

Sunday 9 SEP 17.00-21.00

17.00-20.00

Registration

20.00-21.00

Welcome dinner

Monday 10 SEP 8.30

8.30-8.50

Conference opening

8.50-9.00

A Remembrance of prof. Jacek Rokicki Jacek Szumbariski

9.00-9.40

Invited Lecture 1: **Erik Dick** Ghent University
Transition Models for Turbomachinery Boundary Layer Flows
Chair: Tadeusz Chmielniak

9.40-10.20

Invited Lecture 2: **Luc Vervisch** Normandie Université
Numerical simulation of flames and turbulent combustion modeling
Chair: Andrzej Bogusławski

Room C

10.20-10.45

Coffee break

Room C
Chair: Franck Nicoud

Room D (1st floor)
Chair: Artur Tyliczszak

Room B
Chair: Václav Uruba

MS1: CFD Methods 1

MS2: Combustion

MS3: Experiment 1

10.45-11.00

Onset of the three-dimensional unsteady states in the short Taylor–Couette cavity with the asymmetric end-wall conditions: influence of radii ratio
Ewa Tuliszką-Sznitko, Tom Mullin

Implementation of mass continuity approach for turbulent flame speed numerical calculations
Joanna Jójką, Rafał Ślefarski

Leakage flow reduction in different configuration of labyrinth seal on a turbine blade tip
Piotr Kaczyński, Ryszard Szwaba

11.00-11.15

Fourth-order compact Vortex in Cell implementation for high Reynolds lid-driven cavity problem
Dominik Błoński, Henryk Kudela,

Analysis of the fuel spray in the opposed-piston engine
Tytus Tulwin, Paweł Karpiński

On the 3D structure of the flow-field in the vicinity of inclined plate
Václav Uruba, Pavel Procházka, Vladislav Skála

11.15-11.30

Thermal dilatation of solid grains: the LBM approach
Arkadiusz Grucelski, Jacek Pozorski,

Rotary Ramjet Engine - Numerical analysis of aerodynamics and combustion
Tomasz Laube, Janusz Piechna

Microfluidic systems with rotational symmetry for creating desired concentration distribution of reagents
Sławomir Błoński, Piotr Korczyk

11.30-11.45

Comparison of direct flow simulation in a random packed bed of Raschig rings with a macroscale momentum-sink approach
Maciej Marek

Experimental Study of Flame Excitation Events Caused by Acoustic Oscillations
Paweł Niegodajew, Korneliusz Łukasiak, Konrad Gruszka

Microfluidic structures with embedded control for implementation of laboratory protocols
Piotr M. Korczyk, Damian Zaremba, Sławomir Błoński

11.45-12.00

LES predictions of self-excited oscillations in counter-current round jets
Karol Wawrzak, Andrzej Bogusławski, Artur Tyliczszak

CFB combustion of biomass – the concept of a prototype boiler
Rafał Kobyłecki, Robert Zarzycki, Andrzej Kacprzak, Michał Wichliński, Zbigniew Bis

Influence of wind on the movement of the load
Dawid Cekus, Renata Gnatowska, Paweł Kwiaton

12.00-12.15

Velocity distribution functions in flows through random porous media,
Zbigniew Koza, Maciej Matyka, and Jakub Poła

Operational experiences and numerical analysis of biomass combustion in a stoker boiler
Robert Zarzycki, Rafał Kobyłecki, Zbigniew Bis

Analysis of high-speed photography of cavitating flow in convergent-divergent nozzle
Seweryn Lipiński, Agnieszka Niedźwiedzka

12.15-12.30

Implementation of advection and re-initialization equations for the conservative level-set function in OpenFOAM
Seweryn Reł, Tomasz Waławczyk

Catalytic utilization of unconventional fuels in a gas turbine
Michał Stajne, Janusz Badur

Nanofluid in the magnetic field – one- or two-phase approach
Elżbieta Fornalik-Wajs, Aleksandra Roszko

12.30-12.45

Hybrid MPI/Open-MP acceleration approach for high-order schemes for CFD
Michał Sączek, Karol Wawrzak, Andrzej Bogusławski, Artur Tyliczszak

Analysis of species diffusion and methanol decomposition source in thermocatalytic reactor based on the intermetallic phase of Ni₃Al for low Reynolds numbers
Paweł Ziółkowski, Michał Stajne, Paweł Jóźwik, Zbigniew Bojar, Piotr J. Ziółkowski, Janusz Badur

Aerodynamic characteristics identification of missile wrap-around fin stabilizer
Idalia Jagodzińska, Bartosz Olszański, Zbigniew Nosal

Monday 10 SEP 12.45

12.45-14.00	Lunch	
14.00-14.40	Invited Lecture 3: Bartosz Protas McMaster University Extreme Vortex States and the Hydrodynamic Blow-Up Problem Chair: Marek Morzyński:	Room C
14.40-14.45	Break	
	Room C	Room B
	Chair: Erik Dick, Luc Vervisch	Chair: Janusz Piechna
	MS4: J. W. Elsner Competition	MS5: Industry session
14.45-14.50	Opening adress Stanisław Drobnik	
14.50-15.05	Diffused interface models for two-phase flows in artificial compressibility approach <u>Adam Kaizer</u> , Jacek Pozorski	Dantec Dynamics & Eurotek - Your Partners in Experimental Fluid Dynamics <u>Marek Czapp</u> (Dantec Dynamics)
15.05-15.20	Jet in a crossflow in low-velocity ratio regime: hairpin shedding instability <u>Lukasz Klotz</u> , Konrad Gumowski, José Eduardo Wesfreid, Jacek Rokicki	Improvements in Time-Resolved Particle Identification and Large Scale Visualization Using Surfactant/Water Based Bubble Generator <u>Lucia Bustin</u> , Aaron Boomsma, Dan Troolin, Amine Koch, Lucia Bustin, Jean Stefanini (TSI)
15.20-15.35	Modelling of turbulent combustion under MILD conditions using extended Eddy Dissipation Concept, <u>Michał T. Lewandowski</u> , Jacek Pozorski	Pressure, force, torque and vibration solutions for wind tunnel and turbomachinery testing <u>Hubert Stańczyk</u> (Unisens)
15.35-15.50	Numerical investigation of an influence of a jet position on local heat transfer distribution under an array of impinging nozzles with non-planar contour of the cooled surface <u>Krzysztof Marzec</u> , Anna Kucaba-Piętal	Fluid - structure interaction in ANSYS - Modeling of Human Cochlea <u>Konrad Kamieniecki</u> , Janusz Piechna (Symkom)
15.50-16.05	Instability and mixing in the channel with sidewalls, <u>Nikesh Yadar</u> , Stanisław W. Gepner, Jacek Szumbariski	Self-induced vibrations of structure immersed in dense fluid. Approach to hydrodynamic damping phenomenon in ANSYS <u>Maciej Kryś</u> (MESCO)
16.05-16.20	Wetting phenomena and droplet-wall interaction modelling with Smoothed Particle Hydrodynamics approach, <u>Michał Olejnik</u> , Jacek Pozorski	Tecplot: overview, strategies and challenges in Post-Processing: exploring large datasets, workflow automation and analyzing collections of files <u>Antoine Ligier</u> (Tecplot)
16.20-16.35	Numerical analysis of an impact of spray characteristics and co-flow temperature on a flame lift-off height <u>Jakub Stempka</u> , Artur Tyliczszak	QuickerSim CFD Toolbox for MATLAB - applications in teaching, research and commercial purposes <u>Bartosz Górecki</u> (QuickerSim)
16.35-16.50	Leakage reduction in labyrinth seal through geometry modification <u>Filip Wasilczuk</u> , Paweł Flaszynski, Piotr Doerffer	-----
16.50-17.15	Coffee break	

Monday 10 SEP 17.15

	Room C Chair: Sławomir Kubacki	Room D (1st floor) Chair: Włodzimierz Wróblewski	Room B Chair: Philipp Schlatter
	MS6: CFD Methods 2	MS7: Heat Transfer	MS8: Turbulence
17.15-17.30	Recursive Dynamic Mode Decomposition in Reduced Order Flow Models <u>Witold Stankiewicz</u> , Marek Morzyński	Fluid flow and heat transfer analysis of a photovoltaic module under varying environmental conditions Marek Jaszczur, <u>Qusay Hassan</u> , Mateusz Szubel, Ewelina Majewska	Fractal reconstruction of sub-grid scales in large eddy simulation of atmospheric turbulence <u>Emmanuel O. Akinlabi</u> , Marta Waclawczyk, Szymon P. Malinowski
17.30-17.45	Cascaded Lattice Boltzmann Method application in forced and natural convection <u>Robert Straka</u> , Keerti V. Sharma	Local Nusselt number evaluation in the case of jet impingement <u>Tomasz Kura</u> , Elżbieta Fornalik-Wajs, Jan Wajs, Sasa Kenjeres	Turbulence Behind 3D Multi-Scale Sparse Grids Syed M. Usama, Jacek M. Kopec, Jackson Tellez-Alvarez, Kamil Kwiatkowski, Jose M. Redondo, <u>Nadeem A. Malik</u>
17.45-18.00	Development of IMEX Runge-Kutta method for integration of statistical interface model equations <u>Tomasz Waclawczyk</u>	Effect on the louver damper configuration on the gas behaviour in the heat exchanger for waste heat recovery <u>Grzegorz Ligus</u> , Szymon Kołodziej, Daniel Zając	Experimental analysis of self-sustained oscillations reaction for external forcing <u>Agnieszka Pawłowska</u> , Stanisław Drobnik, Piotr Domagała
18.00-18.15	Multilevel algorithm for Stokes problem with discontinuous viscosity <u>Michał Wichrowski</u>	Developing micro-scale heterogeneous numerical simulation of a solid oxide fuel cell anode <u>Tomasz Prokop</u>	Laminar to turbulent transition in a separated boundary layer at moderate/elevated turbulence level <u>Konrad Gumowski</u> , Sławomir Kubacki
18.15-18.30	Efficient Uncertainty Quantification using the 2nd order sensitivities <u>Marcin Wyrozębski</u> , Łukasz Łaniewski-Woźak	Experimental and numerical research on heat and air flow through a granular material <u>Ewa Szymanek</u> , Artur Tyliczszak	On the structure of the boundary layer under adverse pressure gradient <u>Václav Uruba</u> , Pavel Procházka, Vladislav Skála
18.30-18.45	Pulse wave propagation and reflection along human aorta: model validation on in vivo measured waveforms <u>Natalya Kizilova</u> , Jeremi Mizerski	The effect of heat exchanger geometry on the performance of adsorption chiller <u>Marcin Sosnowski</u> , Karolina Grabowska, Jarosław Krzywański, Wojciech Nowak, Karol Sztekler, Wojciech Kalawa	Passive Skin Friction Control Near Turbulent Separation - Preliminary Results <u>Artur Drózdź</u> , Witold Elsner, Dawid Sikorski
18.45-19.00	Hydrodynamic instabilities in a meandering channel <u>Stanisław Gepner</u> , Jerzy Maciej Floryan	Comparative Study of Using R-134a, R-410A, R-407C, NH ₃ , and R-404A as Cooling medium in the Condenser of a Steam Power Plant Using Aspen, <u>Yahya Rothan</u> , Elsayed Khalaf	Corrected Clauser-Chart Method for a Strong Decelerating Flow Artur Drózdź, <u>Witold Elsner</u>
19.00-19.15	Analysis of turbulent flows with dispersed phase: impact of two-way momentum coupling and gravity on particle statistics <u>Bogdan Rosa</u> , Jacek Pozorski	Experimental research of the influence of pulsating impinging jet on heat transfer coefficient <u>Janusz Telega</u> , Ryszard Szwaba	An improved algebraic model for bypass transition for calculation of transitional flow in the pipe and parallel-plate channel <u>Konrad Nering</u> , Kazimierz Rup
19.15-19.40	Break		
19.40-20.40	Concert		
20.40-	Conference Dinner		

Tuesday 11 SEP 9.00

9.00-9.40	Invited Lecture 4: Stéphane Zaleski Sorbonne Université The Simulation of Multiphase Flow Chair: Jacek Pozorski		Room C
9.40-10.20	Invited Lecture 5: Franck Nicoud University Montpellier Challenges in microscopic and macroscopic blood flows Chair: Anna Kucabal-Piętal		
10.20-10.45	Coffee break		
	Room C Chair: Krzysztof Tesch	Room B Chair: Stéphane Zaleski	Room A Chair: Paweł Flaszynski
	TS1: Applied CFD 1	TS2: Multiphase Flows	TS3: Fluid Flow Machinery
10.45-11.00	Numerical Simulations of Plane Turbulent Jet Stripping of Liquid Coatings <u>Wojciech Aniszewski</u> , Stéphane Zaleski, Y. Saadeh, S. Popinet	Using CFD and EIT to analyse the flow of pulp suspensions <u>Carla Cotas</u> , Fernando Garcia, Maria Graca Rasteiro, Dariusz Asendrych	Prediction of endwall losses in a low pressure turbine cascade with an algebraic intermittency model <u>Sławomir Kubacki</u> , Paweł Jonak, Erik Dick
11.00-11.15	Absolute instability of an annular jet - linear stability theory <u>Andrzej Bogusławski</u> , Artur Tyliszczak, Karol Wawrzak	Influence of deflocculant on shear stress in hydromixture flow <u>Beata Jaworska</u> , Artur Bartosik	An investigation of secondary flow features in a low pressure turbine <u>Paweł Jonak</u> , Sławomir Kubacki
11.15-11.30	Experimental and numerical investigation of cavitation on ClarkY foil <u>Dorota Homa</u> , Włodzimierz Wróblewski, Mirosław Majkut, Michał Stozik	Droplet surfing on a boundary layer <u>Michał Klamka</u> , Tomasz Bobiński	Pre-swirl energy saving device in marine application <u>Przemysław Król</u> , Krzysztof Tesch
11.30-11.45	Simulation of vortex-induced vibrations of a cylinder using overset mesh and fluid-structure interaction approach Jakub Broniszewski, Janusz Piechna	Dynamics of the triple line, base on the impinging water droplet <u>Michał Remer</u> , Tomasz Bobiński	Numerical analysis of centrifugal compressor operating in near-surge conditions, <u>Michał Kulak</u> , Filip Grapow, Grzegorz Liśkiewicz
11.45-12.00	Numerical investigation of the gyroplane longitudinal static stability for the selected stabilizer angles <u>Zbigniew Czyż</u> , Tomasz Łusiak, Paweł Karpiński, Jacek Czarnigowski	Microchannel junction for passive manipulations of droplets in two-phase microfluidics <u>Damian Zaremba</u> , Sławomir Błoński, Piotr M. Korczyk	Hot Spot Location Effect on Flow Structure in Gas Turbine Passage <u>Michał Piotrowicz</u> , Paweł Flaszynski, Piotr Doerffer
12.00-12.15	Numerical modelling of flow field within the packed bed of granular material Marcin Sosnowski, <u>Renata Gnatowska</u> , Jacek Sobczyk, Waldemar Wodziak	Extending Bubble Cavitation Model to predict water hammer in viscoelastic pipelines <u>Kamil Urbanowicz</u> , Mateusz Firkowski	Experimental and numerical investigations of Tesla turbine <u>Krzysztof Rusin</u> , Włodzimierz Wróblewski, Michał Stozik
12.15-12.30	Effect of wall contraction on flow around bell tower <u>Paulina Jamińska-Gadomska</u> , Jerzy Podgórski, Tomasz Lipecki	Applications of wave equations with logarithmic nonlinearity in fluid mechanics <u>Konstantin G. Zloshchastiev</u>	Numerical investigations of the aspect ratio influence of the Savonius rotor performance <u>Krzysztof Sobczak</u>
12.30-12.45	Experimental and comparative study on the two-phase pressure drop of air-water mixture in U-bend and straight pipe annuli <u>Rafał Andrzejczyk</u> , Tomasz Muszynski	Droplets in Aerial Spraying Robert S. Rowiński	The actuator cell model for the Darrieus wind turbine <u>Krzysztof Rogowski</u>
12.45-13.45	Lunch		
13.45-19.30	Visiting Jasna Góra Monastery		
20.00-	Barbeque		

Wednesday 12 SEP 9.00

9.00-9.40	Invited Lecture 6: Philipp Schlatter KTH Mechanics Large-scale simulations of complex turbulent flows using high-order methods Chair: Janusz Szmyd			Room C
9.40-10.20	Invited Lecture 7: Maciej Opoka Rolls-Royce Deutschland CFD Support during Multistage-Axial Compressor Design Chair: Piotr Doerffer			
10.20-10.45	Coffee break			
	Room C Chair: Marek Jaszczur	Room B Chair: Ryszard Szwaba	Room A Chair: Elżbieta Fornalik-Wajs	
	WS1: Applied CFD 2	WS2: Experiment 2	WS3: Aerodynamics	
10.45-11.00	Numerical study of potential application of active suction and blowing through blade tip perforation to reduction of helicopter rotor thickness noise <u>Oskar Szulc</u> , Piotr Doerffer	Application of Background Oriented Schlieren for quantitative measurement of transonic flows <u>Wit Stryczniewicz</u> , Lucas Santos	Numerical study of a flow around non-slender delta wing at high angle of attack <u>Wojciech Szeliga</u> , Marek Morzyński	
11.00-11.15	Numerical and experimental investigations of a synthetic jet actuator for active flow control <u>Marcin Kurowski</u> , Ryszard Szwaba	Wind tunnel comparison of four VAWT configurations to test load-limiting concept <u>Jan Wiśniewski</u> , Konrad Gumowski, Jacek Szumbariski	Aerodynamic characteristics identification of short range missile control surface <u>Bartosz Olszański</u> , Idalia Jagodzińska, Konrad Gumowski, Zbigniew Nosal	
11.15-11.30	On the flow structure and momentum budget of paramagnetic fluid flow in the strong magnetic field <u>Łukasz Pleskacz</u> , Elżbieta Fornalik-Wajs	Experimental Investigations On The Momentum Pressure Drop During Flow Boiling Of R134a <u>Tomasz Muszyński</u> , Rafał Andrzejczyk, Carlos Alberto Dorao	Aerodynamic assessment of the fan with cycloidal rotor Sławomir Dykas, Mirosław Majkut, <u>Krzysztof Smoła</u> , Michał Stozik	
11.30-11.45	Predicting surface wettability by CFD simulation at flat and textured surfaces <u>Dariusz Asendrych</u>	Optical Tweezers Force Sensor for Particle-Wall Interaction Measurements <u>Krzysztof Zembrzycki</u> , S. Pawłowska, J. Chrzanowska-Giżyńska, F. Pierini, Tomasz Kowalewski	Urban flow for a large city agglomeration. Possibilities of the pedestrian comfort modelling <u>Mariusz Rutkowski</u> , Michał Remer	
11.45-12.00	Prediction of helicopter rotor noise in hover using FW-H analogy <u>Thanushree Suresh</u> , Oskar Szulc, Paweł Flaszynski, Piotr Doerffer	Application of POD based instrumentation strategy <u>Wojciech Gryglas</u>	Aeroelastic analysis of a helicopter rotor in hover <u>Adam Sieradzki</u>	
12.00-12.15	Sediment dynamics with free surface and deformable bed in Smoothed Particle Hydrodynamics: model considerations Michał Olejnik, <u>Jacek Pozorski</u> ,	Experimental study of the aerodynamic perturbations induced by the single sensor normal hot-wire anemometer in the vicinity of wall <u>Jacek Sobczyk</u>	Experimental and numerical investigation of a car mounted active rear wing <u>Krzysztof Kurec</u> , Michał Remer, Janusz Piechna, Przemysław Bibik	
12.15-12.30	An example of defining computational domain and boundary conditions for a flow in a mine gallery <u>Jerzy Krawczyk</u> , Jakub Janus	A system for measuring environmental data in full-scale <u>Tomasz Lipecki</u> , Paulina Jamińska-Gadomska, Andrzej Sumorek, Ewa Błazik-Borowa, Jarosław Bęc	Development of the aerodynamics of the Polish supercar Arrinera Hussarya <u>Janusz Piechna</u> , Krzysztof Kurec, Adam Piechna	
12.30-12.45	Simulating Car Aerodynamics Using Lattice Boltzmann Method <u>Paweł Obrepalski</u> , Łukasz Łaniewski-Woźń	Design of the low cost transonic wind tunnel apparatus Jędrzej Mosiężny, <u>Bartosz Ziegler</u>	Periodic aerodynamic loads generated on a car body <u>Janusz Popławski</u> , Mateusz Kozar, Michał Remer, Krzysztof Kurec, Janusz Piechna	
12.45-13.00	Discrete-continuous optimisation of an axial flow blood pump <u>Krzysztof Tesch</u> , Katarzyna Kaczorowska-Ditrich	Flow visualization around the owls wings <u>Joanna Kopania</u>	Methods for reduction of drag coefficient for trailers Przemysław Grzymisławski, <u>Jędrzej Mosiężny</u> , Bartosz Ziegler	
13.00-13.15	Closing Ceremony (Room C)			
13.15-14.30	Lunch			
14.30-	Visiting castles Ogródzieniec – Mirów – Bobolice			

MAP

