8th European-African Conference on Wind Engineering

Program

September 20-23, 2022, Bucharest, Romania

8th European-African Conference on Wind Engineering

September 20-23, 2022

Bucharest, Romania

Organized by:

Romanian Association for Wind Engineering (ARIV)
Romania
and
Technical University of Civil Engineering Bucharest (UTCB)
Bucharest, Romania

PREFACE

The Eighth European-African Conference on Wind Engineering (8EACWE2022) is organized by the Romanian Association for Wind Engineering (ARIV) together with the Technical University of Civil Engineering Bucharest (UTCB) under the auspices of the International Association of Wind Engineering (IAWE).

8EACWE2022 the eighth in the series of European and African conferences organized on a four-year cycle under the auspices of the International Association of Wind Engineering (IAWE). The first EACWE was held in Guernsey in 1993 and was followed by conferences in Genoa (1997), Eindhoven (2001), Prague (2005), Florence (2009), Cambridge (2013) and Liège (2017).

The event brings together professionals from universities, research centers, design companies, public authorities, insurance companies and representatives of institutions with responsibilities with the wind-related disasters management. Their contributions promote the latest research and developments from a wide range of topics like wind loads on structures, aeroelasticity and bluff body aerodynamics, to codes, norms and standards, computational wind engineering, field monitoring, full scale and wind tunnel measurements, flow-structure interaction, human comfort and built environment, loads due to hurricanes, tornadoes, and downbursts, pollution dispersion, modelling and simulation, wind climate and the atmospheric boundary layer, windborne debris, wind energy resource assessment, wind disaster mitigation, and wind and snow.

We are very confident that 8EACWE2022 is an outstanding chance to significantly extend the boundaries of wind engineering community to Eastern Europe and to strengthen the partnership between researchers and practitioners, from all around the world.

We hope you enjoyed the event, the high-quality of papers and presentations and you spent a wonderful time in Bucharest.

Mihail Iancovici

President of ARIV, Co-Chair

Radu Văcăreanu

Rector of UTCB, Co-Chair

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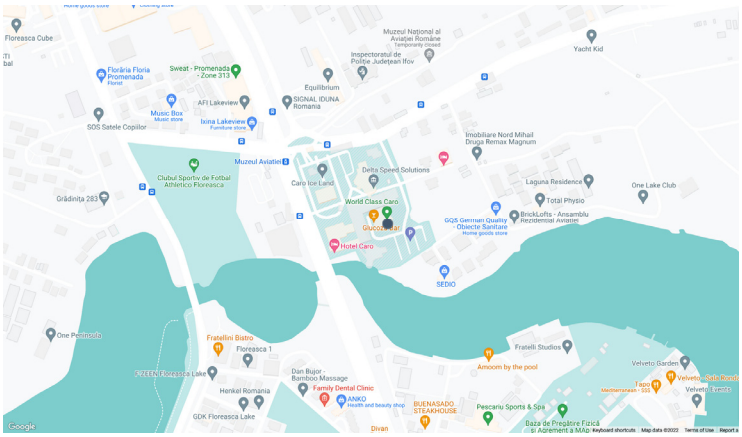

Instructions to presenters

Keynote lectures:	60 minutes (Presentation 45 minutes + Questions 15 minutes)
Invited lectures:	30 minutes (Presentation 25 minutes + Questions 5 minutes)
Theme lectures:	30 minutes (Presentation 22 minutes + Questions 8 minutes)
General presentations:	15 minutes (Presentation 12 minutes + Questions 3 minutes)

The conference is organized in hybrid mode.

- ✓ The on-site presenting authors will upload their presentations at the Organizing Committee Headquarter, one day before the scheduled session; the authors presenting in the 1st day (September 21st) will upload their presentation before 10:30 AM.
- ✓ The presentations will run from the computers installed in the conference rooms; the presenting authors are not allowed to use their personal computers for the presentations.
- ✓ In case of absence of a presenting author, the chairperson will keep the strict order of the final detailed program to ensure that the parallel sessions will run simultaneously for a proper attendance.
- ✓ The online presenting authors will connect to the digital platform and share their presentation; the allocated time slot cannot be changed. The live transmissions will be managed by 8EACWE2022 technical staff under your supervision; the cooperation between the chairperson and technical staff is very important.

Keynote speakers

Professor. Jeroen van Beeck
Von Karman Institute for Fluid Dynamics
Belgium

Short bio: Dr. Jeroen van Beeck received in 1992 his MS degree in Applied Physics from Eindhoven University of Technology (The Netherlands). In 1993 he obtained a Research Master Degree in fluid dynamics at the von Karman Institute for Fluid Dynamics (VKI). His PhD degree is from TU/Eindhoven, following research on optical diagnostics of particles and droplets, carried out in collaboration with VKI. Since 1997 he is professor at VKI. In 2018 he became head of the Environmental & Applied Fluid Dynamics Department and Dean of Faculty. His current areas of research include weather modeling, LIDAR-Doppler instrumentation, microclimate assessment, CFD modelling of wind farm flows, and scaled testing in atmospheric boundary layer wind tunnels and water flumes for coastal and offshore engineering.

Keynote speakers

Professor Horia Hangan
Ontario Tech University
Canada

Short bio: Dr. Horia Hangan is a full Professor and Tier 1 Canada Research Chair in Adaptive Aerodynamics, Faculty of Engineering and Applied Science, Ontario Tech University, Canada. He received his Diplomat Engineering Degree in Aeronautics from the Polytechnic University of Bucharest, Romania in 1985, continued his graduate studies at Ecole Polytechnique Federale de Lausanne (EPFL) in Switzerland in 1991-1992 and obtained his Ph.D. in Wind Engineering at the Western's Boundary Layer Wind Tunnel Laboratory in 1996. After postdoctoral studies at Universite de Poitiers in France he rejoined Western in 1997 as a faculty member with the Boundary Layer Wind Tunnel Laboratory and the Department of Civil and Environmental Engineering. In 2009, Professor Hangan received a 30 million dollar grant by federal (Canada Foundation for Innovation) and provincial (Ontario Research Fund) funding agencies to design and built the WindEEE Dome. WindEEE is a world novel facility meant to reproduce and study the impact of any type of wind systems on the man-made and natural habitat. Professor Hangan's research is in the simulation and impact of high intensity winds (downbursts and tornados), wind energy (sitting in complex terrain, wind turbine blade aerodynamics) and wind environmental impacts (atmospheric pollution-dispersion, particulate transport). He authored more than 200 journal and conference publications, acts as reviewer and is part of the Editorial Board of several international journals such as Journal of Fluid Mechanics, AIAA Journal, ASME Journal of Fluids Engineering, ASME Journal of Solar (and Wind) Energy, Journal of Wind Engineering and Industrial Aerodynamics. He has received several awards among which the prestigious ASME Moody Award in 2010.

Keynote speakers

Professor Maria Pia Repetto
University of Genoa
Italy

Short bio: Dr. Maria Pia Repetto is a full professor of structural engineering at Department of Civil, Chemical and Environmental Engineering of the University of Genoa (Italy). She is member of the Giovanni Solari Wind Engineering and Structural Dynamics Research Group (GS-WinDyn), working in the multidisciplinary field of interactions between wind and structures (https://www.gs-windyn.it/). She is actually leading the Horizon Europe ERIES project "Engineering research infrastructures for European synergies" (2022-2026) providing transnational access to advanced research infrastructures in the fields of structural, seismic, wind and geotechnical engineering. She has been team member (2017-2020) and responsible (2020-201) of the Horizon 2020 THUNDERR project "Detection, simulation, modelling and loading of thunderstorm outflows to design wind-safer and cost-efficient structures" financed by European Research Council (ERC).

Maria Pia Repetto is author of 125 scientific publications mainly addressed to wind engineering problems involving the analysis of wind-induced actions, response and fatigue of structures, risk assessment of infrastructures under wind actions, the wind fields modelling in urban environment, the analysis of thunderstorm wind flow and structural response, the full-scale monitoring of slender structures. The outstanding achievements and original contributions of her research have been awarded by the Junior Award 2011 from International Association for Wind Engineering (IAWE) and by the Raymond C. Reese Research Prize 2014 from American Society of Civil Engineer (ASCE-SEI).

Program at a glance

Time	Day 1 Sept. 20th	Day 2 Sept. 21st	Day 3 Sept. 22nd	Day 4 Sept. 23rd
8:00		Registration		
8:30			Registration	Registration
9:00		Opening ceremony	Keynote lecture Prof. Jeroen van Beeck	Keynote lecture Prof. Maria Pia Repetto
9:30		Keynote lecture Prof. Horia Hangan		
10:00			Coffee break	Coffee break
10:30		Coffee break	Invited lecture Prof. Ahsan Kareem	Invited lecture Prof. Alexandru Aldea
11:00		Morning Session	Morning Session	Morning Session
12:30		Lunch	Lunch	Lunch
13:30		Theme lectures	Theme lectures	Theme lectures
14:00		Parallel sessions	Parallel sessions	Parallel sessions
15:00		Coffee break	Coffee break	Coffee break
15:30		Parallel sessions	Parallel sessions	Parallel sessions
17:00				Closing ceremony
17:30	Registration			
18:00	Ice-breaking reception			
20:00			Gala dinner	

IAWE Board Meeting

Date: Sept. 21st 2022 (Day 2)

Time: 14:00 - 16:00

IAWE Regional Assembly

Date: Sept. 22nd 2022 (Day 3)

Time: 17:00 - 18:30

Gala dinner venue: Caro Conference Center

Date: Sept. 22nd 2022 (Day 3)

Time: 20:00 - 22:00

Detailed program

Day 1: September 20th 2022

17:30 – 18:00	Registration
18:00 – 20:00	Ice–breaking reception

Detailed program

Day 2: September 21st 2022

8:00 - 9:00	**Registration**	
	Main Room	
9:00 - 9:30	**Opening Ceremony**	
9:30 - 10:30	**Keynote lecture** **Horia Hangan** ***Non-synoptic wind storms: Modelling and effects on structures***	
	Chairperson: **Mihail Iancovici**	
10:30 - 11:00	**Coffee break**	

Morning session		
	Main Room	
	Tornadoes and downbursts Chairpersons: **Claudio Borri** and **Ole Øiseth**	
11:00 - 11:15	**Introduction to shared infrastructures for wind engineering: the European project**	
	Maria Pia Repetto, Stefannie Gillmeier, Oliver Flamand and Girma Bitsuamlak	
11:15 - 11:30	3249	The effect of surface drag on “tornado-like” vortices
	on-site	Anant Gairola, **Girma Bitsuamlak** and Horia Hangan
11:30 - 11:45	1355	Numerical simulation of a downburst event in the Mediterranean using a full-cloud model
	on-site	Dario Hourngir and **Massimiliano Burlando**
11:45 - 12:00	6367	Empirical modelling of tornado vortex and flow characteristics
	on line	**Yong Chul Kim** and Yukio Tamura
12:00 - 12:15	5559	Comparison of tornado-induced loads to ASCE/SEI 7-22 provisions for low-rise residential buildings.
	on-site	**Gabriel Narancio**, Horia Hangan, Hanping Hong, Djordje Romanic and Jubayer Chowdhury
12:15 - 12:30	3326	Characterization of tornado-induced wind pressures on a multi-span light steel industrial building
	on line	**Jiachen Xin**, Jinxin Cao and Shuyang Cao
12:30 - 13:30	**Lunch**	

Parallel Sessions

Room 1

Tornadoes and downbursts

Chairpersons: **Girma Bitsuamlak** and **Massimiliano Burlando**

13:30 - 14:00	9117	**Theme lecture** Monitoring of thunderstorm activity in Sânnicolau Mare, Romania
	on-site	**Ileana Calotescu** and Maria-Pia Repetto
14:00 – 14:15	7205	Gust response factor of thunderstorm outflows: a sensitivity analysis
	on-site	**Luca Roncallo** and Federica Tubino
14:15 – 14:30	5082	Aerodynamic force characteristics of a high-rise building under steady incident wind velocity profiles generated by MFWT
	on-site	Yang Li, **Hao-Yu Bin**, Matthew Mason and Yuan-Lung Lo
14:30 – 14:45	6197	Verification of analytical structural response estimation techniques for downbursts through wind and structural response monitoring
	on-site	**Mekdes Tadesse Mengistu** and Maria Pia Repetto
14:45 – 15:00	5005	Experimental study of the loads induced by a large-scale tornado-like vortex on a wind turbine
	on line	**Juan Pablo Lopez**, Horia Hangan and Ashraf El Damatty

Room 2

Wind tunnel testing

Chairpersons: **Andrei Georgescu** and **Jungao Wang**

13:30 - 14:00	271	**Theme lecture** Aerodynamic loads on offshore wind turbine towers arranged in groups at the quayside
	on-site	**Claudio Mannini**, Tommaso Massai, Andrea Giachetti and Alessandro Giusti
14:00 – 14:15	2439	Long-term buffeting analysis of a floating bridge under inhomogeneous and skew winds
	on-site	**Bernardo Costa**, Jungao Wang, Jasna Jakobsen, Jónas Snæbjörnsson and Ole Øiseth
14:15 – 14:30	1113	Interference effects on four free-standing circular cylinders in group arrangement
	on-site	**Francesca Lupi**, Marc Seidel, Rüdiger Höffer, Norbert Hoelscher and Hans-Juergen Niemann
14:30 – 14:45	6631	The new Laboratory of Environmental Aerodynamics of Cracow University of Technology
	on-site	Łukasz Flaga, **Aleksander Pistol**, Renata Kłaput, Michał Polak, Agnieszka Kocoń, Fabio Rizzo and Andrzej Flaga
14:45 – 15:00	1155	Aerodynamic force coefficients for structural members of automated rack supported warehouses
	on-site	Antonino Maria Marra, **Bernardo Nicese**, Tommaso Massai and Gianni Bartoli

Parallel Sessions		
	Room 3	
	Aeroelasticity and flow-structure interaction Chairpersons: **Cornelia Kalender** and **Adrian Ghencea**	
13:30 – 14:00	1994	**Theme lecture** Computational simulation of the vortex-induced vibration of a twin-box bridge deck
	on-site	Antonio J. Alvarez Naveira, **Félix Nieto Mouronte** and Santiago Hernandez
14:00 – 14:15	8419	Proper orthogonal decomposition analysis of cylinder wake
	on-site	Petr Michalek, Pavel Procházka, Václav Uruba and **Stanislav Pospíšil**
14:15 – 14:30	9852	Effects of barriers and angle of attack on the vortex-induced vibration of non-streamlined bridge decks
	on-site	**Bernardo Nicese**, Antonino Maria Marra, Gianni Bartoli and Claudio Mannini
14:30 – 14:45	9052	Aerodynamic stability of long-span flat roofs with various span to eaves-height ratios
	online	**Yuki Takadate** and Yasushi Uematsu
14:45 – 15:00	2885	A modified wake-oscillator model for VIV-galloping interaction of sharp-edged bluff bodies
	on-site	**Cong Chen**, Claudio Mannini, Gianni Bartoli and Klaus Thiele
	Room 4	
	Bluff body aerodynamics Chairpersons: **Cristian Arion** and **Pietro Manica**	
13:30 – 14:00	8742	**Theme lecture** Design and performance of a new wind-induced damage simulator
	on-site	**Elena Dragomirescu**, Jaskirat Singh and Zhe Xiao
14:00 – 14:15	4707	The appearance of constant-frequency time cells during vortex-shedding from a square cylinder in accelerating flows
	on-site	Stefano Brusco, Guido Buresti, Yuan-Lung Lo and **Giuseppe Piccardo**
14:15 – 14:30	3064	Parameter identification of generalized Vortex Induced Vibration model
	on-site	**Francois Rigo**, Thomas Andrianne and Vincent Denoël
14:30 – 14:45	5607	Aerodynamic force evolution characteristics of parallel twin box girders during vertical bending vortex-induced vibration
	on-site	**Shengyi Xu**, Genshen Fang, Lin Zhao and Yaojun Ge
14:45 – 15:00	6954	Geometrical scaling effects on experimentally obtained external pressure measurements on an idealized building
	on-site	**Anjali Krishnan Radhakrishnan Jayakumari,** Stefanie Gillmeier, Alessio Ricci, Romain Guichard and Bert Blocken
15:00 - 15:30	**Coffee break**	

Parallel Sessions		
	Room 1	
	Computational wind engineering Chairpersons: **Hassan Hemida** and **Øyvind Petersen**	
15:30 – 15:45	7677	A numerical study on debris initialization and correlation with tornado-like wind field
	on line	**Shuan Huo**, Hassan Hemida and Mark Sterling
15:45 – 16:00	8347	Uncertainty quantification in the wind response of CAARC building
	on line	**Anoop Kodakkal**, Kai-Uwe Bletzinger and Roland Wüchner
16:00 – 16:15	196	Best practice for the dynamic mode decomposition in wind engineering applications
	on line	**Cruz Li**, Zengshun Chen, Kam Tim Tse, Asiri Umenga Weerasuriya, Xuelin Zhang, Yunfei Fu and Xisheng Lin
16:15 – 16:30	1759	Associating structure surface pressure with corresponding flow field excitation—the data-driven answer to fluid-structure interaction
	on line	**Cruz Li,** Zhengshun Chen and Tim K.T.Tse
16:30 – 16:45	6126	Recent improvements to the NRC stay cable ice accretion model
	on-site	**Krzysztof Szilder**, Annick D'Auteuil and Sean McTavish
16:45 – 17:00	3813	Research on aerodynamic mechanism of single high-rise building based on twisted wind field in mountainous area
	on line	Zengshun Chen, **Diqin Li**, Cruz Li and Xianzhi Fu
	Room 2	
	Wind loads on structures Chairpersons: **Jasna Jakobsen** and **Łukasz Flaga**	
15:30 – 15:45	226	Horizontal acceleration response for wind-sensitive high-rise building equipped with liquid dampers
	on-site	**Victor Vîlceanu**, Igor Kavrakov and Guido Morgenthal
15:45 – 16:00	393	Numerical investigations into effects of balusters on aerodynamic characteristics of girder by immersed boundary method
	on line	**Weituo Wang** and Shuyang Cao
16:00 – 16:15	5416	Effect of HIW loading on Guyed Transmission Tower
	on line	**Ashraf El Damatty**, Ahmed Shehata and Abdelrahman Ahmed
16:15 – 16:30	6836	Numerical analysis of double-curvature cable roofs
	on line	**Elshaimaa Ahmed**, Hamid Montazeri and Ashraf El Damatty
16:30 – 16:45	5250	Wind-induced vibrational comfort assessment for complex-shaped tall building
	on-site	**Aleksander Pistol,** Łukasz Flaga, Renata Kłaput, Fabio Rizzo and Andrzej Flaga
16:45 – 17:00	7733	State augmentation method for buffeting analysis of structures subjected to non-stationary wind
	on-site	**Simian Lei,** Wei Cui, Luca Patruno, Stefano Miranda, Lin Zhao and Yaojun Ge

Parallel Sessions		
	Room 3	
	Aeroelasticity and flow-structure interaction Chairpersons: **Stanislav Pospíšil** and **Francesca Lupi**	
15:30 – 15:45	9697	A model for nonlinear buffeting of long-span suspension bridges: time-variant self-excited forces
	on-site	Niccolò Barni, Ole Andre Øiseth and **Claudio Mannini**
15:45 – 16:00	242	A model for nonlinear buffeting of long-span suspension bridges: application to a real structure
	on-site	**Niccolò Barni,** Ole Andre Øiseth and Claudio Mannini
16:00 – 16:15	853	Fractional derivatives model of aeroelastic derivatives of bridge decks
	on-site	**Kevin Theunissen** and Vincent Denoël
16:15 – 16:30	434	Background/resonant decomposition of modal response correlations of coupled aeroelastic models submitted to buffeting loads
	on-site	**Julien Heremans** and Vincent Denoël
16:30 – 16:45	2258	Using a nonlinear energy sink to mitigate vortex-induced vibration of a flexible circular cylinder
	on-site	**Mingjie Zhang**, Teng Wu and Ole Øiseth
16:45 – 17:00	603	Flutter mitigation in bridges by allowing the distortion of the deck
	on-site	**Guillermo Martínez-López,** Carlos Lázaro, Roland Wüchner and Kai-Uwe Bletzinger
	Room 4	
	Bluff body aerodynamics Chairpersons: **Giuseppe Piccardo** and **Anjali Krishnan Radhakrishnan Jayakumari**	
15:30 – 15:45	4799	Wind shaking of high rise timber buildings
	on-site	**Olivier Flamand**, Manuel Manthey
15:45 – 16:00	542	Transient aerodynamics of a two dimensional square cylinder in accelerating flows
	on-site	**Hao-Yu Bin,** Stefano Brusco, Yuan-Lung Lo and Giuseppe Piccardo
16:00 – 16:15	7066	Principal component analysis of circular cylinder pressure fluctuations at subcritical and critical regimes using SPOD
	on-site	**Juan Andrés Cárdenas-Rondón,** Alejandro Martínez-Cava, Sergio Marín-Coca, Raul Manzanares-Bercial, Mikel Ogueta-Gutiérrez, Omar Gómez-Ortega, Sebastián Franchini and Elena López-Núñez
16:15 – 16:30	5740	Experimental investigation of buffeting loads on slotted box girders in grid-generated turbulence
	on line	**Jingyang Li,** Shaopeng Li and Hongsheng Jiang
16:30 – 16:45	1802	Influence of three-dimensional turbulence on aerodynamic forces of high-rise buildings
	on line	**Wang Yuxia** and Li Mingshui
16:45 – 17:00	9718	Experimental modelling of the aerodynamic forces generated by periodic streamwise wind gusts on a circular cylinder
	on-site	Alejandro Martínez-Cava, Sebastián Franchini, Sergio Marín-Coca, Juan Andrés Cárdenas-Rondón, Raúl Manzanares-Bercial, Mikel Ogueta-Gutiérrez, **Omar Gómez-Ortega** and Elena López-Nuñez

Detailed program

Day 3: September 22nd 2022

8:00 - 9:00	**Registration**	
	Main Room	
9:00 - 10:00	**Keynote lecture** **Jeroen van Beeck** ***Wind engineering for beach houses & offshore wind farms***	
	Chairperson: **Costin Coșoiu**	
10:00 - 10:30	**Coffee break**	
10:30 - 11:00	**Giovanni Solari Special Lecture** **Ahsan Kareem** ***My memorable journey with Professor Giovanni Solari***	
	Chairperson: **Radu Văcăreanu**	

Morning session

	Main Room	
	Computational wind engineering Chairpersons: **Mark Sterling** and **Andrzej Flaga**	
11:00 - 11:15	8556	Wind loads on high-rise buildings: A comparison between CFD simulations and wind tunnel benchmark for the mean base moment
	on-site	**Sophie Breitkopf** and Christian Hartz
11:15 - 11:30	2225	Estimation of wind responses for building by CFD and FEM analysis
	on-site	**Min Kyu Kim** and Thomas Kang
11:30 - 11:45	4125	Inflow turbulent database for urban area based on large-scaled LES including meteorological disturbance
	on line	**Hidenori Kawai**, Tetsuro Tamura and Keigo Nakajima
11:45 - 12:00	3211	LES simulations of a downburst immersed in an ABL-like wind
	on-site	**Josip Žužul,** Alessio Ricci and Massimiliano Burlando
12:00 - 12:15	1314	Spanwise correlation and pressure modes of a twin-box bridge deck under vortex induced vibrations by means of 3D LES simulations
	on line	**Antonio J. Alvarez Naveira,** Felix Nieto Mouronte and Santiago Hernandez
12:15 - 12:30	9485	2D URANS simulation of the small-scale turbulent flow around a square prism
	on-site	Antonio J. Alvarez Naveira, **Félix Nieto Mouronte**, Kenny Kwok and Santiago Hernandez
12:30 - 13:30	**Lunch**	

Parallel Sessions

Room 1

Computational wind engineering

Chairpersons: **Felix Nieto Mouronte** and **Tor Martin Lystad**

13:30 - 14:00	5167	**Theme lecture** Simulation of a downburst in a virtual BLWT
	on-site	**Costin Coșoiu**, Andrei Mugur Georgescu and Mircea Degeratu
14:00 – 14:15	5307	Nonlinear dynamic response analysis for wind loads. Damage, fragility, and loss estimates for building structures
	on-site	**Mihail Iancovici,** George Bogdan Nica, Radu Vacareanu and Georgiana Ionica
14:15 – 14:30	4394	Discussing the appropriate ranges of y+ for the accuracy of CFD simulations at high Reynolds numbers
	on-site	Máté Péntek, **Guillermo Martínez-López**, Suneth Warnakulasuriya and Kai-Uwe Bletzinger
14:30 – 14:45	4429	The 50-year anniversary of the Olympic Stadium in Munich as a motivator for advances in computational wind engineering
	on-site	**Máté Péntek**, Philipp Bucher, Klaus Bernd Sautter and Kai-Uwe Bletzinger
14:45 – 15:00	1687	Tuning the virtual wind tunnel for the design of low-rise buildings submerged in the atmospheric boundary layer
	on-site	**Theodore Potsis** and Ted Stathopoulos

Room 2

Wind loads on structures

Chairpersons: **Jonas T. Snæbjörnsson** and **Paulina Jamińska-Gadomska**

13:30 - 14:00	6668	**Theme lecture** An efficient Frequency-domain model for the coupled simulation of Floating Offshore Wind Turbines
	on-site	Giulio Ferri, **Claudio Borri** and Enzo Marino
14:00 – 14:15	9555	Wind load analysis for tall building in different development scenarios
	on-site	**Łukasz Flaga,** Aleksander Pistol, Renata Kłaput and Andrzej Flaga
14:15 – 14:30	6152	An updated map of damaging winds in Romania
	on-site	**Adriana-Silviana Chitez**, Ileana Calotescu and Marius Birsan
14:30 – 14:45	5923	Efficient estimation of the skewness of a linear oscillator subjected to a non-normal and non-polynomial wind loading
	on-site	**Margaux Geuzaine**, Michele Esposito Marzino and Vincent Denoël
14:45 – 15:00	6344	Performance-based wind and earthquake design framework for tall steel buildings with ductile detailing
	on-site	**Anastasia Athanasiou**, Lucia Tirca and Ted Stathopoulos

Parallel Sessions		
	Room 3	
	Local winds on roofing and cladding Chairpersons: **Sungmoon Jung** and **Ika Kurniawati**	
13:30 – 14:00	7698	**Theme lecture** Wind pressure distribution on hyperbolic-paraboloid shaped roof of an art gallery
	on-site	Renata Kłaput, **Andrzej Flaga**, Aleksander Pistol, Agnieszka Kocoń, Fabio Rizzo and Łukasz Flaga
14:00 – 14:15	6881	Wind loads on double skin façades – parametric study through large-scale sectional model testing
	on-site	**Pietro Manica**, Fabio Faseli and Francesco Dorigatti
14:15 – 14:30	1926	Experimental investigation of fluctuating pressures on CAARC model in various turbulent
	on line	**Hai-Cheng Zhang**, Mingshui Li and Shubi Du
14:30 – 14:45	1674	The effect of a wind deflector on the wind loads of a photovoltaic roof mount system
	on-site	**Daniel Markus** and André Stollenwerk
14:45 – 15:00	1710	Wind Loading of Rooftop PV Panels Cover Plate: A Codification-Oriented Study
	on line	**Hatem Alrawashdeh** and Ted Stathopoulos
	Room 4	
	Codes, norms and standards Chairpersons: **Alexandru Aldea** and **Stanislav Hračov**	
13:30 – 14:00	3877	**Theme lecture** Revision of the German VDI Standard 3783 Part 12 “Application of wind tunnels” for physical modelling of flow and dispersion processes in the atmospheric boundary layer
	on-site	**Cornelia Kalender**, Bernd Leitl, Wolfgang Bächlin, Bernhard Bauhofer, Thomas Eipper, Frank Harms, Veit Hildebrand, Rüdiger Höffer, Rolf Dieter Lieb and Wolfgang Theurer
14:00 – 14:15	8657	Update of a fundamental basic wind speed in Poland
	on-site	**Tomasz Lipecki,** Adam Goliger, Mariusz Gaczek and Wojciech Węgrzyński
14:15 – 14:30	3739	Determination of wind action on a 46-m-high masonry chimney using two different calculation approaches
	on-site	**Klaudia Juszczyk-Andraszyk** and Jacek Szafran
14:30 – 14:45	8303	Uncertainty in the dynamic properties of flexible buildings under wind actions
	on line	**Vincenzo Picozzi**, Venere Maietta, Alberto Maria Avossa and Francesco Ricciardelli
14:45 – 15:00	9986	Calibration of the Parent Distribution method for the assessment of return wind speeds and agreement with Extreme Value analysis
	on line	Andaç Akbaba, **Vincenzo Picozzi,** Alberto Maria Avossa and Francesco Ricciardelli
15:00 - 15:30	**Coffee break**	

Parallel Sessions

Room 1

Computational wind engineering

Chairpersons: **Elena Dragomirescu** and **Margaux Geuzaine**

15:30 – 15:45	9200	Grain storage constructions behavior subjected to wind actions. Mathematical models and Von Karman analysis for grain storage constructions located in seaport areas
	on-site	**Adrian Ghencea**
15:45 – 16:00	9270	The influence of exposure on wind flow characteristics around a high-rise building
	on-site	**Kristina Kostadinović Vranešević,** Anina Šarkić Glumac and Stephane P.A. Bordas
16:00 – 16:15	9569	Numerical study of reactive air pollutant dispersion in near-field wake
	on line	**Yunfei Fu**, Cruz Li, Kam Tim Tse, Lu Li and Xiaoliang Qin
16:15 – 16:30	2345	Investigating the applicability of shape sensitivities for improved wind comfort in balcony regions
	on-site	Suneth Warnakulasuriya, **Máté Péntek,** Daniel Hackett and Roland Wüchner
16:30 – 16:45	8154	Influence of the angle of the wind on the flow structure around the buildings in tandem
	on-site	**Renata Gnatowska,** Pavel Procházka, Václav Uruba, Witold Elsner
16:45 – 17:00	4491	Large Eddy Simulation of two square cylinders in tandem arrangement under fluid-structure interaction
	on line	Zengshun Chen, **Yemeng Xu**, Cruz Yutong Li and Hailing Huang

Room 2

Wind loads on structures

Chairpersons: **Agnieszka Kocoń** and **Klaudia Juszczyk-Andraszyk**

15:30 – 15:45	5156	Estimation of extreme buffeting response in long-span bridges with the Environmental Contour Method
	on-site	**Dario Fernandez Castellon,** Aksel Fenerci and Ole Øiseth
15:45 – 16:00	4300	An optimized numerical method for the stochastic dynamic response computation of large MDOFs systems subjected to Non-Gaussian Turbulent Wind Loading
	on-site	**Michele Esposito Marzino** and Vincent Denoël
16:00 – 16:15	6903	Solar trackers analysis: a parametric study to evaluate aeroelastic effects inside a photovoltaic park array
	on-site	**Giorgio Frontini**, Filippo Calamelli, Sara Muggiasca, Tommaso Argentini and Marco Belloli
16:15 – 16:30	7292	Wind loads on unclad automated multi depth shuttle rack supported warehouses
	on-site	Antonino Maria Marra, Tommaso Massai and **Gianni Bartoli**
16:30 – 16:45	7449	Issues related to determining wind actions on structures supporting telecommunications equipment - case study
	on-site	**Klaudia Juszczyk-Andraszyk** and Jacek Szafran
16:45 – 17:00	513	Numerical investigation of the nonlinear interaction between the sinusoidal motion-induced and gust-induced forces acting on bridge decks
	on-site	**Samuel Tesfaye**, Igor Kavrakov and Guido Morgenthal

Parallel Sessions		
	Room 3	
	Aeroelasticity and flow-structure interaction Chairpersons: **Claudio Mannini** and **Jiayao Wang**	
15:30 – 15:45	7687	Flutter instability of 1915 Canakkale Bridge Considering Nonlinear Aero-static Effect
	on line	Haili Liao, Qi Wang, **Jiade Zhu**, Tianwei Ren and Chengkai Shao
15:45 – 16:00	4318	Nonlinear self-excited forces for a bluff body in post-critical galloping
	on-site	**Chaoqun Wang**, Xugang Hua, Claudio Mannini and Zhengqing Chen
16:00 – 16:15	989	Asymptotic approximation of flutter and buffeting response of torsional aeroelastic oscillator
	on-site	**Anass Mayou**, Julien Heremans and Vincent Denoël
16:15 – 16:30	7203	Divergent stayed-cable movement under dry conditions: Contribution of the transitory regimes in the critical flow regime
	on-site	**Adel Benidir**, Olivier Flamand, Sean McTavish, Kunihiro Yamauchi and Hiroshi Sato
16:30 – 16:45	7209	Modelling of ovalling motion of thin circular shells to investigate the aeroelastic coupled interactions of tall chimneys
	on-site	**Samir Chawdhury** and Guido Morgenthal
16:45 – 17:00	4877	Aeroelastic responses of the Hyperloop structure
	on-site	Elena Di Silvestro, Sigrid Jacobs, **Raphaël Dubois** and Thomas Andrianne
	Room 4	
	Wind tunnel testing Chairpersons: **Luisa Pagnini** and **Adriana Chitez**	
15:30 – 15:45	150	Comparison of the effective roughness length between field measurements and wind tunnel testing
	on-site	Sejin Kim, Nasrollah Alinejad, **Sungmoon Jung** and Pedro Fernández-Cábán
15:45 – 16:00	2601	Clustering wind pressure tap using dynamic time warping
	on-site	**Sang Min Lee** and Thomas Kang
16:00 – 16:15	2655	Wind tunnel investigation on influence of flange porosity onto aerodynamic coefficients of U-shaped profile
	on-site	**Stanislav Hračov** and Michael Macháček
16:15 – 16:30	8284	Dynamic properties of an aero elastic transmission tower subjected to synoptic ABL and downburst-like outflows
	on line	**Kehinde Alawode,** Amal Elawady, Ziad Azzi and Arindam Gan Chowdhury
16:30 – 16:45	9895	Wind pressure distribution on circular cylindrical silos and tanks
	on-site	**Niccolo Wieczorek**, Julian Unglaub and Klaus Thiele
16:45 – 17:00	6680	The influence of green terrace roofs on wind dynamic parameters: wind tunnel testing
	on line	**Ioana-Roxana Baciu,** Dorina Nicolina Isopescu, Nicolae Țăranu and Sebastian George Maxineasa

Detailed program

Day 4: September 23Rd 2022

8:00 - 9:00	**Registration**	
	Main Room	
9:00 - 10:00	**Keynote lecture** **Maria-Pia Repetto** ***Risk assessment and resilience of SeaPort infrastructures***	
	Chairperson: **Vincent Denoël**	
10:00 - 10:30	**Coffee break**	
10:30 - 10:40	**A word from our sponsors** **Lucian Marin** ***Insurance for wind induced losses – GROUPAMA experience***	
10:40 - 11:00	**Special lecture from ARIV-Romania** **Alexandru Aldea** ***Wind engineering for buildings and structures in Romania – an overview***	
	Chairperson: **Andrei Georgescu**	
Morning session		
	Main Room	
	Field monitoring Chairpersons: **Gianni Bartoli** and **Olivier Flamand**	
11:00 - 11:15	3417	Field pressure measurements on a wind turbine tower in the transcritical range of Reynolds numbers
	on-site	**Ika Kurniawati**, Francesca Lupi, Marc Seidel, Hans-Jürgen Niemann and Rüdiger Höffer
11:15 - 11:30	5042	Full-scale wind and dynamic response measurements at the Gjemnessund Suspension Bridge in Norway
	on-site	**Aksel Fenerci**, Ole Øiseth and Tor Martin Lystad
11:30 - 11:45	5927	Field measurements of wind microclimate at vehicle level on bridge deck over mountainous terrain
	on-site	**Fengying Wu**, Lin Zhao and Claudio Borri
11:45 - 12:00	6567	Use of cup anemometers in stratospheric balloon missions
	on-site	Daniel Alfonso-Corcuera, Elena López-Núñez**,** Mikel Ogueta-Gutiérrez and Santiago Pindado, **(presenter - Omar Gómez)**
12:00 - 12:15	8726	Full-scale and wind tunnel investigations of fluctuating pressures in a recessed balcony cavity
	on-site	**Matthew Glanville** and Peter Bourke
12:15 - 12:30	9330	Wind load on building scaffolding
	on-site	Tomasz Lipecki, **Paulina Jamińska-Gadomska** and Ewa Błazik-Borowa
12:30 - 13:30	**Lunch**	

Parallel Sessions		
	Room 1	
	Field monitoring Chairpersons: **Joshua Wurman** and **Matthew Glanville**	
13:30 - 14:00	6355	**Theme lecture** Full-scale measurements of wind-induced surface pressures on a bridge deck
	on-site	Nicolò Daniotti, Jasna B. Jakobsen, **Jonas T. Snæbjörnsson**, Etienne Cheynet and Swen Romer
14:00 – 14:15	4808	Automated identification of thunderstorms from long-term monitoring networks using shapelet transform
	on-site	Monica Arul, **Ahsan Kareem**, Massimiliano Burlando and Giovanni Solari
14:15 – 14:30	6838	Observed vertical profiles of tornado winds
	on-site	**Karen Kosiba** and Joshua Wurman
14:30 – 14:45	5603	Influence of mean wind speed on automatic operational modal analysis of a long-span suspension bridge
	on-site	**Anno Christian Dederichs** and Ole Øiseth
14:45 – 15:00	8937	Lidar measurements of wake around a bridge deck
	on-site	Mohammad Nafisifard, **Jasna Jakobsen**, Jonas Snæbjörnsson, Mikael Sjöholm and Jakob Mann
	Room 2	
	Human comfort and the built environment Chairpersons: **Tomasz Lipecki** and **Aksel Fenerci**	
13:30 - 14:00	7094	**Theme lecture** Sustainability of a sports field on a university campus: wind pressures and pedestrian comfort
	on-site	**Luisa Pagnini**, Giuseppe Piccardo and Maria Pia Repetto
14:00 – 14:15	421	Pedestrian comfort in the surroundings of two towers
	on-site	Mikel Ogueta, Omar Gómez-Ortega, Sergio Marín-Coca, **Juan Andrés Cárdenas-Rondón**, Raúl Manzanares-Bercial, Alejandro Martínez-Cava, Sebastián Franchini and Elena López-Núñez
14:15 – 14:30	7818	Analysis of the fire in the carpark influenced by the wind flow
	on-site	Wojciech Węgrzyński and **Paulina Jamińska-Gadomska**
14:30 – 14:45	4722	Impact of new tall development on local pedestrian wind comfort conditions
	on-site	**Agnieszka Kocoń**, Renata Kłaput, Aleksander Pistol and Andrzej Flaga
14:45 – 15:00	8728	Experimental study of an innovative perforated air diffuser at real scale conditions
	on-site	**Paul Danca**, Angel Dogeanu, Laurentiu Tacutu, Costin Cosoiu and Ilinca Nastase

Parallel Sessions		
		Room 3
		Wind climate and the atmospheric boundary layer Chairpersons: **Federica Tubino** and **Krzysztof Szilder**
13:30 – 14:00	1555	**Theme lecture** Low turbulence conditions of large vortex induced vibrations of a chimney from a full scale test
	on-site	**Olivier Flamand**, Oyvind Ellingsen and Lucille Bouleau
14:00 – 14:15	9561	Statistic characteristics of fluctuating wind on moving points under crosswind
	on line	**Chuan Qin**, Yang Yang and Mingshui Li
14:15 – 14:30	7714	Physical simulations of the effects of ABL-like winds and storm translation on downburst-like outflows
	on-site	**Federico Canepa,** Massimiliano Burlando, Horia Hangan and Djordje Romanic
14:30 – 14:45	5992	Simulation of the downburst event that occurred on 25 June 2021 in Sânnicolau Mare, Romania
	on-site	**Andi Xhelaj** and Massimiliano Burlando
14:45 – 15:00	5968	Integrating the effects of climate change using representative concentration pathways into typhoon wind field in Hong Kong
	on line	**Jiayao Wang**, Kam Tim Tse and Sunwei Li
		Room 4
		Application of artificial intelligence in wind engineering Chairpersons: **Samir Chawdhury** and **Renata Gnatowska**
13:30 – 14:00	4027	**Theme lecture** Machine learning framework for wind load building prediction
	on-site	**Anina Glumac**, Onkar Jadhav and Stephane Bordas
14:00 – 14:15	324	Producing complex terrain for wind engineering studies using Convolutional Neural Network and Landsat-8 image
	on-site	Nasrollah Alinejad, Jinglun Cai, **Sungmoon Jung** and Xiuwen Liu
14:15 – 14:30	5122	Wind-induced displacements on hyperbolic paraboloid cable net
	on-site	**Fabio Rizzo**, Aleksander Pistol, Łukasz Flaga, Renata Kłaput, Michał Polak and Andrzej Flaga
14:30 – 14:45	5973	Surrogate modelling of wind-induced displacements of cable net roofs by Artificial Neural Networks
	on-site	**Fabio Rizzo**, Luca Caracoglia, Aleksander Pistol, Łukasz Flaga, Renata Kłaput, Klaudia Śliwa-Wieczorek and Andrzej Flaga
14:45 – 15:00		
15:00 - 15:30		**Coffee break**

Parallel Sessions		
	Room 1	
	Field monitoring and wind tunnel testing Chairpersons: **Karen Kosiba** and **Aleksander Pistol**	
15:30 – 15:45	6998	Multi-mode high-order wind-induced vibration control on ultra-long stay cables by using a novel dual damper system
	on line	**Yafei Wang,** James Brownjohn and Zhengqing Chen
15:45 – 16:00	1274	Evaluation of wind loading on edge metal for roofing systems using full-scale experiments
	on line	**Ameyu Tolera**, Johnny Estephan, Arindam Gan Chowdhury, Ioannis Zisis, Erica Sherman and James Kirby
16:00 – 16:15	1836	Monitoring of wind-induced vibrations on a 215 meter tall residential building
	on line	**Alexander Johannes Bronkhorst**, Chris Geurts, Davide Moretti and Thomas van Dijk
16:15 – 16:30	3376	Thrust loading coefficient evaluation of a small ducted wind turbine equipped with passive flow control devices: boundary layer wind tunnel experiments
	on line	**Elena-Alexandra Chiulan** and Anton Anton
16:30 – 16:45		
16:45 – 17:00		

	Room 2	
	Wind loads on structures Chairpersons: **Radu Mircea Damian** and **Luca Roncallo**	
15:30 – 15:45	2171	The influence of wind direction on the inelastic response of a square-section base-isolated tall building
	on line	**Huawei Pang**, Qingshan Yang and Min Liu
15:45 – 16:00	8217	Estimation of critical wind speed for capsizing a stationary motorboat
	on line	**Ziqi Wang**, Shuyang Cao and Jinxin Cao
16:00 – 16:15	2396	Wind-induced vibration of a 100m-span photovoltaic cable-supported system
	on line	Nie Shidong, **Li Jingyao,** Yang Qingshan, Liu Min and Zhang Dongdong
16:15 – 16:30	9331	Estimation of extreme wind loading on flat-roof-mounted solar panels with consideration of directionality effect
	on line	**Jingxue Wang**, Min Liu and Qingshan Yang
16:30 – 16:45		
16:45 – 17:00		

Parallel Sessions

Room 3

Aeroelasticity and flow-structure interaction
Chairpersons: **Cezar Vlăduț** and **Omar Gómez-Ortega**

15:30 – 15:45	4592	Measurement of unsteady aerodynamic force during constant rotational speeds to evaluate the galloping of four-bundled conductors
	on line	**Hisato Matsumiya,** John Macdonald and Tomomi Yagi
15:45 – 16:00	1949	Analytical solution for the galloping instability on transmission lines
	on line	**Daniel Gonzalez-Fernandez**, John H.G. Macdonald, Branislav Titurus and Hisato Matsumiya
16:00 – 16:15	8486	Comparison of international wind codes based on Ruscheweyh's model of across-wind vibration
	on line	**Saba Rahman**, Arvind K. Jain, S. D. Bharti and T. K. Datta
16:15 – 16:30	3678	Wind loads on tall buildings with double-skin façade systems: The effect of wind characteristics
	on line	**Petar Škvorc,** Andrea Giachetti, Hrvoje Kozmar and Gianni Bartoli
16:30 – 16:45		
16:45 – 17:00		

Room 4

Stochastic modelling and simulation
Chairpersons: **Anina Glumac** and **Anastasia Athanasiou**

15:30 – 15:45	7112	Modelling of nonlinear self-excited forces using Volterra series-based models
	on-site	**Henrik Skyvulstad**, Øyvind Petersen and Ole Øiseth
15:45 – 16:00	2384	Long-term extreme buffeting response of a long-span suspension bridge: Solution methods and effect of turbulence variability
	on-site	**Tor Martin Lystad,** Aksel Fenerci and Ole Øiseth
16:00 – 16:15	3568	Exploring stochastic dynamics and stability of an aeroelastic harvester contaminated by wind turbulence and uncertain aeroelastic loads
	on line	**Luca Caracoglia**
16:15 – 16:30	1452	Identification of bridge deck flutter derivatives in active grid generated free stream turbulence
	on-site	**Oddbjørn Kildal** and Ole Øiseth
16:30 – 16:45	6560	Estimating vehicle aerodynamic loads in strong crosswinds on exposed bridges from field data
	on-site	**Sebastian Reymert**, Øyvind Petersen, Anders Rönnquist, Lars Drugge and Ole Øiseth
16:45 – 17:00		

17:00 – 17:30 **Closing Ceremony**

Notes

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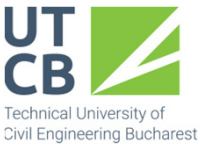

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