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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
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                        function; References; Some Microstructures in Three Dimensions; 1
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                        scheme; 4 Finite element method; References; Optimal Discretization
                        Steps in Semi-Lagrangian Approximation of First-Order PDEs; 1
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                        theory

3 Fully discrete second and third order schemes4 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 results4 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 Introduction; 2 Direct approach using porous-medium like equations; 3 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 Problem1 Introduction; 2 A fixed grid fully discrete scheme; 3 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 |