric Légeron ⋆ PhD Award Candidate ⋆

Room 4: Human comfort

(Chair: Bert Blocken, TU Eindhoven , Netherland)

14:00-14:20 **#147** - *Numerical and wind-tunnel evaluation of ventilation conditions in a real compact heterogeneous urban area*
Nestoras Antoniou, Hamid Montazeri, Hans Wigo, Marina Neophytou, Bert Blocken, Mats Sandberg

14:20-14:40 **#18** - *The effect of changing the windward wall geometry of traditional wind tower (wind catcher) on aerodynamic behavior and natural ventilation in arid regions*
Nasreddine Sakhri, Abdeljebar Moussaoui, Belkacem Draoui, Aicha Choumane

14:40-15:00 **#252** - *The effects of green features on natural ventilation in buildings*
Cheuk Ming Mak, Hai Ming Wong

15:00-15:20 **#256** - *Improvement of pedestrian level wind comfort near complex of high-rise buildings in Warsaw by using wind protection shields*
Andrzej Flaga, Agnieszka Porowska, Renata Klaput

Coffee Break

[11] Thursday, July 6 (Day 3) – 16:10-17:50

Room 1: Fluid Structure Interaction - Buildings

(Chair: Gianni Bartoli, University of Florence, Italy)

16:10-16:30 **#98** - *Wind-induced structural forces on MWFRS of low-rise buildings with a 4:12 hipped roof*
Shuai Shao, Yuji Tian, Qingshan Yang, Ted Stathopoulos ⋆ PhD Award Candidate ⋆

16:30-16:50 **#188** - *Wind tunnel study of interference effects between twin chimney stacks on spatial distribution of wind loads*
Jiadong Zeng, Mingshui Li ⋆ PhD Award Candidate ⋆

16:50-17:10 **#236** - *Interference effects between two elliptic towers: wind tunnel experiments combined with CFD analyses*
Michal Franek, Nicolas Blaise, Thomas Andrianne

17:10-17:30 **#101** - *Aero-elastic behavior of high-rise buildings under downstream interference effects*
Yuan-Lung Lo, Yong Chul Kim, Akihito Yoshida

17:30-17:50 **#193** - *Fluid-structure interaction analysis of high-rise building with inner balcony and corner cut*
Takamasa Hasama, Yoshiaki Itoh, Manabu Yamamoto, Toshihide Saka, Koji Kondo, Tetsuro Tamura, Mitsuo Yokokawa

Room 2: Lidar measurement

(Chair: Jasna Bogunovic Jakobsen, University of Stavanger, Norway)

16:10-16:30 **#149** - *Wind turbulence measurements above the sea in an open fjord inlet using long-range synchronized lidars*
Etienne Cheynet, Jasna Bogunović Jakobsen, Jónas Thór Snaebjörnsson, Guillaume Lea, Benny Svardal, Jakob Mann, Michael Courtney

16:30-16:50 **#158** - *Measurement of the wind tunnel simulated boundary layer characteristics using short-range WindScanner Lidars*
Alberto Zasso, Stefano Giappino, Torben Mikkelsen, Mikael Sjöholm, Nikolas Angelou

16:50-17:10 **#201** - *Vertical mean wind profiles identification using Wind Lidars: an application to the area of Lamezia Terme*
Cristoforo Demartino, Alberto Maria Avossa, Francesco Ricciardelli, Claudia Roberta Calidonna

Room 3: Lattice structures and scaffoldings

(Chair: Vincent de Ville de Goyet, BE Greisch, Belgium)

16:10-16:30 **#162 -** *Investigation of crosswind-induced load effects on free-standing lattice towers*
Ileana Calotescu, Andrea Freda, Giovanni Solari

16:30-16:50 **#179 -** *Wind flow patterns around scaffoldings from full-scale measurements*
Paulina Jamińska-Gadomska, Tomasz Lipecki, Jaroslaw Bęc, Ewa Blazik-Borowa

16:50-17:10 **#180 -** *In-situ measurements of wind action on scaffoldings*
Paulina Jamińska-Gadomska, Tomasz Lipecki, Jaroslaw Bęc, Ewa Blazik-Borowa

17:10-17:30 **#114 -** *Automatized structural optimization of lattice towers using realistic wind loads*
Mirko Friehe, Frank Kemper

Room 4: Human comfort

(Chair: Cheuk Ming Mak, Hong Kong Polytechnic University, Hong Kong)

16:10-16:30 **#132 -** *The use of CFD vs. wind tunnel testing in wind microclimate assessments*
Krishan Jayyaratnam, Ruth Shilston, Daniel Hackett

16:30-16:50 **#84 -** *Uncertainty quantification of an integral model and a CFD model to predict natural ventilation in Stanford's Y2E2 building*
Giacomo Lamberti, Catherine Gorlé

16:50-17:10 **#145 -** *Design of the Citadel of Bonifacio urban area through experimental and numerical assessment of pedestrian comfort*
Sylvain Aguinaga, Stephane Sanquer, Dominique Dias, Marc Dufresne de Virel, Julien Guilhot, Cécile Nguyen

17:10-17:30 **#130 -** *Revisiting the London wind climate*
Daniel Hackett

Award Ceremony 18:00-18:45

The Wind Engineer Contest – The PhD Award – Le Prix Innovant – Closing speeches

[12] Friday, July 7 (Day 4) – 08:40-10:40

Room 1: Debris, erosion, sand, snow

(Chair: Mark Sterling, University of Birmingham, UK)

08:40-09:00 **#2 -** *Debris path in tornado-like vortices*
Frederick Bourriez, Mark Sterling, Chris Baker

09:00-09:20 empty slot

09:20-09:40 **#171 -** *A new measurement approach to analyse aeolian particle deposition with a 3D photogrammetry technique in the boundary layer wind tunnel*
Cornelia Kalender, Volkmar Görnandt, Yi Wang, Simon Kosse, Ruediger Hoeffer

09:40-10:00 **#217 -** *Experimental investigation of snow accumulation*
Jennifer Fiebig, Holger Hundborg Koss

10:00-10:20 **#64 -** *Numerical modeling of ice accretion shape due to freezing precipitation on engineering structures*
Krzysztof Szilder

Room 2: Sports aerodynamics

(Chair: Thierry Marchal, ANSYS Belgium, Belgium)

08:40-09:00 **#99 -** *A progressive adoption of CFD for sport engineering: from motorsports to athlete-specific modeling*
Thierry Marchal

09:00-09:20 **#11 -** *Numerical analysis of drag of different cyclist positions for hill descent*
Bert Blocken, Thijs van Druenen, Yasin Toparlar, Thomas Andrianne, Thierry Marchal

09:20-09:40 **#29 -** *Numerical analysis of the aerodynamics of cyclists during team time trial rotation*
Thijs van Druenen, Yasin Toparlar, Bert Blocken, Thomas Andrianne

09:40-10:00 **#39 -** *Numerical analysis of aerodynamic forces acting on a couple of cyclists in cross wind conditions*
Fabio Malizia, Hamid Montazeri, Peter Hespel, Bert Blocken, Thomas Andrianne

10:00-10:20 **#43 -** *An investigation of tandem cycling aerodynamics*
Paul Mannion, Yasin Toparlar, Bert Blocken, Magdalena Hajdukiewicz, Thomas Andrianne, Eoghan Clifford

10:20-10:40 **#69 -** *Aerodynamic interaction between a motorcycle and cyclist in shifted configurations*
Yasin Toparlar, Bert Blocken, Thomas Andrianne

Room 3: Trains and vehicle aerodynamics

(Chair: Dominic Flynn, University of Birmingham, UK)

08:40-09:00 **#5 -** *The calculation of train stability in tornado winds*
Christopher Baker

09:00-09:20 **#16 -** *A full-scale experimental study of freight train aerodynamics*
David Soper, Chris Baker

09:20-09:40 **#20 -** *The aerodynamic flow beneath a high speed train: A numerical and experimental analysis*
Dominic Flynn, David Soper, Adam Jackson, Hassan Hemida, Chris Baker

09:40-10:00 **#89 -** *Cross-Wind load effects on different vehicle body geometries*
Kaustav Bhadra, Sabareesh Geetha Rajasekharan, Ram Chandra Murthy K.

10:00-10:20 **#9 -** *Aerodynamic and hydrodynamics aspects of the operation of trains through floodwater*
Chris Baker, Hassan Hemida, Andrew Quinn, Mike Jenson, Dominic Flynn

10:20-10:40 **#36 -** *Aerodynamic force on railway vehicles on an embankment in a turbulent boundary layer flow and a smooth flow*
Yuhei Noguchi, Minoru Suzuki, Koji Nakade

Coffee Break

[13] Friday, July 7 (Day 4) – 11:10-12:30

Room 1: Wind tunnel design or re-design

(Chair: Olivier Flamand, CSTB, France)

11:10-11:30 **#185** - *Inflatable walls for wind tunnels*
Olivier Flamand, Anthony Couzinet, Jean-Christophe Thomas

11:30-11:50 **#212** - *Jules Verne 2.0, renewal of a large wind tunnel facility*
Pierre Palier, Jean-Paul Bouchet, Sylvain Aguinaga, Anthony Couzinet, Philippe Delpech

11:50-12:10 **#219** - *Benchmark for self-accreditation*
Holger Hundborg Koss, Leika D. Jørgensen, Per J. Jørgensen, Morten K. Rasmussen

Room 2: Wind Turbines

(Chair: Allan Larsen, COWI, Denmark)

11:10-11:30 **#107** - *Effects of wind-wave misalignment on the dynamic response of an offshore wind turbine in highly nonlinear waves*
Agota Mockute, Enzo Marino, Claudio Borri

11:30-11:50 **#258** - *Design methods to assess the resistance of offshore wind turbine structures impacted by a ship*
Sara Echeverry, Hervé Le Sourne, Andreea Bela, Timothée Pire, Philippe Rigo

11:50-12:10 **#22** - *Determination of aerodynamic damping and vortex-shedding correlation length of wind turbine towers based on wind tunnel experiments with high frequency force balance (HFFB) and forced-oscillations methods*
Robert Fontecha, Frank Kemper, Markus Feldmann

Room 3: Field measurement

(Chair: Ole Øiseth, NTNU, Norway)

11:10-11:30 **#109** - *Turbulence structures around the Rock of Gibraltar*
Elvin Hii, Kevin Gouder, Stefano Cammelli, David Hankin

11:30-11:50 **#189** - *Experimental investigation of wind-induced responses considering interference of twin chimney stacks*
Mingshui Li, Ruwei Ma, Bibo Zhong

11:50-12:10 **#25** - *Field monitoring of the forth road bridge*
John Owen, Xiaolin Meng

12:10-12:30 #**57** - *Wind field characteristics at Hardanger Bridge site: comparison of wind tunnel terrain model tests with full-scale measurements*
Tor Martin Lystad, Aksel Fenerci, Ole Øiseth

Lunch Break

List of authors