

CONTENTS

Preface	1 <i>omit</i>
I. Subgrid Scale Modeling	
Overview	3 <i>omit</i>
A dynamic subgrid-scale eddy viscosity model M. GERMANO, U. PIOMELLI, P. MOIN, and W. H. CABOT	5 <i>9</i>
Subgrid-scale backscatter in transitional and turbulent flows U. PIOMELLI, W. H. CABOT, P. MOIN, and S. LEE	19 <i>52</i>
A subgrid-scale model based on the second-order velocity structure function P. COMTE, S. LEE, and W. H. CABOT	31 <i>53</i>
On the subgrid-scale modeling of compressible turbulence K. SQUIRES and O. ZEMAN	47 <i>54</i>
II. Turbulence Modeling	
Overview	61 <i>omit</i>
Modeling the turbulent kinetic energy equation for compressible, homogeneous turbulence B. AUPOIX, G. A BLAISDELL, W. C. REYNOLDS, and O. ZEMAN	63 <i>55</i>
Structure of three-dimensional turbulent boundary layers P. BRADSHAW and O. SENDSTAD	75 <i>56</i>
Low Reynolds number $k-\epsilon$ modeling with the aid of direct simulation data W. RODI and N. N. MANSOUR	85 <i>57</i>
One-equation near-wall turbulence modeling with the aid of direct simulation data W. RODI and N. N. MANSOUR	107 <i>58</i>
III. Turbulence Structure, Transport, & Control	
Overview	125 <i>omit</i>
The structure of turbulent channel flow with passive scalar transport Y. GUEZENNEC, D. STRETCH, and J. KIM	127 <i>59</i>
A study of the topology of dissipating motions in direct numerical simulations of time-developing compressible and incompressible mixing layers J. H. CHEN, M. S. CHONG, J. SORIA, R. SONDERGAARD, A. E. PERRY, M. ROGERS, R. MOSER, and B. J. CANTWELL	139 <i>510</i>
Direct numerical simulations of stably-stratified sheared turbulence: implications for oceanic mixing E. C. ITSWEIRE, S. E. HOLT, J. R. KOSEFF, and J. H. FERZIGER	163 <i>511</i>

A numerical evaluation of the dynamical systems approach to wall layer turbulence G. BERKOOZ	181 ⁵²
Resonant instability of supersonic shear layers C. K. W. TAM and S. K. LELE	191 ⁵¹³
IV. Small Scales Mixing	
Overview	203 ^{MIT}
Low order dynamical model systems for mixing layers D. N. RIAHI, R. D. MOSER, and F. WALEFFE	205 ⁵¹⁴
Numerical simulation of low Prandtl number turbulent mixing C. GIBSON, M. ROGERS, J. CHASNOV, and J. PETRESKY	211 ⁵¹⁵
Length scales and dissipation of fine eddies in a mixing layer Y. ZOHAR, R. D. MOSER, J. C. BUELL, and C. M. HO	225 ⁵¹⁶
A fractal transition in the two dimensional shear layer J. JIMÉNEZ and C. MARTEL	235 ⁵¹⁹
V. Turbulent Reacting Flows	
Overview	243 ^{MIT}
Geometry of premixed flames in three-dimensional turbulence WM. T. ASHURST	245 ⁵¹⁸
Laminar flamelet modeling of turbulent diffusion flames W. E. MELL, G. KOSÁLY, O. PLANCHE, T. POINSOT, and J. H. FERZIGER	255 ⁵¹⁹
Statistics for laminar flamelet modeling R. S. CANT, C. J. RUTLAND, and A. TROUVÉ	271 ⁵²⁰
The influence of Lewis number and nonhomogeneous mixture on premixed turbulent flame structure D.C. HAWORTH and T.J. POINSOT	281 ⁵²¹
Pre-mixed flame simulations for non-unity Lewis numbers C. J. RUTLAND and A. TROUVÉ	299 ⁵²²
VI. Turbulence Theory	
Overview	311 ^{MIT}
Generation of large-scale density fluctuations by buoyancy J. R. CHASNOV and R. S. ROGALLO	313 ⁵²³
Interscale energy transfer in numerically simulated homogeneous turbulence J. A. DOMARADZKI, R. S. ROGALLO, and A. A. WRAY	319 ⁵²⁴
Continuous wavelet analysis of coherent structures M. FARGE, Y. GUEZENNEC, C. M. HO, and C. MENEVEAU	331 ⁵²⁵