

Contents

Preface	v
Color Pictures	xiii
<i>*Color Insert is between pp. 314 and 315.</i>	
1. Getting the program running	1
1.1 The <i>Dynamics</i> program and hardware	1
1.2 Getting started with <i>Dynamics</i>	7
Appendix: Description of the interrupts	16
2. Samples of Dynamics: pictures you can make simply	19
2.1 Introduction	19
2.2 Complex pictures that are simple to make	35
Appendix: Command for plotting a graph and Commands from the Main Menu	123
3. Screen utilities	125
3.1 Clear or Refresh screen and set Text Level (Screen Menu SM)	125
3.2 The arrow keys and boxes (BoX Menu BXM)	129
3.3 Initializing trajectories, plotting crosses, drawing circles and their iterates (cross Menu KM)	135
3.4 Drawing axes (AXes Menu AXM)	142
3.5 Windows and rescaling (Window Menu WM)	147
3.6 Setting colors (Color Menu CM and Color Table Menu CTM)	153

4. Utilities	167
4.1 Setting parameters (Parameter Menu PM)	167
4.2 Setting and replacing a vector (Vector Menu VM)	176
4.3 Setting step size (Differential Equation Menu DEM)	181
4.4 Saving pictures and data (Disk Menu DM)	188
4.5 Setting the size of the core (Size of Core Menu SCM)	194
4.6 Printing pictures (PriNter Menu PNM)	196
5. Dimension and Lyapunov exponents	201
5.1 Introduction and the Methods	201
5.2 Lyapunov Menu LM	216
5.3 Examples	222
5.4 Exercises	226
5.5 References related to <i>Dynamics</i>	228
6. Bifurcation diagrams	229
6.1 Introduction and the Methods	229
6.2 BIFurcation diagram Menu BIFM	240
6.3 Examples	249
6.4 Exercises	262
6.5 References related to <i>Dynamics</i>	268
7. Basins of attraction	269
7.1 Introduction and the Methods	269
7.2 Basin of attraction Menu BM	282
7.3 Examples	295
7.4 Exercises	308
7.5 References related to <i>Dynamics</i>	312
8. Straddle trajectories	315
8.1 Introduction and the Methods	315
8.2 Straddle Trajectory Menu STM	328
8.3 Examples	336
8.4 Exercises	342
8.5 References related to <i>Dynamics</i>	346

9. Unstable and stable manifolds	347
9.1 Introduction and the Methods	347
9.2 Unstable and stable manifold Menu UM	352
9.3 Examples	362
9.4 Exercises	366
9.5 References related to <i>Dynamics</i>	370
10. Finding periodic orbits	371
10.1 Introduction and the Methods	371
10.2 Periodic Orbit Menu POM	379
10.3 Examples	382
10.4 Exercises	389
10.5 References related to <i>Dynamics</i>	390
11. Following periodic orbits	391
11.1 Introduction and the Methods	391
11.2 Follow Orbit Menu FOM	397
11.3 Examples	399
11.4 Exercises	404
11.5 References related to <i>Dynamics</i>	406
12. Changing the program	407
12.1 Modifying a process: Recompiling the program	407
12.2 Adding a new map	414
12.3 The vector y and computing Lyapunov exponents	423
12.4 Adding a new differential equation	425
12.5 Getting data printed out or sent to a file	432
13. Dynamics on Unix systems by Eric J. Kostelich	433
14. Appendix	443
14.1 The map Q	443
14.2 Alphabetical list of the (sub)menus	444
14.3 Tree of the menus	445
14.4 List of menu commands	446
14.5 Tables of the Figures	453
15. References	459
16. Index of the commands and terms	467