

## CONTENTS

|      |                                                          |                                                                                                                                                                                  |      |
|------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| [1]  | ALEIX VALLS T.                                           | Finite Element Formulation for Convective-Diffusive Problems with Sharp Gradients Using Finite Calculus                                                                          | p.1  |
| [2]  | BAUER P.                                                 | Mathematical Modeling and Numerical Simulation of Pollution Transport in Atmospheric Boundary Layer                                                                              | p.7  |
| [3]  | BENEŠ L.,<br>FRAUNIÉ PH.,<br>KOZEL K.                    | Some Aspects of Numerical Solution of ABL Problems                                                                                                                               | p.11 |
| [4]  | BODNÁR T.,<br>PŘÍHODA J.,<br>KOZEL K.                    | Numerical Simulation of 3D Turbulent Free Surface Flow in a Curved Channel                                                                                                       | p.15 |
| [5]  | DIVIŠ M.,<br>MACEK J.,<br>KOZEL K.                       | Diesel Fuel Injection Modeling                                                                                                                                                   | p.19 |
| [6]  | DVOŘÁK R.                                                | Mikroturbíny a dynamika tekutin v mikroměřítku<br>( <i>Microturbines and Microfluid Dynamics</i> )                                                                               | p.23 |
| [7]  | DVOŘÁK V.                                                | Parameters for Classification and Optimization of Ejectors                                                                                                                       | p.31 |
| [8]  | FIALKA M.                                                | Unstable Flow through the Capillary                                                                                                                                              | p.35 |
| [9]  | FÖRT J.,<br>FÜRST J.,<br>ŽALOUDEK M.                     | Numerical Solution of Compressible Inviscid Flow in a Channel                                                                                                                    | p.39 |
| [10] | HYHLÍK T.,<br>URUBA V.                                   | Numerické řešení proudění ve volné smykové vrstvě<br>( <i>Numerical Solution of Free Shear Layer Flow</i> )                                                                      | p.43 |
| [11] | JONÁŠ P.                                                 | Poznámka k vlivu turbulence na odtržení proudění<br>( <i>Comment to the Effect of Turbulence on Flow Separation</i> )                                                            | p.47 |
| [12] | JŮZA Z.                                                  | Numerical Simulation of Steam Flow in a Turbine Stage Including Labyrinth Seal at the Shroud                                                                                     | p.51 |
| [13] | KESLEROVÁ R.,<br>KOZEL K.                                | Numerical Solution of 2D and 3D Incompressible Laminar Flows through a Branching Channel                                                                                         | p.55 |
| [14] | KOŘISTA M.                                               | Algoritmus CRDT a generování multiblokových strukturovaných sítí<br>( <i>CRDT Algorithm and Multiblock Structured Grid Generation</i> )                                          | p.59 |
| [15] | KOZEL K.,<br>PUNČOCHÁŘOVÁ P.,<br>FÜRST J.,<br>ŠAFARÍK P. | Transonic Flows Through DCA 8% Cascade                                                                                                                                           | p.61 |
| [16] | KUČERA V.,<br>FEISTAUER M.                               | Finite Element Method for Inviscid Flow with Low-Mach Numbers                                                                                                                    | p.65 |
| [17] | MASTNÝ P.,<br>FURMÁNEK P.,<br>FÜRST J.,<br>KOZEL K.      | Numerical Solution of 2D Inviscid Transonic Flow Past a Profile                                                                                                                  | p.69 |
| [18] | MAZUR O.,<br>JONÁŠ P.,<br>URUBA V.                       | Sonda se dvěma rovnoběžnými žhavenými drátky v proudě směsi vzduchu a kyslíčnicku uhličitého<br><i>Two parallel hot-wire probe in a stream of air and carbon dioxide mixture</i> | p.73 |
| [19] | NEČASOVÁ Š.                                              | Steady Fall of a Rigid Body in Viscous Fluid                                                                                                                                     | p.77 |
| [20] | POPELKA L.,<br>MÜLLER M.,<br>NOŽIČKA J.                  | Návrh leteckých profilů pro oblast nízkých Reynoldsových čísel a aspekty řízení mezní vrstvy<br>( <i>On Design of Low-Re Airfoils and Aspects of Boundary Layer Control</i> )    | p.81 |



|      |                                                   |                                                                                                                                                                        |       |
|------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| [21] | PROKOP V.,<br>KOZEL K.                            | Numerical Solution of a Steady Flow in Angular Bypass<br>in 2D and 3D                                                                                                  | p.83  |
| [22] | PŘÍHODA J.,<br>ŠULC J.,<br>SEDLÁŘ M.,<br>ZUBÍK P. | Modelování turbulentního proudění v zakřiveném složeném<br>difuzoru<br><i>(Modelling of Turbulent Flow in a Curved Combined Diffuser)</i>                              | p.87  |
| [23] | RUDOLF P.                                         | Vortex Identification in Different Types of Flow                                                                                                                       | p.91  |
| [24] | RUDOLF P.,<br>LICHTNEGER P.                       | Large Eddy Simulation of Backward Facing Step Flow                                                                                                                     | p.95  |
| [25] | SLÁDEK A.                                         | Numerical Solution of Turbulent Flow in a Curved Channel of<br>Various Radii                                                                                           | p.99  |
| [26] | SLÁDEK I.,<br>KOZEL K.,<br>JAŇOUR Z.              | On the Atmospheric Flow over the Prague's Agglomeration<br>Using k-ε Turbulence Modelling                                                                              | p.103 |
| [27] | SVÁČEK P.                                         | On Unsteady Flow Simulations around a Moving Body                                                                                                                      | p.107 |
| [28] | ŠŤASTNÝ M.,<br>STRÁSÁK P.,<br>VAIBAR R.           | Numerická simulace pohybu kapiček při proudění vlhké páry<br>ohybem potrubí<br><i>Numerical simulation of droplet movement at wet steam flow in<br/>pipeline elbow</i> | p.111 |
| [29] | ŠTEMBERA V.,<br>MARŠÍK F.,<br>CHLUP H.            | One Dimensional Mathematical Model of the Flow through a<br>Collapsible Tube with Applications to Blood Flow through<br>Human Vessels                                  | p.115 |
| [30] | ŠTĚR M.,<br>MACEK J.                              | Simulace proudění kolem sacího a výfukového ventilu<br><i>(Flow Simulation through the Intake and Exhaust Valve)</i>                                                   | p.119 |
| [31] | TAJČ L.,<br>RUDAS B.,<br>JŮZA Z.,<br>VALENTA R.   | Výpočty proudění v lopatkové mříži s profily VS33R<br><i>(Flow Computations in Blade Cascade with Profiles VS33R)</i>                                                  | p.123 |
| [32] | TRÁVNÍČEK Z.,<br>VOGEL J.,<br>HOŠEK J.,<br>VÍT T. | Numerical Simulation and Flow Visualization of a Synthetic Jet<br>Actuation                                                                                            | p.127 |
| [33] | URUBA V.                                          | Coherence Analysis of Turbulent Signals                                                                                                                                | p.131 |
|      |                                                   | LIST OF PARTICIPANTS                                                                                                                                                   | p.135 |