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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Frontmatter -- Preface -- Contents -- List of Algorithms -- Chapter 1. Introduction to computer simulation -- Chapter 2. Scientific Computing in C -- Chapter 3. Fundamentals of statistical physics -- Chapter 4. Inter- and intramolecular potentials -- Chapter 5. Molecular Dynamics simulations -- Chapter 6. Monte Carlo simulations -- Chapter 7. Advanced topics, and applications in soft matter -- Appendix A. The software development life cycle -- Appendix B. Installation guide to Cygwin -- Appendix C. Introduction to the UNIX/Linux programming environment -- Appendix D. Sample program listings -- Appendix E. Reserved keywords in C -- Appendix F. Functions of the standard library <string.h> -- Appendix G. Elementary combinatorial problems -- Appendix H. Some useful constants -- Appendix I. Installing the GNU Scientific Library, GSL -- Appendix J. Standard header files of the ANSI-C library -- Appendix K. The central limit theorem -- Bibliography -- Glossary of Acronyms -- Index -- Authors
Sommario/riassunto	This work is a needed reference for widely used techniques and methods of computer simulation in physics and other disciplines, such as materials science. Molecular dynamics computes a molecule's reactions and dynamics based on physical models; Monte Carlo uses

random numbers to image a system's behaviour when there are different possible outcomes with related probabilities. The work conveys both the theoretical foundations as well as applications and "tricks of the trade", that often are scattered across various papers. Thus it will meet a need and fill a gap for every scientist who needs computer simulations for his/her task at hand. In addition to being a reference, case studies and exercises for use as course reading are included.