

1. Record Nr.	UNISA996418438103316
Autore	Moruzzi Giovanni
Titolo	Essential Python for the Physicist [[electronic resource] /] / by Giovanni Moruzzi
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2020
ISBN	3-030-45027-9
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (304 pages)
Classificazione	MATH 620
Disciplina	005.133
Soggetti	Physics Computer programming Numerical analysis Computer graphics Numerical and Computational Physics, Simulation Programming Techniques Numeric Computing Computer Graphics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- 1 Python Basics and the Interactive Mode -- 2 Python Scripts -- 3 Plotting with Matplotlib -- 4 Numerical Solution of Equations -- Numerical Solution of Ordinary Differential Equations (ODE) -- 6 Tkinter Graphics -- 7 Tkinter Animation -- 8. Classes -- 9 Appendix.
Sommario/riassunto	This book introduces the reader with little or no previous computer-programming experience to the Python programming language of interest for a physicist or a natural-sciences student. The book starts with basic interactive Python in order to acquire an introductory familiarity with the language, than tackle Python scripts (programs) of increasing complexity, that the reader is invited to run on her/his computer. All program listings are discussed in detail, and the reader is invited to experiment on what happens if some code lines are modified. The reader is introduced to Matplotlib graphics for the generation of figures representing data and function plots and, for instance, field lines. Animated function plots are also considered. A chapter is

dedicated to the numerical solution of algebraic and transcendental equations, the basic mathematical principles are discussed and the available Python tools for the solution are presented. A further chapter is dedicated to the numerical solution of ordinary differential equations. This is of vital importance for the physicist, since differential equations are at the base of both classical physics (Newton's equations) and quantum mechanics (Schroedinger's equation). The shooting method for the numerical solution of ordinary differential equations with boundary conditions at two boundaries is also presented. Python programs for the solution of two quantum-mechanics problems are discussed as examples. Two chapters are dedicated to Tkinter graphics, which gives the user more freedom than Matplotlib, and to Tkinter animation. Programs displaying the animation of physical problems involving the solution of ordinary differential equations (for which in most cases there is no algebraic solution) in real time are presented and discussed. Finally, 3D animation is presented with Vpython.

2. Record Nr.

UNINA9911006766903321

Titolo

ANTEC 2008 plastics : Annual Technical Conference proceedings

Pubbl/distr/stampa

[Place of publication not identified], : Society of Plastics Engineers, 2008

ISBN

1-60560-320-1

Descrizione fisica

1 online resource (2567 pages) : illustrations

Disciplina

668.4

Soggetti

Chemical & Materials Engineering
Engineering & Applied Sciences
Chemical Engineering

Lingua di pubblicazione

Inglese

Formato

Materiale a stampa

Livello bibliografico

Monografia

Note generali

Bibliographic Level Mode of Issuance: Monograph

