

Scilab is a free open-source software package for scientific computation. It includes hundreds of general purpose and specialized functions for numerical computation, organized in libraries called toolboxes, which cover such areas as simulation, optimization, systems and control, and signal processing. One important Scilab toolbox is Scicos. Scicos provides a block diagram graphical editor for the construction and simulation of dynamical systems. The objective of this book is to provide a tutorial for the use of Scilab/Scicos with a special emphasis on modeling and simulation tools. The book is based on the new Scilab 3.0. While the book will provide useful information to experienced users it is designed to be accessible to beginning users from a variety of disciplines. Students and academic and industrial scientists and engineers should find it useful.

The book is divided into two parts. The first part concerns Scilab and includes a tutorial covering the language features, the data structures and specialized functions for doing graphics, importing, exporting data and interfacing external routines. It also covers in detail Scilab numerical solvers for ordinary differential equations and differential-algebraic equations. Even though the emphasis is placed on modeling and simulation applications, this part provides a global view of Scilab. The second part is dedicated to modeling and simulation of dynamical systems in Scicos. This type of modeling tool is widely used in industry because it provides a means for constructing modular and reusable models. This part contains a detailed description of the editor and its usage, which is illustrated through numerous examples. All codes used in the book is made available to the reader.

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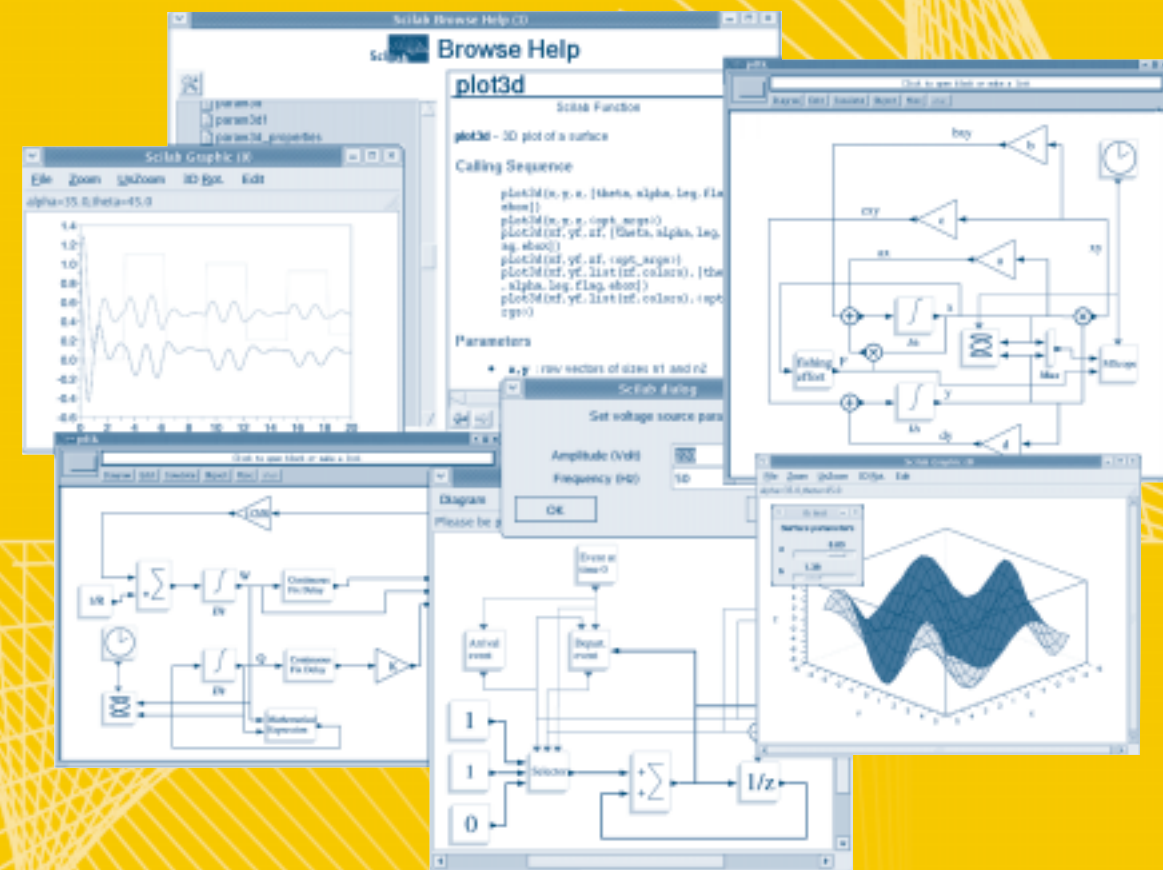


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Modeling and Simulation in Scilab/Scicos



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