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Diego Álvarez, Pedro González-Rodríguez, Miguel Moscoso in *Journal of Scientific Computing* (2018)

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A Simplified Threshold Dynamics Algorithm for Isotropic Surface Energies

We present a simplified version of the threshold dynamics algorithm given in Esedoğlu and Otto (*Commun Pure Appl Math* 68(5):808–864, 2015). The new version still allows specifying

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4.

Article

A Posteriori Error Analysis of the Crank–Nicolson Finite Element Method for Parabolic Integro-Differential Equations

We study a posteriori error analysis for the space-time discretizations of linear parabolic integro-differential equation in a bounded convex polygonal or polyhedral domain. The piecewise linear finite element sp...

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Alikhanov's high-order scheme for Caputo fractional derivatives of order $\alpha \in (0, 1)$...

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6. Article

Support

Correction to: A Finite Element/Operator-Splitting Method for the Numerical Solution of the Two Dimensional Elliptic Monge–Ampère Equation

The article “A Finite Element/Operator-Splitting Method for the Numerical Solution of the Two Dimensional Elliptic Monge–Ampère Equation”, written by Roland Glowinski, Hao Liu, Shingyu Leung and Jianliang Qian...

Roland Glowinski, Hao Liu, Shingyu Leung, Jianliang Qian in *Journal of Scientific Computing* (2018)

7. 

Article

An Asymptotics-Based Adaptive Finite Element Method for Kohn–Sham Equation

In Radovitzky and Ortiz (Comput Methods Appl Mech Eng 172(1–4):203–240, 1999), an error estimation technique for nonlinear PDEs is presented to adaptively generating mesh, based on the reduction of the order of t...

Yedan Shen, Yang Kuang, Guanghui Hu in *Journal of Scientific Computing* (2018)

8. 

Article

A Local Radial Basis Function Method for Pricing Options Under the Regime Switching Model

This paper is devoted to develop an efficient meshfree method based on radial basis functions (RBFs) to solve a system of partial differential equations arising from pricing options under the regime switching ...

Hengguang Li, Reza Mollapourasl, Majid Haghi in *Journal of Scientific Computing* (2018)

9. 

Article

Numerical Simulation and Error Estimation of the Time-Dependent Allen–Cahn Equation on Surfaces with Radial Basis Functions

In this paper a numerical simulation based on radial basis functions is presented for the time-dependent Allen–Cahn equation on surfaces with no boundary. In order to approximate the temporal variable, a first...

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10. 

Article

Numerical Simulations of Viscoelastic Fluid Flows Past a Transverse Slot Using Least-Squares Finite Element Methods

This paper presents a least-squares (LS) finite element method for linear Phan-Thien–Tanner (PTT) viscoelastic fluid flows. We consider stabilized weights in the LS method for the viscoelastic model and prove ...

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Fast Rank-One Alternating Minimization Algorithm for Phase Retrieval

The phase retrieval problem is a fundamental problem in many fields, which is appealing for investigation. It is to recover the signal vector

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12. Article

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Smooth and Compactly Supported Viscous Sub-cell Shock Capturing for Discontinuous Galerkin Methods

In this work, a novel artificial viscosity method is proposed using smooth and compactly supported viscosities. These are derived by revisiting the widely used piecewise constant artificial viscosity method of...

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An Efficient Two-Layer Non-hydrostatic Approach for Dispersive Water Waves

In this paper, we propose a two-layer depth-integrated non-hydrostatic system with improved dispersion relations. This improvement is obtained through three free parameters: two of them related to the represen...

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14. 

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RBF-Based Partition of Unity Methods for Elliptic PDEs: Adaptivity and Stability Issues Via Variably Scaled Kernels

We investigate adaptivity issues for the approximation of Poisson equations via radial basis function-based partition of unity collocation. The adaptive residual subsampling approach is performed with quasi-un...

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15. 

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A Fixed Mesh Method with Immersed Finite Elements for Solving Interface Inverse Problems

We present a new fixed mesh method for solving a class of interface inverse problems for the typical elliptic interface problems. These interface inverse problems are formulated as shape optimization problems....

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16. 

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Numerical Methods for the Wigner Equation with Unbounded Potential

Unbounded potentials are always utilized to strictly confine quantum dynamics and generate bound or stationary states due to the existence of quantum tunneling. However, the existed accurate Wigner solvers are...

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17. 

Article

High-Order Finite-Volume Method with Block-Based AMR for Magnetohydrodynamics Flows

A high-order central essentially non-oscillatory (CENO) finite volume scheme combined with a block-based adaptive mesh refinement (AMR) algorithm is proposed for the solution of the ideal magnetohydrodynamics ...

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18. 

Article

Positivity-Preserving Time Discretizations for Production–Destruction Equations with Applications to Non-equilibrium Flows

In this paper, we construct a family of modified Patankar Runge–Kutta methods, which is conservative and unconditionally positivity-preserving, for production–destruction equations, and derive necessary and su...

Juntao Huang, Chi-Wang Shu in *Journal of Scientific Computing* (2018)

19. Article

Correction to: A Fourth-Order Kernel-Free Boundary Integral Method for the Modified Helmholtz Equation

The original version of this article contained mistakes in equations.

Yaning Xie, Wenjun Ying in *Journal of Scientific Computing* (2018)

20. 

Article

A Gauss–Jacobi Kernel Compression Scheme for Fractional Differential Equations

A scheme for approximating the kernel w of the fractional α ...

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