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Nota di contenuto	Foreword; CONTENTS; Geometrical Optics and Viscosity Solutions; 1 High frequency waves and WKB method; 2 The Kravtsov-Ludwig method; 3 Multivalued solutions to the eikonal equation and shadow zones; References; Computation of Vorticity Evolution for a Cylindrical Type-II Superconductor Subject to Parallel and Transverse Applied Magnetic Fields; 1 Introduction; 2 The Models; 3 Discretization of the Models; 4 Numerical Computations; References; A Characterization of the Value Function for a Class of Degenerate Control Problems; 1 Introduction; 2 Assumptions and definitions 3 A characterization of the value function4 Approximation of the value function; References; Some Microstructures in Three Dimensions; 1 Introduction; 2 A three dimensional example; 3 Minimizing sequences; 4 Numerical experiments; References; Convergence of Numerical Schemes for the Approximation of Level Set Solutions to Mean Curvature Flow; 1 Introduction; 2 Background; 3 The Crandall-Lions scheme; 4 Finite element method; References; Optimal Discretization Steps in Semi-Lagrangian Approximation of First-Order PDEs; 1 Introduction; 2 Construction of the schemes and basic convergence theory

3 Fully discrete second and third order schemes
4 Relationship between time and space step; 5 Numerical tests; Conclusions; References;
Convergence Past Singularities to the Forced Mean Curvature Flow for a
Modified Reaction-Diffusion Approach; 1 Introduction; 2 Approximate
Traveling Wave; 3 Viscosity Solutions; 4 Supersolutions; 5 Comparison
Lemma; 6 Convergence and interfaces error estimates; References; The
Viscosity-Duality Solutions Approach to Geometric Optics for the
Helmholtz Equation; 1 Weak solutions to the differential problem; 2 A
class of numerical approximations
3 Numerical results
4 Conclusion; References; Adaptive Grid Generation
for Evolutive Hamilton-Jacobi-Bellman Equations; 1 Introduction; 2
Discretization in time and space; 3 Error estimation; 4 Implementation
details; 5 Numerical examples; References; Solution and Application of
Anisotropic Curvature Driven Evolution of Curves (and Surfaces); 1
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Direct approach by intrinsic heat equations; 4 Solution using level set
equation; 5 Phase field approximation of interface motion; References
An Adaptive Scheme on Unstructured Grids for the Shape-From-
Shading Problem
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A local error indicator; 4 The adaptive grid algorithm; 5 Implementation
of the algorithm; 6 Numerical experiments; References; On A Posteriori
Error Estimation For Constant Obstacle Problems; 1 Introduction; 2
Results and their discussion; 3 Proofs; References

Sommario/riassunto

The volume contains twelve papers dealing with the approximation of first and second order problems which arise in many fields of application including optimal control, image processing, geometrical optics and front propagation. Some contributions deal with new algorithms and technical issues related to their implementation. Other contributions are more theoretical, dealing with the convergence of approximation schemes. Many test problems have been examined to evaluate the performances of the algorithms. The volume can attract readers involved in the numerical approximation of differential mod
