

# Index to Volume 8, 1987

## Authors

Ahmed, S. A. 171  
Ashgriz, N. 205  
Bar-Cohen, A. 218  
Barrow, H. 119  
Bejan, A. 15, 258  
Ben-Dor, G. 303  
Bontoux, P. 26  
Brady, D. R. 16  
Brownell, R. B. 37  
Brown, A. 195  
Bullen, P. R. 111  
Calvert, J. R. 102, 287  
Cheeseman, D. J. 111  
Davis, M. C. 37  
Dekam, E. I. 287  
Duck, P. W. 149  
Elperin, T. 303  
Estafanous, S. 44  
Extremet, G. P. 26  
Fairbank, J. A. 211  
Fairweather, M. 55, 132  
Flack, R. D. 16, 37, 187  
Gilchrist, A. R. 156  
Givi, P. 195  
Gregory-Smith, D. G. 156  
Griffith, P. 218  
Gupta, C. P. 107  
Hamkinst, C. P. 16  
Hargrave, G. K. 55, 132  
Hassab, M. A. 44  
Huachen, P. 72  
Hussain, L. A. 111  
Iacovides, I. 320  
Igra, O. 303  
Jackson, R. 139  
Jang, J. Y. 182  
Kakac, S. 71  
Kaneko, K. 165  
Kannapprakasam, B. 195  
Kilham, J. K. 55, 132  
Kothari, N. S. 243  
Koyama, H. 145, 240  
Kulacki, F. A. 228  
Launder, B. E. 320  
Loizou, P. A. 320  
Mochimaru, Y. 235  
Mohanty, A. K. 277  
Morsi, Y. S. M. 293  
Muralidhar, K. 228  
Nakayama, A. 145, 240  
Nezhati, K. 102  
O'Meara, T. 313  
Pope, C. W. 119  
Poulakos, D. 93, 313  
Prakash, S. 107  
Raghunathan, R. 165  
Rice, J. G. 37, 187  
Roach, P. E. 82  
Roux, B. 26  
Ruder, Z. 218  
Russell, A. E. 111  
Sahin, B. 124  
Saini, J. S. 107  
Schnipke, R. J. 187  
Setoguchi, T. 165  
Shah, M. M. 326  
Shiina, Y. 64  
Shiying, Z. 72  
Skillings, S. A. 139  
Solanki, S. C. 107  
Sorour, M. M. 44  
So, R. M. C. 171, 211  
Thorley, A. R. D. 3  
Tiley, C. H. 3

Turner, J. T. 149  
Venkateshan, S. P. 243  
Viskanta, R. 277  
Vovos, A. 93  
Wang, M. T. 182  
Ward-Smith, A. J. 124  
Warren, M. D. 248  
Yener, Y. 71

## Titles

Approximate solution of one-dimensional heat diffusion problems via hybrid profiles, S. P. Venkateshan and N. S. Kothari 243  
Behaviour of carbon dioxide jets in a confined swirling flow, R. M. C. So and S. A. Ahmed 171  
Binary collision dynamics of fuel droplets, N. Ashgriz and P. Givi 205  
Bubble size effects in foam, J. R. Calvert and K. Nezhan 102  
Buoyancy-dominated laminar convection and radiation transfer in rod arrays, A. K. Mohanty and R. Viskanta 277  
Compressible Coanda wall jet—an experimental study of jet structure and breakaway, The, D. G. Gregory-Smith and A. R. Gilchrist 156  
Computer predictions of three-dimensional particle trajectories in gas turbines, B. Kannapprakasam and A. Brown 195  
Determination of pipe contraction pressure loss coefficients for incompressible turbulent flow, The, P. R. Bullen, D. J. Cheeseman, L. A. Hussain and A. E. Ruffell 111  
Determination of principal characteristics of turbulent swirling flow along annuli: part 4: an asymptotic solution, Y. S. M. Morsi and B. R. Clayton 293  
Developing laminar flow in a semiporous two-dimensional channel with nonuniform transpiration, M. M. Sorour, M. A. Hassab and S. Estafanous 44  
Effect of temperature gradient locally applied on a long horizontal cavity, G. P. Extremet, P. Bontoux and B. Roux 26  
Effects of inlet conditions and surface roughness on the performance of transitions between square and rectangular ducts of the same cross-sectional area, E. I. Dekam and J. R. Calvert 287  
Experiments on the cooling by natural convection of an array of vertical heated plates with constant heat flux, T. O'Meara and D. Poulakos 313  
Finite element analysis of the viscous flow in a vaned radial diffuser, R. J. Schnipke, J. G. Rice, and R. D. Flack 187  
Flow visualization in a laboratory vaned diffuser, R. B. Brownell, R. D. Flack, M. C. Davis and J. G. Rice 37  
Forced convection heat transfer in doubly connected ducts, S. C. Solanki, S. Prakash, J. S. Saini and C. P. Gupta 107  
Forced convective heat transfer from premixed flames—Part 2: Impingement heat transfer, G. K. Hargrave, M. Fairweather and J. K. Kilham 132  
Forced convective heat transfer from premixed flames, G. K. Hargrave, M. Fairweather and J. K. Kilham 55  
Generation of nearly isotropic turbulence by means of grids, The, P. E. Roach 82  
Head-on collision of normal shock waves in dusty gases, T. Elperin, G. Ben-Dor and O. Igra 303  
Heat transfer in a tapered passage, Y. Shiina 64  
Improved general correlation for critical heat flux upflow in uniformly heated vertical tubes, M. M. Shah 326  
Integral treatment of buoyancy-induced flows in a porous medium adjacent to horizontal surfaces with variable wall temperature, A. Nakayama and H. Koyama 240  
Laser velocimeter turbulence measurements in shrouded and unshrouded radial flow pump impellers, R. D. Flack, C. P. Hamkinst and D. R. Brady 16  
Major parameter effects on isothermality in horizontal steam-generated tubes at low- and moderate steam qualities, Z. Ruder, A. Bar-Cohen, and P. Griffith 218  
Measurements of streamwise vorticity using a vane vorticity meter, P. Huachen and Z. Shiying 72  
Natural convection on one side of a vertical wall embedded in a Brinkman-porous medium coupled with film condensation on the other side, A. Vovos and D. Poulikakos 93  
New way for simulation of transient natural convection heat transfer, Y. Mochimaru 235  
Numerical computation of turbulent flow through a square-sectioned 90° bend, H. Iacovides, B. E. Launder, and P. A. Loizou 320  
Pressurized water reactor blockage—prediction of laminar flow and temperature distributions following a loss of coolant accident, P. W. Duck and J. T. Turner 149  
Robust “time-marching” solver for one-dimensional nucleating steam flows, A. S. A. Skillings and R. Jackson 139  
Simple analysis of flow and heat transfer in railway tunnels, A. H. Barrow and C. W. Pope 119  
Solution of the autoclave discharge problem by the Lax-Wendroff method, M. D. Warren 248  
Stability of mixed convection flow, K. Muralidhar and F. A. Kulacki 228  
Steady film condensation and boiling adjacent to a body of arbitrary shape in a porous medium, A. Nakayama and H. Koyama 145  
Thermodynamic design of heat and mass transfer processes and devices, The, A. Bejan 258  
Transient response of crossflow heat exchangers with one fluid mixed, J. Y. Jang and M. T. Wang 182  
Unsteady and transient flow of compressible fluids in pipelines—a review of theoretical and some experimental studies, A. R. D. Thorley and C. H. Tiley 3  
Upstream and downstream influence of pipe curvature on the flow through a bend, J. A. Fairbank and R. M. C. So 211  
Use of perforated plates to control the flow emerging from a wide-angle diffuser, with application to electrostatic precipitator design, The, B. Sahin and A. J. Ward-Smith 124

Wells air turbine subjected to inlet flow distortion and high levels of turbulence, The, S. Raghunathan, T. Setoguchi and K. Kaneko 165

## Keywords

aerodynamics shock waves 139  
analytic pressure loss coefficients 111  
annuli 293  
approximating profile 243  
arbitrary shape 145  
array of heated plates 313  
asymptotic solution 293  
boiling 326  
boundary layer 240  
Brinkman-porous medium 93  
bubble size distribution 102  
buoyancy 240  
buoyancy-driven gas flow 26  
burnout 326  
carbon dioxide jets 171  
CHF 326  
circumferential anisothermality 218  
Coanda effect 156  
combined convection 277  
compressible wall jet 156  
computational fluids 187  
concentric tubes 293  
confined jets 171  
convection 132  
critical Rayleigh number 228  
crossflow heat exchangers 182  
curvature effects 211  
curved flows 211  
cusped channel 149  
doubly connected cuts 107  
downstream influence 211  
droplet collision 205  
ducts 287  
dusty gases 303  
Eigen values 228  
electrostatic precipitators 124  
entropy generation minimization exergy analysis 258  
evaporating droplets 205  
experimental pressure loss coefficients 111  
film boiling 145  
film condensation 93, 145  
finite difference methods 26  
finite element 187  
flames 132  
flow 102  
flow computation 320  
flow regimes 218  
fluid transients 3  
foam 102  
friction factor 107  
fuel rod cladding 149  
fully developed laminar fluid flow 149  
gas flow 124  
gas pipelines 3  
grids 82  
heat balance integral 243  
heat diffusion 243  
heat transfer 119, 132, 149, 277  
impingement 132  
incompressible pipe flow 111

inhomogeneous flows 171  
inlet conditions 287  
integral method 240  
isotropic turbulence 82  
linear stability 228  
liquids 326  
local temperature gradient 26  
long horizontal cavity 26  
loss of coolant accident 149  
methane 132  
mixed convection 228  
mixed fluid 182  
modified Orr-Sommerfeld equations 228  
natural convection 93, 235, 313  
nucleating steam flows 139  
numerical diffusion 187  
numerical methods 187  
numerical simulation 26, 235  
Nusselt number 107  
orthonormalization 228  
particle trajectories 195  
perforated plates 124  
phase change 243  
pipe bends 211  
pipe contractions 111  
porous media 240  
porous medium 145  
prediction 326  
pressurized water reactor 149  
radial flow 16  
radiation 277  
railway tunnels 119  
random choice method 303  
Reynolds number 107  
rheology 102  
rod arrays 277  
second-law analysis 258  
shock cells 156  
shock waves 303  
shrouded pump impellers 16  
similarity solution 145  
spray combustion 205  
square-sectioned bend 320  
stagnation point 132  
steady turbulent flow 119  
steam turbines 139  
steam-generating tubes 218  
surface roughness 287  
swirl 293  
swirl decay 293  
swirling flow 171  
thermally developed temperature field 107  
time-marching solver 139  
transient heat transfer 235  
transient response 182  
transitions 287  
turbomachinery 187  
turbomachines 195  
turbulence 156, 293  
turbulence generation 82  
turbulence measurements 16  
turbulent flow 320  
turbulent mixing 171  
two-dimensional flow 156  
two-phase flow 218  
two-zone furnaces 26  
underexpanded jet 156  
unshrouded pump impellers 16  
unsteady compressible flow 3

upstream influence 211  
vertical wall 93  
wide-angle diffuser 124

## Book reviews

*Annual Review of Numerical Fluid Mechanics and Heat Transfer. Volume 1*, ed. by T. C. Chawla 336  
*BASIC Programs for Steam Plant Engineers*, by V. Ganapathy 123  
*Chemical Engineering Guide to Heat Transfer*, The, ed. by K. J. McNaughton 92  
*Computational Heat Transfer*, by Y. Jularia and K. E. Torrance 336  
*Computational Methods in Viscous Flow III*, ed. by W. G. Habashi 144  
*Convection Heat Transfer*, by A. Bejan 15  
*Encyclopedia of Fluid Mechanics. Volumes 1 and 2*, ed. by Nicholas P. Cheremisinoff 253  
*Fluid Mechanics Measurements*, by R. J. Goldsmith 78  
*Fundamentals of Heat Exchanger and Pressure Vessel Technology* J. P. Gupta 336  
*Fundamentals of Hot Wire Anemometry*, by C. G. Lomas 101  
*Handbook of Hydraulic Resistance*, by I. E. Idelchik 78  
*Handbook of Radiative Heat Transfer in High-Temperature Gases*, ed. by R. I. Soloukhin 336  
*Heat Conduction*, S. Kakac and Y. Yener 71  
*Heat Transfer 1986—Proceedings of the Eighth International Heat Transfer Conference*, ed. by C. L. Tien, V. P. Carey and J. K. Ferrell 54  
*Heat Transfer and Fluid Flow in Rotating Machinery*, ed. by W.-J. Yang 337  
*Heat Transfer in High Technology and Power Engineering*, ed. by W.-J. Yang and Y. Mori 337  
*Heat Transfer in Turbulent Fluid Flows*, by A. Zukauskas and A. Slanciauskas 338  
*High Temperature Heat Exchangers*, ed. by Y. Mori, A. E. Sheindlin and N. Afgan 106  
*Radiation and Combined Heat Transfer in Channels*, by M. Tamonis 339  
*Stability of Parallel Gas Flows*, by B. K. Shivamoggi 252  
*Technical Guide to Thermal Processes*, by J. Gosse 164  
*Turbulence and Random Processes in Fluid Mechanics*, by M. P. Landahl and E. Mollo-Christiansen 252  
*Turbulent Measurements and Flow Modeling*, ed. by C. J. Chen, L.-D. Chen, and F. M. Holly, Jr. 339  
*Turbulent Shear Flows 4—Selected Papers from the Fourth International Symposium on Turbulent Shear Flow*, ed. by L. J. S. Bradbury et al. 76  
*Vaporizers, Selection Design and Operation*, by R. A. Smith 340