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ReferencesChapter 3. The characteristic-based split (CBS) algorithm. A general procedure for compressible and incompressible flow; 3.1 Introduction; 3.2 Non-dimensional form of the governing equations; 3.3 Characteristic-based split (CBS) algorithm; 3.4 Explicit, semi-implicit and nearly implicit forms; 3.5 Artificial compressibility and dual time stepping; 3.6 'Circumvention' of the Babuska-Brezzi (BB) restrictions; 3.7 A single-step version; 3.8 Boundary conditions; 3.9 The performance of two-step and one-step algorithms on an inviscid problem; 3.10 Concluding remarks; References
Chapter 4. Incompressible Newtonian laminar flows4.1 Introduction and the basic equations; 4.2 Use of the CBS algorithm for incompressible flows; 4.3 Adaptive mesh refinement; 4.4 Adaptive mesh generation for transient problems; 4.5 Slow flows - mixed and penalty formulations; 4.6 Concluding remarks; References; Chapter 5. Incompressible non-Newtonian flows; 5.1 Introduction; 5.2 Non-Newtonian flows - metal and polymer forming; 5.3 Viscoelastic flows; 5.4 Direct displacement approach to transient metal forming; 5.5 Concluding remarks; References
Chapter 6. Free surface and buoyancy driven flows6.1 Introduction; 6.2 Free surface flows; 6.3 Buoyancy driven flows; 6.4 Concluding remarks; References; Chapter 7. Compressible high-speed gas flow; 7.1 Introduction; 7.2 The governing equations; 7.3 Boundary conditions - subsonic and supersonic flow; 7.4 Numerical approximations and the CBS algorithm; 7.5 Shock capture; 7.6 Variable smoothing; 7.7 Some preliminary examples for the Euler equation; 7.8 Adaptive refinement and shock capture in Euler problems; 7.9 Three-dimensional inviscid examples in steady state
7.10 Transient two- and three-dimensional problems

Sommario/riassunto

The sixth editions of these seminal books deliver the most up to date and comprehensive reference yet on the finite element method for all engineers and mathematicians. Renowned for their scope, range and authority, the new editions have been significantly developed in terms of both contents and scope. Each book is now complete in its own right and provides self-contained reference; used together they provide a formidable resource covering the theory and the application of the universally used FEM. Written by the leading professors in their fields, the three books cover the basis of the method