

CONTENTS

The reference before the paper title, e.g., PL01, indicates the paper number.

PLENARY LECTURE

- | | | |
|-------------|---|---------------------------------------|
| PL01 | ARE WE CLOSE TO RESOLVING QUESTIONS ON HEAT TRANSPORT SCALING IN TURBULENT CONVECTION?
<i>K. R. Sreenivasan</i> | <i>Satish Dhawan Memorial Lecture</i> |
| PL02 | ELEMENTARY VORTEX: ITS DYNAMICAL ROLES IN TURBULENCE
<i>S.Kida</i> | <i>Itiro Tani Memorial Lecture</i> |
| PL03 | CRITICAL PROCESSES IN GEOPHYSICAL FLOWS WITH STRATIFICATION AND TURBULENCE
<i>Julian Hunt</i> | |
| PL04 | ON THE CONTACT ANGLE IN UNSTEADY FLOWS
<i>P. N. Shankar and R. Kidambi</i> | |
| PL05 | THE THREE VORTEX PROBLEM AND ITS RAMIFICATIONS
<i>H.Aref</i> | <i>Zhou Pei-Yuan Memorial Lecture</i> |

SPECIAL LECTURES

- | | | |
|------------|---|--|
| A01 | FLUID MECHANICS OF URBAN ENVIRONMENTS
<i>H. J. S. Fernando</i> | |
| A02 | FLUID MECHANICS, RED TIDES, AND MARICULTURE MANAGEMENT
<i>Joseph H. W. Lee, Ken T. M. Wong and K. W. Choi</i> | |

- A06** **NUMERICAL SOLUTIONS TO SOME PROBLEMS IN FLUID MECHANICS AND HYDRAULICS**
P. Wang, M. Yan, P. Echeverria and R. Kahawita
- A07** **SOME FEATURES OF FLUID FLOW IN A RAPIDLY-ROTATING CONTAINER**
Jun Sang Park and Jae Min Hyu
- A08** **MEASURING AIR-SEA ENERGY AND MOMENTUM FLUXES OVER THE INDIAN OCEAN**
G. S. Bhat and J. V. S. Raju
- A09** **MOTION OF ROD-LIKE PARTICLES IN PARTICULATE FLOW**
J. Z. Lin
- A10** **INSTABILITIES IN BLUFF BODY FLOWS**
S.P. Singh, S. Mittal
- A11** **DYNAMIC PIV**
H. Hayami
- A12** **INTERACTION AND DISINTEGRATION OF LIQUID SHEETS FROM COAXIAL ATOMIZERS**
B. N. Raghunandan
- A15** **TEMPORAL STATISTICS: A NEW CHALLENGE TO LARGE EDDY SIMULATION**
Guowe He
- A16** **APPLICATION OF STOCHASTIC METHODS IN THE STUDY OF FLUID FLOW, SOLUTE TRANSPORT, AND MULTIPHASE FLUID BEHAVIOUR IN HETEROGENEOUS POROUS MEDIA**
T. H. Illangasekare and S. Saenton
- A21** **ULTRASONIC DOPPLER METHOD FOR FLOW MEASUREMENT**
Yasushi Takeda

GENERAL PAPERS

- A03** **AN EXPERIMENTAL AND NUMERICAL STUDY OF INTERACTION OF FIVE SUPERSONIC JETS**
V. Ramjee, S. Sasi Kumar and T. Sundararajan
- A05** **ALLEVIATION OF SUPERSONIC FLOW INSTABILITY OF A PITOT INTAKE**
L. Merchant and S. Ahmed
- A13** **FLOW CHARACTERISTICS OF HIGH PRESSURE LIQUID JET NOZZLE DEPENDING UPON THE ASPECT RATIO**
B. J. Rho, J. Y. Jung, S. J. Lee, S. M. Kim and W. T. Jeung
- A14** **THE INFLUENCE OF UPRIGHT AIR FLOW ON THE MOTION OF SPRAYS :
PART A –THE VISUALIZATION TECHNIQUE**
R. F. Tsai, C. K. Lee, J. S. Chang and C. F. Lee
- A17** **EXCITATION OF A LAMINAR BOUNDARY LAYER BY A PERIODIC JET**
M. Gaster and E. Caloupis
- A18** **A REVIEW OF COMPRESSIBLE DYNAMIC STALL CONTROL PRINCIPLES AND METHODS**
M. S. Chandrasekhara
- A19** **MIXING ENHANCEMENT OF TWO LIQUIDS BY ACTIVE CONTROL IN A MILLIMETRE-SCALE CHANNEL FLOW**
T. Kaneko, S. Izawa, A. K. Xiong and Y. Fukunishi
- A20** **ACTIVE CONTROL OF BOUNDARY LAYER INSTABILITIES ON A FLAT PLATE**
Y. Li and M. Gaster
- A22** **LAND PREPARATION WATER MANAGEMENT BY CANAL SIMULATION IN A PADDY ESTATE IN MALAYSIA**
M. M. M. Najim T. S. Lee, M. Aminul Haque and M. I. M. Mowjood
- A23** **EFFECT ON WAVE RUN-UP OF SHALLOW WATER CONDITIONS IN FRONT OF A SMOOTH SLOPING STRUCTURE**
D. A. Peiris and J. J. Wijetunge

A24	EFFECT OF ROUGHNESS HEIGHT AND REFERENCE BED LEVEL ON BED SHEAR STRESS IN OPEN CHANNEL FLOWS <i>P. C. Ranasinghe, K. P. P. Pathirana and U. R. Ratnayake</i>
A25	DISTRIBUTION OF EDDY VISCOSITY IN OPEN CHANNELS <i>M. Mohammadi</i>
B01	FLOW AROUND A CIRCULAR CYLINDER WITH PERIODIC DISTURBANCE <i>Y. Kozato and S. Imao</i>
B02	RESPONSE OF NEAR-WALL STRUCTURE TO TIME-PERIODIC BLOWING IN A TURBULENT BOUNDARY LAYER <i>K. Kim and H. J. Sung</i>
B03	UNSTEADY PIPE FLOW TRANSITION TO TURBULENCE UNDER CONSTANT ACCELERATION <i>U. Liiv</i>
B04	DEVELOPMENT OF SUBHARMONIC SINUOUS MODE IN LOW-SPEED STREAKS <i>Yasufumi Konishi and Masahito Asai</i>
B05	SPATIAL AND TEMPORAL STRUCTURE OF A TIME DEPENDENT PIPE FLOW <i>Y. Satoh, Y. Takeda and D. Sugiyama</i>
B06	MIXING IN AN OSCILLATORY FLOW IN A CONTAINER <i>J. Hariharan and Kidambi Rangachari</i>
B07	UNSTEADY INCOMPRESSIBLE VISCOUS FLOWS AROUND TWO CIRCULAR CYLINDERS IN TANDEM <i>Z. D. Su, H. J. Zhang and Y. Liu</i>
B08	CHARACTERISTICS OF LONGITUDINAL VORTEX FORMED BY RECTANGULAR ORIFICE <i>H. Abe, H. Yoshida and H. Iijima</i>
B09	LARGE SCALE MOTIONS INDUCED IN EDGE-TONE PHENOMENA <i>Y. Kawai, Y. Tsuji and Y. Kukita</i>
B10	FLOW CHARACTERISTICS OF SINGLE-LOBE FORCED MIXER <i>S. Yu and R. Mao</i>
B11	VORTEX AND STRUCTURE OF TURBULENT BOUNDARY LAYER <i>Y. Kobashi and M. Hayakawa</i>
B12	EXPERIMENTAL INVESTIGATION ON WAKE BEHIND A SINUSOIDAL CYLINDER <i>Anh -Tuan Nguyen and Sang-Joon Lee</i>

- B13** **VORTEX SHEDDING IN THREE-DIMENSIONAL WAKES AT LOW REYNOLDS NUMBERS AND CONTROL**
O. N. Ramesh and R. S. Chopde
- B14** **NON-LINEAR DEVELOPMENT OF FORCED WAVELENGTH GÖRTLER VORTEX FLOW**
H. Mitsudharmadi, S. H. Winoto, and D. A. Shah
- B15** **EFFECT OF FORWARD SWEEP ON THE PERFORMANCE AND STALL MARGIN OF A LOW SPEED AXIAL COMPRESSOR**
O. G. Krishnakumar, M. Govardhan and N. Sitaram
- B16** **UP-TO-DATE OF THE ENVIRONMENT FRIENDLY HIGH SPEED VEHICLE "AERO-TRAIN" DEVELOPMENT**
Y. P. Kohama, S. Kikuchi, T. Kato and F. Ohta
- B17** **STABILITY AND ACCURACY REQUIREMENTS FOR THE MODELLING OF TOWED UNDERWATER SYSTEMS**
S. D. Ranmuthugala
- B18** **THE USE OF CURVED BODIES IN A WIND TUNNEL TO MODEL BODIES IN A STEADY TURN**
P. A. Gregory, P. N. Joubert and M. S. Chong
- B19** **A NEW SURFACE TENSION FORCE MODEL FOR VOLUME TRACKING METHODS**
E. Shirani, N. Ashgriz and J. Mostaghimi
- B20** **IN-VITRO STUDY ON THE STEADY FLOW CHARACTERISTICS OF PROXIMAL ANASTOMOTIC MODELS**
L. P. Chua, W. F. Ji and T. M. Zhou
- B21** **A NEW METHOD OF FLUIDIZATION EXPERIMENT**
R. Takaki, K. Hatada, M. Matsuda and D. Shugai
- B22** **THE DANCE OF FALLING LEAVES**
H. Sato, H. Saito and H. Nakamura
- B23** **ELECTRON SHOCK WAVES: DISCONTINUITY CONDITIONS**
M. Hemmati
- B24** **GAUGE THEORY OF IDEAL FLUID FLOWS AND VARIATIONAL FORMULATION**
Tsutomu Kambe
- B25** **ENTRANCE REGION FLOWS OF NON-NEWTONIAN FLUIDS WITH TEMPERATURE DEPENDENT VISCOSITY THROUGH VARIOUS CROSS SECTIONAL DUCTS**
S. Gh. Etemad
- B26** **A NUMERICAL STUDY ON INJECTION SYSTEM IN SUPERSONIC FLOW**
Rafiqul Hoque and Mohammad Ali

- B27** **DESIGN OPTIMIZATION OF SUPERSONIC DIFFUSERS USING ADAPTIVE SIMULATED ANNEALING**
S. Ziaei-Rad, M. D. Emami and M. Ziaei-Rad
- B28** **COMPUTATION OF SUPERSONIC VISCOUS FLOW AROUND A SLENDER BODY AT HIGH ANGLES-OF-ATTACK**
Naresh Kumar, Manoj T. Nair and S. K. Saxena
- B29** **THE SUPERSONIC FLOW AND MIXING FIELDS WITH MAINSTREAM ANGLE AND MACH NUMBER OF INJECTOR**
Mohammad Ali and S. Ahmed
- B30** **AERODYNAMIC COMPUTATIONAL ANALYSIS FOR MACH 6.8 FLOW PAST A BLUNT NOSE WITH FORWARD-FACING SPIKE**
S. Zahir, M. Arshad, N. Aizud, M. A. Khan and N. Kamran
- B31** **THE SEGREGATION INSTABILITY OF A SHEARED SUSPENSION FILM**
Rama Govindarajan, Prabhu R. Nott and Sriram Ramaswamy
- B32** **NUMERICAL SIMULATION OF FLOW PAST SINGLE AND TWO SQUARE CYLINDERS IN CROSS FLOW**
D. Nachiappan, B. H. L. Gowda and T. Sundararajan
- B33** **STUDY OF ENTRAINMENT PROCESS IN A PLANAR JET USING DIFFUSION-VORTEX METHOD**
K. R. Sreenivas
- B34** **LES APPLIED TO PREDICT FLOW OVER SMOOTH HILL**
S. Vengadesan and A. Nakayama
- B35** **APPLICATION OF THE MULTI-MIXTURE FRACTION MODEL IN NUMERICAL SIMULATION OF TURBULENT REACTING FLOWS**
M. D. Emami, S. Ziaei Rad and H. Afshin
- B36** **NUMERICAL ANALYSIS of the FLOW in MOCVD REACTION CHAMBER WITH THREE PLANETARY DISKS**
Y. Liu, H. X. Chen and S. Fu
- B37** **ANALYSIS OF FLOW PROCESSES IN DI DIESEL ENGINE WITH DIFFERENT PISTON CAVITIES USING CFD**
Pramod S. Mehta and N. Jaipal
- B38** **MULTIPLE SOLUTIONS IN A DIFFERENTIALLY HEATED CAVITY**
M. D. Deshpande and B. G. Srinidhi
- B39** **THE NUMERICAL STUDY OF FLOWFIELD INTERACTION BETWEEN NON-UNIFORM INLET FLOW AND MULTISTAGE COMPRESSORS**
W. G. Joo

- B40 THE APPLICATION OF REDUCED GRID FOR GLOBAL OCEAN MODELLING**
Mohamad A. Badri
- B41 NUMERICAL SIMULATION OF CAVITATION INCEPTION FOR AXISYMMETRIC HEADFORMS**
Zahid Bashir, S. Zahir, S. Bilal and M. A. Khan
- C01 COMPARATIVE ANALYSIS OF $k-l$ TURBULENCE MODEL WITH OTHER MODELS IN SUPERSONIC FLOWS**
H. Ahmadikia and E. Shirani
- C02 GROWTH OF A POINT SOURCE DISTURBANCE INTRODUCED INTO THE THREE-DIMENSIONAL BOUNDARY LAYER OF A YAWED CYLINDER**
A. Inasawa, S. Izawa, A. K. Xiong and Y. Fukunishi
- C03 HOTWIRE MEASUREMENTS IN THE SEPARATED SHEAR LAYER OF A CYLINDER WAKE**
S.Rajagopalan and M. Stephens
- C04 LAGRANGIAN AND EULERIAN STATISTICS OBTAINED FROM DIRECT NUMERICAL SIMULATION OF TURBULENT CHANNEL FLOW**
T. Ushijima, J. P. Luo and O. Kitoh
- C05 SINK FLOW TURBULENT BOUNDARY LAYERS**
A. K. Hellstedt, M. B. Jones and M. S. Chong
- C06 VELOCITY BOUNDARY LAYER IN THE CONVECTIVE TURBULENCE IN MERCURY**
Yoshiyuki Tsuji, Takatoshi Mizuno, Takashi Mashiko and Masaki Sano
- C07 THE EVOLUTION OF ROUGH WALL TURBULENT BOUNDARY LAYERS**
M. B. Jones, A. K. Hellstedt and M. S. Chong
- C08 MISSED SET OF BOUNDARY LAYERS IN STRATIFIED AND ROTATING FLUIDS**
Yuli D. Chashechkin
- C09 STUDY ON TURBULENT CHANNEL FLOW WITH INJECTION THROUGH AN INCLINED SLIT**
K. Fukasawa and M. Sano
- C10 NUMERICAL MODELLING OF THREE-DIMENSIONAL VELOCITY FIELD AT AN OPEN CHANNEL CONFLUENCE**
K. Dissanayake, M. Sivakumar and A.Godbole
- C11 SECONDARY FLOWS IN CHANNEL CONFLUENCES EXPLAINED BY EXPERIMENTAL AND 3-D COMPUTATIONAL MODEL INVESTIGATIONS**
S. B. Weerakoon

- C12 THE EFFECT OF DOUBLE SUCTION ON THE TURBULENCE STRUCTURE**
O. Oyewola, L. Djenidi and R. A. Antonia
- C13 ON THE WALL SHEAR STRESS IN FULLY DEVELOPED TURBULENT CHANNEL FLOW**
J. P. Monty, M. B. Jones and M. S. Chong
- C14 PENETRATION OF TURBULENCE FROM A MAIN PIPE FLOW INTO A STRATIFIED BRANCH LINE**
L. Montenegro, J. Brown, H. J. S. Fernando, M. Weeden and R. Montenegro
- C15 THE ZERO PRESSURE GRADIENT TURBULENT BOUNDARY LAYER AND ITS APPROACH TO EQUILIBRIUM**
S. Hafez, M. B. Jones and M. S. Chong
- C16 AN ENHANCEMENT OF SYNTHETIC JETS BY MEANS OF AN INTEGRATED VALVELESS PUMP**
Z. Trávníček, A. I. Fedorchenko and A. -B. Wang
- C17 SIMULATION OF TURBULENT CHANNEL FLOW OVER TWO BLOCKS IN TANDEM ARRANGEMENT**
S. Eiamsa-ard, S. Sripattanapipat and P. Promvonge
- C18 ENHANCEMENT OF HEAT TRANSFER IN A CONCENTRIC TUBE HEAT EXCHANGER WITH REGULAR SPACED TWISTED-TAPES SWIRL GENERATORS**
S. Eiamsa-ard, C. Thianpong, P. Promvonge and S. Sripattanapipat
- C19 AN INTEGRATED RIVER BASIN MODEL TO INVESTIGATE UPLAND AND SUB-SURFACE HYDROLOGY OF THE KALA-OYA BASIN**
A. M. Wasantha Lal, Randy Van Zee, David Welter, B. S. Liyanagama and P. D. Shelton
- C20 WIND TUNNEL EXPERIMENTS ON BLOWN-SAND PHENOMENA AROUND INCLINED POROUS CYLINDERS**
N. Tanaka, H. Watanabe and Y. Shirono
- C21 VORTEX SHEDDING FROM A LAMINAR SEPARATION BUBBLE OVER A BLUFF BODY**
Shyama Prasad Das, Usha Srinivasan and Jaywant H. Arakeri
- C22 APPLICATION OF A TWO-DIMENSIONAL DEPTH-AVERAGED FLOW COMPUTATIONAL MODEL FOR AQUATIC HABITAT SIMULATION**
S. B. Weerakoon
- C23 EFFECT OF RECLAMATION ON HYDRODYNAMIC CIRCULATION AND FLUSHING IN VICTORIA HARBOUR, HONG KONG**
C. P. Kuang and J. H. W. Lee
- C24 COMPARISON OF 1-D AND 2-D TIDAL MODELS APPLIED TO A SHALLOW RESTRICTED TIDAL INLET: NEGOMBO LAGOON, SRI LANKA**
E. M. S. Wijeratne, L. Rydberg and K. P. P. Pathirana

- C25 FLOOD MITIGATION WORKS AT BRUNEI INTERNATIONAL AIRPORT**
S. Kamalarasa
- C26 EXPERIMENTAL STUDY ON THE INTERACTION OF WAVES NORMAL TO CURRENTS IN A WAVE BASIN**
M. P. C. Fernando, Y. S. Wu and J. Guo
- C27 INTERACTION OF THE SEA BREEZE WITH INLAND URBAN HEAT ISLANDS OF DIFFERENT INTENSITY**
A. Cenedese and P. Monti
- C28 FEASIBILITY OF DREDGING THE ENTRANCE CHANNELS OF NEGOMBO LAGOON TO IMPROVE THE FLOW OF WATER AND ITS QUALITY**
S. P. Samarawickrama, S. S. L. Hettiarachchi, P. C. Fernando and W. P. K. Egodawatta
- C29 MODELLING OF SEA LEVELS, WATER EXCHANGE AND DISPERSION IN AN INTERMITTENTLY CLOSED TIDAL ESTUARY: CHILAW LAGOON, WEST COAST OF SRI LANKA**
E. M. S. Wijeratne, L. Rydberg and K. P. P. Pathirana
- C30 BIWEEKLY OCEAN CURRENT FLUCTUATIONS SOUTH OF SRI LANKA**
D. Sengupta, R. Senan and V. S. N. Murty
- C31 NUMERICAL MODELLING AND A FIELD TEST OF GROUND PENETRATING RADAR FOR SOIL MOISTURE CONTENT ESTIMATION**
L. W. Galagedara, G. W. Parkin, J. D. Redman and A. P. Annan
- C32 INITIAL STAGE OF UPSLOPE FLOW DEVELOPMENT ON INCLINED SURFACES**
M. Princevac and H. J. S. Fernando
- C33 A PHYSICAL MODEL FOR THE LAYERED STRUCTURE OF A DENSITY DRIVEN FLOW OVER A SLOPE**
A. A. Bidokhti and M. Noroozi
- C34 ARIZONA STATE UNIVERSITY'S CONTRIBUTION TO THE JOINT URBAN 2003 EXPERIMENT: AN OVERVIEW**
M. Princevac, R. Calhoun, D. Zajic, J. E. Holeman, R. Heap, H. J. S. Fernando and R. K. Newsom
- C35 HIGH-RESOLUTION DYNAMIC REGIONAL CLIMATE DOWNSCALING OVER SRI LANKA**
J.-H. Qian and L. Zubair
- C36 APPLICATION OF THE P-VECTOR METHOD TO THE CIRCULATION IN THE WESTERN NORTH PACIFIC**
R. F. Li, X. B. You and P. C. Chu

- C37** **IDEALIZED SIMULATION OF OROGRAPHIC RAINFALL WITH A MESOSCALE ATMOSPHERIC MODEL**
Assela Pathirana and Tadashi Yamada
- C38** **WIND CLIMATOLOGIES FROM A MASS-CONSISTENT WIND MODEL FOR SRI LANKA**
Lareef Zubair and Ajith Gunaratne
- C39** **WAKE STRUCTURE BEHIND A TRANSVERSELY SPINNING SPHERE AT LOW REYNOLDS NUMBER**
M. Giacobello, A. Ooi, M. S. Chong and S. Balachandar
- C40** **A STUDY OF SEPARATION CONTROL ON A THICK AIRFOIL BY VARYING MEMS PARAMETERS**
Ajmal Baig, Salimuddin Zahir and Hossein Hamdani
- C41** **ESTIMATION OF THE AERODYNAMIC FORCES FOR THE MOVEABLE NOZZLES**
S. Bilal H Bukhari, Ajmal Baig, S. Zahir and M. A. Khan
- C42** **A MODEL FOR RELATING SPATIAL AND TEMPORAL CORRELATIONS OF TURBULENT FLOWS**
Murali R. Cholemari and Jaywant H. Arakeri
- C43** **DRAG REDUCTION IN SWIRLING TURBULENT FLOWS THROUGH A CURVED PIPE**
Toshihiro Takami
- C44** **THE NONEQUILIBRIUM CASCADE BEHAVIOURS OF FORCED ISOTROPIC TURBULENCE**
A. -K. Xiong, S. Izawa, and Y. Fukunishi
- C45** **DETAILED WIND TUNNEL MEASUREMENTS OF TURBULENCE PARAMETERS WITHIN A REGULAR ARRAY OF CUBE ROUGHNESS**
M. Roth and H. Ueda
- D01** **MODE 2 INSTABILITY OF THE SHIELDED MONOPOLAR VORTEX**
A. Ooi, K. Higgins and M. S. Chong
- D02** **INFLUENCE OF CROSS SECTIONAL SHAPE ON VORTEXING DURING DRAINING FROM CYLINDRICAL TANKS: A PIV STUDY**
B. H. L. Gowda, S. Mizuki, T. Uchibaba and H. Tsujita
- D03** **WING-TIP VORTEX MEASUREMENT USING PIV**
H. J. Zhang, Z. D. Su and Y. Zhou

D04	A STUDY OF SWIRLER FLOW FIELD CHARACTERISTICS IN A SUDDEN EXPANSION SQUARE CHAMBER USING PIV <i>A. Panduranga Reddy, N. Jayaprakash, R. I. Sujith and S. R. Chakravarthy</i>
D05	PROTOPLASMIC STREAMING IN AMOEBA <i>Y. Kokugan and O. Mochizuki</i>
D06	COMBUSTION OSCILLATIONS IN ROUND SUDDEN EXPANSIONS WITH A STRATIFIED PREMIXED UPSTREAM FLOW <i>D. Luff, J. H. Whitelaw and S. Sivasegaram</i>
D07	COLLAPSE AND GROWTH OF CAVITY REGION AND NETWORK FORMATION IN A GRANULAR MATERIAL DUE TO VISCOUS FLUID <i>O. Sano, Y. Kaneko and Y. Nagata</i>
D08	TRANSPORT AND DEPOSITION OF NANO- AND MICRO-PARTICLES IN A TURBULENT CHANNEL FLOW <i>M.D. Emami, H. Nasr and G. Ahmadi</i>
D09	PARTICLE DISPERSION IN A DOUBLE FREQUENCY FORCED SHEAR LAYER <i>V. Aga, P. Bala, and R. I. Sujith</i>
D10	OBSERVATIONS ON SOME BUBBLE DRIVEN PLANE LAMINAR FLOWS <i>V. H. Arakeri, A. Pal, S. N. Goswami and M. Alam</i>
D11	THE IMPORTANCE OF INITIAL ATOMISATION OF A UREA SPRAY INJECTED INTO A DIESEL ENGINE EXHAUST TO THE FAR FIELD DROPLET FLUX DISTRIBUTION <i>M. I. Akbar, Y. Hardalupas, A. M. K. P. Taylor, B. Cumming and T. Taylor</i>
D12	BUBBLE FLOW THROUGH THE BRANCHING PIPE <i>H. Ishikawa, O. Mochizuki and M. Kiya</i>
D13	TIDAL HARMONIC ANALYSIS AND PREDICTION <i>J.-J. Shu</i>
D14	ESTABLISHING TIDAL DISCHARGE BOUNDARIES BASED ON INCOMPLETE FIELD DATA FOR A HYDRODYNAMIC MODEL OF A COASTAL AREA <i>S. Kumuthini, M. M. G. S. Fernando and R. Galappatti</i>
D15	TURBULENCE MEASUREMENTS IN COMBINED OSCILLATORY AND STEADY FLOW BOUNDARY LAYER OVER A RIPPLED BED <i>J. J. Wijetunge</i>
D16	AXISYMMETRIC SHEAR FLOW BEHIND A HONEYCOMB <i>M. Stephens, S. Rajagopalan, P. Burattini and R. A. Antonia</i>

- D17** **NEW, EXACT SOLUTIONS OF THE NAVIER-STOKES EQUATIONS WITH APPLICATIONS TO TURBULENCE**
Robert R. Long
- D18** **EULER COMPUTATIONS FOR COMPLEX AIRCRAFT CONFIGURATIONS USING SOLID MODEL BASED CARTESIAN GRIDS**
A. Burman, D. Narayan and S. P. Koruthu
- D19** **CFD MODELLING OF EMISSION DISTRIBUTION IN THE WAKE OF MOVING VEHICLES**
W. Malalasekera and J. Crook
- D20** **IMPLEMENTATION AND TESTING OF LU-SSOR IMPLICIT TIME STEPPING METHOD IN A MULTI-BLOCK CODE**
Manoj T. Nair and S. K. Saxena
- D21** **NUMERICAL STUDY OF REVERSAL FLOW IN TUNNEL FIRES**
J. Chen, H. Chen and S. Fu
- D22** **THERMAL BEHAVIOUR OF A SMALL ENGINE**
A. R. Azimian and M. Goodarzi
- D23** **PRESSURE VARIATION CHARACTERISTICS AT TRAPPING REGION IN OIL HYDRAULIC PISTON PUMPS**
J. Y. Jung, K. K. Song, B. J. Rho, S. H. Oh and J. R. Kwag
- D24** **ADAPTIVE DIRECTIONAL GRID-EMBEDDING FOR STEADY TRANSONIC AIRFOIL FLOWS**
M. Ameri
- D25** **NUMERICAL PREDICTION OF FLOW CHARACTERISTICS IN A VORTEXING FLUIDIZED BED COMBUSTOR**
S. Sripattanapipat, S. Eiamsa-ard and P. Promvonge
- D26** **AERODYNAMIC DESIGN OF A BI-DIRECTIONAL FAN**
Bhaskar Roy, Pradeep Kumar, T. Venkateshwara Prasad, C. Satish Reddy and P. V. R. Srivatsava
- D27** **UNSTEADY FLOW AND HEAT TRANSFER IN SINUSOIDAL AND TRIANGULAR CHANNELS**
A. K. M. Sadrul Islam and Mohammad Zakir Hossain

- D28** **DEVELOPING FLOW STRUCTURES AND HEAT TRANSFER IN SINE-SHAPED WAVY CHANNEL**
Mohammad Zakir Hossain, M. Jalal Ahamed and A. K. M. Sadrul Islam
- D29** **FLUX SCALING AND PLUME STRUCTURE IN HIGH Ra - HIGH Sc TURBULENT CONVECTION**
Baburaj A. Puthenveettil and Jaywant H. Arakeri
- D30** **IN-VITRO STUDY OF A BIO-CENTRIFUGAL VENTRICULAR ASSIST DEVICE MODEL**
K. S. Ong, L. P. Chua and S. C. M. Yu
- D31** **PERFORMANCE OF BATTERY-CHARGING WIND TURBINE DEVELOPED BY THE NERD CENTRE**
M. Narayana and A. G. T Sugathapala
- D32** **USING SYMBOLIC CALCULATION FOR SOLVING LAMINAR FLOW THROUGH A LOOSELY CURVED PIPE**
Kamyar Mansour
- D33** **THE AERODYNAMIC PERFORMANCE ANALYSIS OF A HIGH SPEED TRAIN**
Hongqi Tian