

1. Record Nr.	UNISA996466501903316
Autore	Ambrosio Luigi
Titolo	Mathematical Aspects of Evolving Interfaces [[electronic resource]] : Lectures given at the C.I.M.-C.I.M.E. joint Euro-Summer School held in Madeira Funchal, Portugal, July 3-9, 2000 // by Luigi Ambrosio, Klaus Deckelnick, Gerhard Dziuk, Masayasu Mimura, Vsvolod Solonnikov, Halil Mete Soner ; edited by Pierluigi Colli
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2003
ISBN	3-540-39189-4
Edizione	[1st ed. 2003.]
Descrizione fisica	1 online resource (XII, 248 p.)
Collana	C.I.M.E. Foundation Subseries ; ; 1812
Disciplina	515.35
Soggetti	Partial differential equations Differential geometry Continuum physics Thermodynamics Partial Differential Equations Differential Geometry Classical and Continuum Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Preface -- 1. L. Ambrosio: Lecture Notes on Optimal Transport Problems -- 2. K. Deckelnick and G. Dziuk: Numerical Approximation of Mean Curvature Flow of Graphs and Level Sets -- 3. M. Mimura: Reaction-Diffusion Systems Arising in Biological and Chemical Systems: Application of Singular Limit Procedures -- 4. V. A. Solonnikov: Lectures on Evolution Free Boundary Problems: Classical Solutions -- 5. H. M. Soner: Variational and Dynamic Problems for the Ginzburg-Landau Functional.
Sommario/riassunto	Interfaces are geometrical objects modelling free or moving boundaries and arise in a wide range of phase change problems in physical and biological sciences, particularly in material technology and in dynamics of patterns. Especially in the end of last century, the study of evolving interfaces in a number of applied fields becomes increasingly

important, so that the possibility of describing their dynamics through suitable mathematical models became one of the most challenging and interdisciplinary problems in applied mathematics. The 2000 Madeira school reported on mathematical advances in some theoretical, modelling and numerical issues concerned with dynamics of interfaces and free boundaries. Specifically, the five courses dealt with an assessment of recent results on the optimal transportation problem, the numerical approximation of moving fronts evolving by mean curvature, the dynamics of patterns and interfaces in some reaction-diffusion systems with chemical-biological applications, evolutionary free boundary problems of parabolic type or for Navier-Stokes equations, and a variational approach to evolution problems for the Ginzburg-Landau functional.
