

Programme of the XXIInd Fluid Mechanics Conference
11-14.09.2016, Słok near Belchatów, Poland

SUNDAY - 11th of September

Since 16:00 - Registration of Participants of the Conference

18:00 – 21:00 - Welcome dinner

19:00 – 20:30 - Meeting of Scientific and Organizing Committees with invited speakers

MONDAY – 12th of September

8:00 – 13:00 - Registration

8:00 – 9:00 - Breakfast

9:00 – 9:15 - Opening of XXII Fluid Mechanics Conference

9:15 – 9:30 - A Remembrances of prof. Włodzimierz Juliusz Prosnak, prof. Romuald Puzyrewski and dr hab. Konrad Bajer

9:30 – 11:00 – Invited Lectures, chairmen: J. Rokicki and S. Drobniak

9:30 – 10:15 – **Keith Moffatt**, University of Cambridge, UK Department of Applied Mathematics and Theoretical Physics, “**Magnetic relaxation and structure formation in highly conducting fluids**”

10:15-11:00 – **Marie Farge**, LMD-IPSL-CNRS Ecole Normale Supérieure, Paris, France
“**Revisiting d’Alembert’s paradox**”

11:00 – 11:20 – Coffee break

11:20 – 13:00 - Sessions IA (room no. 1A) **and IB** (room no. 2)

13:00 – 14:20 - Lunch

14:20 – 16:00 – Sessions IC (room no. 1A) **and ID** (room no. 2)

16:00 – 16:20 – Coffee break

16:20 – 17:40 – Sessions IE (room no. 1A) **and IF** (room no. 2)

18:15 – 18:45 – Presentation of Intel company (room no. 1A)

P. Gepner and R. Adamski, “Intel Scalable System Framework the foundation for computational fluid dynamics simulations”

18:45 – 19:15 – Presentation of SymKom company (room no. 1A)

A. Piechna and L. Rudniak, “Optymalizacja topologiczna oraz inżynieria odwrotna w zastosowaniach przepływowych”

19:15 – 19:45 – Presentation of UniSens company (room no. 1A)

H. Stańczyk, “TE connectivity pressure and temperature scanning solutions for wind tunnel, flight and turbomachinery testing”

20:00 – 23:00 – Barbecue

TUESDAY – 13th of September

8:00 – 13:00 - Registration

8:00 – 9:00 - Breakfast

9:00 – 11:00 – Invited Lectures, chairmen: K. Moffatt and H. Kudela

9:00 – 10:00 – **G. N. Barakos**, University of Liverpool, UK “**Unsteady shock-boundary layer interaction: applications and challenges**”

10:00-11:00 – **A. Herczyński**, Boston College, Physics Department, USA “**Two variations on normal modes: sloshing in free vessels & Bragg resonance**”

11:00 – 11:20 – Coffee break

11:20 – 13:00 - Sessions IIA – prof. Elsner Competition (room no. 1A)

11:20 – 13:00 - Sessions IIB (room no. 2)

13:00 – 14:20 - Lunch

14:20 – 16:00 – Sessions IIC – prof. Elsner Competition (room no. 1A)

14:20 – 16:00 – Sessions IID (room no. 2)

16:00 – 16:20 – Coffee break

16:20 – 18:00 – Sessions IIE – prof. Elsner Competition (room no. 1A)

16:20 – 18:00 – Sessions IIF (room no. 2)

18:15 – 18:45 – Presentation of Casp System company (room no. 1A)

A. Głodek, “Laser Imaging Systems”

18:45 – 19:15 – Presentation of Eurotek and Dantec companies (room no. 1A)

K. Dörner and A. Antonowicz, “The latest development in planar, volumetric and point measurements techniques for fluid mechanics”

20:00 – 20:45 – Jazz Quartet concert

20:45 – 23:00 – Banquet

WEDNESDAY – 14th of September

8:00 – 9:00 - Breakfast

9:00 – 11:00 – Invited Lectures, chairmen: M. Farge and A. Herczyński

9:00 – 10:00 – **J. Szmyd**, AGH University of Science and Technology, Cracow, Poland “**Influence of a strong magnetic field on convection processes in paramagnetic fluids**”

10:00-11:00 – **T. Kowalewski**, Institute of Fundamental Technological Research, Polish Academy of Sciences “**New experimental tools in microfluidics**”

11:00 – 11:20 – Coffee break

11:20 – 13:00 - Sessions IIIA (room no. 1A) and **IIIB** (room no. 2)

13:00 – 14:00 - Lunch

14:00 – 14:30 – Closing ceremony of XXII Fluid Mechanics Conference

SESSION IA (room no. 1A) – Monday

Chairman: **E. Tuliszk**a-Sznitko - Poznań University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

11:20 – D. Asendrych, G. Kanik and S. Drobnik „Modelling liquid flow structure on a flat inclined surface”

11:40 – J. Pozorski and M. Knorps „Subfilter-scale modelling in particle-laden turbulent flows”

12:00 – A. Bartosik „Simulation of Reynolds number influence on heat exchange in turbulent flow of medium slurry”

12:20 – R. Szwaba and T. Ochrymiuk „Transpiration effects in perforated plate aerodynamics”

12:40 – M. Księżyk and A. Tyliszczak „LES-IB analysis of a flow in channel with an adverse pressure gradient”

SESSION IB (room no. 2) – Monday

Chairman: **P. Doerffer** - Szewalski Institute of Fluid-Flow Machinery Polish Academy of Sciences

(presentations in English: 12 min. – lecture and 3 min. – discussion)

11:20 – J. Badur, S. Kornet, D. Sławiński and P. Ziółkowski „Analysis of unsteady flow forces acting on the thermo-well in a steam turbine control stage”

11:40 – S. Kornet and J. Badur „Evaporation level of the condensate droplets on a shock wave in the IMP PAN nozzle depending on the inlet conditions”

12:00 – M. Olejnik, K. Szewc and J. Pozorski „Smoothed Particle Hydrodynamics modelling of the shear driven gas-liquid interface deformation”

12:20 – A. Szymański, S. Dykas, W. Wróblewski, M. Majkut and M. Strozik „Experimental and numerical study on the performance of the smooth-land labyrinth seal”

12:40 – D. Frączek and W. Wróblewski „Validation of the numerical models for flow simulation in labyrinth seals”

SESSION IC (room no. 1A) – Monday

Chairman: **A. Kucaba-Piętal** – Rzeszów University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

14:20 – E. Tuliszka-Sznitko and K. Kielczewski „The numerical simulation of Taylor-Couette flow with radial temperature gradient”

14:40 – A. Kraszewska, Ł. Pyrda and J. Donizak „Influence of a strong magnetic field on a paramagnetic fluid’s convection in systems with different aspect ratios”

15:00 – A. Kraszewska, Ł. Pyrda and J. Donizak „Influence of a strong magnetic field on paramagnetic fluid’s flow in cubical enclosure”

15:20 – F. Tejero, P. Flaszynski, R. Szwaba and J. Telega „Unsteady conjugate heat transfer analysis for impinging jet cooling”

15:40 – P. Niegodajew and D. Asendrych „Modelling liquid spreading in porous zone – modification of 3D approach to efficient 2D axisymmetric algorithm”

SESSION ID (room no. 2) – Monday

Chairman: **J. Pozorski** - Szewalski Institute of Fluid-Flow Machinery Polish Academy of Sciences

(presentations in English: 12 min. – lecture and 3 min. – discussion)

14:20 – M. Wacławczyk and M. Oberlack „Symmetry analysis and invariant solutions of the multipoint infinite systems describing turbulence”

14:40 – W. Stankiewicz, M. Morzyński, K. Kotecki and W. Szeliga „Complex Dynamic Response Modes for Fluid Model Order Reduction”

15:00 – M. Mierzwiczak, J.K. Grabski and J.A. Kołodziej „Comparison of different approaches in the Trefftz method for analysis of fluid flow between regular bundles of cylindrical fibres”

15:20 – M. Wichrowski „Robust preconditioners and stabilization for Fluid-Structure Interaction problem in saddle-point formulation”

15:40 – K. Urbanowicz, A. Tijsseling and M. Firkowski „Comparing convolution integral models with analytical pipe flow solutions”

SESSION IE (room no. 1A) – Monday

Chairman: **M. Morzyński** - Poznań University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

16:20 – A. Kucaba-Piętal and A. Kordos „Molecular Dynamic simulation of water flows in nanochannels with nanocavities. Vortices formation.”

16:40 – S. Pawłowska „Highly deformable nanofilaments in flow”

17:00 – K. Kaczorowska and K. Tesch „Modelling of Blood Flow: From Macro to Microscales”

17:20 – J.K. Grabski, M. Mierzwiczak and J.A. Kołodziej „Analysis of non-Newtonian fluid flow in porous media by means of the global radial basis function collocation method”

SESSION IF (room no. 2) – Monday

Chairman: **J. Badur** - Szewalski Institute of Fluid-Flow Machinery Polish Academy of Sciences

(presentations in English: 12 min. – lecture and 3 min. – discussion)

16:20 – O. Szulc, P. Doerffer and F. Tejero „Passive control of rotorcraft high-speed impulsive noise”

16:40 – W. Wróblewski and D. Homa „Numerical research on unsteady cavitating flow over a hydrofoil”

17:00 – A. Pawłowska, S. Drobnik and P. Domagała „Spectral analysis of self-sustained oscillations for the free jet under variable outlet conditions”

17:20 – Z. Nosal and B. Olszański „Experimental research of an airfoil cascade in varying air humidity conditions”

18:15 – 18:45 – Presentation of Intel company (room no. 1A)

P. Gepner and R. Adamski, “Intel Scalable System Framework the foundation for computational fluid dynamics simulations”

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H. Stańczyk, “TE connectivity pressure and temperature scanning solutions for wind tunnel, flight and turbomachinery testing”

SESSION IIA (room no. 1A) – Tuesday

Prof. Elsner Competition – Supervisor: **S. Drobnik** – Częstochowa University of Technology

Chairman: **W. Elsner** - Częstochowa University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

11:20 – A. Rosiak and A. Tyliczszak „Impact of numerical method on auto-ignition in a temporally evolving mixing layer at various initial conditions”

11:40 – M. Lewandowski and J. Pozorski „Assessment of turbulence-chemistry interaction models in the computation of turbulent non-premixed flames”

12:00 – W. Regulski „Simulations of particle suspensions in viscoplastic fluids using a combined Discrete Element - Lattice Boltzmann Method”

12:20 – A. Roszko and E. Fornalik-Wajs „Nanofluids convective flow structure modified by the magnetic field”

12:40 – M. Piotrowicz and P. Flaszynski „Numerical investigations of shock wave interaction with laminar boundary layer on compressor profile”

SESSION IIB (room no. 2) – Tuesday

Chairman: **W. Wróblewski** – Silesian University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

11:20 – T. Kozłowski and H. Kudela „Generation of the vorticity field by the flapping profile”

11:40 – P. Strzelczyk and P. Gil „Properties of velocity field in the vicinity of synthetic jet generator”

12:00 – W. Szeliga, M. Morzyński, W. Stankiewicz and K. Kotecki „Incompressible mean-field model with modal closure”

12:20 – M. Remer, K. Gumowski, J. Rokicki, G. Sobieraj, M. Kaliusz, M. Psarski, G. Celichowski and D. Pawlak „Investigation of droplet impact spreading angle”

12:40 – T. Seredyn and R. Rowiński „Simulating the trajectory of droplets in an aircraft wake”

SESSION IIC (room no. 1A) – Tuesday

Prof. Elsner Competition – Supervisor: **S. Drobnik** – Częstochowa University of Technology

Chairman: **T. Kowalewski** - Institute of Fundamental Technological Research, Polish Academy of Sciences

(presentations in English: 12 min. – lecture and 3 min. – discussion)

14:20 – P. Kaczyński and R. Szwaba „Cooling intensity influence on shock wave boundary layer interaction region in turbine cascade.”

14:40 – T. Kura and E. Fornalik-Wajs „Near-blade flow structure modification”

15:00 – K. Wawrzak and A. Bogusławski „Impact of numerical method on a side jets formation in a round jet”

15:20 – P. Szaltys and J. Majewski „High-order hybrid grid generation for simulation of high-Reynolds number flows”

15:40 – F. Wasilczuk and P. Flaszynski „ Numerical investigations of flow structure in gas turbine shroud gap”

SESSION IID (room no. 2) – Tuesday

Chairman: **J. Szmyd** - AGH University of Science and Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

14:20 – B. Engler, P. Regucki and Z. Szeliga „ Analysis of water management at a closed cooling system of a power plant”

14:40 – M. Marek „ A study of geometrical structure of packed beds using flow simulation with the immersed boundary method”

15:00 – M. Marijnissen and J. Rojek „ Particle-fluid interaction inside a beater mill”

15:20 – K. Smolka, S. Dykas, M. Majkut and M. Strozik „ Application of a single-fluid model for prediction of the steam condensing flow”

15:40 – P. Konderla, K. Patralski and J. Lewandowski „ Modelling of wet fumes condensation process in industrial stacks”

SESSION IIE (room no. 1A) – Tuesday

Prof. Elsner Competition – Supervisor: **S. Drobnik** – Częstochowa University of Technology

Chairman: **A. Boguslawski** – Częstochowa University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

16:20 – P. Ziolkowski and J. Badur „On the unsteady Reynolds thermal transpiration law”

16:40 – Ł. Pleskacz and E. Fornalik-Wajs „Momentum budget of the paramagnetic fluid flow influenced by magnetic force”

17:00 – A. Grucelski „LBM estimation of the thermal conductivity coefficient in a granular bed”

17:20 – S. Gepner „Stability of flow in a corrugated channel”

17:40 – J. Martinez Suarez and P. Flaszynski „Streamwise vortex generator for separation reduction on wind turbine profile”

SESSION IIF (room no. 2) – Tuesday

Chairman: **Z. Kosma** – Kazimierz Pułaski University of Technology and Humanities in Radom

(presentations in English: 12 min. – lecture and 3 min. – discussion)

16:20 – A. Drózdź and W. Elsner „Study of Reynolds number effect on turbulent boundary layer near the separation”

16:40 – A. Drózdź and W. Elsner „An attempt to scale streamwise velocity fluctuations near turbulent boundary layer separation”

17:00 – N. Yadav, S. Gepner and J. Szumbariski „Instability in a channel with grooves parallel to the flow”

17:20 – P. Regucki and S. Goujon-Durand „Influence of holding on second onset of instability for a sphere”

17:40 – K.A. Mizerski and J. Błęcki „Subtle structure of TLE's”

18:15 – 18:45 – Presentation of Casp System company (room no. 1A)

A. Głodek, “Laser Imaging Systems”

18:45 – 19:15 – Presentation of Eurotek and Dantec companies (room no. 1A)

K. Dörner and A. Antonowicz, “The latest development in planar, volumetric and point measurements techniques for fluid mechanics”

SESSION IIIA (room no. 1A) – Wednesday

Chairman: **A. Bartosik** - Kielce University of Technology

(presentations in English: 12 min. – lecture and 3 min. – discussion)

11:20 – D. Pavlík, P. Procházka and V. Kopecký „Reconstruction of three-dimensional velocity vector maps from two-dimensional PIV data”

11:40 – S. Kordel, T. Nowak, R. Szkoda and J. Hussong „Combined Differential Interferometry and Long-range μ PIV measurements of a temperature driven boundary layer flow”

12:00 – P. Procházka and V. Uruba „Three-dimensional structures behind Glauert-Goldschmied profile under control of plasma actuation”

12:20 – K. Kurec and J. Piechna „Numerical and experimental investigations of flow within a pressure exchanger with rotating valves”

12:40 – M. Firkowski, K. Urbanowicz and Z. Zarzycki „Modelling water hammer in viscoelastic pipelines”

SESSION IIIB (room no. 2) – Wednesday

Chairman: **P. Flaszynski** - Szewalski Institute of Fluid-Flow Machinery Polish Academy of Sciences

(presentations in English: 12 min. – lecture and 3 min. – discussion)

11:20 – J. Broniszewski and J. Piechna „Ground vehicle dynamics in the presence of unsteady aerodynamics loads”

11:40 – P. Leśniewicz, M. Kulak and M. Karczewski „Vehicle wheel drag coefficient in relation to travelling velocity – CFD analysis”

12:00 – D. Wójcik, Z. Piotrowski, B. Rosa and M. Ziemiański „Application of anelastic and compressible EULAG solvers for limited-area numerical weather prediction in the COSMO consortium”

12:20 – R. Rowiński „Bio-aviation”