

1. Record Nr.	UNINA9910231237503321
Autore	Langtangen Hans Petter
Titolo	Finite Difference Computing with PDEs [[electronic resource] ] : A Modern Software Approach // by Hans Petter Langtangen, Svein Linge
Pubbl/distr/stampa	Springer Nature, 2017 Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-55456-5
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XXIII, 507 p. 150 illus.)
Collana	Texts in Computational Science and Engineering, , 1611-0994 ; ; 16
Disciplina	004
Soggetti	Computer mathematics Computer science—Mathematics Numerical analysis Computational Science and Engineering Mathematical Applications in Computer Science Numeric Computing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Vibration ODEs -- Wave Equations -- Diffusion equations -- Advection-dominated equations -- Nonlinear problems -- Useful formulas -- Truncation error analysis -- Software engineering: wave equation model -- References -- Index. .
Sommario/riassunto	This book is open access under a CC BY 4.0 license. This easy-to-read book introduces the basics of solving partial differential equations by means of finite difference methods. Unlike many of the traditional academic works on the topic, this book was written for practitioners. Accordingly, it especially addresses: the construction of finite difference schemes, formulation and implementation of algorithms, verification of implementations, analyses of physical behavior as implied by the numerical solutions, and how to apply the methods and software to solve problems in the fields of physics and biology.