1. Record Nr. UNINA9910819943603321

Autore	Spalding D. B (Dudley Brian), <1923->
Titolo	Numerical prediction of flow, heat transfer, turbulence, and combustion : selected works of Professor D. Brian Spalding / / edited by Suhas V. Patankar [and three others]
Pubbl/distr/stampa	New York : , : Pergamon Press, , 1983 ©1983
ISBN	1-4831-6066-1
Descrizione fisica	1 online resource (445 p.)
Disciplina	621.402
Soggetti	Fluid dynamics Heat - Transmission Combustion Numerical calculations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Front Cover; Numerical Prediction of Flow, Heat Transfer, Turbulence and Combustion; Copyright Page; Dedication; Table of Contents; Preface; Acknowledgments; Professor D. Brian Spalding on His 60Th Birthday; Interview with D. Brian Spalding; PAPER 1. Heat transfer from turbulent separated flow; 1. Introduction; 2. Analysis; 3. Discussion; 4. Conclusions; 5. Nomenclature; REFERENCES; PAPER 2. A two-parameter model of turbulence, and its application to free jets; 1. Introduction; 2. Survey of Existing Turbulence Models; 3. The Present Model; 4. Application to Free Jet Flows 5. Discussion of the Results6. Conclusions; References; PAPER 3. Combustion as applied to engineering; 1. Some Combustion Problems of Engineering; 2. What combustion science can contribute; 3. The calculation of turbulent flows; 4. Some computations of turbulent combustion phenomena; 5. Conclusions; 6. References; PAPER 4. Concentration fluctuations in a round turbulent free jet; 1. INTRODUCTION; 2. MATHEMATICAL ANALYSIS; 3. RESULTS, AND COMPARISON WITH EXPERIMENT; 4. CONCLUSIONS; REFERENCES

PAPER 5. A calculation procedure for heat, mass and momentum transfer in three-dimensional parabolic flows1. INTRODUCTION; 2. MAIN FEATURES OF THE CALCULATION PROCEDURE; 3. SOME DETAILS OF THE CALCULATION PROCEDURE; 4. AN APPLICATION OF THE CALCULATION PROCEDURE; 5. CONCLUDING REMARKS; ACKNOWLEDGEMENTS; REFERENCES; PAPER 6. Turbulence model for boundary layers near walls; I. INTRODUCTION; II. ANALYSIS; . DETAILS OP THE PREDICTIONS; IV. DISCUSSION; PAPER 7. An experimental and theoretical investigation of turbulent mixing in a cylindrical furnace; 1. Introduction; 2. Experimental Study
3. The Prediction Procedure4. Results; 5. Conclusions; References; PAPER 8. The numerical computation of turbulent flows; 1. Introduction; 2. The k ~ e model; 3. Some Applications of the k ~ e model; 4. Concluding remarks; Acknowledgements; References; PAPER 9. Prediction of laminar flow and heat transfer in helically coiled pipes; 1. Introduction; 2. Mathematical statement of the problem; 3. Results and discussions; 4. Conclusions; REFERENCES; PAPER 10.The calculation of local flow properties in two-dimensional furnaces; 1. INTRODUCTION; 2. CONSERVATION EQUATIONS AND BOUNDARY CONDITIONS
3. PHYSICAL ASSUMPTIONS4. SOLUTION PROCEDURE; 5. INFLUENCE OF INITIAL AND BOUNDARY CONDITIONS; 6. COMPARISON OF CALCULATIONS AND EXPERIMENTS; 7. DISCUSSION AND CONCLUSION; REFERENCES; PAPER 11. Prediction of turbulent flow in curved pipes; 1. Introduction; 2. Mathematical statement of the problem; 3. Results and discussions; 4. Conclusions; Appendix; REFERENCES; PAPER 12. Numerical computations of the flow in curved ducts; 1. Introduction; 2. Details of the Method; 3. Results; 4. Discussion; Acknowledgements; References
PAPER 13. Predictions of two-dimensional boundary layers on smooth walls with a two-equation model of turbulence

Sommario/riassunto

Numerical Prediction of Flow, Heat Transfer, Turbulence and Combustion: Selected Works of Professor D. Brian Spalding focuses on the many contributions of Professor Spalding on thermodynamics. This compilation of his works is done to honor the professor on the occasion of his 60th birthday. Relatively, the works contained in this book are selected to highlight the genius of Professor Spalding in this field of interest. The book presents various research on combustion, heat transfer, turbulence, and flows. His thinking on separated flows paved the way for the multi-dimensional modeling of turbu