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high Re. 5.3. Heat transfer for rigid particles at high Re. 5.4. Non-spherical bubbles and drops -- 6. Effects of rotation, shear and boundaries. 6.1. Effects of relative rotation. 6.2. Effects of flow shear. 6.3. Effects of boundaries. 6.4. Constrained motion in an enclosure. 6.5. Effects of boundaries on bubble and drop deformation. 6.6. A note on the lift force in transient flows -- 7. Effects of turbulence. 7.1. Effects of free stream turbulence. 7.2. Turbulence modulation. 7.3. Drag reduction. 7.4. Turbulence models for immersed objects. 7.5. Heat transfer in pipelines with particulates. 7.6. Turbophoresis and wall deposition. 7.7. Turbulence and coalescence of viscous spheres -- 8. Electro-kinetic, thermo-kinetic and porosity effects. 8.1. Electrophoresis. 8.2. Brownian motion. 8.3. Thermophoresis. 8.4. Porous particles -- 9. Effects of higher concentration and collisions. 9.1. Interactions between dispersed objects. 9.2. Effects of concentration. 9.3. Collisions of spheres. 9.4. Collisions with a wall-mechanical effects. 9.5. Heat transfer during wall collisions -- 10. Molecular and statistical modeling. 10.1. Molecular dynamics. 10.2. Stokesian dynamics. 10.3. Statistical methods -- 11. Numerical methods-CFD. 11.1 Forms of Navier-Stokes equations used in CFD. 11.2. Finite difference method. 11.3. Spectral and finite-element methods. 11.4. The Lattice-Boltzmann method. 11.5. The force coupling method. 11.6. Turbulent flow models. 11.7. Potential flow-boundary integral method.
