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FLUID MECHANICS & AERODYNAMICS

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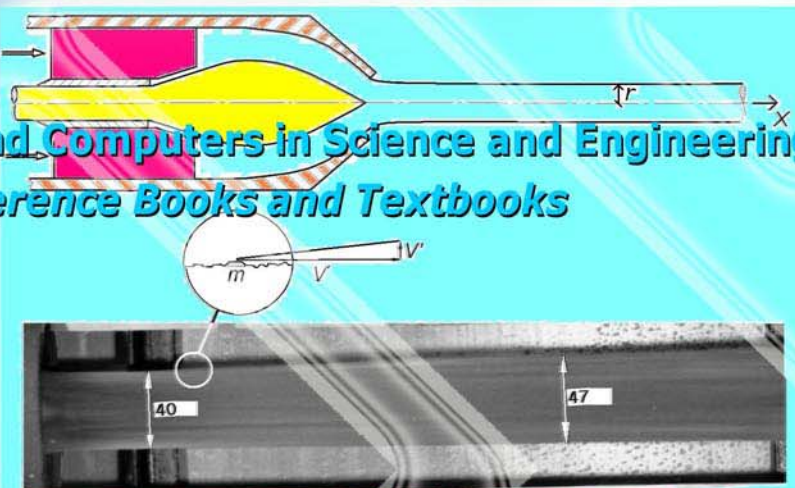
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Preface

The book you are currently holding contains the Proceedings of the 5th IASME / WSEAS International Conference on FLUID MECHANICS AND AERODYNAMICS (FMA'07), which was held in Vouliagmeni, Athens, Greece, August 25-27, 2007.

Fluid mechanics and aerodynamics have a history of over two centuries and their necessity continuously increases, as all mechanical parts of machines from the smallest pump in a building or a factory to the main engine of a spacecraft are based on them. Mathematical modeling, simulation, numerical methods, experimental methodologies in fluid mechanics, convection, thin film technologies, multiphase flow, boundary layer flow, material properties, fluid structure interaction, hydro technology, hydrodynamics, coastal and estuarial modeling, wave modeling, industrial applications, air pollution problems, fluid mechanics for civil engineering and geosciences, flow visualization, biofluids, meteorology, hydrology, oceanology, ocean engineering, aircrafts structure and design, aerodynamics for aircrafts, spacecrafts, helicopters, air-turbines, propeller engines, wind generators etc are some of the most important branches of modern fluid mechanics and aerodynamics. Many papers from all these branches are published in this Volume.

The Plenary Speeches of FMA '07 were:

- *Mathematical Modelling: the Interplay among Mathematics and Application Branches*

by Prof. Andris Buikis, University of Latvia, Latvia.

- *Vortex Dynamics in Cardiac Flows*

by Prof. Pavlos P. Vlachos, Virginia Tech, USA.

- *Influence of wall roughness on the slip behavior of viscous fluids*

by Prof. Sarka Necasova, Academy of Sciences, Czech Republic.

- *Numerical Optimization in Hydrodynamic Design*

by Prof. John S. Anagnostopoulos, National Technical University of Athens, Greece.

- *The Fluid Mechanics of the Shaped Charge*

by Prof. John Curtis, QinetiQ, UK.

We would like to thank all members of the organizing laboratories for their contribution to the organization of the conference.

The contents of this Book are also published in the CD-ROM Proceedings of the Conference. Both will be sent to the WSEAS collaborating indices after the conference: www.worldses.org/indexes.

In addition, the papers of this book are permanently available to all the scientific community via the WSEAS E-Library.

Expanded and enhanced versions of papers published in these conference proceedings

are also going to be considered for possible publication in one of the WSEAS journals that participate in the major International Scientific Indices (Elsevier, Scopus, EI, Compendex, INSPEC, CSA see: www.worldses.org/indexes) these papers must be of high-quality (break-through work) and a new round of a very strict review will follow. (No additional fee will be required for the publication of the extended version in a journal).

We cordially thank all the people of WSEAS for their efforts to maintain the high scientific level of conferences, proceedings and journals.

The Editors

**5th IASME / WSEAS International Conference on
FLUID MECHANICS AND AERODYNAMICS (FMA'07)
TABLE OF CONTENTS**

On a Mathematical Model in Ice Sheet Dynamics <i>S. N. Antontsev, H. B. De Oliveira</i>	1
Vortex Structure and Pressure Pulsations in a Swirling Jet Flow <i>P. A. Kuibin, S. I. Shtork, E. C. Fernandes</i>	9
Compensating Regime in Axisymmetric Vortical Flows <i>A. Y. Klimenko</i>	14
On the Strong Solution to the Oseen-Problem in an Exterior Domain in L^q spaces <i>Stanislav Krcmar, Sarka Necasova</i>	20
Simulation of Suspended Sediment Transport in Dam Reservoir Using a Cell Center Finite Volume Solver <i>Saeed-Reza Sabbagh-Yazdi, Behzad Saidifar, Nikos E. Mastorakis</i>	25
Creeping Flow Past an Elliptical Cylinder in the Presence of a Vortex <i>T. B. A. El-Bashir</i>	35
Optimization of Insulation Shape for Minimal Radiative Heat Loss <i>J. P. Curtis</i>	42
Investigations of a Pre-Swirl Cooling Air Flow System with Data Acquisition in the Absolute and Relative Frame of Reference <i>D. Weltersbach, D. Brillert, C. Cichon</i>	48
Heatline Visualization of Natural Convection Flows within Trapezoidal Enclosures <i>E. Natarajan, Tanmay Basak, S. Roy</i>	58
What Slip Boundary Conditions Induce a Well-Posed Problem for the Navier-Stokes Equation? <i>Jiri Neustupa</i>	66
A Modified Theory of Turbulent Flow over a Flat Plate <i>Siavash H. Sohrab</i>	71
Determination of Aerodynamic Force Coefficients of Octagonal Lighting Columns from Wind Tunnel Experiments <i>Donatienne Portugaels, Jerome Anthoine, Domenico Olivari</i>	80
Analysis of Separated 2D Flows <i>Arpad A. Fay</i>	89
Flow Visualization Studies of Two Phase Flow through Layered Porous Media <i>Lalit Chaudhari, Nanji Hadia, Sushanta K. Mitra, M. Vinjamur</i>	95
Numerical Investigation of Pressure Load over Spillway Chutes with Vertical Curvatures <i>Saeed-Reza Sabbagh-Yazdi, Fatemeh Rostami, Nikos E. Mastorakis</i>	102
Towards Large Eddy Simulations of Turbulent Drag Reduction Using Sinusoidal Riblets <i>Yulia Peet, Pierre Sagaut, Yves Charron</i>	109
Experimental and Numerical Investigation of Fluid Dynamics of a Bounded Equilateral Triangular Jet <i>R. Riahi, F. Bagheri, B. Farhanieh, A. Hajilouy</i>	118

Film Cooling and Hub Disk Leakage Flow Experiments in a Fully Rotating HP Turbine Stage <i>M. Pau, A. De La Loma, G. Paniagua, D. Delhaye</i>	124
Bubble Rise Velocity and Drag Co-efficient at High Reynolds Number in Power-Law Fluids <i>N. M. S. Hassan, M. M. K. Khan, M. G. Rasul</i>	131
Study of a Loaded Continuous Beam with the Yielding Supports <i>Nikos E. Mastorakis, Olga Martin</i>	137
Stationary and Transient Numerical Simulation of a Bulb Turbine <i>Helmut Benigni, Helmut Jaberg</i>	143
DES of the Flow Around a Realistic Bus Model Subjected to a Side Wind with 30 degree Yaw Angle <i>Hassan Hemida, Sinisa Krajnovic</i>	149
Interaction of External Disturbances with Boundary Layer <i>S. A. Gaponov</i>	158
Contribution to the Numerical and Experimental Study of Gravity Capillary Waves in a Hydraulic Channel: The Influence of a Sheared Velocity Profile <i>A. Younsi, M. Bouhadef, T. Guendouzen-Dabouz</i>	164
On the Flow Interactions of Multiple Jets in Cross-Flow <i>Mohamed Maidi, Yufeng Yao</i>	170
Application of Fluid/Structure Interaction Methods to Determine the Impeller Orbit Curves of a Centrifugal Pump <i>Friedrich-Karl Benra</i>	177
Experimental and Numerical Study of a Radial Flow Pump Impeller with 2D-Curved Blades <i>Vasilios A. Grapsas, John S. Anagnostopoulos, Dimitrios E. Papantonis</i>	183
An Approach for Numerical Validation of Aerodynamic Effects through Thermography <i>M. Malerba, M. Argento, A. Salviuolo, G. L. Rossi</i>	189
An Air-Polymer Analogy for Modeling Air Flow through Rubber-Metal Interface <i>Gilad Pagi, Eli Altus</i>	195
Cycling Loading Effect on a Solid Propellant Engine Performances <i>Mircea Boscoianu, Adrian Arghiropol, Adrian Coman</i>	201
CFD Check-up Study of a Solid Propellant Rocket Engine Internal Pressure and Performance Under Random Nozzle Diameter Change <i>Adrian Coman, Adrian Arghiropol, Mircea Boscoianu</i>	206
Kinematical Description of the Spontaneous Imbibition Processes <i>Roberto Lopez, Alberto Soria</i>	212
Direct Computation of Zero-Net-Mass-Flux Synthetic Jets <i>Declan Hayes-Mccoy, Xi Jiang, Duncan Lockerby</i>	217
Numerical Simulation of a Longitudinal Counter-Rotating Vortex Pair in Interaction with Ground <i>Cristian Moldoveanu, Andre Giovannini, Henri-Claude Boisson, Florentin Moraru</i>	223
A Numerical Study of Natural Convection in a Cavity with two Baffles Attached to its Vertical Walls <i>M. Ghassemi, M. Pirmohammadi, Gh. A. Sheikhzadeh</i>	229
RANS Predictions of Turbulent Flow Past a Circular Cylinder over the Critical Regime <i>A. C. Benim, M. Cagan, A. Nahavandi, E. Pasqualotto</i>	235

Numerical Investigation of the Role of the Inlet Swirl Velocity Profile on Decay of Swirl in Pipe Flow	241
<i>A. C. Benim, F. Gul, E. Pasqualotto</i>	
Effect of a Thin Floating Fluid Layer in Parametrically Forced Waves	247
<i>Elena B. Martin, Jose M. Vega</i>	
Evaluation of Turbulent Models in Sudden Expansion Analysis at High Reynolds Numbers	253
<i>Abbas Mansoori, Mohammad Reza Bazargan-Lari</i>	
Dual-Wavelike Instability in Vortex Rings	261
<i>Jun Huang, Kwok Tung Chan</i>	
On the Flow Characteristics of Normal and Inclined Square Jets in Cross-Flow: A Numerical Study	266
<i>Mohamed Maida, Yufeng Yao</i>	
Hydraulic Model Test of the Bottom Outlet of Sivand Dam	272
<i>F. Daneshmand, E. Azadi Yazdi, Y. Bazargan Lari</i>	
Aspects Regarding Internal Flow in Combustion Chamber of Turbojet Engines	279
<i>Constantin Rotaru, Doru Gheorghe Safta, Cristian Barbu</i>	
Dynamic Identification of Hydraulic Turbines of Pelton Type	285
<i>Mircea Barglazan, Adriana Catanase</i>	
Theoretical Advances on Generalized Fractals with Applications to Turbulence	291
<i>Haris J. Catrakis, Fazlul R. Zubair, Siarhei Piatrovich, Youssef N. Ibrahim, Aaron P. Freeman, Jennifer Shockro</i>	
<i>In situ</i> Fluid Studies in Carbon Nanotubes with Diameters Ranging from 1 to 500 nm	297
<i>Davide Mattia, Maria Pia Rossi, Haihui Ye, Yury Gogotsi</i>	
Computational Analysis of Isothermal Flow in a Test Swirl Combustor	300
<i>A. C. Benim, M. P. Escudier, A. Nahavandi, K. Nickson, K. J. Syed</i>	
3D Numerical Simulation of Flow and Temperature on Pitot Tube	306
<i>Ying Wang, Dayong Li, Wenbo Li</i>	
Pressure and Velocity Distribution in the New Tube of the Plabutschunnel	310
<i>Robert Pucher, Karl Pucher</i>	
Hydrodynamic Flow and Heat Transfer Characteristics of SCF	315
<i>V. C. Loukopoulos, G. T. Karahalios</i>	

Authors Index FMA 2007

Altus, E.	195	Freeman, A. P.	291	Olivari, D.	80
Anagnostopoulos, J. S.	183	Gaponov, S. A.	158	Pagi, G.	195
Anthoine, J.	80	Ghassemi, M.	229	Paniagua, G.	124
Antontsev, S. N.	1	Giovannini, A.	223	Papantonis, D. E.	183
Argento, M.	189	Gogotsi, Y.	297	Pasqualotto, E.	235, 241
Arghiropol, A.	201, 206	Grapsas, V. A.	183	Pau, M.	124
Azadi Yazdi, E.	272	Guendouzen-Dabouz, T.	164	Peet, Y.	109
Bagheri, F.	118	Gul, F.	241	Piatrovich, S.	291
Barbu, C.	279	Hadia, N.	95	Pirmohammadi, M.	229
Barglazan, M.	285	Hajilouy, A.	118	Portugaels, D.	80
Basak, T.	58	Hassan, N. M. S.	131	Pucher, K.	310
Bazargan, Y. L.	272	Hemida, H.	149	Pucher, R.	310
Bazargan-Lari, M. R.	253	Huang, J.	261	Rasul, M. G.	131
Benigni, H.	143	Jaberg, H.	143	Riahi, R.	118
Benim, A. C.	235, 241, 300	Karahalios, G. T.	315	Rossi, G. L.	189
Benra, F. - K.	177	Khan, M. M. K.	131	Rossi, M. P.	297
Boisson, H. - C.	223	Klimenko, A. Y.	14	Rostami, F.	102
Boscoianu, M.	201, 206	Kracmar, S.	20	Rotaru, C.	279
Bouhadef, M.	164	Krajnovic, S.	149	Roy, S.	58
Brillert, D.	48	Kuibin, P. A.	9	Sabbagh-Yazdi, S. R.	25, 102
Cagan, M.	235	Li, D.	306	Sagaut, P.	109
Catanase, A.	285	Li, W.	306	Saidifar, B.	25
Catrakis, H. J.	291	Lockerby, D.	217	Salviuolo, A.	189
Chan, K. T.	261	Lopez, R.	212	Sheikhzadeh, G. A.	229
Charron, Y.	109	Loukopoulos, V. C.	315	Shockro, J.	291
Chaudhari, L.	95	Maidi, M.	170, 266	Shtork, S. I.	9
Cichon, C.	48	Malerba, M.	189	Sohrab, S. H.	71
Coman, A.	201, 206	Mansoori, A.	253	Soria, A.	212
Curtis, J. P.	42	Martin, E. B.	247	Syed, K. J.	300
Daneshmand, F.	272	Martin, O.	137	Vega, J. M.	247
De La Loma, A.	124	Mastorakis, N. E.	25, 102, 137	Vinjamur, M.	95
De Oliveira, H. B.	1	Mattia, D.	297	Wang, Y.	306
Declan, H. - M.	217	Mitra, S. K.	95	Weltersbach, D.	48
Delhay, D.	124	Moldoveanu, C.	223	Xi, J.	217
Doru, G. S.	279	Moraru, F.	223	Yao, Y.	170, 266
El-Bashir, T. B. A.	35	Nahavandi, A.	235, 300	Ye, H.	297
Escudier, M. P.	300	Natarajan, E.	58	Younsi, A.	164
Farhanieh, B.	118	Necasova, S.	20	Youssef, N. I.	291
Fay, A. A.	89	Neustupa, J.	66	Zubair, F. R.	291
Fernandes, E. C.	9	Nickson, K.	300		