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Autore	Langtangen Hans Petter
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Collana	Lecture Notes in Computational Science and Engineering, , 1439-7358 ; ; 110
Disciplina	004
Soggetti	Computer science - Mathematics Computer programming Software engineering Physics Applied mathematics Engineering mathematics Computational Science and Engineering Programming Techniques Software Engineering Numerical and Computational Physics, Simulation Mathematical and Computational Engineering
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Preface -- Algorithms and implementations -- Analysis -- Generalizations -- Models -- Scientific Software Engineering -- References -- Index. .
Sommario/riassunto	This text provides a very simple, initial introduction to the complete scientific computing pipeline: models, discretization, algorithms, programming, verification, and visualization. The pedagogical strategy is to use one case study – an ordinary differential equation describing exponential decay processes – to illustrate fundamental concepts in mathematics and computer science. The book is easy to read and only requires a command of one-variable calculus and some very basic knowledge about computer programming. Contrary to similar texts on

numerical methods and programming, this text has a much stronger focus on implementation and teaches testing and software engineering in particular. .
