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Collana	Lecture Notes in Physics, , 0075-8450 ; ; 351
Disciplina	530.15
Soggetti	Physics Physical chemistry Numerical analysis Mathematical Methods in Physics Numerical and Computational Physics, Simulation Physical Chemistry Numerical Analysis
Lingua di pubblicazione	Inglese
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Nota di contenuto	Vorticity generation in a nonpremixed flame sheet -- A numerical simulation of shock generated ignition using the Random Choice Method -- A numerical study of mixing enhancement in supersonic reacting flow fields -- Calculation of low Mach number reacting flows -- Numerical simulations of flames and detonations -- Recent developments in the coherent flamelet description of turbulent combustion -- Improvements of the KIVA-II computer program for numerical combustion -- Renormalization concept of turbulent flame speed -- Numerical simulation of ignition processes -- Numerical simulation of inert and reactive flows by the Finite Element Method -- Numerical computation of bifurcation phenomena and pattern formation in combustion -- An explicit Runge-Kutta method for turbulent reacting flows calculations -- Knock prediction in spark ignition engines -- A local extinction of the thermo-diffusive premixed

flame at low Lewis number -- Computer simulation of detailed processes occurring at near extinction conditions of flame spread over solid fuels -- Induction period generation of a supersonic flame -- A numerical solution for reacting and non reacting flow -- On the equations for reactive granular flow -- Implicit schemes for subsonic combustion problems -- Numerical study of curvature effects on flame quenching -- Computation of low Frönde number turbulent diffusion flames -- Mass conservation and singular multicomponent diffusion algorithms -- Upwind methods for flows with non-equilibrium chemistry and thermodynamics -- Second-moment computation of strongly-swirling reacting flow in a model combustor -- A numerical simulation of pulsed reacting jets -- Effect of heat release and equivalence ratio on the inviscid spatial stability of a supersonic reacting mixing layer -- Transition to detonation: A numerical study -- Shock induced self-ignition of a reactive gas mixture in an L-shaped duct -- A numerical study of propagating premixed turbulent flames -- Modélisation de la combustion dans un moteur diesel d'automobile -- The numerical simulation of shock initiation in solid explosives with gas inclusions -- Pressure spot formation in unstable detonation waves -- Review of theory of mixing and reaction within a vortical structure -- The structure and extinction of tubular premixed laminar flames -- On the nonlinear Galerkin methods -- Riemann-problem-based techniques for computing reactive two-phased flows.

Sommario/riassunto

Interest in numerical combustion is growing among applied mathematicians, physicists, chemists, engine manufacturers and many industrialists. This proceedings volume contains nine invited lectures and twenty seven contributions carefully selected by the editors. The major themes are numerical simulation of transsonic and supersonic combustion phenomena, the study of supersonic reacting mixing layers, and turbulent combustion. Emphasis is laid on hyperbolic models and on numerical simulations of hydrocarbon flames with a complete set of chemical reactions carried out in two-dimensional geometries as well as on complex reactive flow simulations.
