

CONTENTS

Preface	ix
Acknowledgments	xiii
Professor D. Brian Spalding — on his 60th birthday	1
Interview with D. Brian Spalding	3
Selected Papers	
1. Heat transfer from turbulent separated flows <i>D. B. Spalding</i>	9
2. A two-parameter model of turbulence, and its application to free jets <i>W. Rodi and D. B. Spalding</i>	22
3. Combustion as applied to engineering <i>D. B. Spalding</i>	33
4. Concentration fluctuations in a round turbulent free jet <i>D. B. Spalding</i>	41
5. A calculation procedure for heat, mass and momentum transfer in three-dimensional parabolic flows <i>S. V. Patankar and D. B. Spalding</i>	54
6. Turbulence model for boundary layers near walls <i>K. H. Ng and D. B. Spalding</i>	74
7. An experimental and theoretical investigation of turbulent mixing in a cylindrical furnace <i>F. C. Lockwood, F. M. El-Mahallawy, and D. B. Spalding</i>	85
8. The numerical computation of turbulent flows <i>B. E. Launder and D. B. Spalding</i>	96
9. Prediction of laminar flow and heat transfer in helically coiled pipes <i>S. V. Patankar, V. S. Pratap and D. B. Spalding</i>	117
10. The calculation of local flow properties in two-dimensional furnaces <i>E. E. Khalil, D. B. Spalding and J. H. Whitelaw</i>	130
11. Prediction of turbulent flow in curved pipes <i>S. V. Patankar, V. S. Pratap, and D. B. Spalding</i>	147
12. Numerical computations of the flow in curved ducts <i>V. S. Pratap and D. B. Spalding</i>	160
13. Predictions of two-dimensional boundary layers on smooth walls with a two-equation model of turbulence <i>K. H. Ng and D. B. Spalding</i>	170
14. Fluid flow and heat transfer in three-dimensional duct flows <i>V. S. Pratap and D. B. Spalding</i>	182
15. Concentration fluctuations in isothermal turbulent confined coaxial jets <i>S. E. Elghobashi, W. M. Pun and D. B. Spalding</i>	188
16. Development of the eddy-break-up model of turbulent combustion <i>D. B. Spalding</i>	194
17. Numerical computation of Taylor vortices <i>A. K. Majumdar and D. B. Spalding</i>	201
18. Numerical computations of flow in rotating ducts <i>A. K. Majumdar, V. S. Pratap and D. B. Spalding</i>	211
19. A solution method for three-dimensional turbulent boundary layers on bodies of arbitrary shapes <i>N. C. G. Markatos, D. B. Spalding, D. G. Tatchell, and N. Vlachos</i>	217
20. The prediction of the three-dimensional turbulent flow field in a flow-splitting tee-junction <i>A. Pollard and D. B. Spalding</i>	231

21.	Prediction of furnace heat transfer with a three-dimensional mathematical model <i>B. R. Pai, S. Michelfelder and D. B. Spalding</i>	245
22.	A 2D partially-parabolic procedure for axial-flow turbomachinery cascades <i>A. K. Singhal and D. B. Spalding</i>	255
23.	Experimental and theoretical investigation of flow behind an axi-symmetrical baffle in a circular duct <i>V. Ganesan, D. B. Spalding, and B. S. Murthy</i>	288
24.	Computer analysis of the three-dimensional flow and heat transfer in a steam generator <i>S. V. Patankar and D. B. Spalding</i>	293
25.	Flow in an annulus of non-uniform gap <i>N. C. G. Markatos, R. Sala and D. B. Spalding</i>	299
26.	A general theory of turbulent combustion <i>D. B. Spalding</i>	307
27.	A comparison between the parabolic and partially-parabolic solution procedures for three-dimensional turbulent flows around ships' hulls <i>A. M. Abdelmeguid, N. C. G. Markatos, K. Muraoka and D. B. Spalding</i>	315
28.	Turbulent flow and heat transfer in pipes with buoyancy effects <i>A. M. Abdelmeguid and D. B. Spalding</i>	325
29.	Numerical prediction of heat transfer to low-Prandtl-number fluids <i>F. Gori and M. A. El Hadidy and D. B. Spalding</i>	343
30.	Computations of three-dimensional gas-turbine combustion chamber flows <i>M. A. Serag-Eldin and D. B. Spalding</i>	357
31.	Computation of structures of flames with recirculating flow and radial pressure gradients <i>D. E. Jensen, D. B. Spalding, D. G. Tatchell and A. S. Wilson</i>	368
32.	The influences of laminar transport and chemical kinetics on the time-mean reaction rate in a turbulent flame <i>D. B. Spalding</i>	386
33.	On the three-dimensional laminar flow in a tee-junction <i>A. Pollard and D. B. Spalding</i>	396
34.	Multiphase flow prediction in power-system equipment and components <i>D. B. Spalding</i>	399
35.	Predictions of two-dimensional boundary layers with the aid of the k- ϵ model of turbulence <i>A. K. Singhal and D. B. Spalding</i>	411
	Coauthor Index	430

