TABLE OF CONTENTS

Check Accuracy of Oscillation Frequency of Flow Inside a Cavity ................................................................. 1
Kryšťáfk P., Petriková M.

Experimental Investigation of a Synthetic Jet Array in a Laminar Channel Flow ........................................... 5
Dancová P., Trávníček Z., Vít T.

PIV and CTA Measurement of Constant Area Mixing in Subsonic Air Ejector .............................................. 16
Dvořák V., Novotný P., Dancová P., Jiříková D.

Error Analysis of Supersonic Air-to-Air Ejector Schlieren Pictures .............................................................. 22
Kolár J.

Lagrangian Velocity Distributions in Thermal Counterflow of Superfluid 4He ................................................ 28
La Mantia M., Duda D., Rotter M., Slbík L.

CFD Analysis of Turbulent Cross-flow in a Staggered Tube Bundle Equipped with Grooved Cylinders .......... 32
Firat E., Akansu Y. E., Hacialiogullari M.

Investigation of Vapor Film Motion Regularities at Boiling Liquids ............................................................. 38
Agalievov A., Zeigarnik Y. U.

Active Control of Flow around NACA 0015 Airfoil by Using DBD Plasma Actuator ...................................... 42
Akansu Y. E., Karakaya F., Sanlısoy A.

CFD Simulation and Experimental Analysis of Erosion in a Slurry Tank Test Rig ........................................ 49
Asimini Mehdi, Bari Hany-Jorg

Aerodynamic Optimization of a Winglet Design .............................................................................................. 57
Belterkat S., Meftah S. M. A., Yahiaoui T., Imine B.

Analysis of Fiber Deposition using Automatic Image Processing Method .................................................... 61
Belča M., Lízal F., Jedelský J., Jicha M.

Experimental Studies for the Characterization of the Mixing Processes in Negative Buoyant Jets ................ 65
Besaudach L. A., Badia M. G., Ferrarí S., Querzoli G.

On Application of EARSM Turbulence Model for Simulation of Flow Field behind Rack Station ............... 74

Measuring of Filtration Efficiency of Nonwoven Textiles in Volume from Scattered Light by Seeding Particles 78
Bílek P., Sídloň P.

Numerical Simulation of SNCR Technology with Simplified Chemical Kinetics Model .................................. 85
Blecher T., Dolečková D.

Active Control of the Jet in Coaxial Arrangement ......................................................................................... 90
Broucková Z., Trávníček Z., Safarík P.

Simulation of Dynamics of System with Hydraulic Lines and Linear Hydraulic Motor with Mass Load .......... 96
Budíček A., Hružík L., Váška M., Imine B.

Permeability of Mono- and Bi-dispersed Porous Media ............................................................................. 101
Byon C., Kim S. J.

Effects of Insulation Parameters on the Energy Consumption in Domestic Ovens and the Most Efficient Insulation Design .................................................................................................................. 107
Sari T., Celik A., Işık O., Temel O., Ombasioglu S. U.

Pool Boiling on Rectangular Fins with Tunnel-pore Structure ................................................................. 115
Pastúčko R.

Flow Control in Axial Fan Inlet Guide Vanes by Synthetic Jets ................................................................. 120
Cyrus V., Trávníček Z., Wurst P., Kordík J.

Comparison of Flow Characteristics of Different Sphere Geometries Under the Free Surface Effect ............ 126
Ozgoren M., Dogan S., Obaz A., Aksoy M. H., Sahin B., Akilli H.

In-situ Modelling of a Greenhouse Climate Including Sensible Heat, Water Vapour and CO₂ Balances .......... 136
Draou N., Bouasama F., Boulard T., Bibi-Triki N.

Re-evaluation of Experimental Data on the Second Virial Coefficient for Steam and Development of Its Analytical Representation As a Function of the Internal Energy ............................................................................. 141
Daška M., Hrubý J.

Velocity Profiles in Idealized Model of Human Respiratory Tract ............................................................. 151
Eckner J., Jedelský J., Lízal F., Jicha M.

An Experimental Study on the Near Field Characteristics of Non-circular Jets ......................................... 155
Yukselemtay J., Erdem D.

The Application of EIS and PIV Methods to the Measurement of Aerated Flow ........................................... 161
Fučka M.

A Study on Forces Acting on a Flapping Wing ................................................................................................ 166
Varuskan A., Fenerechová I., Ceitina O.

Active Control of Flow Around a Square Prism by Slot Jet Injection .......................................................... 174
Firat E., Akansu Y. E., Hacialiogullari M.

Two-phase Distribution in the Vertical Flow Line of a Domestic Wet Central Heating System ...................... 181
Foudai A. M., Ge Y. T.

Large Eddy Simulation of Stratified Flows Over Structures ....................................................................... 187
Fučka Y., Brechler J.
Comparison of Several Models of the Laminar/Turbulent Transition ................................................................. 191
Miroslav V., Janoch O., Dvořák J.

Design and Numerical Simulation of the Heat Exchanger for Heat Recovery System with Melting Furnaces for Melting Secondary a Uminiums ................................................................................................................. 197
Garvás M., Lechard R., Jandacka J.

Review of Background Oriented Schlieren and Development for Ballistic Range Applications .............................. 201
Gojani Arjan B., Kamishi Burim, Obayashi Shigeru

Flow Control Behind a Circular Cylinder Via a Porous Cylinder in Deep Water .................................................... 209
Guzman B., Firat E., Aksil H., Sahin B.

Measurement of Influence Geometry of Floor Convector on His Performance ..................................................... 219
Groššák T., Kapior A., Hučejar J.

Numerical Simulation of Water Hammer in Low Pressurized Pipe: Comparison of Simhydraulics and Lax-Wendroff Method with Experiment ................................................................. 223
Him D.

Preliminary Experimental Investigation of Boundary Layer in Decelerating Flow .................................................. 227
Hitrich O., Janiček M., Jandacka J.

Lorentz Forces Caused by Rotating Magnetic Field ................................................................................................. 234
Horáková K., Frana K.

Trefllz Method for Solving Two-dimensional Temperature Field of Boiling Fluid Flowing Along the Minichannel .... 238
Hozejovský S., Piatecka M., Hozejovský L.

Evaluation of Bulk Modulus of Oil System with Hydraulic Line ............................................................................. 245
Hržík L., Vastina M., Bareček A.

Numerical Simulation of 2D Transonic Flows in DCA 8% Cascade ................................................................. 251
Huml Jaroslav, Káček Jaroslav, Přibylova Jaroslava

Visualization and Modal Decomposition of Vortex Street Behind Circular Cylinder ............................................. 255
Hyhlik T., Zelený P., Cížek J.

Investigation of Different Wall Profiles on Energy Consumption and Baking Time in Domestic Ovens .................. 259
Isik O., Temel O., Celik A., Sara T., Ozbasioglu S. U.

Modelling on Cavitation in a Diffuser with Vortex Generator .............................................................................. 268
Jablonský J.

Use of LHP for Cooling Power Electronic Components ...................................................................................... 274
Smírka M., Malcho M., Nemec P., Kolíková Z.

Rotary Slanted Single Wire CTA – A Useful Tool for 3D Flows Investigations ..................................................... 278
Jonáš P.

Numerical Simulation of Indirect Heating of Water by Heat Transfer Surface Area Located at the Heat Source ........ 284
Kaduchová K., Lenhard R., Garvás S., Jandacka J.

The Impact of the Orifice Plate Deformation on the Differential Pressure Value .................................................. 288
Horáková K., Vašina M., Bureček A.

Disintegration of Materials by Cavitating Microjets ............................................................................................... 292
Kučera M., Míčivá M., Oliška R.

Numerical Modelling of the Flow in the Annular Multi-recess Hydrostatic Thrust Bearing Using CFD Methods ...... 296
Kozdura M., Drábková S.

Sprinkled Heat Exchangers in Evaporation Mode ................................................................................................. 302
Kručick P., Snapdarek L., Propisil J.

Quadrant Analysis of Turbulent Pollution Flux Above the Modelled Street Intersection ....................................... 308
Kukacka L., Nosek Š, Kellnerová R., Jucáková K., Janour Z.

Numerical Simulation of the Flow Around Diffusible Barriers ........................................................................ 316
Kyncl Martin, Pelant Jaroslav

LDA Measurements and Turbulence Spectral Analysis in an Agitated Vessel ...................................................... 325
Kysela Bohuš, Konfrt Jiri, Chára Zdeněk

Investigation of the Thermohydraulic Systems in MATLAB & Simulink Using Developed Library .................. 331
Lícahou L., Janoš D.

Fin Distance Effect at Tube-Fin Heat Exchanger ................................................................................................. 335
Lemfeld R., Muller M., Frana K.

Staged the Conversion of Carbon Dioxide in the Simulator .................................................................................. 339
Lenhard R., Vantuch M., Malcho M.

CFD Comparison with Centrifugal Compressor Measurements on a Wide Operating Range ............................. 343
Le Sausse P., Fabrie P., Arnaud D., Clenet F.

Application of Positron Emission Tomography to Aerosol Transport Research in a Model of Human Lungs .......... 351
Líčel F., Jedecký J., Adam J., Beška M., Sticha M.

Flow Field Mapping in Data Rack Model ............................................................................................................. 355
Manouch L., Matechár J., Pohan P.

Numerical Simulation of Flow and Determination of Aerodynamic Forces in the Balanced Control Valve .......... 360
Matas R., Struka F., Hoznedl M.

Comparison of Results from Experimental Testing of Three Variants of Turbine Stage with Modern 3D Blades .... 366
Milca F., Zinek P., Hoznedl M.

An Application of Image Analysis to Hypersonic Flows ......................................................................................... 370
Mrzáček M., Belan M.

Determine of Velocity Field with PIV and CFD During the Flow Around of Bridge Piers .................................. 375
Mistrová I., Picka D.
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Thermal Properties of the Cooling Device with Heat Pipes</td>
<td>382</td>
</tr>
<tr>
<td>Experimental Investigations and Numerical Simulations of Methane Cup-flame</td>
<td>386</td>
</tr>
<tr>
<td>Numerical Investigation of Cavitation Flow in Journal Bearing Geometry</td>
<td>391</td>
</tr>
<tr>
<td>Laser-optical and Numerical Research of the Flow Inside the Lubricating Gap of a Journal Bearing Model</td>
<td>397</td>
</tr>
<tr>
<td>Neutrally Stratified Flow Modelling Over Complex Terrain at Meso-scale: Open-cut Coal Mine Study</td>
<td>403</td>
</tr>
<tr>
<td>Effect of High Porosity Screen on the Near Wake of a Circular Cylinder</td>
<td>409</td>
</tr>
<tr>
<td>Capture Efficiency Measurement of Pollutants Over a Workbench with the Reinforced Slot Exhaust System</td>
<td>414</td>
</tr>
<tr>
<td>The Temperature Fields Measurement of Air in the Car Cabin by Infrared Camera</td>
<td>418</td>
</tr>
<tr>
<td>Strangely Behaving Fluidic Oscillator</td>
<td>424</td>
</tr>
<tr>
<td>Efficiency of Active Flow Control by a Synthetic Jet Around a Hump</td>
<td>430</td>
</tr>
<tr>
<td>Homogeneous Droplet Nucleation Modeled Using the Gradient Theory Combined with the PC-SAFT Equation of State</td>
<td>434</td>
</tr>
<tr>
<td>Coupling of the Models of Human Physiology and Thermal Comfort</td>
<td>442</td>
</tr>
<tr>
<td>Parametric Study of Vortex Train Generated by Plasma Actuator in Dependency on Input Voltage Waveform</td>
<td>446</td>
</tr>
<tr>
<td>Characterization of Particle Deposition in a Lung Model Using an Individual Path</td>
<td>451</td>
</tr>
<tr>
<td>Numerical Simulations of the Flow with the Prescribed Displacement of the Airfoil and Comparison with Experiment</td>
<td>456</td>
</tr>
<tr>
<td>Numerical Investigation of Cavitation Flow in Journal Bearing Geometry</td>
<td>462</td>
</tr>
<tr>
<td>Experiments in a Combined Up Stream Downstream Slag Flow</td>
<td>466</td>
</tr>
<tr>
<td>The Study of Thermodynamic Properties and Transport Properties of Multicomponent Systems with Chemical Reactions</td>
<td>474</td>
</tr>
<tr>
<td>The Measurement of Wall Shear Stress in the Low-Viscosity Liquids</td>
<td>478</td>
</tr>
<tr>
<td>Computational Aerodynamics of Human Phonation</td>
<td>485</td>
</tr>
<tr>
<td>Experimental Investigation of the Compressor Cascade under an Active Flow Control</td>
<td>493</td>
</tr>
<tr>
<td>Prismatic Blade Measuring on a Wind Tunnel</td>
<td>499</td>
</tr>
<tr>
<td>Numerical Simulation of Radial Compressor Stage</td>
<td>503</td>
</tr>
<tr>
<td>Wall Shear Stress Induced by Taylor Bubbles in Inclined Flow Channels</td>
<td>507</td>
</tr>
<tr>
<td>Numerical Experiments for Turbulent Flows</td>
<td>513</td>
</tr>
<tr>
<td>Experimental and Numerical Research of a Novel Combustion Chamber for Small Gas Turbine Engines</td>
<td>519</td>
</tr>
<tr>
<td>Oscillations of Bubbles Attached to a Capillary: Case of Pure Liquid</td>
<td>524</td>
</tr>
<tr>
<td>Combined Study of Evaporation from Liquid Surface by Background Oriented Schlieren, Infrared Thermal Imaging and Numerical Simulation</td>
<td>528</td>
</tr>
<tr>
<td>Design of an Experimental Apparatus for Measurement of the Surface Tension of Metastable Fluids</td>
<td>538</td>
</tr>
<tr>
<td>Modification of Shape Oscillations of an Attached Bubble by Surfactants</td>
<td>543</td>
</tr>
<tr>
<td>Prediction of Air Temperature in the Aircraft Cabin Under Different Operational Conditions</td>
<td>547</td>
</tr>
<tr>
<td>Perturbation Analysis of “k—ε” and “k—ε” Turbulent Models. Wall Functions</td>
<td>553</td>
</tr>
<tr>
<td>The Interaction Vortex Flow Around Two Bluff Cylinders</td>
<td>558</td>
</tr>
</tbody>
</table>