

LECTURES – Conference room

Wednesday, February 21, 2024

8:00-9:00 **REGISTRATION**

9:00-9:10 **CONFERENCE OPENING**

Zoom link to opening and session Wednesday 1

9:10-9:30 **KHÝR M., PLACHÁ M., HLA VATÝ T., ISOZ M.:**
Artificial Intelligence for Simulation of Soot
Distribution Inside Porous Filter Walls

9:30-9:50 **IDŽAKOVIČOVÁ K., BÍLEK V., HAIDL J.,
ISOZ M., PIVOKONSKÝ M.:**
Flow Simulations Approach for Flocculation Tanks
Equations

9:50-10:10 **NĚMEČEK J., HALADA T., BENEŠ L.:**
Analysis of Boundary Conditions Properties in the
SPH Method

10:10-10:30 **COFFEE BREAK**

Zoom link to session Wednesday 2

10:30-10:50 **NESTERUK I.:**
R Special Shaped Low Drag Bodies of Revolution
Without Boundary-Layer Separation and
Stagnation Points on the Noses

10:50-11:10 **DOVGYI S., MOISEIENKO S., POLEVOY O.,
REDCHYTS D., TARASOV S.:**
R Mathematical Modelling of Vertical-Axis Wind
Turbines Rotors Aerodynamics

11:10-11:30 **KOVAL S. O., DIMITRIEVA N. F.:**
R Two-Phase 3D Modeling of an Airlift Pump in
OpenFoam

11:30-11:50 **BELDA M., HYHLÍK T.:**
Adjoint Optimization of an Airfoil for Light STOL
Freighter Aircraft

11:50-13:20 **LUNCH**

13:20-14:20 **POSTER DISCUSSION**

Zoom link to session Wednesday 3

14:20-14:40 **VARNHORN W.:**
Second Order Semi-Discretization for Unsteady
Stokes Flow

14:40-15:00 **NEČASOVÁ Š.:**
Motion of Fluids in the Moving Domain

15:00-15:20 **BODNÁR T., FRAUNIÉ PH.:**
Numerical Evaluation of Mass-Diffusive Compressible
Fluids Flows Models

15:20-15:40 **HLAVATÝ T., BELDA M., ISOZ M.:**
Convergence of POD Modes for Cylinder Wake Flow

15:40-16:00 **COFFEE BREAK**

Zoom link to session Wednesday 4

16:00-16:20 **QIAO W., JIA B., LIU X., WANG S., YANG L, FU Q:
R**
Experimental Study on the Spray Characteristics of
Internal-Mixing Gas-Liquid Injector under Ambient
Pressure

16:20-16:40 **KOŘÍNEK T., ŠKAROHLÍD J., ŠKODA R.:**
Delayed Detached Eddy Simulation of Thermal Mixing
in T-Junction

16:40-17:00 **SHARMA A., BERA P., KHAN A.:**
Linear Instability of Mixed Convection in a Vertical
Annulus Filled with Porous Medium under LTNE
Condition

17:00-17:20 **KUMAR A., MITTAL HVR.:**
Heat Convection in a Channel Containing Multiple
Heated Entities

Thursday, February 22, 2024

Zoom link to session Thursday 1

9:00-9:20 **BLAHA J., LA MANTIA M.:**
Visualization of the Starting Vortex Shed by a Cylinder
Accelerating in Superfluid Helium-4: Preliminary
Results

9:20-9:40 **URUBA V., PROCHÁZKA P., DUDA D.:**
On Streamwise Vorticity Dynamics in a Wake

9:40-10:00 **BEN MAHJOUR O., OUADOUD A.:**
Intermittent Patterns in Turbulence Produced by a
Conventional Fractal Square Grid and a Spaced Fractal
Square Grid

10:00-10:20 **SUCHÝ J., HYHLÍK T.:**
Experimental Determination of Frequency of Laminar-
Boundary Layer Instability Noise of NACA 0012

10:20-10:40 **COFFEE BREAK**

Zoom link to session Thursday 2

10:40-11:00 **POUSSEL C., ERSOY M., GOLAY F.:**
Runge-Kutta Discontinuous Galerkin Method
Applied to Shallow Water Equations with Flooding
and Drying Treatment

11:00-11:20 **KOVÁRNOVÁ A., ISOZ M.:**
Model Order Reduction of Parameter-Dependent
Particle Laden Flows

11:20-11:40 **MARHAN T., SVÁČEK P.:**
Numerical Approximation of Aeroacoustics
Induced by Flow Over a Two-Dimensional Square
Cylinder

11:40-12:00 **PUČEJDL P., SVÁČEK P.:**
On Numerical Simulation of Fluid-Structure-
Interactions using Precice for Coupling of
OpenFoam with an In-House Solver

12:00-13:30 **LUNCH**

13:30-14:20 **POSTER DISCUSSION**

Zoom link to session Thursday 3

14:20-14:40 **SIBGATULLIN I., ELISTRATOV S.:**
Internal Wave Turbulence in Large Aspect Ratio
Domains

14:40-15:00 **LANCMANOVÁ A., BODNÁR T.:**
Numerical Study of the Steady Airflow in the
Human Respiratory System During Inhaling and
Exhaling

15:00-15:20 **SHKVAR YE., KRYZHANOVSKIY A.,
KANDUME J, ISLAM M.:**
Theoretical and Engineering Aspects of Mass
Exchange through a Permeable Streamlined
Surface

15:20-15:40 **VOROPAIEV G., BASKOVA O.:**
Features of Controlling the Vortex Flow Structure
Using a Pair of Different Geometry Dimples

15:40-16:00 **COFFEE BREAK**

Zoom link to session Thursday 4

16:00-16:20 **GALUSINSKI C.:**
Travelling waves for the LMNC model

16:20-16:40 **WARDACH-ŚWIĘCICKA I., KARDAŚ D.:**
Quasi-Stationary Mathematical Model of Hybrid
Rocket Engine Combustion Chamber

16:40 CONFERENCE CLOSING

Friday, February 23, 2024

Possibility of excursions to the Institute's laboratories

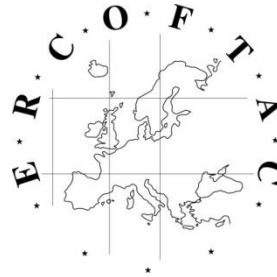
Note:

Timing includes a short discussion (approx.5min)

POSTERS – Conference room foyer

1. FILIMONOVA N., KELLNEROVÁ R., BODNÁR T., FRIEDMANN E.:
Synchronization of Airflows at Varying Heights
2. FLÍDR E.:
Kinetic Energy Dissipation Caused by the Vortical Structures in Linear Blade Cascade
3. GEBOUSKÝ O., HAIDL J., BODNÁR J., PIVOKONSKÝ M.:
Improvement of an Unbaffled Stirred Tank Mixing Characteristics Using Variable Speed Impeller
4. HOLMAN J.:
Numerical Solution of Hypersonic Viscous Flow Using Rotated-Hybrid Riemann Solver
5. KREUZOVÁ T., ŠIMURDA D., ŠAFAŘÍK P.:
On Linear Modelling of Axial Velocity Density Ratio Development in Compressor Blade Cascades
6. PŘÍHODA J., FÜRST J., STRAKA P.:
Comparison of Two Transition Models Modified for Low Free-Stream Turbulence
7. VACEK K., SVÁČEK P.:
Finite Element Approximation of Fluid Structure Interaction Using Taylor-Hood and Scott-Vogelius Elements
8. YAHİ F., HAMNOUNE Y., HELLALBI M. A., TIGRINE Z., MERABET N., MEZIANE A., BOUABDALLAH A.:
Numerical Approach of the Differential Heating Effect on a Fluid Enclosed between Two Coaxial Cones

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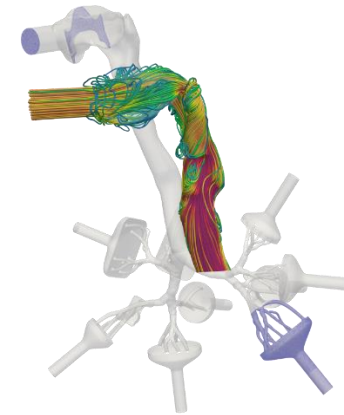
ORGANISING COMMITTEE

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Programme of the Conference

TOPICAL PROBLEMS OF FLUID MECHANICS 2024

ORGANISED BY

Institute of Thermomechanics AS CR, v.v.i.
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Dept. of Technical Mathematics,
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