

RZESZÓW UNIVERSITY OF TECHNOLOGY

XXV FLUID MECHANICS CONFERENCE

CONFERENCE PROGRAM

RZESZÓW, POLAND, 7-9 SEPTEMBER 2022

FMC 2022 INTERNATIONAL SCIENTIFIC COMMITTEE

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- Prof. Janusz Badur**, The Szewalski Institute of Fluid-Flow Machinery
Polish Academy of Sciences, Gdansk, Poland
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- Prof. Andrzej Boguslawski**, Częstochowa University of Technology, Poland
- Prof. Tadeusz Chmielniak**, Silesian University of Technology, Poland
- Prof. Piotr Doerffer**, The Szewalski Institute of Fluid-Flow Machinery
Polish Academy of Sciences, Gdansk, Poland
- Prof. Stanisław Drobniak**, Częstochowa University of Technology, Poland
- Prof. Sławomir Dykas**, Silesian University of Technology, Poland
- Prof. Maria Ekiel-Jeżewska**, Institute of Fundamental Technological Research
Polish Academy of Science, Poland
- Prof. Witold Elsner**, Częstochowa University of Technology, Poland
- Prof. Mohamed Gad-el-Hak**, Virginia Commonwealth University, USA
- Prof. Bernard Geurts**, University of Twente, the Netherlands
- Prof. Andrzej Herczyński**, Boston College, USA
- Prof. Krzysztof Kempa**, Boston College, USA
- Prof. Tomasz Kowalewski**, Institute of Fundamental Technological Research
Polish Academy of Science, Poland
- Prof. Anna Kucaba-Piętal**, Rzeszów University of Technology, Poland
- Prof. Henryk Kudela**, Wrocław University of Technology, Poland
- Prof. Nicholas Lawson**, The University of Sidney, Australia
- Prof. Duncan Lockerby**, Warwick University, UK
- Prof. Marek Morzyński**, Poznań University of Technology, Poland
- Prof. Bernd Noack**, Harbin Institute of Technology, Shenzhen, China
- Prof. Alfredo Soldati**, TU Wien, Austria
- Prof. Janusz Szmyd**, AGH University of Science and Technology, Poland
- Prof. Jacek Szumbariski**, Warsaw University of Technology, Poland
- Prof. Ewa Tuliszcza-Sznitko**, Poznań University of Technology, Poland
- Prof. Artur Tyliczszak**, Częstochowa University of Technology, Poland
- Prof. Markus Uhlmann**, KIT Karlsruhe, Germany
- Prof. Luc Vervisch**, INSA Rouen, France
- Prof. Włodzimierz Wróblewski**, Silesian University of Technology, Poland
- Prof. Weiwei Zhang**, Northwestern Polytechnical University, Xi'an, P.R.China

ORGANIZING COMMITTEE

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- D.Sc. Liliana Rybarska-Rusinek** – Secretary
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- Ph.D. Michał Piętal**
- Ph.D. Łukasz Święch**

Conference Venue

The FMC2022 will take place in the beautiful city of Rzeszów in Building V (Regional Centre for Didactics and Conferences) of the Rzeszów University of Technology (RUT) which is located near the city centre.

**Address: Rzeszów University of Technology, Building V
al. Powstańców Warszawy 12
35-959 Rzeszów
GPS: 50° 1'5"N, 21° 59'24"E**



Rzeszów University of Technology

The Rzeszów University of Technology is the largest polytechnic in the region. On the 1st of October 1974, by government decree, the school was named the Ignacy Łukasiewicz Rzeszów University of Technology (<https://w.prz.edu.pl/en/about/history>). Since 1951 it has educated 57 952 graduates, including 593 pilots. It is organized in 6 faculties covering almost all fields of technology and employs around 900 of academic staff. The number of students is approx. 15,000 including bachelor, master and doctoral students (www.prz.edu.pl/en). The Faculty of Mechanical Engineering and Aeronautics, as the only one in Poland, has been training civil aviation pilots since 1976. Their training meets European requirements for receiving an airline pilot licence (ATPL), and is conducted at Jasionka (<https://okl.prz.edu.pl/>) and Bezmiechowa (<http://aos-bezmiechowa.pl/>).

Rzeszów

Rzeszów is the capital of the Subcarpathian Province, it constitutes the biggest industrial, academic, cultural and recreational centre of south-eastern Poland https://www.youtube.com/watch?v=0IO_UWtASE8. Its population is about 220 thousand residents. The city is located on both sides of the Wislok River in the centre of the Sandomierska Valley. The majority of tourist attractions are within walking distance from the centre. The city has the most number of students per inhabitants in the European Union (for every 1000 inhabitants there are 353 students). For more details see <https://en.wikipedia.org/wiki/Rzesz%C3%B3w>.



Conference Information

Venue

Rzeszów University of Technology
al. Powstańców Warszawy 12
35-959 Rzeszów
GPS: 50° 1'5"N, 21° 59'24"E

Building V



Registration and Secretariat Timetable (RUT, V Building – Main Hall)

Wednesday, September 7, 8 a.m. to 6 p.m.

Thursday, September 8, 8 a.m. to 2 p.m.

Friday, September 9, 8 a.m. to 2 p.m.

Papers Presentation (RUT, V Building – Rooms V1, V2, V14 or V15)

Invited Lecture (IL): The maximum allowed time for presentation is 40 minutes with an additional 5 minutes for short discussion.

Oral presentation (OP): The maximum allowed time for presentation is 12 minutes with additional 2 minutes for short discussion and 1 minute to change to the next speaker.

Speakers are requested to upload their presentation to the PC, available in the assigned conference room, during the coffee break prior to the session. The presentation should be uploaded preferably in .pdf, or .pptx formats.

Poster Presentation (RUT, V Building – Main Hall – first floor)

The poster size should not exceed 120 cm height and 94 cm width. Posters have to be placed at the first floor of the Main Hall of V Building on the boards at least on Wednesday, September 7 (9 a.m. to 2 p.m.) and have to be taken down at least on Friday, September 9. Your poster place will be identified by a label posted on the corresponding board.

Posters will be displayed during the Poster Session on Wednesday, September 7, 4:30 p.m to 6 p.m.

This will give posters great exposure among the participants of the conference, and will allow time for interactions between poster presenters and conference attendees.

For Session Chair

Due to the number of participants and parallel sessions, speakers must finish their presentations and question rounds on time. The Chair is in charge of indicating the speakers when to move on to the stage, start and end presentation, etc. If you have any questions, please contact the Organizing Committee.

Internet Access

Wireless internet access will be available in the premises of the conference venue.

Lunch & Coffee Break

Lunches will be served on RUT in the V Building – Room V17 and V18. Your identification badge is required for lunches and coffee breaks.

Social Events

Wednesday, September 7, 2022

- 9:00-9:15 **Opening Ceremony** (RUT, V Building – Room V1)
- 18:00-19:00 **Get-together party** (RUT, V Building – Room V17/V18)
- 19:00-19:30 **Poloniny Ensemble Concert** (RUT, V Building – Room V1)
- 19:30-21:30 **Rzeszów Tour** (start RUT, V Building – Main Hall)

Thursday, September 8, 2022

- 14:00-18:00 **Krasiczyn Castle Tour** (start RUT, V Building – Main Hall)
- 19:00-23:30 **Conference Banquet** (Krasiczyn Castle)

Friday, September 8, 2022

- 12:00-12:30 **Closing Conference Ceremony** (RUT, V Building – Room V2)
- 14:00-20:30 **Tour to Bóbrka Ignacy Łukasiewicz Museum of Oil and Gas Industry** (start RUT, V Building – Main Hall)

Identification Badge

Participants are reminded to wear their named badges at all time while in the conference area or conference events. Access will be prohibited to the sessions, coffee breaks and social events if a named badge is not visible.

Identification Badge is also required to Social Events.

Scientific Program

Thematic scope of the sessions

Hours	Wednesday, September 7, 2022			Thursday, September 8, 2022			Friday, September 9, 2022		
9	Opening Ceremony								
	Room V1 Plenary lecture			Room V2	Room V14	Room V15	Room V2 Plenary lecture		
10	Room V1 Plenary lecture			AERO	MULTI + FM	FD 1	Room V2 Plenary lecture		
11	Room V2	Room V14	Room V15	Room V2 IS 2			Room V2 FD 2	Room V14 TURB	Room V15 HEAT
	EXP IS 1	COMB + FC	CFD 1	Room V2 CFD 2	Room V14 MICRO- BIO	Room V15 AERO 2	Closing Conference Ceremony		
13									
14	JW Elsner Competition								
15									
16	Poster Session								
17									
18	Poster Session			Plenary lecture					
				JW Elsner Competition Results					

EXP – Experimental Fluid Mechanics
and Measurement Techniques

IS – Industry Session

COMB – Combustion

FC – Flow Control and Optimisation

CFD – Computational Fluid Dynamics

AERO – Aerodynamics

MULTI – Multi-phase Flows

FM – Flow Machinery

FD – General Fluid Dynamics

MICRO-BIO – Micro-, Nano- and Bio-flows

TURB – Turbulence

HEAT – Interdisciplinary Areas in Heat and Fluid Flow

Conference Schedule

Wednesday, September 7, 2022				Thursday, September 8, 2022				Friday, September 9, 2022				
8:00-9:00				8:00-9:00				8:00-9:00				
Registration				Registration				Registration				
9:00-9:15		Room V1	Opening ceremony		9:00-10:45	Room V2	Room V14	Room V15	9:00-9:45	Room V2	Prof. Nicholas Lawson Invited Lecture	
9:15-10:00		Room V1	Prof. Beverley McKeon Invited Lecture			AERO 1	MULTI + FM	FD 1		9:45-10:30	Room V2	Prof. Bernd R. Noack Invited Lecture
10:00-10:45		Room V1	Prof. Ali Beskok Invited Lecture						10:30-11:00			Coffee break
10:45-11:15		Coffee break		10:45-11:15		Coffee break						
11:15-12:45	Room V2	Room V14	Room V15	11:15-12:00	Room V2			11:00-12:00	Room V2	Room V14	Room V15	
	EXP	COMB + FC	CFD 1		IS2 - Industry Session				FD 2	TURB	HEAT	
	IS1			12:00-12:45	Room V2	Room V14	Room V15	12:00-12:30	Room V2		Closing Conference Ceremony	
				CFD 2	MICRO-BIO	AERO 2						
12:45-14:30		Lunch		12:45-14:00		Lunch		12:30-14:00		Lunch		
14:30-16:00	Room V2			14:00-15:30		Trip to Krasieczyn		14:00-15:30		Trip to Bóbrka		
	JW Elsner Competition			15:30-16:00		Afternoon tee in Castle courtyard		15:30-17:30		Visiting Bóbrka Ignacy Łukasiewicz Museum of Oil and Gas Industry		
16:00-16:30		Coffee break		16:00-18:00		Krasieczyn Castle Tour		17:30-19:00		Dinner in Bóbrka Restaurant		
16:30-18:00		Poster Session		18:00-18:45		Prof. Andrzej Herczyński Invited Lecture		18:45-19:00		JW Elsner Competition Results		
18:00-19:00		Get-together party		19:00-22:00		Conference dinner in Krasieczyn Castle		19:00-20:30		Return trip to Rzeszow		
19:00-19:30		Połoniny Concert		22:00-23:30		Return trip to Rzeszow						
19:30-21:30		Rzeszów Tour										

Program Overview

Wednesday, September 7, 2022		
8:00-9:00	V Building Main Hall	Registration
9:00-9:15	Room V1	Opening Ceremony
9:15-10:00	Room V1 Invited Lecture, Chair: Jacek Pozorski	<i>Experiments, simulation and modeling in wall turbulence: Towards “designer turbulence” - B. McKeon</i>
10:00-10:45	Room V1 Invited Lecture, Chair: A. Kucaba-Piętal	<i>Fluid Flow in Nanoconfined Geometries - A. Beskok</i>
10:45-11:15	Room V17 - V18	Coffee break
11:15-12:30	Room V2 Session EXP: Experimental Fluid Mechanics and Measurement Techniques, Chair: Witold Elsner	<i>Triple line dynamics - M. Remer, A. Koźluk, T. Bobiński</i>
		<i>Experimental Investigation of Flows in Corrugated Channel - T. Bobiński, Y. Nikesh and S.W. Gepner</i>
		<i>Strouhal number and vortices in far wake of cylinder - D. Duda, V. Yanovych, V. Horáček and V. Uruba</i>
		<i>Experimental study of laminar-to-turbulent transition in adverse pressure gradient flow - K. Gumowski and S. Kubacki</i>
		<i>Experimental investigation of the influence of porous materials on vortical structures formed behind a backward-facing step - L. Klotz and K. Bukowski</i>
12:30-12:45	Room V2 IS 1: Industry Session, Chair: Witold Elsner	<i>Dantec Dynamic systems in Macro and Micro Experimental Fluid Dynamics - Eurotek International</i>
11:15-12:45	Room V14 Session COMB+FC: Combustion + Flow Control and Optimisation, Chair: Tomas Bodnar	<i>CO₂ methanation: on the modeling of reacting laminar flows in structured Ni/MgAl₂O₄ catalysts - J.A. Medina Méndez, M. González-Castaño, F.M. Baena-Moreno and H. Arellano-García</i>
		<i>LES of an excited rectangular flame - J. Stempka and A. Tyliczszak</i>
		<i>Numerical analysis of the influence of wall roughness on the turbulent boundary layer separation - P. Kamiński and A. Tyliczszak</i>
		<i>Open-loop optimal control of a flapping wing using an adjoint Lattice Boltzmann method - M. Rutkowski, W. Gryglas, J. Szumbariski, C. Leonardi and Ł. Łaniewski-Wołk</i>
		<i>Modulation of Traveling wave into standing wave for Couette- Poiseuille flow in Grooved channel - Y. Nikesh, S. Gepner and J. Szumbariski</i>
<i>Detonation dampers for ducts transporting gaseous fuels - Z.A. Walenta and A.M. Słowicka</i>		

11:15-12:45	Room V15 Session CFD 1: Computational Fluid Dynamics, Chair: Henryk Kudela	<i>Statistical analysis of flow velocity field inside random packed beds</i> - M. Marek
		<i>The subgrid-scale velocity field estimation procedure for an incompressible turbulent flow</i> - A. Paluszewska, A. Bogusławski and K. Wawrzak
		<i>Modelling of wall sheer stresses on rough and smooth walls under different conditions</i> - M. Pahlavanzadeh, W. Wróblewski and K. Rusin
		<i>Numerical analysis of heat and mass transfer through beds of spherical and non-spherical elements</i> - E. Szymanek, A. Tyliczszak and M. Marek
		<i>Hydrodynamic modelling of the underwater glider</i> - K. Stryczniewicz, M. Kraskowski, W. Stryczniewicz
		<i>Parametric CFD optimization of the longitudinal volume distribution of the ship hull in respect of resistance</i> - M. Kraskowski
12:45-14:30	Room V17 - V18	Lunch
14:30-16:00	Room V2 JW Elsner Competition, Chair: Tomasz Waclawczyk	<i>Turbine Leakage Flow Reduction Using Fluidic Sealing</i> - F. Wasilczuk, P. Flaszynski and P. Doerffer
		<i>Kinematic simulations as a subgrid-scale model for particle motion in a priori LES of homogeneous isotropic turbulence</i> - M. Rajek and J. Pozorski
		<i>Simulation of the moon pool with SPH</i> - E. Spricigo and J. Pozorski
		<i>Experimental validation of a perfect transmission in a wave - guide with surface piercing metamaterial</i> - A.D. Żyła and T. Bobiński
		<i>Development of the LES-ADM approach for combustion modelling using high-order filters</i> - L. Caban and A. Tyliczszak
		<i>A parametric analysis of concentration losses in an anode of a Solid Oxide Fuel Cell</i> - T. Prokop, J. Szmyd and G. Brus
16:00-16:30	Room V17 - V18	Coffee break
16:30-18:00	V Building Hall on 1 st floor Poster Session	<ol style="list-style-type: none"> 1. <u>A. Antonowicz</u>, K. Jędrzejczak, M. Kozłowski, K. Wojtas, L. Makowski, W. Orciuch: <i>PIV and CFD comparison of 3D printed blood vessels models</i> 2. <u>D. Błoński</u>, H. Kudela: <i>Application of high accuracy Penalized Vortex in Cell method for the high Reynolds number turbomachinery flows</i> 3. <u>D. Błoński</u>, K. Strzelecka: <i>Acoustic Doppler Velocimeter wake measurements behind airfoil with trapping vortex cavity</i> 4. <u>J. Fabisiak</u>, S. Gepner: <i>Symmetry breaking instability and improved mixing in low Reynolds number flows</i> 5. <u>B. Filip</u>, D. Antos, R. Bochenek: <i>Fluid flow research in liquid chromatography by Computational Fluid Dynamics (CFD) method</i> 6. <u>S. Gajek</u>, Z. Rarata, S. Kubacki: <i>Investigation of acoustic feedback loop mechanism by means of numerical simulations</i> 7. <u>K. Gajewska</u>, P. Niegodajew, R. Gnatowska and W. Elsner: <i>Effect of the upstream cylinder shape on the flow around the downstream rectangular object – tandem arrangement case study</i> 8. <u>Hasani Malekshah Emad</u>, W. Wróblewski: <i>Modified cavitation model based on merging theory for compressible cavitating flow with non-condensable gas</i>

		<p>9. <u>R. Kańtoch</u>, A. Wawrzak, A. Tyliczszak: <i>Numerical analysis of influence of various bluff-body shapes on diffusion flame dynamics</i></p> <p>10. <u>N. Kizilova</u>, S. Naqvi: <i>Biomimetic fractal structures for efficient heating/cooling</i></p> <p>11. <u>M. Kmiotek</u>, R. Smusz: <i>Effect of height thin obstacles on heat transfer and flow characteristics in microchannels</i></p> <p>12. <u>M. Kopryś</u>: <i>Optimum distance between short-channel structures in a catalytic chemical reactor</i></p> <p>13. <u>A. Kordos</u>: <i>Peculiarities of flow in nanochannels with nanocavities</i></p> <p>14. <u>S. Król</u>, <u>S. Malinowski</u>: <i>Recurrence quantification analysis of temperature time series from marine cumulus clouds during EUREC4A</i></p> <p>15. <u>A. Krzysiak</u>: <i>Bottom drag measurements in experimental wind tunnel tests</i></p> <p>16. <u>E. Marchewka</u>, <u>K. Sobczak</u>, <u>P. Reorowicz</u>, <u>D. Obidowski</u>, <u>K. Józwik</u>: <i>Influence of Tip Speed Ratio on the efficiency of Savonius wind turbine with deformable blades</i></p> <p>17. <u>A. Merdjani</u>, <u>N. Kizilova</u>: <i>Fractal distributors for uniform fluid delivery</i></p> <p>18. <u>Mohammadi Moein</u>, <u>J. Nowak</u>, <u>S. Malinowski</u>: <i>Microphysical measurements of hydrometeors using shadowgraph imaging technique</i></p> <p>19. <u>T. Płusa</u>, <u>P. Duda</u>: <i>Modelling of free-surface shape in unbaffled tanks</i></p> <p>20. <u>M. Poćwierz</u>, <u>K. Zielonko-Jung</u>: <i>An analysis of wind conditions at pedestrian level in the selected types of multi family housing</i></p> <p>21. <u>M. Sobkowiak</u>, <u>M. Ples</u>, <u>W. Wolański</u>, <u>W. Majewski</u>: <i>Results comparison of the flow analysis with PIV method using different blood substitute</i></p> <p>22. <u>T. Staśko</u>, <u>S. Dykas</u>, <u>M. Majkut</u>, <u>K. Smołka</u>: <i>Numerical CFD modelling of a fan with a cycloidal rotor</i></p> <p>23. <u>G. Suchanek</u>, <u>R. Filipek</u>: <i>Analysis of aerodynamic phenomena around a multi-rotor flying robot for air pollution inspection</i></p>
18:00-19:00	Room V17/V18	Get-together party
19:00-19:45	Room V1	Poloniny Ensemble Concert
20:00-22:00	Start: V Building Main Hall	Rzeszów Tour

Thursday, September 8, 2022		
8:00-9:00	V Building Main Hall	Registration
9:00-10:45	Room V2 Session AERO 1: Aerodynamics, Chair: Jacek Szumbariski	<i>Rotorcraft thickness noise control</i> - O. Szulc, T. Suresh and P. Flaszynski
		<i>Numerical prediction of upstream wind speed reduction on offshore wind farm</i> - P. Flaszynski, F. Wasilczuk, M. Piotrowicz, J. Telega, K. Mitraszewski and K.S. Hansen
		<i>Aeroacoustic investigations of Rod Vortex Generators on wind turbine blade</i> - T. Suresh, O. Szulc, P. Flaszynski and D. Ragni
		<i>Test section design for transonic flow investigations in highly loaded compressor stator</i> - A. Joseph, P. Flaszynski, P. Doerffer and M. Piotrowicz
		<i>Experimental investigation of transonic effects on a fan blade representative profile</i> - Ahmed H. Hanfy, P. Flaszynski and P. Kaczyński
		<i>Numerical investigations of boundary layer effect on shock wave induced separation on suction side of transonic compressor profile</i> - M. Piotrowicz, P. Flaszynski, P. Kaczyński and P. Doerffer
		<i>Experimental analysis of the impact of acoustic excitation on the separated boundary layer behavior</i> - V. Sokolenko, W. Elsner, A. Drózd, R. Gnatowska, S. Kubacki and Z. Rarata
9:00-10:45	Room V14 Session MULTI+FM: Multi-phase Flows + Flow Machinery, Chair: Włodzimierz Wróblewski	<i>Liquid Phase Identification in Wet Steam Transonic Flows by Means of Measurement Methods</i> - S. Shabani, M. Majkut, S. Dykas, K. Smolka and X. Cai
		<i>Coalescence of water droplets considering many-bodies aerodynamic interactions</i> - A. Michel, B. Rosa and A. Ababaei
		<i>Effect of nonequilibrium agitation on two-phase flow</i> - T. Waclawczyk
		<i>Collision efficiency of water droplets settling in quiescent air considering lubrication interactions, mobility of interfaces and non-continuum molecular effects</i> - A. Ababaei, B. Rosa and A. Michel
		<i>Flow around a droplet levitating on air boundary layer</i> - M. Klamka, M. Remer and T. Bobiński
		<i>On Dynamics of Flow past a Stage Axial Air Turbine</i> - V. Uruba, D. Duda and V. Yanovych
		<i>Investigation of a flow through a transonic turbine cascade</i> - I. Jagodzińska, B. Olszański, K. Gumowski and S. Kubacki
9:00-10:45	Room V15 Session FD 1: General Fluid Dynamics, Chair: Maria Ekiel-Jeżewska	<i>From Hydrodynamic Instability to Chaotic Mixing</i> - S.W. Gepner
		<i>Analysis of the moist air transonic flow in the symmetric and asymmetric nozzle of the low expansion</i> - P. Wiśniewski, S. Dykas, M. Majkut and K. Smolka
		<i>Density diffusion in nearly incompressible flows</i> - A. Kajzer and J. Pozorski
		<i>Study on global instability in variable density counter-current round jets</i> - K. Wawrzak, A. Bogusławski and A. Tyliczszak
		<i>About generalization of Calogero-Ahmed summation formulas</i> - K. Urbanowicz, M. Stosiak, A. Bergant
		<i>Phase Transition to Turbulence in Spatially Extended Shear Flows</i> - L. Klotz, G. Lemoult, K. Avila and B. Hof
		<i>Short-time dynamics of elastic fibers in a shear flow</i> - A.M. Słowicka, Nan Xue, P. Sznajder, J.K. Nunes, H.A. Stone and M.L. Ekiel-Jeżewska

10:45-11:15	Room V17 - V18	Coffee break
11:15-12:00	Room V2 IS 2: Industry Session, Chair: Kamil Urbanowicz	<i>Pressure controllers and calibrators - indispensable devices for the calibration of multichannel pressure scanners and other pressure transducers - Unisens</i>
		<i>Ansys GEKO turbulence model – another tool or panacea? - Symkom, Ansys Channel Partner</i>
		<i>LaVision - imaging systems in fluid mechanics - Amecam</i>
12:00-12:45	Room V2 Session CFD 2: Computational Fluid Dynamics, Chair: Artur Tyliszczak	<i>Reducing the cost of incompressible flow control problems using stabilized outflow boundary conditions - J. Gałęcki and J. Szumbariski</i>
		<i>On the numerical simulation of fluid flow in branched channels using simple immersed boundary code - A. Lancmanová, T. Bodnár and R. Keslerová</i>
		<i>Conservative weakly compressible smoothed particle hydrodynamics applied to flows with high vorticity - A. Kajzer</i>
12:00-12:45	Room V14 Session MICRO-BIO: Micro-, Nano- and Bio-flows, Chair: Ali Beskok	<i>Asymmetric overdamped motion of contact lines over high-friction hydrophilic substrates - M. Pellegrino and B. Hess</i>
		<i>Numerical simulations Johnson-Segalman viscoelastic fluids flows in shear-thinning regime - T. Bodnár and A. Sequeira</i>
12:00-12:45	Room V15 Session AERO 2: Aerodynamics, Chair: Renata Gnatowska	<i>Wind tunnel investigations of aircraft airfoil in cruise conditions - P. Kaczyński, R. Szwaba, M. Piotrowicz P. Flaszynski and P. Doerffer</i>
		<i>Wind tunnel test of gyrodyne aerodynamic characteristics in hover - J. Muchowski, M. Szumski and A. Krzysiak</i>
		<i>Silent conditions testing of pulsed jet actuator - W. Stryczniewicz and W. Stalewski</i>
12:45-14:30	Room V17 - V18	Lunch
14:00-15:30	Start: V Building Main Hall	Trip to Krasiczyn
15:30-16:00	Krasiczyn Castle	Afternoon tee in Castle courtyard
16:00-18:00	Krasiczyn Castle	Krasiczyn Castle Tour
18:00-18:45	Krasiczyn Castle Invited Lecture, Chair: Witold Elsner	<i>From Depicting to Deploying Fluids in Art - A. Herczyński</i>
18:45-19:00	Krasiczyn Castle	Announcement of the JW Elsner Competition Results
19:00-22:00	Krasiczyn Castle	Conference Banquet in Krasiczyn Castle
22:00-23:30	Krasiczyn Castle	Return trip to Rzeszow

Friday, September 9, 2022		
8:00-9:00	V Building Main Hall	Registration
9:00-9:45	Room V2 Invited Lecture, Chair: Marek Morzyński	<i>Flight Test Activity at the Cranfield University National Flying Centre</i> - N. Lawson
9:45-10:30	Room V2 Invited Lecture, Chair: Maria Ekiel-Jeżewska	<i>Turbulence Control—Better, Faster and Easier with Machine Learning</i> - B.R. Noack
10:30-11:00	Room V17 - V18	Coffee break
11:00-12:00	Room V2 Session FD 2: General Fluid Dynamics, Chair: Andrzej Bogusławski	<i>Deep mean-field modeling of wake dynamics with multi-attractor behavior</i> – N. Deng, L. Pastur, M. Morzyński and B.R. Noack
		<i>Stabilization of shear flows with gradient-enriched machine learning control</i> - G.Y. Cornejo Maceda, Y. Li, F. Lusseyran, M. Morzyński and B.R. Noack
		<i>Control-oriented full-state flow estimation exemplified for the fluidic pinball</i> – S. Li, W. Li and B.R. Noack
		<i>Explorative gradient method for active wake control with multiple inputs</i> - Y. Li, Z. Yang, M. Morzyński and B.R. Noack
11:00-12:00	Room V14 Session TURB: Turbulence, Chair: Beverly McKeon	<i>Non-equilibrium dissipation scaling in atmospheric turbulence</i> - M. Waclawczyk, J.L. Nowak and S.P. Malinowski
		<i>Universal logarithmic behaviour of convection velocity in adverse pressure gradient flows</i> - A. Drózdź, P. Niegodajew, M. Romańczyk and W. Elsner
		<i>Effective use of wavy surface to control flow separation</i> - P. Niegodajew, A. Drózdź and W. Elsner
		<i>Large-scale motions in a baffled von Kármán tank</i> - P. Baj
11:00-12:00	Room V15 Session HEAT: Interdisciplinary Areas in Heat and Fluid Flow, Chair: Sławomir Dykas	<i>FEM based reduced-order CFD models for heat transfer modelling in battery packs of electric vehicles</i> - M. Kurzynka and B. Górecki
		<i>Modeling coupled problems for hydraulically driven fractures by accelerated explicit temporal integration</i> - E. Rejwer-Kosińska, L. Rybarska-Rusinek and A. Linkov
		<i>Flow and Transport Characteristics of Periodic Open Cellular Structures (POCS) for Catalytic Processes</i> - M. Iwaniszyn
		<i>Magnetically altered turbulent forced convection of silver-water nanofluid: A numerical study</i> - L. Pleskacz, E. Fornalik-Wajs, B. Famulski, A. Roszko, S. Gurgul, T. Kura and E. Kwapisz
12:00-12:30	Room V2	Closing Conference Ceremony
12:30-14:00	Room V17 - V18	Lunch
14:00-15:30	Start: V Building Main Hall	Trip to Bóbrka
15:30-17:30	Bóbrka	Visiting Bóbrka Ignacy Łukasiewicz Museum of Oil and Gas Industry
17:30-19:00	Bóbrka	Dinner in Bóbrka Restaurant
19:00-20:30	Bóbrka	Return trip to Rzeszow

Papers

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- WASEA Transactions on Fluid Mechanics.

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