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Collana	Lecture Notes in Computational Science and Engineering, , 1439-7358 ; ; 134
Disciplina	515.353
Soggetti	Partial differential equations Numerical analysis Partial Differential Equations Numerical Analysis
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Stability of wall boundary condition procedures for discontinuous Galerkin spectral element approximations of the compressible Euler equations -- On the order reduction of entropy stable DGSEM for the compressible Euler equations -- A review of regular decompositions of vector fields – continuous, discrete, and structure-preserving -- Model reduction by separation of variables: a comparison between hierarchical model reduction and proper generalized decomposition -- Recurrence relations for a family of orthogonal polynomials on a triangle -- Greedy kernel methods for center manifold approximation -- An improved error inhibiting block one-step method with radial basis function approximation for ODEs -- Hermite methods in time -- HPS accelerated spectral solvers for time dependent problems: algorithms -- On the use of hermite functions for the Vlasov-Poisson system -- HPS accelerated spectral solvers for time dependent problems: numerical experiments -- High-order finite element methods for

interface problems: theory and implementations -- Stabilised hybrid discontinuous galerkin methods for the Stokes problem with non-standard boundary conditions -- RBF based CWENO method -- discrete equivalence of adjoint Neumann-Dirichlet div-grad and grad-div equations in curvilinear 3D domains -- A conservative hybrid method for Darcy flow -- High-order mesh generation based on optimal affine combinations of nodal positions -- Sparse spectral-element methods for the helically reduced Einstein equations -- Spectral analysis of isogeometric discretizations of 2D curl-div Problems with general geometry -- Performance of preconditioners for large-scale simulations using Nek5000 -- Two decades old entropy stable method for the Euler equations revisited -- A mimetic spectral element method for free surface flows -- Spectral/hp methodology study for iLES-SVV on an Ahmed body -- A high-order discontinuous Galerkin solver for multiphase flows -- High-Order propagation of jet noise on a tetrahedral mesh using large eddy simulation sources -- Dynamical degree adaptivity for DG-LES models -- A novel eight-order diffusive scheme for unstructured polyhedral grids using the weighted least-squares method -- An explicit mapped tent pitching scheme for Maxwell equations -- Viscous diffusion effects in the eigenanalysis of (hybridisable) DG methods -- Spectral Galerkin method for solving Helmholtz and Laplace Dirichlet problems on multiple open arcs -- Explicit polynomial Trefftz-DG method for space-time elasto-acoustics -- An hp-adaptive iterative linearization discontinuous-Galerkin FEM for quasilinear elliptic boundary value problems -- Erosion Wear evaluation using Nektar++ -- An inexact Petrov-Galerkin approximation for gas transport in pipeline networks -- New preconditioners for semi-linear PDE-constrained optimal control in annular geometries -- DIRK schemes with high weak stage order -- Scheme for evolutionary Navier-Stokes-Fourier system with temperature dependent material properties based on spectral/hp elements -- Implicit large eddy simulations for NACA0012 airfoils using compressible and incompressible discontinuous Galerkin solvers -- SAV method applied to fractional Allen-Cahn equation -- A first meshless approach to simulation of the elastic behaviour of the diaphragm -- An explicit hybridizable discontinuous Galerkin method for the 3D timedomain Maxwell equations -- Entropy conserving and kinetic energy preserving numerical methods for the Euler equations using summation-by-parts operators -- Multiwavelet troubled-cell indication: a comparison of utilizing theory versus outlier detection -- An anisotropic p-adaptation multigrid scheme for discontinuous Galerkin methods -- A spectral element reduced basis method for Navier-Stokes equations with geometric variations -- Iterative spectral mollification and conjugation for successive edge detection -- Small trees for high order Whitney elements -- Non-conforming elements inNek5000: pressure preconditioning and parallel performance -- Sparse approximation of multivariate functions from small datasets via weighted orthogonal matching pursuit -- On the convergence rate of Hermite-Fejer interpolation.

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### Sommario/riassunto

This open access book features a selection of high-quality papers from the presentations at the International Conference on Spectral and High-Order Methods 2018, offering an overview of the depth and breadth of the activities within this important research area. The carefully reviewed papers provide a snapshot of the state of the art, while the extensive bibliography helps initiate new research directions.

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