

# Index to Volume 15, 1994

## Author/Title Index

- Andersson, H. I.: *See* Nilsen, P. J., 100  
 Andersson, H. I. and Pettersson, B. A.:  
 Modeling plane turbulent Couette flow, 447
- Balaji, C. and Venkateshan, S. P.:  
 Interaction of radiation with free  
 convection in an open cavity, 317  
 Balaji, C. and Venkateshan, S. P.:  
 Correlations for free convection and  
 surface radiation in a square cavity, 249  
 Bejan, A.: *See* Fowler, A. J., 90; Morega, A.  
 M., 42  
 Bian, W., Vasseur, P. and Bilgen, E.:  
 Boundary-layer analysis for natural  
 convection in a vertical porous layer filled  
 with a non-Newtonian fluid, 384  
 Bilgen, E.: *See* Bian, W., 384
- Chang, F. and Dhir, V. K.: Turbulent flow  
 field in tangentially injected swirl flows in  
 tubes, 346  
 Chang, J. S.: *See* Obinelo, I. F., 20  
 Chang, S. F.: *See* Yang, R., 470  
 Chen, C.-K. and Yang, S.-A.: Laminar film  
 condensation inside a horizontal elliptical  
 tube with variable wall temperature, 75  
 Cheng, C.-H. and Yang, J.-J.:  
 Buoyancy-induced recirculation bubbles  
 and heat convection of developing flow in  
 vertical channels with fin arrays, 11  
 Cheng, Y. T.: *See* Ho, C. J., 299  
 Chen, X. J.: *See* Wang, Q., 241  
 Chen, Z.: *See* Zhang, Y., 79  
 Chen, Z.-Q.: *See* Ling, C.-H., 486  
 Coates, M. J. and Patterson, J. C.:  
 Numerical simulations of the natural  
 convection in a cavity with nonuniform  
 internal sources, 218
- Day, J. M.: *See* Megaridis, C. M., 364  
 Dhir, V. K.: *See* Chang, F., 346  
 Ding, Y.: *See* Wang, Q., 241  
 Durst, F.: *See* Węćlaś, M., 204; Hanjalić, K.,  
 269
- Etamad, S. Gh., Majumdar, A. S. and  
 Huang, B.: Viscous dissipation effects in  
 entrance region heat transfer for a power  
 law fluid flowing between parallel plates,  
 122
- Fashifar, A.: *See* Johnson, M. W., 283  
 Fowler, A. J. and Bejan, A.: Forced  
 convection in banks of inclined cylinders  
 at low Reynolds numbers, 90  
 Fusegi, T. and Hyun, J. M.: Laminar and  
 transitional natural convection in an  
 enclosure with complex and realistic  
 conditions, 258
- Gan, X., Kilic, M. and Owen, J. M.:  
 Superposed flow between two discs  
 contrarotating at differential speeds, 438
- Giakoumakis, S. G.: A model for predicting  
 coupled heat and mass transfers in  
 unsaturated partially frozen soil, 163  
 Gregory-Smith, D. G. and Senior, P.: The  
 effects of base steps and axisymmetry on  
 supersonic jets over coanda surfaces, 291  
 Guedes, R. O. C. and Ozisik, M. N.: Hybrid  
 approach for solving unsteady laminar  
 forced convection inside ducts with  
 periodically varying inlet temperature, 116
- Hanjalić, K.: Advanced turbulence closure  
 models: a view of current status and  
 future prospects, 178  
 Hanjalić, K., Jakirlić, S. and Durst, F.: A  
 computational study of joint effects of  
 transverse shear and streamwise  
 acceleration on three-dimensional  
 boundary layers, 269  
 Ho, C. J., Cheng, Y. T. and Wang, C. C.:  
 Natural convection between two  
 horizontal cylinders inside a circular  
 enclosure subjected to external convection,  
 299  
 Hodges, J. T.: *See* Megaridis, C. M., 364  
 Huang, B.: *See* Etamad, S. Gh., 122  
 Huang, P. C. and Vafai, K.: Passive  
 alteration and control of convective heat  
 transfer utilizing alternate porous  
 cavity-block wafers, 48  
 Hyun, J. M.: *See* Fusegi, T., 258; Lee, J. S., 111
- Ingham, D. B.: *See* Patel, N., 132  
 Intemann, P. A. and Kazmierczak, M.:  
 Convective heat transfer for cold tube  
 bundles with ice formations in a stream of  
 water at steady state, 491
- Jakirlić, S.: *See* Hanjalić, K., 269  
 Jin, Y.-Y.: *See* Ling, C.-H., 486  
 Johnson, M. W. and Fashifar, A.: Statistical  
 properties of turbulent bursts in  
 transitional boundary layers, 283
- Kakac, S.: *See* Wang, Q., 241  
 Kazmierczak, M.: *See* Intemann, P. A., 491  
 Kazmierczak, M. and Muley, A.: Steady and  
 transient natural convection experiments  
 in a horizontal porous layer: the effects of  
 a thin top fluid layer and oscillating  
 bottom wall temperature, 30  
 Kilic, M.: *See* Gan, X., 438  
 Kim, J. H.: *See* Lee, J. S., 111  
 Kiuchi, T.: An implicit method for transient  
 gas flows in pipe networks, 378  
 Klausner, J. F.: *See* Mei, R., 62  
 Kleinstreuer, C.: *See* Lei, M., 456
- Lage, J. L.: Convective currents induced by  
 periodic time-dependent vertical density  
 gradient, 233  
 Lasher, W. C. and Taulbee, D. B.: Reynolds  
 stress model assessment using round jet  
 experimental data, 357  
 Launder, B. E. and Tselepidakis, D. P.:  
 Application of a new second-moment  
 closure to turbulent channel flow rotating  
 in orthogonal mode, 2  
 Lee, J. S., Kim, J. H. and Hyun, J. M.:  
 Temperature measurements during  
 heat-up of a contained homogeneous fluid,  
 111  
 Lei, M. and Kleinstreuer, C.: Natural-  
 convection heat transfer in a nonuniform  
 finite annulus with concentric heat source,  
 456
- Ling, C.-H., Jin, Y.-Y. and Chen, Z.-Q.:  
 Heat/mass transfer and pressure drop in a  
 triangular-rib-roughened rectangular  
 channel, 486  
 Liu, S. and Masliyah, J. H.: Developing  
 convective heat transfer in helical pipes  
 with finite pitch, 66  
 Long, C. A.: Disk heat transfer in a rotating  
 cavity with an axial throughflow of  
 cooling air, 307
- Majumdar, A. S.: *See* Etamad, S. Gh., 122  
 Mansour, R. B. and Viskanta, R.:  
 Shear-opposed mixed-convection flow and  
 heat transfer in a narrow, vertical cavity,  
 462  
 Martins-Costa, M. L. and Saldanha da  
 Gama, R. M.: A local model for the heat  
 transfer process in two distinct flow  
 regions, 477  
 Masliyah, J. H.: *See* Liu, S., 66  
 Megaridis, C. M., Hodges, J. T., Xin, J., Day,  
 J. M. and Presser, C.: Internal droplet  
 circulation induced by surface-driven  
 rotation, 364  
 Mei, R. and Klausner, J. F.: Shear lift force  
 on spherical bubbles, 62  
 Melling, A.: *See* Węćlaś, M., 204  
 Merkin, J. H.: Natural-convection  
 boundary-layer flow on a vertical surface  
 with Newtonian heating, 392  
 Morega, A. M. and Bejan, A.: Heatline  
 visualization of forced convection in  
 porous media, 42  
 Muley, A.: *See* Kazmierczak, M., 30
- Nield, D. A.: Convection induced by an  
 inclined temperature gradient in a shallow  
 horizontal layer, 157  
 Nield, D. A.: Estimation of an effective  
 Rayleigh number for convection in a  
 vertically inhomogeneous porous medium  
 or clear fluid, 337  
 Nield, D. A.: The effect of channeling on  
 heat transfer across a horizontal layer of a  
 porous medium, 247  
 Nilsen, P. J. and Andersson, H. I.:  
 Developing turbulent flow in a rotating  
 channel, 100  
 Novak, M. H.: *See* Nowak, E. S., 104  
 Nowak, E. S. and Novak, M. H.: Vertical  
 partitions in slender rectangular cavities,  
 104
- Obinelo, I. F., Round, G. F. and Chang,  
 J. S.: Condensation enhancement by steam  
 pulsation in a reflux condenser, 20  
 Owen, J. M.: *See* Gan, X., 438  
 Ozisik, M. N.: *See* Guedes, R. O. C., 116
- Patel, N. and Ingham, D. B.: Mixed  
 convection flow of a Bingham plastic in  
 an eccentric annulus, 132  
 Patterson, J. C.: *See* Coates, M. J., 218  
 Pettersson, B. A.: *See* Andersson, H. I., 447  
 Phanikumar, M. S.: Thermosolutal  
 convection in a rectangular enclosure with  
 strong side-walls and bottom heating, 325  
 Poots, G. and Skelton, P. L. I.: Simple  
 models for wet-snow accretion on  
 transmission lines: snow load and liquid  
 water content, 411  
 Presser, C.: *See* Megaridis, C. M., 364
- Rao, B. K.: Turbulent heat transfer to  
 power-law fluids in helical passages, 142

- Reader-Harris, M. J.: The decay of swirl in a pipe, 212  
 Round, G. F.: *See* Obinelo, I. F., 20
- Saldanha da Gama, R. M.: *See* Martins-Costa, M. L., 477  
 Senior, P.: *See* Gregory-Smith, D. G., 291  
 Skelton, P. L. I.: *See* Poots, G., 411  
 Sunil Kumar, S. and Venkateshan, S. P.: Optimized tubular radiator with annular fins on a nonisothermal base, 399  
 Suzuki, H.: *See* Suzuki, K., 426  
 Suzuki, K. and Suzuki, H.: Instantaneous structure and statistical feature of unsteady flow in a channel obstructed by a square rod, 426
- Taulbee, D. B.: *See* Lasher, W. C., 357  
 Tsay, Y. L.: Analysis of heat and mass transfer in a countercurrent-flow wet surface heat exchanger, 149  
 Tsay, Y. L.: Transient conjugated mixed-convective heat transfer in a vertical annular passage, 226  
 Tselupidakis, D. P.: *See* Launder, B. E., 2
- Vafai, K.: *See* Huang, P. C., 48  
 Vasseur, P.: *See* Bian, W., 384  
 Venkateshan, S. P.: *See* Balaji, C., 249, 317; Sunil Kumar, S., 399  
 Viskanta, R.: *See* Mansour, R. B., 462
- Wang, C. C.: *See* Ho, C. J., 299  
 Wang, Q.: *See* Zhang, Y., 79  
 Wang, Q., Chen, X. J., Kakaç S. and Ding, Y.: An experimental investigation of density-wave-type oscillations in a convective boiling upflow system, 241  
 Węćlaś, M., Melling, A. and Durst, F.: Flow asymmetry in geometrically symmetric engine head configurations, 204
- Xin, J.: *See* Megaridis, C. M., 364
- Yang, J.-J.: *See* Cheng, C.-H., 11  
 Yang, R. and Chang, S. F.: Combined free and forced convection for developed flow in curved pipes with finite curvature ratio, 470  
 Yang, S.-A.: *See* Chen, C.-K., 75
- Zhang, Y., Chen, Z. and Wang, Q.: Analysis of melting in an enclosure with discrete heating at constant rate, 79
- Keyword Index**
- Accelerated flows, 269  
 Arbitrary curvature ratio, 470  
 Axisymmetry, 291
- Bingham plastic, 132  
 Boundary conditions, 122  
 Bubble, 62  
 Buoyancy, 470
- Channel flow, 100, 447  
 Chaos, 325  
 Circulation, 364  
 Coanda effect, 291  
 Compressible flow, 378  
 Condensation, 20  
 Conducting walls, 258
- Contrarotating discs, 438  
 Convection, 325  
 Convection Nusselt number, 249  
 Convective heat transfer, 66  
 Convective time scale, 111  
 Coriolis forces, 2, 100  
 Correlation, 249  
 Correlations, 317  
 Cross-correlation, 426  
 Cross-flow, 90  
 Curved pipe flow, 66, 470  
 Curved wall jet, 291
- Dean number, 66  
 Density-wave type oscillations, 241  
 Developing flow, 66  
 Droplet, 364
- Effective Rayleigh number, 337  
 Enclosure flows, 299
- Fin array, 11  
 Fin profiles, 399  
 Fin volume, 399  
 Finite-element method, 132  
 Flow and heat transfer, 462  
 Flow asymmetry, 204  
 Flow bifurcations, 325  
 Flow pulsation, 20  
 Flow visualization, 204  
 Fluid transients, 378  
 Forced convection, 42, 122, 477, 491  
 Friction factor, 142
- Gas turbine internal air systems, 307  
 Generalized integral transform technique, 116
- Heat and mass transfer, 149  
 Heat and mass transfers, 163  
 Heat loss ratio, 399  
 Heat transfer, 142, 307, 477, 486  
 Heat transfer alteration, 48  
 Heatlines, 42  
 Helical coils, 142  
 Horizontal elliptical tube, 75  
 Horizontal enclosure, 30  
 Hyperthermia treatment device, 456
- Implicit method, 378  
 Incidence equations, 399  
 Inclined temperature gradient, 157  
 Instabilities, 241  
 Instability, 325  
 Intermittency, 283  
 Internal sources, 218  
 Internal flows, 204
- Laminar film condensation, 75  
 Laminar flow, 66, 116  
 Laminarization, 269  
 Latent heat transfer, 149  
 LDA, 204  
 Low Reynolds number, 90  
 Low-Remumber Re-stress models, 178  
 Low Remumber models, 269
- Mach-Zehnder interferometry, 111  
 Medium hydraulic properties, 163  
 Mixed convection, 11, 132, 226, 462  
 Mixture theory, 477  
 Modeling and computations, 269
- Narrow gap approximation, 132  
 Natural convection, 104, 218, 299, 317, 384  
 Natural convection boundary layers, 392
- Natural convection in an enclosure, 258  
 Near-wall closures, 447  
 Newtonian heat transfer, 392  
 Nonisothermal wall, 75  
 Non-Newtonian fluid, 384  
 Numerical analysis, 426  
 Numerical methods, 104, 325  
 Numerical solution of velocity and temperature fields, 456  
 Nusselt number, 66
- Obstruction with a square rod, 426  
 Optimum fin radius, 399  
 Overhead power conductors, 411
- Parallel plates, 122  
 Partial condenser, 20  
 Passive control, 48  
 Phase-change phenomena, 491  
 Pipe flow, 212  
 Pipeline, 378  
 Porous media, 30, 42, 48, 384  
 Power-law fluids, 142  
 Pressure drop, 486
- Quadrant analysis, 426
- Radiation convection interaction, 249  
 Radiation enhancement, 317  
 Radiation Nusselt number, 249  
 Rayleigh-Bénard convection, 233, 337  
 Reciprocating engines, 204  
 Recirculation bubbles, 11  
 Reflux condenser, 20  
 Reynolds stress modeling, 357  
 Rotating cavity with axial throughflow, 307  
 Rotating discs, 438  
 Rotating flow, 307, 438  
 Rotation, 364  
 Rotationally-induced buoyancy, 307  
 Roughened surface, 486
- Second-moment closure, 2, 100  
 Second-moment closures, 269  
 Second-moment closure models, 178  
 Second-moment modeling, 447  
 Secondary flow, 66  
 Separation, 291  
 Shear lift, 62  
 Shock waves, 291  
 Simulation, 218  
 Simultaneously developing, 122  
 Soil freezing, 163  
 Sphere, 62  
 Square cavity, 111  
 Steady and transient free convection, 30  
 Steady-state, 325  
 Stream function, 317  
 Surface-tension viscous-flow theory, 163  
 Swirl flows, 346  
 Swirling flow, 212
- Tangential injection, 346  
 Thermal energy storage, 491  
 Thermal instability, 157, 233  
 Thermal stratification process, 111  
 Thermosolutal, 325  
 Three-dimensional effects, 258  
 Three-dimensional boundary layers, 269  
 Time-periodic heating, 233  
 Transient, 226, 325  
 Transient states, 258  
 Transient three-dimensional free convection in nonuniform enclosure, 456  
 Transition, 283

Transitional boundary layers, 283  
 Transverse shear, 269  
 Turbulence, 447  
 Turbulence intensity, 346  
 Turbulence modeling, 2, 100  
 Turbulence models, 178  
 Turbulent channel flow, 2  
 Turbulent flows, 269  
 Turbulent jet flow, 357  
 Turbulent spots, 283  
 Turbulent wall flows, 178

Two regions flow, 477  
 Two-phase flow instabilities, 241  
 Underexpanded jet, 291  
 Unsteady channel flow, 426  
 Unsteady heat transfer, 116  
 Variable property effects, 258  
 Variable viscosity, 122  
 Vertical cavity, 462  
 Vertical channel, 11

Viscous dissipation, 122  
 Vorticity, 317  
 Wall conduction, 226  
 Wall heat capacity, 226  
 Wall vortex, 426  
 Wet snow, 411  
 Wet surface heat exchanger, 149  
 Yawed cylinder arrays, 90



**Statement of Ownership,  
 Management and  
 Circulation**  
 (Required by 39 U.S.C. 3685)

1A. Title of Publication <b>INTERNATIONAL JOURNAL OF HEAT AND FLUID FLOW</b>		1B. PUBLICATION NO. 0   1   4   2   7   2   7   X		2. Date of Filing Oct. 1, 1994
3. Frequency of Issue <b>BiMonthly</b>		3A. No. of Issues Published Annually <b>Six</b>	3B. Annual Subscription Price <b>\$450.00</b>	
4. Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP + 4 Code (Use postnet)) <b>313 Washington St., Newton, (Middlesex County) MA 02158-1626</b>				
5. Complete Mailing Address of the Headquarters or General Business Office of the Publisher (Use postnet) <b>Butterworth-Heinemann, 313 Washington St., Newton, MA 02158-1626</b>				
6. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (This item MUST NOT be blank) Publisher (Name and Complete Mailing Address): <b>Rita S. Kessel, Butterworth-Heinemann, 313 Washington St., Newton, MA 02158-1626</b>				
Editor (Name and Complete Mailing Address): <b>Professor F.W. Schmidt Dept. of Mechanical Engineering, Pennsylvania State University, 208 Mechanical Engineering Building, University Park, PA 16802</b>				
Managing Editor (Name and Complete Mailing Address): <b>Rebecca Hale, Butterworth-Heinemann, 313 Washington St., Newton, MA 02158-1626</b>				
7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated. (This item must be completed.)				
Full Name		Complete Mailing Address		
<b>Butterworth-Heinemann</b>		<b>313 Washington St. Newton, MA 02158-1626</b>		
<b>A wholly owned division of Reed-Elsevier</b>		<b>755 Washington St. Newton, MA 02158-1626</b>		
8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities. If there are none, so state.				
Full Name		Complete Mailing Address		
<b>NONE</b>		<b>N/A</b>		
9. For Completion by Nonprofit Organizations Authorized to Mail at Special Rates (DMG Section 114.12 only) The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)				
<input type="checkbox"/> Has Not Changed During Preceding 12 Months <input type="checkbox"/> Has Changed During Preceding 12 Months (If changed, publisher must submit explanation of change with this statement.)				
10. Extent and Nature of Circulation (See instructions on reverse side)		Average No. Copies Each Issue During Preceding 12 Months		Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies (Net Press Run)		750		750
B. Paid and/or Requested Circulation 1. Sales through dealers and carriers, street vendors and counter sales		N/A		N/A
2. Mail Subscriptions (Paid and/or requested)		390		386
C. Total Paid and/or Requested Circulation (Sum of 10B1 and 10B2)		390		386
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies		94		112
E. Total Distribution (Sum of C and D)		484		498
F. Copies Not Distributed 1. Office use, left overs, unaccounted, spoiled after printing		266		252
2. Return from News Agents		N/A		N/A
G. TOTAL (Sum of E, F1 and 2—should equal net press run shown in A)		750		750
11. I certify that the statements made by me above are correct and complete				
Signature and Title of Editor, Publisher, Business Manager, or Owner <i>Rita S. Kessel</i>				Rita S. Kessel Publisher

PS Form 3526, January 1991

(See instructions on reverse)